New Urbanism Best Practices Guide

Robert Steuteville, Philip Langdon, and Special Contributors

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FOURTH EDITION EXPANDED & COMPLETELY REVISED

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New Urbanism: Best Practices Guide



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Contents

Introduction Chapter 1 **Principles** Principles of human-scale communities 12 Enclosure of the public realm 14 The neighborhood, the five-minute walk, and the pedestrian shed 15 The Transect 16 Districts 20 The block 21 21 Frontages and streets The Charter of the New Urbanism 24 Buildings and urban form 26

Chapter 2

Shaping the Region

New Urbanism shapes regional plans	30
Origins and public involvement	30
How new urbanists arrived at regionalism	32
Leading by example	32
Regional and large-scale new urban planning initiatives	33
Open space preservation	34
Transportation and networks	35
Codes and the Transect in regional planning	37
Mapping the Transect	38
The five-minute walk	39
Cool Spots	39
Tips for coherent regions	39
Other factors in regional planning	40

Chapter 3

Neighborhood-Scale Communities

New Urbanism's expanding scope	42
A new kind of suburb	44
Infill developments proliferating	45

9	Designing a greenfield site	45
	Case studies	
	Greenfield	48
	Grayfield	51
2	Brownfield	53
4	Town centers	55
	Downtown/infill	57
5	Transit-oriented development	58
6	Military New Urbanism	60
20	HOPE VI public housing redevelopment	61
21	Extensions to towns	63
21		
24	Chapter 4	
26	Revitalizing Cities and Towns	
	Revitalizing communities	66
	Rebounding cities	66
	What is infill?	67
30	How HOPE VI rescued public housing	68
30	Demographic changes favor urban development	68
32	The role of design	68
32	New urban principles and public housing	68
33	How to blend into the city	69
34	Bringing a city back through design	70
35	New city neighborhoods	70
37	Reclaiming old centers	71
88	Suburban revitalization	72
39	Eight keys to waterfront renaissance	74
39		
39	Chapter 5	
10	Urban Retail	
	Retail: Main streets, urban centers, and downtowns	76

Advantages of urban centers	76
Grayfield opportunities	77
Revitalizing historic main streets	78
Size matters	78
A primer on retail types and urban centers	79

The movement economy and drive-by visibility	80	Stree
Shallow storefronts	82	Conte
How to calculate demand for retail	83	Class
Terminated vistas	84	Visua
Anchors as magnets	86	Nome
Grocery stores adapt to urban trends	87	Width
Inserting a supermarket into a town center	88	Narro
Placing large, modern stores in urban blocks	90	Desig
How to mitigate the impact of big box stores	93	Major
Fitting big boxes on main streets	97	Freev
Making a power center more civil	98	Refor
Urban shopfront design	99	Balan
Tailoring town centers to people's behavior	100	One-
Tips on new urban retail development	102	Chan
Drive-through retail	102	Cruci
Town center plans	105	Traffic

The Human-Scale Workplace

The human-scale workplace	108
Characteristics of new urban employment centers	108
Assembling the building blocks	111
Key issues for office parks and mixed-use centers	112
Flex houses (live-work)	114

Chapter 7

Planning and Transit

Planning and transit	118
Three eras	118
Transit-oriented development types	119
Rail system design	121
Streetcar revival	122
Bus rapid transit	122
Transit modes and applications	124
Examples of transit-oriented developments	125
Light rail to come	127
Principles of transit-oriented development	128
Incorporating buses into the New Urbanism	132

Chapter 8

Streets

Designing walkable, safe, and attractive streets	134
The physics of street design	134

Street design and safety	135
Context-sensitive versus context-determined design	138
Classification based on the Transect	139
Visualizing the transformation of a street	140
Nomenclature	140
Width-to-height ratio	141
Narrow streets add value	141
Design versus target speed	141
Major thoroughfares	142
Freeway removal and redevelopment	142
Reforming departments of transportation	144
Balancing the needs of pedestrians and drivers	144
One-way couplets	145
Changing one-way streets to two-way	145
Crucial curb return radius	145
Traffic calming	146
Cost	148
The use of roundabouts	149
Roundabouts at a glance	149
Shared space	150
Street connectivity	150
Beyond the curb: Edges are key	151
Streets and fire trucks	152
How to promote bicycling	154
Bicycle facility planning	156
Street sections: A full set of walkable street plans	157

Chapter 9

Civic Buildings and Spaces

Civic buildings and spaces	170
Civic spaces	172
Public space in Verano	173
Places for play	174
Mid-block public spaces	175
Fun with civic amenities	176
Dog parks	176
Principles of school design	176
Bringing the post office downtown	180
Religious buildings	181
Ballparks as focal points	182

Codes

Form-based codes and pattern books	184
What's wrong with existing codes?	185
Zoning barriers to compact development	186
Form-based codes: Eight advantages	186
Form-based code examples	187
What to code	188
Mandatory or voluntary	188
Regulating plans	188
Urban regulations	188
Object and context buildings	189
Architectural codes	190
Street standards	190
Pattern books	191
Other techniques	191
Implementation	192
The SmartCode	192
Transect map and detailed plans	193
Statewide code requirement	193
Applying the Transect	194
Porch, arcade, balcony	194
Stories, not total building height	194
Rehabilitation codes	194
Further reading	195
Form-based code: Benicia	196
Pattern book pages	202

Chapter 11

Legal Planning

Legal planning for new urban communities
How new urban communities are different
Owners' associations and private covenants
Alternatives or adjuncts to owners' associations
Tax-exempt organizations
Special considerations for a town center
Specialized building types
Making association documents work
Making architectural codes work

Chapter 12

Charrettes

The charrette as an agent for change	216
Who sponsors a charrette, and how is it funded?	217
The nine principles of the charrette process	217
The three phases of the charrette	220
A few helpful charrette techniques	222
Notes on the conduct of charrettes	225
Chapter 13	
Market Demand	
The market for urban places	228
Change in perception	229
Demographic shifts	229
Oversupply of large-lot housing	230
Energy and environmental considerations	231
Target market analysis	231
The importance of maintaining flexibility	232
Visual surveys show greater acceptance of density	234
Chapter 14	
Finance	
Investing in new neighborhoods	236
Now Urbaniam gaing reapost	026

New Urbanism gains respect	236
New Urbanism premium	236
Strategies	237
Advantages for governments	237
Why some developers resist	238
Investing for the long term	238
TIF financing in San Antonio	239
Forms of debt and equity	240
Activity in smart growth funds	241
How individual investors can profit	242
Fairview Village case study	242
Trinity Heights case study	244
Bradburn case study	245

Chapter 15

214

Land Development

Developing neighborhoods	248
Lot dimensions	248
Top 10 TND mistakes	249
Medium density often yields the best value	250

Lucas Point plan and lot types	253
Natural drainage systems	
can cut development costs	263
Navigating the public works minefield	265
More developers, better results	267
TND development tips	270

Architectural Styles and Building Types

Architectural styles and building types	272
Traditionalist-modernist contention	273
Classical roots of the vernacular	273
Why study the vernacular?	275
Lessons from pre-1920s buildings	276
Pros and cons of modernism	277
"Rational modernism"	279
Where Modern belongs	281
A Modern house in a historical setting	282
Treatment of civic buildings	284
Punctuating the plan	284
Evolving styles	286
Building types and arrangements	288

Chapter 17

Building

Building: Concepts, methods, and materials	302
Understanding production building	302
Volume and proportion	303
Windows	304
Porches and columns	306
Architectural trim	308
Eaves and eave returns	308
Materials	309
Fiber-cement	309
Using proportion effectively	310
Houses close to the street	310
Backyards and sideyards	311
Builder education	312
Innappropriate, appropriate facade design	313
Innappropriate, appropriate site planning elements	314
Main building, back building, ancillary building	315
Other resources	316
Porch principles	316

Affordable Placemaking	
Keys to affordability	318
How to make urban housing more affordable	318
All units must look good	321
The density advantage	322
Inexpensive character	323
Variety in housing types	324
The Grow House	324
Garage options and accessory units	325
Accessory units add flexibility and affordability	325
Narrow streets save money	328
Avoiding underutilized collectors and arterials	328
Commercial parking	328
Policy	329
Inclusionary zoning	329
Location-efficient mortgage	329
Community land trust	329
Reduced parking requirements	330
Low-income housing tax credit	330
Partnering with a nonprofit builder	330
Density bonus	330
Housing trust fund	330
Streamlined review process	330
Allow single-room occupancy buildings	330
Transportation efficiency	331
Cutting Costs	331
How to use low-cost foundations	333
Make streets and alleys narrow	333
Reduce development costs	334
Simplify the grid	334
Use existing infrastructure	335
Katrina cottages and manufactured housing	335
Whole house system	336
Vinyl siding	336
Tips for TNDs on a budget	338

Chapter 19

Chapter 18

Marketing

Branding and marketing smart growth communities	340
Smart growth amenities, benefits	341
Lessons learned	344
Great returns from events marketing	346

Tips on	marketing	TNDs
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Building Community

Building community: The track record
Community and diversity
Safety by design
Community-building events and activities
Cohousing meets the New Urbanism
Enhancing community life
through nonprofit organizations
Getting along with homeowners

Chapter 21

Sustainability and Environment

Sustainability and environment	364
Land use	364
Protection of water and watersheds	365
Automobile dependence	366
Energy use	367
Global warming	368
Coastal areas	369
The Transect as an organizing tool	370
Sustainable development meets New Urbanism	371
Food production	373
Vernacular and earth-friendly	373
Energy efficiency tips	373
Cool spots, bright idea	374
Figuring density	375

Chapter 22

Health and Aging

Human health issues
Walking to school
Determining walkability
Aging well
Lifelong Communities
Lifelong Communities standards checklist
Mobility
Social interaction
Healthy living
Dwellings
Services

The visitability challenge	385
Guides to visitability	386
Chapter 23	
Policy	
New Urbanism and smart growth	388
Key policies for smart growth	388
California greenhouse gas bill	389
Maryland's techniques	390
New Jersey initiatives	390
Louisiana Speaks	391
Wisconsin's code effort	391
Oregon urban growth boundaries	391
Envision Utah	391
Backlash against smart growth	392
Federal policies for better development patterns	392
Role of municipal administrators	393
Advice from design centers	394
Chapter 24	
New Urbanism Abroad	
New Urbanism in Canada and abroad	396
The leadership of Prince Charles	396
European streets and public spaces	398
The Canadian experience	398
Australia	401
Asia	401
Chapter 25	
Parking	
Parking and urban design	404
For natural areas	404
Solutions for single-family detached neighborhoods	404
Moderate density solutions	404
Center, core, and district challenges	406
Center, core, and district design strategies	407
Parking management and policy across the Transect	411
The origins of minimum parking requirements	412
The <i>Lexicon</i> and <i>SmartCode</i> on parking	413
Parking and density	414
Transect calibration	416
Shared parking	416

Reducing the need for parking	417
Alleys and lanes	417
Lot design	418
Parking courts	418

Landscape

Greening cities and towns	420
Principles for a well-landscaped city	423
The nature of trees	424
A Transect-based approach to trees	425
Urban landscape types and forms	426
Agricultural urbanism	427
Organic farming in a TND	430

Index

431

Introduction

The modern development mindset is rooted mostly in profit-making. Free-market economic theory says that by selling what the consumer will buy, businesspeople end up producing the best possible housing, stores, workplace buildings, and civic sites. Yet for years, critics have pointed out that instead of the best possible buildings and communities, what we often get is a dysfunctional mess called sprawl. A chief reason for this disappointing outcome is that the profit motive does not operate in a vacuum. It operates within a conventional development system based on automobile transportation and separation of uses. The system places little value on placemaking and human scale.

New urbanists care about profit — the same as conventional developers, builders, and designers. Indeed, some believe that effective placemaking creates higher profits. Unlike conventional real estate professionals, however, new urbanists reject the underlying system of sprawl, and don't want to design or build disconnected, placeless structures. New urbanists are motivated by the values and principles associated with placemaking.

One can call new urbanists idealists — and idealists often come to grief on the merciless shoals of economic and political reality. Yet after several decades, the New Urbanism continues to grow and thrive in the real world. How is that possible? One answer lies in the substantial research, both theoretical and practical, that new urbanists carry out. New urbanists are obsessed with what works, and are constantly shifting and refining ideas based on real-world feedback — within the bounds of principles.

The focus on practical results goes back to New Urbanism's beginnings. The movement was founded more on observation than on theory. When developer Robert Davis and designers Andres Duany and Elizabeth Plater-Zyberk set out to plan Seaside, Florida, they did not primarily implement a set of theories, though they immersed themselves in the writings of Leon Krier, Colin Rowe, Jane Jacobs, Raymond Unwin, and others. They went touring, and they made direct measurements of historic towns and cities. The developer and designers paced off old places with tape measures and decided, on a personal level, what worked and what didn't. To this day, part of the ritual of becoming a new urbanist is touring walkable places and, with a personal eye and refined judgment, reaching conclusions about what works in urban communities, how well it works, and why.

So new urbanists are pragmatic idealists. They stick to their principles and yet are highly adaptable in practice. One might think this would lead to irreconcilable conflict. New Urbanism's saving grace is the robust nature of traditional urbanism, which has been around for millennia. Urbanism has flourished through the rise and fall of all kinds of political systems, economies, and civilizations. It has never died out, although at times it has been neglected and not built onto - especially in the modernist and suburban era after World War II. Traditional urbanism is part of the world's cultural DNA, and there are few physical design problems that cannot be solved within its framework. The New Urbanism is traditional urbanism updated to solve problems of modern life - from transportation, to retail, to housing, to community, to workplaces, to the environment. It turns out that the urban form works very well in our time, just as it did in the 19th Century or in early Greece - even as it undergoes modifications to meet modern challenges.

A belief in walkable urbanism is therefore at the heart of New Urbanism; its principles are what tie this book together. New Urbanism is about planning and building places at all scales — from the smallest cottage, one that helps to create the character of a village lane, to a plan for the build-out of a major metropolitan area. New Urbanism involves transit, development, and the building trades. New Urbanism needs financing and has special legal requirements, from homeowners' association documents tailored to traditional neighborhood development, to a municipal form-based code. It touches upon environmental regulations, street design, and where people shop and work, and how children get to school. The New Urbanism, in short, is as diverse as the built environment itself.

Whether you are a planner, engineer, architect, developer, builder, lawyer, financier, public official, or in some other field involved in land use, it matters whether you believe in the importance of walkable places and the quality of the public realm. If you view such places as vitally important, you will want to apply the principles of the New Urbanism to your work. The principles of the New Urbanism are manifested as concepts and techniques that apply within many different domains.

This book is divided into chapters that look at the many, varied topics connected to the New Urbanism. Throughout this book, we attempt to answer the question: How do the principles of the New Urbanism apply to the topic under discussion? What techniques are being used and how are they working? What is the latest thinking on this topic among leaders and specialists in the field?

New Urbanism: Best Practices Guide is now in its fourth edition. Previously published as New Urbanism: Comprehensive Report & Best Practices *Guide*, the name has been shortened, but the content has not. The book has been rewritten and is longer than before, with more than 100 additional pages — reflecting significant advances in the field since the Third Edition appeared in 2003. We have added new chapters. The largest, covering Architectural Styles and Building Types, looks at the ideas that new urbanists have brought to building design, style, and typology. Other new chapters deal with Land Development, Health and Aging, Parking, and Landscape design — all vital to the built environment. Most existing chapters have been thoroughly rewritten, and their content is largely new.

As of 2009, the world economy is in a shambles, the housing market is shifting dramatically, and the cost of transportation energy is volatile. The world faces a daunting task in slashing carbon dioxide emissions during the first half of the 21st Century. The New Urbanism will likely play a part in solving these problems. While the world has big issues, we should not forget that the built environment affects everyone's quality of life in small but important ways. A well-designed park within walking distance of home may lower carbon emissions slightly (you don't have to drive to reach it) even as it provides a great place for the kids to play or for adults to have conversations with their neighbors. Walkable urbanism generates benefits at many different levels, from individual and neighborhood well-being to the health of the globe.

We hope that the practices and techniques described and illustrated in this book will be widely employed in coming years. They could improve the world around us and make everyday life easier and more enjoyable for millions of people.



Principles of human-scale	
communities	12
Enclosure of the public realm	14
The neighborhood, the five-minute	
walk, and the pedestrian shed	15
The Transect	16
Urban core	17

Center	19
General urban	19
Suburban	19
Rural and natural zones	20
Districts	20
The block	21
Frontages and streets	21

The Charter of the New Urbanism 24 26

Buildings and urban form

Above: The urban-to-rural Transect, a tool for appropriately designing, grouping, and arranging the parts of the built environment. Drawing by Duany Plater-Zyberk & Company.

Principles of human-scale communities

Adherence to principles associated with placemaking and community-building sets the New Urbanism apart from conventional development. Chapter 1 introduces readers to the New Urbanism's major principles and concepts.

The New Urbanism owes its very existence to conventional suburban development, also known as sprawl. New Urbanism emerged over the past three decades in response to the sprawling placelessness of modern development. Without sprawl, New Urbanism would not have been necessary, because traditional urbanism would have evolved continuously to serve the needs of modern real estate development.

To examine the principles and concepts of New Urbanism, it is therefore important to start with sprawl. Conventional suburban development is not just low-density, far-flung development — it has a specific form. Sprawl separates uses, including housing subdivisions, apartment and condominium complexes, shopping centers, business parks, stand-alone commercial buildings, open space, and civic uses such as schools, libraries, and municipal buildings. Street patterns in sprawl are dendritic, like the branches of a tree, rather than interconnected. There is generally no clear pattern of blocks. Thoroughfares are wide and geared to automobiles. Cul-de-sacs are common. Parking, whether it is in the form of garages or parking lots, is usually in front of buildings and is often the most prominent feature of both residential and commercial thoroughfares.

It is easy to see the difference between conventional suburban development and the traditional urbanism of historic cities and towns. Traditional urbanism is the opposite of sprawl in many respects. While it includes the same uses, they are mixed together rather than separated. Street and block patterns are fine-grained and well-connected. Although traditional urbanism accommodates cars and trucks, it does not allow them to dominate. Pedestrians and transit are supported as well. Traditional urbanism is far more compact, because it is built on the scale of the human on foot — the primary means of transportation for millennia.

New Urbanism seeks to reclaim the living tradition of urbanism and bring it up to date. Urbanism is an art and science that requires trained professionals in many disciplines. As author James Howard Kunstler puts it, new urbanists have helped to pull the critical knowledge of city and town building out of the dustbin of history.

There were a couple of decades in the middle of the 20th Century when, due to the dominance of modernist planning ideas, the art and science of traditional urbanism were completely abandoned. Disenchantment with development in America's cities and suburbs generated an intellectual backlash against modernist planning in the 1960s. Jane Jacobs published her powerful book The Death and Life of Great American Cities, and Peter Blake produced his scathing God's Own Junkyard. By the 1970s, the historic preservation movement and the environmental movement each gained a popular following. An intense focus on community design - its failures and the potential for better results - became one of the next phenomena in national life. The quest for a better human and built environment culminated, in the 1980s, in the birth of what is now called New Urbanism.

The heart of New Urbanism is its principles. New urbanists believe that places should be walkable, interconnected, fine-grained, human-scale, and mixeduse to the greatest degree possible. Also, they believe that places should be beautiful and spiritually satisfying; and furthermore that one can discover the keys to placemaking by carefully observing the qualities of good places.

Without these principles, it is a lot easier to create sprawl in the early part of the 21st Century, although not necessarily more profitable. Sprawl is easier because zoning laws, finance, and mainstream development and building practices are still largely geared toward conventional suburban development. This situation is slowly changing, but the inertia of con-



RENDERING BY THOMAS LOW, DPZ

SUBURBAN SPRAWL

The diagram compares the traditional neighborhood pattern, top, to conventional suburban development (sprawl). The neighborhood is far more compact and interconnected. Its regular blocks and streets contrast with the more random pattern of sprawl, where singleuse pods branch off of the arterial road. The circle in the traditional neighborhood represents a five-minute walk.

ventional development is considerable — particularly with regard to public regulations.

For those who believe that sprawling suburbs and deteriorating cities are a blight on the American landscape, the New Urbanism offers an alternative. Its brilliance lies in its wide applicability. New urbanists recognize that the same tools for rescuing cities also can be used for making suburbs livable. The use of these tools to address both cities and suburbs has resulted in some criticism of the New Urbanism. Critics on the left have characterized the New Urbanism as "New Suburbanism," focusing on new urbanist work that includes single-family housing in the suburbs. Critics on the right, on the other hand, have claimed that new urbanists are trying to impose highdensity city life on everyone.

The truth is, New Urbanism can be applied at any scale — from a single building to a metropolitan region. It can be applied at a wide range of densities, from the intense level of Midtown Manhattan or downtown Chicago to the relaxed yet sociable level of a hamlet.

At the neighborhood level, New Urbanism is often referred to as traditional neighborhood development (TND), because it revives ideas and practices that were at the heart of American community building from the 1600s until the Second World War — and largely abandoned during the pell-mell expansion of the postwar decades. At the metropolitan and state level, New Urbanism is closely associated with "smart growth" — the attempt, through public policy, to foster more compact, efficient, and appealing patterns of development.

New Urbanism's principles are rooted in timetested patterns of development. This is not to say that new urbanists simply copy patterns from the past. Although that is sometimes done (and is not as simple as its detractors think), far more often New Urbanism involves reinterpreting the old patterns, buildings, and spaces so that they will suit modern living requirements. New urbanists are not trying to discard the inventions of the past 100 years. The automobile and nearly everything that goes with it - parking, car dealerships, gas stations, and traffic capacity - can be found in new urban developments. So can big discount stores, modern office buildings, and regional high schools. New Urbanism does not turn its back on modern tools and conveniences. But new urbanists do recognize the damage that many modern practices have inflicted on individuals and on communities. The response, therefore, is to search for solutions that allow the dynamic modern economy to function and that also answer the need for a humanly satisfying environment. As part of this endeavor, new urbanists have reimagined some aspects of automobile-oriented society, proposed changes in how big-box stores address their surroundings, and devised new design ideas for other building types.

New Urbanism aims to build hamlets, neighbor-

hoods, villages, towns, and cities rather than subdivisions, shopping centers, and office parks like those found in conventional development. A fundamental goal is a proper balance between the needs of the automobile and the needs of the pedestrian. Maximizing walkability is essential. Walkability is associated with pleasurable urban environments, compact development (which saves resources), and functional mass transit. Elements of the built environment that are inherently hostile to pedestrians — such as large surface parking lots and limited-access highways should be sited to minimize their negative impact on the walkable areas.

Seven principles

Let's look more closely at the core beliefs of new urbanists. Seven principles that are useful to know have been identified by Richard Bernhardt, a leading new urbanist who heads the Nashville-Davidson County Planning Department in Tennessee.

1. The basic building block of a community is the neighborhood. A neighborhood standing alone can be a village or a small town. A cluster of neighborhoods forms a bigger town. Clusters of many neighborhoods make up a city.

2. The neighborhood is limited in physical size, with a well-defined edge and a center. The size of a neighborhood is usually based on the distance that a person can walk in five minutes from the center to the edge — a quarter-mile. Neighborhoods have a fine-grained mix of land uses, providing opportunities for young and old to find places to live, work, shop, and be entertained.

3. Corridors form the boundaries between neighborhoods — both connecting and defining the neighborhoods. Corridors can incorporate natural features such as streams or canyons. They may take the form of parks, natural preserves, travel paths, railroad lines, or a combination of all these. In towns and cities, a sector can form a district. Districts consist of streets or areas containing special activities, which get preferential treatment. A corridor may also be a district — as when a major shopping avenue runs between adjoining neighborhoods.

4. Human-scale sets the standard for proportion in buildings. Buildings must be disciplined in how they relate to their lots if public space is to be successfully demarcated. Because the street is the preeminent form of public space, buildings are generally expected to honor and embellish the street. Buildings also define parks and squares, which are distributed throughout the neighborhood and are designed to be appropriate for rest, recreation, or special events.

5. Treating a range of transportation options as important is fundamental. For most of the second half of the 20th Century, transportation agencies have focused almost exclusively on optimizing the convenience of automobile travel, and have dealt with transit riders, pedestrians, and bicyclists as little more than afterthoughts. We must give equal consideration to all modes of transportation to relieve congestion and to provide people with realistic choices.

6. The street pattern is conceived as a network, to create the greatest number of alternative routes from one part of the neighborhood to another. This has the effect of providing choices and relieving vehicular congestion. The streets form a hierarchy, from broad boulevards to narrow lanes and alleys.

7. Civic buildings (town halls, churches, schools, libraries, museums) belong on preferred sites such as squares or neighborhood centers, or where the view down a street terminates. Such placement helps turn civic buildings into landmarks and reinforces their symbolic and cultural importance.

ENCLOSURE OF THE PUBLIC REALM

Pedestrian comfort is vital to walkability, and you really can't have a walkable place without enclosure of the public realm. Suburbia, with its large setbacks and parking lots on the street, creates little enclosure. Where there is enclosure, it is often in the form of garage doors and blank walls. New urbanists often talk about creating "outdoor rooms." In such places, buildings enclose streets and public spaces in a way that is spatially coherent and comfortable for humans. This enclosure is most pronounced in the most intensely urban environments — the downtowns of cities and the centers of towns.

Colin Rowe, the head of Cornell's urban design studio for several decades in the late 20th Century, popularized a method for designing and refining outdoor rooms. Rowe taught his students to make figure/ ground drawings or "black plans." Daniel Solomon, one of the founders of the Congress for the New Urbanism, describes the process thus: "In this method of drawing a plan, buildings are depicted as solid black, and everything else is the white of the paper."

Rowe's methods were not new — they go back at least to Giovanni Battista Nolli's plan for Rome in 1748 — but they were an innovation in modern



A figure-ground drawing, left, of downtown Santa Barbara, California, reveals buildings and public rights of way. The second horizontal street from the bottom is State Street, the city's most intensely urban thoroughfare. Building facades, above, enclose a public space to give the feeling of a large outdoor room in the Piazza Navona in Rome.

architecture. Solomon points out that Rowe's "black plans" revealed the folly of a lot of modern urban design, and pointed many new urbanists in the right direction. Today, black plans, or their equivalent, are an important aspect of new urbanists' work. Figure/ground drawings have aided the planning of new urban projects ranging from Seaside to the redevelopment of central Berlin. Black plans expose the relationship between buildings — perhaps the most important quality of an urban space.

There are many means that new urbanists can use

A diagram of the a neighborhood from

The Lexicon of the New Urbanism.

to achieve enclosure. Putting houses closer together and bringing them closer to the street is the simplest way of conceiving this idea. Building frontages — the way that buildings address the street — are also vital to enclosure. Frontages will be discussed in more detail later in this chapter.

THE NEIGHBORHOOD, THE FIVE-MINUTE WALK, AND THE PEDESTRIAN SHED

The neighborhood is a vital building block of both New Urbanism and old urbanism. Small devel-



IMAGE © DUANY PLATER-ZYBERK & CO, IMAGE USED WITH PERMISSION



Circles, at left, for the redevelopment plan of Pass Christian on the Mississippi Gulf Coast, represent pedestrian sheds of a quarter mile. In a new urban plan, these are the kernels of new neighborhoods.

opments represent a piece of a neighborhood, and very large planning efforts encompass multiple neighborhoods. They have the following characteristics: Each neighborhood has a discernible center. This is often a square or a green, and sometimes is distinguished by a busy or memorable street corner. Buildings in the neighborhood center are placed close to the street, creating a well-defined outdoor room. A transit stop would be located at this center. A variety of dwelling types is available — usually freestanding houses, rowhouses, and apartments - so that younger and older people, singles and families, and people with a range of income levels may find places to live. Shops and offices can be at the edge of the neighborhood, in sufficient variety to supply a household's weekly needs. The ideal neighborhood has small parks and playgrounds convenient to every dwelling. Certain prominent sites at the termination of street vistas or in the neighborhood center are reserved for civic buildings. These provide sites for community meetings, education, religion, or cultural activities.

The scale of the neighborhood is defined by the five-minute walk, a distance of about a quarter mile. Many new urbanists believe that significant numbers of people will choose to walk this distance to meet daily needs, providing that the physical environment is well suited to pedestrians. New urbanist plans typically are marked with circles identifying the quartermile radius. At the Mississippi Renewal Forum conducted after Hurricane Katrina, one of the largest new urbanist design sessions ever, most of the planning teams produced maps showing where neighborhoods are organized around a five-minute walk or where they could be developed in the future — allowing residents to reach a park, a store, a civic use, or another amenity. "For the existing neighborhoods, we used either an existing pocket park or corner retail as the center, even knowing that in many cases there are no sidewalks," Sarah Lewis of Ferrell Madden Lewis, formerly of Ayers/Saint/Gross Architects, said of the plan for Long Beach. The team asked local residents to supply names of the existing neighborhoods and help create names — based on Long Beach's history — for currently unnamed areas that the team believed should be redeveloped.

The five-minute walk (or "pedestrian shed") diagrams attempt to anchor the concept of neighborhood, providing a shared space, even if, as planning professor Emily Talen observed, the shared space is only conceptual at the time. A virtue of the five-minute walk as a planning tool, coding specialist Sandy Sorlien noted, is that it says "Look, this is the best spot for your catchment — what do you want in it?"

Some new urbanists wonder whether planners can meaningfully plot a five-minute walk on the basis of an "as the crow flies" quarter-mile radius. When a street network is composed of right angles, people may make slower progress toward their destination than a straight-line measurement would suggest, said Eliot Allen of Criterion Planners in Portland, Oregon. Empirical research has found that different kinds of pedestrian destinations have a considerably varied "gravitational pull," according to Allen. Despite such quibbles, all new urbanists agree that pedestrian sheds are important — and the quarter-mile radius circle remains the simplest and most widely used method for applying that concept.

THE TRANSECT

Naturalists use a concept called the transect to describe the characteristics of ecosystems and the transition from one ecosystem to another. Andres Duany



The urban-rural Transect

has applied this concept to human settlements, and since about 2000 this idea has permeated the thinking of new urbanists. The urban-rural Transect is divided into six zones: core (T6), center (T5), general urban (T4), suburban (T3), rural (T2), and natural (T1). The remaining category, District, applies to parts of the built environmental with specialty uses that do not fit into neighborhoods. Examples include power plants, airports, college campuses, and big-box power centers. The Transect is useful for designing and developing what Duany calls "immersive environments": urban places in which the whole is greater than the sum of its parts.

Duany Plater-Zyberk & Company describes the concept thus: "The Transect arranges in useful order the elements of urbanism by classifying them from rural to urban. Every urban element finds a place within its continuum. For example, a street is more urban than a road, a curb more urban than a swale, a brick wall more urban than a wooden one, and an allee of trees more urban than a cluster. Even the character of streetlights can be assigned in the Transect according to the fabrication from cast iron (most urban), extruded pipe, or wood posts (most rural)."

Duany notes that every settlement has its own Transect, which can be studied and mastered. Each differs, to a degree, from all other Transects. For example, all downtowns have unique characteristics. Yet all downtowns have commonalities as well. The Transect concept flows from new urbanists' observation of urban places, and a penchant for systematizing those observations. Transect zones form a patchwork across most communities. A common misconception is that the Transect implies a fried egg pattern from city center to edge. That's only the case in small towns and villages, generally.

The Transect is a powerful tool new urbanists can use to analyze and understand urban places — and ultimately to design new settlements that will possess qualities associated with the best old urbanism. Because Transect zones can be described and defined, they are beginning to form the basis for a new generation of zoning codes responsive to human-scale needs and desires.

According to version 8.0 of the *SmartCode* & *Manual* (primary authors Duany, Sandy Sorlien, William Wright), the Transect "is evident in two ways: 1) it exists as place and 2) it evolves over time. As place, the six T-zones display more-or-less fixed identifiable characteristics. Yet the evolution of communities over time is the unseen element in urbanism. A hamlet may evolve into a village and then into a town, its T-zones increasing in density and intensity over a period of many years."

The following section explains the Transect in some detail.

Urban core

The core (T6) is the densest and most urban part of the human environment. Most cities have only one core, often known as the downtown, although a large city like New York may have many cores. "It is the brightest, noisiest, most exciting part of the city," notes the urban design firm PlaceMakers, in its pattern book for the TND called The Waters. "It is every city's answer to Manhattan or Michigan Avenue, with the city's tallest buildings, busiest streets, and most variety. It's the place where you should find one-of-a-kind functions like city hall, but it's also the place with all the galleries and biggest selection of restaurants."





Many buildings in the core rise higher than four stories and typically include large office and workplace components. Buildings in the core are highly flexible in their uses — commonly mixing uses with shops and businesses on the first floor, and offices or residential units above. Most buildings are attached, with their fronts aligned. Full four-way intersections with rectilinear trajectories (i.e., streets at right angles to each other) are common.





The core is a focal point of activity and energy, benefiting from substantial traffic — both pedestrian and automotive. Good design allows pedestrians and automobiles to share the streets in a human-scale environment.

Setbacks in the core are generally zero to 10 feet. (Mixed-use buildings with retail on the first floor are built right up to the sidewalk.) Sidewalks are wide, generally 6 to 20 feet (the more urban the environment, the wider the sidewalk). Lot sizes vary, from a width of about 18 feet for some townhouses, to many times that for a large office or mixed-use building. The percentage of the lot covered and the floor-toarea ratio are generally high in the core.

Open space frequently takes the form of plazas. Transit service is the most frequent in the T6 zone. Housing mostly consists of apartments above retail, stand-alone apartment and condominium buildings, townhouses, and lofts.

In the core, structured parking is the norm. Onstreet parking is also used widely. Thoroughfares are typically major commercial streets. Net residential densities typically range from 25 to more than 100 units per acre.

Center

The center (T5) is like the core in many ways — buildings typically mix uses, with shops on the first floor and offices and residential units above, and are usually built to the sidewalk — but the character is more of a main street than a downtown.

Most buildings are attached, with their fronts aligned. Full four-way intersections with rectilinear trajectories (i.e., streets at right angles to each other) are common. Buildings top out at two to four stories.

Setbacks are short and sidewalks are wide. Open space often takes the form of squares. Transit is often available. Housing consists of apartments above retail, stand-alone apartment buildings, townhouses, and live/work units (townhouses designed so that one or more floors can accommodate business activities). Unlike the core, the density allows for surface parking in the center of blocks. Thoroughfares generally are main streets, boulevards, and residential streets that have an urban character. Net residential densities generally range from 15 to 40 units/acre.



T4 zone of the Transect



General urban

T4, general urban, is primarily residential, but still relatively urban in character. "The general urban zone is the place that settlements finally start coalescing into strongly identifiable neighborhoods," according to PlaceMakers, "each with its own center that you can walk to in five minutes or less. You have clearly made it into the town or city by the time you get to this zone."

The streets have sidewalks on both sides, and they have raised curbs. Housing mostly consists of single homes, duplexes, townhouses, and accessory units. Small apartment buildings (up to about eight units) can be accommodated in the general urban zone if care is taken to design them to blend in with single homes.

Some businesses may locate in this zone — corner stores and cafes, for instance. Churches, schools, and other civic buildings also may appear here. Buildings in the general zone are not as large as those in the center. Open space takes the form of parks and greens.

Setbacks generally range from 5 to 25 feet. Many houses have porches, and the porches should be allowed to encroach into the setback zone. Lot widths for townhouses generally range from 18 to 30 feet, and for single homes from 30 to 70 feet. Lot lengths generally range from 80 to 130 feet. Rear lanes with garages and/or accessory units are common. Sidewalks should be 5 feet wide, ideally, to allow two people to walk side by side. Thoroughfares consist mostly of residential streets. Net residential densities generally range from 6 to 20 units/acre in this zone.

Suburban

The suburban zone (T3) differs from conventional suburban development of the past 50 years. It hews closer to the character of early 20th-century US suburbs. Here's how PlaceMakers describes it: "The suburban neighborhood zone isn't exactly the 'burbs. It's close, to be sure, but it doesn't include some things like the big box retail you might instead find in a highway business district. The suburban zone is most similar to the areas on the outskirts of town where the town grid begins to give way to nature."

Although suburban is the most residential zone, it can have some mix of uses — examples include civic buildings such as churches, schools, and community centers, and occasional stand-alone stores.





The lots are larger, the streets crooked, and the curbs few. Plantings are informal. Setbacks from the street are larger than in the more urban zones, generally ranging from 20 to 40 feet. Porches are plentiful, and should be allowed to encroach on the setback. Lot widths usually range from 50 to 80 feet. Lots are often fairly deep in the suburban zone — ranging from 110 to 140 feet — to accommodate a larger backyard. Lots can range from 5,000 feet to a halfacre or more.

The suburban zone accommodates rear lanes, but it is also common to find front-loaded houses. (If the house is front-loaded, the garage should still be deemphasized — set back from the front facade.) Thoroughfares consist mostly of residential streets that have a rural character. Of all the neighborhood areas, density is least in the suburban zone, ranging from 2 to 8 units per acre net.

Rural and natural zones

Beyond the neighborhood lie the rural (T2) and natural (T1) zones. The rural zone is countryside — where development may occur but where it may not be encouraged. "This is the quietest place you can find (except in a thunderstorm or a buffalo stampede), and it's the place where the stars shine the brightest," according to PlaceMakers.

Public infrastructure is sparse or nonexistent in the rural zone. The rural zone can be protected from development through mechanisms such as transfer of development rights, land banks, and agricultural zoning.

The natural zone includes parklands, wilderness areas, and areas of high environmental value (such as wetlands) that can withstand court challenges from developers. It includes all lands that have been permanently protected from development.

DISTRICTS

Districts are urbanized areas that specialize in a particular activity. Districts are justified only when their uses cannot be accommodated within the other Transect zones. Districts may contain major transportation facilities such as airports and truck or bus depots, industrial areas, solid waste disposal and wastewater treatment facilities, hospitals, auto-oriented businesses like auto body shops, or even college campuses. Districts should, like neighborhoods, have a clear focus in their physical form. When possible and prudent, districts should be interconnected with adjacent neighborhoods to promote pedestrian access. Districts benefit from transit systems.

Although some are pedestrian-friendly (such as college campuses), Districts are the primary means new urbanists employ to accommodate uses that are inherently hostile to pedestrians. The idea is this: you can't eliminate uses that are incompatible with human-scale neighborhoods — but you can concentrate these uses to minimize their damage. You can also place districts adjacent to walkable neighborhoods (if possible), lay them out in a modified grid, build sidewalks, plant street trees, and bring some of the buildings out to the sidewalk. These design elements ensure that, in time, districts are able to evolve into high-quality urban environments. In the meantime, walking is safe and the barriers to pedestrian activity are minimized.

Another technique new urbanists use for dealing with a pedestrian-hostile activity is the "B" street. Certain auto-oriented activities simply cannot coexist well with pedestrian activities. Therefore it's sometimes best to make certain streets truly pedestrianfriendly — these are designated as "A" streets — and to concentrate auto-oriented activities on so-called B streets. Even within a high-quality street network, a B street can accommodate uses such as gas stations, muffler shops, and restaurants with drive-through lanes. A pair of A streets should run parallel to the B street, on both sides of it, to maintain a walkable environment. B streets can be thought of as districts that are one street wide.

THE BLOCK

Modernist planning, in both the cities and the suburbs, undermined the block. In conventional development, blocks are an afterthought at most. In subdivisions, they take all kinds of amorphous shapes and are often quite large. In commercial strip centers and power centers, a block structure is often not discernible at all. In cities, modernist planners were inclined to take out streets and make blocks much larger than they were historically.

New urbanists have always contended small blocks are a key to walkable places, and have sought to reverse the trend of larger or nonexistent blocks in cities and suburbs. Like the five-minute walk and the Transect, relatively small blocks are a cornerstone of new urbanist planning (see block diagram from *The Lexicon of the New Urbanism* on page 22). That is not to say that all blocks are uniformly small in new urban communities — blocks respond to uses within them and the needs of the development program. Where larger blocks are required due to parking or other considerations, skilled urbanists compensate through streetscape design to maintain an interesting pedestrian experience.

New urbanists give careful attention to not just the size but also the perimeter of the block. Placing building frontages all around the block helps to maintain a pedestrian-friendly edge to that block. It is also important to hide aspects of the built environment that are hostile to pedestrians, such as parking lots and garages, in the block interior.

FRONTAGES AND STREETS

Frontages are how buildings address the street. In conventional development, they are not given a lot of attention, which is why the most prominent feature is often the garage or the parking lot. A limited number of frontages are used in sprawl, and none, it seems, pay much attention to the pedestrian. This is a major reason why conventional development looks and functions the way it does. New urbanists have elevated the idea of frontages to its proper place as a major determinant of the quality of streets and the public realm. A walkable community is impossible without good frontages. *The Lexicon of the New Urbanism*, by Andres Duany and other contributors, identifies only eight frontage types (see diagram on page 23). These are organized from the most urban — arcade and shopfront — to the least urban, the common lawn of suburbia. The type is correlated to the Transect zone. In addition to types, new urbanists pay attention to details such as entrances and windows that can make buildings more or less accommodating to pedestrians.

Equally important is the design of the street itself. New urbanists argue that streets are not just for cars, but also for pedestrians, bicyclists, and users of public transit. Streets are where people live, shop, and work. To new urbanists' thinking, the character of the street is just as important as — and perhaps more important than — the traffic capacity. New urbanists use terms such as main streets, boulevards, avenues, and drives — all of which imply design elements previously thought to be outmoded. New urbanists favor dispersing traffic through networks, rather than concentrating traffic on suburban arterials. A good street accommodates traffic, but is ultimately measured by the feelings of pedestrians out for a stroll.

THE CHARTER OF THE NEW URBANISM

The most comprehensive statement of the goals and aspirations of new urbanists, the Charter of the New Urbanism, was signed in 1996 by members of the Congress for the New Urbanism. To close out Chapter 1, it is printed below.

The Congress for the New Urbanism views disinvestment in central cities, the spread of placeless

SQUARE BLOCK

The Square Block was an early model for planned settlements in America. It was sometimes associated with agricultural communities with four large lots per block, each with a house at its center. When the growth of the community produced additional subdivision, the replatting inevitably created irregular lots (Figure 1).

While this may provide a useful variety, it is more often regarded as a nuisance by a building industry accustomed to standardized products. A disadvantage is that discontinuous rear lot lines prevent double-loaded alleys and rear-access utilities. Despite these shortcomings, the square block is useful as a specialized type. The forced variety of platting assures a range of lot prices. When platted only at its perimeter with the center open (Figure 2), it can accommodate the high parking requirements of civic buildings. The open center may also be used as a common garden or a playground, insulated from traffic.

giving a limited ability to shape space and to negotiate slopes

(Figure 4). Unlike the square block, it provides two distinct

types of frontage. With the short side or end grain assigned

to the higher traffic thoroughfare, most buildings can front the

quieter long side of the block (Figure 3-2). For commercial

buildings, the end grain can be platted to take advantage of

the traffic while the amount of parking behind is controlled by

the variable depth (Figure 3-3).



ELONGATED BLOCK

The Elongated Block is an evolution of the square block which overcomes some of its drawbacks. The elongated block eliminates the uncontrollable variable of lot depth, while maintaining the option of altering the lot width. Elongated blocks provide economical double-loaded alleys with short utility runs. The alley may be placed eccentrically, varying the depth of the lot (Figure 3-1). By adjusting the block length, it is possible to reduce cross-streets at the rural edges and to add them at the urban centers. This adjustment alters the pedestrian permeability of the grid, and controls the ratio of street parking to the building capacity of the block.

The elongated block can bend somewhat along its length,

IRREGULAR BLOCK

The Irregular Block is characterized by its unlimited variations. The original organic block was created by the subdivision of land residual between well-worn paths.

It was later rationalized by Sitte, Cullen, Krier, and Olmsted to achieve a controllable picturesque effect and to organically negotiate sloping terrain. An important technique in the layout of irregular blocks is that the frontages of adjacent blocks need not be parallel (Figure 5). The irregular block, despite its variety, generates certain recurring conditions which must be resolved by sophisticated platting. At shallow curves, it is desirable to have the facades follow the frontage smoothly. This is achieved by maintaining the side lot lines perpendicular to the frontage line (Figure 6-1). It is important that the rear lot line be wide enough to permit vehicular access (Figure 6-2). At sharper curves, it is desirable to have the axis of a single lot bisect the acute angle (Figure 6-3). In the event of excessive block depth it is possible to access the interior of the block by

means of a close (Figure 6-4). Syn.: Organic Block (note:



Figure



Fiaure 6

Blocks are basic units of a neighborhood. *The Lexicon of the New Urbanism,* by Duany Plater-Zyberk & Company, describes the above types and their advantages and disadvantages. Regular and irregular blocks are often used in combination in various parts of a neighborhood. An equally important consideration is block size. The width of a block determines the depth of lots. A 240-foot wide block yields lots 95 to 100 feet deep with a lane or alley. Adding 20 to 40 feet more to block width creates bigger backyards. Block length is important for walkability. A comfortable dimension is 400 feet. © Duany Plater-Zyberk & Company, used with permission.

		SECTION LOT	ROW	PLAN		ROW		
Gallery & Arcade: a facade of a building overlaps the sidewalk above while the ground story remains setback at the lot line. This type is indicated for retail use, but only when the sidewalk is fully absorbed within the arcade so that a pedestrian cannot bypass	it. An easement for private use of the right-of-way is usually required. To be useful, the arcade should be no less than 12 ft wide.					T6 URBAN CORE		
Shopfront & Awning: a facade is aligned close to the frontage line with the entrance at sidewalk grade. This type is conventional for retail frontage. It is commonly equipped with cantilevered shed roof or an awning. The absence of a raised ground	story precludes residential use on the ground floor, although this use is appropriate above.					T5 URBAN CENTER		
Stoop: a facade is aligned close to the frontage line with the ground story elevated from the sidewalk, securing privacy for the windows. This type is suitable for ground-floor residential uses at short setbacks with rowhouses and apartment buildings.	An easement may be necessary to accommodate the encroaching stoop. This type may be interspersed with the shopfront.							
 Forecourt: a facade is aligned close to the front- age line with a portion of it set back. The forecourt created is suitable for gardens, vehicular drop offs, and utility off loading. This type should be used sparingly and in conjunction with the two frontage types above, as a continuous excessive setback is 	boring and unsafe for pedestrians. Trees within the forecourts should be placed to have their canopies overhanging the sidewalks.				•			
Dooryard & Light Court: a facade is set back from the frontage line with an elevated garden or terrace, or a sunken light court. This type can effectively buffer residential quarters from the sidewalk, while removing the private yard from public encroachment.	The terrace is suitable for restaurants and cafes as the eye of the sitter is level with that of the standing passerby. The light court can give light and access to a basement.						T4 GENERAL URBA	
Porch & Fence: a facade is set back from the frontage line with an encroaching porch appended. The porch shouldbe within a conversational distance of the sidewalk, while a fence at the frontage line maintains the demarcation of the yard. A great	variety of porches is possible, but to be useful, none should be less than 8 ft wide.						T3 SUB-URBAN N	
Common Lawn: a facade set back substantially from the frontage line. The front yard thus created should remain unfenced and be visually continuous with adjacent yards. The ideal is to simulate build- ings sitting in a common rural landscape. A front	porch is not warranted, as social interaction from the enfronting throughfare is unlikely at such a distance. Common Lawns are suitable frontages for higher speed throroughfares, as the large setback provides a buffer from the traffic.				- (-)-			T2 RURAL
Slip Lane: a facade no more than 80 ft from the right-of-way. Parking is placed within the first layer. Private sidewalks are provided between the public sidewalk and the building entrances. The parking and private sidewalk system are landscaped to	provide shade and shelter and a streetwall buffer. Appropriate transit stops are provided along the frontages, directly linked to the private sidewalk system.							D DISTRICT
3.2)		FRONTA	GE			TACI	<u> H</u>	
<u>····</u>				PRIVAIE	FRUN	IAGE	=	11.1

Frontages. The Lexicon of the New Urbanism, by Duany Plater-Zyberk & Company, shows the basic frontage types found in urbanism. © Duany Plater-Zyberk & Company, used with permission.

sprawl, increasing separation by race and income, environmental deterioration, loss of agricultural lands and wilderness, and the erosion of society's built heritage as one interrelated community-building challenge.

We stand for the restoration of existing urban centers and towns within coherent metropolitan regions, the reconfiguration of sprawling suburbs into communities of real neighborhoods and diverse districts, the conservation of natural environments, and the preservation of our built legacy.

We recognize that physical solutions by themselves will not solve social and economic problems, but neither can economic vitality, community stability, and environmental health be sustained without a coherent and supportive physical framework.

We advocate the restructuring of public policy and development practice to support the following principles: neighborhoods should be diverse in use and population; communities should be designed for the pedestrian and transit as well as the car; cities and towns should be shaped by physically defined and universally accessible public spaces and community institutions; urban places should be framed by architecture and landscape design that celebrate local history, climate, ecology, and building practice.

We represent a broad-based citizenry, composed of public and private sector leaders, community activists, and multidisciplinary professionals. We are committed to reestablishing the relationship between the art of building and the making of community, through citizen-based participatory planning and design.

We dedicate ourselves to reclaiming our homes, blocks, streets, parks, neighborhoods, districts, towns, cities, region, and environment.

We assert the following principles to guide public policy, development, practice, urban planning, and design.

The region: Metropolis, City, and Town

1. Metropolitan regions are finite places with geographic boundaries derived from topography, watersheds, coastlines, farmlands, regional parks, and river basins. The metropolis is made of multiple centers that are cities, towns, and villages, each with its own identifiable center and edges.

2. The metropolitan region is a fundamental economic unit of the contemporary world. Governmen-

tal cooperation, public policy, physical planning, and economic strategies must reflect this new reality.

3. The metropolis has a necessary and fragile relationship to its agrarian hinterland and natural landscapes. The relationship is environmental, economic, and cultural. Farmland and nature are as important to the metropolis as the garden is to the house.

4. Development patterns should not blur or eradicate the edges of the metropolis. Infill development within existing urban areas conserves environmental resources, economic investment, and social fabric, while reclaiming marginal and abandoned areas. Metropolitan regions should develop strategies to encourage such infill development over peripheral expansion.

5. Where appropriate, new development contiguous to urban boundaries should be organized as neighborhoods and districts, and be integrated with the existing urban pattern. Noncontiguous development should be organized as towns and villages with their own urban edges, and planned for a jobs/housing balance, not as bedroom suburbs.

6. The development and redevelopment of towns and cities should respect historical patterns, precedents, and boundaries.

7. Cities and towns should bring into proximity a broad spectrum of public and private uses to support a regional economy that benefits people of all incomes. Affordable housing should be distributed throughout the region to match job opportunities and to avoid concentrations of poverty.

8. The physical organization of the region should be supported by a framework of transportation alternatives. Transit, pedestrian, and bicycle systems should maximize access and mobility throughout the region while reducing dependence upon the automobile.

9. Revenues and resources can be shared more cooperatively among the municipalities and centers within regions to avoid destructive competition for tax base and to promote rational coordination of transportation, recreation, public services, housing, and community institutions.

The neighborhood, the district, and the corridor

1. The neighborhood, the district, and the corridor are the essential elements of development and redevelopment in the metropolis. They form identifiable areas that encourage citizens to take responsibility for their maintenance and evolution.

2. Neighborhoods should be compact, pedestrianfriendly, and mixed-use. Districts generally emphasize a special single use, and should follow the principles of neighborhood design when possible. Corridors are regional connectors of neighborhoods and districts; they range from boulevards and rail lines to rivers and parkways.

3. Many activities of daily living should occur within walking distance, allowing independence to those who do not drive, especially the elderly and the young. Interconnected networks of streets should be designed to encourage walking, reduce the number and length of automobile trips, and conserve energy.

4. Within neighborhoods, a broad range of housing types and price levels can bring people of diverse ages, races, and incomes into daily interaction, strengthening the personal and civic bonds essential to an authentic community.

5. Transit corridors, when properly planned and coordinated, can help organize metropolitan structure and revitalize urban centers. In contrast, highway corridors should not displace investment from existing centers.

6. Appropriate building densities and land uses should be within walking distance of transit stops, permitting public transit to become a viable alternative to the automobile.

7. Concentrations of civic, institutional, and commercial activity should be embedded in neighborhoods and districts, not isolated in remote, single-use complexes. Schools should be sized and located to enable children to walk or bicycle to them.

8. The economic health and harmonious evolution of neighborhoods, districts, and corridors can be improved through graphic urban design codes that serve as predictable guides for change.

9. A range of parks, from tot-lots and village greens to ball fields and community gardens, should be distributed within neighborhoods. Conservation areas and open lands should be used to define and connect different neighborhoods and districts.

The block, the street, and the building

1. A primary task of all urban architecture and landscape design is the physical definition of streets and public spaces as places of shared use.

2. Individual architectural projects should be seamlessly linked to their surroundings. This issue transcends style.

3. The revitalization of urban places depends on safety and security. The design of streets and buildings should reinforce safe environments, but not at the expense of accessibility and openness.

4. In the contemporary metropolis, development must adequately accommodate automobiles. It should do so in ways that respect the pedestrian and the form of public space.

5. Streets and squares should be safe, comfortable, and interesting to the pedestrian. Properly configured, they encourage walking and enable neighbors to know each other and protect their communities.

6. Architecture and landscape design should grow from local climate, topography, history, and building practice.

7. Civic buildings and public gathering places require important sites to reinforce community identity and the culture of democracy. They deserve distinctive form because their role is different from that of other buildings and places that constitute the fabric of the city.

8. All buildings should provide their inhabitants with a clear sense of location, weather, and time. Natural methods of heating and cooling can be more resource-efficient than mechanical systems.

9. Preservation and renewal of historic buildings, districts, and landscapes affirm the continuity and evolution of urban society.

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BUILDINGS AND URBAN FORM

The renderings on pages 26-28 show the differences in building types and urban form in conventional suburban development and walkable neighborhoods. All of the images are from the Fox Property Study plan by the Treasure Coast Regional Planning Council and architects Dover Correa Kohl Cockshutt Valle.





Pods of single-use housing, above, yield anonymity. Buildings are objects in a landscape. Neighborhoods with a mixture of housing types, at right, have identity. Buildings form public spaces.



Suburban schools, above, are located on heavily traveled roads and are designed using a building of a similar type (at least on the outside) to manufacturing facilities. These schools lack a clear identity in a community and promote driving, the leading cause of death among teenagers. In the context of a neighborhood, above right, the school can be treated as an important public building. Access for students, especially those who do not drive, is easier. Facilities become neighborhood assets.





A rendering of a suburban geriatric center, above left, is shown with its highly institutional feel. The building type is patterned after a hospital and is usually located in an area that is accessible by automobile only. An assisted living facility, above right, is conceived as a courtyard building in a neighborhood. This facility allows residents to move into a home which is still close to family and friends, and walkable to shops and entertainment.



The church as automobile-oriented pod, above left, illustrates the conventional suburban approach to civic buildings. Even though the parking lot is only full a small portion of the week, it must be large. Above right is a rendering of a neighborhood church served by on-street parking, bordering a green.



Above left is a shopping center with a vast parking lot in front. Such centers, along with malls, big-box stores, and other automobile-oriented businesses typically line arterial roads. The road is designed strictly for automobiles, yet performs poorly as a through street — as local and regional travelers compete for lanes. Above right is the same road designed as a walkable mixed-use downtown with shops, residences, workplaces, and parking on the interior of blocks.



Suburban stand-alone businesses, including "convenience" stores, fast-food restaurants, and banks, can only be reached by car (above left). At the heart of historic neighborhoods, enterprises often thrive along-side houses in places like a town green (above right), helping to form beautiful and lively public places.



Shaping the Region

New Urbanism
shapes regional plans
Origins and public involvement
How new urbanists arrived
at regionalism
Leading by example
Regional and large-scale new
urban planning initiatives

Open space preservation
Transportation and networks
Urban network debate
Alternative network
Codes and the Transect in
regional planning
Mapping the Transect
The five-minute walk

Cool Spots	
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Tips for coherent regions39Other factors in regional planning40

Above: A new neighborhood envisioned as part of the Settlement Plan for Onondaga County. Drawing © Michael B. Morrissey, MRAIC, all rights reserved.

New Urbanism shapes regional plans

The New Urbanism initially was defined primarily by individual projects, built in reaction to the reigning auto-oriented, single-use planning policies. Although these individual projects have proven invaluable as models — places where anyone can see new urban principles in action — it is through large-scale initiatives that New Urbanism can bring about systemic change. And increasingly, new urbanists are creating the foundation for that kind of change. The tools that new urbanists are using to improve the shape of our communities are city plans, regional plans, and other multi-municipal planning initiatives. Twenty regional planning efforts that reflect new urbanist thinking to one degree or another are summarized in a table on page 33.

Some regional planning initiatives, such as those in Portland, Oregon, and Salt Lake City, include a full range of transportation and open-space planning, as well as comprehensive surveys of public values and attitudes. Others have more modest goals and resources. For instance, the plan for Woodford County, Kentucky, includes a rethinking of growth patterns, a new code, and specific suggestions for how to revitalize the downtown of a historic town.

All large-scale new urban planning initiatives see the walkable neighborhood as a fundamental building block of the region, and they link transportation to land-use policies. They envision a growth pattern that is fine-grained, mixed-use, more compact, and offering far greater transportation choice than the suburban patterns that have dominated growth since World War II. The nation's first regional plan was drawn up for the New York metropolitan region by the Regional Plan Association (RPA) in 1929; the RPA's third regional plan, produced in 1996, is among the 20 included in the summary. Although the latest plan for greater New York may not be entirely New Urbanism, its vision and goals are consistent with the movement's principles. The RPA recommends shifting new development to urban centers, preserving open space corridors, enhancing public transit, and improving collaboration and coordination among governments.

ORIGINS AND PUBLIC INVOLVEMENT

The impetus for these plans comes from a variety of sources. RPA has no official standing, but relies on well-connected members to exert influence on public policy. The 2040 plan for Portland had its origins in a land use and transportation study sponsored by the environmental group 1000 Friends of Oregon, but the initiative was later taken over and implemented by Metro, the regional government. The Salt Lake City plan, Envision Utah, is the brainchild of the Coalition for Utah's Future, an organization made up of civic, business, and political leaders. In Contra Costa County, California, a group of mayors pushed for a regional plan, while the Mississippi Renewal Forum was sponsored by a state government commission in the wake of Hurricane Katrina.

No matter who instigates the process, new urban regional planning often involves the general public



In the Envision Utah scenarios, projected new development is shaded dark gray. Scenario A, left, depicts growth continuing in its current form. Scenario C, right, shows how infill development and New Urbanism can cut land consumption.



A plan for the Village of Liverpool is a pilot project completed for the Settlement Plan for Onondaga County, New York. Regional plans often include the detailed design of specific areas to show how principles apply.

and community stakeholders to a greater degree than was common in the past. Envision Utah is a good example of this; Peter Calthorpe, whose firm led the planning, has characterized it as "more a process than a set of policies or a map."

Calthorpe Associates' work in Utah was informed by a survey of the values of the region's population, conducted before the firm was hired. The process revealed, for example, how people's desire for a safe and secure environment was connected more to creating stronger communities than to beefing up law enforcement, and how "family values" manifested themselves in a strong concern for the quality of life of future generations.

The next step in the public process was workshops in which civic leaders and citizens engaged in handson exercises. In "Where Shall We Grow?" sessions, participants placed game pieces — representing the land area needed to accommodate anticipated population growth — on a map of the region. This exercise clarified the need to build on infill or redevelopment sites. "How Shall We Grow?" workshops gave participants more refined game pieces representing either auto-oriented or walkable development types. Along with a series of visual preference surveys, these maps guided Envision Utah in the creation of four scenarios for accommodating one million more residents.

The scenarios ranged from a low-density version of conventional suburban development, which would need 409 square miles to accommodate the growth, to forecasts involving mixed-use neighborhoods built close to existing development. The two higher-density scenarios required only 126 and 85 square miles of new development.

The competing visions were presented to the public in special newspaper inserts that generated responses from close to 18,000 Utahns. People strongly favored the higher-density, mixed-use scenarios.

Such a high level of public participation is not found in all regional planning initiatives. The planning effort in Richland County, South Carolina, included inviting national speakers on growth topics, holding stakeholder forums, and conducting conventional market research paired with visual preference surveys. Alberto & Associates (formerly Killinger Alberto) followed up with an environmental analysis and a growth scenario based on Alberto's Town and Country planning model. This model balances development in villages with preservation of open space.

In the Settlement Plan for Onondaga County, New York, by Duany Plater-Zyberk & Co. (DPZ), public input was focused in a week-long charrette in which the firm designed eight pilot projects that exemplified the primary problems facing the region. According to DPZ, these included: how to fix a struggling urban neighborhood, how to redevelop brownfields and grayfield malls, how to retrofit a suburban strip center, how to repair a village overrun by state highways, and how to expand a rural hamlet. The overall goal was to show how a municipality could change its own planning and zoning policies and make them fit into a larger picture. This "tool kit" was supplemented by a Transect-based code that local jurisdictions can adopt, plus a number of suggested approaches, including transfer and purchase of development rights, as well as a map of county reserves and preserves. Some of the county's communities have completed planning, zoning, or capital projects aimed at implementing Settlement Plan strategies.

HOW NEW URBANISTS ARRIVED AT REGIONALISM

Many new urbanists started with a relatively small objective: designing a "good building." architect Victor Dover defines a good building as "one that's seamlessly connected to its surroundings in a dignified way; one that's practical to walk up to; one that adds to the likelihood that people will be comfortable and will interact; and one that is a component of the larger enterprise of the street — adding to the sense of place, as opposed to being a stand-alone sculptural object."

The "good building" turned out to be a tough goal. Dover says, "We quickly learned how difficult it is to achieve that kind of outcome if one is forced to follow the setback requirements, the extraordinarily high parking ratios even in the city, the automotive orientation, and other rules and bad habits that push the components apart instead of bringing them together So a lot of us turned our attention to the architecture of the street, and then later the structure of the neighborhood." Designers became increasingly aware that they would have to apply certain principles to development at all scales. In Dover's words, "The urgent need is to think of the region when designing small components of it, and vice versa."

"What led me to a lot of regional issues," Calthorpe observes, "was a certain amount of frustration in enacting the new urban principles of mixed-use, mixed-income neighborhoods at a local scale without having a supportive framework at the larger regional scale." Distribution of affordable housing and distribution of jobs and retail, with the tax base they generate, are issues that depend heavily on regional policies. Too often, says Calthorpe, people think regional growth should occur in an ad hoc manner, whereas in fact, growth is "designed," whether we like its shape or not. "It's designed by traffic engineers and federal highway investments," he notes. "It's designed by major infrastructure extensions. And it's designed by the piecemeal zoning that each jurisdiction undertakes. Once we bring that fact into focus, we begin the process of saying 'well, how actually do we want to design it, and what are the tools we can use?"

Dover points out that "this way of thinking, this

will among community makers to think regionally, or to decide where and how to establish settlements, isn't new. It's at least as old (in a modern sense) as the Elizabethan greenbelts in London or as old as the Laws of the Indies, instructions from the king of Spain on how to settle the New World." Early in the last century, Daniel Burnham's plan for Chicago (in 1909) provided not only compelling images of the heart of town but also maps for the settlement of the larger region - containing interconnected networks of towns, villages, streetcar suburbs, parks, preserves, and farmland. More recently, environmental science awakened people to the concept of the bioregion. An example of bioregional thinking is the realization that the fate of the Florida Everglades is linked to water and habitats far upstream, and downstream as well.

The importance of regional thinking is recognized in the Charter of the New Urbanism, which presents the metropolitan region as a fundamental economic unit of the contemporary world. The Charter describes the modern metropolis as having multiple centers and says the metropolis should contain identifiable cities, towns, and villages. "Farmland and nature are as important to the metropolis as the garden is to the house," it says. In the Charter's formulation, the neighborhood is the basic unit of growth. Beyond the existing city, it's best to build relatively self-contained settlements.

LEADING BY EXAMPLE

Even with extensive public involvement and education, the regional process deals with issues of such magnitude that it is easy for a plan to become too vague to capture the attention of citizens and public officials. Specific case studies and pilot projects therefore become essential to getting the message across. The Smart Growth Twin Cities initiative in Minneapolis/St. Paul, for example, not only involved reevaluating the comprehensive plans of local communities, but also identified six "opportunity sites" where Calthorpe Associates then designed model neighborhoods — in collaboration with local planners and based on local preferences. The goal was to create detailed site plans that each community could present to a developer, allowing work to begin immediately.

In the plan for Woodford County, Kentucky, the principles were applied to a revitalization of the downtown of the county's biggest town and to a small traditional neighborhood development extending the town.

A prime example of the importance of translating the regional vision into a specific project is Orenco

Name/Location	Lead planner	Characteristics
Chicago 2040 Common Ground Regional Framework Plan	Hubert Morgan, Chicago Metropolitan Agency for Planning	3,749 square miles. Identifies where to preserve and conserve and how to grow by 2 million people and 1.2 million jobs in 25 years.
Chicago Regional Plan	Fregonese Calthorpe Assoc.	Sponsored by Commercial Club, which also sponsored the 1909 Daniel Burnham Plan.
Community Character Plan Collier County, Florida	Dover, Kohl & Partners	2,025 square miles. Blueprint for community development, transportation, open- space preservation, and community design. Includes implementation strategies.
Compass Blueprint Greater Los Angeles	Fregonese Calthorpe Associates and Calthorpe Associates	Southern California Association of Governments' vision of how to grow mainly on 2 percent of region's land, making transportation work better. Promotes infill, redevelopment, mixed uses, and "people-scaled" walkable communities.
Envision Utah Greater Wasatch Area, Utah (Salt Lake City Region)	Calthorpe Associates	9,100 square miles. Encourages infill and redevelopment in existing towns. Process produced four different growth scenarios which were presented to the public. Envision Utah civic group is leading implementation.
Hillsborough County, Florida	Duany Plater-Zyberk & Co.	35 square miles. Section plan, identifies sites for TNDs and TODs. Includes Transect-based SmartCode.
Imagine Richland 2020 Richland Co., South Carolina	Killinger Alberto	600 square miles surrounding Columbia. Based on Town and Country model; seeks to create rural village centers, infill and connectivity in urban areas. County to change zoning in accordance with comprehensive plan.
Mississippi Renewal Forum Gulf Coast of Mississippi	Congress for the New Urbanism	11 cities and towns along 80 miles of Gulf of Mexico. Offers principles and plans for rebuilding with walkable neighborhoods, balanced mobility choices, and regionally appropriate housing, away from areas most vulnerable to hurricanes.
North County Charrette Plan St. Lucie County, Florida	Treasure Coast Regional Planning Council	28 square miles. Applies TND principles to create towns and villages with mixed-use centers, preserving about 50 percent of the land as open space. Follows the Transect, restores wetlands, and includes elements of a form-based code.
Onondaga Settlement Plan Onondaga County, New York	Duany Plater-Zyberk & Co.	800 square miles. Based on Transect, includes an overlay zoning code that municipalities can adopt. Pilot plans for eight areas apply New Urbanism principles to a full range of settings, from rural hamlets to new shopping center retrofits to urban-scale developments.
Portland 2040 Portland, Oregon	Calthorpe Associates, others	460 square miles. Connects land-use and transportation planning within urban growth boundary, encourages higher densities in centers and TODs.
Preserving Town and Country Woodford Co., Kentucky	Dover Kohl & Partners, Ferrell Rutherford Associates	190 square miles. Presents plan for revitalizing downtown Versailles and retrofitting suburban strip center. Overall guidelines for growth in the county. A new urban code has been written.
Regional Plan South Martin Co., Florida	Dover, Kohl & Partners	47 square miles. Not officially adopted, but laid the groundwork for several specific projects in the region. Focus is on discrete new towns and preservation of open space.
Regional plan for tourism Okeechobee, Florida	Dover, Kohl & Partners	2,450 square miles. Master plan for tourism, development and preservation. Strengthening of historic towns and development of new towns and villages.
Resource Management Area Plan/Sarasota County, Florida	Glatting Jackson	620 square miles. Fleshes out visioning done by county in collaboration with ULI. Focus on preserving greenways and building new communities in a village format.
Smart Growth Twin Cities Minneapolis/St. Paul, Minnesota	Calthorpe Associates	Public workshops on regional growth patterns, also six case study projects, or opportunity sites, being planned.
St. Croix Valley Minnesota/Wisconsin	Calthorpe Associates	1,150 square miles. Sub-regional initiative, includes six development prototypes, and a set of broader implementation guidelines.
The Plan of Nashville Nashville, Tennessee	Nashville Civic Design Center	25 square miles. Fifty-year plan for downtown and inner-ring neighborhoods, incorporating ten principles. Priorities include connecting to the river; a more balanced transportation system; creating civic spaces; and strengthening neighborhoods.
The Region at Risk 1996 New York City Region	Regional Plan Association	13,000 square miles, governed by 2,000 units of government. Focus on improving transit, enhancing centers, preserving green corridors, maintaining a competitive workforce, and improving coordination among governments.
Urban Growth Boundary Expansion/ Damascus and Happy Valley, Oregon	Otak Inc. for Portland Metro	18 square miles. Offers eight plans for two-thirds of the expansion, including detailed block and street diagrams for neighborhoods and town centers. Generally increases density while steering development to valleys and protecting forested hillsides.

Regional and large-scale new urban planning initiatives

Station, which had its origins in the Portland area's 2040 plan. Orenco Station, now a flourishing mixeduse community, has become an oft-visited model for greenfield transit-oriented development (TOD) on both a regional and national level. Moreover, many smaller TODs are emerging in Portland's established, transit-rich neighborhoods.

Regional plans are built on the best intentions, but their implementation is typically hampered by the absence of a regional government that has the power to act on economic, social, and physical planning issues simultaneously. Of the plans in the table, only Portland, Nashville, and Minneapolis-St. Paul have a regional government body with any teeth. Even if a regional government can enforce a plan, a balance has to be struck with local communities. Few municipalities are willing to give up control of land-use planning.

Thus the Quality Growth Strategy developed by Envision Utah deals not in dictates but in recommendations, incentives, and encouragement. According to Calthorpe, that regional plan is having dramatic impact. "Many of the jurisdictions are beginning to adopt zoning policies that support walkable neighborhoods," he says. "The region at large voted for a sales tax increase to provide for more transit, and they are expanding their transit network. This is something nobody could have foreseen."

In the absence of a strong regional government, the key to success is better communication among local governments. "If we can get four or five counties on the same page, we can accomplish important parts of a plan without the formal structure of a regional government," says Michael Busha, executive director of Florida's Treasure Coast Regional Planning Council.

The next few years will test the strength of these regional and large-scale planning initiatives, but they have already set a precedent for how regions can grow more intelligently. Indications from Chicago, Austin, Texas, and other areas are that the trend is gaining momentum.

OPEN SPACE PRESERVATION

Just as regional planning guides where and how communities grow, it must also define where they should not grow. Mapping of preserves, wildlife corridors, and essential agricultural land is often the first



A map of natural preserves and agricultural land helps county officials to guide growth in the Settlement Plan for Onondaga County.

COURTESY OF DUANY PLATER-ZYBERK & COMPANY

order of business in the planning process. Calthorpe notes that layering the form of the man-made environment with the elements of the open space network is essential to regional planning.

Urban growth boundaries (UGBs) are one means of open-space conservation, albeit a controversial one. The Portland 2040 plan was created in the context of a UGB, and essentially provides direction for the form of development inside the boundary. In 2005, the region expanded the boundary by 18,000 acres and commissioned a design team that applied new urbanist concepts to two-thirds of that area. But UGBs remain politically challenging in many parts of the US, and some new urbanists think a better strategy is to take the opposite approach — i.e., draw a boundary around rural areas.

DPZ has used the "rural growth boundary" model in its work. "Rather than roping off urbanization, you designate what you wish to preserve, and then you focus on the quality of the urbanization," says Jeff Speck, formerly a planner with DPZ. "That is particularly relevant and useful in a county with no [regulatory] teeth, like Onondaga. You have no hope of getting a buy-in to an urban growth boundary when it's shared between 21 different municipalities," he says.

Sarasota County in Florida has chosen to divide the county into six "resource management areas," including a spine of greenways and a villages/open space area, where the bulk of the land is preserved and new development concentrated in compact communities. This system is designed to preserve environmental systems and direct growth away from floodplains. Glatting Jackson of Orlando created a plan to implement this strategy.

TRANSPORTATION AND NETWORKS

Clarification of the link between land use and transportation is perhaps the greatest achievement of recent regional planning initiatives. Though this link may seem obvious, large-scale plans had typically ignored it. In his book *The Regional City*, Calthorpe explains the connection: "Land-use patterns dictate the need for travel, while at the same time the location, size, and character of our transportation facilities determine which land uses are likely to develop in given locations. Highways make suburban sprawl possible, and sprawl constantly requires more highways."

To varying degrees, the new urban regional plans focus on resolving this complex feedback loop. The



The regional plan for Northwest Hillsborough County in Florida identifies prime locations for new neighborhoods (light bull'seyes) and transit-oriented developments (dark bull's-eyes).

work is complicated by the fact that land use is typically under local control, whereas investment in transportation usually comes from the state or federal level.

In major metropolitan areas, development built around transit hubs can be part of the solution, but in a more rural setting like Kentucky's Woodford County, Dover Kohl & Partners sought to preserve and enhance existing urban fabric and build mixed-use neighborhoods with walkable destinations.

New urbanists also focus on broadening the definition of thoroughfares — replacing ubiquitous arterials with boulevards, avenues, and main streets where appropriate. This idea has made significant progress in recent years with the publication of the *Urban Thoroughfares Manual* by the Institute for Transportation Engineers and the Congress for the New Urbanism (CNU).

New urbanists have lately refined the idea of street networks as a key tool for planning on a large scale. Bolstered by a California study that shows that cities with interconnected street networks are much safer those than with poorly connected streets, CNU used street networks as the linchpin for a national economic stimulus proposal. CNU used the standard that it helped to create in LEED for Neighborhood Development (LEED-ND) of 150 intersections per square mile as the measure of an appropriately connected street network. By proposing this as a national standard for infrastructure, CNU was suggesting that it become a fundamental tool of regional planning.


A diagram of Peter Calthorpe's "urban network"

One locality that has acted on that network idea is Collier County in southwest Florida, which produced a Community Character Plan and a Community Design Manual. The county's Character Plan points out that the conventional approach of walling off areas from through-traffic causes transportation problems. The Character Plan proposes that new neighborhoods be built with an interconnected circulation pattern, including through-roads at least every quarter-mile. Dover believes the county would benefit from having through-roads and through-streets more frequently than that.

The county's mobility manual says "the transportation problems won't be solved by just widening roads or building freeways," Dover notes. There will have to be "a smarter approach," including a better connection between the streets and adjacent land uses. If the county adheres to that philosophy, eventually the auto-oriented pattern of development will cease to be the only pattern of growth; centers will come into being that support multiple modes of travel and that accommodate varied uses.

Johnson City, Tennessee, has set out to rethink its travel corridors. Instead of dividing one neighborhood from another, a road could be, according to Dover, "a kind of seam that helps neighborhoods grow toward one another." Land adjacent to the road could accommodate much more human activity than it currently does. Some conventional traffic arteries



Calthorpe's plan for one-way couplets in San Elijo Town Center.

could be converted into urban boulevards. In Tampa, the Alliance for Modern Transit and Livable Communities started an initiative that delved into how an investment in fixed-guideway transit (rail or dedicated busways) could produce more livable communities, with better environments around the stations.

For a private regional planning effort called Chicago Metropolis 2020, Calthorpe Associates developed a proposal aimed at organizing growth in areas outside Chicago. Calthorpe's "urban network" recommended redesigning the region's hierarchy of arterials. Some arterials would become boulevards that would include transit in their rights-of-way. Others would become local arterials (similar to conventional roads), and others would become throughways, carrying longer-distance traffic. The points at which arterials cross are natural locations for commercial centers, since retailers want to be within sight of a high volume of potential customers. At the intersection of a transit boulevard and a local arterial would be a large commercial center — a "town center" in Calthorpe's system. At the intersection of two local arterials would be a smaller center, called a "village center."

Such a network, with its numerous centers, would create focal points for metropolitan expansion. No one would have to go more than a half-mile to reach a center. In its ideal form, the network would be organized on a grid, with each village center placed at the core of a two-mile-by-two-mile square (four square miles). Residential uses at various densities could be planned for the areas radiating outward from each village center. Diagonal streets would connect each cluster of four village centers to a town center situated at the core of an area measuring four miles on a side (16 square miles).

Calthorpe envisions the urban network as a tool that would allow each four-square-mile area to have "pedestrian- and transit-friendly access to one another through either a village center or a town center," thus dealing with the problem of how to organize individual communities across an entire region.

Urban network debate

Calthorpe's approach has spurred many arguments pro and con. To prevent the transit boulevard from becoming so wide that it discourages pedestrians from crossing it, Calthorpe suggests that the boulevard or local arterial split into a pair of parallel one-way streets (running in opposite directions, a block apart) whenever the boulevard or arterial approaches a town center or village center. Such a system of "one-way couplets" can carry a substantial traffic volume. It can also fit large office buildings with thousands of jobs into a pedestrian- and transit-oriented grid.

At San Elijo Hills in San Marcos, California, Calthorpe devised a plan that has four one-way streets meeting at a village green. This street network is more comfortable for pedestrians than is a broad conventional arterial, he points out. School officials recognized the superiority of this environment and built a public school for kindergarten through eighth grade close to a central one-way street, Calthorpe says. Usually communities refuse to build schools close to conventional arterials, he notes.

The narrower street widths made possible by one-way couplets allow pedestrians to cross the street more easily and for greater opportunity to make the street feel like an outdoor room. Despite those advantages, there remains a widespread skepticism about one-way couplets. Too often, where one-way systems of through-streets exist, vehicles move fast, making the environment inhospitable to pedestrians and to pleasant activities along the sidewalks.

Fast traffic that endangers pedestrians is only one of the problems associated with one-way street systems. Another problem is that one-way streets often are tough environments for retailers. Splitting a village commercial center into parallel one-way streets also may spread out the retail and reduce its vitality, warns Peter Katz, author of the 1994 book *The New Urbanism: Toward an Architecture of Community*.



An alternative "urban network" concept by Kevin Klinkenberg.

Alternative network

Kevin Klinkenberg, an architect in Kansas City, Missouri, suggests some modifications in the urban network that might reduce its disadvantages and make it work better. Klinkenberg says one of the factors that matters most is the distance between arterial roads. If the arteries are spaced one mile apart, as they are in Calthorpe's proposal, that results in too large a scale; it concentrates traffic on broad, highvolume arteries rather than dispersing it on a larger number of smaller roads, which fit better with neighborhoods, Klinkenberg says. He argues for positioning the arterials only a half-mile apart. From studying three communities in the Kansas City area — the Century section, the Country Club District, and the postwar suburb of Prairie Village - Klinkenberg concludes that half-mile spacing of major streets produces "street sections that are conducive to good urbanism." The finer grain encourages walking and bicycling, and makes transit easier to reach, he says. Klinkenberg would place boulevards at two-mile intervals and also make other modifications in spacing.

CODES AND THE TRANSECT IN REGIONAL PLANNING

Form-based codes are a useful tool in regional planning. The SmartCode, in particular, is designed so that it can be adopted in diverse places across the US and the world. For more information on the SmartCode and other form-based codes, see chapter 10. The largest single introduction of the SmartCode



A portion of the regional sector plan for Mesquite, Texas, includes the cluster of town centers and traditional neighborhood developments along I-20 planned according to the SmartCode.

so far took place in the Mississippi Renewal Forum in October 2005, when teams of new urbanists from around the country worked with 11 Gulf Coast municipalities in Mississippi that were desperate to plan a recovery after being devastated by Hurricane Katrina. Connie Moran, mayor of Ocean Springs, Mississippi, says public officials in the coastal communities had been accustomed to separation of uses until they learned about the SmartCode and the advantages of judicious mixing. "Before, we never really thought

Mapping the Transect

To help communities apply the Transect concept, Criterion Planners in Portland devised a tool called "TransectMap," which can be used to map T-zones for general plans and for implementing Transect-based codes. In new growth areas especially, the process of applying the Transect calls for a fairly complicated balancing of T-zones. A Transect-based code generally encourages the establishment of town centers, neighborhoods, villages, and hamlets. However, it recognizes that in many communities there is a demand for less dense areas, so it often identifies some places that will be allowed to develop in a looser fashion, such as T3 sub-urban. It also recognizes the desire of developers for flexibility, so that they can meet changing market demands.

TransectMap is a step-by-step procedure for calibrating and delineating a Transect according to local standards — helping people map the zones so of it," she says. "We thought different uses were not supposed to touch each other."

The SmartCode governs growth at three scales: sectors, communities and Transects. Sectors address preservation and development at the regional scale and contain one or more community types; community types are constructed around Transect zones, which set placement and form standards for buildings, streets, parks, and other urban elements. Only the larger applications of the SmartCode attempt to

that they support growth visioning, comprehensive planning, and neighborhood design objectives. In much the same way that DPZ is distributing the SmartCode, Criterion is allowing individuals, organizations, and governments to use and reproduce TransectMap at no charge, provided they acknowledge Criterion's copyright. "We're interested in promoting more consideration of Transect principles in local planning, and drawing a local Transect map will help people better understand what the theory means on the ground in their community," says Criterion principal Eliot Allen.

The method uses a system composed of regional sectors, Transect zones, and pedestrian sheds (areas defined as within about a five-minute walk, about a quarter-mile). Elements in this system occupy a continuum beginning at the regional level and working down to block-level detailing of the pedestrian environment. The virtue of the TransectMap is that it recognizes the complexity of human environments and provides a carefully worked-out procedure for creating places that satisfy more than the most elementary aspirations.

govern regional growth. For example, the comprehensive plan for the City of Mesquite, Texas, incorporates what the SmartCode refers to as a "regional sector plan." (See plan on previous page).

For all its openness to mixed uses, the Smart-Code recognizes, that what fits one location well may be inappropriate somewhere else. A key element of the SmartCode therefore is the "Transect" — a term borrowed from study of the natural environment. Among people who analyze landscapes and natural ecologies, the Transect is a geographical cross-section of a region, tracing natural ecologies and showing their varying characteristics through differing zones such as shores, wetlands, plains, and uplands. The Transect, as employed in urban planning, identifies a set of human habitats, varying in their level and intensity of urban character. For more information on the Transect, see Chapter 1.

Planning based on the Transect may use an implementation tool such as the TransectMap, developed by Criterion Planners in Portland (see sidebar on the previous page).

THE FIVE-MINUTE WALK

In the Mississippi Renewal Forum, most of the planning teams produced maps showing where neighborhoods are currently organized around a five-minute walk or where they could be developed, allowing residents to reach a park, a store, a civic use, or another amenity within a quarter-mile. "For the existing neighborhoods, we used either an existing pocket park or corner retail as the center, even knowing that in many cases there are no sidewalks," Sarah Lewis of Ayers/Saint/Gross Architects said of the plan for Long Beach. The five-minute-walk diagrams attempt to anchor the concept of neighborhood, providing a shared space for their residents.

The five-minute-walk concept can also be used in deciding where to institute a "park once" strategy for shopping areas and to identify logical places where more density should be encouraged. Along the Gulf Coast in Mississippi, many of those places are at roughly half-mile intervals along US 90, the coast highway. The regional planning and environment teams produced a pedestrian-shed map for all the parks and schoolyards in the 11 cities. For more information on the five-minute walk, see Chapter 1.

COOL SPOTS

The recognition that regional planning can af-

fect global warming led to methods to more easily determine where development should go to minimize greenhouse gas emissions. One such method is Cool Spots, created by Criterion Planners, which uses regional data to determine where CO2 emissions are highest. The differences can be startling — driving can be reduced by as much as 75 percent through physical location and characteristics of place, according to Eliot Allen of Criterion. The Cool Spots method has been employed in the Grand Rapids, Michigan, and Baltimore, Maryland, regions. Read more about Cool Spots on page 374.

TIPS FOR COHERENT REGIONS

Here is a selection of advice from Calthorpe, Dover, and Michael Beyard, retail expert at the Urban Land Institute:

• "Pulse the development" and "limit the extension of infrastructure" instead of allowing low-density development to spread continuously, Beyard says. "Use key intersections to create walkable centers."

• Pursue a smart-growth strategy of focusing reinvestment in existing centers, as Parris Glendening did when he was governor of Maryland. Increasingly in the US, Beyard says, "there's a confluence of the public sector, the private sector, and residents in support of the idea that something has to be done."

• Encourage local governments that share a major road to get together and discuss what can be done to improve the corridor. Dover points out that the mayors of seven municipalities along a 15-mile segment of US 1 in Palm Beach County, Florida, convened with the help of a regional planning agency, to see what might be done in concert.

• When considering the development of new or expanded mass transit systems, Dover says, ask "how can we use the investment in those things to leverage more livable communities?"

• Organize workshops in which citizens grapple with large-scale planning issues. For Envision Utah, the first workshop focused on the question "Where should we grow?" Calthorpe says, "We gave them simple, one-square-mile chips that represented the next million people at current densities of development." Most participants, he says, "discovered that if they laid the chips side by side in new growth areas, they destroyed most of what they loved most about the region. And that epiphany is not something that people arrive at simply by attending a city council hearing about the next subdivision — or even thinking about New Urbanism. There's something about adding all the pieces together in a clear and simple way, and seeing what's being traded off, that's very important to move the political consciousness of a region."

In a follow-up workshop, citizens were given seven chips representing different development types, three of which were pedestrian-oriented. Calthorpe says these helped people grasp alternatives to the existing zoning codes. Then four scenarios, ranging from low-density development to much denser development combined with a large investment in transit, were presented so that people could understand the impact that each pattern would make on the region. The infrastructure costs associated with each scenario were calculated. Calthorpe observes, "The conservative politicians really stood up and started to pay attention when they realized that sprawl as usual was going to cost, one way or another, the taxpayer an extraordinary amount of money."

• Have a consultant who is known and respected by homebuilders conduct an unbiased, region-wide study of market demand for housing. Calthorpe says this can persuade builders and developers that it makes sense to plan for a range of housing, including affordable and multi-family units.

• Advocate regional tax-base sharing, as is done in the Minneapolis-St. Paul area. "As long as the fiscal incentives are there for each jurisdiction to fight for inappropriate land uses — to get big-box retail, for example, to avoid in all circumstances lower-income households because they demand more services that their tax base supports... — we're going to have a bias away from equitable and rational distributions of these kinds of uses," Calthorpe says.

• "Each state is going to have to enact some form of growth management, perhaps along the lines of Washington State," Calthorpe says. "Studying the political coalitions that brought that about in Washington State is probably a worthwhile enterprise if you're interested in really pursuing how regional planning can be implemented."

• When planning for boulevards, one-way couplets, or other kinds of streets, Dover says it's essential to keep in mind that "there are 15 things you have to get right, not just from the traffic engineering point of view but also for the retailing and for the livability of the adjacent land uses." A good general idea will not suffice. The design must be properly refined if the streets are to work as envisioned.

OTHER FACTORS IN REGIONAL PLANNING

Regional planning can encompass a broad range of desires and considerations. In Mississippi and Louisiana in the aftermath of the hurricanes of 2005, planners in both states looked at what kinds of architecture would best suit their regions. Urban Design Associates (UDA) of Pittsburgh produced guidebooks for both states that catalogued the styles and building and landscape forms that historically predominated in the coastal areas. The guidebooks helped Mississippians and Louisianans to recognize the virtues of regional vernacular styles and to consider making them a prominent part of the rebuilding. Such guidebooks, often called "pattern books," are a great resource — easy for people without architectural training to understand and apply to their own situations, especially when designing and building houses.

Regional planning on the Gulf Coast after the hurricanes paid close attention to transportation. Planners tried to give people more choices in how they can get around — including mass transit, bicycling, and walking, in addition to private motor vehicles.

Open-space preservation is a key principle in a new urbanist plan for northern St. Lucie County, Florida. The 28-square-mile plan, which came out of a charrette led by the Treasure Coast Regional Planning Commission, calls for development of towns and villages with mixed-use centers. In return for giving developers a 70 percent increase in density, the plan calls for preserving about 50 percent of the land as countryside.

Another example of new urbanist principles at the regional level is *The Plan of Nashville: Avenues to a Great City*, produced by the Nashville Civic Design Center. The plan makes far-ranging recommendations — from enhancing key terminated vistas, to converting commercial strips to urban avenues, to designing better low- and moderate-income housing, to reclaiming vast underutilized and unloved sections of the city.

New urbanist regional planning is not a whole different animal from what new urbanists do at a smaller scale. Many of the tools employed at the regional level are also important at the neighborhood scale. The five-minute walk, a willingness to use vernacular architecture, an awareness of the need for housing that people of varying income levels can afford — these are ingredients of new urbanist planning across the spectrum.



New Urbanism in the New Millennium

New Urbanism's expanding scope	42
A new kind of suburb	44
Infill developments proliferating	45
Designing a greenfield site	45
Case studies — Greenfield	48
New Town at St. Charles	48
Celebration	49
Harbor Town	49
Prospect	50
Other greenfield developments	50
Case studies — Grayfield	51
Belmar	51
Mizner Park	52
Santana Row	52
Stapleton	52
Other grayfield redevelopments	53
Case studies — Brownfield	53

Glenwood Park	53
Beerline B	53
Summerset at Frick Park	54
Waterfront District	54
Other brownfield redevelop	ments 55
Case studies — Town centers	55
Birkdale Village	55
Mashpee Commons	56
Excelsior & Grand	56
Other town centers	57
Case studies — Downtown/in	ıfill 57
CityPlace	57
Downtown Albuquerque	57
The Cotton District	58
Other infill redevelopments	58
Case studies — Transit-orient	ed 58
Bockville Town Center	58

Orenco Station	58
Market Common	59
Del Mar Station	60
Other TODs	60
Case studies — Military NU	60
Fort Belvoir	60
Naval Training Center	61
McGrew Point Naval Housing	61
Case studies — HOPE VI	61
City West	61
New Columbia	62
Park DuValle	62
Other HOPE VI redevelopments	63
Case studies — Town extensions	63
Hammond's Ferry	63
South Main	63
Other town extensions	63

Above: A street in new urban East Beach in Norfolk, Virginia, displays mix of housing types — single houses, townhouse, and condominiums (building visible at the end of the street). Photo by Robert Steuteville.

New Urbanism's expanding scope

New Urbanism has become one of the most powerful trends in real estate. As soon as *New Urban News* started publication in 1996, we began doing an annual survey of new urbanist projects throughout the US. The survey focused on projects of at least 15 acres — those large enough to constitute a neighborhood, and those that met basic criteria for urbanism.

The first year, we found 119 projects — built, under construction, or in planning. Within seven years, the number more than quintupled, to 648 (see graph below). After 2003, the survey was abandoned, but growth continued at a steady pace. New Urbanism, which started as a small trend associated with a few independent-minded developers and their architects, burgeoned into a mass movement.

As New Urbanism has grown, it has penetrated an ever more diverse array of settings. The first new urbanist community was Seaside, the 80-acre resort development that Robert Davis began building on the Florida Panhandle in the early 1980s with lead designers Andres Duany and Elizabeth Plater-Zyberk. Seaside was, and is, an amazing project, both in its style and in its pursuit of community interaction. Davis's pioneering project demonstrated that New Urbanism (or Neotraditional planning, as it was first called) is capable of reviving many of the best elements of small-town design.

New Urbanism has always been concerned with cities as well. One of the six individuals who founded the Congress for the New Urbanism in the early 1990s was Dan Solomon, an architect who has honed his approach to building design in part by closely observing traditional development patterns, especially those in his own city, San Francisco. Solomon recognized





A street in Seaside, left, and an aerial image of Seaside, below.



that the most essential elements of the old patterns could be perpetuated if new construction followed the right principles.

While Solomon was exploring how San Francisco could develop, or redevelop, in a satisfying way, similar work was under way on the East Coast. In 1979 in New York, a group of architects that included Alexander Cooper and Stanton Eckstut produced a revised master plan for Battery Park City, a 92-acre endeavor that was destined to become the most significant Manhattan development in half a century. Cooper and Eckstut had seen that when street walls are interrupted too frequently — as happened during in the 1960s and 1970s, when office towers with barren plazas proliferated — the city lost some of its interesting, walkable qualities.

Before Cooper, Eckstut, and their colleagues became involved in it, Battery Park City, overseen by the Battery Park City Authority on filled land along the Hudson River in lower Manhattan, had a flawed plan. Too many of the initial buildings failed to engage the streets and sidewalks. The Cooper, Eckstut group responded by producing a Battery Park City plan that emphasized traditional urban design elements. It featured a regular arrangement of streets and blocks, respecting the long-established Manhattan street grid (though a broad, vehicle-filled roadway, West Street, separated Battery Park City from the Financial District to the east). It required most buildings to line up a uniform distance from the curb, forming consistent street walls, with stone on the bottom two stories, brick on the walls above, prominent cornice lines, and, at the top, non-rectangular peaks. To give people relief from the high density, the plan called for substantial outdoor space — some spacious, and others more compact, reminiscent of well-loved old places like Gramercy Park — but open to all.

Battery Park City was enormously successful as a real estate venture, and was celebrated for rediscovering critical elements of effective city planning. The complex along the Hudson provided a case study in how a large, dense urban precinct, or several of them, could respect human scale and enhance the public realm. Like Solomon's study of San Francisco, the project in New York showed that ideas consistent with New Urbanism's principles could be applied in large cities. New Urbanism would not be limited to towns of a few hundred or a few thousand people.

Another setting in which New Urbanism has proven useful is the single-purpose retail center. During the postwar decades, Americans threw up thousands of shopping and business centers that catered to the automobile, at the expense of pedestrians and community life. One of the first attempts to transform a suburban commercial district took place in the Town of Mashpee on Cape Cod. There, in the mid-1980s, developers Buff Chace and Douglas Storrs acquired a generic shopping center and then set about altering and adding to it — a process that has continued for over 20 years now. The result, Mashpee Commons, is a town center serving a community that previously lacked one. At the impetus of Chace and Storrs, the sixties shopping center added a post office; a cinema complex that opens onto a public square; narrow streets and wide sidewalks comfortable for pedestrians; second-floor offices; apartments and live/work

At left is a plan for Mashpee Town, which grew up on the site of a former shopping center. A street in the development is shown below.









A runner on a Kentlands street, left. Above, a pavilion in a small park near the development's Main Street.

units; and civic and religious structures, including a public library and a church. The center has acquired many of the traits that made 19th-century downtowns appealing. And more is yet to come.

About half the new urbanist projects now under way in the US are on land that had previously been built upon. Many of these occupy reclaimed polluted land ("brownfields") or fit into existing neighborhoods ("infill") or convert failed shopping centers ("grayfields") into sociable, mixed-use developments or renovate subpar urban buildings. Most of the early new urbanist projects were on "greenfield" sites — virgin soil. That was the case with Seaside, and that was where most US development was taking place in the 1980s and 1990s. The new urbanists, among others, were searching for better ways to develop suburbs.

A NEW KIND OF SUBURB

The first large suburban greenfield project to employ New Urbanism's principles was Kentlands, a 352acre project in Gaithersburg, Maryland. Designed for developer Joseph Alfandre by Duany Plater-Zyberk & Company in a charrette in 1988, Kentlands demonstrated that some of the development components common to the Washington, DC, region could be assembled in a more attractive and much more convivial manner.

Washington's suburbs abound with townhouses two or three stories high, accessible by car, uncomfortable to reach on foot. Usually they offer density without urbanity; people live cheek by jowl with their neighbors, yet there is no place worth walking to. Dominating the public environment are driveways or parking areas. In marked contrast to this isolating layout, Kentlands organized its townhouses into steady rows with stoops or small lawns in front, leading to sidewalks that connected to blocks of townhouses, apartments, and detached houses and to a school, a church, parks, and, eventually, a lively, mixed-use center.

In a region where high real estate prices force a growing number of people to share walls with their neighbors, this civilizing of the suburban townhouse was an important advance. It was made possible in part by placing most residents' parking behind the houses, along alleys. When Kentlands and other early greenfield new urbanist projects were getting under way, there was doubt that alleys would ever catch on in the suburbs; in fact, alleys have become a wellaccepted part of contemporary development, helping the facades of the houses to form visually appealing streetscapes.

Another innovative feature of Kentlands is the auxiliary apartment — small quarters above a garage or in some other portion of a single-family home. These apartments provide opportunities for homeowners to obtain some rental income, and offer relatively inexpensive housing for the renter — usually a single tenant or a couple, since the units are small. Initially (and incorrectly) viewed as an assault on the character of suburban neighborhoods, auxiliary apartments are now common in new urbanist developments. Kentlands captured the attention of the Washington-Baltimore area and led to the inauguration of many other greenfield projects in its region. Among them is Lakelands, which adjoins Kentlands and shares a small retail and entertainment center with it.

In some cases, greenfield projects stand off by themselves, much as conventional subdivisions do. A large proportion of their housing consists of singlefamily detached dwellings. The density is lower than that of a city center, so these greenfield projects do not necessarily support a mass transit system.

A closer look reveals, however, that many greenfield projects are a big step up from conventional suburbia. To begin with, the new urbanist developments usually have centers, where the density is higher than in ordinary subdivisions. These centers are places where basic shops and services, including eating and drinking establishments, dry cleaners, banks, hairdressers, and entertainment, can find a niche. Some residents reach these centers on foot or bicycle, the same as in older urban neighborhood business districts. This is quite a contrast to the conventional suburbs, which are not laid out for foot traffic and are largely dependent on private vehicles.

In some instances, greenfield projects are built on raw land inside the cities — land that for one reason or another was bypassed during earlier waves of development. An example is Harbor Town, on Mud Island in Memphis, just a short bridge trip away from the northern edge of Memphis's central business district.

INFILL DEVELOPMENTS PROLIFERATING

Many of the best-known examples of New Urbanism are early greenfield developments like Seaside; Celebration, Florida; and Kentlands. New towns on greenfield sites continue to be built - more recent examples include New Town at St. Charles in Missouri, Seabrook on the Washington coast, and The Waters in Montgomery, Alabama. New urban infill developments in older cities and towns are proliferating as well — probably to a greater degree than greenfield developments. Redevelopments of suburban sites are also increasingly common. Some of the infill communities occupy formerly industrial properties. Others are redevelopments of public housing projects, shopping malls, apartment complexes, or even military bases. Still others consist of revitalization of underpopulated parts of cities. The diversity of new urban developments is steadily growing.

In sales, new urban communities appear to be holding their own against conventional suburban development. In the market downturn of 2007 and 2008, anecdotal evidence pointed to New Urbanism outperforming conventional development across the US (no agency or organization gathers these figures). Builders generally are able to charge a premium for houses situated in new urbanist projects. A study by George Washington University, which examined four traditional neighborhood developments (TNDs), calculated the premium at 11 percent.

Many factors continue to hold New Urbanism back. Though a growing number of municipalities have adopted flexible new urban zoning ordinances, most places still have zoning laws that make it difficult to build a new urban neighborhood or town. Financing remains a significant hurdle. A third hurdle is the conventional practices of engineers, builders, developers, and planners — all of which make conventional development the default method of land-use development. The challenges, though, are old news. In many locations, new urbanists are overcoming the obstacles. The projects are getting easier to approve and finance, relative to conventional development, and are attracting increasing public support. They are encountering less resistance from banks, builders, and others who may have previously had a vested interest in the status quo.

One key to New Urbanism's progress has been the development of successful built examples; their presence has transformed the attitudes of public officials and builders in many regions. In some communities, developers and builders are embracing New Urbanism because the local governments favor it and make it easier for developers to obtain necessary approvals when the development adheres to new urbanist ideals.

DESIGNING A GREENFIELD SITE

Note: the following is reprinted from the Smart-Code, Version 9 and Manual.

Greenfield sites are similar enough that they may be designed according to a standard protocol, as follows:

Step 1: Map the existing evidence on the land.

Assimilate the traces of the site into the plan. Traces include paths, roads, ponds, woods, slopes, streams, and wetlands. Design the parks and squares around ponds and wooded areas or specimen trees as much as possible, so that mature trees grace the public spaces of the community from the outset. Further define natural boundaries by excluding arterials, utility easements, slopes exceeding 25%, and preserved lands.

Step 2: Identify the type of community to be designed.

A greenfield site may be developed under a New Community Plan as one of three community types.

Clustered Land Development, also known as a hamlet, appropriate for a location on a simple thoroughfare, therefore destined to have a weak commercial component.

Traditional Neighborhood Development, also known as a village, suitable for crossroad locations. A Village is the design equivalent of a complete urban neighborhood, albeit standing free in the landscape.

Regional Center Development, also known as a regional center, town, or town center, which should be planned around a regional transportation nexus considered capable of sustaining the equivalent of a shopping mall. A Regional Center supports substantial commercial development, including both retail and office, as well as residential and civic functions. It should be adaptable to light rail or Bus Rapid Transit (BRT). These transit options need not be present before the project is complete, because transit may follow development as well as lead it.

Step 3: Locate the mixed use center on the thoroughfare or intersection with the most traffic.

There are two schools of thought about locating mixed use centers (town squares and main streets). One option is simply to locate the commercial center on the thoroughfare or intersection with the most traffic, even if it is not at the geometric center of the site, because without traffic the retail elements may wither. (One exception is a location of such compelling interest — a beach, the base of a ski run, or a spectacular public viewshed — that traffic would be drawn to it as a destination.) The other option is commonly exercised when the location with the most traffic is a large arterial thoroughfare which may undermine the social performance of the place. In that case it may be advisable to insert the mixed use center some distance into the neighborhood.

Step 4: Roughly structure the site into pedestrian sheds.

Pedestrian sheds determine neighborhood size, with their types dependent on the Community Unit types. Thus neighborhood size is determined by walkability, not by density, which is a function of the regional location and the market. Density may be as low as three units to the acre for a rural Hamlet and as high as 80 units to the acre for a Regional Center. All are structured on the neighborhood pattern of Pedestrian Sheds.

Each pedestrian shed is equivalent to a five-minute walk from edge to center. The Pedestrian Shed is conventionally drawn as a circle scaled to a quarter mile radius, representing the average distance that most people would walk rather than drive to a destination. It is more accurately drawn as an irregular shape reflecting actual walk times. For infill, the sheds can be measured by walking the actual thoroughfares, though this is rarely done; for greenfield design, walk times must be estimated based on the plan and the topography.

Orient one of these sheds on the previously determined mixed use center. Arrange any additional Pedestrian Sheds to cover the remainder of the development site without substantial overlap. The more the catchments of the sheds overlap, the more they tend to compete with each other and dilute each other's viability as mixed use centers, unless a composite shed is planned with centers whose functions complement each other instead of competing.

Step 5: Precisely adjust the location of the pedestrian sheds.

The centers of the pedestrian sheds should meaningfully coincide with traces on the land.

A cluster of specimen trees may become a central green, and a rise or ford may provide another. Hedgerows may provide trees for avenues, and country stone walls should remain alongside new roads. Existing country paths and lanes embody the geographic experience of animals and persons; they should influence the trajectories of new thoroughfares wherever possible. A certain easy beauty will result from assimilating such traces of the land.

This process requires a skillful designer's eye as well as a "lucky site." Several designers should work on these proposals independently, because a single eye is less likely to find the key unlocking the character of a site that supports strong neighborhood structure. Where traces are not determinants, introduce a public space or special intersection as the center of each Pedestrian Shed.

Step 6: Connect the neighborhood centers with larger thoroughfares.

At this point, the natural traces have been as-

A typical greenfield site, at right, of about 110 acres. The circle of dots and dashes represents a five-minute pedestrian shed from the central square. The commercial uses are at the top of the plan, where the site abuts a major thoroughfare. The widest street leading into the development is the Main Street.



similated into urbanism, the main mixed use center has been determined, and the neighborhood structure has been outlined by Pedestrian Sheds. Now, connect these neighborhood centers to each other with larger thoroughfares, known as main streets or avenues. These should be direct, but not necessarily straight. Most thoroughfares should deflect in response to the land's traces or to slow traffic.

Next, fill in the area between these main thoroughfares with secondary routes, known as streets and roads, in a network pattern. These in-between areas need not be geometrically coherent throughout the entire Community Unit, but may be localized.

Networks must be adjusted to create a block pattern that is smaller and more permeable when close to a center, and progressively larger elsewhere. Then subdivide the block pattern into lots that also become larger relative to the buildings that occupy them, so the ratio of nature to building becomes progressively more rural towards the edges of the Community Unit. This is the beginning of a transect.

Step 7: Detail the other urban elements so they all support Transect Zones.

The Transect used in the SmartCode analyzes and coordinates the built environment. It works by coordinating the typical elements of traditional urbanism; those that are rural in character support each other, and those that are urban support each other. The Transect creates a diversity of natural and human habitats, providing choice according to the needs and preferences of residents. Hamlets and Villages display Transect Zones evolving from rural edges to urban centers. Regional Centers may invert the sequence, with the more urban areas on major thoroughfares along the edges of neighborhoods. This gradient, when rationalized and subdivided, becomes the basis of SmartCode zoning. An analysis of regional typological and architectural character should guide any customization of the SmartCode elements.

The framework of thoroughfares and open space creates the image and structure of the town. The engineering and the detailing of these elements, including paving, landscaping, lighting and furnishing, must be determined by the planner according to their Transect location — even if built over time.

Step 8: Reserve the civic sites.

Civic institutions are necessary to the well-being of a community, yet are often difficult to provide. The market generally encourages private residential and commercial buildings, but not civic buildings, which accommodate educational, governmental, recreational, religious, or cultural institutions. A New Community Plan provides for them by reserving civic sites at each neighborhood center for local institutions. For each traditional neighborhood development, there should be places reserved for, at minimum, an elementary school, childcare facility and Meeting Hall. For a regional center, the plan should also designate sites for regional institutions such as secondary schools, government agencies, religious and cultural buildings. If such Civic Zones are preserved in perpetuity by the Regulating Plan, the residents themselves will, over time, bring the civic buildings into being. Covenants are necessary to ensure this.

Step 9: Provide covenants and establish local governance

A community requires local governance for which a set of covenants must be written. They should be enacted by contract as a condition of the purchase of a lot or a building. In typical Home Owners Association documents, such covenants are usually conceived to protect the prerogatives of the development agency, assigning all power to itself. Consequently, the community remains hobbled by its system of governance, unable to adjust organically to society, culture and the economy as they evolve. Instead, these covenants should provide for an elected executive with considerable influence (a role initially played by the developer), balanced by a small deliberative body and an appellate forum. This Community Association must have the capacity to levy charges that provide for the ongoing maintenance of the public realm (e.g. Civic Space, Civic Buildings, Thoroughfares). A portion of the charges should also be allocated in trust for civic improvements, allowing the community over time to decide how to best to invest them on the reserved civic lots. These covenants must also make reference to the code that guides the ongoing construction of the community.

Step 10: Establish a community association.

At some point during the buildout of the community — after the general direction has been set, but while meaningful adjustments are still possible -- the original planners and developers should withdraw in favor of the Community Association, which should include a Town Architect's office staffed by those who live in the community. For it is only by participating in the daily life as citizens that municipal administrators have standing in the community they govern. Those who must move on have undergone an apprenticeship in community building, the lessons of which may be applied elsewhere.

CASE STUDIES

The following are examples of the range of new urbanist development across the nation, divided into nine different types: greenfield, grayfield, brownfield, town centers, downtown/infill redevelopment, transitoriented development, military New Urbanism, HOPE VI public housing redevelopment, and town extension.

Greenfield

New Town at St. Charles St. Charles, Missouri

Designed in 2003, New Town at St. Charles quickly established itself as one of the most popular new developments in the Midwest and an important example of greenfield New Urbanism. A market survey covering all or part of 16 states showed that from March 2005 through February 2006, New Town was the fastest-selling new community — out of more than 17,280 developments. This was New Town's very first year of sales.

The development is affordable relative to many other new urban developments and includes a wide range of prices. Units sold for as low as \$108,000 — and as high as \$800,000 — in the initial phase. Part of the affordability is due to economies of scale. A single builder, Whittaker Homes, is developing the entire 755-acre, 5,700-unit development. In addition to a great variety of residential units, New Town also includes multiple mixed-use town and neighborhood centers laid out on a well-connected network of streets and small blocks. The project features numerous man-made lakes and canals that provide good sites for small parks and avenues. The vernacuThe neighborhood center in New Town at St. Charles.



lar architecture is elegant, especially for a production builder. The urban designer is Duany Plater-Zyberk & Company. www.newtownatstcharles.com

Celebration, Osceola County, Florida

Celebration, with 9,000 residents and a predicted eventual population of 12,000 to 15,000, was developed by the Walt Disney Company, and for that reason marked a major advance for New Urbanism — it was the first notable project undertaken by a large company rather than by the small, independent developers who had produced the initial new urbanist communities. The first residents of the large development southwest of Orlando — 4,900 acres surrounded by 4,700 protected acres — moved in during 1996.

Celebration's downtown has 94,000 square feet of commercial space, with more than 20 merchants, including restaurants, a small grocery store, other retailers, and a movie theater. It has nearly 40 professional offices and a 115-room hotel. The downtown, much of it three to four stories high, includes not only retail uses but also civic buildings, many designed by prominent architects, along with hundreds of apartments, and a scenic waterfront. It is one of the most complete examples of a new urban town center built in the 1990s.

Celebration has been tremendously popular as a real estate project and, increasingly, as a destination. The Celebration plan (by Cooper, Robertson & Partners and Robert A.M. Stern Architects) and the accompanying pattern book (by Urban Design Associates) have produced a unique, human-scale environment. Small parks and greens are interspersed through its neighborhoods. www.celebrationfl.com

Harbor Town, Memphis, Tennessee

With its intimate streets, neighborhood parks, and well-proportioned houses, Harbor Town has the feel of a resort town, although it is a year-round residential community. Situated on Mud Island, which is connected by a bridge to downtown Memphis, Harbor Town lies within sight of the central busi-

An aerial view of Celebration — the divided avenue connects the town center with the golf clubhouse, at bottom.



ness district's high-rises. The small center of Harbor Town features a grocery store, restaurant, professional offices, other businesses, and Montessori school. RTKL Associates drew up the initial plan for local developer Henry Turley, and it was subsequently refined by Looney Ricks Kiss, a Memphis architectural firm that has also reviewed the design of its buildings. When Turley was unable to find an existing grocer willing to operate a high-quality food store, he opened one himself — an example of the close attention Harbor Town has received from its development team.

Small parks, such as Nursery Park, are embedded into Harbor Town's three distinct, yet interconnected neighborhoods — the garden district, village district, and harbor district. A wetlands retention feature - designed to look like a stream and ponds - runs through the center of the 135-acre site, creating a natural boundary between neighborhoods. There is a wide range of house sizes and prices, sometimes on a single block. One of the historical architectural features revived at Harbor Town is a double front porch - outdoor sitting areas on both the first and second floors. Most Harbor Town residential designs are updated version of such vernacular styles as Charleston sideyard houses, simple shotgun cottages, and dogtrot houses. After 15 years of development, the project reached completion in 2004.

Prospect, Longmont, Colorado

With colorful modern houses mixed amid traditional dwellings, this new town on 80 acres is one of the most architecturally flamboyant examples of New Urbanism. Mostly complete as of 2008, Prospect will eventually have 639 residential units including single houses, townhouses, and apartments, along with a main street containing shops and offices. Three old buildings, including one mentioned in Jack Kerouac's On the Road, have been moved into the development. The street network is designed so that avenues terminate with views of snowcapped peaks. Developer is Kiki Wallace. www.prospectnewtown.com

Other greenfield developments:

- Addison Circle, Addison, Texas.
- www.rtkl.com/projects
- Afton Village, Concord, North Carolina.
- www.aftonvillage.com
- Baxter, Fort Mill, South Carolina.
- www.villageofbaxter.com
- Bradburn, Westminster, Colorado.
- www.bradburnvillage.com
- Cherry Hill Village, Canton Township, Michigan. www.cherryhillvillage.com
- Daniel Island, Charleston, South Carolina.
- www.danielisland.com
- Doe Mill, Chico, California.

The traditional town plan for Prospect, below, contrasts with its architecture of its houses and other buildings, which are often modern.







www.doemillchico.com

• Fairview Village, Fairview, Oregon. www.fairviewvillage.com

• Habersham, Beaufort, South Carolina. www.habershamsc.com

- Haile Village Center, Gainesville, Florida. www.haileguide.com
- I'On, Mount Pleasant, South Carolina. www.ionvillage.com
- Kentlands and Lakelands, Gaithersburg, Maryland. www.kentlandsusa.com and www.lakelands.org
- King Farm, Rockville, Maryland. www.kingfarm.org
- Longleaf, Florida. www.longleaftown.com
- Middleton Hills, Madison, Wisconsin. www.middletonhills.com/ehi/mhills
- Mt Laurel, Birmingham, Alabama. mtlaurel.com
- Newpoint, Beaufort, South Carolina.
- www.newpointcommunity.com
- Norton Commons, Louisville, Kentucky. www.nortoncommons.com
- Oshara Village, Santa Fe, New Mexico. www.osharavillage.com
- Providence, Huntsville, Alabama. www.villageofprovidence.com
- River Ranch, Lafayette, Louisiana. www.riverranchdevelopment.com
- Rosemary Beach, Florida. www.rosemarybeach.com
- Seaside, Florida. www.seasidefl.com
- Southern Village, Chapel Hill, North Carolina. www.southernvillage.com
- Seabrook, Pacific Beach, Washington. www.seabrookwa.com
- The Waters, Montgomery, Alabama. www.thewatersal.com
- Washington Town Center, Washington Township, New Jersey. www.sharbell.com/html/washingtontowncenter.html
- West Park Village, Tampa, Florida

Grayfield redevelopment

Belmar, Lakewood, Colorado

A 1960s enclosed mall was torn down and is being replaced by a new downtown for a suburb of Denver. The 104-acre Belmar is a prime example of the opportunities that lie in the redevelopment of grayfield sites.

"Belmar brought together a lot of uses that might otherwise have dispersed around the landscape," says





The plan for Belmar, top, reveals a radical transformation that is possible in the redevelopment of a grayfield site, represented in the aerial photograph at bottom, taken in the latter days of the Villa Italia Mall in Lakewood.

Tom Gougeon, development director for Continuum Partners. "It will make Lakewood more viable in the long run economically, as a first tier suburb" of Denver. Belmar is designed to become the downtown that Lakewood never had, with a million square feet of retail, 600,000 square feet of office space, a fullservice hotel, and 1,400 residential units at buildout. The project is currently under construction, growing block by block since opening in 2004. It has the feel of a 24-hour environment, where residents can do their shopping, dine out, take in a movie, participate in civic events, and in some cases work for one of the employers at the development.

Continuum took the idea of recycling seriously at

Belmar. First, the site itself was reused. Second, one of the former mall's department stores was converted to a mixed-use building. The developer would have preferred to reuse more of the former buildings, but they stood in the path of the street grid that connected to peripheral roads. An on-site construction and demolition debris recycling plant — set up by Continuum found a way to recycle 200,000 tons of concrete and 2 million square feet of asphalt. www.belmarcolorado.com

Mizner Park, Boca Raton, Florida

A phoenix rising on the site of a defunct mall, Mizner Park — whose design by Cooper Carry won a Sierra Club award for smart growth — has established itself as the stylish heart of Boca Raton and as one of the first successful new urban town centers. A \$58 million investment by the City of Boca Raton (through its Community Redevelopment Agency) and Crocker Downtown Development Associates produced 272 housing units, 236,000 square feet of retail, dining, and entertainment, and 286,000 square feet of offices. These elements were arranged in a way that create a powerfully immersive environment. Demand for the residential units has been strong since before the project opened in 1989, especially along the public square, where units have proven more popular than nearby residences with ocean views.

Retail was slower to lease up, but today commercial space in the 29-acre project is almost completely occupied. Restaurants, in particular, draw people from miles around. A balance is maintained between big-volume, well-known national chains and unique local operations. Mizner Park's success helped lead the way to the establishment of many town centers across the country. www.miznerpark.com

Santana Row, San Jose, California

This 40-acre, \$445 million grayfield mall redevelopment broke ground in 2001. Despite a disastrous fire in August 2002, shortly before the project was scheduled to open, and despite a downturn in the region's high-tech economy, Santana Row established itself as a premier shopping place, combining dining, entertainment, residential quarters with its retail activities. Federal Real Estate Investment Trust developed the 42-acre complex, which covers approximately 10 city



A mixed-use street in Santana Row creates a strong sense of enclosure.

blocks. The master planner was Street-Works.

Santana Row has since grown to have 563,000 sq. ft. of retail (60 shops plus a half-dozen spas and lifestyle service purveyors), 26 eating and drinking establishments, a six-screen cinema, a 213-room luxury hotel, and 514 residential units. Approved entitlements remaining to be constructed include 133,000 sq. ft. of retail, 22,850 sq. ft. of restaurant space, 897 residential units, and 191 hotel rooms. Although Federal retreated from such ambitious undertakings after Santana Row was under way, the project has performed well. Said former Federal CEO Steven Guttman: "We thought long term, and I still believe long term it's going to be one of the top real estate developments in the United States." Situated about three miles from downtown San Jose, Santana Row has been built with a high level of design skill, creating an urbane atmosphere in marked contrast to the sprawling surrounding area. www. santanarow.com

Stapleton, Denver, Colorado

By some measures, Stapleton is the biggest new urban undertaking ever. The 4,700-acre redevelopment of the former Stapleton Airport property has been called "the grayfield to end all grayfields." With 1,100 acres of parks and open space, it is arguably the largest green development, too. Planned by Calthorpe Associates for the Forest City Stapleton Development Corporation, it will take about 30 years to complete and, when finished, will be home to 30,000 people, 8,000 single-family homes, 4,000 multifamily units, three million square feet of retail, and ten million square feet of offices — all told, some \$4 billion in development.

Construction began in the spring of 2001, and the first residents began occupying homes in 2002. The East 29th Avenue Town Center is a pedestrianscale focal point of the development, near a 2.5-acre town green. Some of the other retail at Stapleton, about ten minutes east of downtown Denver, takes more of a suburban big-box format. Stapleton will be a new urbanist stand-out in volume of office employment. www.StapletonDenver.com

Other grayfield redevelopments:

- Holiday neighborhood, Boulder. Colorado.
- www.holidayneighborhood.com
- Baldwin Park, Orlando, Florida.
- www.baldwinparkfl.com/web

• Highlands' Garden Village, Denver, Colorado. www.rose-network.com/projects/highland.html

Brownfield redevelopment

Glenwood Park, Atlanta, Georgia

The 28-acre Glenwood Park features shops and office space as well as a fine-grained mix of housing — a far cry from its former industrial use.

Dover, Kohl & Partners of Coral Gables, Florida, with Tunnell-Spangler-Walsh & Associates of Atlanta, produced the plan, which won a CNU Award in 2003. The objective, says Charles Brewer of Green Street Properties, was to create a sociable, walkable community where there's less need for driving. Brewer, an Internet pioneer, had to borrow no money to

An aerial view of the plan for Glenwood Park.



build the project, which meant that the developer was not pressed to make design compromises.

The company estimates that pedestrian-friendly design, bike lanes, direct access to MARTA rail service, and proximity to downtown Atlanta, will reduce driving among Glenwood Park residents by 1.6 million miles per year (the equivalent of removing more than 100 cars from the roads) when compared to the region's typical driving patterns.

Green Street Properties and its partners — The Meddin Company and the Novare Group — have civilized a state highway by getting it transferred to the city's jurisdiction and then instituting traffic-calming measures that allow it to serve as the development's sociable main street, lined by trees and shops. They worked with the city on adoption of Traditional Neighborhood Development street standards, with narrower widths and tighter corners. www.glenwoodpark.com

Beerline B, Milwaukee, Wisconsin

Beerline B takes its name from an old rail line that had served an assortment of breweries and other industries. The city controlled most of the 20 acres in the corridor, and acted as agent for other public agencies that held title to the rest of the land. In 1998, the city hired Dan Solomon and John Ellis of Solomon E.T.C. in San Francisco to design a new neighborhood, setting the stage for private investment. Taking the lead for the municipality was the Department of City Development, which encompasses planning, permitting, economic development, the public housing authority, the redevelopment authority, and cityowned real estate.

Many streets in the corridor had dead ends; the city decided to link them together where possible, connecting the formerly industrial lowland along the Milwaukee River to the bluffs of Brewers Hill, where old mansions stood. Regrading and new trails and staircases also helped overcome the separation between the neighborhood on the bluffs and the development envisioned below.

"We wrote a simple form-based code, setting four building types," says former Milwaukee city planner Peter Park.

"Having the plan prepared with the community created a degree of certainty for developers," Park observes. "We sent out RFPs in parcels as small as we could [often under two acres], to encourage multiple



An aerial photo of Summerset at Frick Park, at left, represents a dramatic transformation from what existed prior to redevelopment, above.

developers." Height restrictions were included in the planning, to preserve views and build predominantly outward rather than upward, thus creating consistent street-walls and preventing a situation in which one tall building might saturate the market.

As of 2007, over 1,000 residential units have been built or approved. The city has encouraged reclamation of this former brownfield corridor by spending about \$25 million in tax-increment finance funds on infrastructure, including construction of the Marsupial Bridge that carries motor vehicles on its upper level and pedestrians below, crossing the river. Restaurants and other retail, mainly aimed at neighborhood residents, have started to arrive, and prices have shot up. "There's housing from \$140,000 to \$1.5 million," says John Vetter of the architecture and development firm Vetter Denk, which has built some of the units. www.mkedcd.org/projects/blb

Summerset at Frick Park, Pittsburgh, Pennsylvania

A 240-acre area where slag, a waste product from steel-making, was dumped decades ago is being developed into a residential precinct called Summerset at Frick Park and into a large extension of the adjacent city park. In the mid-1990s, Pittsburgh Mayor Tom Murphy encouraged the Urban Redevelopment Authority to purchase the site, near the established neighborhoods of Squirrel Hill and Swisshelm Park, and to work on reclamation and redevelopment, supported by roughly \$30 million from a variety of public sources. Urban Design Associates and LaQuatra Bonci Associates, both of Pittsburgh, and Cooper, Robertson & Partners of New York prepared the master plan, calling for 713 housing units in three interconnected neighborhoods on 105 of those acres.

The plan involved moving 1 million cubic yards of slag, covering much of the surface with 30 inches of new soil, and foresting the steep slopes of slag. A major goal was to connect Summerset to historic Frick Park through bio-remediation of Nine Mile Run, a tributary of the Monongahela River.

Looney Ricks Kiss collaborated on house designs, which harmonize with those in the old neighborhoods nearby. Detached houses, townhouses, and apartments are part of he plan. Houses in the first phase of Summerset, the first large traditional neighborhood development in Pittsburgh, proved so popular that lotteries were scheduled to choose buyers. www.summersetatfrickpark.com/

Waterfront District, Hercules, California

On 167 acres of bayfront property 20 miles northeast of San Francisco, a Waterfront District is being developed in Hercules, California. Much of the property had been contaminated over nearly a century by the manufacture of a succession of volatile products, from dynamite, black powder, and nitroglycerin to fertilizer and chemicals. In the 1980s the landowner and the state set about remediating the waterfront,



A plan for the Hercules Waterfront District is shown above. A woman walks a dog in the district, at right.



completing the cleanup in 1997. In 1998 the landowner's project director, John M. Baucke, initiated a planning and entitlement process for the waterfront, and in 1999 retained town planner David Sargent to develop a vision, master plan, and form-based code for the property. The plan and code were adopted as zoning for the Waterfront District in July 2000. Based on the community's positive response, the city commissioned Dover, Kohl & Partners to produce a new urbanist redevelopment plan covering 426 acres of Central Hercules. This effort established the Central Hercules Regulating Code, incorporating the Waterfront District Master Plan.

As a result, neighborhoods are being constructed (currently by Hercules Bayfront LLC), complete with small parks, alleys, auxiliary apartments, and, in some locations, business activities. With the adoption of the Central Hercules Regulating Code in July 2002, Hercules was the first municipality in California to adopt a city-sponsored form-based code, according to Community Development Director Stephen Lawton. Houses in historical styles have been built on tiny lots in the central neighborhood and on a range of larger lots in the waterfront residential neighborhood. Demand has run strong. The Waterfront District Master Plan also includes the city's historic town center and a transit village — a passenger rail line runs through Hercules, and a ferry terminal is in the planning stages. Completion of the Waterfront District Plan would bring about 1,200 residential units - in addition to the 349 already built or entitled - in mixed-use courtyard buildings, live-work units, and rowhouses, and 60,000 to 100,000 sq. ft. of commercial space. www.doverkohl.com

Other brownfield redevelopments:

- Atlantic Station, Atlanta, Georgia. www.atlanticstation.com
- Georgetown redevelopment, Redding, Connecticut. www.georgetownland.com
- Mason Run, Monroe, Michigan
- www.crosswindsus.com/michigan/monroeMasonRun
- SouthSide Works, Pittsburgh, Pennsylvania. www.sofferorganization.com/ss_works.htm

Town centers

Birkdale Village, Huntersville, North Carolina

Birkdale Village is a town center with about 350,000 square feet of commercial space and 320 residential units. Developers Crosland Contractors and Pappas Properties finished the project in about three years and promptly sold most of it to The Inland Real Estate Group for a profit of about 20 percent. The \$83 million Birkdale Village is also connected to a larger traditional neighborhood development that is under construction.

"The challenge is to deliver that urbanism at a cost that conventional tenants — be they retailers, office tenants, or residents — can afford," says designer Terry Shook. "That is what Birkdale did. It offers a glimpse of New Urbanism that the conventional development community and, more importantly, the conventional debt and equity community, can accept."



The heart of Birkdale Village, above, and a plan, above right

Birkdale Village is laid out on a commercial avenue lined with wide sidewalks and mixed-use buildings on both sides. National retailers and a wide selection of smaller shops line the avenue. Streets branching off of this thoroughfare also have multistory buildings and shops. A 16-screen cinema anchors the project at one end. At the other end the main street attaches to an arterial road with plenty of traffic. A green with a fountain lies at the heart of Birkdale Village. The center of the avenue also accommodates a linear park. Most of the architectural flourishes are lavished on the storefronts, because, as Shook quips, "birds don't shop." www.birkdalevillage.net

Mashpee Commons, Mashpee, Massachusetts

Mashpee Commons began with an unprepossessing 1960s strip shopping center at a major intersection on Cape Cod. Buff Chace and Douglas Storrs, the development partners, set about transforming the project, adding streets and buildings that would turn it into a traditional town center (like many of the other town centers described in detail here, it is also an example of a grayfield project). They hired Elizabeth Plater-Zyberk and Andres Duany in 1988 to plan the neighborhoods to be built on its edges. In 1993 the first phase of the North Market Street neighborhood was permitted and constructed. For years, the town's archaic zoning regulations prevented the remaining neighborhoods from being built. The commercial area is extensive, however, and in early 2007 the neighborhoods of Jobs Fishing Road and Whitings Road were approved, making way for 382 residential units plus additional commercial space in 31 live-work units.

Mashpee Commons has grown into one of the nation's largest new urban town centers, with about 340,000 square feet of commercial space and with residential units over retail. It offers food and other goods for tourists but also supplies the everyday needs of the town and the region, with a pharmacy, supermarket, and other stores. Moreover, the project has outperformed most suburban shopping centers in rent and sales per square foot, according to industry surveys.

Mashpee Commons demonstrates that conventional suburban development can be retrofitted to become good urbanism. It also shows that neotraditional retail can be successful in the right location, even without nearby residential neighborhoods to support it. When the surrounding neighborhoods are built, Mashpee Commons' vision will come to completion. www.mashpeecommons.com

Excelsior & Grand, St. Louis Park, Minnesota

This 45,000-population suburban municipality bordering Minneapolis acquired strip commercial buildings that had seen better days. Also acquired were 17 single-family houses, with the intention of establishing a mixed-use center on the 16-acre site, situated between a major thoroughfare (Excelsior Boulevard) and a 30-acre municipal park. "It took quite a bit of time to move from the community vision to workshops and design — six years or so," said City Manager Tom Harmening. The municipality purchased roughly \$10 million of real estate even before a developer had been lined up. After a first developer failed to get the project under way, TOLD Development Co. of Plymouth, Minnesota, broke ground in October 2002 on the contemporary-style \$130 million undertaking.

Designed by ESG Architects of Minneapolis, Excelsior & Grand contains about 87,000 sq. ft. of commercial space, a town green, on-street parking, inconspicuous mid-block parking garages, and a police substation. Most of the project's 660 living units — a mix of condominium and rental apartments — are arranged in three stories above ground-floor commercial space. Much of the housing wraps around shared courtyards. Lobbies of the parking garages provide indoor areas where people can wait for buses. www. excelsiorandgrand.com

Other town center developments:

Crocker Park, Westlake, Ohio. www.crockerpark.com

• Legacy Town Center in Plano, Texas.

• Miramar Town Center, Miramar, Florida. miramartc.com

• Reston Town Center, Reston, Virginia. www.reston-towncenter.com

• Redmond Town Center, Redmond, Washington. www.redmondtowncenter.com

• Southlake Town Square, Southlake, Texas. www.southlaketownsquare.com

Downtown/infill

CityPlace, West Palm Beach, Florida

CityPlace, a 72-acre, \$550 million development of the Palladium Development Corporation, is the most conspicuous sign of resurgence in downtown West Palm Beach, a city that has risen from the economic and real estate ashes in the past 20 years. The plan by Elkus Manfredi Architects connects this expanse in the heart of West Palm Beach to the preexisting street grid. The project is anchored by a community cultural center in a renovated 1926 church of Spanish Colonial Revival design, which faces a sunny pedestrian plaza enlivened by fountains. Surrounding buildings, featuring Mediterranean-influenced architecture, offer 600,000 sq. ft. of retail space operated by national, regional, and local merchants. Upper stories are filled with 570 townhouses, apartments, condo units, and flexible-use lofts.

A 350,000 sq. ft. convention center has been built by the county, and a 300,000 sq. ft. office tower has been erected. CityPlace, which was assembled under



CityPlace's plaza, with its cultural arts center, has become a popular hangout for West Palm Beach residents.

Mayor Nancy Graham after the failure of an earlier proposal called Downtown/Uptown, helped spur a housing boom locally. Some of the downtown units have been purchased as second homes and investment property. Charles Bohl of the Knight Program in Community Building at the University of Miami says projects of this kind might be improved through residency requirements, which would help ensure that the units are occupied, generating the activity on which a downtown depends. www.cityplace.com

Downtown Albuquerque, New Mexico

The city government of Albuquerque worked with Arcadia Land Company and the New Mexico-based McCune Foundation to organize the Historic District Improvement Company (HDIC), whose goal is to fill the empty spaces and generate pedestrian-scale mixeduse development in the southeastern section of what had been a less than thriving downtown. The first sizable undertaking of HDIC, the Century Theatres multiplex, occupying a prominent corner across from the new Alvarado Transportation Center, opened in November 2001 and used a design principle of Moule & Polyzoides Architects and Urbanists: Place the dull parts of buildings (particularly blank exterior walls) where they won't be seen by passersby. The designers wrapped the exterior of the cinemas largely with stores, restaurants, and offices.

A similar approach has been taken with some of the parking garages. The Gold Avenue Lofts are condominium units that give an interesting and stylish edge to a parking structure. One-way downtown streets have been converted to two-way to improve the circulation and atmosphere. One of the greatest innovations of HDIC has been implementation of a financial idea proposed by real estate specialist Chris Leinberger: the combining of investments that have varied time horizons — some of them very long. HDIC acquired "patient capital" from McCune, which found the project fit within its mission. www. nmdowntown.com/plan.html

The Cotton District, Starkville, Mississippi

With its Federal, Georgian, Greek Revival, and Italianate buildings, the six square blocks of The Cotton District are reminiscent of historic sections of Charleston, South Carolina. The Cotton District is the three-decade-long project of Dan Camp, a former shop teacher and self-taught architect who is now mayor. Camp has built close to 200 dwellings and a small commercial center on the formerly industrial infill site. The dwellings feature fine craftsmanship, including hand-built shutters, dormers, balconies, railings, and trim moldings, yet mostly they rent for affordable prices to Mississippi State University students. The varied housing types include townhouses, cottages, and multiplexes. www.thecottondistrict.net

Other downtown/infill redevelopments:

• Bethesda Row, Bethesda, Maryland.

- www.bethesdarow.com
- East Beach, Norfolk, VA. www.eastbeachnorfolk.com
- Mercado District, Tucson, Arizona.
- www.mercadodistrict.com
- Mixson Avenue, North Charleson, SC. www.mixsonavenue.com

• Southside, Greensboro, North Carolina. www.southsideneighborhood.com

Transit-oriented development

Rockville Town Center, Rockville, Maryland

Sixty acres in this small city north of Washington, DC, are being turned into a pedestrian-oriented downtown through the collaboration of the municipality, Montgomery County, the state and federal governments, and three private investment organizations — RD Rockville LLC, Federal Realty Investment Trust, and Foulger-Pratt Companies. Centerpiece of the grayfield development (part of which replaces a strip shopping center that Federal Realty owned) is the 12.5-acre Rockville Town Square. RD Rockville has constructed 644 residential units, many of them overlooking a public plaza where daily events and a farmers' market are to be held.

Federal Realty has installed 175,000 sq. ft. of retail and restaurants. The Rockville Regional Library has been built facing the Square. Three public parking garages are included in the project, and the five-story Rockville Arts and Innovation Center contains a county-supported business incubator and the Metropolitan Center for the Visual Arts. The center is within walking distance of the Rockville Station, on Metro's Red Line. www.rockvillemd.gov/towncenter/

Orenco Station, East Hillsboro, Oregon

Occupying approximately 200 acres in a western



Rockville Town Square, at left and in the plan below, brings 644 housing units, a public library, supermarket, and other shops and restaurants within a short walk of the Metro stop. It has greatly enlivened the historic City of Rockville, where the downtown languished for decades.



COURTESY OF FEDERAL REALTY INVESTMENT TRUST

suburb of Portland, Orenco Station features a variety of housing types, parks, and open spaces, and a lively center containing some 70,000 square feet of commercial space, including a grocery store, restaurants, offices, and a seasonal farmers' market. This highly influential transit-oriented community on the Portland region's MAX light-rail system was described in The New York Times as "perhaps the most interesting experiment in New Urbanist planning anywhere in the country." In addition to 300 Craftsman and English-style single-family homes, there are about 1,200 multi-family apartments and 350 condo units. Design was led by master developer PacTrust (project manager Michael Mehaffy) and partner Costa Pacific Homes, with principal architecture by Fletcher Farr Ayotte and Iverson Architects.

Instead of placing the commercial center directly at the rail stop, the shops and offices were built close to an arterial road, NW Cornell Road, about a threeblock walk from the trains. That decision made the commercial center conspicuous to thousands of motorists and gave it an immediate customer base, enabling Orenco's eating and drinking places and other retail businesses to flourish before the bulk of the residential construction was completed. Many other new urbanist town centers across the US have since followed Orenco's example, positioning a highly visible multistory edge close to a major thoroughfare, rather than choosing a site more sequestered within a residential precinct.

Sociologist Bruce Podobnik studied Orenco Station and found that the residents use mass transit more than they did in their previous neighborhoods. They also walk to local shops more than residents of conventional suburban communities do. However, they do not make mass transit their primary means of commuting. Community friendliness and involvement in group activities are greater in Orenco than in more conventionally developed neighborhoods, according to Podobnik, who described Orenco as "a hopeful beacon" for those trying to "achieve important social and environmental reforms in urban residential development." www.orencostation.net

Market Common,

Clarendon, Arlington, Virginia

Within walking distance of the Clarendon Metro in Arlington, the McCaffery Interests of Chicago and Eakin/Youngentob Associates (EYA) of Arlington de-



A small park in Market Common Clarendon.

veloped a mixed-use center occupying what had been the 10-acre parking lot of a defunct Sears store. Thus the project can be considered not only transit-oriented development but also a "grayfield" endeavor (reuse of property previously used for retail or commercial purposes). Focal point of the project, dubbed The Market Common Clarendon, is a U-shaped shopping complex containing 240,000 sq. ft. of one- and twostory shops, including a Barnes & Noble bookstore.

Beneath the stores is underground parking. Above the stores are many of the development's 300 apartments. In the center of this portion of the complex, designed for McCaffery by Antunovich Associates of Chicago, is a landscape featuring a fountain, greenery, and places to sit. The complex also has 100,000 sq. ft. of offices. Behind much of the multi-story construction stand 87 townhouses (1,700 to 3,100 sq. ft.) that Lessard Group of Vienna, Virginia, designed for EYA - many of them grouped around U-shaped courtyards that extend almost to the rear walls of the stores. Some townhouses are at the heads of the courtyards, to hide the blank rear walls of the stores. Pedestrian passages allow people in the neighborhood to walk to the stores. One L-shaped group of townhouses overlooks a one-acre park. A wall of cultured stone was built between the townhouse properties and the park so that it would be clear that the green space is public, not reserved for the townhouse occupants. Market Common is part of a surge of mixed-use development that the county helped bring into being in the three-mile-long Rosslyn-Ballston corridor; by insisting that a series of five Metro stations be placed underground, the county established the conditions in which the corridor would achieve much greater density, at the same time generating much higher property tax revenues.

Del Mar Station, Pasadena, California

Del Mar Station, not far south of Colorado Boulevard in downtown Pasadena, is one of the most romantic transit-oriented developments yet created. The editor of the *Pasadena Star-News* calls it "truly wonderful, the tower on the southeast corner of Del Mar and Arroyo Parkway looming like some outsize Timbuktu above the street and the light-rail tracks." It's striking to see the train come through the portal and stop in the center of the intensely variegated development.

Moule & Polyzoides Architects and Urbanists gave shape to this mixed-use project, which is the Gold Line's gateway to Pasadena. On 4.2 acres, 347 housing units have been built along with 20,000 sq. ft. of retail and a subterranean garage for 1,200 cars. The design incorporates many different building and units types; each building has its own private courtyard. The former Santa Fe depot that stood on the site was moved away during construction and then returned. The project was originated by Urban Partners LLC, a Los Angeles developer, and was purchased and completed by Archstone-Smith, a national real estate investment trust. www.archstoneapartments. com/Apartments/California/Los_Angeles/Archstone_ Del_Mar_Station

Other transit-oriented developments:

• Contra Costa Centre (Pleasant Hill BART station),

Contra Costa County, California. www.contracostacentre.com • Fruitvale Village, Oakland, California. www.unitycouncil.org/fruitvale/index.htm

• Liberty Harbor North, Jersey City, New Jersey. www.libertyharbor.com

Military New Urbanism

Fort Belvoir, Fairfax County, Virginia

An Army post approximately 15 miles south of the Pentagon, Fort Belvoir is among the first military installations nationwide to apply new urbanist principles to the development of neighborhoods for military families. Developer Clark Pinnacle LLC worked with architects Torti Gallas and Partners and with the Department of the Army to plan a series of pedestrian-scale communities at Fort Belvoir, beginning with two of them called Herryford Village and Vernondale Village. Houses in fairly simple traditional styles have been built close together, defining the streets and outdoor spaces. A number of blocks of houses front on small greens, some of which contain children's play areas. The proximity, providing opportunities for striking up friendships, is seen as important especially for spouses and children during the periods when soldiers are deployed overseas.

Efforts like the one at Belvoir — where 1,630 new dwellings are being constructed and 170 historically registered houses are being renovated — are part of

> This neighborhood in Fort Belvoir has many appealing public spaces for residents to relax.





Belvoir includes the first main street shops built on a military base in recent decades

the Military Housing Privatization Program, which is converting 70 percent of the military's 257,000 existing family housing units to private management, upgrading the housing supply, and improving neighborhoods. At Belvoir, a main street group of small shops has been built within walking distance of many homes. Above the shops are 25 two-story apartments of about 2,000 sq. ft. each. The walkable, mixed-use layout makes it easier for military families to do without a car. www.belvoirfamilyhousing.com

The Village at NTC, San Diego, California

The US Navy joined with Lincoln Property Company of Dallas and Clark Realty Capital of Bethesda, Maryland, to construct an "urban village" for military families on land that had been the San Diego Naval Training Center. The development's 500-unit first neighborhood, The Village at NTC, was designed by Torti Gallas and Partners and won a US Environmental Protection Agency smart-growth achievement award.

In addition to offering two- and three-bedroom townhouses priced so that Navy families can afford them, the new neighborhood, in the Point Loma area at the western end of San Diego Bay, features a community clubhouse, sports fields, and 7.2 acres designated for an elementary school and recreational space. The Navy Exchange on the site was redesigned to serve as a market offering better connections to the neighborhoods. The housing lies within walking distance of some of the services the sailors use. Residences were built with rear alleys so that the fronts could incorporate porches, plantings, and attractive streetscapes. www.smartgrowth.org/pdf/cs_012_NTCvillage_CA.pdf

McGrew Point Naval housing, Oahu, Hawaii

Hawaii Military Communities, a partnership formed by Forest City Enterprises and C.F. Jordan, commissioned Calthorpe Associates to plan five publicprivate housing privatization projects with the US Navy on the island of Oahu. Altogether, the five projects are constructing 910 new houses and renovating 1,040 existing dwellings. One of the five communities where the work was authorized is McGrew Point, on a 43-acre peninsula nestled along the Pearl Harbor shoreline.

The Calthorpe plan retains most of the existing streets at McGrew Point, helping to preserve the mature tree canopy. "Green courts" have been established along the perimeter of the site, perpendicular to the ocean, providing ocean views not only for houses along the courts but also for houses farther inland, which previously lacked such vistas. Wolff Lyon Architects of Boulder, Colorado, designed prototype dwellings. Woodley Architectural Group produced the house designs that eventually were used. www. wlarch.com/projects/hawaii.html

HOPE VI public housing redevelopment

City West, Cincinnati, Ohio

Cincinnati's oldest public housing development and the second-oldest in the US, Laurel Homes dated from 1937, when 24 acres of the once vital West End were demolished and the street grid disrupted to make way for superblocks of spartan apartment projects. Like public housing elsewhere, the shared stairways and halls of the three- and four-story walkups proved a magnet for vandalism and drugs, and vacancy rates soared as more and more tenants took flight and prospective replacements balked at moving in.

The antidote: a \$102 million redevelopment called City West, undertaken by the Cincinnati Metropolitan Housing Authority in combination with The Community Builders, Inc., financed in part by a federal HOPE VI grant and designed by Torti Gallas and Partners. The plan involved razing the existing



Townhouses in the City West, a public housing redevelopment, with downtown Cincinnati in the distance. HOPE VI has brought urban appeal to housing for the poor.

buildings' 1,000 no-frills apartments and establishing a neighborhood of rowhouses and duplexes, accommodating a full range of incomes. The changes aim at providing the spaciousness, architectural styling, and amenities of homes on the private market; restoring the street grid; reintegrating the area with the greater West End and reconnecting it to downtown; and introducing ingredients such as a banking center, a grocery store, live/work retail space, a community center, childcare facilities, improved schools, and new parks. City West has been planned for 835 rental units and 250 for-sale houses. www.tcbinc.org

New Columbia, Portland, Oregon

The Housing Authority of Portland, with a \$35 million HOPE VI seed grant from HUD, redeveloped the distressed 462-unit Columbia Villa public housing project in Portland into an 850-unit, ecologically advanced, mixed-income project. At New Columbia, as the development is now called, the street network has been radically altered. The original, isolating system — "four roads in, four roads out," in the characterization of Marcy McInelly, president of the urban design firm Urbsworks, who was involved in master-planning the site — has been replaced with a configuration in which all of the 17 existing streets on the project's perimeter now connect, tying into the surrounding neighborhoods. There is also a network of alleys.

The 82-acre development marks a breakthrough in the use of natural drainage systems. "Ninety-eight

percent of the stormwater is retained on-site," says McInelly. "There is 80 percent less underground stormwater piping" than before, largely because of "green streets" that send much of their runoff into streetside swales. www.lincolnmilitary.com/installations/naval-complex-san-diego/the-village-at-ntc

Park DuValle, Louisville, Kentucky

Park DuValle, a HOPE VI project, is the first sizable new development on the west side of Louisville in at least half a century. "A lot of people were skeptical about that," says Charles Cash, Louisville Metro Director of Planning and Design. "There was no good measure of the depth of market in this Afri-

Residents of New Columbia can buy fresh vegetables at the corner store — a sight rarely seen in public housing.



COURTESY OF TORTI GALLAS AND PARTNERS

can-American community."

Sales in Park DuValle, designed by Urban Design Associates on the site of a dangerous public housing project, have greatly exceeded projections, illustrating how a traditional neighborhood development can tap into a previously hidden market. With 1,200 units, Park DuValle is an ambitious intervention in a rundown inner-city neighborhood. One-third of the development's homes are selling at the market rate, one-third are subsidized to sell at less than the market rate, and one-third are public housing. This makes for a highly diverse neighborhood, with bankers and doctors buying homes around the corner from public housing units. Codes ensure that the architecture of all the units is compatible and similar in quality, Cash adds. A commercial center is also part of the project. www.hal1. org/hopevi/index.htm

Other HOPE VI redevelopments:

• Churchill Neighborhood, Holyoke, Massachusetts.

- Flag House Courts, Baltimore, Maryland.
- www.tortigallas.com/project.asp?p=81286
- High Point, Seattle, Washington. www.thehighpoint.com
- Martin Luther King Jr. Plaza, Philadelphia, Pennsylvania. www.pha.phila.gov/mlk
- New Holly, Seattle, Washington. www.newholly.org
- Salishan, Tacoma, Washington. www.salishan.net
- Townhomes on Capitol Hill, Washington, DC. www.dchousing.org/hope6/ellen_wilson_hope6.html
- Westbury, Portsmouth, Virginia.
- Willow Oaks, Greensboro, North Carolina. www.gha-nc.org/hope6.htm

Town extensions

Hammond's Ferry, North Augusta, Georgia

Hammond's Ferry, a 200-acre traditional neighborhood development (TND) now under construction builds upon a plan that James U. Jackson, the original developer of North Augusta, set forth in the 1890s and never entirely implemented. A good deal of North Augusta filled in as Jackson envisioned, but one area conspicuously did not — the land situated in the floodplain of the Savannah River. A brick manufacturing operation and some other businesses occupied part of the site, but as years went by, much of the property fell into disuse. Consequently the 18,500-population city assembled about 15 parcels of varying sizes (the smallest two by eminent domain) and established a public-private initiative with developers LeylandAlliance of Tuxedo Park, New York, and Civitas of Charleston, South Carolina, to turn the neglected area into a TND

Three existing city streets are being extended into the site, "effectively completing a town plan created in 1891," according to project director N. Turner Simkins. Working in the spirit of the initial plan, Dover, Kohl & Partners organized Hammond's Ferry with streets and blocks "laced with pedestrian routes — sidewalks, shortcuts, service lanes, and small outdoor spaces," says principal Victor Dover.

The most important public space, Riverfront Square, will frame a view of the river, with downtown Augusta, Georgia, on the opposite side. The square, an expanse of lawn and shade trees with retail on some of its edges, will be three-quarters the size of a typical square in historic Savannah, Georgia, to be "intimate without being cramped," Dover says. A block beyond Riverfront Square, a park will extend along a mile of river.

At build-out, the development is expected to contain 800 to 1,200 housing units, ranging from apartments to live-work units, cottages, townhouses, and larger single-family houses, as well as business and civic uses. www.hammondsferry.com

South Main, Buena Vista, Colorado

Two kayaking young developers are building a 40acre new urban project overlooking the white water of the Arkansas River about 100 miles west of Colorado Springs. The 40-acre development connects to the street grid of the existing town and provides a civic square on the river. A stretch of the river is being improved as a "whitewater park" for kayaking and other sports. Katie Urban and her brother, Jed Selby, hired Dover, Kohl & Partners to plan offices, shops, plazas, parks, and 315 houses adjacent to the town where surrounding mountains rise to 14,000 feet. The project's main street is angled so that people will have a view of the cupola of a historic courthouse building in the distance. www. southmainco.com

Others town extensions:

• Woodstock Downtown, Woodstock, Georgia. www.hedgewoodproperties.com/neighborhoods



An aerial image of South Main with the riverfront green in the foreground, the old town in the background, and the mountains in the distance.

• Florin Hill, Mount Joy, Pennsylvania. www.charterhomes.com/neighborhood/flhl



Revitalizing Cities and Towns

66

66 67

68

68

Revitalizing communities
Rebounding cities
What is infill?
How HOPE VI rescued
public housing
Demographic changes favor
urban development

The role of design	68
New urban principles	
and public housing	68
How to blend into the city	69
Bringing a city back	
through design	70
New city neighborhoods	70

68	Reclaiming old centers	71
	Suburban revitalization	72
68	Eight keys to	
69	waterfront renaissance	74
70		

Above: CityVista, a mixed use, transit-oriented project in Washington, DC that exemplifies new urban infill development. Courtesy of Torti Gallas and Partners

Revitalizing communities

For a long time it's been customary in the US to refer to cities as being in need of "renewal" or "revitalization." The premise has been that there are a series of problems — ranging from rundown buildings, to unsafe neighborhoods, to decaying business districts — that need to be addressed.

The assumption held by many people is that these problems are concentrated primarily in cities, especially older cities. That view is not entirely incorrect, but it would be more useful to look at community problems from a broader perspective. The overall issue, as we see it, is that America has many *underperforming human habitats* — places that are hard to live in, hard to work in, hard to carry on a satisfying personal and communal life. Some of these places are in cities, but many others are in suburbs, in towns off by themselves, and in other locales.

In this chapter, therefore, we look at how to tackle familiar problems such as what to do with failing downtown malls and dangerous public housing projects, but we also deal with a more encompassing issue: how to make communities of all kinds more livable, satisfying, and successful. At this point in the nation's history, first-ring suburbs in many cases are burdened by declining business districts, obsolescent housing, inadequate civic spaces, and other problems. Suburbs farther out do not yet suffer from the problems of age, but they suffer nonetheless — from a lack of town centers and from having their retail strung out along inhospitable roads or concentrated in shopping malls that have never been adequate stages for community life.

An untold number of workplaces are situated in boring, inconvenient office parks that call out for transformation. The scarcity of interesting streets, walkable retail areas, and high-quality public spaces in these single-purpose centers makes it hard for their captive work force to enjoy a high quality of daily life. Dull commercial corridors and contaminated "brownfield" sites are also candidates for an infusion of New Urbanism. It is the task of New Urbanism to bring a more satisfactory life — through better design, planning, and development — to the many environments currently functioning below their potential.

REBOUNDING CITIES

The good news is that after decades of decline, many US cities have come roaring back. This became clear by the mid-1990s, when downtowns began to see dropping crime rates, rising property values, and greater vibrancy. The encouraging trend is expected to continue despite ups and downs in the economy and despite a modest upturn in crime in various cities.

As cities recover, gone are the most damaging planning and development tendencies of the 20th Century, a time when superblocks and freeways destroyed neighborhoods, when buildings were often designed

Excelsior & Grand, a town center in St. Louis Park, Minnesota, began with a design charrette focusing on how to revitalize an aging commercial corridor.



HOTO BY PHILIP LANGDON



A mixed-use, infill building in Chattanooga, Tennessee

without regard to pedestrians and street life, and when suburban forms such as strip malls and gated housing developments invaded historic communities. In Milwaukee, city officials have torn down an unneeded section of freeway and put an urban boulevard in its place. Chicago has reformed its zoning codes so that new buildings will not damage the streetscapes. Most major new developments in cities are being influenced by principles of the New Urbanism.

Bright spots include public housing redevelopment, massive mixed-use infill projects like the Stapleton Airport undertaking in Denver and the Orlando Naval Training Center redevelopment in Florida, and scores of smaller projects. The public sector, particularly the US Department of Housing & Urban Development (HUD), has invested heavily in new urban development. Much public housing has been made to work better, partly by introducing traditional street layouts. The street reconfigurations give residents normal addresses and "reduce the stigma" associated with easily identifiable "projects," says Michael Kelly, executive director of the District of Columbia Housing Authority. Traditional streets are, he says, a "principle that works." Private developers with new urban inclinations are also working in cities and towns, sometimes collaborating with public agencies, at other times independently.

WHAT IS INFILL?

New urbanists increasingly carry out "infill" development. An infill site usually sits within a longestablished city or town. Ideally it is connected to an existing network of streets. Infill also may occur on suburban land that has been previously developed and that is surrounded by existing development. The same principles apply to infill sites that apply to greenfield "new towns." The basic form employed is that of a compact, interconnected neighborhood, containing or connected to a mixture of uses. Infill takes place at a variety of scales. Where infill encompasses only a street, a block, or an individual building rather than an entire neighborhood, the goal nonetheless is to contribute to the development of a neighborhood.

In some respects, infill locations are the best possible places for new urban design. On greenfield sites, an urban pattern has to be created from scratch, and the resulting projects often become "islands" of urbanism. In largely built-up cities and towns, on the other hand, New Urbanism can connect new development to old, a relationship that strengthens both. Infill development in established cities and towns has significant advantages: proximity to jobs and mass transit; preexisting infrastructure such as water lines, sewer lines, and streets; and the potential for higher densities. A disadvantage of infill in such situations is that the builders must work around existing utilities and other obstacles; this tends make it slower and trickier. The difficulty may be compounded on brownfield sites, where environmental problems have to be overcome.

New urbanists work with infill development in a "catalytic and synergistic" way, says Elizabeth Moule, an architect and cofounder of the Congress for the New Urbanism. They define the street, if it isn't already clearly delineated. They design the street landscape to ensure that the sidewalks establish a physical space that pedestrians will want to occupy. "Lo and behold," says Moule, "you have created a part of a neighborhood."

In design and construction, new urbanists emphasize the importance of a high-quality public realm. This strategy not only enhances private property values, but also lures residents and visitors onto porches, streets, greens, plazas, squares, and parks. It adds "eyes on the street," which make city neighborhoods more secure. Placing homes within walking distance of shops creates an amenity for residents and helps sell the houses. Businesses, in turn, benefit from being located near where workers live and shop. In a well-designed neighborhood, the different elements support one another, creating the synergy described by Moule.

Although there are exceptions, infill development tends to be denser and more urban in character than

How HOPE VI rescued public housing

These have been key elements of the HOPE VI program:

1. New developments are human scale. Superblocks are divided into smaller blocks. Highrise buildings are demolished and replaced with townhouses, detached houses, and/or relatively small apartment buildings.

2. Houses for low-income people are designed to look like market-rate housing.

3. Houses are close to the street, with plenty of windows and front porches or stoops, so that residents can keep informal watch over their surroundings.

4. Each unit has its own entrance. Back and/or front yards clearly belong to individual units, creating "defensible space."

5. On-street parking, relatively narrow streets and traffic-calming devices like cross-walks, bulb-outs, and small rotaries are provided.

6. Incomes of residents are mixed by selling or renting some of the units at market rate.

7. Residents get street addresses, as opposed to project addresses.

8. Parks are small and are placed where they can be closely observed by residents.

9. Project management is improved though screening of tenants and stricter enforcement of rules.

10. There is often a mix of housing types.

11. Where possible, the redevelopment also includes a variety of nonresidential components, such as recreation facilities, educational and training programs, health facilities, stores, and small businesses. the greenfield work done by new urbanists.

DEMOGRAPHIC CHANGES FAVOR URBAN DEVELOPMENT

Demographic trends support the resurgence of cities, according to Jonathan Miller, an analyst with Lend Lease Real Estate Investments. Baby boomers have moved into the "empty nester" category as their children have gone off to college and into the work force, Miller explains. Not only do baby boomers appreciate urban amenities; they no longer need the big house and lawn in the suburbs. Young workers in high-tech industries also tend to favor communities with outdoor cafes, walkable streets, and cultural activities. Furthermore, crime has decreased substantially nationwide since the early 1990s, making cities safer. Even in cities that are losing population, the number of people living downtown is growing.

THE ROLE OF DESIGN

Although community design is not at the root of every entrenched urban social problem, it plays a significant role. Design can help control crime (see page 356). It can boost property values. It can elevate the quality of life. The primary amenities offered by cities have to do with human-scale design — lively and attractive streets, squares, parks, and civic facilities.

NEW URBAN PRINCIPLES AND PUBLIC HOUSING

From the 1940s to the 1960s, federal housing officials and many municipal agencies built public housing in the form of modernist buildings — often high-rise — on "superblocks," so called because their parcels of land were crossed infrequently by city streets. Over time, many of these projects proved dismal failures. Concentrating poor people intensified the ills to which they were prey. Concentrating them in high-rises was an even worse choice. Many of them became unlivable, forcing HUD in the 1990s to embark on a massive demolition and replacement program called HOPE VI.

One of the greatest achievements of new urbanists has been persuading HUD to adopt new urban principles and build the replacement housing in the form of mixed-use, mixed-income, walkable neighborhoods. The first complete HOPE VI redevelopment, Pleasant View Gardens in Baltimore, opened in 1997, exemplifies important parts of the new urbanist approach. Torti Gallas and Partners of Silver Spring,



Maryland, laid out the 21-acre complex with a network of narrow streets, most of them 24 feet from curb to curb (including a one-foot gutter on both sides, which made the streets seem even narrower). Unlike most later new urban HOPE VI projects, most of the streets in Pleasant View Gardens are one-way leading to a six-sided central green rather than connecting to the surrounding area in a seamless manner. (Security concerns precipitated this decision.)

Torti Gallas principal Cheryl O'Neil chose as Pleasant View's basic dwelling an updated version of the 19th Century Baltimore rowhouse; it has a traditional brick exterior but a pitched roof and a modern interior. With a front door, a back door, and a back yard being part of each rowhouse, residents achieve a degree of control over their surroundings that was missing from the public housing towers Pleasant View replaced. (In addition to 228 new rowhouses, Pleasant View contains 36 renovated apartments and 110 apartments for the elderly.) The designers specified sidewalks 8 to 11 feet wide, with stoops protruding into them — just like those of old Baltimore row-houses.

Pleasant View lacks some of the things that many later HOPE VI projects offer, such as a mix of renters and owners and a mix of incomes, but it has proven much safer than the old Lafayette Courts. Like the later projects, Pleasant View — with a day care facility, recreation center, community center, and health clinic — reinforced its humane physical design with services intended to help residents achieve more orderly and successful lives.

HOW TO BLEND INTO THE CITY

Whereas Pleasant View still seems a bit projectlike, thanks in part to its somewhat insulated street network, The Townhomes on Capitol Hill, in southeast Washington, DC, designed by Amy Weinstein of Weinstein Associates Architects, is fully a part of the surrounding residential area. Townhomes on Capitol Hill has streets extensively connected to the adjacent blocks. The development was designed as a collection of 153 townhouses, which share the visual character of houses in nearby neighborhoods but have enough variety in their exteriors that they look as if they might have been built one at a time, by dozens of different owners. In fact, they look so much like traditional Washington that passersby don't realize their origins - as a replacement for the Ellen Wilson Homes public housing project.

Often new urbanists study the architecture of the surrounding neighborhoods or the city as a whole before designing the new dwellings. At Park DuValle, a 100-acre HOPE VI development in Louisville, Kentucky, Urban Design Associates (UDA) of Pittsburgh used a pattern book and architectural guidelines to ensure that the houses, commercial buildings, and community buildings would be consistent with the buildings types and styles of Louisville.

The notion of "eyes on the street" is incorporated into much new urbanist work — whether government-subsidized or market-rate. Westbury, in Portsmouth, Virginia, another HOPE VI project designed by UDA, features numerous porches so that residents can maintain surveillance of the area. A clear delineation of public and private space further helps to maintain order and safety.

A mix of uses can benefit the residents of both the new development and the surrounding area. In denser urban settings, like Bay Street and Taylor Street in the northeast quadrant of San Francisco, commercial



A street scene in Park DuValle, Louisville, Kentucky, above — social conditions have drastically improved in HOPE VI projects and surrounding neighborhoods. At right, a streetcar passes by the North Beach Place development in San Francisco.

activities have been integrated into a HOPE VI development. North Beach Place, a HOPE VI project designed by Barnhart Associates Architects for two city blocks intersected by a cable car route, has retail activities in some of the ground-level space, including a coffee shop and a Trader Joe's grocery store.

HOPE VI has exerted a positive impact on areas surrounding many of its projects. Neighborhoods have become more desirable as the redeveloped projects achieved safety and stability. There have been fears that the program would cause displacement in gentrifying areas, but at least one study has found that poor households residing in these areas are less likely to move than poor households living elsewhere — perhaps because gentrification offers advantages to poor households, making them reluctant to move even if their rent goes up. HOPE VI has ceased to receive much new funding in recent years, but it has demonstrated how to build mixed-income urban developments and reestablish neighborhood patterns in the tougher sections of American cities.

BRINGING A CITY BACK THROUGH DESIGN

Under John Norquist, mayor from 1988 through 2003, Milwaukee incorporated new urban principles into every aspect of its planning and development system. The first great success achieved through this change in philosophy was the \$23.8 million River-Walk, which ran along both sides of the Milwaukee River for a mile and a half, opening up the water to

bepedestrians, provide a welcoming public space downtown, and boosting property values. The RiverWalk

town, and boosting property values. The RiverWalk has had a transformative effect on downtown, encouraging the conversion of warehouses and commercial buildings into upscale apartments and luxury condominiums.

Adjacent to one section of the RiverWalk, the city orchestrated redevelopment of a 20-acre brownfield known as Beerline B — another example of Milwaukee's revised approach to development. Beerline B would likely have been built out as a gated community, cut off from the rest of downtown, but instead the city hired Solomon Architecture (now WRT/Solomon ETC) of San Francisco to create a plan containing small, walkable blocks, a mixture of uses, and a high level of connectivity. Private investment, more than \$200 million, has poured in. Over 1,000 residential units have been built or approved. The formerly industrial lowland along the Milwaukee river has been linked to the bluffs and old mansions of Brewers Hill. Retail and restaurants, mainly serving the neighborhood's residents, have begun to arrive.

NEW CITY NEIGHBORHOODS

Some cities are developing entire new neighborhoods. The Commons Neighborhood in Denver will, at completion, place more than 6 million square feet of mixed-use development on a 60-acre former railyard adjacent to the revitalized historic LoDo district. Had it been planned in the 1960s or 1970s, The Commons would probably have taken the form of isolated



The plan for East Village in Calgary, Alberta

high-rises set on superblocks. Instead, the plan by Design Workshop of Denver is very much on a pedestrian scale, extending the city's street grid into the old rail land. Seven street types help to give distinct identities to various segments of the development.

Calgary, Alberta, is turning a bedraggled 113-acre section of the downtown area into a predominantly residential "East Village," which will be home to 10,000 people. The goal is described as "high density, mixed use, and quality of public realm at the ground plane." New housing in a variety of forms will accommodate a range of income levels, with at least 20 percent made up of nonmarket units. Planners settled on a variety of ways to treat density, ranging from slim towers, to towers set on podiums that place residential units or offices and shops along the streets, to blocks like those in New York's Battery Park City. The city wants an average density of 200 units per acre on the East Village's residential land.

The plan declares its support for three principles: 1) build to the sidewalk, 2) make the streetfront visually and physically permeable, and 3) put the parking behind, under, or above the building. The city intends to place public transit within a five-minute walk of every point in the neighborhood. Retail will cluster mainly in the center of the neighborhood, around a multiuse central square that will contain a light-rail stop. There will be a wide range of building types and a variety of lot sizes — some as narrow as 24.6 feet. To produce smaller blocks, the city says it hopes to build mews — "narrow, intimate streets that balance the access and service functions of a lane with active building frontages, accessory units, and a street space shared by cars and pedestrians."

In Seattle, the South Lake Union area is being redeveloped as a mixed-use neighborhood, including laboratories of life science organizations, housing for a variety of income groups, retail, and other activities, tied together in part by a new streetcar line. In general, development of new neighborhoods in existing cities takes years, and requires extensive negotiations on the character that those neighborhoods will take and on what will happen to people and businesses that had occupied buildings there.

RECLAIMING OLD CENTERS

Many communities have centers that need to be made more dynamic. Some of these are in the principal city of a metropolitan area. Others are in subsidiary areas, like Pasadena, California, which is both a suburb of Los Angeles and an old community with a distinct history and identity, including an established downtown.

A municipality of 134,000, Pasadena had seen its downtown struggle in the 1970s and 1980s. Three strategies or tactics compatible with New Urbanism stand out in Pasadena's revitalization.

• First, the city made its center more accommodating to pedestrians. In the downtown, which is laid out on a grid, the principal east-west artery, Colorado Boulevard is wide and carries a heavy volume of traffic. It has reasonably good streetwalls downtown, thanks to rows of multi-story buildings. Colorado Boulevard remains somewhat daunting to cross on

People stroll in Paseo Colorado, where an old shopping mall was reclaimed as an urban place.


foot, but there's parking at the curb, which makes the sidewalks feel less vulnerable than they would otherwise be. Sidewalk dining has done well on parts of Colorado Boulevard.

The city encouraged the sidestreets to become more congenial to pedestrians. There are now wellpopulated courtyards and passages sprinkled through the old section of downtown, providing attractive places for restaurants, shops, and for gathering, away from the most intense vehicular traffic.

• Second, the city converted an enclosed shopping mall into a more street-oriented development, with housing, restaurants, a supermarket, a movie theater, and other offerings. In 1980, a shopping mall called Plaza Pasadena opened on Colorado Boulevard in the heart of downtown, attempting to reverse the retail district's gradual decline. Though initially very successful, the mall lost market share by the early 1990s. This led to efforts to refashion the mall into an outdoor mixed-use center called Paseo Colorado, which opened in September 2001, packing 560,000 square feet of retail, 450 live/work lofts and apartments, and office space into the three-city-block site.

Post Properties built five floors of apartments and lofts on top of the retail, overlooking the open courtyards. Residents can walk to just about everything they need, including a health club, laundry, dry cleaner, cinema, and restaurants ranging from cheap to expensive. That's unheard of in much of southern California. At one corner of the development is Gelson's, an upscale supermarket whose windows line the sidewalk. Parking is in the garage below, connected directly to the grocery store. Citizens, public officials, and developer/owner TrizecHahn worked on the planning effort with the architecture and planning firm Ehrenkrantz Eckstut & Kuhn. Since Paseo Colorado's completion, long-vacant property on the other side of Colorado Boulevard has started to be redeveloped.

• Third, a rail transit line, metro Los Angeles's Gold Line, was threaded through Pasadena. One of the chief downtown stops, Del Mar Station, designed by Moule & Polyzoides, concentrates housing, retail, and other activities around the rail connection. The architects took special care to modulate the scale of the development, breaking its components into small segments and making sure Del Mar doesn't have the hulking appearance that large projects often have.

SUBURBAN REVITALIZATION

New Urbanism is also improving suburbs that previous had little or no center. In Brea, California, for example, the municipal government demolished many poorly designed buildings, and a new core has since emerged, guided by a master plan from RTKL. The mixed-use core at the intersection of two busy streets includes a 22-screen cinema complex in two separate buildings, 225,000 square feet of retail, 20,000 square feet of offices, and 100 apartments and live/work units. North of the core sits a cluster development of 100 bungalows with a density of 9-10 units per acre. The overall 60-acre development district also includes a more conventional strip retail center. Recognizing that the primary arterial running through downtown was unsuitable for a main street,

When the City of Milwaukee decided to tear down a freeway stub near downtown, it opened up some 25 blocks or partial blocks for development. Buildings like the one at right are springing up.







The Southside development — the plan is above left and mixed-use townhouses are above right — has been one of the most successful in recent years in Greensboro, North Carolina. City officials now strongly encourage a new urban approach.

RTKL focused pedestrian activity on a smaller secondary street.

A number of suburban municipalities that lacked vital gathering places have decided to remedy that by developing mixed-use centers. Westlake, Ohio, a 34,000-population western suburb of Cleveland, came up with the idea of establishing a town center on 75 acres along one of the community's major roads. The government teamed up with developer Robert Stark to produce Crocker Park, designed by Street-Works of Alexandria, Virginia. Its plan includes an urban core of four blocks of three- and four-story mixed-use buildings that conceal interior parking garages. The overall plan is for 1.7 million square feet of offices, stores, restaurants, movie theaters, and other amenities and housing for about 2,000 residents.

Governments have learned to be careful about safeguarding their interests. When Stark and the city agreed on the concept for Crocker Park, the city included requirements that locked in the pedestrian-oriented, mixed-use nature of the center. Half the floor area of the center, for example, would be residential and at least half of the parking would be in garages or decks. Part of one of the major streets has been designed so it can be closed for street festivals or farmers' markets. The project opened in 2004.

In some instances, suburban municipalities are so intent on getting a mixed-use center that they're willing to go through a long process of assembling properties and preparing a plan. St. Louis Park, Minnesota, a first-ring suburb of Minneapolis, conducted a community visioning process in which "people said they wanted some kind of community focal point," reports Tom Harmening, the city manager. "It took quite a bit of time to move from the community vision to workshops and design — six years or so," says Harmening, who was community development director while the project was under way.

At a cost of \$18 million, the city purchased a collection of strip commercial buildings and singlefamily houses that had seen better days, cleared the land, carried out some environmental cleanup, relocated residents, and came up with a plan. The result, "Excelsior & Grand," is a 16-acre center that includes 660 apartments and condominium units in four-story buildings, most of them containing stores, restaurants, and other businesses on the ground floor. "It's a project type whose time has come," says Bob Cunningham, president of TOLD Development Co., which built the center, situated between a 30-acre local park and a road carrying 25,000 to 30,000 vehicles a day. Designed by ESG Architects of Minneapolis, the project features a town green, on-street parking, inconspicuous mid-block parking garages and courtyards, and a police substation.

Probably the most influential suburban center of the past quarter-century is Mizner Park — the redevelopment of a failed conventional shopping mall, the Boca Raton Mall in Boca Raton, Florida. The Boca Raton Community Redevelopment Agency acquired the mall and the 29 acres it stood on, and negotiated a lease with developer Crocker & Company, which built a pedestrian-oriented center containing restaurants and shops on two sides of a lushly landscaped plaza. The upper stories of the complex contain offices and apartments. The municipality issued \$58 million in bonds for the project, with the understanding that it would be repaid through tax-increment financing. The construction was not particularly expensive, yet Mizner Park became hugely popular, in part because the modulation of the buildings and the gorgeous public spaces make it a great place to spend time.

"New suburban town centers represent the next stage of disaggregating shopping mall components and merging lifestyle centers with mixed-use town centers," says Charles Bohl, director of the Knight Program in Community Building at the University of Miami.

EIGHT KEYS TO WATERFRONT RENAISSANCE

Kathryn Madden, who led the design team for Sasaki Associates on the 650-acre Narragansett Landing plan in Providence, Rhode Island, identifies eight principles to make waterfront redevelopment successful:

1. Transform the image of the waterfront as a gateway to the city. Urban waterfronts are often in a highly visible area, close to downtown or regional highways, sending an important message about the character and the economy of a city.

2. Create a waterfront boulevard as a spine for new development. A gracious boulevard and other new streets will connect development to the downtown and to the neighborhoods. The waterfront streets should be active and accessible to all, with benches under a continuous tree-lined canopy, building entrances, and people walking and bicycling to their destinations.

3. Strengthen the regional open space system by linking nearby parks and linear corridors. New parks and pathways along the waterfront can be extended to connect to other regional parks along the water or in neighborhoods. In addition to bicycle paths and footpaths, water-taxis can become an important link in the regional open space system.

4. Create parks that act as windows to the water. With a series of parks along the waterfront, each open space can develop a distinct theme and character that relates to the inland neighborhoods or surrounding uses. These parks may highlight historic and environmental features, and some will accommodate large festivals and cultural gatherings.

5. Provide continuous public access that varies along the length of the waterfront. The journey along the water's edge should vary to include formal esplanades, boardwalks, public piers, and winding paths through natural settings, and allow for access to ac-



tive marinas and other commercial uses as well. Quiet, public streets along the water's edge will ensure an open and accessible waterfront.

Narragansett

Landing plan

6. Design open space to create value to adjacent land. Buildings should frame each public park and draw value from that open space, taking full advantage of any water views as well. New development should complement the parks and surround them with active ground floor uses and destinations.

7. Plan for a fine-grained mix of uses, complementary to each other, to create a vital district. The mix should not impede public access to the waterfront. With this in mind, a wide variety of uses is possible, including residential, office, hotel, entertainment and retail, as well as marketplaces, museums, music venues and other civic uses that bring economic and cultural enhancements to the waterfront and the whole city.

8. Design buildings that respond to the waterfront condition. The first floor should meet the street, especially on the main street corridors. As the land drops off to the waterfront and along the piers, ground-floor parking will raise the first floor of the building above the flood plain, but should be carefully designed to maintain the integrity of the street. The scale of the buildings should step down as they approach the waterfront to enhance the pedestrian character and allow views from buildings further inland.

5



Urban Retail

Retail: Main streets, urban	
centers, and downtowns	76
Advantages of urban centers	76
Grayfield opportunities	77
Revitalizing historic main streets	78
Size matters	78
A primer on retail types and	
urban centers	79
Corner stores	79
Convenience centers	79
Neighborhood centers	79
Community centers	80
Regional centers	80
Lifestyle centers	80
The movement economy and	
drive-by visibility	80
Shallow storefronts	82
How to calculate demand for retail	83

Terminated vistas: Focusing the	
power of urban retail	84
Anchors as magnets	86
Grocery stores adapt to	
urban trends	87
Inserting a supermarket into	
a town center	88
A and B streets	88
Architecture and liners	89
Mixed-use buildings	89
Placing large, modern	
stores in urban blocks	90
How to mitigate the impact	
of big box stores	93
The full wrap	93
The partial wrap, attached	94
The partial wrap, detached	94
No wrap	95

Dealing with big blocks	95
Liner building issues	95
Parking	96
Fitting big boxes on main streets	97
Urban vestibule	97
The vestibule and liner	97
The "T" model	98
Making a power center more civil	98
Urban shopfront design	99
Tailoring town centers	
to people's behavior	100
Finding distinctive merchants	100
Designing for experiences	101
Virtues of small interiors	101
Tips on new urban	
retail development	102
Drive-through retail	102
Town center plans	105

Above: West Village in Dallas, Texas.

Photo by Jeremy Woodhouse, courtesy of Urban Partners

Retail: Main streets, urban centers, and downtowns

New urbanists conceived a radical departure from the shopping centers, power centers, enclosed malls, strips centers, and stand-alone, highway-oriented stores that had dominated retail development in the US since the end of World War II. They proposed to bring stores back into mixed-use neighborhoods and town centers and to place them on streets where they would define the public realm. Parking lots and garages would be hidden in the interior of blocks. The idea was to allow adults to walk to buy a loaf of bread or a carton of milk, and to enable kids to buy popsicles on a hot summer day without help from their parents.

This remains a compelling vision and it has been realized in many locations, but it also remains one of the toughest challenges that new urbanists face. The way people shop has changed radically since the early 20th Century, the last time Americans built urban downtowns. While we live today in houses that are similar in many respects to those of our ancestors, we shop in environments that are almost completely different. Who could have conceived of enclosed malls back then, let alone a cavernous Wal-Mart? While there were a few national chains in the early 1900s, multinational corporations have come to dominate the retail trade in the last half-century.

Creating urban, walkable, mixed-use retail today is fraught with problems. For one thing, the national chains have their established formats, which are

Stores under residential units in Mashpee Commons



geared toward the automobile; the building itself is designed as an advertisement for the company. These buildings are often ugly and generally incompatible with main streets and downtowns. The consolidation into ever-larger big box formats poses challenges to the creation of a fine-grained pedestrian environment. Getting these big stores to change their architecture and move toward the street poses further challenges. Furthermore, Americans are accustomed to shopping by car, and all of the conveniences that implies. New urban retail must meet all of the standards of automobile convenience that suburban retail offers, while also offering a human-scale, mixed-use, fine-grained pedestrian experience.

ADVANTAGES OF URBAN CENTERS

Urban retail offers distinct advantages to offset the challenges. Placemaking is a powerful component of urban centers that have elements such as squares, plazas, and architecturally enhanced vistas which add value to retail locations. Synergies between shopping, civic uses, residential uses, and workplaces are real, and they are absent from conventional retail. Many new urban town centers that have taken a few years to gather retail momentum have found that the retail revenues that were initially lost have been offset by higher-than-expected revenues from residential sales and leasing. In the long run, residential and office can feed the retail, and vice versa.

One of the charms of new urban town centers is that they are not just about shopping. Many centers include important civic buildings — town halls, libraries, schools, and performing arts centers, for example — and they become favored gathering spots for people from miles around. From a community's perspective, this builds social value. From a developer's perspective, this builds long-term financial value. The enduring value of Country Club Plaza in Kansas City and the growing value of Seaside's town center in Florida testify to that idea.

Maybe that's why new urban retail continues to grow and occupy an important spot on the cutting edge of the retail industry. Even Wal-Mart, which usually represents the antithesis of the New Urbanism ideal, is building urban-format stores in cities. Target has built many two-level street-fronting stores in downtowns and urban centers around the US, some of them with very good architecture.

Urban-format big box stores are just the tip of the iceberg. A lot more urban retail has been built in the new millennium compared to the 1980s and 1990s — let alone the 1960s and 1970s. Supermarket chains have rediscovered urban sites in recent years, and new grocery stores are thriving in historic cities and towns and new urban town centers. Most of the neighborhood-scale new urban projects underway across the US have a retail component. Transit-oriented developments increasingly include commercial buildings.

A distinction should be made, however, between true urban centers and what have come to be called "lifestyle centers" by the retail industry. The former include a wide mix of uses creating a 24-hour environment. In addition to the conventional combination of stores, eateries, and movie theaters, urban centers include housing, workplace buildings, hotels, and/or civic buildings, built around public gathering places like squares and plazas. Lifestyle centers, on the other hand, incorporate placemaking ideas, such as main streets or squares, but stick to the conventional retail/ entertainment formula of malls. They are generally surrounded by huge parking lots, and often fake a mix of uses with second floors that, if they are occupied at all, contain offices for the retail stores rather than something more diverse. As urban retail expert Richard Heapes said of lifestyle centers: "There's not a lot of life going on there, and very little style." Yet they are popular with the retail industry, because they require minimal "brain damage." Lifestyle centers

Target in downtown Minneapolis





A new mixed-use shopping district — Santana Row in San Jose.

should not be confused with New Urbanism. Some experts say lifestyle centers are evidence of the influence of New Urbanism, because new urbanists' placemaking ideas are spilling over into conventional retail. As to whether lifestyle centers are a step in the right direction, readers can draw their own conclusions.

GRAYFIELD OPPORTUNITIES

Many of the best-known and most successful new urban town centers have been built as redevelopments of shopping centers and malls. This trend started around 1990 with Mizner Park in Boca Raton, Florida, and a few years earlier with Mashpee Commons in Mashpee, Massachusetts — still two of the most successful new urban centers. More recent projects include Belmar in Lakewood, Colorado, Santana Row in San Jose, California, Excelsior & Grand in St. Louis Park, Minnesota, and Downtown Silver Spring, in Silver Spring, Maryland.

Grayfield sites, so named because they previously contained large parking lots serving malls of other commercial uses that have become obsolete, are usually located in places that are good for retail. As suburban retail sites age, they are becoming available for redevelopment with increasing frequency. Arthur Nelson, a planning and development analyst at the University of Utah, argues that grayfield sites will be the most important smart growth opportunity in the first three decades of the 21st Century.

Because suburban retail sites tend to become obsolete in as little as 15 years (by contrast, housing often lasts more than 150 years), Nelson estimates that 2.8 million acres of grayfields will become available by 2030 — enough to supply half of the nation's housing needs in addition to providing retail and office space opportunities. According to Nelson, grayfield sites are advantageous because they:

• Are large, flat, and well drained.

• Include major infrastructure that will need to be replaced or upgraded (and thus can be modified for mixed use).

• Are next to arterials with the capacity for dedicated transit lanes.

• Are under single ownership (reducing the problems associated with site acquisition).

• Are already planned and zoned for uses other than low-density housing.

• Have a greater potential to convert NIMBYs (not-in-my-back-yarders) into YIMBYs (yes, in-myback-yarders).

REVITALIZING HISTORIC MAIN STREETS

Urban retail involves both the revitalization of historic town centers and the construction of new ones. In some respects, historic main streets are the biggest challenge, because they lack central management and they often don't have anchor stores or wellrun independent stores that compete effectively with modern retail. Techniques that often work in these circumstances include opening sidewalk cafes, making sidewalks more inviting, revitalizing the streetscape, calming traffic, reducing the crossing distance, and putting in movie theaters - but not attaching the parking directly to the theaters. A multiplex theater in Miami Beach was built with a parking garage detached from it, so that theatergoers would have to walk past stores rather than directly from the garage into the theater. At times, developers who achieved success in building new urban town center projects have been emboldened to go downtown, like Robert Stark in Cleveland.

SIZE MATTERS

In the years immediately after the turn of the millennium, the development industry was agog over big town centers like Santana Row in San Jose and City-Place in West Palm Beach, Florida. The risk associated with such projects - often in the \$500 million range - is too large, according to Heapes. "I think these things [town centers] are going to get smaller," he told Urban Land Institute members in 2003. "And that is great — because they have been too big and developers have tried to do too much. Town centers will be phased more. You start with a kernel of a place." As an urban environment, Santana Row is spectacular, Heapes said. Yet, he claimed, "It was too damn big. You can't do a whole city district at once."

Some of these projects have had shaky starts, but they ultimately thrived. New urbanists have also run into problems at the other end of the spectrum. Early on, new urbanists romanticized the "corner store." Small, often stand-alone markets have struggled in many traditional neighborhood developments. Small markets in new urban projects that survive tend to be in town centers or on main streets with other businesses, and/or on streets with significant drive-by traffic.

There are a wide variety of urban retail configurations that correspond to conventional retail formats (see "A primer on retail types and urban centers" on the next page).



The plan, above, for a small grocery store in Harbor Town, called Miss Cordelia's, lined with small stores on two sides. Below is a corner market in Habersham. South Carolina.



Urban designer Matt Taecker argues that new urban centers are so varied that they defy characterization "and therefore lack the predictable performance (and institutional vehicles) that publicly traded companies insist upon. We would be wise to identify what new 'products' we are delivering in terms that investors will appreciate, and sufficiently standardize them to be good predictors of future value."

It is vitally important, also, to know how much retail a place can support. Conventional retail has formulas associated with trade area and drive-by traffic. These formulas are important for urban retail — but other factors affecting urban retail are not as well understood.

A primer on retail types and urban centers

Robert Gibbs

Most shopping centers fall into one of six primary proven types. Each type of center appeals to distinct market segments and has specific sizes, tenants, location criteria and site plan standards. Although there are always exceptions to these commercial center types, centers that deviate from these industry standards and sizes are often considered risky and difficult to finance or lease.

These primary shopping center types are: corner store, convenience center, neighborhood center, community center, regional center, and lifestyle (town) center. In addition, each of these center types can be "supersized" or increased by 30 to 50 percent. All of these formats can be built in a mixed-use urban form or a conventional, automobile-dependent pattern.

Corner stores

The smallest and most useful retail type, the corner store, ranges from 1,500 to 3,000 square feet. These small stores offer beverages, food, and sundries that are needed on a regular basis by most households, workers, and travelers. Beer, bread, cigarettes, prepared sandwiches, sundries, and snacks represent the bulk of their sales.

Corner stores ideally are located along major local roads at the busiest entry to the neighborhood. However, in densely populated TND's, the corner store can be sustainable within the neighborhood when located along its primary street. The store also benefits if located adjacent to community buildings, parks, and schools.

Approximately 1,000 households are necessary to support the average corner store. This number can be reduced significantly if the store is located along a major road with 15,000 or more cars per day. Corner stores that also sell gasoline are supportable with virtually no adjacent homes.

Convenience centers

Typically between 10,000 to 30,000 square feet, these centers offer an array of goods and services geared toward the daily needs of the surrounding neighborhoods. These centers are often anchored with a small specialty food market or pharmacy. Convenience centers' tenants offer a limited balance of food, personal services, and local offices.

Typical tenants include a bagel store, bakery, bank, coffee shop, dry cleaner, financial services, florist, food market, ice cream shop, laundry center, mail center, package liquor store, personal services, pharmacy, real estate office, or tailor.

Convenience centers need about 2,000 households — the equivalent of about two TND neighborhoods — to be supportable. These centers must be located along a major road, ideally at the primary entry to both neighborhoods. Their average trade area typically extends up to a 1.5-mile radius.

Neighborhood centers

Anchored with a supermarket, pharmacy, or video store, neighborhood centers offer a full depth of goods and services not available at smaller centers. The primary anchor is a full-sized supermarket typically ranging from 45,000 to 60,000 square feet. This major anchor is the engine that supports most of the other smaller businesses to the extent that if a supermarket closes, many of the other tenants will immediately leave the center.

Neighborhood centers generally range from 70,000 to 90,000 square feet in total size (including the supermarket) and require the support of 6,000 to 8,000 households in a 1- to 2-mile radius. Most households in the primary trade area will visit the center once or twice a week. However, in very rural areas it's not unusual for residents to drive more than 50 miles weekly to visit a neighborhood center.

These centers typically have 10 to 15 smaller retailers such as a bakery, bank, cafe, dollar store, dry cleaner, florist, food market, mail center, pharmacy, tanning salon, family restaurant, laundry center, or stores that sell hardware, electronics, bagels, bicycles, cards, eyewear, shoes, financial services, picture frames, home furnishings, ice cream, jewelry, liquor, telephones, or personal services, or that rent DVDs.

Community centers

The backbone of the shopping industry, community centers are larger than neighborhood centers but often include the same tenants. Typically 250,000-350,000 square feet in size, community centers pull from a 4 to 6 mile trade area with a 50,000 or greater population. Many community centers exceed 500,000 square feet when multiple anchors are included.

The centers often include discount department stores, home improvement stores, sporting goods, apparel, booksellers, restaurants, and supermarkets. These centers are a challenge to plan in a pure new urban model, although plans using A-B quality formats — a high-quality main street (A) combined with a suburban planned area (B) — have proven acceptable by leading retailers, when demographics are favorable.

Regional centers

The largest shopping center type, regional centers focus on apparel and goods typically sold in department stores. The centers are always anchored with multiple full-sized fashion department stores and often include 200,000 to 300,000 square feet of inline shops and restaurants. The regional center generally exceeds 900,000 square feet, but can go up to 2 million square feet. The centers have an average trade area of 10 to 12 miles in suburban densities.

The lead department stores determine when and where the regional centers open and often seek at least 150,000 persons living within the primary trade area. Recently, discount department stores have been welcomed to regional centers in response to consumer preferences and the consolidation of traditional department stores.

First opened in the mid-1950s, regional mall growth has slowed due to increased competition from community and lifestyle centers. Most regional centers are enclosed and self-contained; however, new open air formats are being tested. Recently numerous regional centers have been converted into mixed-use open air centers.

Lifestyle centers

The newest retail type, the lifestyle center was

created in an effort to offer upscale fashion and home furnishing centers without department stores. These open-air centers have become very successful with busy shoppers who seek specific favorite shops. The centers are built with and without streets; however, those with streets tend to be more successful.

With a 4- to 6-mile trade area, lifestyle centers can squeeze between regional centers or into tight niche markets that are underserved by retail. Most retailers seek access to at least 75,000 households earning a minimum of \$75,000 per year. However, the lifestyle center format has been proven to work for moderately priced retailers that have a broader consumer base. Developers have recently found that the lifestyle format when combined with residential, office, and community uses can increase traffic and improve overall performance. These new mixed-use centers are often referred to as "town centers."

Although town centers often closely parallel many new urban principles, they pose a potential threat to historic downtowns. This "main street" collection of popular retailers and restaurants combined with conventional parking and modern retail management techniques offers shoppers an experience that is perceived as "urban enough." Ideally the popular shopping center formats could be weaved into existing downtowns so they don't compete with retailers on historic main streets.

Robert Gibbs, ASLA, is principal of Gibbs Planning Group in Birmingham, Michigan.

THE MOVEMENT ECONOMY AND DRIVE-BY VISIBILITY

Chip Kaufman and Wendy Morris of Ecologically Sustainable Design in Victoria, Australia, advocate the placement of mixed-use neighborhoods

At left is the ideal for situating neighborhoods across primary thoroughfares, at right is where thoroughfares form the edge of neighborhoods. From the book *Australian New Urbanism*.





The Lake Forest model: a photo of Southlake Town Square, which opens to a street carrying through traffic. Above right is the plan for Seaside, where the town square opens to Highway 30A. Bottom right is Lake Forest, the historical example.

so that they straddle important thoroughfares. This approach takes advantage of what Ecologically Sustainable Design calls "the Movement Economy." Planning "that isolates community or neighborhood centers away from the Movement Economy will deny such centers crucial commerce (as well as public transport), which should also bring people to such centers," they say.

There is no question that retail thrives when it is located where there is significant traffic (automobile, pedestrian, or a combination of both). Since at least the mid-1990s, new urbanists have generally connected mixed-use centers to primary thoroughfares. Town centers and neighborhood centers, therefore, are usually not located in the geographic center of a neighborhood or a development. The mixed use usually does better at the edges, close to traffic. The problem with the "Movement Economy" model advocated by Kaufman, Morris, and others is that primary thoroughfares are hostile to pedestrians in the US. As long as they remain untamed, there is no easy way to straddle them with urbanism. New urbanists are generally in the position of connecting mixed-use centers to major thoroughfares - but not being able to get people or centers across them.

Planner Andres Duany, furthermore, argues that when an arterial road is sufficiently hostile to pedestrians, it should be located a distance away. The social benefit of a pedestrian-friendly environment sometimes outweighs the commercial detriment of separation from traffic, he argues. Retail can thrive with good design and excellent management even if there is little drive-by traffic, Duany contends. In that case, retail becomes a destination and does not depend on the Movement Economy.

New urban retail is generally a compromise between providing proximity to a major thoroughfare and designing an appealing pedestrian environment. Success of urban retail may hinge on how visible it is from that major thoroughfare. New urbanists create better visibility through several strategies. Southlake, a highly successful town center near Fort Worth, Texas, includes a big, compelling square anchored at one end by a four-story city hall/library and on two sides by two-story commercial buildings. The fourth side of the square opens on to an arterial road, an approach that Robert Gibbs calls "the Lake Forest model," after the famous early 20th Century town center in Lake Forest, Illinois. Charles Bohl reports that the Southlake planners and developers had initially wanted to hide the square behind two buildings, but officials insisted that the city hall be on display. That "compromise" helped make Southlake successful. The town center of Seaside, Florida, also employs the Lake Forest model.

Another commonly used new urban model branches a main street off of an arterial, so that the new main street is perpendicular to that arterial. This model is not as visible as the Lake Forest model, but it does allow the drive by traffic to see the main street. Less expensive than creating a new square, this model is employed in Kentlands, Stapleton, Birkdale Village and a host of other projects. This approach can be modified by opening up the Main Street slightly, giv-



ing it more visibility.

Still another approach is to place commercial buildings directly on the arterial itself - transforming its character, at least a little. This approach is only possible if there are no setback requirements for the arterial. The town center in Orenco Station near Portland, Oregon, utilizes that strategy, and achieves excellent visibility.

The danger of locating a town center on a busy, wide, arterial road is that the public realm will be negatively affected by the noisy traffic. That's not the case in the examples above, but developers and designers may prefer a quieter town center at times - albeit at the expense of some of the retail trade.

SHALLOW STOREFRONTS

In a theater block that Moule & Polyzoides Architects designed in downtown Albuquerque, some of

A rendering of Winter Springs, Florida, shows a main street that flares at the start to increase visibility.



Many new urban town centers are focused on a main street, as in the aerial rendering at left of Bradburn in Westminster, Colorado, that connects perpendicularly to an arterial road. The arterial is not shown, but is just off the bottom edge of the rendering. At Orenco Station, below, buildings with ground-floor retail front directly on the arterial road.



the storefront retail extends only 30 feet deep, rather than the 60 feet that Goody Clancy believed necessary in an eastern section of Cambridge, Massachusetts. That difference in depth hints at how difficult it is to arrive at hard and fast conclusions about retail. Many assumptions about retail vary with the project,



Shallow storefronts in Mashpee Commons, above in plan, create enclosure, block a parking lot, and add relatively inexpensive retail space. A view down the street, below, shows a CVS pharmacy - a national chain store that was willing to alter its architecture.



the place, and the person who is doing the calculations.

On the theater block, retail is intended mainly to enliven what would otherwise be a dull, windowless stretch of streetscape. A retail enterprise capable of operating in a very shallow space can animate the sidewalks. "Coffee shops and bakeries can be put into spaces of any depth," says Bill Dennis, an architect in Providence, Rhode Island. "Of course, the less depth they get, the more frontage they need."

Shallow storefronts can also be used to hide parking lots and offer inexpensive space for local tenants. In Mashpee Commons, the developer built four 24-foot-deep, single-story liner buildings to enclose a street and hide a parking lot. The buildings offer the tenants a large amount of display windows, and open up to both the street and the parking lot.

Where the initial demand for retail is weak, another alternative is to build live-work units. These may house services or professional offices along the street, as well as retail or restaurants in some cases. Even if the commercial use is not retail, they're more pedestrian-friendly than are blank walls or plain park-



Live-work units in Habersham, above, and Kentlands, below.





How to calculate demand for retail

Goody Clancy, a Boston architecture and urban design firm, has used its experience to devise a mathematical formula for how much urban retail can be supported by a given quantity of housing. The example below, from a study in eastern Cambridge, Massachusetts, lays out the basic steps Goody Clancy uses to match retail to housing.

Start with the volume of retail you're aiming for. In Cambridge, Goody Clancy determined that the blocks were about 300 feet long and assumed that the stores' average leasable depth would be 60 feet. (Housing was to be built above the retail; a 60-foot depth is suitable for upperstory apartments on a double-loaded corridor.) Assuming that the retail would occupy both sides of the street and would fill 80 percent of the street frontage, Goody Clancy estimated that the block and depth dimensions would produce 30,000 square feet of retail.

"For many revitalization projects, it is appropriate to look at the needs of several blocks, so 100,000 square feet might be a planning goal," Dixon notes. "Similarly, if one wanted to create a neighborhood-scale commercial center for a new community, 100,000 square feet might be a reasonable goal.

Next determine how many dollars of sales per square feet are needed to support the retail. In eastern Cambridge, the range needed was \$300 to \$400 of sales per square foot — partly a reflection of the area's prevailing retail rents. Multiply the midpoint of those two figures (\$350) by 30,000 square feet, and you discover the gross sales required for a block of retail. In this case, it's \$10.5 million. In many communities, construction costs and rents are lower, allowing the retail sales figure to be lower — perhaps \$200 to \$300 per square foot.

Next determine the percentage of disposable household income spent on neighborhood retail

purchases, and therefore the total household income necessary to generate sufficient gross sales. In the Boston area, Pam McKinney of Byrne McKinney & Associates real estate consultants estimated that roughly 60 percent of household income is disposable income (i.e., income after taxes and housing costs have been deducted). Thirty-five percent of disposable income is spent on retail purchases. Fifteen percent of the retail spending consists of purchasing in neighborhood or Main Street establishments, those close to home.

Therefore, divide the total sales needed (\$10.5 million) by .60. Divide the resulting figure by .35. Then divide that result by .15. This produces a figure of \$333.3 million — the total disposable income needed to support 30,000 square feet of retail. The percentages would not vary greatly among different markets, according to McKinney.

Then determine the number of households, and therefore housing units, required to produce \$333.3 million in disposable income. McKinney assumed the average household income for new dwellings in eastern Cambridge would be approximately \$75,000. Dividing \$333.3 million by \$75,000 reveals how many households are needed: 4,444. "Very high- or low-income communities skew these numbers," Dixon points out. "For example, a HOPE VI community that includes 50 percent public housing residents might have an average disposable household income of less than \$40,000 and require roughly twice as many housing units to provide the same degree of support to retailers."

Finally, determine the percentage of the required units that must be located within walking distance (approximately 10 to 15 minutes) of the retail to provide core support. This is a judgment call based on how much of the customer support is local and how much will come from farther away — from people who see it as a destination worth a longer trip. In eastern Cambridge, McKinney projected that roughly 25 to 35 percent of the retail sales would have to be generated by new housing nearby. The rest would be from drive-by and other shoppers who would be attracted once the retail was oping garages. In many cases, live-work townhouses can bring in uses that would not be expected to survive in a given location.

Fairview Village in Fairview, Oregon, and Kentlands in Gaithersburg, Maryland, both have blocks of live-work units with an interesting mix of locally owned businesses in locations that a conventional retail developer would avoid. Kentlands has 50 livework townhouses a block away from the primary traffic thoroughfare, and these are fully leased by businesses including a restaurant, mortgage brokers, a dentist, a publisher, an insurance agent, various service shops, and a few retail stores. The live/work units are the most photogenic part of downtown. (see more on live-work units in Chapter 6).

TERMINATED VISTAS: FOCUSING THE POWER OF URBAN RETAIL

Although the concept of the terminated vista has been known to retailers for years and is regularly used in some conventional shopping centers, it wields more power in an urban environment. In suburbia, there is typically too little enclosure (in the case of a strip shopping center) or too much enclosure (on the inside of a mall) to give the terminated vista great significance.

The terminated vista — a view that focuses on a consciously chosen object or scene — is one of a number of tools that are useful to town center designers but unavailable or less important in conventional retail development. Other tools include the placement of buildings and entrances directly on the corners of significant intersections and the use of plazas or squares to give retailers high visibility.

Terminated vistas are important, experts believe, An anchor store at the end of a vista at the Washingtonian Center in Gaithersburg, Maryland.



because they can:

- Increase sales.
- Attract important anchor tenants.

• Screen out less attractive elements of large retailing, such as parking lots and blank walls.

• Draw tenants toward a destination, getting them to walk past and possibly patronize other stores.

• Create an optical illusion, making destinations appear closer than they are and encouraging pedestrians to walk.

Historically, the terminated vista was usually reserved for important civic buildings. That is no longer the case, although civic uses still are placed at key locations in new urban communities. Modern retailing is far more competitive and programmed in a world of big box stores, power centers, and malls, and terminated vistas and other urban focal points possess economic power that developers and retailers cannot ignore. This is evident in the fact that key retailers demand such locations — and the fact that new urbanists design town centers around them.

"Terminated vistas either get higher rents, or the main tenants — the anchors — are demanding them as part of their negotiations," says Gibbs. At The Glen town center in Glenview, Illinois, for example, anchors Galyan's, an outdoors superstore, and Von Maur, a Midwest-based department store, both demanded and received terminated vistas, Gibbs says. "There is no question that the terminated vista is the premier spot in the retail lineup and the anchor stores know that," remarks Seth Harry, an architect in Woodbine, Maryland.

A number of new urbanist town center designers,

A town center diagram, below, places anchor stores (A), along multiple terminating vistas. The shopper is led from one block to another, past the smaller shops. A civic building occupies the prime site on the central square or plaza.



erating. The conclusion was that eastern Cambridge would need 1,200 to 1,500 new housing units to support one block of retail. Generally, the proportion of financial support that must be generated locally ranges from 25 percent to 75 percent; for isolated retail in new communities, it may be 100 percent.

How does all this shake out? "I think it fair to say that in a great many situations, a block of new retail would require approximately 1,500 units of new housing within walking distance (plus or minus as many as 500 units, depending on the factors above)," Dixon says. "The principal exceptions are low-income or isolated communities, which require a larger number of units, or higher-income communities, which require fewer. A 100,000-square-foot neighborhood center could require roughly three times as many housing units. The larger the center, the more it can become a destination in its own right and not need as many households within walking distance."

Nearby workplaces also influence retail. A survey by the International Council of Shopping Centers found that office workers make significant purchases before and after work: 10 percent buy cosmetics; 20 percent buy gifts; 25 percent purchase home items/furnishings; 28 percent purchase apparel; 30 percent purchase drugs and personal care items; 40 percent purchase groceries.

Research by Gibbs Planning Group, urban retail experts, indicates that each office worker directly supports 2 square feet of retail plus 5 square feet of restaurant space. Typically each office building has 1 worker per 200 square feet of total space.

In the Mixed-Use Development Handbook, the Urban Land Institute offers its own calculations for sales per square foot associated with nearby office space, residential units, and hotel rooms.



An anchor store in Crocker Park, at left, occupies both a terminating vista and a prime spot on a key public space. Such locations generate strong sales.

including Gibbs, Harry, and Terry Shook of Charlotte, North Carolina, are using zigzag — or crooked — main street designs. "Each zigzag is a deflected terminated vista — it terminates in both directions," says Harry. "This design also gives spatial definition to numerous [retail] courts, each of which becomes a unique place."

The main street can be divided into a series of experiences, Harry says, with establishments grouped in ways that support each other. He calls this a "string of pearls." The terminated vistas draw the shoppers from one "pearl" to the next, past all of the enticing windows of smaller shops, which typically pay higher rents (the anchors often cut deals because their signed leases are keys to financing). "The terminated vista gets people to walk past the in-line stores," Harry says. "That is the economic engine that drives retail."

Historic downtowns and main streets typically have a main-main configuration, Harry explains, in which the prime intersection gets the highest rents. "In every direction when you move away from the main-main intersection, the rents drop off," Harry explains. "It's not a good model, although there is some good historic precedent."

Anchors as magnets

The malls engineered a retail advance — anchors were placed away from the center, to function as magnets, forcing customers to walk from one end to another. Anchor stores perform a vital function in urban town centers, as well. New urbanists typically place key retailers at a series of focal points — around a main square, at terminated vistas, and at key intersections, helping to move pedestrian traffic throughout a center.

A central square on which a vista focuses would probably be the premier retail spot in a town center and would either command the highest rents or attract the key tenant, says Gibbs. Both Gibbs and Shook note that retailers are increasingly looking for the highest-energy urban location, as opposed to a spot on the edge of the town center near the arterial road. "They see it as being like a central court in a mall," Gibbs says. "Everybody is going to be walking past that spot." Gibbs adds that many developers put buildings on the interior of a square to boost rentable space, but they should resist that temptation. A square or plaza that's left open offers an unimpeded view of retailers all around.

Douglas Storrs — codeveloper with Buff Chace of Mashpee Commons on Cape Cod — offers a story that illustrates the value of enclosing space in a town center. A single-side row of shops in Mashpee Commons was given a sense of enclosure by building stores on the opposite side. It terminated the street with a Gap at one end and a CVS pharmacy at the other end (see photo and plan on page 82). "The sales per square foot of the original tenants went up by as much as 15 to 20 percent," Storrs says. "Now we have a double-loaded street with terminated vistas on both ends. Now there's a reason for people to come on those streets."

Mashpee Commons, which has a mix of local, regional, and national retailers, is able to attract national retailers to the terminated vistas, Storrs says. The national retailers get higher sales per square foot — revenue in which the developer shares. This allows the developer to put up multistory buildings with a higher level of architectural detail, Storrs adds.

The higher level of architectural detail generally applies to any prime retail spot in a new urban town center, including key corners. The problem with corners is that they need detailing on two sides. Key retailers want to be located on corners, but they may not want to pay higher rent, Gibbs notes. Designing a lot of corners "is the right thing to do," Gibbs notes, "but planners and architects should be aware that developers will often come back and say that the corners are increasing the costs." One solution — not an ideal one, says Gibbs — is to pick an "A" side of the corner for expensive detailing and a "B" side for less expensive materials and detailing.

One major retailer, Macy's, has a prototype store with a rotunda at the corner that is designed to be placed at a key intersection in a town center. This store was built in City Place in West Palm Beach, Florida, and Redmond Town Center in Redmond, Washington. The Redmond store has changed the flow of pedestrian traffic, essentially doubling the prime retail section of the project, reports Bob Tiscareno of Tiscareno Associates in Seattle.

Given the economic power of terminated vistas and squares, the question arises of whether retailers will outbid civic buildings to occupy key locations. Storrs believes the answer lies in a combination of "romantic" and "real world" planning. Mashpee Commons includes a church at a terminated vista and a post office at the middle of an important block. But there are limits. "Can you drop a fire station into the middle of a main street the way you see them in a lot of New England villages?" he asks. "I don't think so. Fire stations have different needs these days." Gibbs notes that most developers want civic buildings in their town centers, but they don't want to give up revenue. "In most cases we are able to find a prominent civic site on a square or terminated vista that does not work well for retail for some reason," he says.

GROCERY STORES ADAPT TO URBAN TRENDS

Across the US and Canada, supermarket companies no longer automatically insist on constructing a 55,000- to 65,000-square-foot box sitting behind a big expanse of asphalt. Instead, they'll agree to operate stores that come up to the sidewalk, that have small shops along their perimeter, or that — in dense urban settings — have parking underneath.

Current trends are:



A Whole Foods supermarket in Portland, Oregon.

• In high-density city neighborhoods, supermarket operators have found they can attract plenty of customers despite placing much of the parking in a below-ground garage or on the roof. To make underground or rooftop parking relatively convenient, one escalator carries the shopping carts full of groceries to the parking level while an adjoining escalator carries the customers.

• In the upscale and natural-foods niches of the grocery field, stores that are much smaller than the industry standard are working. The New Seasons chain in Portland, Oregon, says customers prefer its 30,000-square-foot or smaller stores, which offer a friendlier, more intimate atmosphere. A large mainstream supermarket "has a lot of 'me-too' products because the manufacturers paid slotting fees to the retailer," says New Seasons company president Brian Rohter. "We don't do slotting fees. We don't need 50 feet of breakfast cereals. We get by with 24 feet."

• On suburban greenfield sites, new urbanist developers are bringing supermarkets up to the sidewalk or lining them with small stores so that the grocery contributes to an appealing streetscape. Surface parking remains essential in most new suburban projects, but it may be placed to the rear or side, where it does less damage to a retail district's coherence.

• Some new urbanist developers have done a good job of introducing grocery stores in a size range that seems a throwback to decades ago — roughly 4,000 to 5,000 square feet. In greenfield developments like Southern Village in North Carolina and Harbor Town in Memphis, small grocery stores are important socially.

Robert Gibbs credits mass-market chains with

becoming more flexible in several respects:

• "They're developing more models than they used to have. They typically have two or three size models," which enables them to enter smaller markets. "In a city, you can do a smaller store because there are more people who walk to it and visit on a daily basis," he notes.

• They are increasingly willing to have parking below or on the roof, though, according to Gibbs, "they only want to do it in tight urban areas." An escalator system to carry shopping carts full of groceries, with an escalator for people next to it, may cost \$250,000, he notes.

• They are becoming less resistant to having multiple entrances and to having certain specialty areas, such as a coffee shop, a bakery, or flower shop, open directly onto the street.

• "They are allowing housing on top. For them, that's a radical change."

INSERTING A SUPERMARKET INTO A TOWN CENTER

Supermarkets are common in new urban town centers, and they are fitted into the urban fabric in a variety of ways.

Looking at new urban projects near the nation's capital, three techniques are used: the A and B street formula; upgraded architecture with liner stores; and the big box within a mixed-use building.

A and B streets

This concept works well in new towns designed from scratch, such as King Farm (planned by Torti Gallas and Partners) and Kentlands (planned by Duany Plater-Zyberk & Company). By using the A and B street formula, an entirely conventional supermarket can be integrated into a town center without seriously compromising the pedestrian experience. The key is that the planner has total control over the street and block configuration.

King Farm, a 3,200-unit traditional neighborhood development (TND) in Rockville, Maryland, has a 54,000 sq. ft. Safeway anchoring its mixed-use town center. The supermarket and its large parking lot occupy the middle of a block. Three sides of the block have urban buildings on the perimeter. These are known as A streets, because their streetscapes are attractive to pedestrians. The fourth edge of the block (the B-street side) is open to the Safeway parking lot.

A similar approach is taken in Kentlands, a 1,700unit TND in Gaithersburg, Maryland. The grocery store block is ringed by streetfront commercial on three sides, and the fourth side is open to a big parking lot serving the 35,000 sq. ft. Fresh Fields store and two other fairly large-floorplate businesses.

In the case of both King Farm and Kentlands, the supermarket serves as the anchor for smaller stores. Although extensive on-street parking is available, many patrons park in front of the supermarket and walk through passageways to the other establishments on the surrounding A streets. From the front, both supermarkets look like conventional suburban stores. Their location inside a pedestrian-friendly block makes the difference.

The town centers for King Farm, left, and Kentlands, at right, where the supermarket is the largest box, show how a grocery store can be inserted into a block using an A and B street formula. In both cases the B street is the one where the parking lot is visible.







The Silver Spring grocery store, above, and the plan for the downtown, at right. The market is the retail space at the lower right of the plan.



Architecture and liners

In designing the new urban redevelopment of the downtown in Silver Spring, Maryland, RTKL had to work with an established block and street pattern. Parking requirements and constraints imposed by tenants required that the 30,000 sq. ft. Fresh Fields supermarket be placed next to a sidewalk on an important street (parking is behind the store and the main entrance is located on a narrow street connecting the parking lot to the street).

The building's placement called for more sensitive design than the typical big box facade. A twostory building was designed, with offices on the second floor (Fresh Fields expressed interest in moving its corporate headquarters here).

A "veneer" of ground floor retail stores enlivens about 50 percent of the building's primary street frontage, according to Jim Leonard of RTKL. The remainder of the frontage is occupied by Fresh Fields' cafe, and a lobby that serves as the entrance to the second floor. Much of the first floor has windows.

The cornice line of the facade steps upward with a gradient to break up the mass of the building. Different materials (masonry and simulated stucco), in addition to a variety of corner treatments give the impression of several small buildings instead of one large one. Inside, a two-story atrium brings natural light into the center of the supermarket (a trademark of the upscale Fresh Fields).

Mixed-use building

Like Silver Spring, Pentagon Row in Arlington, Virginia, is an infill site — albeit one in the midst of high-density suburbia. Pentagon Row includes 500 apartments and 300,000 square feet of retail on just 18 acres. Given the density, three floors of apartments had to be placed above a portion of the 45,000 sq. ft. Harris Teeter supermarket.

The supermarket opens onto a parking lot that is nearly hidden from the street. A sign directs customers to the parking lot, but otherwise the casual passerby may take little notice of the supermarket. Leonard explains that high visibility is not important for the success of such a store. "What Fresh Fields and Harris Teeter understand is that people will find you — it's destination retail," says Leonard of RTKL, which designed Pentagon Row. "All you need is the sign on the street."

On the street side of the supermarket, the first floor is lined with retail shops. Above are apartments. The transition between the retail first floor and apartments involves a transfer of weight to fewer columns (because of the layout of the supermarket). "The principle is not unlike a hotel tower coming down on its podium," Leonard explains. The construction costs for such a building are higher than for a singleuse structure, he says.

Placing large, modern stores in urban blocks

Stephen A. Mouzon

New urbanists have many block-scaled tools available to incorporate big box stores and other automobile oriented retail uses into urban places.

The goal is to civilize the box, which consists of the following things in this order:

A. Adequate parking should be provided, but the front parking lot has to be eliminated from the front of the building. Only on-street diagonal parking is visible from the street.

B. The box fits into a normal urban block structure. Unless the block structure is maintained rigorously, you've created nothing more than another suburban project, not a part of the fabric of the town.

C. The massing and fenestration rhythms are right. This has nothing to do with style. A blank concrete box inserted into a town center is still destructive. Bays consistent with those of the town should be articulated, and appropriate shopfront glazing at the first level should be provided.

D. Only after these things have been accomplished is it proper to even think about the style of the building. And the style obviously should be something that communicates with and resonates with the average citizen of the place where it is built.

This article addresses only the first two of these priorities. The solutions vary by Transect zone and by use.

There are no superficial solutions here, like trying to come up with a model for a T2 (rural) big box. There should be no big boxes in T2 (or T3, for that matter). Tools are only shown for the zones where they naturally should occur. All tools are based on appropriate mixed use parking ratios and factors as enumerated in the SmartCode.

The block size for all illustrations is 400' from center of street to center of street, which is a very common dimension in much of the eastern United States.

Urban core

T6 zones — urban cores — often extend several blocks in each direction. All illustrations given here therefore are based on a full block.

The big box store in T6 does not need an illustration because it is so familiar. This is the downtown department store that has been built for over a century in cities across America. Some urban centers don't require much parking because of transit, but when one does, it is provided in structured parking in the basement. Floors are stacked up as high as necessary at roughly 90,000 square feet per floor (assuming the building occupies the entire block) to achieve the desired floor area. Other uses, including residential, typically occupy higher floors.

Urban center

T5 zones — urban centers — sometimes extend several blocks in each direction, but they may also be one block wide and several blocks long along a Main Street. Two illustrations are given here: One for the full block and the other for the half-block with primarily residential uses occupying the other half. The block size used is 400' from center of thoroughfare to center of thoroughfare, which is a very common size of block for town center areas in much of the eastern US.

The big box in T5 is one of the most important types to solve. There is a range of box sizes to be solved, from the 40,000 square foot grocery store to the 180,000 square foot super center. Both extremes are illustrated, along with two intermediate conditions.



T5 big box: 40,000 square foot grocery

The box above can be solved on a half-block with all surface parking, and therefore works along Main Streets that are one block deep from alley to alley with townhouses behind fronting the outer streets. Loft apartments are assumed above the grocery. This illustration includes 104 parking spaces on the street, 48 spaces on the alley and 28 garage spaces in the townhouses behind. In addition to the 40,000-square-foot grocery store, 14 townhouse units are shown and 40 loft apartment units are located above the grocery.



T5 big box: 80,000-square-foot mini-anchor similar to Barnes & Noble or Old Navy.

The box above is approximately the largest that can be solved on a half-block with all surface parking, although it does require pairing with another block of liner buildings and internal parking to do so. It therefore works along Main Streets that are one block deep from alley to alley with townhouses behind fronting the outer streets. The mini-anchor building is two floors tall, but the first level is double-height and is detailed on the exterior as two levels. There are two levels of loft apartments above the retail liners.



T5 building supply: 150,000 square foot, similar to Home Depot.

The building supply box, above, requires two levels of an entire block, and must be paired with another block of structured parking bounded by liner buildings. The big box is assumed to have high ceilings on at least the street level because of the clear span size, and to be expressed as a three- or four-level building on the exterior as a result. Liner buildings are assumed to be oriented away from the Main Street, and are therefore offices on the first level and lofts on the second and third. Please note that some functions of the building supply that require cashiers at all times for security or other reasons (such as the garden center, which is shown here as an interior courtyard) could be expressed as separate storefronts on the exterior of the box. This and the 180,000 square foot super center that follows are the only two types that require structured parking, which is a four-level deck in both cases. Clearly, decks cost more than surface parking if land cost is not considered. This is one of the few solutions presented that costs more than the conventional suburban model. Several solutions proposed here actually save large amounts of money.



T5 big box: 180,000-square-foot, similar to WalMart Super Center.

The super center box, above, requires two levels of an entire block, and must be paired with another block of structured parking bounded by liner buildings. The big box is assumed to have high ceilings on at least the street level because of the clear span size, and to be expressed as a three- or four-level building on the exterior as a result. Liner buildings are assumed to be oriented away from the Main Street, and are therefore offices on the first level and lofts on the second and third. Please note that some functions of the super center that require cashiers at all times for security or other reasons (such as the pharmacy or the jewelry department) could be pulled out into the liner buildings if desired as separate shops.



T5 automobile dealership: 328 cars for sale on lot

The full-featured automobile dealership shown above requires two blocks divided according to the natural divisions of the business. New car sales and general administration occupy one block, while used car sales and service occupy the other. Buildings are essentially all liner buildings, with lofts (or possibly offices) on the upper levels. All office and residential parking requirements are met through the use of onstreet parking, reserving the 328 spaces within the two blocks for the dealership's stock of new and used cars. The auto dealership may also be done in a single block through the use of structured parking.



T5 main street block: 48,000 square feet of retail, 8,400 square feet of office, 28 loft apartments.

This block is patterned closely after commercial buildings used on countless Main Streets across the United States. Diagonal parking rings the block, which is composed of buildings ranging between 20' and 30' in width. Building depths are typically 75' except at each end of the alley, where the end building extends back tight to the alley in order to screen the interior of the block.

This liner building is assumed to be office occupancy since it is on the side street rather than the front street. This layout provides a total of 48,000 square feet of retail and 8,400 square feet of offices per block plus 28 loft apartments on the second level. Units may be sold as live/works, where the purchaser buys both the retail unit on the first level and the living unit on the second. Such arrangements allow very inexpensive incubation of a new business. The interior of the block is composed of a two-lane alley flanked by a bay of parking on each side. Enough width is available to insert parallel parking on the alley if desired.

Neighborhood general

T4 zones are easier to deal with in two primary respects: First, the biggest boxes simply are not allowed there. The SmartCode limits retail to one corner building per block, and the parking requirements are higher. Second, because the buildings may be detached, it is possible to bring a driveway out to the front street.



T4 neighborhood grocery: 20,000 square feet.

This 20,000-square-foot neighborhood grocery store is the most typical general neighborhood retail use. Because only one such retail building is allowed per block and it must be located on a corner, this illustration shows it at the largest possible size, which is a quarter-block. Big box retail significantly larger than this simply is not appropriate for T4.

Suburban retail

T3 (suburban) is limited in the SmartCode to essentially one corner store per neighborhood. One of the great errors of conventional postwar planning is the inclusion of pretty much every function within what should have been T3 Suburban areas. By making the suburban zone become everything, it became nothing. Because the Transect can be exceptionally fine-grained, it is certainly possible, and usually desirable, to have areas of T4 and T5 within close proximity to T3. But within T3, with the exception of the corner store, there should essentially be none of the typical suburban commercial uses; they should all occur in nearby T5 or T4. T2 and T1, of course, are even more restricted.

Stephen A. Mouzon is an architect with Mouzon Design in Miami, Florida. This material was first published in the Council Report VI on Retail in 2004 under the title "On Blocks & Boxes." See also "Drive Through Retail" on page 102, which came from same article. Stephen Mouzon's website is www.newurbanguild.com

HOW TO MITIGATE THE IMPACT OF BIG BOX STORES

There are many ways to integrate large-format retail stores into a pedestrian-oriented environment. The choice depends on the budget and the unique circumstances of each main street or urban center. Belmar, a new urban center in Lakewood, Colorado, employs four strategies. A downtown that is being built on the site of a former regional mall, Belmar incorporates a Dick's Sporting Goods of 80,000 sq. ft., a 65,000 sq. ft. Whole Foods, and a 64,000 sq. ft., 16-screen, multiplex theater. Belmar also includes a series of "mid-box" retailers like DSW, Pier 1, Linens 'n Things, and Party America. These large retail/entertainment uses fit into a downtown that will eventually have 1,400 residential units, offices, civic uses, a hotel, and scores of small shops and eateries.

Big box stores in suburbia are detrimental to walkability and human-scale environments because they come with large blank walls, are built with cheap materials, produce unwieldy blocks, require large surface parking areas, and often demand sizable loading facilities. The developer, Continuum Partners of Denver, dealt with each issue in a creative way.

The full wrap

The movie theater was placed at the heart of the 104-acre site. "The theater would have done better at the start if it were at the edge, but in the long run we felt that it is better for everybody if it were placed at the center," says Tom Gougeon, principal and chief development officer for Continuum Partners. The location decision meant that the entire theater box must be enclosed with high-quality, mixed-use buildings.

Unlike most multiplexes, Continuum set high architectural standards for Century 16 Belmar. Wrapping the entire building meant that all of the architecture budget could be put into the entrance. "The architect [Fehlman LaBarre of San Diego] did a great job — it was built to a community performing arts center standard," Gougeon says. Not only do the liner buildings hide plain walls and inexpensive materi-



Belmar's multiplex cinema is in the center of a block encased in pedestrianfriendly liner buildings, as shown at left. The only part of the cinema building that is visible is the entrance, below, which is given special architectural treatment.



als; they also conceal the choppy shape of a building containing 16 theaters.

The theater is lined with three mixed-use buildings and a parking garage, which has ground-floor commercial space. All the mixed-use buildings have housing over retail, are three to four stories high, and include rental apartments, for-sale condominium lofts, and rental two-story townhouses.

Continuum Partners and its designers faced a series of challenges, not the least of which was how to make the best use of the theater as an anchor and a hub of pedestrian activity. The theater was deliberately designed so that everyone would approach it as a pedestrian. "Everybody parks somewhere else and walks past the stores," Gougeon says. "Nobody just parks and walks directly into the theater."

Because the theater block is bounded by four important pedestrian streets, the plan calls for every segment of sidewalk to be lively. The mixed-use buildings all meet a relatively high architectural standard. The utilitarian parking garage, which will be visible on only one side, includes space for artisans' shops and galleries on the first floor.

All of the mixed-use liner buildings on the theater block are detached from the multiplex, creating an alley for loading, services, and emergency egress in between the big box and the street-fronting residential and retail.

The partial wrap, attached

The Whole Foods market was built on the eastern edge of Belmar. While much of this building has been wrapped with ground-floor commercial space, the side that faces a major arterial has not (although the usual surface parking lot has been eliminated and the market has been built almost to the sidewalk).

Unlike the theater block, all of the buildings are

The supermarket, below, has attached commercial spaces lining two of its sides.



attached and permitted and LEED-certified as one building. "But each [liner building] has a unique street address and will be recognized as an individual building by the public," Gougeon says. Another difference is that the Whole Foods liners include only retail and office space. "It is probably true that this block was slightly easier to develop as one permitted structure under the code," notes Gougeon. "But otherwise, I don't know that it is dramatically different from the other blocks that have complicated mixeduse buildings interwoven with structured parking and a larger-format tenant."

Building code issues, including separations, wall penetrations, fire ratings, and sprinkler and ventilation requirements, come into play whether lot lines exist or not. Housing would have added complications, but the location wasn't right for residential use. "On the other hand, this block had to accommodate the largest tractor-trailers in a loading facility, something that most of the other blocks did not have to address," Gougeon says.

The partial wrap, detached

Dick's Sporting Goods occupies the only building recycled from the 1960s Villa Italia Mall. The 135,000 sq. ft., three-story building was saved because it fit within the new street grid. In the old mall, it was a Foley's department store. The building was redeveloped as a Galyan's and the name was changed to Dick's after a 2004 buyout.

Continuum Partners renovated the entrances on two sides of the former department store — the first two floors of which are occupied by Dick's, and the

Dick's Sporting Goods, the central big box of the block below, and its parking are hidden by buildings that mostly enclose the block.



third floor by an office tenant — making them more interesting and pedestrian-friendly. Yet the building still has significant blank walls that need hiding. Three buildings perform this task, leaving two sides of Dick's exposed — a street entrance and one that faces surface parking and an arterial thoroughfare. Continuum added lots of windows to add light to the building and make it seem more open. The signage on the street side is more human-scaled, says Gougeon.

Two sides of the Dick's block face high-quality pedestrian streets with a fair level of architectural detail and shops that meet the sidewalk. The mixeduse buildings that form the edge of this block are not liner buildings per se, but they serve multiple purposes, including hiding the mostly blank sidewalls of the Dick's building.

No wrap

The mid-size retailers, sometimes called junior anchors in the development industry, favor a more conventional suburban setting and were given one at the northeast corner of Belmar, adjacent to a major arterial. These mid-size stores typically range from 10,000 to 40,000 square feet, and they were placed side by side in a building of close to 90,000 square feet. They are served in the front by surface parking.

While the design is suburban, this part of Belmar was incorporated into the whole with care. Foremost, the urban block and street structure was maintained, enhancing walkability, allowing for pedestrian amenities, and retaining the possibility that these blocks could be urbanized in the future.

"You can walk to everything else from there; there are other structures sharing the block with other uses," Gougeon says. "The urban wind farm in the parking lot adds interest. The block is on the edge of the district, so we can handle the loading requirements without creating problems. And we treated

At Belmar's edge on one side is a building with conventional retail.



the sidewalk in front of the building more like a city street than a parking lot. So its dimensions, fixtures, furnishings, lighting, and landscaping help to integrate and humanize the otherwise very large and freestanding nature of these buildings and tenants."

Dealing with big blocks

The theater, Dick's, and Whole Foods blocks are all large. They range from 700 to 724 feet in length and from six to nine acres overall. The best way to mitigate the size of these blocks is to make the experience interesting for pedestrians, according to Gougeon. "Managing those longer lengths and bigger dimensions involves a combination of active and transparent street-level uses; good furnishings, trees, and amenities; and internal pedestrian linkages through the blocks where possible," he says. "We are retrofitting some of the longer block segments in front of Dick's to add more shade, seating, planting, and amenities."

In blocks this large, Continuum Partners would ordinarily consider breaking them up with a subsystem of smaller streets. This was not possible with the big box blocks, "but we do have such a system (only partly built at present) in the large superblock where the main plaza is located. It is broken down by smaller streets that have more of a lane character and which can be closed at times to extend the public space." Ultimately, the more varied and lively the uses, architecture, and streetscape design, the more the plan can accommodate longer dimensions, Gougeon believes. "If the block does not have life or activity, even a short distance will seem long," he says.

Liner building issues

Of all of the tools for urbanizing big boxes, liner buildings are the most complicated and potentially most expensive, according to Gougeon. Not only do the liner buildings present their own service, parking, and loading challenges; they also have to make a profit for the developer. Continuum Partners insists that all buildings in Belmar stand on their own economically, rather than accept smaller or no profits on some buildings for the sake of enhancing the whole plan. "Even if the building ends up being single-loaded or has more complicated access or parking or service configurations, its costs and income have to produce a market return." Gougeon says.

Liner buildings raise the following issues, Gougeon says: • The depth of liners is likely determined by the block size and by the box that one is trying to wrap. That means that retail spaces are often shallower than they would otherwise be, and it also "generally means you have single-loaded buildings above the shops," Gougeon says. "Those buildings are inherently less efficient (more corridor or vertical circulation per increment of usable space)." Views (although not necessarily light) are usually available in only one direction.

• Buildings may have to forgo elevators, because the small square footage of a liner may not justify the cost. Two of the three theater block liners have no elevator — they feature walk-up lofts and townhouses. The sale and lease value of these units stacks up well against similar units with elevators, Gougeon says. Other amenities, such as a back deck, can make walk-ups highly desirable.

• A cost benefit of liner buildings is that some sides can be made less expensive because they are largely hidden. "These savings may or may not pay for the inherent inefficiencies in some of the liner configurations," Gougeon notes. On the other hand, street-facing facades demand higher quality materials and more articulated architecture. If the liner building is detached from whatever it is hiding — say, a parking garage — the construction costs are often reduced. In Belmar, the theater is detached from its mixed-use liner buildings.

• If there is a service and/or egress corridor, the space in between the box and liner building must be dealt with. "These areas can be long, not very visible, and can become security concerns — often access needs to be controlled," Gougeon says.

• Code issues driven by the proximity of buildings can affect cost, dimensions, and permitted openings. Egress must be provided for both the liner buildings and the box. If the buildings are long and have retail and restaurants on the ground floor, issues such as trash and grease trap locations can be tricky. If there is residential above commercial, parking might have to be in a remote location, which may influence what housing product is marketable in the building.

• Where two or three liner buildings are located in close proximity, Continuum Partners has sometimes been able to share utility and/or telecommunications systems. "Those kinds of things can create some offsetting economies," says Gougeon.

• Even in shallow liner buildings, the depth of retail on the first floor may be greater than the single-

loaded residential dimensions above. "So on the second level you get an opportunity for outdoor space (private or shared or both) that can be a real bonus in an otherwise dense urban environment," Gougeon says. "And some are remarkably private even though they are embedded in the center of the district."

• Because the theater block liner buildings are shallow, the retail spaces are relatively small compared to those elsewhere in Belmar. Many of the spaces range from 1,000 to 1,500 square feet. That means that retailers in these buildings are disproportionately local, Gougeon says.

Despite all of these challenges, the liner buildings have performed reasonably well in the marketplace. The residential space is nearly all leased and sold, and the retail space is close to 85 percent leased, Gougeon reported in 2006.

Parking

The theater and Whole Foods blocks are served exclusively by structured parking (in addition to the on-street parking that is available throughout Belmar). The Dick's block has both structured and surface parking. Only the mid-size retailers are served wholly with surface parking.

Parking garages are themselves huge boxes and require their own liner strategies. Garages in the Dick's, Whole Foods, and theater blocks all have street-fronting commercial space. This helps to "animate the street and keep the garages from dominating the environment too much," Gougeon says. "The garages are often essential to get a more urban solution, but they can be almost as bad as the large-format tenant in terms of street impacts if not handled well."

The most creative example of this strategy in Belmar involves the 301,367 sq. ft., 866-car, four-level garage on the theater block. The portion of the garage that fronts a street contains 7,930 square feet of art studios and gallery space for photographers, designers, furniture makers, and artwork.

The surface parking lot for the mid-size retailers is also creative. Continuum Partners built a wind farm that powers the lot lighting and sends energy back to the grid. That strategy took a negative — the largest parking lot in Belmar — and turned it into an attraction.

Fitting big boxes on main streets

Robert Gibbs, Dana Little, Barbara Stalburg, and Charles Wilson

Some supporters of New Urbanism believe that big box stores, typically built of Dryvit-faced cinder blocks and ranging from 25,000 square feet to 250,000 square feet, have no place on traditional main streets. But new urbanists ignore big box stores at their peril: The nation's top retailers, Wal-Mart, K Mart, and Sears — along with every major supermarket chain — thrive in big boxes.

If the New Urbanism is to compete on every level with suburban sprawl, big boxes must be at least as profitable in traditionally planned towns, if not more profitable than in suburbia. Furthermore, big box development is a key to providing the full range of shopping opportunities for low- to middle-income residents in urban and town settings.

Major retailers are beginning to look at more neighborhood-friendly designs and sites in a few locations in the US. Examples exist in South Miami, Florida (Shops at Sunset Place), Gaithersburg, Maryland (Gaithersburg Square Mall), Plano, Texas (Legacy Town Center), Rockville, Maryland (King Farm), Arlington, Virginia (Pentagon Row), Cape Cod, Massachusetts (Mashpee Commons), and Silver Spring, Maryland (the new downtown). A supermarket in Birmingham, Michigan, modified its storefront to make it more accessible and appealing to pedestrians.

At least three distinct models allow big box stores to be integrated successfully into well-designed urban

settings. All of them enable buildings to come to the street, provide access from both the sidewalk and parking areas without creating additional security problems for store owners, and avoid the deadening blank wall that is so common in big box designs. In all of these models, parking can be creatively incorporated into a combination of on-street spaces and decks, ramps, or surface lots hidden by the stores. They are the urban vestibule model, the vestibule and liner, and the "T" model.

Urban vestibule

In the urban vestibule model, an anchor, such as a grocery store, can position a continuous front along the street while supplying parking at the rear of the site. This design is sensitive to retailers' concerns about multiple entries. By creating a vestibule that has a point of entry toward the street and a second point of entry toward the parking area, the retailer is able to maintain the security advantage of having a single entrance and exit for the store. Monitoring entrances and exits is a critical issue for merchants and cannot be overlooked. The urban vestibule is a good model to use in a retrofit, when the store is undergoing expansion and there is also a desire to stitch the building to the urban fabric. To avoid presenting a blank wall to pedestrians, display windows are placed along the sidewalk. Those windows also give the store an opportunity to market its products to pedestrian traffic.

The vestibule and liner

A variation on the urban vestibule concept, the





Vestibule and liner



97

vestibule and liner goes a step further in activating the street. This model takes advantage of a trend, particularly in grocery stores, toward adding new sections that amount to stores within stores. Thus, the 40,000 sq. ft. grocery store of 15 years ago now has become a 60,000 sq. ft. super-grocery store with bakery, photo processing center, pharmacy, and florist. In the vestibule and liner model, existing components within a store are compartmentalized and given street frontage. Access is provided to these operations from both the store and the street — creating a more interesting streetscape.

Concerns about security can be satisfied in two ways. The first is to design the liner shop to have a two-sided counter where purchases and be handled and service can be provided to customers, whether they come from the street or from the rest of the store. This arrangement does not allow customers from the street to enter the main store. The second method, perhaps better from the retailer's point of view, is to allow shoppers to enter into the main store through the liner stores, but not exit. That brings additional business into the main store, while keeping the integ-



The T-model, above and below



rity of the single exit. Customers come in from both the street and parking lot.

The "T" model

The "T" model, while still driven by a large anchor tenant, allows creation of a true main street environment. In this scenario, the store has high-profile street entrances, but the mass of the store is buried behind liner retail shops. This model can support a variety of individually owned or operated shops, which benefit from the high traffic volume of the anchor. The anchor store, possibly a large apparel store, also benefits from the street traffic and cross-shopping from the smaller shops. The "T" Model is especially applicable to new town developments and existing mall retrofits.

MAKING A POWER CENTER MORE CIVIL

Sometimes there is no way to avoid conventional big box stores. In this case, the Transect calls for a district. With a district, one needn't completely give in to conventional, automobile-oriented planning. A Denver shopping center shows how large-scale retail, when subjected to strong community planning, is more accommodating to pedestrians and better integrated into public transportation systems.

Quebec Square, a 740,000 sq. ft. regional shopping center containing Home Depot, Super Wal-Mart, and other big-box stores, opened in mid-2002 to serve the material needs of residents in Denver's 4,700-acre Stapleton redevelopment. The shopping center has

The plan for Quebec Square, below, shows a block and street pattern within the power center. Blocks are lined by street trees and sidewalks.



one foot planted in conventional big-box territory and the other planted in more walkable terrain.

A decision was made to extend the street grid of the surrounding neighborhoods into the retail site as much as possible, says Tom Gleason, spokesman for Forest City Enterprises, Stapleton's master developer. "With that street grid come the pedestrian amenities of sidewalks, tree lawns, and other elements designed to make it an appealing environment." People can walk to the Square from existing neighborhoods, nearby hotels, and the United Airlines Flight Training Center, where 1,200 people work.

The grid gives Stapleton residents several ways to approach the big boxes rather than having to drive on a large arterial. It also allows the center to be redeveloped in the future in a more urban manner if demand materializes. A transit station accommodating buses, autos, bicycles, and pedestrians has been planned near the shopping center's northern edge. A light rail line may arrive later.

Many restaurants and stores on retail pads will have dual entrances - serving pedestrians entering from the street on one side and motorists entering from the parking lot on another. "Restaurants' outdoor seating areas will be placed to help activate the street," Gleason notes. "Buildings have been pulled out to the street as much as possible to reinforce the urban edge." For drainage, a "green swale" runs the length of the center, creating a wildlife habitat and a feature that pedestrians can enjoy. ka architecture of Cleveland planned the shopping center, with EDAW doing the landscape design.

URBAN SHOPFRONT DESIGN

Storefronts are vitally important to retail sales in urban locations - they are the face that the business presents to the world. The elements of urban shopfronts are fairly simple and have not changed much over the centuries, says retail expert and architect Terry Shook of Charlotte, North Carolina. Shopfronts date back to the 14th Century in France, he notes. Elements include a bulkhead located above the shop door and display windows. This is where a sign usually goes. The bulkhead can also support an awning. Directly beneath the bulkhead are the transom, windows above the door, and/or display windows. Below that is the shopfront (display windows). Below that is a base — a solid area that may exist below the display windows. The elements work equally well with traditional and contemporary design styles. The doorway



Shopfronts in Denver, above and below, include the basic elements.



should be recessed "just enough to allow someone to get in out of the rain," says Shook. Don't put the door so far back that the customer might change their mind and turn around, he adds.

Everything above the bulkhead is the "shaft" of the building. When design and construction dollars are tight, Shook recommends that they be spent on the shopfront, at the level of the pedestrian. Too much money in town centers has been spent on architectural details high above the pedestrian level, Shook says. "Birds don't shop - people do," he says. "If you are in a 'can't lose' demographic, you can spend money all over the building. But if you are in a competitive situation with limited dollars to spend, spend it at the street." Sidewalks in front of the store are critical and should ideally be 14 feet to 18 feet wide, Shook contends.

Another important element in main street design is enclosure. The best is 1:1, where the building height is equal to the street width. Shook calls that "full enclosure." Minimal enclosure is 2:1, where the street is twice as wide as the building heights on both sides. Shook offers plenty of options for both symmetrical and asymmetrical storefront formats. The asymmetrical ones are often chosen when the main street is on a slope.

TAILORING TOWN CENTERS TO PEOPLE'S BEHAVIOR

Why do some new urban town centers fail to thrive?

Is it because they're not designed with the right sizes of shops in the right locations? Is it because the streets are too straight and not sociable enough? Is it because not enough time was devoted to attracting the best mom-and-pop operators?

According to the Montreal-based consulting firm Live Work Learn Play (LWLP), it could be all three.

"We are extreme sociologists," says Max Reim, principal of the firm, which collaborates with Urban Design Associates (UDA) of Pittsburgh and Duany Plater-Zyberk & Company (DPZ) of Miami and which has another new urbanist firm — LeylandAlliance of Tuxedo Park, New York — as a silent partner. "We want to truly understand how people behave on the 24-hour clock."

"You need to plan for rituals in people's lives — bike rides, Sunday breakfast, working out," Reim argues. "The rituals give you community pride and personality and a great sense of place. We ask people what are their daily, weekly, monthly rituals. What kind of infrastructure do they need?"

"We start executing these rituals two years before anything gets built," he says. "If there are 200 birdwatchers, we will right away carve a trail system. For bicycle rental, we will set up a structure. We'll create a bike club of that development, a birdwatching club of that development." People being creatures of habit, soon they will become attached to the place.

In preparation for the start of Storrs Center, a mixed-use center that LeylandAlliance is developing adjacent to the University of Connecticut's campus in Mansfield, "we interviewed 4,000 people at UConn," Reim says. There were two years of outreach to "everyone from the janitor to professors" — through public meetings, two-way Web communications, focus groups, and individual interviews, Reim says. In some instances, the firm asks permission to film a person for two weeks.

Finding distinctive merchants

"Most developers don't want to work with momand-pops," says Rob Spanier, who handles business



The retail program for part of East Garrison's town center

development for the firm. Spanier and Reim earlier worked for Intrawest, a resort development firm that built a meandering, yet intimate town center in Tremblant, Quebec, a skiing center 90 miles northwest of Montreal.

"It's more work," Spanier says of dealing with small local retailers. "They don't always pay attention to the rules."

The upside is that when interesting, high-quality local operators are assembled, the center becomes a destination that people seek out and return to, Spanier says. Tremblant, which includes living spaces, hotels, restaurants, and unusual stores — such as a shop where customers decorate pottery and have it kiln-dried by the shop owner, a former schoolteacher — has become the gathering place for its region.

For the 40,000 square feet of retail that will be the heart of the East Garrison project at the former Ford Ord military base in Monterey, California, LWLP sent one of its staff members — Ryan Bloom — to live in the Monterey area for eight months, lining up local businesses that would set East Garrison apart from ordinary shopping centers. "His whole job was relationships," says Ian Gillis, a partner in the California project.

Bloom got to know who was running the best coffee bars, bike shops, delis, restaurants, and night spots in the area. He concentrated, he says, on "the best of the best local concepts and operators. Some had only one concept; some were multiple-location operations. We sought out concepts within about a 100-mile radius. In certain cases, we will look further to find the perfect concept. We looked at restaurants in France and nightclubs in L.A. for potential fits at East Garrison."

Near the end of the process, individuals looking to open businesses in East Garrison sat in the same room with two, three, or four of their immediate competitors — those in the same specialty who were interested in obtaining a lease. "We create that slight level of competition to make sure they are giving us their best," Bloom says. "The process is really designed to create ambassadors" for the project.

Designing for experiences

"One of the challenges in New Urbanism," Spanier says, "is that the town center is supposed to be the high point of the community, but it is not being thought about in as much detail as the width of roadways or connections to residential."

Streets and passages should be designed so that there are very few straight shots, LWLP personnel believe. Reim advocates small deflections in the streets, like those in Old Montreal. At frequent intervals, a focal point or an interesting detail is introduced.

There's a particular emphasis on making the first 30 feet above ground-level appealing. "That's where life happens," Reim says. "Ninety percent of people don't look up." Hanging flower baskets, awnings, and patios for outdoor seating help to set the scene, Reim observes. At Tremblant, amphitheaters and play spaces have been positioned to create activity nodes along circulation routes.

A town center may be planned as subneighborhoods, with restaurants, home goods, and other uses in different areas, says developer Robert Turner, who has talked with LWLP about his Habersham development in South Carolina.

Gillis says he learned the importance of giving a restaurant more than one terrace, visible to each other. "They call it 'dueling terraces,' " he says. "People like to watch each other."

At East Garrison, LWLP conducted a sun and shade study. Restaurants tend to be placed on the sunny side of the street, with offices rather than living quarters above (alleviating conflicts over noise and odors). Community-serving retail (bank, deli, flower shop, coffee shop) and interesting things that don't need a terrace may be on the shady side of the street, with housing above. Which uses are next door is important. A wine shop would work well next to a cheese shop or perhaps a bakery. A chocolate shop should get a shady exposure.

Establishments that serve alcohol don't need conspicuous locations, Spanier says. "People who want it will seek that out." A café often benefits from being where the sun rises, with a small outdoor space for individuals "seeking a quiet little nook in the morning."

Virtues of small interiors

Interiors should be designed to meet the needs of a particular tenant or type of tenant. This allows them to be smaller, which helps make the rent affordable. At Tremblant, Spanier cited the large volumes of trade that shops with tiny interiors capture. Eating places have much of their seating outdoors, on patios. These can double a business's effective space while activating the public realm. "You can never have too many patios," says Reim.

In a city or town where the urban and building structure is already set, fixed windows on the fronts of some restaurants and shops may be replaced with accordion or removable windows. "We want to bring the inside out and the outside in," Reim observed. "We want to blur the lines of the uses and the spaces."

By keeping the interiors small, a development can maximize the number of attractions. The 40,000 sq. ft. of commercial space at East Garrison are expected accommodate 33 businesses. An interior "could be as small as 300 sq. ft.," says Keith McCoy, a partner in East Garrison.

This time-intensive approach costs a bit more but is worthwhile, McCoy says. Gillis says it "helped us not make a lot of mistakes" and will produce a more efficient and presumably effective design.

"The US has been reverting to 'smaller is better," says Reim. He predicts that walkable places are the wave of the future and that more resorts will follow Tremblant's course — constructing centers with personality, where people can find many things close at hand.

Tips on new urban retail development

Retail expert and town planner Robert Gibbs, principal of Gibbs Planning Group, offers advice on new urban town centers:

1. Keep plans and buildings authentic to the region in which you propose a development.

2. Make sure there is a consumer market that will support what you are proposing. Many new urban developments are located too far from viable markets.

3. Be conservative in your site selection, and choose a site that can support retail even without surrounding residential neighborhoods being built.

4. Automobile traffic is still crucial to a retail development's viability. Generally, you need at least 25,000 cars per day going past a shopping district.

5. Avoid placing a town center in the middle of a development, away from high-traffic arterial roads.

6. On-street parking for the street-fronting retail is essential. Additional parking must also be included.

7. It's important for a town center or a shopping district to have one or more large anchors. The anchor may be a supermarket, a department store, or even a big-box discount store. The anchor is helpful for gaining financing.

8. Do not summarily reject big-box discount retailers. They account for the biggest share of the retail market. The store's relation to the street and the presence or absence of street-level windows matter more than the store's size.

9. Maintain at least 70 percent glass on the first level of retail so shoppers can look into the stores.

10. Remember that shoppers usually will walk no more than 1,000 feet in a retail district.

11. The preferred location for the town center is on the "home" side of a major road, so residents returning from work can make a right turn into the center. A difficult left turn into a town center can kill up to 30 percent of the retail business. Many people are simply too lazy to make the left turn.

12. The town center should be built to allow for expansion. This can be done by reserving land in lowdensity uses such as surface parking lots, or by designing buildings so they can be expanded vertically.

13. A corner store is an essential amenity in the early phases of a development, but don't build it unless the owner or manager can sell enough to earn a good income. You need a minimum of 1,500 house-holds nearby to support a corner store, and it needs to

be near a major vehicular entrance of the project.

15. Retail development is a high-risk game; consult a market analyst early in the planning process.

Drive-through retail

Stephen A. Mouzon

Drive-through retail requires automobile stack space. This is a problem if the stacking occurs on a Main Street. Stacking cannot occur between the fronts of buildings and the street without serious damage to the integrity of the street. Stacking also is a nuisance if it occurs in an alley, blocking the alley from use by other businesses. A close visual connection between the business and the vehicular entry to the drive-through is very important. The shop fronts of the Main Street should not be punctured by a drive-through exit. Drive-through traffic should exit the site where it enters the site, rather than being routed to another side of the block, so customers are not disoriented. The drive-through scheme should work whether the block is a full block, as in the case of contiguous blocks of T5 in both directions, or whether the block is a halfblock, as in the case of a single block of T5 along a Main Street. Given all of these limitations, is it possible to accommodate drive-throughs within T5?

The proposed system includes a central alley with a bay of parking to either side as described above. Drivethrough establishments are allowed only on the corners of the block in order to be visually tied to the alley entries that serve them. The drive-through is both entered

T5 drive-through: Semi-detached multi-lane (gas station).



and exited via the alley entrance adjacent to them. An end bay of roughly 50' of parking is reserved for the drivethrough facility, which is one of three types:

Gas stations (see block diagram on the bottom right of the previous page) are a bit of a hybrid between detached and attached drive-throughs. The product is piped to a remote location like a bank, but the point of delivery must have a closer connection to the cashier to avoid fuel thefts. Gas stations also try to make additional sales by bringing people into the convenience store where the cashier works. Gas stations require a somewhat larger end bay on the alley than the other two types. The European pull-by model is an option that allows the gas station to occur on the street. This model only works on side streets, but should be considered as an option.

Remote drive-throughs may be used for uses such as banks or pharmacies (see block diagram below), where objects may be placed in a capsule and shot out to the drive-through via a tube. New remote drive-through technology allows the drive-throughs to be located several hundred feet from the primary place of business. In this case, the drive-throughs are stacked diagonally beside the alley and exit back out onto the alley. Note that the remote drive-through must be placed on the right side as the customer is exiting the alley. If the bank or pharmacy is located on the left, this will preclude a restaurant occurring on the right because the drive-through for the bank or pharmacy occurs in the slot that would be needed for the restaurant drive-through.. The scheme, then, will accommodate between two and four drive-through businesses per block, depending on type.

T5 drive-through: Remote multi-lane (bank or pharmacy).





T5 drive-through: Attached single-lane right hand (restaurant), at left, and attached single-lane left hand (restaurant), at right.

Attached drive-throughs are required for items such as food that cannot be turned upside down or dramatically accelerated during transit. These must be attached to the primary place of business at a location appropriate for the interior function of the business. Both right-hand and left-hand options are shown, since the building layout changes significantly depending on which orientation is used.



T4 drive-through: Semi-detached multilane (gas station).

Drive throughs in T4

Gas stations also occur at corners in T4 (neighborhood general). James Wassell did a particularly good model for this idea. He calls it the Inverted Gas Station. Others call it Gas Backwards, a name coined by architect Seth Harry. This particular option, by aligning the pumps from front to back, allows a total of 10 pumps within a surprisingly conservative area (see diagram above). Banks and pharmacies typically change to attached drive-throughs in T4 because there is no imperative for detaching the drive-through function as there is in T5. If detailed properly, a four-lane drivethrough can look like a large but believable porte cochere by running one lane between the porte cochere and the building, two lanes through the porte cochere and the last lane (which serves the ATM) to the outside (see diagram at right).

Restaurants remain attached like they are in T5. Because retail is required to occur only on corners in T4, drive-throughs either enter on the front street and exit through the alley or vice versa. By running the stacking lane the depth of the lot (including parking in front) 8 or more cars may be stacked without blocking traffic. Both left-hand and right-hand variations are shown here.

Stephen A. Mouzon is an architect with Mouzon Design in Miami, Florida. This material was first published in the Council Report VI on Retail in 2004 under the title "On Blocks & Boxes." See also "Placing Large, Modern Stores on Urban Blocks" on page 90, which came from same article. Steve Mouzon's website is www.newurbanguild.com





T4 drive-through: Attached multi-lane (bank or pharmacy), at upper left, attached single-lane right hand (restaurant), at upper right, and attached single-lane left hand (restaurant), at left.







The inverted gas station: Above left and right is a rendering and aerial model of "gas backwards" by architect Seth Harry. At left is a photo of an inverted gas station.

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TOWN CENTER PLANS



Baldwin Park Village Center,

Orlando, Florida. Detailed plans are at left, and the Village Center in the context of the larger development is below. The Village Center includes 1,210 residential units, 189,489 square feet of retail (anchored by a Publix supermarket), and 322,200 square feet of office buildings. The retail is mostly located on a central spine that extends three blocks from the waterfront of Lake Baldwin. The first floor shops are topped by apartment units. The fourth block of the central spine is mostly office buildings. As of 2009, the Village Center is essentially complete with the exception of 483 waterfront condominium buildings, which were put on indefinite hold as a result the real estate recession. The entire center is surface parked in mid-block lots with the exception of the waterfront condo buildings, which require structured parking. The residential units also include 527 apartments, 150 3- and 4-story townhouses with no yard, 22 neighborhood condominiums, and 46 live-work townhouses (18 of which are technically outside the Village Center). The live-work units, mostly occupied by professional offices on the first floor, occupy both sides of the street at the bottom of the detailed Village Center plan. Torti Gallas and Partners completed the urban design, Glatting Jackson provided planning and landscape design, and Looney Ricks Kiss was the lead architect. The developer is New Broad Street Companies.

105

The town center of East Beach, a redevelopment in Norfolk, Virginia, is at right. Approximately 35 acres, the town center is focused on a square — labeled 13 on the plan — surrounded by mixed-use buildings. It also includes a boardwalk on the beach (28), a plaza and a neighborhood green. The five proposed parking garages are designed to serve 620 residential units, 110,000 square feet of retail including a 45,000 square foot grocery story, 33,000 square feet of office, and about 150 hotel rooms. Note how Shore Drive (1), in 2009 an arterial road hostile to pedestrians, is tamed with two roundabouts and a boulevard design. Shook Kelley drew the plan for the East Beach Company.

LEGEND



17 Retail 18 Residential 19 Bed & Breakfast 20 Hotel & Conference Center 21 Live/Work Townhouses 22 Multi-Family Residential 23 Grocery Store 24 Coffee Shop 25 Restaurant 26 Post Office 27 Drugstore with Drive-thru 28 Boardwalk 29 Public Overlook 30 Public Beach 31 Potential Future Development

a



Rockville Town Square is a classic new urban town center focused on a plaza located between Block 3A and Block 3B. The plaza is restricted to pedestrians, although the two adjacent streets allow automobile traffic. The development is anchored by a supermarket (Block 1), the library on the plaza, and a CVS pharmacy in the northeast corner. Rockville Pike, to the east, is a major arterial. Rockville Town Square occupies a key site in downtown Rockville, near the Metro station. It is served by a primary parking garage on Block 4 and a secondary one on Block 2.



The Human-Scale Workplace

108

108

111

112

112



The human-scale workplace
Characteristics of new urban
employment centers
Assembling the building blocks
Key issues for office parks
and mixed-use centers
Identity

Access	112
Flexibility	113
Predictability	113
Security	113
Recruitment/retention	113
Costs	114
Flex houses (live-work)	114

Market questions

Building codes

114 116

Above: An aerial rendering of the Upper Rock District in Rockville, Maryland. The plan calls for replacing an existing office park with a mixed-use employment district. Rendering by Steve Price, Urban Advantage.
The human-scale workplace

Office parks with gleaming glass buildings surrounded by parking are the workplace equivalent of the cookie-cutter subdivision. Although office parks still are the prevailing model for workplace development in the US, an increasing number of new urban projects are bringing back the idea of placing an employment center in or adjacent to a mixed-use neighborhood. While proposals for mixed-use, compact, urban workplace developments still face hurdles, existing projects show that the hurdles are not insurmountable.

The advantages of locating workplaces in or adjacent to neighborhoods are substantial. "It doesn't make sense for midsize firms to provide a restaurant/ cafeteria, day care center, travel bureau, and barber shop — all of which are expensive — when these services could be offered across the street in a traditional mixed-use, walkable downtown environment," says Carlos Rodrigues, former acting director of New Jersey's Office of Smart Growth and now the New Jersey director of the Regional Plan Association. "Blue-chip Fortune 500 companies may be reluctant to give up the control that they have in a suburban office campus environment, albeit misguided, but that's not an issue for midsize and smaller companies." An even bigger advantage is that workers like to be in a downtown, a town center, or some other setting where they can walk out the door at almost any hour and find restaurants, cafes, and other places where they can relax — or can continue their work in a noninstitutional setting. Richard Florida, in *The Rise of the Creative Class* (Basic Books, 2002), argues that in an economy that pushes people in creative pursuits to work long and odd hours, many workers want mixed-use environments rather than conventional office parks.

New Jersey — which has its share of suburban office parks — revised its State Plan, and decided to call for workplace buildings "in close proximity to a critical mass of housing, supported by institutional, civic, recreational and other such uses." The state also adopted other goals, such as a variety of housing types, accessibility to transit, and a street network that accommodates walking and bicycling.

CHARACTERISTICS OF NEW URBAN EMPLOYMENT CENTERS

According to new urban principles, the ideal placement of office or light industrial buildings is within a

The new urban concept of an employment center, left, looks like a neighborhood. The office or industrial park, right, has little diversity and is auto-dependent.







Pedestrians walk by office buildings in Redmond Town Center. The proximity to the street, windows, and other details make these buildings pedestrian-friendly.

fine-grained, interconnected network of streets and blocks. Office or light industrial buildings may be part of mixed-use neighborhoods, with housing and retail nearby. Or they may be part of a district, adjacent to and highly integrated with a neighborhood center or town center. Public gathering places and pleasant streets accessible to pedestrians make the transitions between differing uses appealing. The high level of pedestrian-scale connectivity around new urban employment uses contrasts sharply with the coarse grain and the sparse connections in office parks.

Working environments of this sort have come into being less often than new urban theory proposes. Some new urban developments with well-designed neighborhoods and town centers have situated their employment in disconnected pods. Celebration, Florida, for example, achieves excellent connectivity among its residential, retail, and professional office components, but its business park is separated from the rest of the development. King Farm in Rockville, Maryland, features large office buildings that are closer to the town center and residential neighborhoods than those in Celebration, but the buildings still have a suburban feel. The setbacks are too big and the streets too wide around King Farm's workplace district to allow for full integration into the community.

The following examples come closer to the new urban workplace ideal: 1) The urban core of Reston, Virginia; 2) Redmond Town Center in Redmond, Washington; 3) Riverside in Atlanta, Georgia; 4) Addison Circle in Addison, Texas; 5) Legacy Town Center in Plano, Texas, and 6) Baldwin Park in Orlando, Florida (see town center plan on page 105). All of those include office buildings, shops, and residential units close together, in a fine-grained network of blocks and streets.

The 80-acre urban core of Reston, which RTKL had a major hand in designing, is a fully integrated mixed-use community. At buildout, the core will have 3.4 million square feet of commercial space, including one or more hotels, a multiplex cinema, restaurants, shops, and several large office buildings. It includes civic buildings, high-quality squares and plazas, and more than 1,600 multifamily residential units. Parking is provided on the streets, in surface lots, and increasingly in below-ground or above-ground garages. Some of the garages are partly hidden behind streetlevel retail. A traffic study by Wells & Associates shows that Reston's core generates close to 50 percent less traffic than a comparably sized conventional development. The design encourages walking, carpooling, and use of buses.

Reston Town Center and the area just beyond it could be seen, when taken together, as a hybrid. The core is laid out in a traditional, street-oriented urban manner. Bordering it to the south is a more conventional suburban office development, with buildings farther apart. This conventional development, although not urban, gains some of its appeal from being very close to the Town Center. Employees walk across a pedestrian bridge spanning a railroad cut that's been converted into a running and biking path; in just a few minutes they arrive at the restaurants, stores, and other amenities of the Town Center.

Several years ago AT&T Wireless (later renamed Cingular) placed its 600,000 sq. ft. headquarters in Redmond Town Center, just a block from stores and



The main street retail center at Stapleton includes upper floor offices. The Starbucks makes a good change of pace during the workday.

restaurants. "What we found is that Fortune 500 companies like the amenity of having retail nearby — the retail creates a demand for offices," says Robert Tiscareno, an architect formerly with LMN Architects, which designed Redmond Town Center. With the addition of jobs, "now there is a market for high-density, urban residential. And the retailers like having the residential." The project originally was planned mostly as a retail center, but has incorporated a greater mix of uses in response to market demand.

Riverside, designed by Duany Plater-Zyberk & Company (DPZ) and developed by Post Properties, has a nine-story office building located on the town square. Approximately 700 employees work in the 230,000 sq. ft. building, which was fully leased soon after opening. The town square also has 25,000 square feet of retail space, including a restaurant and a grocery/cafe/deli, with several stories of apartments above. The office building has a positive impact on the marketability of the adjacent retail and residential space. Most of the retail establishments would not survive without business from office workers. A total of 528 apartments are within an easy walk of the town square and its amenities, and are among the most popular in Atlanta.

Addison Circle has been planned for up to 4 million square feet of office buildings in addition to retail and 3,500 housing units. At its core is a thriving collection of offices, retail, and multifamily housing, developed by Post Properties and several partners. The plan, by RTKL, is highly interconnected and urban — punctuated by esplanades and squares. Addison Circle Park hosts many annual events, and serves as a focal point for the entire city.

The 150-acre Legacy Town Center forms the heart of one of the nation's largest office parks, which encompasses 2,700 acres and has been under development since the 1970s. The town center was originally envisioned as a typical suburban "edge city," but years later was planned by DPZ to function as a downtown, incorporating the principles of New Urbanism. The plan calls for 1.5 million sq. ft. of commercial, including office and retail space, in addition to hotels and 3,300 apartments, lofts, and townhouses — all of this embellished with parks and public art. A five-screen cinema, a hotel, and a three-acre park with a fountain and a lake have been built, along with much of the office space, retail, and housing. Twenty-five restaurants have been planned.

As time goes by, many conventional office parks will undergo redevelopment or expansion aimed at giving them the urban traits that have made places like Reston Town Center, Addison Circle, and Legacy Town Center attractive. One model for accomplishing this is the Upper Rock District in Rockville, Maryland. In the 20-acre Rockville project, one existing office building is being converted to residential lofts, and a small volume of retail is being added, including an 8,000 sq. ft. market center designed to offer relatively cheap space for start-up businesses. The developer, JBG Companies, is also building 844 residential units in four- to five-story buildings — wood-frame



The mixed-use building Eighth & Pearl includes upper-floor offices.

residential construction over a concrete garage podium. A 1,500-foot-long "green wall" has been designed to shield the view of parking decks. In essence, the project converts a business park into a mixed-use neighborhood.

Developers are using a variety of approaches and scales as they create workplaces connected to retail, housing, and other uses. In the Stapleton development in Denver, Forest City Enterprises built a block-long retail center called the East 29th Avenue Town Center. It combines 140,000 square feet of ground-floor retail, 34,000 square feet of offices above the shops, and an additional 65,000 square feet of medical office buildings. Sixty-six units of rental housing sit above retail along a 2.5-acre town green. The retail component of this contemporary-style includes restaurants, a flower shop, and other personal-service businesses - amenities useful for office tenants, people who live within walking distance, and others who get there by car.

By contrast, on Pearl Street, a main thoroughfare in downtown Boulder, Colorado, architects John Wolff and Tom Lyon designed and developed a project that shows how a mix of uses and gathering spaces can be integrated on a considerably smaller scale. Wolff and Lyon converted a corner gas station site into an 18,200 sq. ft. complex that's approximately one-third offices, one-third retail, and one-third residential. Buildings, mostly two-story, cluster around a courtyard furnished with café tables and open to Pearl Street. A pedestrian bridge connects two segments of offices, above the courtyard. A mezzanine level offers another outdoor area equipped with benches, tables, and umbrellas — an inviting place for lunch, office meetings, and other activities. The project includes 40 parking spaces — 26 of them built into a hill beneath the residences and the other 14 situated off a rear alley. Some of the 26 are tandem spaces, which are used effectively by both the office tenants and the residents. "With its small-scale neighborhood commercial uses, including a bakery/cafe, the development provides a focus and gathering place for residents," Wolff says.

Eighth and Pearl has a floor-area ratio (FAR) of 1.1, which Wolff considers close to ideal for a humanly appealing office setting. "It allows you to accommodate parking and decent exterior space on a site that the buildings can shape," he says. It also allows plenty of light and ventilation for the offices. In one small block, the buildings make a graceful transition from T5, urban center, to T4, general urban. Several projects of this sort, produced by different developers, could, when taken together, make a human-scale mixed-use area with a great deal of individuality.

ASSEMBLING THE BUILDING BLOCKS

Traditional communities contained diverse building footprints and building sizes, from the very large to the very small. The grid or modified grid was flexible enough to incorporate larger buildings and sites. It did not preclude space-intensive uses - such as manufacturing, warehousing, or education - from locating within the community, fully accessible to pedestrians and transit. This flexibility is a real asset, one that can accommodate contemporary trends toward larger building footprints, whether for big-box retail or corporate office buildings, without losing the

The spatial framework for the core of a compact, mixed-use center is shown below. Simple modular frameworks can work with most modern building types, accommodate a variety of parking arrangements, and protect prime street frontage from service uses while maintaining quality walking environments.





Schematic view of the core of a mixed-use center is shown above. Blocks vary in size and configuration to accommodate a variety of building shapes and sizes as well as parking garage types and public open space. Some streets are lined with retail. Both single and mixed-use buildings are easily accommodated.

human scale.

A good physical framework into which varied buildings can be placed is a 60-by-60-foot grid. Such a grid responds both to standard street widths and to standard dimensions of generic office buildings and garages. A grid or grid-like framework based on the 60-foot module can generate a wide range of block sizes and can easily accommodate a great variety of building sizes and types. Very large buildings can fit into block widths of 240 to 300 feet and block lengths of 360 to 480 feet while maintaining a human scale. The street network need not be a pure grid; many variations and modifications are possible.

A framework of this kind allows flexibility in the design and layout of buildings and garages; permits retail uses along designated shopping streets; accommodates a great variety of development options, from large to small; and provides possibilities for architecturally distinctive individual buildings — symbols of the companies that build them. Such a framework supports single-use buildings as well as mixed-use office buildings. It can accommodate conventional parking deck configurations, with and without retail. It allows separate, but proximate, building sites for housing and other noncommercial uses. It easily allows the designation of choice sites for public open space. And it makes a phased buildout feasible and economical.

Design issues associated with the form and location of corporate workplaces are only one (admittedly challenging) component of a mixed-use center. Residential, civic, institutional, and other uses are additional building blocks which should be layered onto this framework.

"Assembling the Building Blocks" is reprinted from Employment and Community: Reintegrating the Work Place Into Mixed-Use Centers, a publication of the New Jersey state planning office.

KEY ISSUES FOR OFFICE PARKS AND MIXED-USE CENTERS

Identity

Image-conscious companies prefer buildings and grounds that reflect their personalities and their corporate presence. Though some businesses are content to occupy relatively anonymous buildings, others want buildings that are architecturally distinctive and noticed by the public.

In an isolated office park, the usual tool for conveying corporate image and identity is a signature building set on a spacious lawn. When such buildings can be seen by motorists on a high-volume road, the company's profile may benefit, but corporate facilities of this sort tend to be perceived as remote and inaccessible despite their conspicuousness. The setting emphasizes corporate individuality over community.

By contrast, in a compact, mixed-use environment, corporate image and identity are typically conveyed through architectural and urban design solutions that recognize the scale and character of the surrounding neighborhood. The corporate workplace is visible and accessible for a varied populace — motorists, transit patrons, and pedestrians. The building is perceived as an integral part of the community. This setting emphasizes community over corporate individuality.

Access

Office tenants require easy access to their facilities for their labor force. In the isolated office park, accessibility is largely limited to single-occupancy vehicles. Large peak-traffic flows place a heavy burden on the road system — particularly arterial and highway networks — often necessitating extensive and costly improvements. In a compact, mixed-use environment accessibility is multimodal — suiting pedestrians, bicyclists, and transit riders in addition to single-occupancy vehicles. Peak traffic is dispersed. Fewer road improvements are required.

Flexibility

Flexibility in building layout and site layout is highly prized. Corporations like the ability to add workspace, by occupying additional buildings if demand increases. Conversely, corporations like to have an "exit strategy," the ability to easily move out and find new occupants for buildings they own.

The large corporate campus with signature buildings is unwieldy and often difficult to retrofit for new tenants. The "pod" layout — with large areas assigned to specific uses — that characterizes office parks does not easily adapt to changing spatial requirements. Large former single-company buildings may be difficult to subdivide and market to smaller tenants.

The modified grids found in compact, mixed-use environments provide the most flexible approach to spatial layout. The discipline imposed by a well-defined spatial structure guarantees a coherent whole while easily incorporating facilities of all sizes and floor plates, including the standard office building and parking deck.

Predictability

Corporations like a measure of control over their immediate surroundings. Incompatible or inappropriate uses can diminish the quality of a location.

The large suburban corporate campus creates, to some extent, a total environment, with its own lawns, storm water detention facilities, and so forth. Local zoning provides some limited measure of predictability beyond the corporate compound. But unless the corporate campus is especially large, it may still feel the impact of neighbors — possibly gas stations, fast-food outlets, and other less than blue-chip uses if the campus is close to a highway. Unlike retail, which thrives on traffic, corporations with highway-oriented locations rarely benefit from the heavy traffic passing by. So, placing offices in a highway-oriented location may end up being something the company regrets, since its work force will have to struggle with the traffic and unsightliness that engulfs such areas.

In a compact, mixed-use environment, corporations can reasonably rely on an existing or proposed pattern of streets and blocks to shape development or redevelopment options in their vicinity in a predictable fashion. Local zoning will provide as much protection as it does in exurban locations. Bulk and height parameters for the area can be expected to shape individual buildings. Design guidelines can control the character of new construction.

Security

The personal security of employees and the general security of the facilities and business operations are important criteria in determining location and design. In isolated office parks, the limited number of vehicular access points can be controlled by gates that are either card-activated or manned by security guards. Entry is basically limited to those arriving in vehicles. Broad expanses of lawn, surface parking, detention ponds, and other features surrounding the building(s) discourage unauthorized pedestrian access and make any pedestrian movements conspicuous.

In compact, mixed-use environments, there is less control over who can approach. Access to a building or group of buildings is instead controlled by locked doors in some instances and in other instances by security guards posted at lobbies and parking garage entrances. Card-activated elevators and individual office suites provide security inside the building.

Recruitment/retention

In a tight labor market, corporations need to offer quality-of-life incentives to recruit and retain employees. Convenient access to restaurants, child care, health clubs and other uses is increasingly important.

In isolated office parks, goods and services are accessible only by car. For convenience, corporations underwrite cafeterias, health clubs, day care, and other uses and provide space for these in their buildings or within the compound. These uses are exclusively for the corporate work force — a limited market and consequently are often heavily subsidized.

In compact, mixed-use environments, corporate employees rely on a variety of goods and services offered by the marketplace — either in the company's building or in other buildings — within easy walking distance. These businesses draw from a much larger market, since they are open to the outside community. Corporations are not responsible for providing space or for subsidizing or managing these businesses. Besides the cost savings this delivers to the company, there's another advantage: employees generally prefer the stimulation and choice that a broader range of market-driven businesses provides. Richard Florida argues that many of the most valuable workers those who generate a company's ideas — now prefer a lively, mixed, urban setting. Many of them need sociable places they can escape to during their breaks.

Costs

Development and operating costs vary significantly with location and type of development. Costconscious decisions may preclude more expensive development options.

Development of isolated office parks on greenfield sites at the suburban fringe may require large investments in new infrastructure. Such projects are also highly land-intensive, given the generally low development intensities and the land needed for surface parking, stormwater management facilities, buffers, and setbacks. On the other hand, land may be less expensive there than in an urban center, and the permitting process may be less difficult.

The high cost of structured parking is the single most important expense getting in the way of developing new compact, mixed-use environments. This cost may be offset in part by higher development intensity, by savings achieved through increased transit use and lower parking ratios, and by shared parking. Many municipalities provide parking facilities or subsidize them, to encourage compact development and attract employers.

"Key issues for office parks and mixed-use centers" is adapted from Employment and Community: Reintegrating the Work Place Into Mixed-Use Centers, a publication of the New Jersey state planning office.

FLEX HOUSES (LIVE-WORK): MIXED-USE ON A SMALL SCALE

New Urbanism's emphasis on mixing uses and reducing distance between work, home, and play is stimulating interesting design solutions for the growing work-at-home trend.

One of these is the live-work unit — also called the "flex" house. It had its roots in two ideas. The first was the resurrection of the main street shopfront, an at-grade townhouse with the first floor designed for commercial uses. Early examples of this building type's revival were townhouses erected around Seaside's Ruskin Place. Similar units have been built in a number of other new urban projects in recent years. In the shopfront residence, the separation between



Flex units in Atlanta: from left, the Loft, Liveabove, and Lifespan

work and living is usually the first-floor ceiling.

The second idea was the conversion of old factory and warehouse buildings into lofts for artists. This led to construction of similarly designed new townhouse and courtyard lofts. Early examples are Thomas Dolan's live-work units in Oakland, California, and the Second Street Studios in Santa Fe, New Mexico, designed by Peter Calthorpe. Loft units usually have no physical separation between work and living, and are built for maximum flexibility inside.

Duany Plater-Zyberk & Company (DPZ) has added two more types, the "liveinfront" and the "livebehind," which, as their names imply, separate work and living by means of a wall that divides the first floor into two different domains. Depending on consumer demand, these units can function as a single home or as a duplex, with a varying amount of space dedicated to commercial activity. Whereas lofts and shopfronts are highly urban building types, the liveinfront and the livebehind are designed to fit into both town centers and less dense, more residential neighborhoods.

Market questions

Many mainstream builders are intrigued by the live-work idea. Sole practitioners and professionals who need a small office are one market group attracted to flex units, according to Todd Zimmerman of the market research firm Zimmerman/Volk Associates. Artisans, computer workers, small publishers, retail store operators, cafe proprietors, hair stylists, and other service providers have been known to purchase flex houses.

Investors are another market. In Kentlands, a new urban community in Gaithersburg, Maryland, about two-thirds of the three- and four-story shop/ house buildings were reportedly purchased by investors, who are renting the space to commercial and residential tenants. Live-work allows small investors to obtain commercial space, which has the potential to generate higher rents than residential space - yet the barrier to investment is low, compared to buying most office or retail buildings.

As architect Tom Dolan points out, another factor in live-work's appeal is psychological. It's a lonely life for people who work at home in the suburbs. The flex house in a new or old urban setting is designed to compensate for that loneliness by placing the unit in a mixed-use, human-scale community. Seen in that context, the market is significant, Dolan believes. "There's a place in every new urban community and downtown for live-work," he says. "It is the most viable unit type in downtowns today."

Here are additional benefits of live-work:

1. Live-work units provide a transition between residential blocks and more intensely commercial buildings.

2. They offer the smallest possible increment of retail and professional office, allowing businesses to incubate with a very small investment, affordable for

The loft, below, has a primary workplace on the first floor, and a secondary work area at the top of the stairs. Two facades are shown — the bottom one is more urban in character.







3. In some new urban projects, developers don't want to build mixed-use, multistory buildings in the town center. When that's the case, adding live-work units is a relatively easy way to create an authenticlooking main street, with residential above retail.

4. Live-work units are often viable when other commercial is not, providing an option for mixed-use in neighborhoods that would otherwise be single use.

5. They allow the developer to sell the dream of entrepreneurship or "being your own boss."

6. They accommodate the ever-growing number of work-at-home families. Buyers get flexibility of use. The downstairs can be used for retail, office, or living space. The upstairs also can be used for commercial or living space, and can be lived in by the owner or rented out.

The Liveabove, right and below, is a shopfront house. The first floor is designed for retail or office. The unit has 1,400 square feet of commercial space on the first floor which can be connected or separated from the three-bedroom apartment above.







R



7. Entrepreneurs can save money and gain control by owning their own workplace. Also, they can pay one mortgage for home and business, instead of making two payments.

Building codes

The flex house poses a challenge to existing building codes and to zoning officers who are accustomed to single uses. Some municipalities treat live-work units as residential, others as commercial, and still others as something in between. The local officials' interpretation exerts great bearing on use and cost. For example, the units become more expensive if sprinklers, separate utility systems, and/or two-hour firewalls are required. It makes sense for municipalities to regulate these structures in accordance with the uses that will occupy them. For artisans or professionals who have few customers visiting their premises, the building requirements should be the same as for residential units - with strict limits on signage. Somewhat stricter standards should apply to professional occupations that attract a flow of customers - as is the case with a dentist's or a chiropractor's office. When the business is retail or food service, building codes should adhere to commercial standards.

116



Planning and Transit

Planning and transit	118
Three eras	118
Transit-oriented development types	119
Rail system design	121
Streetcar revival	122
Bus rapid transit	122
Transit modes and applications	124
Examples of transit-oriented	
developments	125
Light rail to come	127

Principles of transit-oriented	
development	128
Spatial extent of project	128
Mix of uses	128
Pedestrian-oriented	
site design	129
Street design	129
Parking management	129
Location of transit and	
core uses	130

Size of TOD	130
Areas peripheral to the TOD	130
Setting the stage for TOD	131
Market analysis	131
Getting it built	131
Incorporating buses into	
the New Urbanism	132
Most new urban	
communities get bus service	132

7

Above: A dramatic rendering of the Twinbrook transit-oriented development in Rockville, Maryland. Note the train and station depicted at the upper left. Courtesy of Torti Gallas and Partners

Planning and transit

New Urbanism has always seen transit stations as natural centers of development. What could be more sensible than putting a good deal of employment, retail, and housing around train stations?

If a sizable volume of jobs, stores, civic and cultural activities, and housing were close to rail service, people could drive less. Fuel consumption and air pollution could decrease. The chewing up of land for low-density development, highways, and parking lots could diminish. People would have more choices of how to get from home to work. They would be able to reach more of their destinations on foot — the healthiest way imaginable. That has always been the promise of transit-oriented development, or TOD. If the clustering of a mix of uses near transit stations became the model of American growth, the auto-oriented paradigm of the last half of the 20th Century could begin to slip away.

In a number of metropolitan areas across the country, this shift is occurring. Los Angeles, San Francisco, Boston, Chicago, New York, Washington, Denver, Austin, Salt Lake City, and Portland, Oregon, are among the metro areas that have built or extended commuter rail systems and focused more of their construction around transit stations. Governments, transportation authorities, and developers have become more adept at laying out the station areas and connecting varied uses in a manner that works well for pedestrians.

A remarkable change has come about in a surprisingly short time. Those who studied transit-oriented development saw it falling miserably short of its potential as recently as 2002. In that year, a Brookings Institution report, "Transit-Oriented Development: Moving from Rhetoric to Reality," found that most of what passed for TOD was simply conventionalstyle development located adjacent to transit stations. Little of it was walkable, according to the study's authors, Dena Belzer and Gerald Autler of Strategic Economics. Little of it achieved a balance of residential, commercial, employment, and civic uses.

THREE ERAS

The Brookings report focused mostly on rail transit. The authors identified three distinct relationships between rail transit and development in the last century, starting with what they call "developmentoriented transit" in the early part of the 20th Century. During that era, developers often built streetcar lines to add value to their developments. After World War II, the nation went through a period of "autooriented transit," when the primary purpose of new commuter transit systems was to relieve automobile congestion, and stations were surrounded by parking lots. The authors characterized the era after that as one of "transit-related development," in which development was adjacent to, but not well connected with, transit stations. We must move into the era of true TOD to fully realize the potential of the concept, they argued. Since 2002, there has been considerable progress toward that goal.

Some believe TOD consists only of new urban projects planned along rail lines, with no point in the neighborhood more than a 10-minute walk from a transit stop. *The Lexicon of the New Urbanism* by Duany Plater-Zyberk & Co. suggests that rail access is critical to the TOD concept. "An advantage of the TOD model is that rail is the most efficient form of transit," *The Lexicon* states. "As it is also the most expensive, this model provides for its support with a high population density within the pedestrian catchment of each station — a minimum of 14 dwelling units per acre."

Others have suggested that transit-oriented development could be organized around bus service. The success of TOD in bus-based communities like Seattle and Boulder, Colorado, supports that claim, according to Jason Shrieber, principal of Nelson\Nygaard, a transportation consulting firm. Peter Calthorpe and his firm, Calthorpe Associates, in Berkeley, California, have produced many local and regional plans with development clustered around rail stations, but Calthorpe has also promoted bus rapid transit (BRT) as a less costly alternative — one that in some cases can later be converted to rail. Subsections of this chapter (see pages 122 and 132) examine issues related to bus transit and new urban neighborhoods. Calthorpe and William Fulton placed rail transit and TOD in a regional context in their book *The Regional City*. "Transit can organize the region in much the same way as a street network orders a neighborhood," they wrote. "Transit lines focus growth and redevelopment in the region just as main streets can focus a neighborhood."

Robert Cervero, an expert on transit who teaches at the University of California, Berkeley, says transitoriented development should be walkable and dense and contain more than one use. John Fregonese of Fregonese Calthorpe Associates in Portland says, "If builders simply supply a high-density unit next to a transit stop without providing some of the amenities that attract buyers, [they're] not going to be successful. TOD dwellers are buying into a lifestyle, not a unit. They want stores, a good-looking park, schools, trees, and all the elements of a complete neighborhood." Consequently, builders and developers have to familiarize themselves with the features that residents are looking for in a TOD.

A 2004 book by Hank Dittmar and Shelley Poti-



Development near the transit line that goes through Plano, Texas, exemplifies the goals of transit-oriented development.

cha, *The New Transit Town: Best Practices in Transit-Oriented Development*, set forth a "performancebased definition" of TOD. It revolved around five main goals:

• Location efficiency, or the conscious placement of homes close to transit stations. This requires density — "sufficient customers within walking or bicycling distance of the transit stop to allow the system to run efficiently." It also requires that stations or stops be

TOD TYPE	LAND-USE MIX	MINIMUM HOUSING DENSITY	HOUSING TYPES	SCALE	REGIONAL	TRANSIT	FREQUENCIES	EXAMPLES
Urban Downtown	Primary office center Urban entertainment Multifamily housing Retail	>60 units/acre	Multifamily Loft	High	High Hub of radial system	All modes	<10 minutes	Printers Row (Chicago) LoDo (Denver) South Beach (San Francisco)
Urban Neighborhood	Residential Retail Class B commercial	>20 units/acre	Multifamily Loft Townhome Single family	Medium	Medium access to downtown Subregional circulation	Light-rail Streetcar Rapid bus Local bus	10 minutes peak 20 minutes offpeak	Mockingbird (Dallas) Fullerton (Chicago) Barrio Logan (San Diego)
Suburban Center	Primary office center Urban entertainment Multifamily housing Retail	>50 units/acre	Multifamily Loft Townhome	High	High access to downtown Subregional hub	Rail Streetcar Rapid bus Local bus Paratransit	10 minutes peak 10-15 minutes offpeak	Arlington County (Virginia) Addison Circle (Dallas) Evanston (Illinois)
Suburban Neighborhood	Residential Neighborhood retail Local office	>12 units/acre	Multifamily Townhome Single family	Moderate	Medium access to suburban center Access to downtown	Light-rail Rapid bus Local bus Paratransit	20 minutes peak 30 minutes offpeak	Crossings (Mountain View, CA) Ohlone-Chynoweth (San Jose, CA)
Neighborhood Transit Zone	Residential Neighborhood retail	>7 units/acre	Townhome Single family	Low access to a center	Low	Local bus Paratransit	25-30 minutes Demand responsive	
Commuter Town Center	Retail center Residential	>12 units/acre	Multifamily Townhome Single family	Low	Low access to downtown	Commuter rail Rapid bus	Peak service Demand responsive	Prairie Crossing (Illinois) Suisun City (California)

Transit-oriented development types — from The New Transit Town: Best Practices in Transit-Oriented Development

TABLE FROM THE NEW TRANSIT TOWN, CHAPTER 5, FINANCING TRANSIT-ORIENTED DEVELOPMENT, AUTHORS JULIA PARZEN AND ABBY JO SIGAL



The redevelopment around Columbia Heights Metro station, a formerly run-down neighborhood center in Washington, DC, is shown in plan and photo. This transit-oriented development includes 572 residential units — 175 of them affordable — and stores that frame two new public plazas.

centrally or conveniently located within the TOD. And it requires "pedestrian friendliness — a network of streets within the transit district that is interconnected and scaled to the convenience of pedestrians."

The power of location efficiency has been proven in Arlington, Virginia, where the most successful TOD corridor in the nation, arguably, has been built. Officials determined that "office buildings needed to be within three blocks of a Metro station in order to lease well, while residential buildings up to six blocks from transit rented or sold well," according to Terry Holzheimer, Arlington's economic development chief.

• Rich mix of choices. This includes "a range of housing options — large single-family homes, bungalows, townhouses, live-work, and apartments," so that the TOD can appeal to many segments of the population, from young people starting out, to families with children, to the retired," according to Dittmar and Poticha. "A rich mix also includes affordable housing and many activities within walking distance, so that a resident can do several errands on one trip, without a car."

• Value capture. This primarily economic measure may include "higher tax revenues from increased sales and property values." It may also include reduced transportation costs for residents and the ability to reach amenities, such as child care facilities at transit stations, bike parking and rental, and guaranteed rides home from work.

• Place-making. Areas within walking or biking distance of a station should be people places. They

also should work with the landscape and "weave together different building forms, uses, tenures, and densities," among other objectives. The entity in the best position to ensure good placemaking is local government, Belzer contends. Local governments have the ability "to create and sustain the necessary long-term vision, to lead the planning process, and to assist with entitlements, land assembly, investment in key infrastructure, place-making amenities, and so on," Belzer argued.

• Resolution of the tension between "node" and "place." Dutch professors Luca Bertolini and Tejo Spit distinguished between node and place in their 1998 book Cities on Rails: The Redevelopment of Railway Station Areas. A transportation node may be surrounded by parking for people who drive to the station — which is at odds with a sense of place. Transit-oriented development should be an instrument for producing pleasant, livable communities. "At the core of TOD is the pedestrian," Dittmar and Poticha observed. "[E]nsuring that the walker has precedence over other modes is an imperative." To resolve the conflict between node and place, planners must consider the balance of functions that each station serves. Belzer and four collaborators wrote in The New Transit Town that "the value of the system as a whole is enhanced if there is some degree of specialization at each station. For example, a park-andride station that functions primarily as a node can help reduce pressure on other stations to do so."

There is no one mold for a TOD. Some TODs

emphasize employment. Others concentrate on retail, cultural, or residential activities. Dittmar and Poticha divide TODs into several types: urban downtown, urban neighborhood, suburban town center, suburban neighborhood, neighborhood transit zone, and commuter town center.

Understanding of TOD by transit agencies is advancing. For some time, Bay Area Rapid Transit (BART) was heavily criticized for providing too much free parking around stations and for requiring developers to replace every parking space that was lost when a TOD project was built on a station's parking lot, Belzer reported, but "by 2002 BART was trying a new approach, promoting shuttle service to suburban stations, limiting long-term parking, charging for parking, and improving transit connections and cab service to stations."

Financing mixed-use TOD projects has become easier than it used to be. "Many more investors in both debt and equity understand mixed use, live-work, and ground floor retail and are willing to provide capital, including long-term debt," say Julia Parzen and Abby Jo Sigal. However, Parzen and Sigal point out, many TOD projects have depended partly on subsidies and/ or favorable tax policies. Atlantic Station in Atlanta, for example, has been supported by \$150 million in tax-increment financing for water and sewer infrastructure, sidewalks, and other improvements.

Calthorpe sees first-ring suburbs, with their oftenvacant industrial zones and moribund retail corridors, as some of the ripest areas for transit and its benefits. He suggests "designating and reserving rights-of-way for transit, express bus, and commuter train service" at the urban edge, so that auto-dependent outlying areas can eventually be served by transit.

For the purposes of this chapter, TOD refers to recent development projects designed on a new urban pattern and connected to rail transit. These projects do not include conventional suburban rail stations that amount to little more than platforms surrounded by acres of parking. By our definition, TODs range from compact, high-density, urban projects such as Fruitvale Village in Oakland, California, to full-scale neighborhoods such as Orenco Station in Hillsboro, Oregon, west of Portland.

RAIL SYSTEM DESIGN

John Fregonese, of Fregonese Calthorpe Associates in Portland, says TOD also requires that the transit system be designed in a complementary way. "A



A light-rail train in Minneapolis

lot of times, mass transit systems are designed by engineers, whose primary concern is keeping the trains moving. This can degenerate into a system ... driven by cost-effectiveness and not necessarily usefulness." Sometimes a new light rail line is established on an old rail right-of-way. "That's unfortunate," Fregonese says, "because TODs need to be in the right locations, not just where it's easiest."

Yet another major problem, Fregonese says, is the tendency of mass transit agencies and participating municipalities to design mass transit systems primarily for the benefit of commuters who live in the suburbs and work downtown. "A lot of transit is built for commuters, and no one else," Fregonese says. "But I've found that the best growth in transit systems is in non-commute 'off-peak' hours, such as taking transit to downtown entertainment and restaurants. ... That's where the real key is to TOD."

"Of course, a TOD has to be located in the right place to begin with," Fregonese adds. "The best TODs are infill sites (which contribute to the density of an urban core), and not greenfields (which require mass transit to extend farther out at greater expense)." Nat Bottigheimer of the Washington Metropolitan Area Transit Authority, which operates Metro rail in the District of Columbia and its suburbs, says his organization sees development near the stations as beneficial, especially when it generates off-peak and evening ridership. "People are looking at TOD as a quality-of-life strategy and an economic development strategy," he says.

More transit agencies are learning the value of TOD for their bottom line, says Shrieber. "While park and ride operations were long assumed to be a necessi-

Streetcar revival

In the years since the Portland (Oregon) Streetcar began operating, the city's Pearl District has experienced a remarkable development boom — one that is causing other cities to consider starting streetcar systems of their own.

From 2001 to 2005, approximately 100 development projects, with a total value of \$2.3 billion, were built in the Pearl District, a former warehouse and light industrial area just north of downtown. The streetcar has helped generate a high-quality urban environment in the district and reportedly has a ridership 700 percent higher than buses on the same routes. As of 2008, the short trolley line had approximately 3.5 million annual riders.

Nor is Portland the only city where new streetcar lines have spurred substantial development. In Tampa, \$2 billion in development is completed, under construction, or planned near a recent streetcar line.

At least five historic streetcar lines survive in the US — in Philadelphia, New Orleans, Boston, Pittsburgh, and San Francisco. As of 2008 Seattle, Portland (OR), Memphis, Dallas, San Pedro (CA), Tucson, Lowell (MA), Kenosha (WI), Tampa, Little Rock (AR), and Savannah (GA) added lines. Streetcars were proposed in Birmingham (AL), Lancaster (PA), Madison (WI), Cleveland, and St. Louis.

The Portland Streetcar is described by the

The Portland streetcar



ty in suburban locations, parking revenues rarely offset the development costs of the parking lots — much less the rail extension," he says. "Furthermore, the profile of commuter trips meant that extra equipment and service was needed to serve rush hour demand, but that equipment was underutilized the remainder of the operating day. Agencies such as San Francisco's BART and Denver's RTD have learned that TOD not only brings greater revenue through land sales or leases, but ridership profiles are significantly less taxing on their system, with demand greater in off-peak hours and less commuter crunch during peak hours. This results in greater transit revenues and better quality service to residents of a TOD."

BUS RAPID TRANSIT

Several cities, including Los Angeles, San Francisco, Boston, Cleveland, and Albany, are planning or building bus rapid transit lines, which run faster, more frequently, and more comfortably than ordinary buses. BRT also has the potential to be more visible and less confusing to casual riders than ordinary bus systems — which are often fairly opaque in terms of their destinations and times of service. If the advocates of BRT are right, not only can buses attract a broader ridership than they currently have; they can also encourage concentrations of pedestrian-friendly, mixed-use development at certain points along their routes.

One place where a spurt of development has materialized is Boston, at locations along the Silver Line operated by the Massachusetts Bay Transportation Agency (MBTA). The first segment of the Silver Line bus route — described by an MBTA spokeswoman as "essentially a light rail system without the tracks" — opened in July 2002 and expanded in December 2004. The line's 60-foot articulated buses run every two to four minutes during the morning and evening commuter rush, many of them powered by low-emission, compressed natural gas above ground and electricity when they go into a tunnel. David Dixon of Goody Clancy Associates in Boston says the Silver Line has prompted "an extraordinary degree of development along Washington Street, the first really significant loft development in Boston."

A tougher test of BRT's effect on development is under way in Cleveland, where the economy and the demand for new offices, retail, and housing are weaker than in Boston. At a cost of about \$200 million, mostly paid by the federal government, in 2008 the Greater Cleveland Regional Transit Authority began operating a BRT line on the city's premier street, Euclid Avenue, from Public Square downtown to University Circle, seven miles to the east. A platform and a two-lane busway, from which trucks and cars are excluded, occupy the middle of the broad street. Sasaki Associates designed bus stops and streetscape improvements along the route. Shelters and boarding areas are on the center island, where people walk onto the 63-foot articulated vehicles without having to climb steps. An "off-board fare collection system" enables passengers to pay prior to boarding, speeding service.

Electronic signs tell people how soon the next bus will pull in, and automated equipment on each bus announces the next stop. Buses get favorable treatment at traffic signals, which stay green longer to help them maintain a quick schedule. Ridership is much higher and service quicker than the regular Euclid bus route it replaced. Two major medical institutions along the line — the Cleveland Clinic and University Hospitals — signed a 25-year agreement paying the transit agency to name the route the HealthLine. Beyond University Circle, the relatively quiet buses mix with other vehicular traffic, resulting in slower speeds toward the eastern terminus, the Stokes/Windermere rapid transit station in East Cleveland.

Compared to light rail, the cost of building a BRT line is "substantially lower," and the operating cost is comparable or lower, according to Bill Vincent of the BRT Policy Center, a bus rapid transit advocacy organization sponsored by the Breakthrough Technologies Institute in Washington, DC. Jeffrey Tumlin, a partner in Nelson\Nygaard transportation consultants in San Francisco, notes that BRT eliminates the expense of laying track and offers more flexibility than a fixedrail system. But he emphasizes that the bus stations themselves can cost just as much as rail stations — in part because BRT is trying to provide atmosphere, comfort, visibility, and transparency equivalent to that of rail transit.

If a city expects BRT to stimulate urban regeneration, including mixed-use development, local and state sources also may have to pay tens of millions of dollars on top of whatever the federal government provides. Form-based codes may also have to be adopted so that development is consistent with New Urbanism. Cleveland, for example, established a mixeduse zoning district in the Midtown area along Euclid. Buildings there generally must be at least three stories Seaside Institute as the first modern streetcar system installed in an American city. The system connects the Pearl District to downtown and to the redeveloping South Waterfront. In the Pearl District, 7,248 housing units have been constructed, 25 percent of them affordable, enabling Portland to achieve its 20-year housing goal in just seven years.

In the South Waterfront, where four residential towers have broken ground, redevelopment is expected to generate 3,000 housing units and 5,000 jobs. Development there is encouraged not only by the streetcar but also by an aerial tram linking the South Waterfront to the hilltop Oregon Health & Science University.

Streetcars promote street life, serve as image-makers for their neighborhoods, and provide an amenity and attraction, the Institute says. Most of their installation cost can be borne by developers, leaving minimal cost to municipalities, according to the Institute.

"Some 80 to 90 communities across the US are now beginning to understand the relationship between modern streetcar systems and the vitality of their downtowns," says Rick Gustafson, executive director of Portland Streetcar.

A rendering of bus rapid transit on Euclid Avenue in Cleveland



Transit modes and applications

Mode	Application & Setting	Station Spacing	Technology	Examples
Rail rapid transit: up to 80 mph	High-density corridors	1/2 mile – 1 mile	Electric	MARTA (Atlanta), BART (San Francisco bay area), CTA (Chi- cago), Metro (Washington, DC)
Ferry: 25-40 knots	Crossing river, bay	Usually 2 stations	Diesel, wave jet	Golden Gate Ferry (San Francis- co, CA), Washington State Ferry
Commuter rail: up to 100 mph	Suburb to center city	Limited stations, downtown serving	Diesel, electric, dual mode	SEPTA (southeastern PA), Metra (Chicago, IL), Caltrain (SF bay area, CA)
Light rail: 25 – 55 mph	Wide variety of applica- tions: urban to suburban	Short to long: 1/4 mile – 1 mile	Electric, Diesel multiple unit (DMU)	RT light rail (Sacramento, CA), MAX (Portland, OR), TRAX (Salt Lake City, UT), Green Line (Boston, MA)
Streetcar/tram	Downtown, urban circulators	Frequent	Electric	Portland Streetcar (OR), F-line (San Francisco, CA), MATA Trolley (Memphis, TN)
Bus rapid transit (BRT): rubber-tired vehicles, exclusive lane or separated busway	Less dense environments, urban to suburban, may be a building block to rail	Limited stations, short to long	Diesel, natural gas	Brisbane, Australia; Pittsburgh, PA; Silver Line (Boston, MA)
Bus transit: rubber-tired vehicles in mixed traffic	All settings: connec- tion to rail or BRT, local transportation	Frequent	Diesel, natural gas	Most cities
Paratransit, small vans	Suburban or rural envi- ronments, or for special- ized transportation	On-demand	Gasoline, diesel, hybrid	Most cities

Source: Reconnecting America

and must be placed at the street edge. "In the 1980s, Denver took the commuter bus system and created two major bus terminals at either end of the downtown," Tumlin notes. The terminals were placed mostly underground, with office development on top and with an electric shuttle bus running between them. "The whole office core developed along the commuter bus and transit mall," Tumlin says. California cities such as Oakland, Berkeley, San Francisco, and Los Angeles are all planning for increased density and development around existing or future BRT lines.

Bus-oriented development has been a focus of the King County Department of Transportation and its Metro transit organization in Seattle, which have been developing a series of bus stations (generically called "transit centers"), some with mixed-use development around them. Seattle lacks true BRT, but does have an extensive system of bus routes, with stations where routes converge. In Renton, east of the Seattle-Tacoma airport, Metro built a bus hub in a languishing old suburban downtown. The city acquired five acres in the core and then constructed a seven-story parking garage, built a plaza — home to a farmers' market — and sold properties on which developers have since erected housing and shops. On land that was once occupied by a Chevrolet dealership, Dally Homes of Seattle has built three urban mixed-use complexes, including the four-story Metropolitan Place, which has shops on the ground floor and 90 apartments above. Underneath are 240 parking spaces — 150 of them designated as "park and ride" for the transit center.

Most Americans, given the choice, would rather ride a train than a bus. But bus systems are far more numerous, and in the right circumstances, bus transportation can support urban placemaking. Collaboration between the transit agency, the local government, and in some cases the county government will be necessary to make that happen.

EXAMPLES OF TRANSIT-ORIENTED DEVELOPMENTS

Transit-oriented developments are being designed as new urban neighborhoods throughout the US. Orenco Station near Portland, Oregon, was one of the early projects, breaking ground during a hot real estate market and selling well. Covering approximately 200 acres, Orenco Station has become one of America's more successful new urban greenfield developments, with about 1,850 residential units and 500,000 square feet of commercial, including an approximately 100,000 sq. ft. town center and a separate "big box" district of about 400,000 sq. ft. (which covered much of the project's initial risk and expense).

The rail connection is about a quarter-mile from the town center and even farther from many residences — a result of the old right-of-way's unfortunate alignment on the edge of the property. Even so, a study by sociologist Bruce Podobnik showed that 18 percent of residents used the light-rail line for commuting — a significant number, given that many residents work at nearby tech plants such as Intel, or work from their homes. Many more residents use rail for other trips, including evenings in Portland.

Orenco Station's rail stop a few blocks from the town center prompts some to regard it as New Urbanism with a rail connection, rather than a classic TOD. But Michael Mehaffy, former project manager for master developer PacTrust, says that misses a key point. "Rail simply would not have supported the retail," he says. "To get a functioning town center, you have to think incrementally and go to where people are at the beginning — and they were mostly in their cars along the central arterial with its 25,000 cars a day. They were not at the station, with only 1,000 boardings a day. We would have loved those two things to be closer together, but they weren't. So we created an 'amenity axis,' with the town center on the north side of the arterial, connected by the pedestrian spine. That kept the north side from becoming isolated from the south side and the station. And it allowed people to change over to rail and bus transit over time, as travel by auto gets more difficult."

Rudy Kadlub, president of the Costa Pacific residential building company, which built houses on 68 acres outside the town center, says that as part of a deal with the Tri-Met transit agency, new residents got a rail pass for a year. "Many new homeowners are not thinking much about light rail when they buy,



The plan for the Pleasant Hill BART Station redevelopment in Contra Costa County, California, uses a square at the train station to mix uses and enhance placemaking. Residential phases began construction in 2008.

but over time they realize what a great amenity it is," Kadlub says.

Columbia Heights, a Washington, DC, neighborhood that was down on its luck for years after the riots of 1968, saw the area around its Metro rail station become "one gargantuan construction site" between 2005 and 2007, says Cheryl Cort of the Coalition for Smarter Growth. New buildings have been erected, generally with ground-floor retail and several stories of housing above, and sometimes with gardens on the roof. The buildings come right up to the sidewalk. In certain locations there are plazas or other public spaces between the buildings and the streets. Grid Properties has built a three-level, 540,000 sq. ft. shopping center, DC USA, which lines the sidewalks and has many of its shops opening to the streets. The massing of the new buildings has given Columbia Heights much better-defined street walls.

Cambridge Massachusetts, across the river from Boston, is home to one of the more impressive TOD projects in the country, says Shrieber. The site is an abandoned railyard that had been the back door to three highways and a commuter rail facility for decades, he explains. "The team recognized that two subway lines could be within a 5-minute walk of the entire 50-acre site if the right physical improvements were made to connect across a myriad of tracks, parking lots, and abandoned lots," he says. After a remarkably fast two-year permitting process, the first residential phases of the 5 million square-foot, mixed-use North



Fruitvale transit-oriented development in Oakland

Point began occupancy in 2008. "The density helps the development team afford some significant transit-supportive infrastructure, including a cantilevered sidewalk on a highway bridge that directly connects to a subway station, an extensive network of narrow streets and accommodating sidewalks, a critical extension of a regional multi-use path, a new 5-acre central park, and — most significantly — a new elevated subway station for the MBTA's Green Line," Shrieber says. This complex public-private agreement now enables the MBTA to extend its Green Line to communities that have been underserved by transit for years, he says.

California, especially the San Francisco area, is another TOD hot spot. In Oakland, Fruitvale Village, at one of the city's BART stations, is helping to revitalize a multi-ethnic neighborhood that had been in decline. Fruitvale was developed by a nonprofit agency, the Unity Council, in collaboration with the city and Bay Area Rapid Transit. Its housing quickly achieved full occupancy, and a series of social services in Fruitvale have proven useful to the neighborhood, but the retail component has had a hard time getting established. The retail difficulties indicate the need for astute management — some of the retailers at Fruitvale were ill-chosen. The slowness in filling the retail space also indicates the need to be realistic about how much business the transit riders will generate. It's a mistake to assume that most of the people going between home and work will necessarily take time to shop or dine near the transit connection.

In the Buckhead section of Atlanta, the 51-acre Lindbergh Center is being developed at a MARTA rail station. Lindbergh Center, featuring several highrise office buildings, is expected to mix 2.7 million square feet of office space with 330,000 square feet of retail and 954 residences. In addition, residential and mixed-use development close to Lindbergh Center but not officially part of the project "is definitely transforming the area," says Doug Young, an urban planner for the city. The privately developed Lindbergh Center project got a boost from BellSouth's decision to consolidate its office operations in transitaccessible locations.

Minnesota's Hiawatha light rail line, which runs 12 miles, from downtown Minneapolis to the Mall of America in suburban Bloomington, has stimulated housing development at several stations along its route. The biggest single undertaking is Bloomington Central Station, which McGough Development is building on 47 acres in Bloomington, between the mall and Minneapolis-St. Paul International Airport. Seventeen-story glass condominium towers have been built, and are to be accompanied by offices and townhouses, in a street-friendly format similar to projects in downtown Vancouver, British Columbia. People are willing to pay "a 30 to 40 percent premium" to live along the rail line in Bloomington Central, says Gregory S. Miller, development manager at McGough. "They can shed a car," he says, and can use light rail to get to work, catch a plane, or go out for dinner and entertainment. A curbless plaza will be built along part of the rail line in Bloomington Central. Pedestrians will share it with automobiles. Trees and other objects will indicate where autos are prohibited. Sidewalks and a bike path with heavy landscaping will give the eventual several thousand workers and residents at Bloomington Central a nonvehicular route to the mall, about a quarter-mile away.

Perhaps the biggest TOD success has taken place in Arlington County, Virginia, where the County Board decided in the 1970s to invest more than \$100 million to place a 3.5-mile segment of Metro beneath an aging commercial strip in the center of the county, rather than have the line built in the Interstate 66 corridor. Since 1980, when a line serving five Arlington County Metro stations between Rosslyn and Ballston began operating, nearly 19,000 houses and apartments, almost 15 million sq. ft. of offices, and approximately 1.9 million sq. ft. of retail have arrived, boosting the value of land and buildings in the corridor to \$14.5 billion, according to Robert Brosnan, county planning director. That corridor and another Metro corridor contain about 11 percent of Arlington's land but a whopping 42 percent of its \$50 billion of real estate value.

The Washington Post did an in-depth study of one section of the Rosslyn-Ballston corridor — the area around the Clarendon station — and concluded in late 2006 that Clarendon "is starting to look a lot more urban and less village." Clarendon's population, approximately 1,600 for decades, has spiked by 115 percent since 2000, owing largely to the addition of more than 1,700 condominium units. The volume of retail, and retail rents, has jumped. The area "has evolved from a strip of practical, workaday stores to a retail destination for upscale shoppers and the area's increasingly well-heeled residents," *The Post* reported. Mixed-use developments containing retail on the ground floor and housing or offices above are becoming ever more common.

By encouraging dense, pedestrian-scale developments around Metro stations, Arlington has built its tax base, revived the Rosslyn-Ballston corridor, and given young people, empty-nesters, and others the lively environments they were eager to find. Despite the addition of a slew of offices, retail, and living quarters, vehicular traffic on the roads did not become more congested. A key accompanying strategy has been the active encouragement of shared parking facilities, which have enabled denser development near Metro stations, according to Shrieber.

Terry Holzheimer forecasts that by 2030 the county's "transit-oriented mixed-use centers will achieve true urban development intensities, approaching or eclipsing 200 persons per acre." (This figure represents residents and employees added together). According to Holzheimer, areas such as the Rosslyn-Ballston corridor and nearby Crystal City, which is also served by Metro, "will become truly urban," three or more times as dense as traditional urban places like Alexandria, Virginia, and the Georgetown section of Washington.

Also in the Washington, DC, area, Rockville has revived its downtown with Rockville Town Square, completed in 2008. More details on this development, one of the best-looking TODs in the US, can be found in Chapter 3 (see page 58).

LIGHT RAIL TO COME

Some TODs have been built, or mostly built, in such a way that they can be served by light rail lines, even though the lines didn't serve those areas when the developments started. Examples of these include King Farm in Rockville, Maryland, and Addison Circle in Addison, Texas. The former is a 440-acre development by King Farm Associates with 3,200 residential units. Addison Circle is an 80-acre project that will have 3,000 multifamily residential units, connected to downtown Dallas by a rail line. RTKL Associates designed Addison Circle, and it is being developed by Post Properties.

Stapleton, the 4,700-acre redevelopment of Denver's former airport, was planned with the expectation that a commuter rail line may be built from downtown Denver to Denver International Airport. In 2004, voters in the regional transit district approved the line, which is expected to have a stop at Stapleton, probably across a road from an existing transit center that accommodates buses. Rail would "give us the opportunity to create transit-oriented development of a higher density," says Tom Gleason, an executive with developer Forest City Stapleton. "We tried to establish a template for the site to evolve over time." The Denver Regional Transportation District's expansion program is the most active in the US, Shrieber says, and the agency has designated stations for transit-oriented development. "Many developers have followed Stapleton's lead and sought to develop TOD along every planned transit corridor," he says.

Leander, Texas, will be on an Urban Commuter Rail line running northwest from Austin, possibly the first leg of a regional passenger rail system serving metro Austin. A Transect-based master plan and a version of the SmartCode have been adopted to regulate the character of development in Leander, which is expected to grow to a population of 50,000 to 100,000. The code requires buildings at least three stories high in the urban core (T6) and at least two stories in the urban center (T5). A charrette produced visions described by the Austin *American-Statesman* as "a mini-metropolis with sidewalk cafes, walkable neighborhoods and small parks, centered on a Capital Metro commuter rail station."

In California, the City of Hercules, northeast of Oakland, has a Waterfront District within walking distance of the Capitol Corridor passenger rail line, which for years has run through Hercules without stopping to pick up or discharge passengers there. The 125-acre district includes a transit village containing a mixed-use center and more than 400 apartments. Hopes are that the transit connection will be strengthened by adding a Capitol Corridor stop and by establishing a ferry terminal that would take people to and from San Francisco by boat.

Seattle is home to one of the more unique TODs to precede a transit line. In 1995, the Seattle Housing



Houses in New Holly

Authority received a HOPE VI grant to reconstruct the Holly Park public housing project. The vision was to replace the decaying development and build a new mixed-use affordable community with 50 percent more housing units. Today, the renamed New Holly neighborhood has 1,400 homes, a community college branch, and a mixed-use development called Othello Station centered on Sound Transit's recently-completed LINK Light Rail station.

PRINCIPLES OF TRANSIT-ORIENTED DEVELOPMENT

The following is excerpted from "Creating Transit-Oriented Development for Livable Communities and a Sustainable Region: A Handbook," prepared for the Metropolitan Council in Minneapolis by Calthorpe Associates of Berkeley, California. It is used by permission. A few additional comments have been inserted and the source identified.

Require transit-supportive intensities of housing and employment within walking distance of TOD stops or stations. To maximize the number of residents and workers within walking distance of transit, residential and employment uses in the TOD should be of medium to high density. A minimum residential "critical mass" averaging seven units per acre is required in outer suburban areas, with 20 to 30 units preferred in more urban areas.

Spatial extent of project

Define the spatial extent of TOD by the maximum comfortable walking distance (a five-minute walk, roughly a quarter mile) to existing or planned transit stops or stations.

People are more inclined to use transit if it is within a convenient walking distance of where they live, work, or shop, and if walkways are provided. While the higher-than-average densities provide a large market of patrons for transit, the spatial extent of a TOD ensures that patrons are within a reasonable walking distance of the transit stop or station.

The size of the TOD and the spacing between adjacent TODs vary depending on the potential area for pedestrian-oriented development and the transit stop or station spacing. Larger TODs with high-frequency transit service could extend one quarter-mile from the transit. For typical bus routes, transit stops are often spaced very closely, as little as one or two blocks apart. The TOD pattern then approximates a continuous "spine" or "corridor" of development, rather than a series of distinct "nodes."

Mix of uses

Include diverse and complementary high-activity uses such as retail, professional services, housing, and employment within the core of a TOD, adjacent to transit.

A mix of diverse activities permits residents and employees to run errands on foot, without relying on a car. The center of a TOD is the "core area," focused around the transit stop or station, which has a diversity of uses, such as convenience retail and services, small offices, day care, and civic amenities such as

A close-up of a quarter-mile radius of a TOD shows a mix of uses near a station, surrounded by residential and/or employment uses.



libraries and post offices. Apartments or other multifamily housing options can also be located in the core area, often over ground-floor retail.

Beyond the core area but still within easy walking distance of the transit stop or station, a diverse range of residential, employment, and civic uses creates the vitality and around-the-clock activity associated with active urban environments and reinforces the vibrancy of shopping and employment destinations. Retail should be focused in the core, rather than outside it, where it can have the greatest influence on activity levels and is most easily accessible by transit.

Pedestrian-oriented site design

It is essential that design and site design in TODs create pleasant and enjoyable urban places that make walking an attractive, preferred mode of travel. (Even some of the most dense transit-adjacent development can see high drive shares if the walking environment is not appealing, Shrieber notes.) Interesting and highquality environments should be encouraged. The station or stop area, complemented with tree-lined streets, landscaped space, and seating areas, should be a gathering spot and a vibrant focus of public life and activity. Buildings should be set close to the streets and have multiple windows and entries to enliven places and increase safety. Parking access should be carefully planned to limit the quantity and size of curb cuts while placing them away from primary walking paths, generally off alleys and side-streets.

Street design

An interconnected network of streets minimizes walking and cycling distances and distributes traffic to minimize volumes on local streets. Streets with sidewalks and pedestrian paths through the TOD offer direct, quick connections to transit and the core area. Neighborhood or local streets are narrow, to slow down traffic and thus calm automobile traffic to speeds that are more compatible with children, pedestrians, and bicyclists. Through traffic should be at the periphery of the TOD on larger, arterial streets or be heavily traffic calmed if it is close to the station.

Parking management

According to Jason Shrieber of Nelson/Nygaard: "One of the biggest errors in transit-oriented development is the mismanagement of on- and off-street parking. While Boston has several excellent examples of TOD, dozens more can only be classified as tran-



Street networks around TOD should not be circuitous (top plan), but rather provide direct and inviting routes to destinations (plan immediately above).

sit-adjacent-development (TAD) because the parking and road capacity was sized according to non-TOD standards. Where uses are mixed and transit or walking replaces a large percentage of automobile trips, parking facilities should be shared and minimized in size to the maximum extent possible. The most progressive TODs recognize that their high land values warrant minimizing parking construction and maxi-



A TOD along a bus corridor is linear, above. A close up of the core of a bus corridor is shown at right.



mizing pricing in their garages to capture value that could otherwise be leasable space. This philosophy extends to on-street parking spaces, especially close to the station and retail shops, where demand warrants higher prices at meters and pay stations to encourage turn-over."

Location of transit and core uses

Ideally, the transit stop and the core should be at the center of what can become a pedestrian-oriented district. However, wide arterial roads with heavy traffic, and some transit facilities such as train tracks or grade-separated busways, may act as barriers reducing pedestrian access to the core. Environmental constraints such as steep slopes can also restrict pedestrian accessibility and limit the amount of land available for development. Park-and-ride lots, buildings with no opportunity for "pass-throughs," and even transit stops or stations can constitute pedestrian barriers, if excessive in size or walled off from the surrounding TOD. In some situations, a more appropriate configuration may be a "one-sided" TOD, with the transit stop and core at the edge of the TOD. This is also appropriate if retail in the core needs visibility from busy arterial streets.

Size of TOD

A TOD that extends in a circular shape for a quarter mile around a stop or station encompasses

125 acres, while a TOD that extends in a semicircular pattern on one side of the transit line encompasses 63 acres. Of course, the TOD shape rarely will be a perfect circle or half-circle, but will be affected by the street pattern and by natural and man-made boundaries such as topography and high-traffic arterial streets.

Larger TODs should be located at light rail stations and major bus transfer centers in urban areas, where transit service is frequent and high capacity.

TODs along bus routes will typically be smaller because bus stops tend to be spaced closely together. A string of TODs centered on bus stops along a bus route will thus define a fairly continuous narrow corridor of development. This might be configured as extending about 600 feet on both sides of a bus route, with about 1,200 feet spacing between adjacent bus stops along the route.

Areas peripheral to the TOD

Beyond the TOD itself, development in the surrounding areas, up to one mile from the transit station, should provide a secondary ridership base and retail patronage market for the core of the TOD. Moderate-intensity uses such as single-family housing on smaller or standard-sized lots, office or light industrial uses with moderate employment densities, land-intensive schools, and larger parks should be situated in surrounding areas. However, retail centers and higher-density employment and housing are discouraged in the peripheral areas if they will compete with or diminish the ability to secure these uses within the TOD first.

Uses that have very low intensity and virtually no pedestrian activity, such as automobile-related businesses, are not appropriate in the peripheral areas. If such uses exist next to a TOD, local land-use decision-makers should encourage gradual redevelopment at the moderate intensities appropriate to the surrounding areas.

In some cases, the surrounding area may be adjacent to the transit station but separated by a busy arterial street or other barrier, making access to the TOD from that area difficult. These locations may be appropriate for park-and-ride lots.

The surrounding area should have a primary roadway system which provides strong, direct connection to the TOD, including sidewalks. Bicycle lanes on arterial roads or separate bikeways should be provided as well if there are no safe, low-traffic streets for cyclists.

Setting the stage for TOD

Public agencies can educate the public and other stakeholders, such as banks, retailers, and employers, about the benefits of TOD and dispel the myths and fears associated with higher-density, mixed-use development. Education may take the form of workshops, walking tours, charrettes, visual preference surveys, and presentation of graphics and photos on websites. Shrieber notes: "Common fears that communities have relate to the intensity of development, parking impacts, and personal safety. It takes a hands-on approach to the design and visualization of a TOD plan to demonstrate that the density often means less vehicle trips and parking demand than traditional development, while the compact community provides the 'eyes on the street' that help ensure personal safety."

Market analysis

Market analysis should evaluate three levels of the economy and real estate market: the regional market, the transit corridor, and the transit stop or station area. This provides a good overall view of the type of development that could locate and succeed within the station area.

Market studies help determine the market feasibility for TOD, identify development opportunities, and evaluate local supply and demand. A market strategy is a longer-term approach that develops tools, incentives, and policies to encourage TOD. The Puget Sound Regional Council has developed some helpful ground rules for evaluating the market potential for TOD. Among them:

1. Understand who bears what responsibilities for the TOD. The public sector should define the transit station area and the boundaries of the TOD, while both the public and private sectors should help encourage a range of housing and should plan and manage parking.

2. Understand that developers make real estate decisions, not transit decisions. Developers may believe that transit will enhance their project, but they are concerned primarily with market opportunities and won't be interested if a good target real estate market does not exist.

3. Determine realistic expectations for each station area. An individual building or project may not include all the ideal features of TOD, but together, a group of projects should achieve many of the ideals.

4. Demonstrate public commitment to private investment. Developers are often reluctant to build innovative, untested developments in economically troubled areas. In such areas, the public sector may need to send a clear signal that it is willing to make the investments to eliminate the most significant barriers and draw private investment.

Removing restrictive development controls and creating incentives

A community should examine existing official controls, development standards, project review procedures, and development strategies to remove impediments to TOD. An interim TOD overlay zoning may be used to establish a moratorium on auto-oriented projects while station area plans are being adopted.

Public agencies need to be proactive and create incentives for TOD by investing in infrastructure improvements and by expediting the permit review process.

Getting it built

Individual, specific station area plans should be prepared for each transit station area. A station area plan identifies the types and densities of land uses and infrastructure improvements within a maximum of a half-mile radius of the transit stop or hub. The plan provides the basis for the community to adopt zoning, capital investment, and development strategies for the area. A station area plan should contain:

1. Results of a market study.

2. A physical plan (circulation, access, public facilities, utilities, mitigation and community enhancements, regulations to protect natural features).

3. Land use plan with refined development concepts.

4. Station area urban design guidelines.

5. Station area development strategy.

6. Capital Improvement Program (CIP) and financial plan for investments in public facilities.

7. Market strategy, financing measures, and/or specific investment incentives.

INCORPORATING BUSES INTO THE NEW URBANISM

"Buses should not be overlooked as a potential asset to new urban communities," says William Lieberman, transportation program manager with Carter Burgess, a consulting firm. "Bus lines are less expensive to build than rail and can be initiated relatively quickly using existing city streets."

Lieberman notes that buses have drawbacks. "They are often too big, too loud, and too polluting to fit in well with new urban developments. They may also be too slow, or at least appear that way to the casual observer. With care, however, many of these potential disadvantages can be overcome."

Fortunately, a wide variety of vehicles are available, some of which substantially mitigate perceived disadvantages of bus service, Lieberman says. "Small buses, relatively inexpensive and seating up to about 25 people, are useful for shuttling people short distances to major activity centers or to transfer points where larger vehicles may be boarded. They can negotiate even the narrowest streets and are generally quieter than standard buses. On the other hand, most small buses are built on a truck chassis and are not robust enough to last a long time in regular transit service."

Larger buses — both standard 40-footers and the 60-foot articulated buses that bend in the middle — permit larger loads of seated and standing passengers, he says. "They are built to handle the relentless pressures of daily transit service. However, their size may restrict them to the edges of residential areas, where wider streets with busier traffic are found. With fore-thought, the urban designer can create a street network suitable for large buses to penetrate a largely residential area without being obtrusive. The key is to line bus streets with more resilient uses, such as multifamily

residential and small retail, and avoid steep grades and sharp turns. The fumes from bus engines have been greatly reduced with the latest diesel technology and almost completely eliminated with such alternative fuels as compressed natural gas or hybrid engine technology." Electric buses are attractive because they are quiet and emit no fumes, Lieberman notes, but batterypowered buses have limited power and range.

Most new urban communities get bus service

A survey by *New Urban News* of 16 new urban communities showed that bus service is common to such developments. All but 3 of the developments had bus routes, and 2 of those planned to get bus service. Infill projects had the distinct advantage that bus service was viable even in the early stages of development. By contrast, a greenfield project like Kentlands had to wait 11 years from start of construction for bus routes to pass through its neighborhoods. The survey was published in 2002.

Smaller buses have been seen as a solution to safety and noise concerns of buses in new urban communities. "Many transit systems are breaking the tradition of just wanting a 40-foot bus, and are going to smaller vehicles," says Lieberman. For a while, Orenco Station in Hillsboro, Oregon, was served by small buses that could pass through the more pedestrian-oriented parts of the neighborhoods. "We actually preferred that arrangement," says Mike Mehaffy, who was project manager for the PacTrust development company. "But when TriMet [the Portland transit agency] consolidated routes, the smaller buses were no longer economically viable." According to Lieberman, labor remains the highest cost in running a bus route, and that cost does not change with the size of the vehicle.

It is difficult to quantify the extent to which residents in new urban developments are actually getting on the bus. Anecdotal evidence suggests a mixed picture. Projects built within established urban fabric seem to experience more bus use than greenfield developments, in part because service in the older areas is more frequent. Recent research by CNU suggests that residential developments built on grayfield mall sites are particularly well-suited for bus and other transit service, and often have existing bus routes running on arterial roads.



Streets

Designing walkable, safe, and attractive streets The physics of street design Street design and safety Width a big factor Street trees do not increase risk 137 Emergency response and urban streets Street networks and safety On-street parking

Further evidence conventional standards don't improve safety 138 Context-sensitive versus context-determined design 138 Classification based on the Transect 139

Visualizing the transformation	
of a street	
Nomenclature	
Width-to-height ratio	
Narrow streets add value	
Design versus target speed	
Major thoroughfares	
Freeway removal and	
redevelopment	
Reforming departments	
of transportation	
Balancing the needs of	
pedestrians and drivers	
One-way couplets	
Changing one-way streets	
to two-way	

140

140

141

141

141

142

142

144

144

145

145

Crucial curb return radius 145 Traffic calming 146 Cost 148 The use of roundabouts 149 Roundabouts at a glance 149 Shared space 150 Street connectivity 150 Beyond the curb: Edges are key 151 Streets and fire trucks: designing for emergency response 152 How to promote bicycling 154 Bicycle facility planning 156 Street sections: a full set of walkable street plans 157

Above: Good streets serve many modes of transportation. Queen Street in Toronto accommodates pedestrians, automobiles, mass transit, and bicyclists. The photo was part of a 2003 presentation by transportation engineers Rick Chellman, Rick Hall, and Peter Swift.

134

134

135

136

137

138

138

Designing walkable, safe, and attractive streets

Conventional street design focuses primarily on the expeditious and safe movement of automobiles. The concerns of pedestrians and mass transit are secondary. The idea of the street as a beautiful place — an important part of the public realm — is hardly a priority at all. The conceptual underpinnings of this approach began in the 1920s and 1930s — when forward-thinking planners agreed that the automobile represented the future of transportation — and it came to dominate planning and engineering for more than half a century.

That single-minded focus is fading, due in part to the New Urbanism. Since the 1980s, new urbanists have made the following arguments that were radical in the context of late 20th Century street planning.

• Mobility is not measured primarily by automobile movement. Other modes of transportation such as walking and mass transit should be given an equally high priority on all but the highest-speed thoroughfares. While automobiles should be accommodated safely on local residential streets, the comfort of pedestrians should take top priority on those thoroughfares.

• Streets must have character as well as capacity. Streets consist not just of two-dimensional pavement, but also of building frontages, landscaping, sidewalks, lighting, and street furniture. The ensemble gives the street its character. Great places have great streets, and great streets have strong character.

• Streets serve a vital social function. They are the heart of the public realm — the glue that holds communities together — and should be designed as pleasurable places to interact, to see and be seen, and just to *be*.

• Streets should be highly interconnected. Conventional planning employs a dendritic pattern, with local streets branching off of arterials and collectors. The blocks tend to be large, overall connectivity is low, and traffic is concentrated on major streets. New urbanists argue for well-connected street layouts that disperse traffic and allow for narrower, more human-scaled thoroughfares. The small blocks provide more options and destinations for pedestrians.



Conventional street design follows a dendritic pattern, at left, with local streets leading to collectors, then to arterials, then to highways. New urbanists have followed the model of the interconnnected neighborhood, as illustrated in Clarence Perry's Neighborhood Unit, below left.



To borrow a campaign phrase from former President George W. Bush, the new urbanists see streets as "uniters, not dividers." Conventional planning tends to create streets that are barriers to pedestrians, while the New Urbanism links uses, building types, and neighborhoods through walkable streets.

THE PHYSICS OF STREET DESIGN

Conventional suburban residential streets are often built 34 to 36 feet curb-to-curb, a width that creates two 10 ft. travel lanes and two parking lanes of seven to eight feet. "That's an enormous street, and it shows no understanding of how traffic actually functions on thousands of miles of traditional streets," says Walter Kulash, an engineer with Glatting Jackson Kercher Anglin of Orlando, Florida. On traditional residential streets, cars yield to oncoming traffic, which is what Kulash calls the "shared street mode." The wider suburban streets allow for freeflow traffic. "We maintain that you never want to



The street above right, 24 feet curb to curb, has identical travel and parking capacity to the 36-foot-wide street at right. Both streets are lined with sidewalks, trees, and houses. But the two streets have vastly different character. The one above forces cars to slow down and makes life more pleasant for residents and those who travel by foot or bicycle. Note the bicyclists in the two pictures. One is comfortably in the travel lane, the other is huddled by the parked cars. That is because the street at right will encourage speeding.

design a new residential street with free-flow traffic. Aside from the cost of building such a street, you often create design speeds of 40 to 45 miles per hour, depending on the sight distance. When there are no cars parked on the side of the street — which is a lot of the time — you get even higher design speeds. At that point, even mature and responsible drivers will exceed the speed limit."

The kinetic energy of a given moving body (e.g., automobile) is determined by the square of its speed. That means that a car going 30 mph has more than double the potential impact, and stopping distance, of a car going 20 mph. At 40 mph the kinetic energy is quadrupled from 20 mph. The carrying capacity of a traffic lane is maximized at 25 to 30 mph, Kulash says; at higher speeds, a road can accommodate slightly fewer cars during a given period of time. "Unlike water, or things on a conveyor belt, which keep

the same spacing as the speed goes up, drivers leave large distances between themselves and the next car at higher speeds. That's because they have an intuitive understanding of the relationship between kinetic energy and speed."

An even more important circumstance results from the exponential nature of vehicular kinetic energy, and that concerns pedestrian accident deaths. Studies show that the injury and fatality rate to pedestrians goes way down when the car is traveling less than 20 mph, because of the relatively low force of impact at these speeds.

STREET DESIGN AND SAFETY

Numerous studies provide well-documented support for the argument that in urban settings, conventional street standards generate danger and discomfort, especially for pedestrians. Studies have also demonstrated that pedestrianfriendly or aesthetically pleasing elements such as tree-planted medians, on-street parking, and narrower street widths increase safety in many cases. Also, more intersections and smaller blocks means slower speeds and a safer street network.

When speeds are kept low, pedestrian safety is dramatically improved. A study in the *ITE Journal* in February 2000 said the risk of injury to pedestrians multiplied 7.6 times when the average speed rose to 30 mph from 20 mph. Above 36 mph, the pedestrian is usually killed. The graph below shows how pedestrian fatalities rise with speed.

Width a big factor

Wide traffic lanes may make traveling more dangerous, rather than less. Eric Dumbaugh at Texas A&M, who has studied road design and the frequency of accidents, has found that making traffic lanes wider than 11 feet does not improve safety. Crashes increase, Dumbaugh says, "as lanes approach and exceed the more common 12-foot standard."

Dan Burden of Glatting Jackson Kercher Anglin and Walkable Communities in Orlando concurs. Burden says that research by Robert B. Noland, examining 24 years of data on all roadway types in all 50 states, "concludes that 10-foot lanes for major roads (other than interstates) are safer than their wider-lane counterparts."

"The most serious injury-producing crashes"





become scarcer when travel lanes are 10 feet wide, Burden says. "This is true for both urban arterial and collector roadways. It appears that as lanes become wider (above 10 feet), many motorists lose their vigilance."

Planner and engineer Peter Swift examined 20,000 accident reports in Longmont, Colorado, over an eight-year period and found that one factor was significantly linked to injury-causing accidents — the width of the street. A two-foot increase in street width correlates with a 35 to 50 percent rise in injury accidents, he discovered. When the street was 36 feet wide instead of 24 feet, injury-causing accidents jumped 485 percent (see graph below).

The study, "Residential Street Typology and Injury Accident Frequency," looked at 20,000 automobile accident reports over an eight-year period in Longmont and examined fire department records. This data was correlated by street and 13 variables. "The analysis illustrates that as street width widens, accidents per mile per year increase exponentially, and that the safest residential street width is 24 feet or less (measured from curb face)," according to the report. There are 485 percent more injury accidents on 36-foot-wide streets than on 24-foot streets in Longmont, says Peter Swift, coauthor of the report. "This is significant," he says. "Even with incremental 2-foot increases in street width, we find between 35 percent and 50 percent in-



Source: Peter Swift



The trees, on-street parking, and buildings that make for a pleasant walking environment on this street in Coral Gables, Florida, also contribute to safety.

creases in the injury accidents."

The study looked only at streets defined by the city as local (fewer than 2,500 average daily trips) — excluding relatively high-volume arterial streets. The number of trips was estimated for each local street, but, interestingly, was not found to be a major factor in the accident rate of a street. Some of the most dangerous local streets turned out to be wide thoroughfares, 36 feet to 44 feet, with relatively light traffic.

An extensive study of 4-lane to 3-lane road conversions in Iowa demonstrated a 25 percent reduction in accident frequency and a 19 percent reduction in crash rate. The 23-year study was by Iowa State University and Iowa DOT.

Street trees do not increase risk

Transportation engineers have often opposed

street trees on the grounds that a wide travel corridor, free of obstacles, is needed to protect the lives of errant motorists. A growing body of empirical evidence, however, proves that assumption untrue. Tree-lined roadways cause motorists to slow down and drive more carefully, says Eric Dumbaugh.

Dumbaugh examined crash statistics and found that tree-lined streets experience fewer accidents than do "forgiving roadsides" — those that have been kept free of large, inflexible objects.

Among the cases cited in the Journal of the American Planning Association:

• A study of five arterial roads in downtown Toronto found that mid-block car crashes declined between 5 and 20 percent in areas with elements such as trees or concrete planters along the road.

• Urban "village" areas in New Hampshire containing "on-street parking and pedestrian-friendly roadside treatments" were "two times less likely to experience a crash" than the purportedly safer roadways preferred by most transportation engineers.

• A study of Colonial Drive (State Route 50), which connects the north end of downtown Orlando to the suburbs, found fewer serious mid-block crashes on the "livable" section than on a comparison conventional roadway. The conventional roadway also was associated with more injuries to pedestrians and bicyclists.

Emergency response and urban streets

An investigation by *The Boston Globe* published in January 2005 found that firefighters respond faster to blazes in Boston and other big cities than they do to fires in many suburbs. The articles revealed that the

			Fixed-object		Midblock		
Roadway	Crash type	Urbanized (all) ³	Livable ² sections only	Difference (%)	Urbanized (all) ³	Livable ² sections only	Difference (%)
Woodland Ave.,	Total	7.1	3.2	-55.0	31.9	28.6	-10.5
DeLand (SR 15)	Injurious	4.0	0.0	-100.0	22.7	22.2	-2.2
New York Ave.,	Total	11.4	6.1	-46.3	37.1	18.3	-50.7
DeLand (SR 44)	Injurious	5.8	0.0	-100.0	27.7	18.3	-33.9
Silver Springs Blvd	., Total	15.0	15.7	-4.0	42.0	15.7	-62.8
Ocala (SR 40)	Injurious	9.2	0.0	-100.0	25.7	7.8	-69.5
Averages	Total	10.1	3.3	-67.3	38.3	23.1	-39.7
	Injurious	5.7	0.0	-100.0	25.1	18.1	-27.7

Crash performance of livable streets versus urban roadways (per 100 million VMT¹)

Source: Eric Dumbaugh, The Design of Safe Urban Roadsides: An Empirical Analysis; ¹ Vehicle miles traveled; ² Downtown historic sections with street trees, intermittent on-street parking, and buildings close to the sidewalk; ³ All conventional and livable sections of these roadways in developed (nonrural) areas

response time of American fire departments is lengthening, putting more Americans at risk.

The report affirms what new urbanists have known all along: Firefighters can quickly respond to emergencies in cities with narrow streets — the kind of streets that suburban fire chiefs often oppose. *The Globe* series shows that suburban sprawl poses a danger that is rarely acknowledged. "America's fire departments are giving fires a longer head start, arriving later each year, especially in the suburbs around Boston, Atlanta, and other cities, where growth is brisk but fire staffing has been cut," wrote correspondent Bill Dedman.

From 1986 to 2002, the proportion of professional fire departments that sent personnel to a fire within six minutes of receiving the alarm — which is the firefighting profession's goal — fell to 58 percent from 75 percent. Among volunteer departments, the record is much worse. In dense cities including Boston, Somerville, and Cambridge, however, the rate of response within six minutes is in the 97 to 99 percent range, *The Globe* reports.

A study in Raleigh, North Carolina, shows why fire response is slower and more costly in the suburbs. The city looked at two fire stations in historic areas with street grids and three stations in the emerging suburbs, presumably with wider streets. Even accounting for future development in the suburbs, the urban fire stations cover more than three times as many households (5,591 versus 1,767) within a 1.5 mile radius.

Despite the advantages of urban street networks, some fire officials have impeded compact development by demanding wide streets typically found in the suburbs. This strategy is counterproductive to overall public safety because it increases automobile injury and death, which is more common than fire injury and death. Meanwhile, there is no evidence that narrow streets — when coupled with an interconnected network of streets that provides multiple routes to a given location — impede emergency response.

See also, "Streets and fire trucks: designing for emergency response," on page 152.

Street networks and safety

A 2008 study of 24 California cities goes against the grain of conventional transportation safety thinking. Because a large share of accidents occur at intersections, engineers assumed that reducing the number of intersections would improve safety. But the study by Wesley Marshall and Norman Garrick of the University of Connecticut's Center for Transportation and Urban Planning shows that cities with high intersection density have one-third the traffic fatalities of cities with low intersection density.

Cities with high intersection density have older, more gridded street networks. They are safer because they slow traffic and disperse it, giving drivers more choice of routes. Just as importantly, they encourage people to drive less and walk more. Because streets have to carry less traffic, they can be designed to be narrower and more human scale. For a city of 100,000 people, the research shows that *seven fewer people die every year* in cities with highly interconnected street networks.

On-street parking

Fehr & Peers, a Lafayette, California-based firm active in context-sensitive design, has found that when on-street parking density rises, speeds diminish, which enhances safety.

Further evidence that conventional standards don't improve safety

"The state with the highest highway fatality rate (per capita) is Wyoming, where most of the highways are rural, straight, wide, and built within the last 50 years," according to Michael Ronkin of Designing Streets for Pedestrians. "The state with the lowest highway fatality rate (per capita) is Massachusetts, where more of the highways are urban, twisty, narrow, and built over the last 300 years or so."

CONTEXT-SENSITIVE VERSUS CONTEXT-DETERMINED DESIGN

The concept of "context-sensitive design," especially for thoroughfares running through the center of communities, took hold among the traffic planners and engineers in the first decade of the new millennium. Transportation experts differ on precisely what is meant by "context-sensitive design." One of the more careful efforts at explaining it is made by Reid Ewing and Michael King in the Voorhees Transportation Policy Institute's 2002 report for the New Jersey Department of Transportation, "Flexible Design of New Jersey's Main Streets."

Ewing and King write that context-sensitive design applies to "all highways and streets whose adjacent land uses require accommodation of pedestrians and bicyclists, serious consideration of street aesthetics, and a degree of traffic calming." They explain that context-sensitive design applies not only to traditional shopping streets but also to "approaches to those streets, other commercial streets with small building setbacks, main roads with fronting residences, and other highways directly impacting people's living environments." It can be used to design new streets and roads and to modify existing roadways so that they "function more like main streets" than like singleminded traffic arteries.

Tallahassee-based transportation engineer Rick Hall of Hall Planning & Engineering regards contextsensitive design as a step in the right direction but not sufficient. "It must evolve," he says, "into context-determined design." Only then will there be a guarantee of an all-out commitment to producing great places. As Hall puts it, "Sensitivity is not enough." He believes that in an urban context, communities pursuing a vision of walkability must define street types that serve pedestrian mobility first and vehicle mobility second.

CLASSIFICATION BASED ON THE TRANSECT

The American Association of Highway and Transportation Officials (AASHTO) publication, *A Policy on Geometric Design of Highways and Streets*, commonly called the Green Book, is the primary guide for roadway design in the United States, according to Rick Hall. The Green Book defines the function of three roadway categories: arterial, collector, and local streets. Arterials are designed for vehicular mobility; collectors are designed for a combination of vehicular mobility and land access; local streets are primarily for land access. Hall says that three key factors explain the conflicts between the Green Book policies and walkable, new urban design: 1. Functional classification is based on motor vehicle mobility. 2. Mobility is defined based on high vehicle speed. 3. Pedestrian comfort and safety require low vehicle speed. Arterials, with their heavy emphasis on vehicular mobility, are inherently hostile to pedestrians. Land access to arterials is in high demand from private-sector commercial interests, but this access is jealously guarded against to maintain high vehicular mobility, Hall says. Restriction of access contributes to the lack of street connectivity. Collectors, with their dual purpose of vehicle mobility and land access, incorporate some of the design aspects of arterials that don't work well for pedestrians (e.g., excessive width and relatively high design speed). Local streets are not inherently bad for pedestrians, yet their emphasis solely on land access means that other goals — such as walkability - are neglected.

Hall, Swift, and transportation engineer Rick Chellman favor defining the context by using the Transect developed by Andres Duany. The Transect categorizes land development patterns into six zones ranging from most rural to most urban. New urbanist transportation specialists contend that street and roadway design should fit the characteristics of each Transect zone. That approach would provide a sound framework — a standard that Hall, Swift, and Chellman see as more useful than a potentially



This table classifies thoroughfares based on the Transect. Courtesy of Rick Hall.

Facility Type	T1 Rural Preserve	T2 Rural Reserve	T3 Sub-Urban	T4 General Urban	T5 Urban Center	T6 Urban Core	D Special Distric
Interstate Highway							
Parkway				28			0.00
Boulevard				- 3	1 (i		
Avenue							
Main Street							
Street							
Yield Street							
Couplet							
Road							
Lane	9 						
Alley							

vague "sensitivity" to "context."

Thoroughfares based on the Transect include a variety of residential streets, lanes, avenues, main streets, drives, and boulevards (see examples on pages 157-168). Most of these streets are designed to accommodate pedestrian movement first and then vehicular movement in such a way that does not inhibit walkability. Some pedestrian-friendly streets, namely boulevards, are designed to accommodate longer vehicle trips, and thus would serve the function of arterials in the urban context zones, Hall explains. "Boulevards would be assigned an equal functional priority between pedestrian and vehicle mobility," he says. The center lanes of a boulevard allow for highspeed vehicle movement, while the local-access lanes would be for slow-moving traffic. Certain versions of main streets and avenues with four lanes of traffic also can move a fair amount of vehicles while remaining pedestrian-friendly. Most streets in primarily residential context zones T3 and T4 would be designed for low- to moderate-speed traffic. Yield streets, where infrequent traffic must yield to oncoming vehicles, are ideal for this purpose.

NOMENCLATURE

The use of common terms like "arterial" and "collector" by traffic engineers encourages thinking of these thoroughfares as conduits for automobiles, according to some new urbanists. Many new urbanists therefore favor historically rooted terms like

Visualizing the transformation of a street

Using computer image technology is one way to show how desolate streetscapes can be transformed. The series of images at right is by Steve Price of Urban Advantage. The images, starting from the top, show the concept of a "road diet" whereby the quantity of pavement dedicated to automobiles shrinks, but everything else associated with a more balanced streetscape is developed — including landscaping, sidewalks, crosswalks, traffic-calming features, civic art, and adjacent buildings that define the space.

Note how a completely automobile-dominated corridor becomes a center of urban life. A survey in Seattle demonstrates that road diets often result in higher traffic capacity with significantly reduced collisions.





"avenue," "boulevard," "main street," and "drive." These terms still carry design connotations that encourage planners and engineers to think of thoroughfares as mixed-use facilities serving pedestrians, bicyclists, transit users, cars, trucks, and the occupants of buildings that front these streets.

WIDTH-TO-HEIGHT RATIO

The width-to-height ratio of a street to the adjacent buildings is important in determining the character of the thoroughfare. The lower the ratio, the more urban the street. Anything under 1:1 is intensely urban. 1.5:1 is very good, according to Rick Hall. 3:1 is okay, Hall says. Anything higher than that usually needs some remediation — such as the planting of trees — to narrow down the perceived width, he explains. In sprawl, you may see widthto-height ratios of as high as 17:1 or 22:1 with opposing power centers. With such ratios, "you can almost see the curvature of the Earth," Hall says dryly.

NARROW STREETS ADD VALUE

In the Lowcountry of South Carolina there are great examples of developments with very narrow streets that not only feel great but have added value to development.

The residential streets in the developments called I'On, Newpoint, and Habersham generally range from 10 to 24 feet wide — most 18 to 22 feet wide — curb face to curb face. Those streets are even narrower than is the norm in TNDs — where residential streets average about 27 feet wide. This, in turn, is significantly narrower than the conventional subdivision standard of about 35 feet.

For creating charming residential streets, 30 feet is probably too wide, 24 to 27 feet is good, and 18 to 22 feet is excellent. With narrow two-way streets and intermittent parking on one or both sides, cars move very slowly and pedestrians feel comfortable and safe. The best thing about narrow streets from a development point of view is that they actually raise property values while costing less money to build.

The narrow-streets approach extends to entrances and mixed-use areas of the Lowcountry projects. The town centers of I'On and Habersham don't possess wasteful expanses of asphalt (I'On's commercial streets are 30 feet wide). Upon entering these projects, the immediate inclination is to drive slowly.



The narrow streets of I'On are community gathering places and spots for children to play.



DESIGN VERSUS TARGET SPEED

One of the mistakes made in conventional street design is to use a design speed that is in excess of the "target speed." Using that approach, if the plan is to limit traffic speed to 20 miles per hour in a residential area, the street would be designed to accommodate 25 miles per hour traffic. The flaw in that approach is that drivers will tend to drive at the design speed, rather than the posted speed limit. Increasing the design speed merely increases the speed of the traffic and this may reduce both safety and the quality of the built environment. "Design speed should closely match the street type, vehicle use, and the proposed speed limit," according to the North Carolina DOT's Traditional Neighborhood Development Street Design Guidelines. The majority of street types recommended in this document are "streets" and "lanes," which provide direct access to housing and which have a desired upper limit of actual vehicle speeds of approximately 20 mph.

MAJOR THOROUGHFARES

Arterial roads — wide, high-speed thoroughfares often fronted by power centers and big box stores — are notoriously bad environments for pedestrians. Frequently regulated by state and county departments of transportation, major thoroughfares create barriers to walkability that are often insurmountable. This is especially true in suburban areas laid out after World War II, where arterial roads intersect every mile or two. Walkable neighborhoods can be built within these arterial roads, but once the major thoroughfare is reached, walkability ends.

In theory, there is no great difficulty in making arterial roads walkable. Models for high-capacity, walkable thoroughfares abound in traditional boulevards, avenues, big city streets, and even main streets. A high-capacity street that is walkable is more complicated to design than a residential street, but the same principles apply. The street must be designed holistically with lane width, curb return radii, landscaping and trees, building frontages and other factors all having an impact. Yet transforming the character of these thoroughfares has frequently proved impossible. Regulators and transportation officials have been most reluctant to give up conventional design approaches on arterials.

For that reason, the Congress for the New Urban-

ism collaborated with the Institute for Transportation Engineers (ITE) on a multiyear project to create a design manual for major thoroughfares.

Advocates for the New Urbanism had significant issues with drafts of the manual, *Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities.* Although drafts for this document showed design approaches light years ahead of those in the Green Book, there were complaints about lane widths and other elements that were still too wide and about proposed design speeds five miles an hour greater than target speeds.

FREEWAY REMOVAL AND REDEVELOPMENT

A growing number of cities are choosing to tear down or — when they are damaged by earthquakes or other disasters — not rebuild sections of freeways within cities. This represents a significant change of course from the Twentieth Century, one that has been advocated and applauded by new urbanists. The experience in Milwaukee, Portland (Oregon), and San Francisco shows that freeway removal can initiate huge real estate investment and bring back neighborhoods.

In Milwaukee, the removal of a highway spur called the Park East Freeway has initiated a building boom near downtown. The city expects at least \$250



The plan for Octavia Boulevard in San Francisco, above, is of a pedestrianfriendly major thoroughfare. The plan at right shows how avenues are designed differenly according to Transect zone.





Above and below: examples of major thoroughfares in section and plan. Above is an avenue through an urban center or core. Below is a boulevard in a general urban zone.



SECTIONS AND PLANS FROM THE VERANO COMMUNITY DESIGN BOOK, COURTESY GATEWAY PLANNING GROUP


The Park East Freeway in Milwaukee, above, prior to demolition. Below a vision for McKinley Avenue, which has replaced it.



million of investment, including residential, offices, retail, and mixed-use development, in the corridor consisting of approximately 28 traditional city blocks.

In Portland, the removal of a riverside highway spurred 500 residential units, 26,000 square feet of retail development, and 42,000 square feet of office space.

A multiway boulevard was completed in San Francisco in 2005, further aiding the revival of what had been a bedraggled portion of the Hayes Valley neighborhood southwest of downtown. The four-block thoroughfare, known as Octavia Boulevard, replaces a part of the Central Freeway that was damaged by the Loma Prieta earthquake in 1989. Allan B. Jacobs and Elizabeth Macdonald, two of the co-authors of *The Boulevard Book*, designed the new roadway with the staff of the city's Public Works Department.



Ocatavia Boulevard in San Francisco

The boulevard carries four lanes of through vehicles in its center, where a landscaped median separates the opposing directions of traffic. Two other landscaped medians, each lined with traditional-style streetlights, separate the center lanes from other pavement designated for slower-moving local traffic and curbside parking.

A couple of miles to the northeast of Octavia Boulevard, the removal of the Embarcadero Freeway (also damaged in the 1989 earthquake) and its replacement by the Embarcadero Boulevard have given the city's pedestrians much better access to a long stretch of San Francisco Bay and have spurred new investment along its perimeter.

REFORMING DEPARTMENTS OF TRANSPORTATION

State transportation departments are gradually endorsing "context-sensitive design," especially for thoroughfares running through centers of communities.

Rick Chellman, a new urbanist transportation specialist in Portsmouth, New Hampshire, has found "extremely varied conditions nationally," but he concludes, "Overall, state DOT's are very slow to respond to change." Carolyn Dudley, a landscape architect organizing context-sensitive design training for Caltrans, says transportation engineers tend to be "stuck on their geometric design standards because of concern about liability and about reducing traffic flow."

BALANCING THE NEEDS OF PEDESTRIANS AND DRIVERS

It used to be thought that the source of the problem lay in official manuals like AASHTO's Green Book. But upon closer inspection, it became clear that the Green Book and some of the other sources actually allowed engineers to make trade-offs among various objectives when designing roads. Once that fact sank in, new urbanists moved to a different question: Why were so few transportation engineers using the flexibility that was allowed?

Part of the answer, according to Chellman, is that most guidance for transportation engineers has consisted either of directions that are too terse to fully explain the issues, or of suggestions that are too vague to be useful. "It says 'use dimension X,' with no explanation," Chellman notes. "Or at the other extreme, it says, 'take into consideration the needs of pedestrians and bicyclists'," — guidance that isn't specific enough. Until transportation engineers have fairly precise standards on how to make streets and roads that take the needs of pedestrians and neighborhoods into account, many engineers will continue using standards that new urbanists object to, according to R. Marshall Elizer Jr., an engineer at Gresham Smith and Partners in Nashville.

ONE-WAY COUPLETS

One way to tame arterial road traffic has been proposed by new urbanist planner Peter Calthorpe: the one-way couplet. Calthorpe's idea is to divide arterials/collectors into two one-way roads as they enter new town centers, thereby making the thoroughfares half as wide. The character of the streets is further altered through on-street parking and placing buildings close to the sidewalk. Such a system has been put in place in San Elijo Town Center (see plan on page 36), and has drawn favorable reviews from new urbanists who have visited the site.

One-way roads also eliminate the need for turn lanes at intersections and for turn signals that halt the through traffic. Even with a reduced speed, motorists make their way through a town center faster than they traverse a four-lane road that has long waits at traffic lights, according to Calthorpe.

CHANGING ONE-WAY STREETS TO TWO-WAY

Although one-way streets are part of the new urbanist toolkit, they also increase traffic speed and have been objected to by new urbanists in many cities. Milwaukee has had success in converting streets from one-way to two-way traffic, as has St. Petersburg, Florida. In the Historic Old Northeast neighborhood in St. Petersburg, Eighth and Ninth Avenues were returned to two-way operation after decades of one-way traffic. Resident Kenneth A. Guckenberger told manager of neighborhood transportation Michael Frederick that "taking out the one-ways has really made people stop speeding and to some degree has discouraged cut-through commuters." Two years after the change, the streets where the conversion took place are "seeing lots of nice renovation and redevelopment activity," part of which, Guckenberger said, "can be attributed to taking the 'one-way' stigma off of the streets."

CRUCIAL CURB RETURN RADIUS

When one curbed street meets another, the curbs at the sides of each street are joined by a curved section of curb known as the "curb return." The radius of that curve, or curb return radius, is a crucial factor in determining whether a street is walkable. Excessive CRR allows traffic to take turns too fast, raising the design speed of streets to levels that are uncomfortable to pedestrians. Excessive curb return radii also dramatically increases the pedestrian crossing distance at intersections. Take a look at the table below, based on research by Rick Chellman for the Institute of Transportation Engineers. It shows how pedestrian crossing distance and time increase dramatically with

Sidewalk width	5	5	5	5	5	5	6	6	6	8
Planting buffer width	0	0	0	0	0	0	6	6	6	6
Curb return radius	5	10	15	20	25	30	15	25	30	25
Crossing distance added to street	1.3	6.8	13.4	20.6	28.2	36	2.5	11.6	17.2	10
Pedestrian crossing time added to street (seconds)	0.4	1.9	3.8	5.9	8.1	10.3	0.7	3.3	4.9	2.9

Effect of curb return radii on pedestrians

Source: Institute of Transportation Engineers, Traditional Neighborhood Development Street Design Guidelines



A corner with a 10-foot curb return radius in a new neighborhood, above. Granite pavers in East Beach in Norfolk, Virginia, at right, alleviate a curb return radius that is too large.

greater curb return radii.

Finally, a big curb return radius has a pronounced visual impact — it looks conventionally suburban in character. "In my opinion, curb radii down around 5 feet or less are required to make streets feel really great," says new urbanist developer Charles Brewer.

So what is the correct curb return radius for streets that are both pedestrian-friendly and functional for vehicles?

The SmartCode by Duany Plater-Zyberk & Co. gives a range: 5 to 20 feet CRR for thoroughfares in all urban context zones.

The curb return radius for all streets in New Town at St. Charles — a new urban community near St. Louis (see street sections on pages 157-168) — is 10 feet. Many attractive new urban neighborhoods have a 10 foot curb return radius, and they work fine. This is in line with the curb return in Manhattan, which is generally 10 feet. The Institute for Transportation Engineers says the curb return on most urban streets is 10 to 15 feet. The North Carolina DOT says 15 feet should be considered a maximum for TND streets.

Some officials may worry that a small curb return radius will mean that large vehicles cannot make the turn. That's rarely the case, and the reason is that vehicles don't start their turn at the curb. A sedan typically has a turning radius of 17-19 feet, and the largest city bus has a turning radius of 28 feet. When these vehicles start the turn 6 to 7 feet from the curb, they can generally easily make the turn even with a very small curb return radius. Even if larger vehicles have to cross the centerline, this is not usually a problem. ITE guidelines state that this is an "acceptable design



BY ROBERI SIEL

condition where situations of this sort will be an infrequent occurrence."

A final note on curb returns. If, in places, a large curb return radius is mandated or required, there is a way that new urbanists have found to compensate. Granite pavers can extend out from the curb at the corner (see image above) simulating the smaller CRR. These pavers should extend about an inch above the mortar that is holding them in place to create a pronounced rumble as cars pass over them. Trucks and cars can drive right over these pavers if necessary, but they slow down traffic. To pedestrians and drivers, the pavers send a distinct message — this is a "pedestrian" zone.

TRAFFIC CALMING

A well-designed street network will by its nature reduce travel speed and make the streets safer. However, new urbanist developers may occasionally choose to use additional traffic-calming measures. When local regulations force the developer to compromise on street width, traffic calming may be a tool to reduce the negative effects. Traffic calming is also useful in infill areas where streets have been widened excessively, especially in industrial districts where existing streets were built to carry heavy traffic.

The most basic traffic calming involves narrowing the street, and is accomplished by reducing the pavement width, adding parking to the street, or adding a median. Bulb-outs — the widening of the sidewalks or planter strips at the end or in the middle of a block — narrow a portion of the street and reduce the crossing distance for pedestrians. Also

Narrowing the Street



Stripe Lanes



Parking



Rebuild Street



Bulbout Midblock



Deflecting the Vehicle Path



Chicane



Modified Intersection



Knockdown



Roundabout



Traffic Circle

Sharing the Pavement



Centered Mid-Block Yield Point



Offset Yield Point



Intersection Yield Point



On-Street Parking One Side



On-Street Parking Both Sides

Some common traffic calming techniques





A bulbout is pictured at far left. At near left is a plan for an intersection hump — and below that a speed table.



known as intersection knockdowns, curb extensions, and chokers, bulbouts define parking lanes, slow traffic, and are relatively inexpensive (\$5,000 to \$20,000, according to an article in Environmental Building News). However, some new urbanists say bulbouts are an unnecessary expenditure that complicates stormwater flows, which tend to run along curbs. "To cut costs, eliminate bulbouts," says architect Mike Watkins, who points out that good traditional streets have no need of them. At intersections, tight curb radii complement the streetnarrowing. Another tactic is to make street appear narrower by changing the pavement material on the shoulder. Traffic is slowed in Seaside, Florida, where county highway 30-A runs right through the town center, by changing the pavement of the shoulders (see photo below). On-street parking is allowed. The highway has two 11-foot travel lanes - one in either direction — and that is constant. Yet the highway appears narrower in Seaside. Cars slow from 55 miles per hour to about 20 miles per hour and

In Seaside, the shoulders of 30A change to a sandy material that is used for parking. Pedestrians have an easy time crossing at designated points.



pedestrians cross much more easily.

Nearly as effective as changing the street width is the use of techniques that create the perception of a narrow street. Perceptions can be altered by placing buildings close to the street and by planting street trees that create an overhead canopy.

Other traffic calming techniques are also available. Deflecting the vehicle path will result in a shorter sight distance, which will lower the design speed of the road. A curved street or a traffic circle forces a driver to slow down and pay more attention to other vehicles. Raised intersections and "traffic tables" change the roadway elevation. Less intrusive than speed bumps, these last two devices slow traffic while allowing emergency vehicles to speed through. Changing the pavement surface reduces the comfortable driving speed, and sometimes more clearly defines parking lanes or crosswalks. Rough paving is employed to great effect in some charming older urban areas such as Charleston, South Carolina, and Chestnut Hill, Philadelphia. Regulatory controls include the standard stop signs, traffic signals, speed limits, and enforcement. See page 147 and this page for illustrations of traffic-calming devices.

COST

Are well-designed streets more costly? In some cases, but probably not overall. Consider the following: A July 2003 study, prepared for the Housing and Urban Development office of Policy Development and Research, reveals that narrow streets cost far less, according to the *Livable Places Update*, a newsletter of the Local Government Commission. Total costs for a 100-foot section of a 36-foot-wide street amount to almost \$40,000, compared with \$26,000 for a 24foot-wide street.

The developer of the New Longview TND in Lee's Summit, Kansas, had to build a section of boulevard to handle traffic from the development. "When we ran the construction numbers, the cost for this 1-mile stretch was \$1 million less than the high-speed arterial design, even with all the extra landscaping," says Kevin Klinkenberg of 180 Degrees Design Studio, the urban designer.

THE USE OF ROUNDABOUTS

"One of the most effective types of intersections that is context-sensitive in terms of non-motorist activity is the roundabout," says Peter Swift. Roundabouts should have a design speed "between 15 and 20 mph, maybe 23 mph absolute maximum," he notes. Low speeds allow individuals on foot to establish eye contact with drivers. They also make it possible for bicyclists to mix with motor vehicle traffic.

When intersections employ roundabouts instead of traffic signals, they can reduce the accident frequency and improve traffic flow by two levels of service, according to Swift.

A study by the Insurance Institute for Highway Safety showed that after roundabouts were installed at intersections:

- Auto accidents overall declined 39 percent.
- Accidents resulting in injuries fell 76 percent.

• Accidents resulting in death or incapacitating injury plunged 90 percent.

In a modern roundabout, entrances and exits are curved so that motorists must travel slowly — far different from the rotaries of decades ago, which typically allowed drivers to enter at 35 mph or faster. The modern roundabout typically should be about 100 feet across so that it can be designed to slow the entering traffic.

Other safety factors

"We use roundabouts often in both infill and greenfield design," says Swift. In many cases, roundabouts make it possible to slim a four- or five-lane signalized intersection into just two lanes plus a median or center turn lane, he notes. With fewer lanes, pedestrians have an easier time crossing the road.

Some designers express reservations. Mike Watkins, formerly of Duany Plater-Zyberk & Co., says a roundabout at the end of Main Street in Kentlands, a TND in Gaithersburg, Maryland, is a problem for pedestrians, especially the elderly, attempting to cross the busy Kentlands Boulevard. Watkins says one of



A roundabout in Gainesville, Florida, designed by Michael Wallwork

the virtues of a roundabout — its ability to keep traffic moving — is at odds with the needs of pedestrians who want to cross. In his view, a further disadvantage of roundabouts is that, "the crosswalk is pushed away from the intersection," creating travel paths that are inconvenient for pedestrians.

Swift says the problem at Kentlands, where the roundabout in question was designed by a local engineer, is an example of an entirely different phenomenon — roundabouts that have been "designed wrong." The Kentlands roundabout "was designed for relatively high-speed throughput," Swift says. In a correctly designed roundabout, pedestrians cross about 20 feet before vehicles enter the circle, Swift observes.



Roundabouts at a glance

• Should be about 100 feet in diameter.

• Designed to slow traffic to about 15 mph.

• Capacity is 2,500 to 2,800 vehicles per hour (vph) on streets with one lane in each direction; 3,500 to 4,000 vph on streets with two lanes in each direction; 5,800 vph on streets with three lanes in each direction.

• Capacity is 30 percent greater than signalized intersections.

• Result in 90 percent fewer accidents that cause incapacitating injury or death. *Sources: Dan Burden, Peter Swift*

SHARED SPACE

While new urbanists and others in the US have challenged many of the assumptions of traffic engineers, a European traffic engineer gained international recognition for taking this thinking a step farther. In Drachten and other small communities in northern Holland, Hans Monderman — who died in 2008 eliminated many of the customary elements of streets and roads, such as traffic lights, speed limit signs, and pavement markings. Thus, roads in some communities in the Friesland district of Holland have been getting rid of center stripes, bicycle lanes, and even the usual curbs and defined sidewalks.

The concept is called "shared space." The drivers and pedestrians operate more as equals, and therefore drivers become alert to clues on how to behave. They slow down and watch for pedestrians, at least in small towns. Monderman employed features such as trees, flowers, red brick paving stones, and fountains to discourage people from speeding. "Several early studies bear out his contention that shared spaces are safer," according to a report in *The New York Times*. A new street type, called a "woonerf," grew out of the European shared space concept and is now being used in many parts of the world.

Shared space is used in cities and towns on the west and east coasts of the US and in parts of new urban communities like New Town at St. Charles, Missouri, and South Main in Buena Vista, Colorado. Details include: street surfaces being raised to the same level as sidewalks; the elimination of curbs; and trees and vegetation extended into what used to be the domain of the automobile. See images on this page and the next.

STREET CONNECTIVITY

A rising number of local governments have requirements for street connectivity, according to a *Planning for Street Connectivity: Getting From Here to There*, a Planning Advisory Service Report. "The fundamental goals of connectivity requirements are to increase the numbers of connections and the directness of routes," the authors say. This does not require a uniform grid. Many communities intent on providing choices of movement allow curving streets, and "nearly all allow cul-de-sacs in certain situations," such as where steep hills stand in the way, the authors say. Dan Burden, a consultant on walkability and connectivity issues, advocates small blocks. "The best historic city patterns make



Shared space: A plan for a portion of a woonerf in the South Main development, above — dedicated parking is indicated by a "P;" landscaped areas are shaded diagonally. A Dutch woonerf is below and a shared space intersection in London is at right.







The alley above in Seabrook, Washington, is another example of shared space design. Note the plazas and landscaping that are part of the design, dubbed a "green alley."

use of mostly 400-by-200-foot blocks, with some flexibility in areas demanding an occasional set of blocks 100 to 200 feet longer," he explains. According to LEED-ND (LEED for Neighborhood Development) at least 150 intersections per square mile is required for a highly connected street network. See also "Street networks and safety" on page 138.

BEYOND THE CURB: EDGES ARE KEY

Streets are often thought of as the space between the curbs. Elements such as width, curb return radii, on-street parking, pavement materials, and degree of connectivity are vital to walkability. Just as important to walkability is what lies beyond the curb — in the street right-of-way. That includes landscaping, sidewalks, street furniture, and outdoor dining. The street is further defined by what is immediately beyond the right-of-way — the building frontage.

Dan Burden, a leading expert on walkability, says: "As a general rule, the width of the right-ofway of any street should be split 50/50 between walking and driving. The 50 percent of the physical space that serves pedestrians includes on-street parking buffers, tree lawns, and walkways. In the urban Transect model of new urbanist planning, residential streets with a healthy 60-foot right-of-way should have 15 feet on each side allocated as street edge. This leaves up to 30 feet for the curb-to-curb portion." The above rule is equally true of a wide commercial street, avenue, or boulevard, Burden says. A thoroughfare with a 120-foot right-of-way should ideally devote 60 feet to vehicles and 30 feet on both sides to pedestrians.

A good street edge should have a sense of **enclosure**, Burden says. That can be achieved through buildings, on-street parking, awnings, colonnades, terminating vistas, a wall, and even low ground cover or attractive fencing, screening walkways from nearby parking lots. Even rows of low-scale lamps and other furniture heighten the sense of enclosure, Burden says.

Another quality to a good street edge is **transparency** — which Burden describes as the ability to see and focus beyond the edges. "This arises when the edges frame and direct the eye to human activity inside of buildings, nearby courts, paseos, alleys, public squares, and scenes across or down the street," Burden explains. "Transparency is achieved with delib-



The street edge above includes trees, a bicycle rack, awnings and umbrellas, sidewalk dining, and shopfronts. It has enclosure, complexity, and transparency (a view into shops and out to the street). Below is a street edge in a residential neighborhood. The trees, on-street parking, and houses offer enclosure. The view of the porches adds to the pedestrian experience.



erate delicacy. The eye is guided gracefully to things that matter the most. The street feels enclosed and open at the same time."

Another quality is **human scale.** "Buildings designed to interest people traveling in higher-speed autos fail the pedestrians," Burden says. "Motorists should want to get out of their vehicles; they do so on streets possessing great edges."

Burden adds that a really good street edge is visually rich and complex. "A block or corridor benefits from a variety of trees, ground cover, buildings, color, texture, materials, and water — anything that offers visual treats that hold together at low speeds," he explains. "If a single building face dominates a block then only a rich street edge can save it. Designs should not feel too controlled. A relaxed, spontaneous, and fun design rewards pedestrians of all ages."

Streets and fire trucks: designing for emergency response

Mary Stalker, John Anderson, and Tom DiGiovanni

If you live in the West, your state has probably adopted what is called the "Western Fire Code." Elsewhere, you may encounter an equivalent code. The Western Fire Code says streets should have a minimum 20 ft. "clear" fire access way — meaning between parked cars, medians, or any other possible obstructions. The rationale is that firefighters must be able to execute the "cul-de-sac maneuver," which works as follows:

The first engine responding will get close to the fire, stop along the way to hook up hose to the nearest hydrant, and then drive the rest of the way to the fire, laying hose as it goes. The firefighters deploy their truck near the building, opening equipment cabinets along the side of the fire truck. The second fire truck responding follows the same route to the scene, hooks up to the same hydrant, and must now be able to pass the fully deployed truck already at the scene. The '20 ft. clear' guideline is intended to provide the necessary space for the second truck to pass the first truck.

There have been suggestions that the solution to the "skinny-streets-versus-big-fire-trucks" problem is simply to get fire departments to purchase smaller vehicles. As in many other areas of vehicle and construction technology, managers in the industry feel bigger *is* better, since the new, big trucks have all the latest and best features — one vehicle does it all (ladder and pump, etc.). To think this is going to change significantly any time soon is probably naive. And even if towns immedi-



The cul-de-sac maneuver

ately chose to switch to smaller vehicles, it would take years for most fleets to turn over, considering the sticker prices for new equipment. For all of these reasons, it seems that large fire apparatus will remain a characteristic of fire departments for many years to come. Therefore, other solutions must be sought.

Emergency response vs. traffic calming

Although fire departments generally exercise veto power over designs for narrow streets in planned developments so that they can carry out their "culde-sac maneuver," they are often not as successful in deterring residents' later demands that the streets be retrofitted through traffic calming. After years of occupancy, neighbors are often able to point to accidents, injuries, and near-tragedies that have occurred on these overly wide, fast streets.

Their case begins to look stronger than the case for getting the second fire truck to any location at the maximum speed. (In Seattle, a comprehensive traffic-calming strategy reduced accidents by 94 percent in the areas where it was implemented). So, over the protest of the fire department, street designers are being asked to install traffic-calming barriers. This unintentionally creates the final safety conflict. In many situations, the fire truck is the vehicle that emergency medical technicians (crosstrained firefighters) use to get to medical 911 calls. While driving a 40-ft.-long ladder truck to respond to medical emergencies may not require the "20 ft. clear," fast response time is critical to survival rates in medical response situations. Traffic-calming features such as speed bumps and stop signs greatly impact emergency response times. By contrast, streets that are designed for slow, safe everyday neighborhood circulation make such traffic-calming barriers unnecessary.

Solutions at the citywide scale

The most basic solutions to ensuring emergency response access without compromising traffic safety must be established at the citywide scale. Town planners and fire departments all have roles in this effort and must work together on overlapping issues.

1. The first role belongs to town planners overseeing the design and expansion of citywide **circulation networks.** A system of well-connected streets with a hierarchy of clear, main response routes is most critical to emergency response. With such networks, the exact conditions on the last block or so are not critical because there are multiple access-ways to any one location.

2. Within the interconnected network, planners and fire officials can **work together** to create, map, and ensure enforcement of well-established primary emergency response routes on free-flowing, unobstructed avenues and boulevards, especially along routes to hospitals. Whereas in a conventional street hierarchy system (made up of arterials, collectors, and residential streets), limited route options often force emergency vehicles to leave the arterial streets sooner, the opposite is often the case in a community that has an interconnected network of streets; the emergency crews can stay on the main routes longer because of the many options for approach. This gets them closer to the emergency location before they turn onto the slower, neighborhood streets.

3. Fire departments play an important role in the success of slow, safe, narrow street systems by locating fire stations on the edges of neighborhoods, ensuring the quickest access on what are appropriately the slowest streets. Fire officials should regularly review the main routes for safety issues and enforcement (sight lines, illegal double parking, delivery parking, etc.).

Solutions at the neighborhood scale

Just as at the city scale, an interconnected network of streets is very important to emergency response within the neighborhood. The fire truck maneuver described earlier makes sense if the fire is on a cul-de-sac or within a hierarchical street system. However, to fight a fire at a location on a connected street network, the first arriving fire company can assess the situation and direct the approach of the second company — e.g., from the opposite end of the block, using another fire hydrant — if it does not have room to pass the first truck. In fact, many fire departments have already adapted their operations to do just this in the pre-1940s neighborhoods. Our conversations with local fire officials have yielded several neighborhood design features, completely compatible with TND design, which in turn can be used to enhance fire and emergency response objectives. These include:

1. Intersection visibility: Small curb radii are workable, but street trees and other landscaping



In an interconnected street network, fire trucks have multiple access routes.

should be kept 20 feet from intersections. Also, the placement of bulbouts at intersections, which prevent parking within 30 to 40 feet of an intersection, will reassure the fire department that intersections will be free of obstructions.

2. Rear alleys: A staple of TND neighborhood design, the use of alleys may help persuade fire officials that offstreet parking has been adequately provided for, thereby reducing the need for obstructive on-street parking loads.

3. Shorter blocks: Hose lengths can extend up to 150'. Block lengths under 300' allow fire fighters to get to a location from either end of the block in the unlikely circumstance of a street blockage.

4. Long-term infrastructure vs. shorter-term practice: If the fire department still does not agree to narrower street design, propose a 26 ft. curb-to-curb design with one-sided parking to create the 20 ft. clearance required. Then, in the future, when attitudes change, the desired narrow street infrastructure is in place — just remove the "no parking" signs.

Conclusion

With these strategies of communication, consideration, and comprehensive design solutions, street design can accommodate all pieces of the public safety goal that have placed designers, developers, neighborhood residents, and emergency responders at odds. The key is to become an ally of your local fire officials in the important civic responsibility of protecting the public. Learn more about their needs and perspectives, and use design talent to bring about a solution in your community or project. And when certain fire departments continue to say, "No, we can and will insist on the wide streets because we save lives," TND designers and developers should continue to offer the response, "Slowing traffic can also save lives."

Tom DiGiovanni is president of New Urban Build-

ers in Chico, California. The late Mary Stalker was a planner with his firm. John Anderson is vice president of planning and design for New Urban Builders.

HOW TO PROMOTE BICYCLING

Among new urbanists, bicycling rarely gets the attention that walking and pedestrian-oriented development do. But if many more people could be enticed to use bicycles rather than cars, the effect on communities could be very beneficial.

It's no coincidence that Portland, Oregon, the US city with the highest proportion of people bicycling to work — 4 percent, or four times the national average - is also a city that treats pedestrians well. Cyclists and pedestrians desire many of the same things: calm traffic conditions, appealing streetscapes, and a convenient mix of uses. The more biking, the less automobile parking a locality needs.

Portland has installed "bicycle boxes" designed to make bikes more visible to motorists and reduce the likelihood that a vehicle turning right will inadvertently hit a cyclist. A bicycle box is a section of pavement marked with wide stripes, where cyclists can wait at stop lights, in front of the queue of waiting motor vehicles.

The striping of the bike box flows into the striping of the street's bike lane, thus making the bike waiting area more noticeable to motorists. The premise is that where bike boxes are installed, cyclists will be more visible and drivers will be less likely to make a right turn that knocks down an unnoticed cyclist. Motorists are prohibited from turning "right on red."

The city has also designated miles of "bike bou-

Detailed drawing of a bicycle box



COURTESY PORTLAND OFFICE OF TRANSPORTATION



A Portland street with one-way auto traffic but two-way bike travel

levards." These are local streets — generally traveled by fewer than 3,000 vehicles a day — that have been made safer for cyclists through a combination of traffic-calming, intersection treatments, and signs. They may use pinch points, choker entrances, and other devices to discourage non-local motor vehicle traffic. So far, 30 miles of bike boulevards have been established in Portland. They have also been installed in cities such as Berkeley, Palo Alto, and San Luis Obispo, California; Eugene, Oregon; and Vancouver, British Columbia.

John Pucher and Ralph Buehler of the Bloustein School of Planning and Public Policy at Rutgers University examined how three of the northern European countries with the highest rates of bicycling managed to get so many of their residents onto bikes. Pucher and Buehler contend that what's worked in Europe would produce significant results in North America — if governments take the necessary actions.

In the US, bikes are "rarely used for practical, everyday travel needs," Pucher and Buehler say; the principal reason is that cycling conditions here "are anything but safe, convenient, and attractive."

Lessons from Europe

Pucher and Buehler's observations appear in "Making Cycling Irresistible: Lessons from the Netherlands, Denmark, and Germany," in Transport Reviews. The authors point out that biking wasn't always pervasive in the three European countries they studied. Quite the contrary, from 1950 to 1975 the rate of biking in Europe plummeted, and in many European nations, such as Britain, it hasn't shot back up. But the Netherlands, Denmark, and Germany introduced policies, programs, and designs that ended up making cycling both safer and more common.

In the Netherlands, 27 percent of all trips (and 37 percent of trips shorter than 1.5 miles) are made by bike. Bicycling accounts for 18 percent of all trips in Denmark and 10 percent in Germany. By contrast only 2 percent of Canadians' trips are by bike, and the figure for the US is a pathetic 1 percent.

As measured by fatalities, biking is about onethird to one-fourth as dangerous in Germany or Denmark as in the US (See the graph at right). The Netherlands is less than one fifth as dangerous as the US. As a result, women ride bikes as often as men — something that's not true in the US, where biking is predominantly a young male (risk-taker's) activity.

Pucher and Buehler attribute the growth of bicycling in northern Europe to these factors:

• Establishment of separate cycling facilities along heavily traveled roads and at intersections. By 2004, Berlin offered 534 miles of completely separate bike paths, 37 miles of bike lanes on streets, 31 miles of bike lanes on sidewalks, and 62 miles of mixed-use pedestrian-bike paths. Berlin streets also offered 434 miles of combined bus-bike lanes.

"The bicycling networks in [European] cities include numerous off-street short cut connections for cyclists between streets and traversing city blocks to enable them to take the most direct possible route from origin to destination," Pucher and Buehler say. The result "is a complete, integrated system of bicycling routes that permit cyclists to cover almost any trip either on completely separate paths and lanes or on lightly traveled, traffic-calmed residential streets."

• Traffic-calming in most residential neighborhoods. Many cities have introduced alterations such as "road narrowing, raised intersections and crosswalks, traffic circles, extra curves and zigzag routes, speed humps, and artificial deadends created by midblock street closures," the authors say. "Cycling is almost always allowed in both directions on all such traffic-calmed streets, even when they are restricted to one-way travel for cars."

Cities such as Munster, Germany, have established "bicycle streets" — narrow streets where cyclists are given absolute priority. "Cars are usually permitted, but they are limited to 30 kilometers [19 mph] or less and must yield to cyclists."

• Ample bike parking. Local governments and public transit systems provide many bike parking facilities. Private developers and building owners are required by local ordinances to provide specified minimum levels of bike parking.



• Full integration of cycling with public transportation.

• Better signs and maps. "Many cities in the Netherlands, Denmark, and Germany have established a fully integrated system of directional signs for cyclists, color-coded to correspond to different types of bike routes," the authors report.

Intersections have been modified in many ways, including the following:

• Special bike lanes leading up to the intersection, with advance stop lines for cyclists, far ahead of waiting cars (similar to the Portland bike boxes).

• Advance green traffic signals for cyclists and extra green signal phases for cyclists at intersections with heavy cycling volumes.

• Turn restrictions for cars, while all turns are allowed for cyclists.

• Highly visible, distinctively colored bike lane crossings at intersections.

• Special cyclist-activated traffic lights.

• Timing of traffic lights to provide a "green wave" for cyclists instead of for cars.

• Insertion of traffic islands and bollards in the roadway to sharpen the turning radius of cars.

American advances

The US is ahead of Europe in at least one respect: 50,000 buses here have been equipped with racks to carry bicycles.

Pucher and Buehler say that of the largest 50 cit-

ies in the US, Portland is a model, having more than tripled the annual number of bike trips since 1991. Portland has done this chiefly by expanding the bikeway network, increasing bike parking, and integrating cycling with bus and rail systems.

BICYCLE FACILITY PLANNING

Dan Burden, partner and senior urban designer with Glatting Jackson Kercher Anglin, who has traveled the world advising cities and towns how to make streets safer and more appealing to those who are not in cars, put together the photos and descriptions below of bicycle facilities on various types of thoroughfares. Streets that are sufficiently calm with relatively low traffic volumes do not need special bicycle accommodations, but other thoroughfares benefit from such facilities.



Quiet Roads — historic roads are narrow and rustic, and are ideal for relaxed bicycling. If volumes remain low, no treatment is needed. As volumes increase, trails or shoulders become important.



Rural Primaries — homes are lightly clustered in low density. Traffic increases call for added treatments.



Local Streets — Children learn to ride bicycles on sidewalks and streets that are quiet. Adults use streets for greatest visibility. Streets are designed to keep speeds in the 15-20 mph range.



Avenues (Neighborhood) — Streets may have 2,000-15,000 vehicles per day. Bike lanes are vital to maximize both bicycling and to create added buffers for walking.



Avenues (Commercial). Traffic volumes range from 4,000 to 21,000 per day. Significant driveways making sidewalk bike riding risky. Bike lanes are critical.



Boulevards — Multiple-lane roads call for bike lanes. Volumes of 15,000 to 60,000 cars per day possible. On-street parking calls for wider bike lanes. (7 feet is preferred.)



Parkways — This special-use street limits property access. Bicycling can include paved shoulders, but separate trails are functional due to low crossover potential.



Special Districts — along canals, railroads, lakes, bays, oceans, and large parks or preserves. Traffic volumes 2,000 to 30,000 per day.

STREET SECTIONS

A full set of thoroughfare sections developed for New Town at St. Charles, Missouri, by Duany Plater-Zyberk & Company is presented on pages 157-168. The sections are based on the SmartCode and new urbanist principles, and include residential and commercial streets, alleys, avenues, drives, and passages. Where available, photographs and captions accompany the sections. Courtesy of Whittaker Homes.



Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Tree Type
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Туре

34'
Two ways
7' both sides
Raised
10'
5' x 5' planters on both sides
Individual
Allee 30' o.c.
TBD
TBD
TBD
Bike route
N/A
Both sides
10'

157

Bike route N/A Both sides 5'







STREET ST-54-30

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Tree Type
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Commercial Street
Slow
20 MPH
58'
34'
Two ways
7' one side
Raised
10'
5' x 5' planters on one side
Individual
Allee 30' o.c. average
TBD
TBD
TBD
Bike route
N/A
Both sides

Street
Slow
20 MPH
54'
30'
Two ways
7' both sides
Raised
10'
6' both sides
Continuous
Allee 30' o.c.
TBD
TBD
TBD
Bike route
N/A
Both sides
5'



This is the main street for the first neighborhood center in New Town.



STREET ST-50-26

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Tree Type
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Street
Yield
20 MPH
50'
26'
Two ways
7' both sides
Raised
10'
6' both sides
Continuous
Allee 30' o.c.
TBD
TBD
TBD
Bike route
N/A
Both sides
5'



STREET ST-50-25



This is the most common residential street in New Town. Traffic moves very slowly and the streets are quiet and safe.



Another residential street with one-sided parking. Traffic moves a little more freely, but speeds are still slow. The deflection in the streets helps to slow traffic.



SQUARE SQ-52-32

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Tree Type
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Residential Square Drive
Slow
20 MPH
52'
32'
Two Ways
7' both sides
Raised
10'
6' / 8' water side
Continuous
Double allee 30' o.c.
TBD
TBD
TBD
Bike route
N/A
One Side
5'



SQUARE SQ-45-25

Residential Square Drive
Slow
20 MPH
45'
25'
Two Ways
7' one side
Raised
10'
7' both sides
Continuous
Double allee 30' o.c.
TBD
TBD
TBD
Bike route
N/A
One side
5'



DRIVE DR-52-32

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Tree Type
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Drive
Slow
20 MPH
52'
32'
Two Ways
7' both sides
Raised
10'
6' / 8' water side
Continuous
Double allee 30' o.c.
TBD
TBD
TBD
Bike route
N/A
Both sides
5'



DRIVE DR-45-25

Drive
Slow
20 MPH
45'
25'
Two Ways
7' one side
Raised
10'
6' / 8' water side
Continuous
Double allee 30' o.c.
TBD
TBD
TBD
Bike route
N/A
One side
5'



A two-way drive that borders on a waterway





AVENUE AV-40-18

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Tree Type
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Avenue
Free
25 MPH
110'
18' (southbound) and 18' (northbound)
One-way lane each side
7' (2 lanes total)
Raised
10'
7' both sides
Continuous
Double allee 30' o.c. average
TBD
TBD
TBD
Bike route
N/A
Both sides
5'/ 5'

AV-110-18-18

Avenue
Free
25 MPH
40'
18'
One-way
7' (one side)
Raised
10'
7' / 10' Water side
Continuous
Double allee 30' o.c. average
TBD
TBD
TBD
Bike route
N/A
One side
5'



At the time of this photograph, this avenue had not yet been built out with housing on both sides.



30 BERI

This avenue runs on both sides of a canal. Each side is one way.

162





URBAN STREET US-80-49

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Тгее Туре
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Commercial Street
Free
25 MPH
80'
49'
Two ways
7' one side, 20' other side
Raised
10'
5' x 5' planters on one side
Individual
Allee 30' o.c.
TBD
TBD
TBD
Bike route
N/A
Both sides
22' one side, 9' other side

DRIVE	
DR-45-26	

Residential Drive
Yield
20 MPH
45'
26'
One way
7' both sides
Raised
10'
7' both sides
Continuous
Double allee 30' o.c.
TBD
TBD
TBD
Bike Route
N/A
One side
5'



STREET ST-44-20

Туре	
Movement	
Design Speed	
R.O.W. Width	
Pavement Width	
Traffic Flow	
Number of Parking Lanes	
Curb Type	
Curb Radius	
Planter Width	
Planter Type	
Planting Pattern	
Тгее Туре	
Street Light Type	
Street Light Spacing	
Bike Way Type	
Bike Way Width	
Sidewalks	
Sidewalk Width	

Street
Slow
20 MPH
44'
20'
Two ways
None
Raised
10'
5' x 5' planters on both sides
Continuous
Double allee 30' o.c.
TBD
TBD
TBD
Bike Route
N/A
Both sides
12'



PEDESTRIAN PATH PT-V-6





PEDESTRIAN PATH PT-V-4

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Tree Type
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Pedestrian Path
Pedestrian only
N/A
varies
N/A
varies
N/A
N/A
TBD
TBD
TBD
None
N/A
One Centered
4'

PEDESTRIAN PASSAGE PP-6-0

Pedestrian Passage
Pedestrian Only
N/A
6'
N/A
None
N/A
N/A
N/A
None
N/A
None
N/A
One
6'



A mid-block pedestrian path between courtyard houses. Note how the passage lines up with the door in the house across the street.



A mid-block pedestrian passage between single-family houses



ALLEY AL-24-20

	-	24'	_	
_	6'	12'	6'	3' BLDG.
I				
Ì				i I
	i i			
	/			

LANE LA-24-12

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Тгее Туре
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Commercial Alley
Yield
15 MPH
24'
20'
Two Ways
None
None
6' angled
2' both sides - non-paved material or turf-block acceptable
continuous
N/A
N/A
None
N/A
Bike route
N/A
None
N/A

Residential Alley
Yield
15 MPH
24'
12'
Two Ways
None
None
11' angled
6' Both Sides
Continuous
N/A
N/A
None
N/A
Bike route
N/A
None
Ν/Δ



A residential alley on trash collection day. Note how the alley is deflected. This is a technique used all over New Town that reduces lengthy views down these service thoroughfares.





DRIVE DR-58-34

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Tree Type
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Drive
Slow
20 MPH
58'
34'
Two ways
None
Raised
10'
6' both sides
Continuous
Double allee 30' o.c. average
TBD
TBD
TBD
Bike Route
N/A
Both sides
6'

DRIVE DR-58-34A

Drive
Slow
20 MPH
58'
34'
Two ways
7' both sides
Raised
10'
5'x5' planter both sides
Individual
Allee 30' o.c average
TBD
TBD
TBD
Bike route
N/A
Both sides
12'



STREET ST-56-32

18' 7'	20'	7 12	BULKHEAD or EMBANKMENT
	 	P	
	 	Ð	
	i I I		
	I	R	

64'

t

DRIVE DR-64-34

Туре
Movement
Design Speed
R.O.W. Width
Pavement Width
Traffic Flow
Number of Parking Lanes
Curb Type
Curb Radius
Planter Width
Planter Type
Planting Pattern
Тгее Туре
Street Light Type
Street Light Spacing
Bike Way Type
Bike Way Width
Sidewalks
Sidewalk Width

Street
Yield
20 MPH
56'
32'
Тwo way
7' both sides
Raised
10'
6' both sides
Continuous
Double allee 30' o.c. average
TBD
TBD
TBD
Bike Route
N/A
One side
5'

Drive
Slow
20 MPH
64'
34'
Two ways
7' both sides
Raised
10'
5'x5' planter both sides
Individual
Double allee 30' o.c average
TBD
TBD
TBD
Bike route
N/A
Both sides
18' one side, 12' other side



Civic Buildings and Spaces

Civic buildings and spaces			
Civic spaces			
Public space in Verano			
Places for play			
Mid-block public spaces			
Fun with civic amenities			
Dog parks			

Principles of school design
Getting the location right
A small footprint is better
Urbanizing the entrance
Better forms for temporary
classrooms
New urban school prototype

Bringing the post office	
downtown	180
Religious buildings	181
Ballparks as focal points	182

Above: A town hall and a building where citizens pick up their mail — along with a small grocery store — frame a plaza in the center of New Town at St. Charles, Missouri. Photo by Robert Steuteville

Civic buildings and spaces

Civic institutions such as schools, post offices, town halls, libraries, and community buildings play a crucial role in neighborhoods and communities. Churches and other religious structures are not civic in the strict sense of the word, but they, too, serve communal functions, and New Urbanism recognizes this by taking a similar planning approach to them.

Treatment of civic buildings is a key difference between new urbanists and those who build conventional projects. Developers of conventional residential developments generally don't provide sites for civic buildings, under the assumption that such uses will be placed at auto-oriented locations outside the project. In new urban developments, on the other hand, civic institutions are understood to be an integral part of the community. Civic buildings receive the most dignified sites — usually on an important green, plaza, or square, at a key main street intersection, and/or terminating a significant axis. The designers avoid placing parking lots in front of the buildings.

This approach follows the precedent of pre-World War II cities and towns, to which new urbanists have looked for inspiration. The courthouse square, the school at the center of town, the library on Main Street, the town hall concluding an important view — all these have influenced new urbanists. Often traditional planning is accompanied by traditional architecture, but not always. Some civic facilities in new urban communities are modern in design, and others interpret traditional design ideas in new ways. Architectural control is usually exerted more lightly on civic buildings than on commercial or residential buildings, offering the civic structures' designers substantial freedom. (This principle is upheld by the SmartCode and other new urban codes.)

Civic buildings help create community. Libraries and post offices are anchors for town centers, bringing in people who add to the liveliness and commercial viability of the main street. Neighborhood schools contribute a vital dimension to neighborhoods while boosting the marketability of projects. In some instances, civic buildings add a critical dimension to a mostly commercial project. Such is the case with the renovated church at the center of CityPlace, a new urban center in West Palm Beach, Florida. The old Spanish Revival building — catty-corner to Macy's at the heart of the project — is now used as a cultural arts center and provides an architectural exclamation point to the central plaza (see photo on next page).

New urbanists have been largely successful in

A church beautifully terminates the vista of a street in the Waters in Montgomery, Alabama. The placement of the church on a small hill elevates it, both literally and figuratively, above the surrounding houses.



A renovated church — now an arts center — adds a civic element to CityPlace, a mixed-use town center in West Palm Beach that is focused otherwise on retail and entertainment.

providing civic uses for residents. In fact, the reintroduction of civic buildings into new neighborhoods has been one of the movement's most noteworthy initiatives. Few places have done better at this than Fairview Village. This new urban community, in Fairview, Oregon, east of Portland, includes an elementary school, a post office, and a city hall. The latter two are full-fledged, functioning civic buildings, built close to the street according to urban design standards. (The school is more conventional, yet it is connected to the project via a pedestrian bridge over a creek.)

The most recent civic building in Fairview is a 4,000 sq. ft. county library with four apartments built above. The building is one the few libraries with residential overhead that have been built in the US in the last half century (though interest in such combinations has been growing in recent years). The developers, Holt & Everhart, worked out a long-term lease with Multnomah County because the government did not want to own a building with residential tenants.

Southlake Town Square, a new urban development in Southlake, Texas, likewise has been highly successful in bringing civic uses to the town center. The most prominent such presence is a large town hall which dominates the main square. The building houses city council chambers, a justice of the peace, a public library, several county offices, and a county court. Another building in the heart of the community is a 22,000 sq. ft., full-service post office and mail distribution center, pulled up to the street in the manner of a traditional small-town post office.

"The citizens of Southlake were obviously attracted to the idea of having an impressive - even imposing - building that would represent a collective expression of the community as a whole," says Charles Bohl of the University of Miami, author of Place Making. "Americans are likely to respond to buildings like the Southlake Town Hall as an embodiment of representative government that serves the people and that is now more visible and accessible - as compared with the anonymity of off-ramp government offices that we only visit when we need a new dog license or to appeal a traffic ticket."

In some cases, developers have had to be quite creative to introduce a civic dimension. Developer/architect Bob Kramer of Haile Village Center built a town hall that is rented out for weddings at a rate of \$750 for four hours and \$250 for each additional hour. The building cost \$100 a square foot to build in 1999, making it the most expensive in the project, primarily because of the commercial utility systems, high ceilings, and a signature tower. It is also rented for business meetings, is used by a church, and is turning a profit.

Another approach is to design the community center — an amenity common in master-planned developments — as a civic building. In Longleaf, a traditional neighborhood development in New Port Richey, Florida, a focal point of social activity is the town hall, which is a community building with a pool and other amenities designed to look like and function as a civic building. A similar approach was taken in Baldwin Park in Orlando, Florida, and Celebration, where the golf clubhouse was built to terminate the vista of an important avenue, Water Street. The

The city hall in Fairview Village is placed at an angle to terminate the view of an important street. The large window on the second floor is intended to let citizens know when their representatives are meeting at night.





The community building in Baldwin Park

clubhouse is the site of meetings and special events, and its location lends the venue prominence.

CIVIC SPACES

New urban development emphasizes the importance of greens, squares, commons, plazas, and other civic spaces. Such spaces play a strong aesthetic role in a community. Some civic spaces function primarily as community ornaments, enhancing the appeal and value of the streets, buildings, and everything else around them. Most civic spaces, however, are designed not just to be looked at but to be used.

New urbanists have borrowed from numerous historic American examples — such as the greens and commons in New England towns, the squares in James Oglethorpe's plan of Savannah, Georgia, and the Spanish squares in the Southwest — and from those in other parts of the world, especially Europe. Most civic spaces feel better and attract more use if they offer some degree of enclosure. The "walls" of a civic space are often the facades of the surrounding buildings. As a general rule, the walls must be in proportion to the distance across at ground level. Thus, a large civic space will usually have tall buildings along its perimeter, whereas a smaller, more intimate outdoor area can be adequately defined by walls just one or two stories high.

Reacting against the excessively irregular or curvilinear layouts that proliferated during Modernism's heyday, many new urbanists have gravitated toward regularity in shaping civic spaces. Rarely can you create an effective outdoor "room" unless you give it edges that are consistent enough to be read as walls. However, there is a considerable range in new urban civic spaces. Some are more irregular than others. The



A rendering of a neighborhood green in Mashpee Commons

aim is to produce distinctive gathering places that feel pleasing to inhabit.

Squares, by Mark C. Childs at the University of New Mexico, identifies five principal kinds of civic rooms or chambers, which he calls squares, civic coves, forecourts, courtyards, and civic lots. A civic cove is a small, sometimes tenuously enclosed and defined civic room, such as the space formed by bus shelters and the sidewalks connected to them. (A civic lot is a place not purposely designed to serve as

A plaza in Reston Town Center is a community gathering spot





Various types of public squares identified by Mark Childs in his book *Squares*, published by the University of New Mexico Press.

a commons but that has nonetheless been used that way, such as a high school parking lot; usually it is beyond the realm of New Urbanism.)

Childs says a civic space generally has a center and a "frame." The frame is "the first place people sit, hang out, eat, and watch the activities in the central field," he says. At Pioneer Courthouse Square in Portland, Oregon, a free-standing line of columns defines the Square's inner edge and gives the Square more intimate proportions. Making a civic space is not simply a matter of providing an open space with regular walls; many subtleties are involved. Sometimes a space is defined not by built structures but rather by vegetation. By heeding such insights, designers can create spaces that live up to the goal of conviviality.

The challenges grew more difficult in the aftermath of the 1995 Oklahoma City bombing and the attacks of 9/11. Some simpleminded government rules require that public buildings be placed far back from the streets, to ward off threats or reduce damage. Unfortunately, this kind of response often produces open spaces so large and undefined that nobody wants to be in them. Security is desirable, but civilization is valuable as well. Firms such as Rogers Marvel Architects and Rock Twelve Security Architecture in New York have devised elements that serve as barriers without detracting from the urbanistic qualities of a space. There are forms of seating, planters, curbs, and pavement that can enhance security and civic spaces simultaneously. It is incumbent upon designers to create effective civic spaces no matter how risky the times.

PUBLIC SPACE IN VERANO

The wide variety of civic spaces in Verano, a large new urban development in San Antonio, Texas, is not unusual for New Urbanism but represents a significant change from conventional development.

Verano's Central Park Neighborhood includes civic spaces suitable for the downtown core



The types include plazas, squares, greens of various kinds, pocket parks, linear parks, and naturalistic corridors. Although these open spaces are derived from traditional types, there is a much greater number than one would find in the typical historic city neighborhood in the US, most of which were laid out in a grid that ignored landscape features. Unlike historic cities prior to World War II, the New Urbanism has to compete directly with suburbia. Contemporary buyers have higher expectations for greenery — and the designers of Verano respond to that expectation.

Note that open space types are geared to the Transect. "In general, open spaces transit from informal to formal across Transect zones, both in patterns, plantings, and paving," according to the Verano Community Design Book. The Central Park Neighborhood (see plan on previous page) is urban, dense, and heavily mixed-use, and that character is reflected in the civic spaces. The Transit Station Plaza and the five-sided primary square will be heavily used and surrounded by mixed-use buildings. The square will have an amphitheater and public art, and the plaza will feature public art and kiosks. Everything about these spaces will say "downtown." All residents of Verano as well as citizens from far and wide will use these spaces. The plaza and square will be built with a lot of hardscape material to withstand the heavy foot traffic. There is less space devoted to greenery in this neighborhood — the lively downtown environment will compensate for that lack.

The Sulphur Springs Neighborhood, by contrast, is mostly residential (see plan below). This neighborhood has more civic spaces - including many pocket parks and playgrounds — focused on the immediate community. At least one civic space is located within a two-minute walk of every residence. Numerous greens are on display here, some attached, some unattached, and some located in the middle of blocks. The greens feature a blend of natural and rural characteristics. At least three parks include community gardens. A riparian park running through this neighborhood provides paths and bikeways that will connect several neighborhoods in Verano.

PLACES FOR PLAY

As important as governmental, educational, and religious functions are, it's just as important to design places for children and adults to engage in informal recreation. Small playgrounds are important elements of public spaces in new urban developments — some designers believe that every house should be within a two-minute walk from a playground. Small parks, if designed right, can also be favorite spots for pickup games, such as the trian-



Verano's Sulphur Springs Neighborhood has a great variety of parks oriented towards the needs of the neighborhood.



At top is a plan for a small green in Doe Mill that has become a favorite place for whiffleball games as in the photo above. Below, a small playground and bench in a neighborhood park in Celebration, Florida.



gular green in Doe Mill in Chico, California, that is known, informally, as the "whiffleball park." (See plan and photo at left).

MID-BLOCK PUBLIC SPACES

While planners often associate New Urbanism with greens and squares and plazas that are bounded by streets, a whole family of civic spaces are contained within the block itself. These include green courts, courtyards, mid-block greens, and rambles (natural areas bounded by alleys). Mid-block civic spaces have a semi-private feel, belonging more to the households that live on the block than to the community at large. They are safe places for children to play, because there is no need to cross a street to reach them (see plan and photo below).



Three mid-block civic spaces are shown in the plan above — a portion of the first neighborhood of The Waters in Montgomery, Alabama. Two on the right are completely bounded by alleys. The third, in the upper left of the plan and below, is a small green court framed by cottages on tiny lots.





The lake, fountain, cast-iron light fixtures, park, and chapel beyond offer a glimpse of the extensive civic infrastructure built by Whittaker Homes in New Town at St. Charles, Missouri.

FUN WITH CIVIC AMENITIES

Civic spaces are the great amenity offered by smart growth developments. They have to offset the perceived advantages of large lots and exclusivity offered by suburbia. So investment in civic spaces in new urban communities can be extensive. Yet developers also see substantial benefit from civic spaces and put much of their energy into creating them. It is not uncommon for new urban town centers to have public skating rinks, bocce and petangue courts, beach volleyball courts, even places to play croquet. Even something as mundane as a golf course or a bridge, if properly designed, can become a civic space. Once you get in the mindset, the possibilities are endless.

DOG PARKS

An amenity and social space that developers often forget to provide is a dog park. Dog parks are not just for canines; they're great gathering places for residents, who get to know one another and exchange information about the community while they're giving their dogs some exercise. Glenwood Park, a 28acre community in Atlanta, is one traditional neighborhood development that includes a dog park. The 50-by-140-foot facility contains a gazebo donated by a local dog care and boarding company.

It's best to position dog parks some distance from houses, so that barking won't annoy residents. At Glenwood Park, the dog park is situated adjacent to a community garden and is supervised by the Glenwood Park Community Association. Anyone using it must pay an initiation fee and an annual operational fee and must make sure the dog wears a membership



A small public space at New Town serves as a skating rink in winter, above, and a beach volleyball court, below, in summer. Adjacent to a pub, the site lures visitors from around the region.



tag and a rabies vaccination tag.

PRINCIPLES OF SCHOOL DESIGN

Schools, as essential elements of society, occupy an important place in urbanism. Over the past several decades, schools, particularly at the high school level, have increasingly separated themselves from the walkable parts of their communities. New urbanists are trying to remedy this - reintegrating the schools into the residential, commercial, and institutional fabric of towns and cities.

Some of the principles underlying this effort are evident in Stapleton, a 4,700-acre redevelopment in Denver spearheaded by Forest City Enterprises. Stapleton will eventually be home to about 30,000 people, including many thousands of school children, so the developer has partnered with public agencies and private organizations to create small public schools and charter schools. Michael Leccese, who was a consultant with Forest City, has identified the key ideas that Stapleton is trying to apply to educational facilities:

• All schools will be located no more than a halfmile from homes, with no busing required or expected for local school kids. Stapleton's grid, sidewalks, traffic calming, and greenways make it easy for kids to get to school under their own power.

• School sites are intended to be small. At Stapleton, this means 10 to 12 acres, which is more expansive than the sites commonly used in dense old cities but less sprawling than those in many suburban districts across America. The goal is to avoid having the schools surrounded by huge parking lots and vast areas of lawn, which impede walkability.

• Consistent with the small schools movement, Stapleton favors neighborhood schools that contain no more than 500 students, a size that generally offers children a better education. This contrasts with large regional schools, which contribute to sprawl by drawing from huge catchment areas and often by being located on exurban sites, attracting land-consuming development in their direction.

• To make small sites feasible without taking away space for sports, Denver Public Schools and the city's parks and recreation department cooperate in some instances to share adjacent spaces. Elementary and kindergarten-through-eighth-grade schools have their own playgrounds and fields, but the planned high school will use city park property for its playing fields, as was often the case in older towns and city neighborhoods. The sharing should allow the school to operate on a site considerably smaller than that of a typical high school, yet to have full track and playing fields.

• The schools that have been built so far are twostory, and the high school is also to be more than one story high.

• Schools function as community centers, providing everything from early childhood education to classes for seniors. Beyond their 9 a.m. to 3 p.m. primary uses, they are active places that residents can walk to.

Getting the location right

A fundamental question is where to put the The Seaside charter school, in the Lyceum near the center of town



The elementary school in Southern Village is two stories high - to take up less real estate, and it is located near the town center. Many students walk and bus expenditures are lower for this school, officials report.



school. It often makes sense to position a school, especially a high school, near a downtown or a town center. When the first permanent school in Celebration, Florida, was built in 1997, the 145,000 sq. ft. facility for 1,200 students was placed on a 36-acre campus near the downtown. It consisted of several buildings, for kindergarten through twelfth grade. The site may seem large for a "neighborhood" school, but the location made it possible for students — on bikes or on foot — to filter through Celebration's center, just as students have done for generations in old towns and cities. The school buildings are along the street, and their architecture articulates their civic importance.

Similarly, the Seaside Neighborhood School, one of the first charter schools in Florida, was placed at the center of Seaside, on a major public space called the Lyceum, which students use for physical education and other purposes, and where special events are held. The Seaside school opened in 1997 and occupies clapboard, two-story buildings that resemble historic New England meeting houses, albeit ones equipped with modern, handicapped-accessible bathrooms; large, flexible space classrooms; and high-speed Internet access. By modern suburban standards, the Seaside school is tiny, yet it has been very popular, attracting the maximum number of students allowed under its charter. The whole town is used as a classroom, with community members sometimes serving as volunteer faculty. Developer Robert Davis's garden has been the site of an ongoing multi-disciplinary project for the students, who draw plans, plant, tend, harvest, and keep a journal. The M&M Personal Training Center, a local business, is where students go to learn about fitness equipment and how the body functions.

The state of North Carolina requires that new elementary schools have a minimum of 12 acres, so when Bryan Properties developed Southern Village in Chapel Hill, Bryan donated six acres and the municipality provided an adjacent six acres, which had been slated for ball fields. The combination made it possible to build an elementary school near the town center. Because of the location, only four buses are needed — to transport students who live outside the community. All of the elementary students who live in Southern Village itself walk to the school, which has an enrollment of 450. According to district officials, a Chapel Hill school of this size would ordinarily use seven to eight buses. From the developer's perspective, the donation of six acres, valued at \$600,000, made sense because of the benefits of having a public school in the town center. It strengthened the center and it helped sell houses more quickly.

A small footprint is better

The smaller the school, the more easily it can be fitted it into a pedestrian-scale setting. Many new urban communities have Montessori schools or other privately run schools, which are subject to fewer bureaucratic requirements than public school systems. "Private schools in general provide a better opportunity to do something that fits in and is innovative," says Randy Vinson, planner and project manager for Clark's Grove, a 90-acre traditional neighborhood

The Walker Creek school





The Montessori school in Covington is a nice fit for the town green.

development in Covington, Georgia, where a school of just 13,000 sq. ft. has been built.

In East Beach, a 100-acre TND in Norfolk, Virginia, the Montessori school is even smaller — 3,500 sq. ft. accommodating 63 students. The East Beach school takes the form of a large house, and sits on a lot measuring about 8,000 sq. ft — less than a fifth of an acre. The East Beach facility is two stories, which further helps it to conserve on land. Many new urban communities have schools two stories high, and some are taller still, allowing them to avoid sprawling.

Urbanizing the entrance

Sometimes it's difficult to persuade suburban school officials to approve designs well-suited to their settings. Many school boards apply a prototype design to schools throughout their districts. One way of dealing with a prototype is illustrated by the Rachel Carson Elementary School, which opened its doors in 1990 in Kentlands, in Gaithersburg, Maryland, and was the first civic building in that 352-acre development.

Developer Joe Alfandre offered a site in Kentlands to the Montgomery County school district on the stipulation that he be permitted to pick the building design. School officials were unwilling to cede that degree of design control to a developer, so ultimately Alfandre was allowed only to modify a standard design. He paid Duany Plater-Zyberk & Company, the town planners and architects, to add a classical entrance, facing an important traffic circle. The semicircular bus drop-off mirrors the arc of the circle, which gives Rachel Carson the appearance of fronting directly on a street. Thanks to this relatively minor architectural alteration, the 800-student school functions as a civic landmark and is a fitting site for community activities. Children living in Kentlands can walk to school, because of the school's location



The entrance to Kentlands' Rachel Carson Elementary School

and the layout of the streets.

Bill Gietema, a builder in the Dallas-Fort Worth area, contends that it's important to "get the right prototypes," since many school districts are not willing to pay to custom-design each school.

Walker Creek Elementary School, in HomeTown, a 300-acre community that Gietema's Arcadia Realty Corp. developed in North Richland Hills, Texas, is one school that Gietema has influenced. Walker Creek is a two-story school that fits compactly into its setting — forming street walls that help define an important corner in HomeTown's mixed-use town center. "We wanted the school to be engaged with its environment — not sitting in the middle of an ill-defined site, behind parking lots or lawn," explains Mark Vander Voort of the Dallas-based architectural firm HKS, which designed the school. "It's an L-shaped building that sits right on its property line. That's hardly ever done; most suburban schools have a big pickup and drop-off area" in front.

Sidewalks in front of HomeTown's 700-student school are 15 feet wide, with street trees planted along them for shade. The streets are narrow — 22 to 24 feet wide, providing on-street parking for teachers, visitors, and others. (The 10-acre school property also contains a parking lot.) Although many children walk to the school, arrivals by vehicle also had to be accommodated, so Vander Voort designed a paved drop-off lane on the interior side of the school property. He calls it "the patio" because although cars and buses can drive on it when gates are opened, the gates are closed during much of the day, converting the pavement into a play area. "It also serves as a fire lane, which is required for all schools," he adds. Birdville Independent School District, which operates the school, nine miles northeast of downtown Fort Worth, has since had HKS apply the L-shaped "semiurban" building design concept to two other sites. "In one case, the school will be on a busy commercial street, and the new building will act as a buffer, protecting the backside," Vander Voort says.

Better forms for temporary classrooms

Many fast-growing school systems use boxy temporary classrooms — essentially trailers — to expand the capacity of their schools cheaply and quickly. Almost always the results are disappointing from the standpoint of both architectural expression and the comfort of the teachers and students.

Tom Low, director of the Charlotte office of Duany Plater-Zyberk & Co., has responded by proposing a 25-by-80-foot "Learning Cottage" that would



A plan for the Learning Cottage, below left, and an aerial rendering of a school campus made up of Learning Cottages


contain two classrooms. The prototype, which Low devised for the Charlotte-Mecklenburg Schools system in North Carolina, is based on the Katrina Cottages that new urbanists developed after Hurricane Katrina. Cottage-like classrooms would cost more than trailer-like units but only about half as much as conventional, permanent schools, according to Low.

Low says Learning Cottages would look better than trailer-style units, offer better interior design, feature more windows (thus supplying better crossventilation and more daylight), and be more durable, leading to reduced maintenance costs. The Learning Cottage — with doors at both ends, plus doors at the center, next to the foyers and rest rooms — would be offered in traditional and contemporary styles, to fit the aesthetics of the schools that they supplement.

The modules could be organized to form useful outdoor spaces, including shaded courtyards and hardscape plazas. Using this concept, 24 classrooms could be grouped to form four squares, accommodating 400 to 500 students on about 4.5 acres. The cottages are flexible enough, he says, to serve as administrative, library, and cafeteria space.

New urban school prototype

Michael Garber, John Anderson, and Thomas DiGiovanni

A prototype was developed of a charter school building that is integrated into a new urban town or neighborhood center (see plan). The building typology is consistent with the Transect.

The basic form is a three-story, 10,000 sq. ft. (72 ft. by 48 ft.) building, designed to handle up to 150 students at approximately 65 square feet per student (see rendering and building plan). It could be located midblock, among other town center uses, or as a standalone building. The basic building form can be repeated as necessary to accommodate a larger school type.

One of the central design tenets for this prototypical building is that it be easily convertible to retail/office/apartment/loft uses if the school were to outgrow the building or go out of business. The first floor incorporates storefront-type windows and a 16 ft. height to accommodate future retail. The second and third floors can easily be used for office or apartment space.

The organization of the building's interior space lends itself to the creation of six 24 sq. ft. classrooms, with three 12 ft. by 24 ft. spaces that could be adapt-



The charter school is placed on a square on the right side of the plan above. The building is below.



ed for special uses, such as a computer lab or parents' space, and remaining space for private teachers' alcoves. Permanent interior walls are kept to a minimum, thus maximizing the freedom of administrators and teachers to organize space to fit their needs. A large internal hallway is created in the rear of the building, with access to public areas — restrooms, elevator, and outside staircase. The upper floor would accommodate an assembly space, if desired. A 10foot-wide rear balcony and stairway is provided as an additional circulation corridor.

Ideally, the school would be situated near some public outdoor area, such as a park or green, to provide outdoor play space. Alternatively, the parking lot could be used as a play space, or a space could be created behind a line of adjacent retail liner buildings.

BRINGING THE POST OFFICE DOWNTOWN

One of the buildings that new urbanists have tried from the earliest days to incorporate into town and village centers has been the post office. Why? Because post offices are used throughout the day by every segment of society. Businesspeople, residents, and others from the surrounding area have many spontaneous conversations in the post office or on its grounds; the post office is a community-builder. It attracts people



The Fairview Village post office

who may then visit nearby stores, restaurants, service businesses, and institutions.

Because the Postal Service is a quasi-public organization - carrying out government-authorized functions but functioning similar to a private business - communities have less control over post offices than they once did. The Postal Service has moved some of its operations from downtowns and town centers to highway locations, seeking functional efficiencies such as the easy loading of tractor-trailers rather than emphasizing the well-being of communities. Nonetheless, many developers have succeeded in getting postal services located in attractive buildings that help to activate a center.

The post office in Fairview Village illustrates some of the challenges. Developers Holt & Haugh (later Holt & Everhart) wanted a post office as a focal point in their town center, but were not willing to settle for one of the standard box designs. So architect William Dennis designed a new facade, paid for by Holt & Haugh. "We got them to agree to a new roof pitch, a different facade, and a color treatment that is more in keeping with a commercial and residential area, because we have rowhouses across the street," says developer Rick Holt. "We spent money up front to get long-term benefits. The village would have been different without it."

The Town of Port Royal, South Carolina, and its hired architects, Dover, Kohl & Partners, waged an uphill but ultimately successful battle to get a decentlooking post office on the town's revitalized main street, Paris Avenue. The Postal Service first proposed to build a typical box surrounded by parking on a four-lane arterial. Negotiations were necessary to get a better site evaluated. The question of the building's appearance was dealt with by having the town pay for new drawings. The interior plan remained unchanged, but the exterior was modified to give it a civic presence. "The building was made taller, redetailed with classical proportions, and given a simpler roofline," says architect Victor Dover. The building also was positioned at the street edge, to fit into the town better.

RELIGIOUS BUILDINGS

Buildings for religious institutions are sought for many reasons - to obtain landmarks and architectural embellishment, to form a prominent "public" space, to nurture the community's spiritual aspirations, and to incorporate more activity and variety into the development. Developers of some traditional neighborhood developments have sponsored construction of a multifaith chapel or a meeting hall that can serve as worship space.

"A generic religious building doesn't enliven the space nearly as much as one in which a flesh-andblood congregation makes a significant investment," says the Rev. Eric O. Jacobsen, author of Sidewalks in

The chapel in the Town Center of New Town at St. Charles



the Kingdom: New Urbanism and the Christian Faith. Generally, buildings controlled by individual congregations are more dynamic. Congregations sometimes erect grander-than-expected buildings, significantly enhancing the community's architectural distinction.

When a development has a mixed-use center, congregations sometimes meet in rented space in the center until they have the resources to build a church. At Mt Laurel in the Birmingham area of Alabama, office space in the center has served as worship space for two congregations not yet ready to erect their own buildings.

Congregations often consider parking essential. This can be a problem. "The denominational leaders expected 7 to 8 acres for a viable church-plant and it was an adjustment for them when we offered them 1.3," said Jim Earnhardt, project manager for Southern Village. However, because of an adjacent parkand-ride lot and the restored tradition of walking to church, parking has not been a problem, according to a leader of the Methodist church at Southern Village.

New Urban Builders, developer of the Meriam Park TND in Chico, California, invited Bidwell Presbyterian Church in downtown Chico to construct a satellite church on two acres at a central location at Meriam Park. The developer did not allow the church to have its own parking lot. Instead, the church was asked to share nearby public parking facilities with businesses.

Some developers provide incentives to attract a community of faith. These include:

• Reserving a prime location for a church.

• Donating land to a congregation (or in the case of a multifaith chapel, to a nonprofit 501(c)3 established to manage the building).

• Securing deed restrictions for the site in the form of proffers.

• Discounting the land or offsetting some of the costs.

• Providing in-house architectural services at reduced or no cost.

• Supplying roads and other infrastructure that benefit the church.

BALLPARKS AS FOCAL POINTS

Well-designed baseball stadiums are focal points of urban life. So-called retro ballparks tend to use humanly appealing materials (especially brick), colors, and building forms associated with beloved historic ballparks or with other local structures. What's crucial, from the perspective of New Urbanism, is how



AutoZone Park

well the ballpark fits the streets, walkways, and buildings close by.

A fine example is AutoZone Park, home of the Triple-A Memphis Redbirds. Looney Ricks Kiss, with HOK Sport + Venue + Event as consultant, designed the 14,320-seat stadium to be the organizing component of a "Ballpark District" that would have a mixture of buildings and activities, including an office building, a baseball museum, an elementary school, reused historic buildings, and well over 300 apartments. The ballpark, which takes its architectural cues from the city's old brick warehouses, stands on Union Avenue, a principal downtown street. Its entry plaza, diagonally across an intersection from the landmark Peabody Hotel, is a place where people enjoy music, food, and amusements before and after baseball games.

The ballpark was conceived to function as an urban amenity even on days when no games were being played. Overlooking right field is a corporate party deck designed so that eventually it could house a bar and grill on game day and a pub with street presence on non-game days. A 750-car parking garage was built next to AutoZone Park, but a publicity campaign advised fans that they could find 6,000 parking spaces within four blocks. Encouraged by this, people stroll to and from the ballpark, animating the streets. The key is to embed a ballpark in the walking city, as has been done in Memphis, rather than let it stand in isolation.



Codes

Form-based codes	
and pattern books	184
What's wrong with existing codes?	185
Zoning barriers to compact	
development	186
Form-based codes:	
eight advantages	186
Form-based code examples	187
What to code	188
Mandatory or voluntary	188

Regulating plans	188
Urban regulations	188
Object and context buildings	189
Architectural codes	190
Street standards	190
Pattern books	191
Other techniques	191
Implementation	192
The SmartCode	192
Transect map and detailed plans	193

Statewide code requirement	193
Applying the Transect	194
Porch, arcade, balcony	194
Stories, not total building height	194
Rehabilitation codes	194
Further reading	195
Form-based code: Benicia	196
Pages from A Pattern Book	
for Gulf Coast Neighborhoods	202

Above: An aerial rendering of a sparsely developed area in Montgomery, Alabama, at left, and how it would be developed according to the form-based code approved in 2006. Renderings courtesy of Dover, Kohl & Partners. 10

Form-based codes and pattern books

Codes are the DNA of communities. Rarely read and understood by the public, zoning codes and subdivision ordinances determine the future shape and character of towns and cities. Conventional zoning ordinances, unfortunately, make it difficult to deviate from the single-use, automobile-oriented development that prevails in the suburbs. New walkable, mixed-use development is frequently difficult to entitle and/or illegal, at least in the US. Codes in historic cities often preclude new development that emulates what is best about those places.

The problem of codes has inspired some of the most innovative work by new urbanists. A reform movement toward "form-based codes," so-called because they regulate the three-dimensional shapes or forms of buildings and the public realm, has taken hold in recent years. These codes focus less on a property's uses than on factors that determine the character of places — such as building frontage and placement. A long list of municipalities has adopted the SmartCode — which first became available in 2003 — and other form-based codes (see tables on pages 187 and 192). But many more municipalities still have conventional codes.

Coding has a long history, and some great historical places were formed by codes - from Colonial Williamsburg, where the setback of buildings and their relationship to streets were regulated, to the boulevards of Paris, where building dimensions reflect strict architectural rules. It's also true that many great places were built without codes. Through the early part of the 20th Century, building was done on a human scale — there was no other option because most transportation was on foot - and the conventions of the day encouraged relatively harmonious and functional streetscapes. Starting in the 1920s and 1930s, however, the regulatory framework has steadily grown more pervasive and complex. The codes adopted during this modern era were geared mostly toward creating single-use, automobile-oriented places.

This chapter looks at how new urbanists are reforming zoning and the tools they are using to do so. Here are a few key points to keep in mind:



This model was the first test of what would later be called form-based codes. Catholic University of America architectural students, taught by Dhiru Thadani, created it in 1983-1984 to show the build-out of Seaside, Florida. The students were instructed to design houses and other buildings based on the town's code, written by Andres Duany and Elizabeth Plater-Zyberk. Although every building is different from what was eventually constructed at Seaside, the town is clearly recognizable in the model. The experiment gave the developer and planners confidence that the code would work.

• Codes consist of regulating plans, urban codes, architectural codes, and street standards. Each of these different tools serves a distinct purpose. (More detailed information on street standards is presented in Chapter 8.)

• Many form-based codes, including the Smart-Code, are based on the Transect, which categorizes human settlements by their degree of urbanism. (See Section 1 for more details.)

• Codes can be public, adopted as laws or ordinances, or they can be private. A developer usually introduces the latter with the aim of regulating a single development. Private codes often take over where public codes leave off. For example, public codes rarely deal with architectural style. Private codes frequently address questions of architectural style and other aesthetic matters.

• New urban codes may be either mandatory or optional. The optional codes are usually adopted as an overlay, giving the developer the choice of whether to adhere to a community's conventional code (which

Conventional Planning and Zoning Codes	Form-Based Codes
Auto-oriented, segregated land-use planning principles	Mixed use, walkable, compact development- oriented principles
Organized around single-use zones	Based on spatial organizing principles that identify and reinforce an urban hierarchy, such as the rural- to-urban transect
Use is primary	Physical form and character are primary, with secondary attention to use
Reactive to individual development proposals	Proactive community visioning
Proscriptive regulations, regulating what is not permitted, as well as unpredictable numeric param- eters, like density and FAR	Prescriptive regulations, describing what is required, such as build-to lines and combined min/ max building heights
Regulates to create buildings	Regulates to create places

Source: Form-Based Codes: A Guide for Planners, Urban Designers, Municipalities, and Developers, by Daniel G. Parolek, Karen Parolek, Paul C. Crawford, 2008, Reprinted with permission of John Wiley & Sons, Inc

has usually been in place for years) or to follow the standards laid out in a new urban code. Optional codes have the advantage of being easier to adopt, but they offer less predictability of outcome. Formbased codes that are optional require incentives. As New Urbanism becomes more popular, the trend is toward mandatory form-based codes.

• Pattern books, popular with some new urbanists, can be used as a form of code. Pattern books are not only used to regulate and guide building details, but also to convey information on building placement, street design, and other patterns on the block or neighborhood scale. Pattern books often come under the heading of private regulation, but are also used for educational purposes on a city-wide or regional scale.

• Guidelines are codes without teeth or with less specificity. They are useful if an organization or official has the leverage to cause a project's implementers to adhere to the guidelines. Where such leverage is minimal or nonexistent, the guidelines may end up being ignored.

WHAT'S WRONG WITH EXISTING CODES?

Conventional zoning is anathema to new urbanists and proponents of smart growth because it inflicts harm in many ways, according to the late coding expert Paul Crawford of Crawford Multari & Clark Associates in San Luis Obispo, California. He identified seven detrimental results:

- Dispersed uses with few distinct centers.
- Spatial separation of all key daily activities.
- Excessive land consumption.
- Streets designed for cars rather than people.
- Lack of convenient, cost-effective transit.
- Limited choice in housing supply.
- Fear of density.

Conventional zoning lowers density relative to what the "free market" would provide on its own, according to Zoned Out, a book by University of Michigan professor Jonathan Levine. "The conclusion that municipal zoning lowers development densities should hardly come as a surprise. Among zoning's original stated purpose was to 'prevent the overcrowding of land [and] avoid undue concentration of population,' " he notes. "Euclid v. Ambler, which established the constitutionality of municipal zoning, was clear in defining dense housing as part of the problem to be treated." Indeed, it is hard to come up with an element of conventional zoning - minimum lot sizes, use restrictions, height limits, setbacks (especially effective in promoting sprawl), parking requirements, minimum street widths - that does not in some way lower density or restrict the mixing of uses. In Levine's view, smart growth codes increase market choice by counteracting the widespread restrictions on density and mixed use.

The degree to which conventional codes prevent smart growth/New Urbanism was shown in a University of Illinois study of municipalities in Illinois

Zoning barriers to compact development

ITEM	Smart growth ¹	Illinois jurisdictions²
Min. Pavement Width	18 ft.	30 ft.
Min. ROW	55 ft.	60 ft.
Min. Lot Size, R-1 ³	5,000 sq. ft.4	15,000 sq. ft.
Min. Lot Size, R-2 ³	4,000 sq. ft.4	10,000 sq. ft.
Min. Lot Size, R-3 ³	3,000 sq. ft.4	8,800 sq. ft.
Min. Setback, R-1	15 ft.	30 ft.
Min. Setback, Comm.	0 ft.	25 ft.
Parking Requirement	1 per 300 sq.ft.	1 per 200 sq.ft.
Max. Block Length	750 ft.	1320 ft.

Source: Emily Talen and Gerrit Knaap, University of Illinois, 2000. ¹Optimum according to the American Planning Association's The Principles of Smart Develpment, 1998. ²Median from sample of 204 jurisdictions. ³Zoning district regulations were recorded for single-family dwellings within zones, or per dwelling. Agricultural or "estate residential" districts were not included. ⁴Smart growth regulations would not necessarily require minimum lot sizes; optimal sizes for the R-2 and R-3 zones listed here are from the Richland, Washington, ordinance which specifies 4,000-square-foot minimum lot area for attached one-family dwellings and 3,000-square-foot minimum lot area for attached one-family dwellings.

in 2000. Few or no towns in that state had regulations allowing compact, mixed-use developments. Lot sizes, setbacks, road widths, block lengths, and parking requirements all over the state were found to be incompatible with smart growth policies (see table on this page). Although that study focused on one state, similar problems are evident throughout the US. Progress has been made since that study was completed. Nevertheless, new urban developments still face many challenges in gaining entitlements.

FORM-BASED CODES: EIGHT ADVANTAGES

According to Peter Katz of the Form-Based Codes Institute, form-based codes have the following advantages:

1. Because they are prescriptive (they state what you want), rather than proscriptive (what you don't want), form-based codes can achieve a more predictable physical result. The elements controlled by formbased codes are those that are most important to the shaping of a high-quality built environment.

2. Form-based codes encourage public participation because they allow citizens to see what will happen where — leading to a higher comfort level about greater density, for instance.

3. Because they can regulate development at the scale of an individual building or lot, form-based codes encourage independent development by multiple property owners. This obviates the need for



At left is a photograph of Columbia Pike in Arlington, Virginia, prior to the approval of a form-based code in 2003. Below is a photo simulation of the built environment that the code would create — with the addition of a streetcar (planned) and other street improvements. As of 2008, about \$700 million in development that met the code was underway.



Form-based code examples

Name	Location	Consultants	Details
Columbia Pike Form-Based Code	Arlington, Virginia	Ferrell Madden Lewis; Dover, Kohl & Partners	A detailed new urban code coupled with a specific plan for a 3.5-mile- long corridor originally developed as a suburban commercial strip.
Development Code Update and Form-Based Code	Grass Valley, California	Crawford, Multari & Clark Associates: Opticos Design	The code covers a portion of Grass Valley, a municipality of about 12,000. It applies to greenfield, infill, and grayfield sites. Based on Transect.
Downtown Master Plan and Form-Based Code	Benicia, California	Opticos Design; Crawford, Multari & Clark Associates	A code based on the Transect for a city of 28,000 people. The code applies to the city's main street and surrounding neighborhood. The site includes infill/redevelopment opportunities.
Form-Based Code for Mixed-Use Infill	Sarasota County, Florida	Dover, Kohl & Partners; Spikowski Planning Associates; Hall Planning & Engineering	Form-based option for developers who agree to conduct a charrette. "Floating zone" code potentially applies to 12,375 acres of grayfield and suburban infill sites. Based on the Transect. Identifies the core compo- nents of urbanism and allows them to be customized by the private sector.
Heart of Peoria Land Development Code	Peoria, Illinois	Ferrell Madden Lewis; Code Studio, Inc.	Code for 8,000 acres in four "vision areas." Based on frontages — the code focuses on how buildings define the public realm. See http://www. heartofpeoria.com/code.html
Miami 21 SmartCode	Miami, Florida	Duany Plater-Zyberk	Miami was divided into quadrants. The first to get the code was the East Quadrant. The site includes infill and grayfield opportunities. See www. miami21.org
Montgomery code	Montgomery, Alabama	Dover, Kohl & Partners	Mandatory downtown code is based on the SmartCode and makes amendments as necessary to implement a detailed master plan.
Central Petaluma SmartCode	Petaluma, California	Laura Hall and Lois Fisher	SmartCode tailored to guide the redevelopment of a 400-acre infill site. Approved in conjunction with a regulating plan.
Santa Ana Downtown Renaissance Specific Plan	Santa Ana, California	Moule & Polyzoides; Crawford, Multari & Clark Associates	A code for 135 blocks covering 447 acres comprising the core of Santa Ana, a city in Orange County with 340,000 people. The code is based on the Transect. The site includes infill/redevelopment opportunities.
TOD SmartCode	Leander, Texas	Gateway Planning Group; Placemakers	Code applies to 2,000 acres adjacent to Leander's downtown near where a light rail line is proposed. The code includes a clearly defined street and open space network. Uses Transect zones.
Towns, Villages, and Countryside	St. Lucie County, Florida	Dover, Kohl & Partners; Spikowski Planning Associates;	Code for traditional neighborhood developments in greenfield sites. "Floating zone" code covers 18,000 acres. Code is based on the Transect and building types. Unlike codes that cover smaller areas, there is no regulating plan.
Ventura code	Ventura, California	Crawford, Multari & Clark Associates	Code for priority areas of the city of 106,000. Based on the Transect, the Ahwanee Principles, and the Charter of the New Urbanism.

Source: New Urban News articles and Form-Based Codes: A Guide for Planners, Urban Designers, Municipalities, and Developers, by Daniel G. Parolek, Karen Parolek, Paul C. Crawford, 2008, reprinted with permission of John Wiley & Sons, Inc.

large land assemblies and the megaprojects that are frequently proposed for such parcels.

4. The built results of form-based codes often reflect a diversity of architecture, materials, uses, and ownership that can only come from the actions of many independent players operating within a communally agreed-upon vision and legal framework.

5. Form-based codes work well in established communities because they effectively define and codify a neighborhood's existing "DNA." Vernacular building types can be easily replicated, promoting infill that is compatible with surrounding structures.

6. Non-professionals find form-based codes easier to use than conventional zoning documents because they are much shorter, more concise, and organized for visual access and readability. This feature makes it easier for nonplanners to determine whether compliance has been achieved.

7. Form-based codes obviate the need for design guidelines, which are difficult to apply consistently, offer too much room for subjective interpretation, and can be difficult to enforce. They also require less oversight by discretionary review bodies, fostering a less politicized planning process that may deliver huge savings in time and money and reduce the risk of takings challenges.

8. The stated purpose of form-based codes is the shaping of a high-quality public realm (a presumed public good) that, in turn, promotes healthy civic interaction. For that reason, the codes can be enforced not on the basis of aesthetics but because noncompliance would diminish the good that is sought.

While enforceability of development regulations has not been a major problem in new growth areas

where aesthetic concerns are usually addressed in private covenants, such matters have created problems for local governments in already-urbanized areas. Form-based codes therefore have the potential to level the regulatory playing field between city and suburb, promoting the recovery of America's urban landscape.

WHAT TO CODE

In the book Charter of the New Urbanism, Bill Lennertz, Director of the National Charrette Institute, suggests what should be included in a new urban code for a specific site. The community should have a regulating plan that delineates the placement of neighborhoods, districts, and corridors, as well as streets, civic buildings, and private lots. The uses permitted for buildings within these areas should be established in use standards, Lennertz writes. The code should have urban regulations that control the public aspects of private buildings - such as their height and the location of parking. Architectural regulations should control the buildings' materials and details, to ensure visual compatibility between buildings. The code should also contain street design standards and landscape standards. (Pattern books can be substituted for urban and architectural codes.)

MANDATORY OR VOLUNTARY

New urbanists have often urged local governments to adopt optional codes, giving developers the freedom to choose whether to lay out development in accordance with new urban principles or to stick to the existing zoning. Optional codes at least allow new urban development to come into existence. With the right incentives — e.g., expedited permitting or density bonuses — it could encourage a new urban form of development. But optional codes often go unused — especially if there are still disincentives, such as extra regulatory steps, that make using the new urban codes slower or more vulnerable to opponents of development. Consequently, a number of new urbanists think the better strategy is to alter the conventional zoning documents or discard them altogether.

REGULATING PLANS

Regulating plans are site-specific. They are analogous to PUD master plans, which become part of zoning maps. A regulating plan is an extremely helpful tool for moving any new urban project forward. In place of single-use zones such as highway commercial and one-acre single-family residential, a regulating plan divides a community into these categories: downtown core(s); urban center(s) or town center(s); various types of residential neighborhoods; open space (or countryside); and assigned districts (areas that don't fit within the other six categories). In the parlance of the Transect, these are called T6 (urban core), T5 (urban center or town center), T4 (general urban or urban neighborhood), T3 (suburban), T2 (rural), and T1 (natural zone). The assigned districts, which fall outside of these classifications, are T7. Characteristics of these zones are described more fully in Chapter 1. In the ideal new urban regulatory framework, zoning maps everywhere would be labeled by Transect zone, rather than zoning categories that were established in the 20th century.

The regulating plan also includes a street layout, probably the most universally recognized characteristic of New Urbanism. Unlike the squiggly, large-grained pattern of pods and arterials in conventional suburban development, the new urban street pattern is usually a modified grid, with relatively small blocks and a finegrained network of streets. Some Transect plans do not include a complete street layout, leaving this up to the developer to determine. However, the result isn't really urbanism until there's a well-connected street network. The urban code must be specific in describing the street and block pattern that is desired.

The regulating plan typically also includes lot lines. Within the parameters set by the Transect zone, the municipality leaves the drawing of lot lines up to the developer.

URBAN REGULATIONS

The urban code is what creates spatial definition. Urban codes create the "outdoor rooms" that are vital for coherent neighborhoods and well-formed downtowns. This approach contrasts sharply against that of conventional suburbia (and many modernist environments), where the space between buildings lacks definition and coherence. In suburbia, the negative space is often vast and uncontrolled. In orthodox modernist places, such as public housing built according to the Radiant City vision, coherence is lost through the designers' disregard for the street.

A number of elements play a critical role in shaping outdoor rooms. The distance between buildings, the height of the buildings, the placement of parking lots and garages, and the size of open spaces are four of the chief elements that determine whether open spaces succeed in becoming outdoor rooms.

Expectations for outdoor rooms change according to Transect zone, which is why the urban codes must

vary with the zone. In the urban core and the center, for example, the *build-to lines* should be relatively strict, and buildings should be taller than they are in other zones. This assures that the T5 or T6 zone will have a highly coherent, well-defined public realm, with a relatively high ratio of building height to street width. In these zones, build-to lines are a must. The buildings must come close to the public right-of-way. The conventional suburban approach is to require building *setbacks*, but setbacks do not create coherence; they only tell developers where they *can't* build. Their effect is to lessen any sense of outdoor room.

The biggest parts of a city or town are usually labeled T4. There, the build-to requirements may be looser, and setback lines may be okay. Nevertheless, T4 is organized much more tightly than conventional suburbia, because even in T4 there is a desire to define the public realm. Buildings are closer to the street, and closer together, than would be the case in the typical post-World War II suburb. Townhouses benefit greatly from a build-to line because they strongly contribute to an outdoor room when they're close to the street and lined up. Porches should be allowed to encroach past build-to or setback lines, because the facade of the house (not the porch) is what defines the street. The same is true of colonnades and balconies. The T3 zone is less urban; there, outdoor rooms give way to a feeling of nature. The setback lines should be bigger and the distance between houses greater in T3. Trees are more likely to be the means of spatially defining the street. The street should be detailed in a more picturesque way, usually without curbs or with rollover curbs.

OBJECT AND CONTEXT BUILDINGS

Certain buildings should be relatively free of ar-

The regulating plan for the South Main development in Buena Vista, Colorado, shown in part at right, identifies the streets and street types, lots, and building types. Lots in the plan are designated for civic uses (civic), mixed-use (mu), rowhouses (rh), single-family detached houses (h), and live-work units (lw). This regulating plan also designates build-to zones and lines, the privacy side of single houses (small arrows at lot lines), and other details.



chitectural and even urban codes. These are civic and institutional buildings, occupying the category of "object buildings," which stand out from their surroundings and give designers an opportunity to create new forms, free of constraints. An example is the Guggenheim Museum in Bilbao. This museum draws some of its architectural power from being a building with an unusual shape in a traditional city where the great majority of the buildings form consistent walls. For such one-of-a-kind buildings to work well visually, a large majority of the other structures in a neighborhood or town should be subject to a well-designed urban code.

ARCHITECTURAL CODES

Most municipalities are reluctant to code architecture to any significant degree. Private developers, however, are much more willing to impose codes.

From the City of Ventura: an example of how architecture can be regulated according to a form-based code.



BIV. TRELLIS CANOPY

Here are some thoughts about architecture coding;

• Many people argue that architectural style is irrelevant to New Urbanism. They cite examples of places with modernist architecture that function beautifully, as well as traditional cities, and argue that urban codes are far more important than architectural codes. Yet even those who favor allowing just about any style - and municipalities that want to avoid style decisions - would be wise to consider architectural codes that focus on function. Requiring a sizable volume of glazing, for example, may help make the streetwall appealing for those walking by. Requiring first-floor windows in the T5 and T6 zones to be made of clear glass, rather than mirror glass or other materials that are hard to see through, is important to maintaining pedestrian interest. The location of doors and windows on the street is likewise important.

• Municipalities and private developers that are trying to maintain a degree of harmony among buildings with diverse architectural styles can use codes in a judicious way. Many new urban projects require that all windows be vertically proportioned, or they require that all windows have some divided lights, to achieve harmony. Or they demand both.

• A developer or municipality may use an architectural code to set parameters governing materials or colors. Such rules can exert a profound effect on the character of a place. The Seaside Design Code says "no building material shall simulate another material." This simple rule gives Seaside an authentic feel up close. (It also increases cost.)

• An architectural code can help maintain consistency with vernacular architecture in a historic city or town.

• An architectural code adopted by a developer can force builders to operate within a limited number of architectural styles and maintain a degree of authenticity in using elements of those styles. The style itself may be whatever is desired - from vernacular to modernist to anything else that people want. What's important is that the code identify essential elements of the style (such as roof pitches and materials and details having to do with windows, doors, eaves, cornices, and columns).

STREET STANDARDS

If everything else is right and the street standards are wrong, the urbanism can fall apart. Like urban codes, street types are geared to the regulating plan (and the Transect zone). Important elements include street width, on-street parking, sidewalks, curb return radii, centerline radii, and landscaping (see Chapter 8).

PATTERN BOOKS

Pattern books have been in use since ancient Rome, where the architect Vitruvius created the first known guidelines for design of buildings and streets. The concept was revived in Renaissance Italy by architects such as Andrea Palladio, whose designs, published in handbooks, greatly influenced British building practices. The British brought Palladio's ideas to the American colonies, where pattern books remained a common town-building tool through the first half of the 20th century. Pattern books fell out of favor after World War II, when architects increasingly turned to the International Style for inspiration, and when developers started mass-producing subdivisions.

Recently the use of pattern books has been revived — a trend spearheaded by the Pittsburgh-based firm Urban Design Associates, which has used them in many new urban projects, including Celebration in Orlando, Florida, and Park DuValle in Louisville, Kentucky. Pattern books are far more prescriptive about architectural style than are other methods of coding. Architectural codes typically set parameters. Pattern books offer options, such as ways to design porticos for a given style, or sometimes specific plans. Each option is shown in a drawing. This system makes it simple for a builder who has no experience in vernacular architecture to construct a house quickly and cheaply and — as long as they can follow instructions — get the details right.

Pattern books typically open with an overview of the historically dominant urban design patterns, landscape patterns, and architectural styles in a region, town, or neighborhood. The introduction seeks to define how public and private spaces relate within the geographic area. The pattern book usually is illustrated with photographs and renderings. Celebration's pattern book begins by summarizing a study of architecture in 30 Southern towns and villages.

Subsequent sections usually offer more detailed drawings of lot types and specify the placement of buildings on their lots. In this respect, pattern books serve the same purpose as urban codes. The pattern book also goes into detail about the character and key elements of typical houses in the town or neighborhood. Drawings explain the design and dimensions of windows and doors, for example, and specify the materials and colors that builders may use. Pattern books do not have the force of law, but builders must usually agree to abide by the guidelines when they sign a contract with a developer.

Most pattern books are specific to one project, but UDA has also created more general design guidelines encompassing whole cities and even regions. The design guidelines for Portsmouth, Virginia, for example, provide an overview of architectural styles and urban design patterns, but also include innovative suggestions for residential infill projects and tell how best to integrate new retail in existing districts. Portsmouth turned to UDA because the city repeatedly received ill-fitting development proposals.

"The creation of the design guidelines was a headsup to anyone developing, saying here are some basic rules we want you to abide by," says Robert Freedman, Toronto's urban design director, who previously was an urban designer at UDA. "The design guidelines have no real teeth, but at least a planning department or an economic development agency can hold it up and say, 'This is what we are looking for.' " See pages 202-204 for pattern book page and image examples.

OTHER TECHNIQUES

Regulating plans, urban codes, and street standards are necessities. Architectural codes and pattern books are not — if the developer is willing to take another approach. The strictest possible control available to a developer comes when he hires an architect or architects to design every building, and then hands the plans to builders. Thus, the developer can dictate every aspect of a project's design. Depending on the skill and judgment of the developer and designer, this may work well. But it may result in too much design uniformity, especially in large projects. In the Dallas/Fort Worth area, three new town centers represent desirable examples. Southlake Town Square in Southlake, Addison Circle in Addison, and Legacy Town Center in Plano were all designed by selected teams of architects. Southlake is highly traditional, while the other two display a modern sensibility. In each of them, this technique works beautifully.

Another approach is to do away with many controls and instead assign an urban designer the authority to approve or reject all design proposals. This strategy is employed in the new urban development Prospect, in Longmont, Colorado, with interesting results. Architecturally, Prospect is one of the country's wildest TNDs from a design standpoint — it is mostly modernist but also partly traditional.

The spread of the SmartCode

Adopted	Colorado: South Fork	New Hampshire: Dover
Alabama: Elmore, Jefferson County, Montgom-	Connecticut: Hamden	New Mexico: Taos
ery, Pike Road	Delaware: New Castle County	Rhode Island: Jamestown
Arizona: Flagstaff	Florida: Broward County. Dade County. Davie. Hills-	South Carolina: Bull Street (Columbia), Colum-
Arkansas: Conway	borough County, Hollywood, Lauderdale Lakes.	bia, Johns Island, Spartanburg
California: Petaluma	Lauderhill, Margate, Miami, Miami Gardens, Mi-	Texas: Hutto, Lancaster
Florida: Fort Myers, Sarasota, Coconut Grove	ramar, North Lauderdale, Parkland, Plantation,	Vermont: Montpelier
Louisiana: Abbeville, Lake Charles	Tamarac, Tarpon Springs, West Park, Winter Park	Virginia: Caroline County, Spotsylvania County
Mississippi: Flowood, Gulfport, Pass Christian	Georgia: Blakely, Early County, Monroe	Other Countries in process:
Missouri: Liberty, St. Charles, Dardienne Prairie	Hawaii: Kona	Alberta Canada: Airdria
Tennessee: Germantown	Idaho: Post Falls	Romania: Bran
Texas: El Paso, Leander, Mesquite, San Antonio	Indiana: Michigan City	
	lowa: Iowa City	Other transect-based codes adopted ¹
In process	Kansas: Lawrence	Florida: Jupiter, Kendall (in Miami-Dade Coun-
Alabama: McClellan	Louisiana: Delcambre, Erath, St. Bernard Parish	ty), Miami, St. Lucie County
Arkansas: Fayetteville	Michigan: Grand Rapids	Louisiana: Baton Rouge
California: Azusa, Sebastopol Northeast Area,	Mississippi: Bay St. Louis, D'Iberville, Gautier,	New York: Onondaga County, Saratoga Springs
Sonoma Mountain Village (Rohnert Park), Ukiah	Harrison County, Long Beach, Moss Point,	Ohio: Columbus
Downtown, Ventura	Ocean Springs, Pascagoula, Saucier, Waveland	Texas: Farmer's Branch, McKinney

Source: www.smartcodecomplete.com 2008 1 Not a complete list of codes that refer to the Transect

The bottom line is that every house in Prospect is required to be true to its own style, said town architect Mark Sofield. If a Queen Anne house is proposed, the roof pitch would be steep (essentially meeting a Prospect code that specifies 10:12 or 12:12 pitches). Modern houses would have flat, gently pitched, shed, or butterfly roofs. The code in Prospect calls for changes of materials to occur on a horizontal axis — say, a stone base with a stucco story above. Victorian houses must meet the same standard, but the requirement does not apply to modern houses, "which for compositional reasons may change materials on a vertical axis," Sofield explained.

Prospect's traditional and modern homes are architecturally similar in one regard: window detailing. "That's the thing that we have latched onto — if the windows are consistent, the whole hangs together," Sofield said in 2001. All dwellings, modern or traditional, must have windows with inside and outside muntins. Depending on the window manufacturer, this can be accomplished with true divided lights or high-quality simulated divided lights.

Rules governing proportions of window-to-wall area and width-to-height are generally enforced for all homes, Sofield said. Most of the modern houses also have eaves. "Overhangs are very useful here because of the intense sun, snow, and rain," Sofield said. "A building without overhangs is hard to justify in a practical sense."

IMPLEMENTATION

The SmartCode

The SmartCode is the first and only new urban code as of the publication of this book that is written for and available to any municipality in the US (and elsewhere, although it is geared to the US), without licensing fees. Prior to distribution of the SmartCode, a municipality that wanted to reform its zoning to incorporate principles of New Urbanism would have two routes from choose from. One would be to hire a qualified new urban consultant — an expensive option requiring a fairly high level of commitment — to write a custom code. The other would be to find another municipality with a new urban code, and copy it. The problem with the second option is that codes vary significantly in quality, may contain serious mistakes, and usually are tailored to a particular municipality.

The SmartCode represents 20 years of work on the part of Duany Plater-Zyberk & Company, arguably the nation's most experienced new urban firm. It is based on the Transect and designed to be tailored to



An aerial photograph of downtown Montgomery, Alabama, prior to the adoption of the SmartCode in 2006, above, shows significant surface parking and other gaps in the urban fabric. At right, the underutilized sites are filled in and streets made more walkable in a rendering of how development will take place according to the code.



PHOTO AND IMAGE COURTESY OF DOVER KOHL & F

any municipality — large or small, urban or rural. This tailoring process requires the guidance of an expert.

The SmartCode is an urban code, and it includes streetscape standards and landscaping standards. It does not deal with architectural style, but it does include some general architectural statements on how buildings relate to the public realm. The SmartCode contains no regulating plans. Producing those is the job of municipalities and developers and is specific to every site. But it does provide a coherent framework to guide the creation of these plans. References to the SmartCode appear throughout this book. The code has become a standard reference for new urbanists.

One example of where the SmartCode has been applied is Pike Road, Alabama, a growing suburb of Montgomery (where the SmartCode has also been adopted). Pike Road has made the SmartCode compulsory in certain key growth areas and has offered it as an option elsewhere. Where the SmartCode is an option, the municipality offered incentives for developers to use it — including priority application status and administrative review, according to attorney Chad Emerson, who wrote *The SmartCode Solution to Sprawl*. One of the most successful TNDs of recent years, The Waters, is located in Pike Road and designed to SmartCode standards. Other TNDs in Pike Road have also been designed according to the SmartCode.

Transect map and detailed plans

Nashville, which has a metropolitan government covering the city and the rest of Davidson County, embarked on an ambitious effort to incorporate new urban ideas into its planning. "We started by developing a Transect map for the entire county," says Planning Director Rick Bernhardt. "We have used that in educational efforts."

Planners divided the county into 14 areas, each of which gets its own physical plan. A subarea known as North Nashville illustrates how the metro government has carried this out. For North Nashville, the government produced a "detailed neighborhood design plan," which includes three components: a "structure plan" describing the elements that make up the neighborhood, a transportation network plan outlining existing transportation and proposed improvements, and a land use plan.

Statewide code requirement

As of this book's publication, Wisconsin is the only state to have a requirement that municipalities adopt a

Porch, arcade, balcony

Form-based codes generally allow front porches, stoops, arcades, colonnades, balconies, and awnings to encroach past the build-to line of the building. The façade of the buildings, not these architectural elements, defines the shape of the public realm. A legal issue may arise when these elements — most commonly arcades, colonnades, and balconies in urban centers — encroach into the public right of way. According to planner Bill Spikowski, one way to deal with the issue is to amend the code "to clarify whether and when insurance is required (for example, during the construction period), and who pays if the encroachment must be removed temporarily."

Stories, not total building height

In a form-based code it is preferable to regulate the number of stories in buildings. It is typically unnecessary to regulate total building height because extremely tall buildings are not cost-effective for developers, according *Form-Based Codes*, the most comprehesive book on the subject. But if officials insist on regulating total building height, it should be to the cornice, eave (where the eave connects to the building), or base of the parapet. This allows a wide variety of roof forms. If the measurement is to the top of the roof ridge, builders will tend to use flat or low-sloped roofs that may be out of character with the community.

code based on new urban principles. The law, passed in 1999 and implemented since 2002, requires every municipality with more than 12,500 people to adopt a model traditional neighborhood development (TND) ordinance. More than 60 jurisdictions are subject to this law, but there is no penalty for noncompliance. Many have not adopted the TND ordinance, while others have gone further and passed a full-blown formbased code. Partly as a result of this law, Wisconsin has a head-start with regards to smart growth and TND.

Applying the Transect

For an existing municipality, applying a Transect-

based code is as easy as identifying Transect zones and then applying standards that are calibrated to the local community. That's what officials did in Saratoga Springs, a 26,000-population Upstate New York city known for spas and horse racing.

The 28-square-mile municipality has applied Transect-based zoning to seven areas where ordinary zoning rules had been suspended. One of those areas is the downtown, which boasts a strong commercial area lining six-tenths of a mile of Broadway. The others are areas near downtown where commercial development or redevelopment is anticipated in the next several years.

Using the Transect was suggested by planning consultant Joel Russell, who teamed up with the landscape architecture and planning firm Environmental Design & Research (EDR) for work in Saratoga Springs. The city designated the downtown as a T-6 (urban core) area, says Michael Welti, chairman of the Saratoga Springs Zoning Ordinance Review Committee. The city designated the other six areas as T-5 (urban center) or T-4 (general urban or urban neighborhood). "T-4 is very similar to many of our urban neighborhoods in the city," Welti points out. The City Council adopted the Transect-based zoning in May 2003, and guickly used it to require a more urban and pedestrian-oriented style of planning for a proposed development on a major road between the downtown and Interstate 87.

The regulations closely govern how buildings meet the street and where parking is to be placed. Mostly, parking is to be behind buildings or in public lots. The regulations encourage alleys and establish minimum and maximum building heights, among other things. The regulations are consistent with the character of old areas of the city. "In many ways, we're codifying what we're already seeing," Welti says.

REHABILITATION CODES

Rhode Island's Rehabilitation Code, which took effect in 2002, reflects a national movement toward simplifying the codes that regulate changes to existing buildings. As more and more states revise their building codes, it becomes easier for developers to convert nonresidential buildings to housing or to a mix of uses.

In many US cities, conversions have long been impeded by codes that require renovation and reuse projects to meet all the standards that apply to brandnew buildings. The state that has won the most praise for remedying that situation is New Jersey, which in January 1998 began implementing a "Rehabilitation Subcode." In the New Jersey subcode's first year of operation, rehabilitation work in the state's five largest cities surged 60 percent. In two years, it rose from \$179 million to \$341 million, according to *Governing* magazine.

Jane M. Kenny, who led the New Jersey code project as commissioner of community affairs under then Gov. Christine Whitman, said the new set of rules "was designed to get developers back into cities by making it easier for them to rehabilitate existing buildings, and that's exactly what it's doing." The earlier state building code had been written primarily for new construction, and it often forced renovators to rip out elements that were safe but not conforming — such as staircases that were 32 inches wide rather than the required 36 inches.

New Jersey's previous rehabilitation requirements were based on cost, and new building standards kicked in when the renovation amounted to as little as 25 percent of the property value. The Rehabilitation Subcode is based on the type of work done. To the extent that work is repair, alteration, or renovation, different standards apply.

The Rehabilitation Subcode has reduced the average cost of New Jersey rehabilitation projects by an estimated 10 percent, according to Matt Syal and Chris Shay of the Construction Management Program at Michigan State University. In some New Jersey projects, the cost has reportedly dropped by as much as 50 percent. Syal and Shay note that rehabilitation codes will become increasingly important because the US housing stock is aging and will need updating.

A number of states and cities have looked to the New Jersey rehab code for guidance. Syal and Shay noted that New Jersey's document served as the base on which the National Association of Home Builders' Research Center produced a national model rehab code for the US Department of Housing & Urban Development.

Because states differ in how they assign responsibility for building and fire safety, some states must develop an approach that diverges from New Jersey's. Stephen Durkee of the Providence architecture firm Durkee, Brown, Viveiros & Werenfels served on the board that produced the Rhode Island Rehabilitation Code. He says that whereas in New Jersey there is a single "pyramid" of responsibility, in Rhode Island there are "two pyramids" — fire marshals and building officials, both of which "have their own 'territories' and are protective of them. They use different national codes (International Code Council for Building, National Fire Protection Association for Fire) that often cover the same issues, but differently. Neither side wants to give up authority for very much, so the challenge was to divvy up the pie of the total review process so that both building and fire were still happy."

"We ended up picking sections out of each code and then that person — building official or fire marshal — would have authority over that issue," Durkee explains. He adds that this approach "can get a little messy and become complicated," which is one reason why decision-making under the new Rhode Island code has been painfully slow so far. Once building officials and fire marshals become comfortable with the new procedures, it's expected that renovation and conversion projects will move faster and will grow in number.

Detailed information about the Rhode Island code can be found at www.rbfc.state.ri.us. Information about the New Jersey code may be found at www.state.nj.us/dca/codes/rehab.

Other rehabilitation codes:

• California's State Historical Building Code: www.dsa.dgs.ca.gov/SHBSB/default.htm

• Kansas City Building and Rehabilitation Code: www.kcmo.org/codes.nsf/web/kcbc?opendocument

FURTHER READING

The SmartCode: Version 9 and Manual, by Andres Duany, Sandy Sorlien, and William Wright, is available from New Urban News Publications, www.newurbannews.com. This is the annotated version of the Smart-Code with reference material to guide planners in the use of this extraordinary tool.

Form-Based Codes: A Guide for Planners, Urban Designers, Municipalities, and Developers, by Daniel G. Parolek, AIA, Karen Parolek, and Paul C. Crawford, is the most comprehensive reference on the subject.

Pages 196 through 201 are from a draft of the Downtown Master Plan and Form-Based Code for Benicia, California. The pages are typical of a form-based code. The code is based on the Transect and provides details of buildings and lots that affect the public realm. Courtesy of Opticos Design, Berkeley, California.

> Pages 202 through 204 are from A Pattern Book for Gulf Coast Communities and are typical of how pattern books illustrate prevalent neighborhood, building, and architectural patterns for a neighborhood, city, or region. Courtesy of Urban Design Associates, Pittsburgh.

Town Core (TC) Standards



Downtown Mixed Use Master Plan Opticos Design, Inc.

An illustration of buildings in the Town Core, the equivalent of T5 urban center of the Transect, is from a draft of the Downtown Master Plan and Form-Based Code for Benicia, California. Courtesy of Opticos Design



Town Core (TC) Standards

Building Placement		
Build-to Line (Distance from P	roperty Line)	
Front	0'	۵
Side Street	0′	8
Setback (Distance from Prope	rty Line)	
Side	0′	G
Rear		
Adjacent to NG Zone	8′	D
Adjacent to any other Zone	5′	D
Building Form		
Primary Street Façade built to BTL	80% min.*	0
Side Street Façade built to BTL	30% min.*	G
Lot Width	125' max.	G
Lot Depth	100′ max.	0
*Street façades must be built to BTL alor	ng first 30′ from ev	ery corner.
Notes		
All floors must have a primary groun	nd-floor entrance	e that
faces the primary or side street.		
Loading docks, overhead doors, and	other service en	tries are
prohibited on street-facing façades.		

Use		
Ground Floor	Service, Retail, or	
	Recreation, Education &	
	Public Assembly*	0
Upper Floor(s)	Residential or Service*	O
*See Table 4.1 for spec	eific uses.	

Street

Height		
Building Min.	22′*	ß
Building Max.	2.5 stories and 35' *	K
Ancillary Building Max.	2 stories and 25′ *	0
Finish Ground Floor Level	6" max. above sidewalk	۵
First Floor Ceiling Height	12' min. clear	
Upper Floor(s) Ceiling Heig	ht 8' min. clear.	Ø
*All heights measured to eav	ves or base of parapet.	
Notes		

Mansard roof forms are not allowed.

Any section along the BTL not defined by a building must be

defined by a 2'6" to 4'6" high fence or stucco or masonry wall.

Any building over 50' wide must be broken down to read as a

series of buildings no wider than 50' each.

4-6

Downtown Mixed Use Master Plan Opticos Design, Inc.

This page from a draft of the Benicia, California, code provides details for Town Core buildings. Note that the illustrations and design of the page make the standards easy to understand. Buildings in this zone are mixed-use and built to the street. Courtesy of Opticos Design

Town Core (TC) Standards



Key

---- Property Line

Parking Area

Parking

Location (Distance from Property Line)		
Front Setback	30'	0
Side Setback	0′	Ø
Side Street Setback	5′	O
Rear Setback	5′	R
Required Spaces		

Ground Floor

Notes	
Other uses	1 space/1,000 sf
Residential uses	1 space/unit; .5 space/studio
Upper Floors	
Uses>3,000 sf	1 space/500 sf
Uses <3,000 sf	No off-street parking required
Ground Floor	

Parking Drive Width 15' max. On corner lots, parking drive shall not be located on

primary street.

Parking may be provided off-site within 1,300' or as shared

parking.

Bicycle parking must be provided and in a secure environment.

Parking drives are highly discouraged along First Street and only

 $permitted \ if there \ is \ no \ other \ option \ for \ access \ to \ parking \ areas.$

Downtown Mixed Use Master Plan Opticos Design, Inc.



Location		
Front	12′ max.	U
Side Street	8' max.	V
Rear	4' max.	Ś
Notes		

Canopies, Awnings, and Balconies may encroach over the BTL on the street sides, as shown in the shaded areas. Balconies may encroach into the setback on the rear, as shown in the shaded areas.

Upper-story galleries facing the street must not be used to meet primary circulation requirements.

Allowed Frontage	Types (see page 4-30)
Gallery	
Clearance	1′ min. back from curb line
Height	9' min. clear, 2 stories max.
Awning	
Depth	10′ max.
Forecourt	
Depth	15' min., not to exceed width
Width	20' min., $50%$ of lot width max.
	4-7

This page from a draft of the Benicia, California, code provides details on parking, frontage types, and encroachment into the public right of way in the Town Core. Note that parking is in the rear (and also on the street). Courtesy of Opticos Design

6

O

Neighborhood General (NG) Standards



Opticos Design, Inc.

4-21

An illustration of buildings in the Neighborhood General (T4 from the Transect) is from a draft of the Downtown Master Plan and Form-Based Code for Benicia, California. T4 and T5 are the two most common Transect zones in cities. Courtesy of Opticos Design

Neighborhood General (NG) Standards



⁻⁻⁻⁻ Property Line

---- Build-to Line (BTL)

Building Area

--- Setback Line

 _	<u> </u>
Ø Ø	
	Ø
_	
Ø	Sidewalk
-	Property Line

Building Placement		
Build-to Line (Distance fro	om Property Line	e)
Front	20' *	A
Side Street	10'	3
Rear, Ancillary Building	5′	G
*May be reduced to meet furth	est back adjacent B	ГL if adja-
cent BTL is less than 20' from J	property line.	
Setback (Distance from P	roperty Line)	
Side	4′ one side, 8	3' other D
Rear, Main Building	40'	0
The windows along any portion	n of a building that j	project
beyond the rear façade of adjac	ent homes must be j	privacy win-
dows if the façade is 10' or less	from the side prope	erty line.
Any decks on the rear of homes	greater than 2' abo	ove grade
must have a privacy screen tow	ard neighboring lot	ts.

Ground Floor	Residential, or Services	0
Upper Floor(s)	Residential, or Services	0

Height		
Building Max.	2.5 stories and $30'$ max.*	۵
Ancillary Building Max.	1.5 stories and 15' max.*	
Finish Ground Floor Level	18″ min. above sidewalk**	0
First Floor Ceiling Height	10' min. clear	0
Upper Floor Ceiling Height	8' min. clear	0
*All heights measured to eav	ves or base of parapet.	
**6" on downslope lots.		

Notes

Mansard roof forms are not allowed.

Building Form

Primary Street Façade built to BTL	50% min.	G
Side Street Façade built to BTL	30% min.	G
Lot Width	50' max.	0
Lot Depth	150' max.	0
Distance between buildings	10′ min.	O
Depth of ancillary building	28' max.	ß
Footprint of ancillary building	700 sf max	

Footprint of ancillary building 700 sf max.

4-22

Downtown Mixed Use Master Plan Opticos Design, Inc.

This page from a draft of the Benicia, California, code provides building details in the Neighborhood General. Buildings here are mostly residential and set back from the street, typical of many urban neighborhoods with single-family detached houses. Courtesy of Opticos Design



Neighborhood General (NG) Standards

Key

- ---- Property Line
- Parking Area

Side Street **W** Sidewalk Primary Street Key

---- Property Line

Encroachments

Location

Side Street

Front

Notes

Stoop

Depth

Width

Depth

Height

Common Lawn Porch Depth

Forecourt Depth

---- Build-to Line (BTL)

--- Setback Line Encroachment Area

10' max.

8' max.

4' min., 6' max.

8' min.

8' min.

2 stories max.

20' min., not to exceed width

20' min., 50% of lot width max.

Porches, Balconies, and Bay Windows may encroach into the setback on the street sides, as shown in the shaded areas.

Allowed Frontage Types (see page 4-30)

Parking		
Location (Distance fro	om Property Line)	
Front Setback	20'	R
Side Setback	0′	G
Side Street Setback	5′	Û
Rear Setback	5′	0
Required Spaces		
Residential Uses		
Studio unit	½ space	
1-2 bedroom unit	1 space	
3+ bedroom unit	1 space plus addit	ional ½ space
	for every bedroon	1 over two
Other uses		
Uses < 3,000 sf	No off-street park	ing required
On lots without alley acce	ess, a one-unit ancillary	structure up
to 400 sf may be built with	hout requiring addition	al parking.
Notes		
Parking Drive Width	11′ max.	V
No more than a single spa	ce of parking is allowed	l in front of
(1)		

Porch

the front façade plane.

50% of the on-street parking spaces adjacent to lot can count toward parking requirements.

Downtown Mixed Use Master Plan Opticos Design, Inc.

4-23

W

8

This page from a draft of the Benicia, California, code provides details on parking, frontage types, and encroachment in the Neighborhood General. Note that porches and stoops encroach onto the setback zone. Courtesy of Opticos Design

Neighborhood Patterns















Neighborhoods in the City

The Gulf Coast's wonderful neighborhoods including vacation homes in Waveland and residential neighborhoods in Biloxi and Ocean Springs, provide a wide variety of architectural styles, house types and sizes. Yet despite the differences, these neighborhoods share a fundamental physical structure.

Streets & Blocks

The physical structure of a neighborhood is defined by its network of public streets, (occasionally with alleys), residential development blocks and park spaces. The street pattern can vary from a small-scale grid of streets focused on a park green to curving streets to a series of cul-de-sacs depending on the neighborhood's era of development.

Building Setbacks

Each residential development block (yellow) is lotted into individual house lots with a typical front yard zone (light green) which is the "public face" of the house. These lots can vary in size and can accommodate single or multi-family lots. The "building setback" is the distance from the front property line to the face of the house. Neighborhoods usually have a common setback for the houses that varies depending on the era of the neighborhood.

Houses on Lots

Houses are built along a relatively consistent front yard setback line. Setbacks vary slightly to provide visual relief and to allow for porches, existing trees and other landscape elements to remain. First floors and porches tend to sit two to three feet above finished grade. Ancillary structures, such as garages and sheds, are attached to the house or are located at the rear of the lot.

This page from A Pattern Book for Gulf Coast Neighborhoods shows residential neighborhood patterns in towns and cities along the Gulf Coast of Mississippi and Louisiana. It was completed by Urban Design Associates after Hurricane Katrina.

Gulf Coast Building Types

The Gulf Coast House

The Architectural Patterns section builds on the Neighborhood Patterns described in the previous section to create distinct places. Seven distinct building typologies recur throughout the region and in the Gulf Coast neighborhoods. This inventory of regional building types is adapted to reflect various architectural styles or vocabularies. In many older houses, styles were adapted over time as certain patterns became popular. While there are many variations on regional house types, the types illustrated on this page appear to dominate neighborhood patterns before World War II, throughout the region

1 SIDE HALL HOUSES

These houses include 'shotgun' types as well where the primary difference is the single room width bay on the shotgun and a wider house with a hallway along one side to access rooms. Typically hipped roof but also gabled roofs are common.

2 RAISED COTTAGE

This type is often called a Creole Cottage or Acadian Cottage. Influences are a mix of French and Spanish adaptations to the region. Later versions include what is referred to as an *American* Cottage with Classical detailing and a typical 5 bay composition for windows and doors.

3 L-SHAPED

These houses often have a perpendicular wing in the back or a cross gable wing that forms a 'T' in plan. Porches or galleries often run along the side and tie into the rear wing.

4 SIDE GABLE

This house type is found nationally and forms the simple rectangular form that can be adapted to most styles. In this region, the rear or the front can have porches inset under the main roof.

5 PYRAMID

This house type is found throughout the region typically as a one or one and a half story massing often called a *Bayed Cot*-tage. The floor to ceiling height is typically taller to allow for deep porches.

6 TOWNHOUSE

Found in the heart of urban centers, many townhouses developed as mixed use types with commercial ground floors and residential floors above. French influenced buildings often feature a balcony above the ground floor.

7 MIXED-USE BUILDINGS

These form the local commercial streets and districts. Typically simple, two story forms of masonry with plaster finishing. Balconies and repetitive openings on upper floors are typical. Decorative cornices of either wood or masonry.



Pattern books examine and illustrate vernacular building types in a city or region, and often provide photographs, illustrations, and descriptions. Courtesy of Urban Design Associates

A PATTERN BOOK FOR GULF COAST NEIGHBORHOODS



ARCHITECTURAL PATTERNS



This Pattern Book establishes patterns among traditional house types in Gulf Coast neighborhoods. There are other conditions described in the plans developed by the *Mississippi Forum Charrette* that include buildings in the Downtowns and in coastal zones that have more complex requirements by FEMAand will need special architectural designs. This Pattern Book is intended for use by individuals and builders as they rebuild the fabric of neighborhoods and therefore focuses on the design of houses and small commercial buildings. It provides means of coping with FEMA requirements forcing new houses to be built at higher elevations than in the past, but it does so only within the range of elevations that are appropriate for traditional house types and for affordable construction. Special conditions that require greater height should be designed by architects as special conditions.

The information in this section is intended to help homeowners and builders in understanding the key elements that contribute to the character or "style" of Gulf Coast houses and small commercial buildings. These guidelines can be applied to new construction renovation and additions to historic buildings or even provide resources to "transform" existing production houses that do not reflect Gulf Coast traditions.

This section begins with an overview of the traditional building types found throughout the Gulf Coast. Following that, individual sections based on common architectural styles identify typical characteristics and elements of a house including general massing types, window and door composition, common eaves and porch details as well as materials and examples. These are described in both graphic and written form. These patterns can help enhance the original character of a regional house or as residents build new houses within one of the traditional Gulf Coast neighborhoods, new plans can be adapted to reflect one of these traditional styles.

Pattern books provide architectural details for entries, windows, roofs, eaves, and other aspects of buildings. Courtesy of Urban Design Associates



Legal Planning

Legal planning for	
new urban communities	206
How new urban	
communities are different	206
Owners' associations	
and private covenants	207

Making	association
--------	-------------

207

208

209

211

- documents work 212
 - Making architectural codes work 214

Above: A community event in the center of Serenbe in Palmetto, Georgia. Photo courtesy of Serenbe

11

Legal planning for new urban communities

Doris S. Goldstein

Legal planning for new urban communities begins with examining the master plan and envisioning the community that will be built from it. The design of the new urban community — its size, mixture of housing types, type and amount of retail, street design, placement of common areas, and even physical barriers — directly influences the legal structure of the community and any property owners' associations. Structure is also influenced by financial objectives (such as whether the developer intends to maintain a long-term interest in the commercial center), the requirements of state and local law, whether the local government will take the streets and parks for dedication, and the personal preference of the developer.

Unlike zoning issues or other governmental regulation to which the developer must react, the creation of private governance allows the developer to act proactively to achieve the potential of the master plan. This article outlines the innovative use of covenants and restrictions tailored to the new urban community and offers suggestions for structuring the community to achieve both design and financial objectives.

HOW NEW URBAN COMMUNITIES ARE DIFFERENT

New urban communities have a mixture of uses. New urban communities differ from conventional subdivisions primarily due to the close proximity — and intermingling — of commercial and residential uses. New urban communities bring together a variety of housing types as well as commercial and mixed-use buildings, all within walking distance. As discussed more completely later in this article, documents must pay attention to the special uses, and particularly the mix of uses, that occur in a well-designed new urban community. To do this, all documents need both protection for the varied uses, and flexibility to accomplish the dynamic, vital streetscape that the planners intend.

Open space functions differently in a new urban community. A new urban community's open space

works hard. In a conventional subdivision, open space is often used as a buffer between one subdivision and the next. In contrast, new urban community open space is centrally located, in the form of squares, plazas, and small parks where people can meet and mingle.

Often, particularly near the center of town, plazas, squares, or greens will be an extension of the commercial uses. Restaurants may spill outward as sidewalk cafes. In other communities, the plaza may be intended as an open-air marketplace, with farmers' markets, pushcarts, kiosks, or other small, semipermanent store buildings. Concerts or other special events may be scheduled for these spaces. While standard covenants and restrictions prohibit commercial use of common areas, documents for a new urban community should anticipate commercial use of certain open space, particularly in the town center.

The plat is another potential source of problems if conventional labels are used. Case law suggests that labeling open space as a "park" prohibits any commercial use.

New urban communities have civic buildings. Most new urban community ordinances and architectural codes require that a certain amount of land be set aside for civic buildings, to provide a gathering place where residents come together. Often constructed of a distinctive style or color, civic buildings are a visual focal point and terminate vistas or anchor public squares.

Lawyers and government officials usually consider civic buildings to be governmental buildings. However, architects, planners, and even some zoning codes have a specialized definition for the term "civic building" in the new urban community setting, which may include such diverse uses as churches, fire stations, museums, meeting halls, theaters, art galleries, public and private schools, and daycare centers.

The declaration, plat, and other documents should not inadvertently label all civic use lots as notfor-profit enterprises, require their maintenance by the association, or automatically release such lots from property owners' association assessments. Instead, each such parcel needs to be examined individually.

New urban communities don't wall people out. Unlike gated communities, new urban communities invite the public in. The streets are meant to interconnect with neighboring communities, providing alternative routes and shortcuts for both pedestrians and drivers. The open spaces, in the form of plazas or greens, look like public parks, even though most likely these spaces are owned and maintained by an owners' association.

This may require an adjustment in perspective for some property owners and their board of directors, who have been conditioned to stick to their own subdivision and their own common areas. If kids from the next subdivision join a pick-up flag football game in the new urban community's park, it's a sign of a successful community.

On the other hand, if the plat allows street ends to be connected in the future and the neighboring property is later developed in a way that does not allow for connectivity, the developer should reserve the right to recover and use the street ends, usually as additional lots.

New urban communities have strict architectural control. The success of the new urban community depends in part on adherence to the architectural vision, which is communicated through architectural codes. New urban community codes combine aspects of zoning codes and conventional architectural codes. As further discussed below, the documents must establish an architectural review process and enforcement provisions.

OWNERS' ASSOCIATIONS AND PRIVATE COVENANTS

While new urban communities look quite different from conventional subdivisions, they usually share a common legal structure: the property owners' association. Property owners' associations have evolved from real estate, contract, and corporate law as a way to maintain private streets and other commonly owned amenities and to enforce use restrictions.

A property owners' association is almost always incorporated as a nonprofit corporation under state law. Under this corporate structure, the elected board of directors makes most decisions for the corporation. While there are some alternatives, as discussed below, none of them seem likely to replace the property owners' association, which has proven to be readily adaptable to new urban communities.

Owners' associations are fundamentally different

from towns. Although they have many of the functions of town governments, owners' associations are in some ways more powerful, and in some ways less powerful, than municipalities.

Because property owners are deemed to have willingly accepted the recorded covenants and restrictions when they buy property, the covenants and restrictions can contain restrictions that would be unacceptable if imposed by a municipality. For instance, the US Supreme Court has held that a town's law prohibiting the posting of "for sale" signs violates the First Amendment protections of free speech. *Linmark Associates v. Township of Willingboro*, 431 US 85 (1977). However, a restrictive covenant prohibiting homeowners from posting "for sale" signs in their yards was later held by the Florida Supreme Court not to violate the First Amendment. *Quail Creek Property Owners Association, Inc., v. Hunter,* 538 So. 2d 1288 (Fla. 1989).

Furthermore, many of the powers that are normally assumed by municipalities can be provided to property owners' associations through private covenants and restrictions. Because there is room for creative drafting, recorded covenants and restrictions can be a powerful tool for shaping the community. However, poorly drafted documents can fail to provide flexibility needed to deal with the community's problems in the future and, as they typically require a super-majority vote, can be hard to amend.

Note that property owners' associations, although nonprofit, are not tax exempt, and assessments to property owners' associations are not tax-deductible. At the corporate level, a qualified homeowners' association that makes an election under Section 528 of the Internal Revenue Code is not taxed on assessments paid by its members. However, mixed-use associations, or associations with properties that have vacation rentals, may not be eligible for Section 528 and will need careful tax planning.

ALTERNATIVES OR ADJUNCTS TO OWNERS' ASSOCIATIONS

Several other entities or actions may supplement, or in rare cases, replace, the owners' association:

Municipal incorporation. Although very large new urban communities may actually be incorporated as independent towns, this is rare. Some states require a substantial minimum population for municipal incorporation. In addition, because towns operate on a one-person, one-vote principle (rather than the per-lot vote typical for owners' associations), the developer cannot control a municipal government, even during the development stage. Accordingly, these communities rarely start life as an incorporated town, although a few may choose to incorporate later.

Special taxing districts. An alternative to municipal incorporation available in many states is a community development district or other special taxing district which has some but not all of the powers of a town. Districts are sometimes used as an alternative to conventional development financing, as districts can issue tax-exempt bonds for constructing infrastructure improvements, which are then repaid by assessments on the lots. Furthermore, the debt for the infrastructure becomes the obligation of the district, and does not appear on the developer's books as debt. Districts can be used for building the entire community infrastructure, or can have specialized purposes, such as the construction of parking garages in an urban setting. While useful for maintaining common areas and providing basic services, districts may not have any zoning or permitting powers. Even when a district is used for common area maintenance, a new urban developer may want to impose some type of recorded declaration to allow architectural control and covenant enforcement, both during development and long-term.

Dedication of common areas. Many new urban communities dedicate their parks as well as their streets to the general public, when the unit of local government is willing to accept them for maintenance. Since new urban communities, by definition, are not gated, this is often quite appropriate. However, even when parks and streets are publicly maintained, the developer usually forms a property owners' association as well. As in the case of the special taxing district, the property owners' association and recorded declaration offer certain advantages, particularly in the area of architectural control. When properties are dedicated to the public, the association should include among its powers the ability to provide additional maintenance to supplement that provided by the governmental entity. Some common areas such as alleys may not be accepted for dedication and may need to be maintained by the association.

There are certain circumstances where a developer might wish to avoid forming a property owners' association. In states like California, where home ownership is extremely costly and owners' associations are expensive to manage, it might be worthwhile to find alternative ways to maintain and regulate a community. And in highly urbanized areas where the municipal government can be expected to maintain the infrastructure, an owners' association may be not only unnecessary but inappropriate. If there is not an association, the developer must carefully review the site plan to make sure that each parcel will be properly maintained and that proper easements are granted.

TAX-EXEMPT ORGANIZATIONS

Many new urban developers have created institutes or other voluntary membership organizations to provide cultural activities, education, and other community-building services. Like the alternatives described in the preceding section, these supplement rather than replace the property owners' association. Like the property owners' association, tax-exempt organizations are organized as nonprofit corporations. Unlike property owners' associations, however, these organizations seek tax-exempt status under §501 (c) (3) of the Internal Revenue Code.

Benefits to the developer. Charitable organizations qualified under 501(c)(3) of the Internal Revenue Code are not only themselves exempt from taxation, but contributors are allowed to deduct most contributions they make to such an organization. This makes them a powerful tool for the developer whose project aligns itself with a 501(c)(3)'s exempt purposes. Expenses that would otherwise have to be capitalized and recovered bit by bit as each lot is sold may, instead, be deducted currently. Moreover, having a charitable organization associated with a community can improve the development's appeal by providing concerts, festivals, classes, and other community-building activities.

There are two ways for a development to benefit from a charitable organization — import a well-established organization, or grow its own.

• Import a tax-exempt. Tax-exempt organizations that are often invited into a community at the master plan stage include YMCAs, churches, and private non-profit schools. Choosing the right tax-exempt organization can add value to the development. For example, donating land or a building to a Montessori school can be a good investment if lot buyers are likely to be young families to whom that kind of education would appeal. (Any such conveyance should be deed-restricted to ensure that the property isn't re-conveyed for other purposes.)

Importing a 501(c)(3) can offer immediate tax benefits. A developer who builds a community center and gives it to the owners' association must capitalize the cost. A developer who donates land to a YMCA may be able to deduct the cost currently. Furthermore, the deduction may be for the fair market value of the land, not the developer's basis.

• Grow Your Own. Some developers are creating their own tax-exempt organizations, which are named after and identified with their community, although most of the organizations' activities are open to the public. Usually these organizations have a primarily cultural mission that enhances the community. Often the meeting house or other civic building, or land for such a building, is donated or sold at a discount to the institute, which can generate revenue from renting the space for weddings and other events to help pay for other activities.

Qualifying as a 501(c)(3). Organizations achieve exempt status through an application process with the IRS, and advance rulings are available to new organizations. The articles of incorporation of the corporation must limit the organization to an exempt purpose, or combination of purposes, and its assets must be permanently dedicated to exempt purposes. As stated in an IRS publication, the exempt purposes set forth in IRC Section 501(c)(3) are charitable, religious, educational, scientific, literary, testing for public safety, fostering national or international amateur sports competition, and the prevention of cruelty to children or animals. The term charitable is used in its generally accepted legal sense and includes relief of the poor, the distressed, or the underprivileged; advancement of religion; advancement of education or science; erection or maintenance of public buildings, monuments, or works; lessening the burdens of government; lessening of neighborhood tensions; elimination of prejudice and discrimination; defense of human and civil rights secured by law; and combating community deterioration and juvenile delinquency.

Most 501(c)(3) organizations associated with new urban communities have an interest in the arts, which, although not listed above, is generally recognized as a charitable purpose. To be a 501(c)(3) organization, the activities must be open to the larger community, not just those within the real estate development. A private community can form a "social welfare organization" under 501(c)(4) of the Code to offer community-building activities, but this does not offer the same tax benefits to the developer.

Relationship to owners' association. A 501(c)(3) organization operates independently of the owners' association. Its board of directors will attract individuals with interests and personality different from the owners' association board and should draw at least some directors from outside the community.

Qualifying a 501(c)(3) as a publicly supported

organization. To achieve the most tax benefits, the 501(c)(3) organization must avoid private foundation status by showing the IRS that it is a publicly supported organization. One way to do that is to demonstrate that over a five-year period, on average, the organization receives at least one third of its income from small contributors or the government, rather than from the developer or other related entities.

Sources of revenue. Tax-exempt organizations can receive contributions or may have revenue relating to their activities, such as from concert tickets. Some communities require a payment by homeowners to the community's 501(c)(3) organization, either as a regular annual assessment or as a fixed amount or percentage paid upon each conveyance and re-conveyance of the property. Such payments, which are written into the recorded declaration, are generally well tolerated by buyers and have become more popular with developers. However, such fees may have hidden dangers and should be used with caution. There is mixed opinion among tax professionals as to whether such assessments are contributions that can be counted toward the public support test or if, conversely, such contributions are not counted and make it harder to meet the public support test.

This article is intended to give some suggestions how tax-exempt organizations may benefit a new urban community but should not be relied upon for tax advice. It is very important that any developer who is considering forming a 501(c)(3) or making significant donations to a 501(c)(3) consult with a competent tax professional.

Tax advice disclosure: To ensure compliance with requirements imposed by the IRS under Circular 230, I inform you that any US federal tax advice contained in this communication (including any attachments) was not intended or written to be used, and cannot be used, for the purpose of (1) avoiding penalties under the Internal Revenue Code or (2) promoting, marketing, or recommending to another party any matters addressed in this article.

SPECIAL CONSIDERATIONS FOR A TOWN CENTER

Many new urban communities have areas that are primarily residential, and a town center that has both residential and commercial uses. Governance of the town center is far more complex than the residential portions and requires specialized documents.

Town center commercial areas should usually be separate from the residential association. Although an integral part of the functioning of the community, a town center should usually be governed separately from the residential association for the following reasons:

• Maintenance standards. The interests of commercial and residential owners tend to be different. Commercial areas invite the public in. They get a lot of traffic and must be maintained to a high level of care.

• Use of common areas. Squares and plazas in town center are likely to be used for farmers' markets, festivals, and commercial activity, while greens and other common areas within the residential portions are less likely to be used for such activities.

• Statutory regulation. In most states, residential property owners' associations are subject to laws regulating such matters as developer turnover, participation in meetings, and similar consumer rights. The trend toward such legislation is increasing. A commercial property owners' association is usually not subject to the same kind of legislative intervention, and could be controlled by the developer longer.

• Restrictive covenants. The town center documents contain detailed provisions concerning commercial operation, such as hours of operation and merchants' associations, and have a different assessment scheme. Containing these provisions in a separate document allows the residential documents to be relatively conventional, improving acceptance by residential buyers and their lenders.

• Tax concerns. As mentioned above, homeowners' associations generally rely on Section 528 of the Internal Revenue Code, which exempts the association from paying taxes on assessment income, even when it is accrued from year to year in reserve accounts and is not offset by expenses. To qualify under Section 528, substantially all (85 percent or more) of the units, lots, or buildings must be used by individuals for residences. Mixing commercial property into a homeowners' association can cause it to lose the Section 528 exemption. Associations can usually compensate with accounting methods, but must be aware of the need to do so.

• Human nature. The interests and perspectives of commercial and residential owners are irrevocably different. Setting up any kind of a situation where residential owners have any say over the commercial operation is a fundamental error.

On the other hand, identifying and separating residential and commercial property is not easy; an essential characteristic of New Urbanism is the seamless integration of residential and commercial uses. The town center will usually include live-work units, as well as scattered residential units above the stores. As discussed further below, these units may be sold as condominium units, or leased to residential tenants. The task of creating a legal description that includes all the residential uses is further complicated by the fact that uses may change over time.

In addition, these owners or tenants should be assured access to recreational facilities, either through membership in the residential property owners' association or by other means. Membership in the residential association may also assist in establishing a sense of community.

As an alternative to carving out a separate, completely residential association, a new urban community may be developed with a single association, and a single declaration, for the whole property, or for the residential portions and the fringes of the town center that contain the live/work units. However, in such a case, the declaration should specifically exempt commercial properties from regulation by the association — and ensure that this provision can't be amended by the residential majority. In addition, commercial property should be assessed differently than residential property.

Whether or not the homeowners' association includes some or all of the commercial property, a new urban community will almost certainly need a separate entity for town center. This entity must maintain and manage such commercial common facilities as parking lots, plazas, benches, trash collection, lighting, and seasonal decoration. The entity may also regulate merchant mix and hours of operation and operate a merchants' association.

Either a management entity or a commercial property owners' association may manage town center's commercial common areas. The choice between a management entity or a commercial property owners' association depends in large part upon the developer's long-term commercial objectives:

• Management Entity. Where the developer or a third party is interested in retaining a long-term financial interest in town center, a management entity may be considered. The management entity owns the town center common areas, and usually owns and leases out most or all of the commercial properties. The management entity charges common area maintenance charges similar to CAM charges in a shopping mall, and may strictly control the mix of tenants.

• Owners' Association. Where the developer would rather sell town center as individual building parcels, a commercial property owners' association,

in conjunction with a merchants' association, may be established to own and maintain the common areas. It is very important that any such association exclude, by definition, any residential property, in order to avoid being regulated as a residential homeowners' association under various statutes.

SPECIALIZED BUILDING TYPES

New urban communities typically generate certain building types not found in typical subdivisions. This section discusses some special considerations for successful operation of these building types.

Mixed-use buildings. Mixed-use buildings, which occur primarily in the town center, usually have the following characteristics:

• Layered uses. A typical town center building might have commercial space on the first floor and residential units on the upper floors. Office space is sometimes placed on the second floor, where it serves as a good buffer between commercial and residential uses as it is generally quiet at night and on weekends. While residents need to appreciate that some noise and activity are to be expected, certain uses, such as full-service restaurant or nightclub, may not be compatible with residential units unless there is some ability to buffer uses.

• Few common elements. Typically, residential units in a mixed-use building have no recreational facilities of their own and may not even have their own parking. Instead, these amenities are part of the community facilities and are maintained by the property owners' association or town center association.

• Small scale. Except in highly urbanized areas, buildings in a new urban community, including its town center, are usually modest in scale, both in height (rarely more than four stories) and footprint. This can create financing challenges for lenders who are not accustomed to this intermediate size.

Flexibility in both building design and legal documentation allows uses to change with the market. In particular, upper-floor flats can be converted easily from office to residential space and back again. Usually, only commercial uses are permitted on the first floor to encourage a lively streetscape.

Mixed-use buildings can be owned by a single owner, or ownership may be divided between the commercial and residential units, depending on the developer's objective. Here are some possibilities:

• Sell off residential units. Often, the developer wants to retain control of the commercial space while selling off the residential units for cash. Form of own-

ership is highly dependent on state law, but typically choices include either formation of a mixed-use condominium, or creation of an airspace condominium that submits only the residential upper floors of the building to condominium ownership. Any division of ownership within a building adds a layer of complexity and administration that needs to be weighed against the financial advantage. Documentation and administration are almost identical whether the condominium has a handful of units, or hundreds. If there are multiple buildings with similar configuration, the developer should look for ways to consolidate documentation and management.

• Commercial ownership. If a developer or commercial property manager has the financial strength to retain ownership of the entire building, commercial and residential units can be rented. This gives the owner the advantage of total control over the building, including the ability to convert residential to commercial space if needed.

• Creative alternatives. Although the two methods described above are the most likely, there may be other ways to meet the needs of the developer. For example, to raise cash while retaining control of the commercial portions of small-scale mixed-use buildings, the developer may sell a small building to a private investor. In one such scenario, the investor would be able to use or rent out the residential unit upstairs, and would give the developer the right to lease or manage the commercial portion for a stated number of years.

Live-work units. Live-work units are a special type of small-scale mixed-use building that often forms a transition between the town center and the residential portions of the community. Often constructed as townhomes, live-work units usually combine a shop, studio, or office at ground level and a single residential unit above. The owner of the building can occupy both portions of the live-work unit or rent out one part. It may be desirable to allow live-work units to evolve over time to greater or lesser commercial usage depending on the market. If so, covenants and restrictions need to recognize the potential for changes in use, and may allow residential or commercial to occur on either floor. Because live-work units usually occupy a transitional area between residential and commercial uses, the recorded restrictions may need to restrict commercial uses to those that do not generate a great deal of parking requirements or operate too early or too late in the day.

Townhouses. New urban development encourag-

es the use of attached homes, known as townhouses or row houses. There are two main types of townhouses, based upon construction. Although they may not be recognized as distinct types in the design code for the community, each type has separate legal considerations:

• Shared roof structure. Often, especially at lower price ranges, townhouses are built together and share a roof structure. Although such townhouses are usually sold as noncondominium, fee simple ownership, some type of special provision is required for at least a minimum amount of common maintenance. Especially at lower price ranges, this should include establishment of reserve funds so that the money will be available when the roof needs to be replaced. Where the townhouses are intended to present a uniform facade, common maintenance of the exterior is also necessary. In addition, townhouses that share a roof or other structural elements must be adequately insured, so that the townhouse will be promptly rebuilt after a casualty loss. Otherwise, the structural integrity of other units within the block can be affected. To assure adequate insurance and to make it easier to rebuild after a loss involving multiple units, a unified policy, purchased by an owners' association, is recommended.

• Separate structures. Townhomes or live-work units are sometimes constructed as entirely independent structures, built to the side lot line. In such cases, special townhouse maintenance provisions are not necessary, but specialized easements to allow one building to secure flashing onto the next are helpful.

Side-yard houses. To allow most efficient use of narrow lots while complying with governmental setback requirements, side-yard houses may borrow space on one side, and lend space on the other, through the use of specialized easements. In addition, for certain building types, such as side-yard houses, which are to be built along a property line, easements may permit roofs, gutters, eaves, and downspouts to overhang the property line, and may allow footings and rain leaders to intrude below the surface of the property line.

Garage apartments. Sometimes called "granny flats," these accessory units are very popular in those locations where the local government will permit them. Rent from the garage apartment can offset part of the mortgage on the main house. Some considerations include address numbering (for 911 emergency services) and the cost of separate utility hook-ups. Covenants may address whether accessory units may be separately leased. Some covenants require that either the main house or the accessory unit be owner-occupied.

MAKING ASSOCIATION DOCUMENTS WORK

Several principles are useful in writing association documents:

Keep development issues separate from association issues. To establish a vibrant community, owners should take an active role in managing the association relatively early. Furthermore, most states have enacted laws requiring the developer to turn over control of the association to the owners at some defined stage during development. However, certain developer rights, most notably architectural control, are best retained by the developer until the end of the development process. Some rights are retained by the developer indefinitely.

Developer rights need to be identified and strongly protected. Developer rights should never be subject to amendment without the consent of the developer.

The following are some developer rights to consider:

• Architectural control. The first and most important development issue is architectural control. The developer must keep architectural control for new construction to the very end in order to accomplish his or her vision, so architectural control and the association should be clearly separated. The developer can create a review board or appoint a town architect to assist in review, but the fundamental right belongs to the developer and should not be affected by turnover of control of the association.

The association should have a separate review committee for modifications to completed construction, as neighborhood participation is appropriate for modifications. Architectural codes and the role of the town architect are discussed further below.

• Marketing and development rights. The documents should reserve for the developer the right to have a sales office and models, and to put sales signs on the developer's property and the common areas. The documents should also reserve appropriate easements and development rights to complete this phase and adjacent property, whether or not the property is built as a subsequent phase.

• Use of name. The developer must decide whether to trademark the name of the community. In addition to federal trademark registration, many states offer a simple, economical registration process. Trademark protection has proven valuable, and defensible, even when the new urban community name became so well known that it was printed on maps. However, one could also argue that new urban communities are town-like, and should have a name that belongs to the community, rather than the developer. If the developer decides in favor of trademark protection, the documents should provide additional notice of the trademark and limit others' commercial use of the new urban community's name.

• Photography. New urban communities tend to be rather photogenic. Who should get the location fee — the association or the developer? If the developer so chooses, the documents may reserve to the developer the right to allow commercial photo shoots on the common areas, and to collect a fee.

• Mandatory building requirements. One unusual contract provision that is often employed in new urban community communities requires the purchaser to build an approved building on the lot within a limited period of time. The purpose is to encourage the development of streets and neighborhoods, and to discourage speculation. The streetscape can't be appreciated if it's pockmarked with empty lots. The requirement should be prominently noted in the purchase and sale agreement and should also appear on the deed or the recorded documents, or both.

The requirement to build is usually enforced with some kind of a developer buy-back at a price close to the original purchase price. The developer's right to repurchase the property must have a reasonable time limit, both to prevent title problems and to improve enforceability. A straight forfeiture is punitive and probably not enforceable. The construction lender also needs reasonable protections. (For a case that upheld such a buy-back, see *Sandpiper Development* and Construction, Inc. v. Rosemary Beach Land Company, 907 So.2d 684 (Fla. 1st DCA 2005).)

Give the association the tools it needs. Once legitimate developer issues are protected, the developer is free to structure the association in a way that makes it work for the owners in the long term. The association needs to have processes and procedures in place to help it make decisions, and it should have all the powers it needs to run effectively.

Within the corporate structure, here are some examples of useful powers of the association:

• **Rules enforcement.** The procedure to hear violations of the association's rules and regulations should focus on dispute resolution and problem solving. At a minimum, owners must always be given notice and the right to be heard. Along with the right to impose fines and other penalties, the association should be encouraged to suggest or approve agree-

ments and withhold the requirement of paying a fine if the agreement is honored.

In addition, give the association the authority in the documents to deal directly with tenants who violate the rules, including the right of eviction if the violation continues after a hearing.

• Capital improvements. Give the association the power to make capital improvements. Without such a specific grant of power, property owners' associations are usually restricted to repair and maintenance of original improvements. Consider giving the board the ability to make most capital improvements without membership approval unless it exceeds a certain percentage of the annual budget.

• Additional services. Allow the association to take on additional duties other than simply maintaining the common areas. One way is to provide a broad list of possible services the association could offer, such as utilities, garbage and trash collection, transportation, cultural programs, newsletters and other services. However, except in an emergency, there should be a delay before the new service starts, during which the owners can ask to have a community meeting and repeal the service by majority vote.

• Maintenance of non-association property. Particularly useful is the power to maintain easement areas, public rights-of-way, and other public or private properties within or immediately adjacent to the new urban community. For instance, street trees are usually located within the right-of-way of a dedicated street. If the city doesn't properly maintain the trees, the association should have the power to do so, even if the trees are not within association common areas. The same would apply to parks within the community that are dedicated to the public but that the city may fail to properly maintain.

• Citizen recall power. Put in some escape valves, so that if the board makes a decision that is wildly unpopular, people can get together and veto a particular board decision. For instance, the board should have the right to make rules and regulations, but if 10 percent of the owners ask for a special meeting to discuss the rule, and they get a quorum, then the rule can be repealed by majority vote of the owners.

• Redevelopment. Consider a provision that allows orderly redevelopment and creation of a new master plan if there's ever an overwhelming casualty loss or if a defined period of time elapses, and at least two-thirds of the owners agree. This should include a buyout of dissenters at fair market price.

Insist on readable documents. Property own-

ers should be able to read and use their declaration and other association documents without having to consult an attorney on every issue. "Readable legal document" is not an oxymoron. The following factors contribute to readable documents:

• Set the stage. Consider reciting some of the history and purpose of the community in the introduction to the documents. Just as the architects and planners create a sense of place with their designs, documents can create a sense of place as well. Explain the concept of New Urbanism, and that there will be a lively mixture of uses. Describe the charrette, if there was one, and some of the particular design considerations that went into the property—how the streets were oriented to particular views, how existing trails were incorporated into the plan, how the design is based on regional tradition. Putting these stories in the recorded documents makes them available to each new generation of owners.

• Pay attention to function and appearance. Use the beautiful logo that has been designed for the community and insert it at the head of the first page. To help the title index for the recorded public records, retype the name of the community underneath the logo, because the name embroidered into the logo may not be picked up otherwise. Choice of typefaces, and the way that paragraphs are broken up and numbered, can add dramatically to a document's ease of use.

• Use clear language. Documents do not need to be written in legalese to be enforceable. Most of the legal cases involving enforcement of covenants and restrictions are not about arcane legal issues, but instead are about the interpretation of ordinary English language. The more clearly the documents state what is intended, and communicate that to owners, the more enforceable the documents are.

• Explain yourself. Explain in the text the reasons for a certain provision, especially if the provision is unusual or seems harsh.

MAKING ARCHITECTURAL CODES WORK

New urban developments are highly dependent on architectural codes, whether they are graphic, textual, or in the form of a pattern book. Making codes work depends on all four of the following steps:

Draft codes carefully. Architectural codes must communicate well for two reasons:

• Enforceability. Architectural codes are enforceable — if they are clearly written.

• Effectiveness. A code should guide people into building what the developer and planner want them

to build. The best way to do that is to communicate effectively.

New urban community codes are particularly complex because they regulate a lot of things that ordinary architectural codes for a residential subdivision don't regulate, such as uses. In particular, the code needs to very clearly spell out for each lot type exactly how each floor of the main building and the outbuilding can be used, and how many total dwelling units are permitted.

Provide assistance. Code enforcement begins with code education. Especially at the beginning, developers should be prepared to put time and money into assisting architects and builders design appropriate buildings. A town architect hired by the developer often takes on the role of working with buyers, their architects, and builders. A town architect who takes the time to work with owners and their architects throughout the whole process, and who does it without creating an adversarial atmosphere, goes a long toward getting the community built attractively and making the owner feel welcome.

Keep on top of what is being built. The town architect or other trained individual should be on site frequently, checking construction and making suggestions. The earlier problems are caught, the easier they are to fix.

Enforce the code, consistently. When all other measures fail, the developer must be prepared to enforce the code, in court if necessary. Properly drafted architectural codes are enforceable, but failure to enforce one violation sets up a legal defense for others.

Allow codes to change over time. New materials and techniques may be introduced that are clearly superior to the old. The documents should include a mechanism to revise the architectural codes as necessary over time.

Doris S. Goldstein is an attorney whose practice focuses on new urban development. Beginning in 1986 with Seaside, she has been closely involved with new urban communities throughout the country. Portions of this article are adapted from A Legal Guide to Urban and Sustainable Development for Planners, Architects and Developers, by Dan Slone and Doris Goldstein, Wiley Publishing Company, 2008, and used with permission. Readers who need to know more about legal aspects of New Urbanism are encouraged to read that book.



Charrettes

12

The share the second
The charrette as an
agent for change
Who sponsors a charrette,
and how is it funded?
The nine principles of the
charrette process

The three phases of the charrette A few helpful	220
charrette techniques	222
Notes on the conduct	
of charrettes	225
Research participants	225

26
26

Above: Charrette participants huddle over a drawing at the Mississippi Renewal Forum in October 2005 where plans were created for 11 municipalities ravaged by Hurricane Katrina.

216

217

217

Photo courtesy of the Congress for the New Urbanism
The charrette as an agent for change

Bill Lennertz

Editor's note: The article below refers solely to the NCI Charrette System taught by the National Charrette Institute (NCI), based in Portland, Oregon.

New Urbanism is a holistic approach to healthy, transformative community change. It challenges all development conventions, including codes, transportation standards, and finance mechanisms. It also challenges peoples' perceptions regarding growth, arguing, for example, that "density done right can make things better." Early on, new urbanists recognized that success required that everyone affected by the outcome be included in the planning effort from the beginning.

The answer is a three-phase process in which the charrette is the central transformative event. The NCI charrette is a multi-day design event, during which an interdisciplinary professional design team creates a complete and buildable smart growth plan that reflects the input of all stakeholders who are involved by engaging them in a series of feedback loops. The term "charrette" is derived from a French word meaning "cart" and refers to the final, intense work effort expended by art and architecture students to meet a project deadline. At the École des Beaux Arts in Paris during the 19th century, proctors circulated with carts to collect final drawings, and students would jump on the charrette with their work and frantically put finishing touches on their drawings. This intense burst of activity is similar to the atmosphere of the charrette process described in this article.

Charrettes offer much more than a quick fix. The result of the modern-day charrette is lasting, transformative change. After a charrette, people have been heard to say: "I have been a transportation engineer for 20 years and, until today, I never knew why the fire department needs 20 feet of street clearance," or, "Now I understand why alleys are so important," or, "This is the most creative experience I have had since college," and, "I may not agree with the entire proposal, but my concerns were listened to and considered; I like how I was treated." Achieving such results requires a carefully planned and orchestrated process that starts well before the actual charrette and continues long after it.



Working collaboratively: participants examine and refine drawings in a typical charrette scene.

	Common Charrette Team Specialties		Typical Team Composition for a Se	ven-day Charrette (the number of each specialty varies per project)	
2	Planning and Urban Design				
-	Economics and Market		Specialty	Final Product Responsibility	
쀭	Transportation Planning and Engineering		Planner	Master plan	
Ë.	= Architecture	Planner/Urban Designer		Detailed plan studies	
	= Indirectore		Local Architect	Building types, assist with codes	
Z	= Public Involvement		Landscape Architect	Open space plan, park design	
Ē	 Environmental and Civil Planning and Engineering 		Environmentalist	Wetlands preservation plan, draft environmental impact statement	
	Local Specialists: Designers, Engineers, Historians		Renderer	Perspectives	
50	National Experts		Transportation Engineer and/or Planner	Street plan and sections, impact analysis	

Who are the working professionals in a charrette? Above left is a list of specialists that may be needed. What charrette team specialists produce is shown above right.

Charrettes can be used for virtually any type of planning project, including:

- Main street revitalization and infill
- Regional plans
- Comprehensive plans
- Transportation systems plans
- Environmental planning
- Rewriting development codes
- New community master planning
- Specific planning
- Redevelopment projects
- Affordable housing designs
- LEED building design

WHO SPONSORS A CHARRETTE, AND HOW IS IT FUNDED?

A private developer, a public agency (such as a city or regional planning department), or a non-governmental agency (such as a citizen planning advocacy group) usually sponsors a charrette. It can be funded by a single entity or by a group of funders such as a public/private partnership. Charrette funding can come from various sources, such as public planning budgets, grants from smart growth grant-making bodies, or a combination of private developers and public planning agencies. When budgeting for a charrette, it is important to remember that the charrette event cannot be separated from the preparation and implementation phases. Therefore, it is not possible to budget for a charrette in isolation. The cost is completely dependent on project scale and complexity, how much preparation work has to be done, available resources, data collection, studies to be completed, and stakeholder outreach and engagement. The price for a charrette, including preparation and implementation, ranges from \$75,000 to \$500,000, depending on the study area size, required technical specialties, and the final products. It is possible to reduce project costs through the use of professional volunteers, local agencies, and university architecture and planning departments.

THE NINE PRINCIPLES OF THE CHARRETTE PROCESS

The term "charrette" is overused and often misused. Some people use the word to refer to a single debate or Saturday afternoon meeting over the fate of a neighborhood. The following nine strategies are what differentiate an authentic charrette from other planning processes.

1. Work collaboratively. A charrette creates a long-lived plan based on each individual's unique contributions. The charrette plan is a vision authored by all who participate. Having contributed to it, participants are in a position to both understand and support its rationale. This includes anyone who might build, use, sell, approve, or attempt to block the project. Local citizens, officials, and approval board representatives meet and work with the design team throughout the charrette to create a plan that incorporates their ideas and concerns. The charrette process gives the plan mutual authorship and a vision shared by all participants. This approach is initially more work, but, in the long run, it will save time in rework and most certainly will produce a higher-quality product with a greater chance of implementation.

2. Design cross-functionally. All design work must be done concurrently by a cross-functional team, which usually includes architects, planners, engineers, economists, market experts, public staff, and citizens. This results in decisions that are measurable and realistic every step of the way. This cross-functional team working together from the beginning further assures elimination of rework because the design work is continually reflecting the wisdom of each specialty.

During the charrette, the collaboration of the de-



An example of a NCI Charrette System roadmap showing the critical path items within the three phases. Much of the work occurs in the months preceding the charrette. See page 219 for more details.

sign and development disciplines also helps produce a set of finished documents that address all aspects and phases of a project. Detailed designs are undertaken individually or in small groups. At other times, larger caucuses occur, and often there are simultaneous meetings. Periodically everyone gets together for a briefing, discussion, or presentation.

3. Use design to achieve a shared vision and create holistic solutions. Design is a powerful tool for establishing a shared vision. Drawings help illustrate the complexity of the problem and can be used to resolve conflict by proposing previously unexplored solutions that represent win/win outcomes. The charrette design team specializes in capturing ideas quickly in drawings that help educate and focus the discussion. One of the most important ground rules used throughout the charrette is "talk with your pen." This applies not only to designers but also to all charrette participants.

4. Study the details and the whole. Lasting agreement is based on a fully informed dialog. True buyin can only be achieved by designing in detail. This way, critical issues are brought to the surface and addressed. This can only be accomplished by looking at the details (building types, block sizes, and public space) and the big picture (site circulation, transit, land use, and major public amenities), concurrently. Studies at these two scales also inform each other and reduce the likelihood that a fatal flaw will be overlooked in the plan.

5. Compress work sessions. The charrette is

purposely designed to apply reasonable pressure through a series of deadlines. This time compression facilitates creative problem solving by accelerating decision-making and reducing unconstructive negotiation tactics. Having a little less time than is comfortable to complete a task forces people to abandon their usual working patterns and "think outside of the box."

6. Communicate in short feedback loops. Regular stakeholder input and reviews quickly build trust in the process and foster true understanding and support of the product. A feedback loop happens when a design is proposed, reviewed, changed, and re-presented for further review. The shorter this cycle, the greater the level of influence and buy-in by the reviewing parties. In conventional planning processes, the design team presents plans to the community and input is gathered through various methods such as surveys, or small discussion groups. The designers then retreat to their office and return weeks later with a revised plan. Often during these weeks, some degree of misunderstanding occurs in the community. People who attended the meeting come away with different understandings. People who don't like to speak in public speak to others in the parking lot afterwards. The result is often a crystallization of opinions against the plan that send the design team back to step one. In a charrette, the participants are told to come back the next evening to review the changes. Any misunderstandings are resolved quickly before they have had a chance to crystallize. With convenAn example of a Charrette Ready Plan showing a detailed charrette preparation plan. Substantial blocks of time must be allocated for market research and analysis, studying transportation networks, site analysis, and stakeholder meetings to provide a solid foundation for planning and design. See research, education, and charrette preparation on page 220.



in-house meeting

ongoing task

public meeting

tional planning methods, the design and feedback cycle can last up to four to six weeks. The charrette shortens it to 24 hours.

During the day, and often late into the night, the charrette studio is a forum for ideas, with the unique advantage of this immediate feedback. At the same time that someone is designing a street, another is locating a tree, and an engineer is determining the effects on drainage. Questions about design problems are answered on the spot. Most importantly, simultaneous brainstorming and negotiation during a charrette can change minds and encourage unique solutions to problems. The number and variety of solutions and ideas generated and considered are far greater than in conventional planning methods. A better product results from this creative effort.

7. Include a multiple-day charrette. Most charrettes require between four and seven days, allowing for three feedback loops. Three loops are the minimum required to facilitate a change in participants' perceptions and positions. Only simple projects with little controversy should be attempted in four days. More complicated projects typically take seven days.

8. Hold the charrette on or near the site. Working on site fosters participant understanding of local values and traditions, and provides the necessary easy access to stakeholders and information. The design team sets up a charrette studio either in the neighborhood or on or near the site. The studio is a temporary office and community meeting space that serves as the headquarters for the process. Close proximity to the site is important to make it easy for people to participate and for the design team to have quick access to the site. Charrette studios have been located in empty main street storefronts, community centers, high schools, armories, and elsewhere.

9. Produce a feasible plan. The charrette differs from a visioning workshop in its expressed goal of creating a feasible plan. This means that every decision point must be fully informed, especially by the legal, financial, and engineering disciplines. The success of a community's work to plan and build together hinges

Workflow for a Seven-day Charrette

DAY ONE

Organization, Education, Vision

The charrette team prepares the studio and holds a briefing meeting before departing on tours. The primary stakeholders are consulted, and a public vision is created or affirmed at an open public meeting.

DAYS TWO AND THREE

Alternative Concepts Development

Initial concepts based on project data and the public vision are created, tested by primary stakeholders, revised, and presented at an open public meeting.

Scheduled and unscheduled stakeholder meetings are held at the studio during the day.

DAY FOUR

Preferred Plan Synthesis

Alternative concepts are synthesized into a preferred plan based on analysis and stakeholder input.

Scheduled and unscheduled stakeholder meetings are held in the charrette studio during the day.

DAY FIVE

Plan Development

The preferred plan is detailed and tested for feasibility

DAYS SIX AND SEVEN

Production and Presentation

The charrette team prepares a complete set of drawings and data, then presents it to the public.

The table above provides an overview of the work that is accomplished during a charrette and its timing. It helps to illuminate the more detailed schedule on page 221.

on the implementation tools, such as codes and regulating plans. Plans that sit on the shelf contribute only to citizen apathy.

THE THREE PHASES OF THE CHARRETTE

The charrette is the central element of a larger comprehensive process that comprises research, education, and charrette preparation; the charrette itself; and plan implementation. The most common cause for project failure is not a poorly run charrette; usually it is incomplete preparation and/or inadequate follow-through during the implementation phase. The following steps make up the charrette process:

1. Research, education and charrette preparation. This phase occurs six weeks to several months prior to the charrette. The first task is to ensure that the entire project team develops the best project process. The project team holds a one-day meeting to design the charrette process and reach agreement on desired outcomes of the charrette, a list of key stakeholders, outreach plans, schedules, roles and responsibilities, and the preparation plan for the charrette. The first public meeting is planned and scheduled. The underlying mission is to ensure that all the right information and all the right people are at the charrette.

During the charrette, the team needs to be confident that it has all the resources necessary to make accurate design and strategy decisions. To ensure this, all relevant base data is collected and analyzed, participants are educated about the project, the process, and their role in it, and input is gathered from stakeholders prior to the charrette. A kickoff public meeting is held to introduce the project and ask citizens for their opinions on the base data, their interest in the project, and their needs. It is essential that all participants be treated with respect. People should leave the meeting wanting to come back. They should feel that their participation is critical and will make the project better.

Some initial development concepts are often sketched and tested in-house, prior to the charrette, for purposes of determining a range of feasible options, exposing areas requiring further research, and allowing the designers to "get their hands dirty" with the project so that they can work more efficiently during the charrette. Depending on the project, this preparation process can take anywhere from a minimum of six weeks to nine months. By the end of phase one, the information, people, and physical logistics required to start the charrette must be in place.

2. The charrette. The design team establishes a full working studio on or near the site, complete with drafting equipment, supplies, computers, copiers, and printers. Design, engineering, production, marketing, sales, and all levels of project management are assembled for the charrette. The first day features tours of the site followed by a team meeting and meetings with key individuals. In the evening, a public meeting begins with a lecture on the principles of town planning, followed by a hands-on workshop where the community creates a set of vision elements for the project.

As the charrette continues over subsequent days, the design team works to synthesize and refine the themes that emerge. This synthesis takes place through a series of design-testing feedback sessions with stakeholders. There are scheduled meetings with approval agencies and special interest groups, such as neighborhood associations and business owners, and there is a public, mid-course "pinup" session. This pinup session is the event at which the designers take their drawings off their desks and pin them up on a wall for peer review. It is in these sessions where the creative interaction between various interests occurs. In fact, these sessions can often become quite heated as the detailed alternatives are debated. Frequently, it is during these discussions that solutions emerge.

This cycle of design and review continues over the course of the charrette. A high-energy, productive atmosphere is created in the studio by this type of interaction. Designers often work late into the night, joined by interested citizens, engaging in spirited debates about the merits and problems of various alternatives.

The charrette catches people who usually slip through the cracks. The day and night meetings accommodate people's various schedules.

After a the first couple of days, word gets out to those who may not have heard of the event, and they start showing up.

On one or more evenings, there is an open public review of the day's work. These sessions provide the powerful short feedback loops that are crucial to the success of the charrette. Because all stakeholders are present, everyone's perspective is heard and the perceptions of problems change. Participants learn that the project is more complex than they first thought, and that there are other needs that must be accommodated. People should feel that their concerns are legitimate and have been addressed in the plan. Since it is not uncommon for more than 60 percent of the participants to come to every session, they see the evolving rationale behind each decision.

The charrette ends with a public presentation. The design team presents all elements of the project including master plans, building designs, economic and transportation impacts and strategy, and an implementation action plan. Everything needed to move the project forward into implementation is addressed at a sufficient level of detail. For those who have followed the charrette from the first evening, the impact is dramatic. The atmosphere reminds many of college design studios where weary students present their set of finished drawings. Many of the presentations end with a round of applause from the local participants, who appreciate the sincere work from the design team, who have lived in their town for a week. Some presentations have been held in conjunction with city council meetings. At one memorable charrette in Stuart, Florida, the council voted to accept the charrette recommendations on the spot.

3. Plan implementation. Two major processes follow the charrette. The first is product refinement, during which the charrette team tests and refines the final charrette plan to assure its feasibility. The second is

Below is a detailed sample schedule for a charrette and a two-day follow-up meeting.

		day 1	DAY 2	DAY 3	DAY 4	5	6	DAY 7			day 1	
		Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast	Breakfast			Breakfast	Br
	8:00 AM			Team meeting	Team meeting	Team meeting	Team meeting	Team meeting		8:00 AM		
	9:00	Studio set up	Team meeting			Draf	Stake-			9:00		P
1	0:00			Alt. conc. Stake- balder	Preferred plan	plan Stake- holder	Prod. reviews	Production		10:00		ren
1	1:00	Tours	Alt. concepts development	dev. reviews (tech.)	synthesis	sis	as needed			11:00		-
1	2:00	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch	1	12:00	Primary stakeholder	P
	1:00 PM 2:00 3:00	Primary stakeholder meetings	Alternative concepts	Alt. conc. dev. Stake- holder reviews (tech.)	Pref. plan synthe- holder	Plan development	Production	Production		1:00 PM 2:00 3:00		
	1:00	Meeting preparation	development	Alt. concepts development	sis	Optional		Meeting		4:00	Meeting preparation	M pre
	5:00	Dinner	Dinner	Dinner	Ontional	open house	Dinner	Dinner	1	5:00	Dinner	(
THAN 1	6:00			1	Open house				4–6	6:00		
	7:00 8:00	Public meeting #1	Alternative concepts development/	Public meeting #2	Preferred plan	Optional night off		Final charrette	weeks max.	7:00 8:00	Public meeting	Publi
5	9:00		team review		plan		Production		ind <i>x</i> .	9:00		
2 1	0:00		L		Gereopinent				1	10:00	Product	
1	1:00							Celebration		11:00	refinement	

oduct

imary eholde eting



based on a relationship strategy in which the project sponsor continues to work with the stakeholders to maintain their support of the plan. The process concludes with a post-charrette public meeting, usually no more than four to six weeks after the charrette, during which the revised plans are presented for final public review and input.

It is important during this phase to review the work, make any necessary adjustments, and get back to the public for a last look. The longer this period lasts, the greater the risk of failure. To the greatest extent possible, critical stakeholders should be kept in the loop by being involved in the testing for market, financial, physical, and political feasibility. The final public review, no more than 45 days after the charrette, can help to engage those who missed the charrette. The final public review often involves two public meetings on consecutive days.

The entire project process must be fully documented in a final report. This report summarizes the major meetings and tracks the evolution of the decisionmaking process that leads to the final plan. The final charrette report must be capable of completely explaining the project process to those who were not able to attend the charrette and to those who will participate in the later phases of project implementation.

A FEW HELPFUL CHARRETTE TECHNIQUES

1. Bus tours. Get all interested parties and key stakeholders on a bus and visit places that can serve as models for the project. These tours can be invaluable in getting a shared set of visual references for the

charrette. For example, when the discussion turns to something as specialized, yet critical, as curb radii, referring to that particular corner in Leesburg can quickly bring clarity to the problem.

2. Crowd control. How do you handle an unpredictable flow of people visiting the studio and get anything done? A core production team needs to be working continuously. Therefore, it is crucial to have a person dedicated to greeting visitors. Information is delivered to the design team from the greeter and those attending meetings with stakeholders.

3. The charrette gallery. One way to involve a large number of visitors is to establish a gallery of ongoing work at the entrance area of the charrette studio. When visitors arrive they are greeted and shown the ongoing work without disturbing the design team. The greeter explains the work and records their ideas. Of course, anyone with an important role, such as adjacent landowners or political representatives may need to work with a designer, but generally these people are involved through scheduled meetings.

Bill Lennertz is director of the National Charrette Institute in Portland, Oregon, and author of The Charrette Handbook, published by the American Planning Association in 2006. www.charretteinstitute.org

Editor's note: Prior to planning and implementing a charrette, reading The Charrette Handbook *is recommended.*



Alternative plans are typically drawn, as in the examples at left from the Pleasant Hill BART transit village charrette by Lennertz Coyle & Associates. Top right was the preferred plan. Above right is a refined version of that plan. Every site has many possibilities. In a well-run charrette, the plan with the most appealing qualities emerges.



The team also produces renderings to help the public and planners visualize the proposal. Examples above left and at top are of the Pleasant Hill transit village. Street sections, middle right, are frequently drawn as well, and form-based codes, bottom right, are often created.

Notes on the conduct of charrettes

Andres Duany

Setting up a charrette is serious business. Begin with the understanding that a charrette is only as good as the people who can be persuaded to participate. Also, having the right people present is much more important than having a great number of participants there; ten citizens who know what they are talking about can effectively represent the thousands who do not show up. Such citizens may usefully be organized as a steering committee.

Furthermore, certain prominent individuals may require personal meetings that enable them to tell it like it is. Elected officials and some bureaucrats, who typically remain silent or merely posture when in public, will speak out when alone. Be aware that meetings organized around special interests are bad tactics. For example, green groups, developers, and traffic engineers, without the presence of countervailing representation, will work themselves up into a frenzy of demands or nonnegotiable positions. The charrette leader should not be the person asking such groups to consider reasonable alternatives; other members of the community should do that.

The guest lists for charrette meetings must therefore be assembled carefully. But getting those thoughtfully selected people to come is equally important. Contacting the key participants requires more than the obligatory but scattershot newspaper ads: It takes time (2-3 weeks), and a dedicated individual making initial phone calls, mailing invitations, and following up with confirmation calls. Don't close the list, because the initial group should be supplemented during the charrette with emergent voices characterized by intelligence and reasonableness. Keep a record of who has attended the meetings.

Research participants

Know something about the individuals who participate: It helps in relating to them, or at least prevents stepping on their toes inadvertently. Research them: What do they do, how long have they held their positions, who trusts them, and whom do they represent? Are they Democrats or Republicans? Do they have families? What do their spouses do? Where do they live? An expert adviser on researching participants is Deborah Stein of San Francisco.

Verify statements made: They are not necessarily

facts. And when something definite comes out of a meeting, keep bringing it up at other meetings. Amazingly often, the other side of the story gets told.

Do not let an evident falsehood stand for even five seconds. Interrupt the speaker and set it straight, for the murk created by misstatements destroys a charrette. Do not be afraid to be ruthless in challenging falsehoods: If equal respect is given to the false as to the true, the charrette will lose the respect of the participants.

Furthermore, do not let anybody disrespect the planners or the principles of town planning. Push back immediately. When disrespectful opponents smell weakness, they will attack like a pack and they will not stop. Remember that if a number of people are not at some time or in some way angry with the planner, then no principles have been presented; the planner has been merely a secretary to the mob, and the plan will be weak to the point of being useless.

Discuss principles

Try to have most discussions at the level of principle. If all discussion is specific to someone's "backyard," then the affected person has undue clout, because others will hold back when a backyard is being defended. This over-attention to individual concerns will distort the greater public interest.

On the other hand, in the event that an aspect of the plan harms some participants' interests, be the first to let them know. Present the damage frankly and suggest that their best interests lie in opposing that point. This will gain the respect of all concerned, including the harmed individuals (who most likely know about the problem anyway). The respect displayed by straight talk is usually a first step in engaging a fruitful mitigation of the problem.

Take notes ostentatiously. People are heartened to see their input taken seriously, and writing it down is another sign of respect. Do this on a computer, not on an easel with markers, because lists become discouragingly endless and messy: The mess is hidden on the computer. Later, the list can easily be cleaned up and shortened with the delete key, since most entries will be obvious, repetitive, wrong, or not worth remembering.

A newly proposed idea is a very fragile thing. If it is met by silence, that alone is enough to kill it. Positive action is required: Ideas must be fanned into robust life. People are either idea fans or idea killers. Get rid of the killers as they waste positive energy. When several ideas have been suggested for a certain aspect of the work, do not demand that a selection be made by some deadline. Such decisions are tantamount to killing ideas. Allocate resources to bring them along, encouraging them as in a race, until one pulls ahead. As competing ideas evolve, the best one will stand out.

Only professionals draw

Do not let attendees do any drawing themselves, because some perfectly good ideas may get tangled up and lost in technical inadequacy. Assign someone who knows how to draw to work with them. Furthermore, never, ever draw badly, assuming that approximating a layman's level of incompetence will be less threatening. This is condescending and undermines the professional's standing, leading people to the conclusion that "Hey, if I can do it, it must be easy." Draw beautifully at all times: Participants deserve that consideration, and it is an obvious sign of professionalism. The subtle distancing gains their respect.

Also, never oversimplify explanations. Be very clear, but don't condescend; rather, assume the listener's intelligence and the person may develop it. Furthermore, do not allow anyone else to "dumb down" the discussion either, particularly with single issues.

When anyone has an idea that can be drawn, draw it for that individual. This will immediately reveal to all concerned if the idea is any good, in which case it will be kept. If it is bad, its promoter will be content to drop it. Otherwise, an idea dismissed without being granted the respect of a drawing will persist in the initiator's mind as the best way to go: The charrette will have created an intractable skeptic. Note that the charrette team needs to be large in order to illustrate all ideas.

Two phases: creative and productive

Making a charrette simultaneously creative and productive is difficult. The exploration that creativity requires generates confusion, complexity, and inefficiency. Instead, try to divide the charrette into two phases: a tolerant, creative phase of three-to-four days, when all ideas are supported and means are assigned to bring them, if possible, to life; and a formally initiated production phase of equal length, tightly controlled by the boss. Creativity may persist in this phase, but should not be the dominant ethos.

One of the better results of a charrette located

away from the home offices is that the principals of each specialty are prominently seen to do the work themselves. The marketing, retail, engineering, environmental, and architectural specialists, being present, are unable to delegate as they would back at their offices. This, together with the absence of office scatter, gets the best work done.

Sometimes having a mobile meeting is useful with inner-city work. Get the participants in a van and cruise. This has two possible advantages: People cannot mislead because the verification is passing by the window, and issues come up that may not have arisen if not catalyzed by their visual presence.

Try to have a general meeting at the beginning of the charrette, where all who will be attending by appointment are gathered together. During this meeting present the principles and issues which will be common to the discussions that will follow. This way, the precious time of the individual appointments need not be consumed by starting from ground zero time and time again.

At the end of the charrette, have another general meeting to present a complete first draft. At completion, the true complexity of the big picture will be evident and therefore protected from being undermined by small-minded people or selfish special interests. It is a good time to put forth the most radical, the most risky ideas, as they may be welcomed despite fears, and so they can be continued. On the other hand, if they prove to be terminally unacceptable, then, time and fee still allow them to be adjusted before the hearing. Presenting an idea for the first time at a final hearing is a terrible practice, as a hearing is not a good format for creative modification, only for quick compromise.

The charrette itself is a good marketing tool because it is an event. Designing quickly in the presence of others is an impressive task, even heroic; whereas working back at the office is merely drudgery, without excitement or news value. A project can easily become known as best in the region on the strength of a good charrette.

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Market Demand

13

The market for urban places			
Change in perception	229		
Demographic shifts	229		
Oversupply of large-lot housing	230		
Energy and environmental			
considerations	231		
Target market analysis	231		

The importance of
maintaining flexibility
Visual surveys show greater
acceptance of density

232

234

Above: On a beautiful day people of many ages enjoy a recently built plaza in Bethesda, Maryland. The market for mixed-use urban environments is growing. Photo by Robert Steuteville.

The market for urban places

Place matters to market demand. As explained by Laurie Volk of the housing market research firm Zimmerman/Volk Associates, "Building the proper mix, at the appropriate sizes, rents/prices and configurations of each housing type, can influence migration, mobility and settlement dynamics, capturing households that otherwise might have moved to a different location, or not moved at all." In other words, market research that is sensitive to the appeal of urban neighborhoods can create a positive feedback loop, enhancing the urbanism and driving greater demand for housing in a given place.

There are good reasons to believe that walkable, mixed-use, compact neighborhoods will perform well relative to the real estate market as a whole through the first three decades of the 21st Century. This outlook is based on a decade of research that shows a chronic undersupply of urban housing that is expected to last at least through 2030.

Demographic trends point to a growing market for urban places during this time. Both Baby Boomers (those born from 1946 to 1964) and Millennials (born from 1977 to 1996) "are moving toward urbanism at the same time," according to Todd Zimmerman of Zimmerman/Volk Associates (ZVA).

Two age groups, baby boomers and millennials, will come together in 2014-2016 to form a powerful market for urbanism.



For most of the last half of the 20th Century, such a positive outlook for urban housing would have been unthinkable. The middle class was leaving cities from the 1950s through the early 1990s, and by the nineties many cities had seen little or no new housing in decades. During the housing recession of the early 1990s, cities were largely irrelevant. The view of the building industry was that nobody wanted to live in urban housing. The conventional wisdom was reinforced by market studies that looked at what had recently sold. Since little new urban housing had been built, little had sold.

New urbanists and others challenged that view, arguing that the design and quality of neighborhoods have an important affect on housing market demand - and that markets are far more complex than had been assumed. The real estate industry had failed to recognize the demand for urban neighborhoods, they said. In the late 1990s perceptions began to change with the emergence of housing booms near historic downtowns and the success of traditional neighborhood developments (TNDs) on greenfield sites. Developers and designers who went against the grain of conventional real estate wisdom were rewarded for their efforts. Studies for the US Environmental Protection Agency by Economic Research Associates and the ULI's Valuing the New Urbanism found that new urban communities command price premiums and hold their value better than comparable conventional developments. Urban and transit-accessible housing generally outperformed automobile-oriented suburban units in the housing recession that began in 2006.

Underlying the relative success of urban housing in recent years are fundamental market realities:

• Urban neighborhoods are celebrated and cool again after decades of neglect.

• Demographic trends strongly favor attached and multifamily housing.

• Large-lot suburban housing was substantially overbuilt in the US by the early 21st Century.

• The rising cost of energy and transportation —



LOONEY RICKS KISS ARCHITECTS AND RTKI

New housing demand will be focused on compact, walkable places like Harbor Town, above.

both in monetary and environmental terms — makes compact urban housing more attractive.

CHANGE IN PERCEPTION

Walkable neighborhoods have become more popular while gated communities have become less desirable, according to a 2007 report by GfK Roper called "Modern Communities." GfK Roper tracked a decline in the desirability and prestige of gated communities. Only 17 percent of Americans think that gates are part of an ideal neighborhood, about half as many as thought so in the mid-1990s. More people are valuing elements that point toward smart growth, such as walking distance to small shops and inclusion of parks, civic buildings, and churches. The authors specifically cited well-known new urban communities — such as Celebration, near Orlando, Florida; Prospect in Longmont, Colorado; and Orenco Station, near Portland, Oregon - as examples of a new community ideal, because they foster a sense of place, enhance walkability, and integrate family and community life.

Young people who grew up in the suburbs but are now disenchanted with them are one reason why cities have become more popular, according to Ann Breen and Dick Rigby, authors of *Intown Living* (2005). "What's going on today is not a 'backto-the-city' movement by aging Baby Boomers, but rather a 'forget about it' movement driven principally by people under 40 for whom the suburbs hold no appeal," Breen and Rigby reported. That group, they noted, is buttressed by gays of all ages, by divorcees "for whom an urban neighborhood with a nightlife offers a chance to meet new people," and by suburbanites and out-of-town visitors wanting a weekend place or a second home.

DEMOGRAPHIC SHIFTS

The US population will grow by 70 million between 2005 and 2030, according to Arthur C. Nelson, professor at the University of Utah's College of Architecture + Planning. The percentage of households without children will continue to rise during this period — to 73 percent in 2030 from 52 percent in 1960. The aging of the Baby Boomers supports this trend. The annual number of Americans turning 65 will grow to nearly 1.5 million a year by 2012 compared to less than 500,000 in 2005. As they age, members of the Baby Boom generation increasingly prefer to live in higher-density settings where stores, restaurants, doctors' offices, and other conveniences are close by, says Dowell Myers, professor of urban planning and demography at the University of Southern California.

Perhaps the most compelling demographic figure related to new construction is this: 88 percent of the nation's growth between 2005 and 2030 will consist of households without children, Nelson reports. These families are less likely to opt for the suburban lifestyle. Suburban retrofits — particularly redevelopment of old shopping malls into mixed-use town centers — could meet a good portion of this demand, Nelson believes.

About one-third of buyers want smart-growth features in their housing, Nelson says, citing research by Robert Charles Lesser & Co. real estate consultants. This preference appears to be on the rise. Pref-

Up to 2.8 million acres of grayfield sites could become available for compact residential development by 2030, allowing for new mixed-use neighborhoods like this one in San Jose, California, according to planner Arthur C. Nelson.



Do you prefer?



Robert Charles Lesser & Co., the well known real estate consulting firm, found significant preference for many aspects of walkable places. This survey was done at the turn of the millennium, and the demand for urbanism has only increased since.

erences for specific smart-growth traits range from 40 to 70 percent, according to a National Association of Realtors and Smart Growth America report. Todd Zimmerman rejects any attempts at pinning down a percentage of American households that would prefer New Urbanism because such general numbers have no meaning in specific locations or for specific projects.

ZVA's experience, which now extends to more than 400 studies in 45 states, shows there are significant changes in market preferences compared to the late 1990s. There is a growing market for any form of urbanism: downtowns, transit-served neighborhoods, in-town neighborhoods, historic districts, older prestigious neighborhoods, existing towns and villages, new traditional neighborhoods. The percentage of the market that chooses urban neighborhoods varies from location to location, but is increasing everywhere as a result of shifting demographics, augmented by cultural dynamics and changing economics.

OVERSUPPLY OF LARGE-LOT HOUSING

Large-lot housing — defined as greater than 7,000 square feet — became the most popular housing to build in the post-World War II era. As of 2007, it was 53 percent of US housing stock. Nelson estimates that by 2007 the US already had 23 million more of these units than will be in demand by 2030. Yet builders are adding to this oversupply. Zoning laws across the nation have been partly responsible for this problem, according to Jonathan Levine, professor of urban and regional planning at the University of Michigan, who wrote *Zoned Out* in 2005. Zoning, at least through





New Urban News, from Arthur C. Nelson, Metropolitan Institute, Virginia Tech the early part of the 21st Century, overwhelmingly has tended to restrict density and encourage large-lot development.

According to a study by Levine and other researchers in metropolitan Atlanta, residents with at least an 80 percent preference for walkable urbanism — those most likely to choose a compact, transit-friendly place — have only about a one-third likelihood of living in such a place. The supply of urbanism is so limited that many residents settle for conventional suburbia though they prefer something else. Atlanta is dominated by large-lot housing, and like many regions in the US, the zoning there largely restricts any other kind of development, as of 2008.

Local communities, committed to perpetuating low-density development patterns, have for many years put obstacles in the way of higher-density infill construction. Voters — many of whom own detached houses — cause municipalities to resist townhouses and other proposals involving more units per acre. "The problem is that there is no advocate for future housing residents," Myers says.

Overwhelmingly, the demand for new housing through 2030 will focus on multifamily and small-lot single-family units possessing smart-growth characteristics such as walkability and mixed-use, Nelson forecasts.

ENERGY AND ENVIRONMENTAL CONSIDERATIONS

Two worldwide issues are likely to influence housing markets for decades to come: petroleum supplies and climate change.

During the first eight years of this century prices for oil rose by more than five times — and that was reflected in steeply rising gasoline costs. That trend was reversed by a worldwide recession in late 2008, but many analysts believe energy costs will be a big issue in coming years. A 2008 study by economist Joe Cortright, "Driven to the Brink: How the Gas Price Spike Popped the Housing Bubble and Devalued the Suburbs," argues that gas prices will exert a powerful and long-term impact on housing markets — driving demand for compact, transit-accessible residential units.

There's no way that the US will meet important carbon dioxide emission reductions without a radical switch to compact smart growth, according to *Grow*ing Cooler: The Evidence on Urban Development and Climate Change, a 2007 book published by the

Housing price change for selected Zip Code areas

	Miles	Median Ho	ousing Pr	ice
Metropolitan Area/	from	(Thou	sands)	Percent
Zip Code- City	CBD ¹	2006	2007	change
Chicago				
60618 Chicago	5.6	374	410	+9.4
60089 Buffalo Grove	26.0	374	344	-7.9
Los Angeles				
90042 Los Angeles	5.2	496	481	-3.8
91351 Santa Clarita	27.9	510	434	-15.1
Pittsburgh				
15201 Pittsburgh	3.3	85	97	+13.4
15068 New Kensington	17.5	107	91	-15.4
Portland				
97202 Portland	3.0	332	357	+7.7
98685 Vancouver	13.6	313	287	-8.4
Tampa				
33607 Tampa	3.7	184	179	-1.3
33573 Ruskin	17.5	205	160	-21.7

Source: Impresa analysis of Zillow.com data

¹ Central Business District

The table compares housing price change for zip codes in the primary city of a metropolitan area and for a distant suburb during the housing recession of 2006 and 2007. In each case, the city housing values outperformed the suburban ones.

DC-based Urban Land Institute, which represents the development industry. Public awareness that sprawl leads to global warming could lead a segment of the market to choose more urban environments. Furthermore, political decisions — such as enacting a carbon tax — could make large-lot housing relatively more expensive from an energy standpoint and give the market for compact development an additional boost.

Personal preferences, demographic trends, current supply imbalances, and environmental factors all point in the same direction: The demand for walkable, mixed-use neighborhoods will continue to outpace supply in the foreseeable future.

TARGET MARKET ANALYSIS

Conventional market research has been of limited use to new urbanists — especially in the first two decades of the urbanizing trend. Conventional techniques often are "nothing more than an analysis of market performance of currently marketed subdivisions and master-planned communities, combined with simple, often marginally related demographic data," explain

The importance of maintaining flexibility

With their variety of housing types, TNDs are able to respond to changes in demographics and market demand better than conventional subdivisions. With that advantage in mind, savvy developers like to keep their plans as flexible as possible.

When market conditions change, such as when the housing bubble burst in 2006, the flexibility of an urban plan based on the Transect can help. When multifamily is part of the mix, developers benefit from being able to switch from for-sale to for-rent product — or vice versa as the need arises. While other developments in the St. Charles, Missouri, area came to a standstill, New Town developer Greg Whittaker was able to keep 150 families a year moving into his project partly by concentrating on for-rent apartment construction.

Vermillion in Huntersville, North Carolina, is another case in point. Lot lines have been erased and replaced with a Transect classification of center, general, and edge neighborhoods. Each type of neighborhood has an upper density limit, but otherwise Bowman is free to make changes without having to rezone the property on a regular basis. "I can change products," he says. "I don't want to be locked into lot lines on townhomes and then decide I want to use a completely different look."

In Orenco Station, the zoning of the property resulted from negotiations between developer PacTrust and several local, regional, and state agencies. PacTrust committed to building 1,834 dwelling units on 210 acres, all within a half-mile radius of the light rail station.

"The result was a radial density formula that had no organizing features other than the station itself," says Mike Mehaffy, PacTrust's former project manager at Orenco Station. "We made the point that we needed flexibility to be able to create a strong neighborhood design with a sense of place, and that blindly following Zimmerman and Volk. Such research tends to perpetuate sprawl by basing future demand estimates on what had been built and sold in the past.

No research, however rigorous, can take into account all of the decisions people make when buying a house, according to ZVA. However, the characteristics of the various types of households that represent the potential market for urban housing can be determined, the firm explains. ZVA pioneered a particular application of "target market analysis" to do just that. The target market method starts by examining migration trends and mobility rates. Migration data quantifies how many households move into an area, and from where. ZVA notes that migration data need only be concerned with in-migration; out-migration is of little consequence even if it is larger, they say. Mobility rates quantify those households that move within a market area. Migration and mobility data describe the practical upper limit of the market. ZVA notes that between 16 percent and 20 percent of households move every year. Household mobility data comes from the demographic and market segmentation firm Claritas; household migration data comes from the Internal Revenue Service, supplemented with population mobility data from the American Communities Survey.

The quantity of mobility and migration are half of the research needed. To determine the qualities of the households, ZVA uses Claritas PRIZM data [there are other firms that also do similar market segmentation, such as CACI International]. "Clusters of households are grouped according to a variety of significant factors: basic demographic characteristics, income, age, mobility rates, lifestyle patterns, compatibility issues," ZVA notes. There are 66 PRIZM "clusters" - you can find detailed descriptions of them online at www.mybestsegments.com. For any geographic area, Claritas keeps data on what percentage of the population is part of any given cluster. "The data on each market subgroup is comprehensive, ranging from housing preferences, financial capacities, and lifestyle choices to the types of magazines read and TV shows watched," Volk explains. PRIZM data also shows where these groups tend to live. ZVA renamed and enhanced the Claritas clusters with application to housing, Volk explains.

A ZVA study in Norfolk, Virginia, illustrates how this method can get beyond stereotypical thinking. That study identified a potential market of 1,100 households, including 53 percent younger singles and couples, 28 percent empty nesters and retirees, and 19 percent compact families. This finding "was at odds with local experts, who believed the market to be smaller and consist almost entirely of older couples," ZVA says. The market performance of Heritage at Freemason Harbor, a 184-unit downtown apartment complex with a small main street, bore out the target market analysis. In addition, it helps if the market researcher has knowledge of urban design. For example, ZVA recommended construction of "maisonette units," apartments with their own entrances on the street like townhouses. The units create a better streetscape that gives the visual impression of single housing rather than an apartment complex (see photo on this page). Heritage at Freemason Harbor helped to launch a residential resurgence in downtown Norfolk.

Urban housing is not a "zero sum game," ZVA explains. When new housing options are created within a city, they say, it can capture households that would have settled elsewhere. New construction has the power to attract the potential market. Conventional market research, which ignores both urban design and new buildings types, would not likely have foreseen the popularity or benefits of "maisonette units" in Norfolk.

Conventional market studies were of little use to PacTrust, the developer of transit-oriented Orenco Station in Hillsboro, Oregon. The Orenco Station plan called for half of the for-sale units to be attached, but a market study revealed that only two attached housing units had sold in the Hillsboro area in the previous year. The company ignored the findings and sold the first 120 townhouses rapidly.

"We've learned that you can't follow the mar-



Maisonette units in Norfolk helped spark downtown revitalization.

a density formula was a very bad idea."

Several developers stress the importance of being able to tweak lot sizes to adjust to demand. With the freedom to use fractions of lots and combine them, Robert Kramer in Haile Village Center has gained enough experience to predict what kinds of lots will be in greatest demand.

In Avalon Park (Orlando, Florida), developer Beat Kahli says he continually makes small changes in the plans to accommodate fluctuations in lot sizes. "Five years ago, buyers wanted square footage," Kahli says, "but now we find that more people want smaller homes with more options." The first village in Avalon Park has an even distribution of lots 45, 50, and 70 feet wide, but when demand rose for smaller homes, a full two thirds of the lots in the second village were shifted to the 45 foot wide dimension, Kahli says.

ket blindly, because then you are just following the crowd," says Dick Loffelmacher, director of retail leasing at PacTrust. "But if you do an exceptional job of creating a community, then you have created a new market."

The combination of New Urbanism expertise and method made ZVA unique for many years - but in recent years other consultants have become adept at using target market analysis to determine urban housing markets. Economic Research Associates (ERA) of Washington, DC, uses both target market analysis and more conventional methods of determining what has sold. In certain submarkets, such as the Rosslyn-Ballston corridor in Arlington, Virginia, most or all new housing has become urban and walkable. In such cases, conventional market research works well, says Patrick Phillips, president and CEO of ERA. However, when ERA went to Lubbock, Texas, in 2007, there was no track record of sales on which to base the future performance of TND. In that case, only target market analysis could quantify the potential demand for urban housing, he notes. In other places, a mixture of target market analysis and conventional market research works best, he says. "In many cases the methods are starting to meld," Phillips says.

PHOTO BY ROBERT STEUTEVILLI

VISUAL SURVEYS SHOW GREATER ACCEPTANCE OF DENSITY

Emil Malizia and Susan Exline of the Center for Urban and Regional Studies at the University of North Carolina published a study in 2000 that collected and analyzed many of the available statistical and visual surveys on consumer housing preferences. Consumer Preferences for Residential Development Alternatives concludes that visual surveys are more appropriate for measuring people's attitudes about density. When they can see what is being talked about, respondents show a greater preference for higher density development with smaller lots, smaller homes, and a mix of housing types. "They will accept mixed land uses as long as human scale and good design are prominent," the report states. "They will make trade-offs as long as the objectives of safety and investment value are not compromised."

In a visual survey in Fort Collins, Colorado, 65 percent of respondents agreed that neighborhoods should include a wide variety of housing. In a Midtown Atlanta study, 57 percent of survey participants wanted future development in the form of neighborhoods with a mix of residential, commercial, and civic uses, all within walking distance of each other.



Finance

14

Investing in new neighborhoods New Urbanism gains respect New Urbanism premium Strategies

236

236

236 237

237

238

238

Advantages for governments Why some developers resist Investing for the long term TIF financing in San Antonio239Forms of debt and equity240Debt240Debt that functions like equity240Equity240Rules of thumb240Activity in smart growth funds241

How individual investors can profit242Fairview Village case study242Trinity Heights case study244Bradburn case study245

Above: Excelsior & Grand, Saint Louis Park, Minnesota, at night with Minneapolis in the distance. Photo by Alec Johnson, AC Johnson Photography.

Investing in new neighborhoods

The complexity of the New Urbanism leads to a perception of higher risk, according to developer Robert Chapman. With conventional development, there is one set of variables. A mixture of uses and many housing types multiplies the variables, which to some people suggests that more things could go wrong. "People who have money want no surprises," Chapman says. "The problem with New Urbanism is that it is based on the idea that there will be continual surprises."

On the other hand, complexity means diversity, and diversity is a proven way to manage risk. In a poor office market, an office park is dead in the water. But a mixed-use project can move forward with residential, retail, and civic development if the office portion of the project is not currently feasible. New urban developments are highly flexible — depending on how they are regulated. Proposed condominium buildings, for example, can be converted to apartments for lease. "When the market for condo collapsed, we redesigned [the condo buildings] for fourand five-story rental - wood frame construction on top of concrete garage platforms," Pete Jervey, principal of the JBG Companies, said in explaining how his new urban development, the Upper Rock District in Rockville, Maryland, avoided being brought to a standstill by the condo troubles of 2006.

The mix and size of single-family dwellings and townhouses can be modified in response to market forces without substantially altering the character of a new urban neighborhood. Furthermore, buildings in urban neighborhoods can change use over time — for example, first-floor professional offices can switch to retail, or vice versa. Commercial can switch to residential. Having diverse uses and housing types means that a single development can appeal to a larger number of segments of the real estate market. Many developers, including LeylandAlliance and Catellus Development Group, attest to the advantages of new urban flexibility during the housing decline that began in 2006.

In 1999, a Wharton Business School study identified significant challenges in financing the New Urbanism. At that time, mixed use was viewed by lenders as risky. By 2007, the perception was changing, at least with regard to urban infill development. "There are more mixed-use projects in cities and edges of cities than there were 25 years ago," says Steve Maun, principal of LeylandAlliance. "Banks are responding to that."

NEW URBANISM GAINS RESPECT

New Urbanism continues to gain respect as an investment opportunity, says Judy Corbett, executive director of the Local Government Commission based in Sacramento. Part of the appeal is the diversity and flexibility of smart growth projects. "Some, like the venerable Seaside in Florida, may recall the appealing towns of yesteryear," she wrote in *Land Development Today.* "Others, like the trendy Pearl District in Portland, may be built on recycled industrial properties and reflect modern styles of architecture. Because smart growth principles are not constrained by a onemarket-fits-all implementation program, these projects are able to satisfy consumer demands in a variety of market formats: big cities, small towns, transit centers, and yes, even at the urban edge."

NEW URBANISM PREMIUM

Numerous studies have confirmed that developments exhibiting new urban design command a premium in the marketplace. The first such study was *Valuing the New Urbanism*, published by the Urban Land Institute (ULI) in 1999; it demonstrated that communities with new urban design principles generate premiums of 4 percent to 25 percent — or 11 percent on average. (See table on next page.)

The EPA followed up with a study on Kentlands and Lakelands TNDs in Gaithersburg, Maryland. Kentlands houses commanded a 16.1 percent price premium over other houses in the area during the period of 1997 to 2005. Lakelands achieved a 6.5 percent price premium. Kentlands has sustained its premium year after year, and Lakelands has seen its premium grow — reaching 9.5 percent between 2002 and 2005, when the development was nearing buildout.

Estimated premiums in new urban communities

	Dollar value	Percent of home value
Kentlands Harbor Town Laguna West Southern Village	24,603 30,690 5,157 16,334	13 25 4 9
Combined	20,189	11

From Valuing The New Urbanism: The Impact of the New Urbanism on Prices of Single-Family Homes, *by Mark J. Eppli and Charles C. Tu. Published by ULI, 1999.*

A survey in the February 2003 issue of the ULI magazine *Urban Land* looked at eight mostly new urban town centers, and concluded that they perform as well as or better than typical shopping centers in key characteristics such as lease rates, occupancy rates, and sales per square foot. Moreover, many of these projects had residential components outperforming their markets in rental rates and sales prices.

"The Art of the New Urbanist Deal," in the fall 2002 issue of the *Wharton Real Estate Review*, examined four new urban communities and found that most were highly profitable for their developers. One, Kentlands, failed early on because of the 1990 recession and the inability to find town center tenants in a slow economy, author Witold Rybczynski reports. However, Kentlands generated substantial profits for the builders who finished the project.

While the projects that Rybczynski studied cost more to build than conventional developments, one developer was surprised that expenses fell short of expectations. "We thought it would be a 20 to 30 percent (cost) premium," Lakelands developer Tom Natelli told Rybczynski, "but it turned out to be much smaller, 5 to 7 percent." Rybczynski concluded: "In general this [cost] premium appears to be covered by the increase in value that seems to be attached to new urbanist projects."

STRATEGIES

Experts in the finance of New Urbanism recommend a series of basic strategies that help these types of projects. Their suggestions include the following:

• Take out two loans: one for the residential portion, another for the mixed-use town center.

• Find an appraiser who understands New Urbanism. If there is no appraiser in the region who understands it, hire an appraiser from a national firm with experience in New Urbanism.

• Make the landowner an equity investor. Have the landowner wait to get paid — which is the equivalent of having equity in the project. As the project is built out, payments are made to the landowner.

• Increase equity and reduce debt. Some new urban projects, particularly in regions with little experience in New Urbanism, may take longer for approval and for public acceptance. In these cases, it helps to not have huge debt payments. Greater equity tends to make banks more comfortable. (See investing for the long term, page 238.) It should be noted that some developers disagree; Maun points that New Urbanism can sell just as quickly as conventional, and he contends that it should have the same debt-equity ratio.

• Have a good market study and show examples of similar successful projects in other locations, says Joyce Moskovitz, senior vice president of community development for Bank of America.

• In cities, banks are used to mixed uses, according to Maun. On greenfield sites, finance the mixeduse portions separately. That way, the residential development and construction loans are similar to the loans of any single-use conventional development. The town center is treated as a separate entity, and the developer seeks a mixed-use loan on that portion, Maun explains.

ADVANTAGES FOR GOVERNMENTS

Some governments are eager to encourage New Urbanism and smart growth because they realize that this approach can general fiscal benefits while providing qualify-of-life and environmental benefits. A major regional plan in Sarasota County, Florida — known as Sarasota 2050 — calls for substantially increasing housing density while preserving up to 70 square miles in open space.

Fishkind & Associates, a fiscal analysis firm, was asked to determine the impact on the public sector of an infill/village strategy. The firm found that when growth follows a new urban plan of higher densities in some areas and open space in others, the county

County fiscal benefit from villages

Year	Annual net benefit	Cumulative net benefit
2010	\$1.4 million	\$6.7 million
2020	\$2.3 million	\$25.8 million

Fishkind & Associates, based partly on Zimmerman/Volk housing market analysis

Development form	Acres	Net revenue	NPV ¹ revenue	
Village	8,000	76.3 million	16.3 million	
Low-density ranch homes	8,000	35.7 million	12.1 million	

Village vs. low-density: total financial returns

Fishkind & Associates, based partly on Zimmerman/Volk housing market analysis ¹ Net present value

can expect to reap a cumulative net fiscal benefit of more than \$25 million by 2020 (see "County fiscal benefit from villages" on preceding page). The figure is based on an in-depth comparison of public tax revenues and costs likely to be realized and incurred under both a new urban and a conventional scenario.

Despite the higher cost of amenities in the new urban plan, a developer of an 8,000-acre parcel would earn 34 percent more revenue — amounting to more than \$4 million extra in profit, Fishkind & Associates concluded (see the table "Village vs. low-density: total financial returns" above). Town centers, which are higher density than villages, and hamlets, which require smaller expenditures on infrastructure and amenities, would likely be even more profitable than villages, Fishkind reported.

WHY SOME DEVELOPERS RESIST

Ward Davis, developer of the Ruskin Heights traditional neighborhood development in South Fayetteville, Arkansas, says many developers have not rushed in to do New Urbanism because despite the financial and market advantages, this approach requires a great deal of work. "TNDs are more profitable, but they take a whole lot more effort," Davis told the Congress of the New Urbanism in Austin, Texas, in 2008.

"While you can make more money per project with a TND, the developer can do several conventional projects with the same effort as one TND," Davis said. "So there is less profit for the equivalent effort. Most of the big developers like TND when they see the profits, but shy away when they realize how much of their time and effort it takes."

Davis noted that TNDs require more upfront money, especially for design and engineering. "Upfront dollars are not immediately financeable," he says. Add to that the risk of not getting the project approved — often greater with a TND — and the result is a reluctance to take on New Urbanism.

INVESTING FOR THE LONG TERM

Arcadia Land Company's Christopher Leinberg-

er, a leading theorist of finance for New Urbanism, believes that financial returns from new urban communities lag behind conventional suburban development (CSD) in the first few years. However, if done right, new urban development will greatly outstrip CSD in the long term, he says. The graph on page 239 illustrates his point.

Conventional suburbia loses its value in the middle to long term, Leinberger says, because it is built cheaply (cinder-block and simulated stucco stores, for example), and because the value of the location changes quickly as sprawl pushes demand far out toward the fringe. What was once the "100 percent" intersection becomes passé as newer strip malls are built elsewhere. Suburban centers sometimes have a second life if they are substantially refurbished, but they can still fall prey to sprawl and inexpensive construction.

Urbanism is more durable, Leinberger says. Quality urbanism is made with longer-lasting materials, and creates its own value of place. It is meant to be experienced up close as one walks past, not from a car 150 feet away, traveling 45 miles an hour. As examples, he cites Country Club Plaza in Kansas City, Missouri (developer J.C. Nichols), Coral Gables, Florida (developer George Merrick), and Seaside, Florida (developer Robert Davis).

The first two are 1920s projects that are still among the most valuable real estate in their markets. The latter, by Leinberger's partner in Arcadia Land, was started in the early 1980s, when Seaside lots began selling for \$15,000. Only 20 sold in the first two years. After critical mass was reached and shops were built, prices increased rapidly. By 2003, lots there sold for as much as \$2 million. Leinberger said in 2003 that downtown Seaside was appraised at \$100 million. The entire parcel was worth just \$1 million when Davis started the project. "There has never been a second-home project in the history of this country - maybe the world - that had that kind of appreciation," Leinberger said. He concluded: "What we are talking about is tremendous value creation if you do it right, but you have got to have a mid- to long-term



outlook."

The big problem is overcoming what Leinberger calls "the gap," the period of several years when most CSD would be expected to outpace New Urbanism in returns. The problem is that the net present value/discounted cash flow analyses used by investors cannot see beyond the 5-to-7-year period when CSD hits its peak.

Real estate should not be viewed as a seven-year play, Leinberger says. "It's a 40-year asset class. Merrick and Nichols viewed it that way, as did all developers before CSD and discounted cash flow were invented."

The best approach to finance New Urbanism is to reduce debt and increase equity, Leinberger says. Conventional development is split between 75 to 80 percent debt and 20 to 25 percent equity. Leinberger recommends 35 to 50 percent equity for a new urban development. That approach allows developers to spend more money up front to build a higher-quality place without putting themselves under a crushing burden of debt.



TIF financing in San Antonio

The developers of Verano at City South, a large TND in San Antonio, received approval for \$250 million in tax-increment financing (TIF) from the city of San Antonio and three other jurisdictions. The TIF is expected to cover 62.5 percent of the infrastructure costs, including parks, parking garages, and mass transit connections, for the 694-acre mixed-use, transitoriented development.

The development is expected to add 10,000 to 12,000 housing units, shops, workplaces, open space, and a Texas A & M university campus. TIF allows the government to borrow money, which will be paid back through anticipated increased tax revenue from the development. Verano is expected to add \$2 billion to San Antonio's tax base. An analysis determined that if the site were developed in a conventional suburban manner, only about \$900 million could be expected to be added to the tax base.

Scott Polikov, the planner who designed Verano, says the TIF financing was needed to get the project off of the ground. "Without that incentive, we wouldn't be able to do the scores of pocket parks, 50 miles of new streets and 10 miles of new alleys without going bankrupt in the early years of the project," he says. New urban development requires bigger infrastructure investments than conventional development, Polikov says, but the value created by these investments is greater in the long run. Polikov recommends that new urbanists seek more TIFs like the one in San Antonio.

Many new urban projects are built successfully with no public subsidies. But without incentives, the transformation to smart growth will take longer and some big projects may not "pencil." TIF is one way for government to lend a helping hand.

FORMS OF DEBT AND EQUITY

As outlined by Bob Chapman of Traditional Neighborhood Development Partners, there are many sources of funding for developments in general and for new urban projects in particular. These include:

Debt

With the right documentation (including a market study, appraisal, development entitlements, approved site plans, commitments from site-work contractors, pre-sales, and confirmation of creditworthiness), banks may lend a developer between 50 percent and 80 percent of hard and soft costs of a development. This kind of loan is called an "A and D," for acquisition and development, loan. Money borrowed directly from a bank is usually the least expensive that can be found, but banks are normally very meticulous about the documentation and collateral required. Banks typically insist upon a first mortgage — a senior lien against property and improvements. Banks usually want additional collateral such as pledges of the income stream. Banks also want personal guarantees from the developer and possibly from additional high-net-worth individuals. If the project fails, the guarantors will be personally responsible for repayment.

When the project starts selling lots, banks typically require accelerated payoff. By the time 80 percent of the lots are sold, for example, the bank has gotten all of its money back. Today, banks usually require appraisals from appraisers chosen by the banks. This can be a problem if the appraisers don't understand the value-added potential of urbanism and placemaking.

Loans to developers for acquisition and development are typically repaid through lot and building pad sales. Construction loans are typically repaid by "permanent" financing — for rental properties — or when the improvements are sold.

Debt that functions like equity

In some states, developers are allowed to assess a tax on homeowners to pay for public improvements in a project. From a developer's point of view, this is like equity, because it infuses capital into a project without the developer taking on the burden of repayment. Theoretically, this will come out of the cost of housing.

This kind of development debt, allowed in ap-

proximately three-fifths of the states, is financed through issuance of tax-exempt bonds. These include tax-increment financing (TIF), special improvement district (SID), and community development district (CDD) bonds. TIF bonds are typically for infrastructure and street improvements, and are paid back with the added tax revenue that the project brings. SID and CDD bonds are paid off by special annual taxes called assessments. The districts issuing the bonds are specially established units of local government and must follow all the rules applicable to any government — including open meetings and publication of notices. Property owners often end up electing the district board, although this is often phased in over a number of years — usually after the developer has sold most of the lots. TIF and community development district bonds are issued for both new urban and conventional development, and the majority of these funds still flow to the latter.

Equity

Developers usually need to come up with enough private risk capital, or equity, to cover at least 20 percent — and sometimes 50 percent — of total costs. This can come from developers' private assets, family members, friends and associates, and professional investors. The latter insist upon a high return for their money and may provide what is called mezzanine financing, which bridges the gap between the developers' personal sources and the roughly 20 to 50 percent equity required by the bank. Professional investors may include capital funds oriented to smart growth.

Equity can be provided by the landowner (or land seller) if the landowner or land seller is willing to subject his land to a senior mortgage. In that case, the landowner agrees not to get paid until everybody else is paid — perhaps after a down payment. Sometimes a landowners agree to get paid "on releases" as lots or parcels are sold.

Rules of thumb

Builders typically pay the developers, for a developed lot, 17 to 22 percent of the ultimate selling price of the house. This is the primary source of revenue for developers. Of the 17 to 22 percent, approximately one-third pays for land, one-third for infrastructure and other development costs, and one-third for overhead and profit. Lot cost, as a percent of house cost, could be much lower in a rural area and much higher in a thriving area or if there are special attributes, such as waterfront, adjacency to parks, or beautiful views.

ACTIVITY IN SMART GROWTH FUNDS

Experts estimated that smart growth/New Urbanism amounted to 2 to 5 percent of new construction in the US as of 2005. If this is to grow to about 60 percent of US construction by 2030 — as some contend it must, to meet greenhouse reduction goals

and even market demand — a huge infusion of capital will be required. Much of this will have to come from pension funds, universities, and other large institutional investors.

Attempts in the 1990s and early 2000s to set up funds for new urban development met with little success, as they did not attract a lot of capital or were unable to execute projects. Since 2005, however, a

Sponsor and (Name) of Fund	Size (\$million)	Description	Contact
American Ventures Realty (South Florida Urban Initiatives Fund)	35	Mezzanine financing for urban development	americanventures. com
American Ventures Realty (New Mexico Urban Initiatives Fund)	15	Mezzanine financing for urban development	americanventures. com
Bay Area Council/ Pacific Coast Capital Partners	66	"Keystone" urban renewal projects, often with green features	bayareafamilyof- funds.org/funds
Bay Area Council/ Kennedy Wilson	100	"Keystone" urban renewal projects, often with green features	bayareafamilyof- funds.org/funds
Canyon-Johnson Urban Fund	2,000	Invests in ethnically diverse urban communi- ties throughout the US	www.cjuf.com
CIM Group (CIM Urban Real Estate Fund)	676	all product types	cimgroup.com/cim- fund/index.asp
Hines/CalPERS (HC Green Development Fund)	120	LEED pre-certified office buildings	hcgreenfund. com/home.cfm
Genesis LA Economic Growth Corp./ Phoenix Realty Group	103	Workforce housing and mixed-use projects	phoenixrg.com
GSLM Capital Partners (Goldman Sachs Urban Investment Group and L&M DevelopmentPartners)	100	Urban infill projects across the US, but mainly in the Northeast and California	www.Imdevpartners. com
Housing Partnership Development Corp., Phoenix Realty Group (Metropolitan Workforce Housing Development Fund)	200	Residential, mixed-use, and commercial development in urban & infill areas in Greater New York	phoenixrg.com
Jonathan Rose Companies (Rose Smart Growth Fund)	100	Transit-accessible, walkable, with energy-ef- ficiency potential	rosecompanies.com
Nehemiah Community Reinvestment Fund/Pacific Coast Capital Partners	29	Urban, mixed-use, and mixed-income projects, and commercial and industrial development in income-qualified neighborhoods	pccpllc.com
Urban Strategy America Fund	200	Focuses on Boston, St. Louis area, Florida to invest in urban projects with affordable housing and mixed use.	www.usa-fund.com
Pacific Coast Capital Partners (Southern Calif. Smart Growth Fund I)	153	Retail, commercial, industrial, office, and residential in low- and moderate-income or redevelopment areas	pccpllc.com
Phoenix Realty Group (California Urban Housing Fund)	50	Workforce housing, mixed-use, and commer- cial properties in urban & infill locations	phoenixrg.com
Revival Fund Management (Urban Green Fund)	250	Walkable, mixed-use near transit with energy- efficiency potential	revivalfunds.com
San Diego Capital Collaborative/Phoenix Realty Group	90	Middle-income housing in older urban areas	phoenixrg.com

New urban and smart growth investment funds

Compiled by New Urban News. This table identified funds established by March, 2007. Some may have opened or closed since then.

How individual investors can profit

Throughout the 1990s and the first five years of the 2000s, thousands of individuals bought property in new urban developments and often earned astonishing returns. A live-work townhouse in Kentlands, Gaithersburg, Maryland, purchased for just under \$500,000 in 2002 sold for more than \$1.2 million in 2005, for example. The property was purchased with 20 percent down — approximately \$100,000. Taking into account costs of ownership, the return exceeded six times the original invesment in three years. This was not unusual, and was largely — but not entirely — the result of a once-in-a-lifetime real estate market.

The live-work unit in question was underpriced because the market did not know how to fully value a mixed-use townhouse in a new urban development. Meanwhile, a study funded by the Smart Growth Program of the US Environmental Protection Agency later determined that Kentlands property values outperformed the market during this period.

That was then, how about now? Buying property in new urban communities can give investors an edge regardless of how well the market is doing. For starters, new urban developments - along with well-maintained historic neighborhoods - appear to have held their value better during the real estate/financial crisis of 2007-2009. Norton Commons, a new urban community 25 miles from downtown Louisville, Kentucky, had zero foreclosures "while a nearby outer-ring conventional suburb has the highest number of foreclosures with house prices averaging \$200,000 or more," says John Gilderbloom, a University of Louisville professor who conducted a metro-area-wide analysis in 2008. Moderateincome new urban neighborhoods in the City of Louisville also performed well.

New urban neighborhoods offer an edge

growing number of such funds have been launched (see table on previous page). One is the New Yorkbased developer Jonathan Rose's Rose Smart Growth Investment Fund, a \$100 million fund that purchases real estate in downtowns, walkable communities, main streets, and transit-oriented developments throughout the US.

A few charitable foundations are getting into the act. The Arnold Fund in Georgia is taking the lead in developing two sizable real estate projects in Newton County: a 90-acre traditional neighborhood development (TND) called Clark's Grove and a 450-acre "college town" called Mt. Pleasant. Both projects are part of the fund's attempt to transform the growth patterns of Georgia's fastest-growing county. The fund began promoting urbanism by constructing a mixed-use building in downtown Covington, and then established a for-profit subsidiary to build Clark's Grove, a half-mile from Covington's downtown. The fund has invested several million dollars of its approximately \$25 million in assets.

Arnold's investments parallel those of the \$136 million McCune Charitable Foundation in New Mexico, which has invested \$7.5 million in downtown Albuquerque with the guidance of a new urbanist plan. The guiding idea is that foundations could "do good and do well" by investing some of their venture capital in projects that reflect the foundations' missions.

It remains uncommon for foundations — especially the biggest ones — to tailor their investments to their philanthropic objectives. Some of the Mc-Cune-financed developments, like a mixed-use block anchored by a new multiplex cinema, have performed very well. Others, like the Gold Avenue lofts building, have struggled. From a redevelopment standpoint, McCune's investments have been a success. Thanks in part to the philanthropic investment, the downtown has rebounded substantially since 2000 — the first successful downtown revitalization after many failures in Albuquerque. "I think foundations could be more transformative than they are," said Owen Lopez, McCune's executive director.

FAIRVIEW VILLAGE CASE STUDY

Fairview Village packs a lot of complexity into its 93 acres. Located in a suburb east of Portland, Oregon, the project not only mixes residential, civic, and commercial uses but also features a remarkably wide range of single-family housing types, as well as a nearly even split between multifamily and single-fam-

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Costs and returns	MF ¹	SF ²	Total
Site acquisition	\$200,000	\$1,440,000	\$2,800,000 ³
Land cost/unit	\$862	\$5,250	
Infrastructure cost/unit	\$2,600	\$9,000	
Average price of units	\$800/month rent	\$225,000	
Average lot sales price	\$5,500	\$56,250	
Land carry/Sales,			
marketing per unit	\$1,100	\$12,000	
Developer gross profit/u	nit N/A	\$30,000	
Project outline			
Acreage	7.1	22	93.4
Dwelling units	232	274	
Lot size range	N/A	900-13,000	
Ū		sq.ft.	
Average unit size	880 sq.ft.	2,100 sq.ft.	
Gross density	30.0 units/acre	5.6 units/acre	
Net density	33.2 units/acre	9.5 units/acre	
Combined residential			14.1 units
density			/acre

Source: New Urban News ¹Multifamily dwellings. ²Single-family dwellings. ³ Includes land for civic and commercial.

ily dwellings. The majority of lots have been sold to builders, but developer Holt & Haugh (renamed Holt & Everhart) also started its own construction company to set a high standard in residential and civic buildings.

The project began construction in 1995 and was essentially completed in less than 10 years. Holt & Haugh acquired the property for \$2.8 million, a price slightly below the going market rate. Randy Jones, the developer's vice president for land, says the return on investment in Fairview Village has met the expectations set down in the pro forma. The 274 single-family homes have yielded a profit of \$30,000 per unit (see accompanying table for a complete breakdown of costs and returns). The multifamily housing cost \$8.3 million and was valued in 2001 at \$11 million, a substantial gain in equity realized by the developer. A 133,000 sq. ft. Target store anchors the project's Market Square. There is also a main street of livework buildings with small local stores.

Fairview Village has a fairly high residential density of 14.1 units/acre, but the added income potential was offset somewhat by the cost of infrastructure construction. Jones said that infrastructure costs were 20 to 25 percent higher than in comparable conventional subdivisions. The project includes 10.65 acres of parks and other public recreational amenities.

Single-family houses in Fairview Village encompass a wide range of building types, contributing to a wide market appeal. The smallest units are fee-simple to individual investors because they address markets that are likely to be underserved in coming decades. For more details on the coming market for urbanism, see Chapter 13.

But there is another factor that the market as a whole is not quick to take advantage of because it can't be easily quantified — that is the factor of place. Place offers tangible value that translates into sales premiums - but that value is not always apparent prior to the completion of a new urban development. When a development is still a messy construction site, most buyers will not recognize the value of place that is likely to come through competent execution of a great plan. Even when the sense of place has begun to emerge, key elements of a plan that will add value - such as a town center — may not have been built. Here is where the investor with a vision can profit from a property that is underpriced relative to its final value.

One strategy, according to development consultant and author Peter Katz, is to find a developer with a proven track record of creating value for home purchasers. Then wait until the developer is starting a project with a design based on timeless placemaking principles. If the real estate market looks favorable in other respects, such a development would be a good bet for investment.

Vince Graham, a South Carolina developer who has made many property owners wealthier, succinctly describes the value dynamic of conventional development relative to New Urbanism: "If what you're selling in a development is privacy and exclusivity, then every new house is a degradation of the amenity," Graham says. "However, if what you sell is community, then every new house is an enhancement of the asset." live/work units in rowhouses on lots as small as 900 square feet — the demand for commercial space in these units was stronger than expected. The project also includes townhouses arranged around court-yards, and duplex units. The average detached home sits on a 5,300 sq. ft. lot. The majority of apartments are located in three-story buildings, but units are also available above a branch library.

Civic uses in Fairview Village include an elementary school, city hall, post office, and library. The city hall was built by the city on a site purchased from the developers in a for-profit transaction. Holt & Haugh's construction company built the post office and library, and the developers sold the leases to the Postal Service and the city. "In our case, the civic elements have penciled out positively," Jones said.

TRINITY HEIGHTS CASE STUDY

A development of new homes in a historic city neighborhood riddled with vacant lots would seem unlikely to generate a 42 percent internal rate of return; that's a high yield for any real estate project. Yet that's the performance, based on cash outlays and profits over a three year period, of a six-acre new urban infill development in Durham, North Carolina (see table on this page).

Houses in Trinity Heights achieve unusually high design and construction standards — to the extent that the project won a historic preservation award from the Historic Preservation Society of Durham. The houses, which have detached garages on alleys, are based on classic Victorian and bungalow styles. There are 24 single homes (some of them with accessory units) and 15 townhouses. The developers were TND Partners and Duke University. Wachovia Bank financed \$500,000 in development costs. The housing construction costs were financed by the builders, Mc-Neil Burbank (single homes) and GP Custom Homes (townhouses).

Duke, which owned the land, stipulated that units be made available only to faculty and staff of the university. The 1,550 to 2,330 sq. ft. units were offered from \$154,000 to \$233,000 (actual purchase prices were usually higher due to the addition of accessory units and other options). Most houses sold for between \$100 and \$110 per square foot. The single homes achieved a net density of 7.5 units/acre (not counting accessory units). The townhouses had a net density of 19 units/acre.

As the landowner, Duke made \$9,300/unit, a total

of \$363,000 gross payment for the site, which works out to \$60,000/acre. The university agreed to allow the land to be used as collateral for the development loan. The contribution to profit and overhead for the developer was \$458,000, while for the builders, that figure was \$865,000.

Partly due to the nature of new urban and infill projects, Trinity Heights was unusual in its logistics. The developer built alleys and two small pocket parks, but the existing streets were saved. Development infrastructure expenses totaled \$340,000, or about \$9,000/unit — a below-average cost.

The cost for design and architecture — \$150,000 — was above average for a project of this size. Chapman estimates that 85 percent of that cost is architecture and the rest, site planning. Because the architect, Milton Grenfell, was a development partner, these costs were carried as developer sweat equity until the houses sold.

A builder in a conventional subdivision might buy a house plan for \$1,000, spend another \$1,000 modifying the plan, and then build that plan 50 times. That results in a design cost of \$40/house. In Trinity Heights, design costs were slightly under \$4,000 for each house. In a larger new urban project, design costs would be substantially less than the Trinity Heights costs on a per unit basis. As an incentive for the builders to meet higher design standards, TND

Trinity Heights

Product	#	Expected price (\$)	Actual price (\$)				
Townhomes Single homes	15 24	115,000 165,000	175,000 260,000				
Development c	osts		(\$)				
Land Internet hookup Site preparation, Architecture and Engineering, surv Development loar Total	363,000 66,000 340,000 150,000 40,000 39,000 998,000						
	JSIS						
Labor and materi Selling expense Construction loar Total	als 1 interest		6,292,000 7,000 245,000 6,544,000				
Yield	Yield						
Sales Builder gross pro Developer gross Total profit	fit profit		8,865,000 865,000 458,000 1,323,000				

Source: New Urban News



A house in Trinity Heights

Partners offered builders lot prices that were 17 percent of the sales price. This is on the low end of what builders typically have to pay, Chapman says.

BRADBURN CASE STUDY

Bradburn, a TND under construction in Westminster, Colorado, is a cross-section of the classic American town — and an example of the financial intricacies of a mixed-use project. Bradburn's components range from trails and open space at the southeast corner of the 124-acre site, to residential blocks, to a town center. "The goal is to build a mixed-use community and in the end own the commercial center," said Jeff Pedard, director of development for the developer, Continuum Partners, which saw the town center as offering long-term value. "Ours is a longterm hold position." For more details on the project's finances, see the table on page 246.

The residential portion of the development has been profitable despite the economic downturn in Colorado and the nation — but less profitable than expected. As of 2008, much of the commercial town center remained unbuilt. Influencing the project's prospects were these advantages:

• Production builders, including Beazer Homes and New Town Builders, purchased more than half of the total for-sale lots. Because the Denver/Boulder area already had numerous TNDs, the production and custom builders were experienced in this kind of development.

• Bradburn has a strong retail location, on a road with 35,000 daily car trips, is near major employment centers, and is within ten miles of more than a half-million people (Westminster is equidistant to Denver and Boulder).

• Continuum benefited from an unusual degree

of cooperation from the Westminster mayor and city council members, who changed zoning codes, approved reduced street widths (27 feet curb-to-curb in residential areas, with parking on both sides), and expedited entitlements for the project.

By the same token, Continuum faced significant challenges.

• Design costs were substantially higher than conventional development. The firm spent \$200,000 for architectural prototyping, including a book by Boulder architects Wolff Lyon, to show how houses will lay out on lots and how streetscapes will look. A primary purpose of this was to reassure local officials.

• High-tech economic woes caused a collapse in the office market in Colorado. Continuum had to scratch plans for multistory, mixed-use buildings in the first phase of the town center and figure out how to make the first main street block look good with single-story structures.

• Leasing for a main street configuration is still a challenge for stores accustomed to occupying strip malls.

Town center strategy

To save money, Continuum built its first retail buildings with tilt-up construction technology, reducing costs by \$12-13 per square foot. Bradburn's plan represents the more recent new urban practice of placing town centers where they will garner maximum commercial benefit from drive-by traffic while still being walkable to residential neighborhoods. Bradburn shops will face the walkable main street, but signage, most of the parking, and attractive facades will be built along the arterial road. Customers will need to walk only a short distance through carefully designed paseos to get to the main street. To achieve economies of scale in financing and construction, the firm treated the first four commercial buildings as a single development unit totaling 35,000 square feet. In other words, these buildings were financed and built at one time, together.

Mix of elements

Continuum financed the town center, which includes most of the retail and the civic uses and higher-density residential, separately through Key Bank. Redwood Capital financed the neighborhood general (less dense, mostly residential) part of the community. The town center and the residential neighborhoods function symbiotically: The town center will help sell houses, while the residents will help activate the downtown.

Bringing in the two production builders was important in bolstering lender confidence. Production builders tend to increase affordability and spur a faster buildout. Custom builders offered more architecturally detailed, higher-end houses.

Because the value of TND has been proven for residential properties in Colorado, Continuum has been able to charge a premium for residential lots and even multifamily parcels.

Bradburn overview

Line item	Costs (millions \$)
Land Soft costs, interest & financing Hard costs Total	11.8 15.4 11.4 ¹ 38.6
	Revenue ²
Land sale	42.7
Fee income	0.6
Total	43.3
Key statistics	
Acreage	124
Apartments	310
Live/work	33
Singles/townhouses	434
Office/retail	210,000 sq.ft.
Single home lot size range	1/10 to 1/3 acre
Apartment rents	\$800-1,700/month
Townhouses	from high 200s
Production single houses	from mid-300s
Custom single houses	mid-500s to \$1 million
Gross density	5.9 units/acre
Net residential density	9 units/acre

Source: New Urban News Publications ¹Does not include \$5 million in public infrastructure investments funded by metro district proceeds.

Participants

Developer: Continuum Partners, Denver, CO. Planning: Duany Plater-Zyberk & Co, Civitas. Architecture: ArchitectureDenver, The Mulhern Group, Van Meter Williams Pollock, Wolff Lyon, Barrett Studio. Consultants: MB Consulting (civil engineering), Transplan Associates (traffic/parking). Builders (singles and townhouses): Beazer Homes, New Town Builders, McStain Builders, Sunburst Design, Essex Development, Diemer Custom Builders, Sam Barrow Investments.

Builder (apartments): Bradburn Row Houses, a joint venture between Carmel Partners and Urban Real Estate Partners.



Land Development

248

248

249

250

253

15

Developing neighborhoods Lot dimensions Top 10 TND mistakes Medium density often yields the best value in urban locations Lucas Point plan and lot types Natural drainage systems can cut development costs Navigating the public works and utility minefield Get to the right official Pedestrian lighting

263

265

266

266

Utility installation266Educate the appraiser267More developers, better results267TND development tips270

Above: Infrastructure for stormwater and public enjoyment at the New Town at St. Charles, Missouri. Photo by Robert Steuteville

Developing neighborhoods

Development on the neighborhood scale is the process of preparing the land for construction. Looking back in time, urban places were comparatively simple to develop. From the 19th Century through the early 1920s public officials usually planned a rectilinear grid whenever the city or town needed to expand. Builders bought lots and constructed houses one, or a few, at a time. Public services and utilities were few, and car storage was not a problem. The public approval process — when it even existed — was not complicated, either.

With the advent of single-use conventional suburban development, things got more complicated. Zoning laws and street and public works standards were adopted, and more extensive public utilities were required. Complications of modern life were at least partly offset, from the developer's point of view, by the rigid simplicity of the conventional subdivision. Residential lot sizes are determined by zoning and house placement by setbacks. The streets are laid out in a curvilinear fashion, and the utilities put in. In that context, a few predetermined house layouts could be mass-produced. The national builders had a term for it: "Blow and go." During this era, houses sizes grew substantially, but were easily accommodated on the large lots of far-flung suburbs.

When new urbanists brought back the idea of a compact mixture of uses and housing types, developers faced significant challenges that did not exist in the historic and conventional suburban eras. On compact sites, public utilities are a big challenge, as is the storage of automobiles. It takes more skill to put the large houses that buyers became used to in the late 20th Century in a compact neighborhood. To accommodate many types of houses and uses within the same neighborhood also demands more sophisticated planning tools. Fortunately, all of these things can be successfully accomplished using urban blocks with alleys or lanes — a remarkably versatile and resilient form of layout. The alleys and lanes replace the suburban driveways and provide a handy place for the public utilities and services. New urban block sizes are similar to those found in historic urbanism. They generally range from 200 to 300 feet wide, and from 300 to 500 feet long. In a town center, where blocks sizes are largely determined by parking needs, a greater variety of block sizes may ensue (see Chapter 25 on parking).

In many ways, the task of developing New Urbanism is getting easier. There are probably more than a thousand house plans available that work on compact urban lots. Form-based codes, which make approvals easier and help to guide development, are becoming more common. Practitioners who have expertise in New Urbanism are easier to find.

Still, the task can be daunting to the developer who is new to human-scale neighborhoods. Providing privacy, value, and sense of place depends on how lots are laid out and whether houses are placed on lots with the right dimensions. The placement of house elements (main house, backbuilding, and accessory building) makes a big difference in quality of life. Fences, walls, landscaping, and easements are also important.

LOT DIMENSIONS

The lot width is a key dimension for urban housing, and it is often driven by parking. The narrowest townhouses can be put on 18-foot-wide lots, which gives room for two nine-foot parking pads in the back. Moving up in 6-foot increments gives widths of 24-, 30-, 36-, 42-, 48-, and 54-feet. New Urban Builders of Chico, California, offers single-family detached houses on 36-foot-wide lots, which gives room for a 26-foot-wide garage and a 10-foot parking pad. "A 26-foot garage has some additional storage to one side or a stair bay to the second floor accessory unit," says John Anderson of New Urban Builders. "The stairs runs perpendicular to the alley alongside the 20-foot garage. A 36-foot-wide yard works pretty well with a consolidated sideyard and houses from 20- to 26-feet wide." By "consolidated sideyard," Anderson means that an easement allows use of the neighboring house's side setback — a common new urbanist technique to maximize use of narrow lots. If a wider lot is needed, New Urban Builders adds 12 or 18 feet. "We have found that adding 4 feet or 6 feet to the width of the lot does not provide the same dollar return on the land development effort," Anderson explains. "Increasing a lot from 36 feet to 48 feet or 54 feet is a big enough increment to justify a lot premium and provide a wider range of building options for detached homes." The lot depth is generally 100 to 130 feet — enough room for a small but serviceable backyard.

Special circumstances may cause developers to push the envelope in terms of lot dimensions. Urban designer Steve Coyle writes that he prefers the dimensions used by New Urban Builders, but "we have designed single-family detached lots down to 28 feet wide with 16- and 18-foot-wide sideyard units ... often no more than 80-feet deep off an alley where builder land costs and market preference warrant this extreme proportion."

Top 10 TND mistakes

Nathan Norris

It is much easier to develop a traditional neighborhood development (TND) today than it was a decade ago. At that time, discussions were dominated more by entitlement and financial issues than by design, marketing, and construction. Few tools were available to help in the process. There was no *Best Practices Guide* from New Urban Publications, no *Lexicon*, no *SmartCode*, no National Town Builders Association. There were few built projects to visit and study, even fewer development teams with TND experience, and no email listserves that connected practitioners across the globe.

Despite the advent of new tools, developers continue to make errors that could be avoided. Here is a list of ten common mistakes developers make as they weave their way through the complicated maze involved in creating worthwhile communities:

1. Failure to leverage the charrette process adequately. Many developers continue to view the charrette as simply a planning and design exercise, failing to see that is also a means for securing regulatory subsidies and an unparalleled public relations opportunity, which can help recruit development team members, builders, and potential buyers. If you want special treatment from outside entities, you need to show them that you are special; the charrette is the best way to demonstrate that, early in the process. If a bureaucrat who controls some aspect of your entitlements sees that your final presentation was "standing room only" and that you received enthusiastic applause, this could make a difference.

2. Failure to entitle and design a sufficient volume of building type diversity. Local governments tend to discourage a wide range of building type diversity by outlawing small units, zero-lot-line residences, and certain kinds of attached units. Even if a developer overcomes these obstacles, building type diversity is often abandoned over the life of the project because of costs (it is more efficient to have fewer building types and fewer designs). Developers end up producing less-interesting places and missing the huge premiums that result from diversity (which greatly outweigh the costs). Diversity also reduces risk, by opening the project to a broader market.

3. Failure to develop a house/building plan generation strategy quickly for every lot. The biggest ongoing problem for TND developers is securing enough high-quality building designs. Architectural charrettes have helped, but the core problem remains: most developers do not have a realistic game plan for identifying how to generate building designs for each lot. This often results in delays or design compromises. By carefully analyzing this issue early in the process, a developer should be able to assemble a unique blend of strategies that make sense for a particular TND, given such factors as absorption goals, resources, and design aspirations.

4. Failure to create an effective builders guild or building program. Developers typically devote too few resources to recruiting and managing the number, mixture, and quality of builder-partners that will be required to execute a well-conceived TND. While

The street below in New Town includes single family detached, multiplex, and townhouse units. Developers must plan for diverse building types.



the selection of builder-partners is important, the manner in which the builders are managed is equally important. Too often, collaboration among builders is sparse because the communication structure is poor (lacking weekly or biweekly meetings during the TND's early stages, for example).

5. Letting local engineers undermine the master plan. The master plan should continually be reexamined in light of market changes and the introduction of better ideas. But too often local engineers make changes without adequately consulting with the original planners. The problem is that local engineers may not understand the importance of certain design details that, when changed, can affect the entire plan. Developers can remedy this by continually engaging the planners as the community progresses.

6. Selling the features of a TND instead of the benefits for owners. Once people learn the design details of TNDs, they enjoy sharing that information. The result may be marketing materials more akin to a design dissertation than a concise explanation of the benefits of living in a TND. Instead of being told that a fine-grained mix of housing types is an important principle, a prospect needs to be informed that a TND offers the freedom to stay in the same neighborhood when life circumstances change or that such diversity permits different generations of the same family to live as neighbors. Benefits should be framed in the same manner as other products are sold in our culture (by emphasizing aspects such as value, convenience, choice, safety, healthy living, or beauty).

7. Hiring real estate agents who do not adequately understand New Urbanism. Just as a builder would not add costly features to a house without expecting a sales agent to highlight them, a developer should not spend the extra time and money to put together a TND without selling its extra value. Too often sales agents know more about square footage costs and kitchen countertops than about the special benefits of the neighborhood. Developers need to hire the right people from the start or make sure they train their sales staff thoroughly. Sales agents must be familiar with planning and design.

8. Spending marketing dollars on the wrong things. A well-designed special events campaign or a well-crafted PowerPoint presentation costing \$5,000 can generate greater results than spending \$35,000 on brochures, conventional advertising, and overly ornate signage during a TND's early stages.

9. Website overdesign. Too many developers be-

lieve the primary purpose of a website is to provide information to prospective buyers as opposed to bringing traffic to the sales office. No matter how well done, a website cannot capture the essence or special nature of a well-executed TND. Strive to provide enough information to instill excitement about visiting the TND, but don't present so much information that the browser will end up thinking it's not necessary to visit the development itself.

10. Failure to pay enough attention to homeowners association documents. In almost any kind of development, many of the ramifications of the legal documents are not immediately clear and won't be visible for several years. What makes this a major problem in a TND is the larger number of problems that the association will have to address — arising from the mixture of uses, the small lots, and the wide range of lot types near one another. Make sure that all the members of the development team have an opportunity to provide input on the final documents (and use legal counsel that understands TNDs).

Nathan Norris is director of marketing and sales at The Waters, a TND in Montgomery, Alabama, and a principal at PlaceMakers, a new urbanist design and implementation firm based in Miami Beach, Florida.

MEDIUM DENSITY OFTEN YIELDS THE BEST VALUE IN URBAN LOCATIONS

In many urban locations, medium-density woodframe buildings are more feasible and profitable than taller, higher-density buildings, according to several analyses by Strategic Economics of Berkeley, California. Rapidly rising costs for steel and concrete frequently make higher density less profitable, principal Nadine Fogarty told *New Urban News*.

The good news for advocates of transit-oriented development is that reduced parking requirements and better placemaking — high-quality civic spaces and attractive streetscapes — can improve the feasibility of high-density development. Also, developments of townhouse density (25 units per acre) and relatively low-rise apartment buildings can provide support for transit, help to establish a market, and potentially pave the way for higher density in the future.

These dynamics were outlined in a 2006 report on Houston — called "Houston Smart Growth Implementation Assistance," sponsored by the US Environmental Protection Agency and the National Oceanographic and Atmospheric Administration. Similar relationships between density and profitability were found in 2008 Strategic Economics studies in Berkeley, California, and St. Paul, Minnesota.

Construction costs nationally rose more than 10 percent in 2006 and 7 percent in 2007, the firm says, but inflation has varied between one material and another. "Wood prices have declined as a result of the housing slump while concrete and steel costs are continuing to rise, making denser development even more expensive comparatively," Fogarty says.

With no placemaking or reduced parking requirements, the most profitable transit-oriented development (TOD) identified in Houston was townhouses at 25 units/acre (see Figure 1 below). Assuming a 12 percent profit, the developer would be willing to pay about \$740,000 per acre for land to build townhouses, according to the study. By contrast, the developer of a six-story building at more than 100 units/acre would have to be subsidized to the tune of \$4.8 million per acre to make a profit.

However, when a 20 percent sales premium for placemaking is factored in, the picture changes dramatically (see Figure 2 on page 12). This premium is based on the experience of the new urban Atlantic Station project in Atlanta; Reston Town Center in Reston, Virginia; and urban projects in Denver. With good placemaking, the most profitable TOD in Houston turns out to be approximately 90 units/acre. The residual land value — the point at which a developer can achieve standard profits — rises to approximately \$2.2 million/acre. Medium-density townhouses, also, are considerably more profitable with placemaking than without.

Reduced parking requirements also make a significant impact on land values, although their impact is less dramatic than that of placemaking (see Figure 3 on this page). The Houston analysis envisioned only one parking space per unit — a figure that is less than the city's requirements and is more appropriate when transit is nearby. The combined impact of reduced parking requirements and a more conservative 10 percent placemaking premium is shown in Figure 4, also on this page.

Complicated relationship

"The real lessons of the Houston analysis are that the relationship between density and development feasibility is much more complicated than people think; that taller buildings are not always more profitable to



Figure 1: With no placemaking or reduced parking requirements, the most profitable transit-oriented development identified in Houston was townhouses at 25 units/acre.



Figure 2: When a 20 percent sales premium for placemaking is factored in, 85 units/acre is most profitable in this study.



Figure 3: Reduced parking requirements also make a significant impact on residual land values.

develop than smaller buildings; that changes to the surrounding neighborhood can have a major impact on the types of buildings that it is possible to build because they improve a project's revenue potential; and that reduced parking requirements can also have


Figure 4: The combined impact of reduced parking requirements and a more conservative 10 percent placemaking premium is shown above.

a huge impact on development feasibility," Fogarty says. "Virtually all cities include places where these lessons are applicable."

The Berkeley analysis looked at taller buildings and higher densities than Houston's, yet the firm found a "similar dynamic at play in that denser, taller construction becomes significantly more expensive than shorter buildings when buildings are tall enough that codes call for additional life/safety provisions." Development in Berkeley is most feasible at 5-7 stories and at 15-17 stories — where additional revenues and view premiums cover the higher costs. The in-between heights are problematic.

In St. Paul, where the city is hoping that transit will stimulate compact development along University Avenue, TOD is an unfamiliar commodity. "Both St. Paul and Houston highlight the difficult problem of introducing higher-density building types in an area where they are an untested product and there is uncertainty on the part of the development community," Fogarty says. However, the construction of townhouses, especially when combined with good placemaking, "may even help to improve development potential to the point where they can support denser development," she says.

Construction and land costs threaten TOD

"In general, we have been finding that increases in construction costs during the past several years make higher-density development more difficult to build in many markets," Fogarty says. Land values have also shot up along planned light rail lines in cities like St. Paul, Minneapolis, Houston, Denver, and Charlotte, based on the expectation of future development, she says.

"Along some of these lines this is resulting in a significant amount of new development, such as parts of Charlotte's South Corridor. In other cases, the combination of high land costs and high construction costs is stifling new development near the transit line in favor of locations farther from transit," she says.

Strong placemaking has a powerful effect on land values and TOD feasibility "because it has the potential to increase the value of new development and the desirability of neighborhoods," she says. "In a place like Houston, where land use regulations do not provide certainty about what might be developed nearby, placemaking is one way to create some certainty about what the neighborhood would be like in the future."

Fogarty notes that in places with a limited amount of developable land, a lot of demand for new development, and potential for very high revenues, much higher density is feasible. Such places would include the downtown cores of major cities.

The plan, at right, for **Lucas Point** at the Waters, Montgomery, Alabama, shows the mixing of 10 building types throughout a neighborhood. Note that the most urban building types — mixeduse and attached, are located close to the neighborhood center, at lower right of the plan. The building types are artfully grouped around a series of blocks. in most cases, the same type building faces one another across a street. Building types change across alleys, which are located in the middle of blocks. While the most prominent public spaces front streets, numerous semi-private greenspaces are located in the middle of blocks.

On pages 254 through 262 are **details of the building types throughout the Lucas Point neighborhood** in The Waters. Each page illustrates how the building type fits on a lot, with details of the front, side, and rear setback. Each building type has a specific way of addressing the street and rear alley.



Lucas Point Lot Types - See key below for color code.

LUCAS POINT LOT TYPES

We have a wide range of lot types in Lucas Point for four reasons. First, we want to give people the option or freedom to move to a dwelling within the same neighborhood when the inevitable changes in income, taste or space requirements redefine what is needed in a home. Second, we want different generations of the same family to have the option of living in the same neighborhood. Third, neighborhoods that have a wide range of buildings sizes and types are visually more rewarding than one where all the buildings are the same mass. Fourth, providing a variety of housing options attracts a wide range of people who are at different stages of their lives, and this will socially enrich Lucas Point.



Editor's note: this page was originally 11 inches by 17 inches. Text and graphics were reformatted to fit the page dimensions of the book.

Building Disposition	Lucas Point Lot Types
COLIBTESY OF THE WATERS AT WALIGH	

MANSION LOTS

Lot Dimension Variations By Context T-Zones

DIMENSION	Τ2	Т3	Т4	Т 5						
Front Setback		30'	20'							
Side Setback		10'	10'							
SIDE STREET SETBACK (ONLY AT CORNER LOT)		20'	20'							
Rear: ONLY ONE OPTION BELOW APPLIES AT OWN	ER'S OPTION	 N								
Alternate Garage & Rear Setback		15'	15'							
Rear Lane Setback		5'	5'							
* Garage setback from lane may be exactly 5' minimum of 15' at the Owner's option. The a garage setback allows room for a car to park the lane in the driveway.	or a alternate of the second s		LAR SETBACK FOR CORT-LOADED LOTS	note that able at Th	Man ine W	This drawing character of Mansion scions enjoy the full ra Vaters, depending upon	g illi as an ange a the	istrates to d their to of mater style of	► he ge ots. P rial ch the h	neral Please ouse.
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					VARIE	TE	10'	VARIES	,	
				BY	r 1 ZO	NE		DY I ZONE		

Building Disposition

MANSION LOTS

LARGE HOUSE LOTS

LOT DIMENSION VARIATIONS BY CONTEXT T-ZONES

FRONT SETBACK		20'	20'	-					
		30							
SIDE SEIBACK		10	5						
D EAD: ONLY ONE OPTION BELOW ADDITES AT OWNER	p's option	20	15						
ALTERNATE CADACE & DEAD SETDACK	R S OPTION	тс'							
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LARGE HOUSE LOTS

HOUSE LOTS

Lot Dimension Variations By Context T-Zones

DIMENSION	T 2	Т3	Т4	Т 5
Front Setback		25'	15'	
Side Setback		10'	5'	
SIDE STREET SETBACK (ONLY AT CORNER LOT)		20'	15'	
REAR: ONLY ONE OPTION BELOW APPLIES AT OWN	IER'S OPTION	1		
Alternate Garage & Rear Setback		15'	15'	
Rear Lane Setback		5'	5'	

* Garage setback from lane may be exactly 5' or a minimum

of 15' at the Owner's option. The alternate garage setback allows room for a car to park off the lane in the driveway.

> This drawing illustrates the general character of Houses and their lots. Please note that Houses enjoy the full range of material choices available at The Waters, depending upon the style of the house.



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Building Disposition



COURTESY OF THE WATERS AT WAUGH

CARRIAGE HOUSE LOTS

Lot Dimension Variations By Context T-Zones

DIMENSION	Т2	Т3	Т4	Т5	тб
Front Setback			10'-20'		
Side Setback			5'		
Rear Setback			N/A		
Rear Lane Setback			5'		

Note: Maximum building footprint is 600 sq. ft., however

second level may include porches that

exceed that footprint.

This drawing illustrates the general character of Carriage Houses and their lots. Please note that Carriage Houses enjoy the full range of material choices available at The Waters, depending upon the style of the house.



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Building Disposition

CARRIAGE HOUSE LOTS

SIDEYARD HOUSE LOTS

Lot Dimension Variations By Context T-Zones



Sideyard House Lots

COURTESY OF THE WATERS AT WAUGH

COURTYARD HOUSE LOTS

LOT DIMENSION VARIATIONS BY CONTEXT T-ZONES

Т2	Т3	Т4	Т 5
		5' BT	5'вт
		o'	ο'
		5'	5'вт
NER'S OPTIO	N		
		15'	15'
		5'	5'
	T 2	T 2 T 3	T2 T3 T4 5' BT 0' 5' S 5' NER'S OPTION 15' 5' 5'

* Garage setback from lane may be exactly 5' or a minimum of 15' at the Owner's option. The alternate garage setback allows room for a car to park off the lane in the driveway. If buildings are not located at the 5' lane yard

setback, a fence, wall, or hedge shall be used to maintain the lane edge.

This drawing illustrates the general character of Courtyard Houses and their lots. Please note that Courtyard Houses enjoy the full range of material choices available at The Waters, depending upon the style of the house.



COURTYARD HOUSE LOTS

COURTESY OF THE WATERS AT WAUGH

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BUILDING DISPOSITION

TOWNHOUSE LOTS

Lot Dimension Variations By Context T-Zones

DIMENSION	Т2	Т3	Т4	Т 5
Front Setback			10' BT	10' BT
Side Setback			0'	0'
SIDE STREET SETBACK (ONLY AT CORNER LOT)			10'	10' BT
REAR: ONLY ONE OPTION BELOW APPLIES AT OWN	NER'S OPTIO	N		
Alternate Garage Setback			15'	15'
Rear Lane Setback			5'	5'

* Garage setback from lane may be exactly 5' or a minimum of 15' at the Owner's option. The alternate garage setback allows room for a car to park off the lane in the driveway. If buildings are not located at the 5' lane yard setback, a fence, wall, or hedge shall be used to maintain the lane edge.

This drawing illustrates the general character of Townhouses and their lots. Please note that Townhouses enjoy the full range of material choices available at The Waters, depending upon the style of the house.



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Building Disposition

Townhouse Lots

LIVE/WORK AND OFFICE LOTS

LOT DIMENSION VARIATIONS BY CONTEXT T-ZONES



BUILDING DISPOSITION

LIVE/WORK AND OFFICE LOTS

NATURAL DRAINAGE SYSTEMS CAN CUT DEVELOPMENT COSTS

New urbanist developers are increasingly turning to "natural drainage systems" — techniques that allow much of a community's stormwater to soak into the ground rather than be piped to rivers, lakes, treatment plants, or large, unsightly detention ponds. A study led by Tom Low shows that these more natural methods could sharply reduce engineering costs for traditional neighborhood developments (TNDs).

Low, the Charlotte, North Carolina-based director of town planning for Duany Plater-Zyberk & Company (DPZ), organized a team that examined the financial effect of using natural drainage techniques in Griffin Park, a TND about to get under way in Greenville County, South Carolina. The techniques — sometimes described as "high-performance infrastructure" or "low-impact development" — have been dubbed "Light Imprint New Urbanism" by Low. Because they require less pipe, less paving, and less massive excavation, grading, and tree clearing, they could save developers a substantial sum of money.

Low's team looked at the financial consequences of introducing a natural drainage system in the 42acre first phase of the 300-acre project being developed by Jelks Little LLC. As the table to the right shows, this system would generate some extra expenses, such as \$16,900 for a fence protecting existing mature trees during the erosion-control phase of the project. Twenty "rain gardens" — small, slightly depressed areas that can soak up stormwater — would cost \$102,400, more than twice as much as the large detention pond that a conventional engineering approach would call for.

Reductions in other expenses, however, would more than offset those costs. Instead of installing 9,434 linear feet of pipes at a cost of \$291,794, there would be only 4,182 feet of piping, costing \$129,349 — a savings of more than 50 percent. Storm water inlets would fall from 101 to 24, saving \$192,500, or more than 75 percent. Additional savings would be realized on sidewalks, curbs and gutters, road paving — reduced in width from 26 feet to 24 feet — and surfacing alleys with crushed stone rather than asphalt or concrete.

Altogether, engineering costs would drop by 31 percent. The cost per lot would fall 30 percent, to \$6,234 from \$8,934. (The changes would cut the number of lots by two, to 174, by creating additional green space. The lots are worth about \$50,000 to \$80,000 each. Xavier Iglesias, senior project manager at DPZ, says the revenue loss would probably be more than offset by the increased value of neighboring lots, which benefit from being close to a green.)

At the edge of the development, standard engineering would call for a large detention pond — a feature that is often unattractive and deep enough to require a barrier of chain-link fence. Low's team would replace the pond with smaller, three-stage filtration basins, which would clean the runoff before releasing it into creeks — much as was done in Woodsong, a TND in Shallotte, North Carolina, that Low planned several years ago for developer Buddy Milliken.

The filtration basins would fill with water after

			Conventional	k	l	Light Imprint*	*
	Material	Quantity	Cost(\$)/Unit	Total(\$)	Quantity	Cost(\$)/Unit	Total(\$)
	Silt fence	8,450	4/Foot	33,800	8,450	4/Foot	33,800
osic	Rip rap	200	55/Ton	11,000	200	55/Ton	11,000
шõ	Tree protection fence	-	-	-	4,225	4/Foot	16,900
ter	Inlets	101	2,500/Each	252,500	24	2,500/Each	60,000
Wat	Pipes	9,434	30.93/Foot	291,794	4,182	30.93/Foot	129,349
orm	Retention pond	1	48,400/Lump	48,400	-	_	-
St	Rain gardens	-	-	-	20	5,120/Each	102,400
	Curb & Gutter	18,910	7.60/Foot	143,716	13,091	8/Foot	104,728
ent	Sidewalk	8,276	25/Sq.Yard	206,900	7,000	25/Sq.Yard	175,000
/em	Paved road	26,705	18.64/Sq.Yard	497,781	20,515	18.64/Sq.Yard	382,400
Pav	Paved alley	6,470	13.36/Sq. Yard	86,439		-	-
	Crushed stone alley	-	-	-	5,765	12 Sq.Yard	69,180
	Totals		1	51,572,330		\$	51,084,757
Cost per lot				\$8,934			\$6,234

Traditional Neighborhood Development Engineering Comparison

^{*42} Acres, 176 Lots **42 Acres, 174 Lots

downpours, but would otherwise look appealing and green, even if they weren't suitable for active recreation. (The initial section of Griffin Park will also have a neighborhood green, covered in grass, which people can play on; it will not be designed to collect stormwater.) Rain gardens, planted areas that could be used for recreation, would be throughout the neighborhood.

"DPZ and our engineering consultants have been doing this approach to drainage for a long, long time," Low says. "We just never documented it." Robert Davis, developer of Seaside, Florida, concurs. "All of Seaside uses natural drainage," Davis says. "A few spots use French drains, which in turn percolate into the soil (mostly sand) in which they are buried."

Contributors to the study were Andres Duany; environmental engineer Georgio Tachiev of Florida International University; engineer Stephen Davis of Davis & Floyd; and landscape architect Guy Pearlman and designer Patrick Kelly, both of DPZ. The study is expected to be posted on DPZ's website, www.dpz.com.

Implementation Challenges

Natural drainage methods must vary from one location to another, adjusting to the character of the soil, intensity of development, and other factors. A complete soil analysis is essential to verify that the soil will absorb enough rainwater quickly, Davis says. Rain gardens do not work well in conditions such as clay soils.

Low says there's a pressing need for information on how to blend natural drainage and New Urbanism because much of what's been written about low-impact development has been based on large-lot



Light imprint requires less stormwater infrastructure

conventional suburban subdivisions. A large suburban lot may have room for a rain garden, but a more compact TND may not be able to position infiltration areas on every property; instead, collective rain gardens may have to be scattered about, each serving a part of the neighborhood.

Natural drainage techniques can be organized along the rural-to-urban Transect. In a "sub-urban" area (the T3 zone), all of the rainwater may be handled through swales and other natural methods of infiltration. In the "general urban" (T4) zone, "you do rain gardens and you do some pipe," Low says. In an "urban center" (T5) zone, where buildings cover much of the land surface, it may be necessary to bury large pipes that would hold a sizable volume of stormwater below ground until it gradually is absorbed.



High Point, a new urban development in Seattle, uses porous concrete and swales to allow rainwater to pass into the ground. This diagram shows how the system works.





The typical TND method relies on more stormwater infrastructure

How much of the standard engineering apparatus can be done away with in a particular development — and then win government approval — is a critical determination. Stuart Sirota, principal in TND Planning Group in Baltimore, says regulatory agencies sometimes require unreasonably large riparian buffers for urban projects or they impose design standards that yield densities too low to produce good urbanism.

"We need to eliminate the 'gold-plating' of the engineering" — the insistence on installing more than is necessary, Low asserts. If governments require developers to install all the components of a standard stormwater drainage system even when natural techniques are going to be relied upon, the combined cost will be too high, making the natural system uneconomical.

One purpose of the South Carolina study is to amass knowledge that will be readily available to new urbanist developers and local governments. At Griffin Park, which is expected to have five phases spread over 300 acres, Low expects that some of the proposed Light Imprint techniques will be introduced in the first phase; he hopes the full array will be implemented in later phases.

If implemented in too single-mindedly, a natural drainage system can conflict with New Urbanism. Some advocates of natural drainage, eager to create uninterrupted greenways, try to eliminate many street connections. Low warns that if many streets are dead-ended, the basic structure of the neighborhood will be compromised. Natural systems must be balanced against elements essential to a walkable neighborhood.

Trees, which are not often thought of in terms of

stormwater control, play a critical function, according to Mary Vogel, principal in PlanGreen in Washington, DC. "A shade tree with an extensive crown, growing along a street, probably does more than any manmade technology to manage stormwater," she says. "Trees should be valued highly and given adequate space at both the canopy and the root level."

The light imprint street plan cuts down on pavement

Vogel lists other important natural drainage tools: native plant perennial landscapes; grass filter strips; bottomless planter boxes designed to capture runoff from buildings; public spaces designed to maximize filtration; "stormwater art" including fountains, weep walls, sculptures, and cascades; green roofs; balcony planter boxes; porous pavement; and cisterns that capture rainwater.

NAVIGATING THE PUBLIC WORKS AND UTILITY MINEFIELD

For the designers and developers of the Doe Mill Neighborhood, located in Chico, California, getting the project approved and financed has turned out to be less painful than working out details with fire officials, the public works department, and utility companies. Tom DiGiovanni and John Anderson stress the importance of reaching out to and educating these parties as early in the process as possible. Likewise, establishing a relationship with a real estate appraiser before construction begins can help to securing financing.

For some years prior to planning the 21-acre neighborhood in 2000, DiGiovanni and Anderson had primed the ground by conducting a workshop and engaging city officials in a dialogue about the New Urbanism. "We found virtually everyone in the planning department, on the planning commission, and in the city council highly receptive," DiGiovanni says. Using the available planned unit development (PUD) zoning category — and taking advantage of a completed environmental analysis that had been done for a previous proposal on the site — the developers won unanimous approval for the project in 60 days.

Despite earlier efforts to get the city to adopt some kind of traditional neighborhood development (TND) code, the developer stayed with the PUD approach. Ultimately, building a project where officials could see the way new street and lot configurations work would be more productive and less threatening than an upfront change in the existing development standards, DiGiovanni says. "They [city officials] were much more prepared to give it a try in a PUD, and now they are interested in developing a code that allows this everywhere."

Get to the right official

In the application process, the street width standards had to be cleared with both the public works department and fire department officials. According to DiGiovanni, the public works director was skeptical, but agreed to a 26-foot street "because he recognized the political will behind the project." Fire officials, on the other hand, were not concerned about political pressure. They pointed to the Western Fire Code, which strongly recommends a 20 ft. clear zone on every street for emergency vehicles. The developers made the concession to restrict parking to one side of each street.

Though these initial negotiations went smoothly, Anderson warns of the potential complications that can emerge later. "In a situation where you may be dealing with both a fire marshal and a fire chief, we counsel that you keep an eye on who's going to sign off on the plan down the road and make sure that person is fully up to speed." In this case, the chief had taken the lead, and when the marshal had to approve the final subdivision improvement plan, "he was having a hard time figuring out why they had agreed to certain configurations," Anderson says. This lack of communication forced the developers to change curb radii in the late stages of planning.

Pedestrian lighting

Going up against the city's street lighting standards proved more complicated. Anderson and Di-Giovanni wanted illumination that responded to the



Model houses in Doe Mill frame the first street in 2002, above — note the pedestrian-scale lighting fixture. Bulky and unattractive utility boxes, at right, are relegated to rear alleys.



needs of pedestrians. That meant using 12 ft. poles instead of the public works department's standard 18 ft. poles, as well as placing them at shorter intervals. "The city had a coach fixture that would work, but they don't want any new poles that they have to stock parts for," Anderson says. The public works director asked to see a study that would justify these changes, and Anderson and DiGiovanni hired a consultant from the Society of Illumination Engineers. The consultant was unable to evaluate the city's outmoded calculations for glare and light intensity - a bit of digging revealed that the standards were based on a textbook that went out of print in 1952, DiGiovanni says. "We provided all kinds of new information about luminance and glare for the lighting in question. The public works department thanked us for the new research we provided, which they could use as the basis for new standards, but then suddenly decided that they did not want to see the 12 ft. poles. We finally got them overruled by the planning department, but it was a three-month process just to get the lights sorted out."

Utility installation

In Doe Mill, local utility companies faced a brand new challenge: installing underground utilities in alleys. In the typical conventional subdivision, utilities are buried between the sidewalk and the fronts of houses, and the tolerances around the trench are fairly wide and flexible. In Doe Mill's alleys, however, the tolerance shrank to six inches.

The developers had a major educational effort on their hands — they needed to convince the water, telephone, cable TV, and gas and electric companies that it was physically possible to work in such a narrow space. Even after Anderson and DiGiovanni had met with utility representatives in the field and done extensive survey staking, problems persisted because installation crews were unfamiliar with the tight conditions. Utility engineering is underway for the second phase, and rather than waiting to do detailed drawings based on the utility companies' schematic plans, the developers have produced such drawings up front to streamline the process.

The argument for placing the utilities in the alleys is primarily aesthetic. Utility pedestals are not particularly attractive, and are getting larger as phone companies begin to provide fiber optic service. According to DiGiovanni, phone pedestals used to be 12-15 inches high and about six inches square, but newer models are 30 inches high with a diameter of 12 inches. "They become little totems in people's front yards, and homeowners are required to keep vegetation away from them," he says. More than ever, the alley location is the preferable solution.

Educate the appraiser

Anderson and DiGiovanni put considerable effort into helping the local real estate appraiser understand the concepts of the New Urbanism and giving him a firsthand experience of good projects. "The chief benefit to educating the appraiser was that when it came time for construction loans and financing of the projects, the bank was very easy to deal with, because they had an appraisal from someone who understood what TND was," DiGiovanni says. The developers took the appraiser and a local Realtor on a tour of projects in the East, including I'On, Celebration, Haile Village Center, and Harbor Town. The appraiser met with colleagues in these areas, and the developers also supplied him with background information.

DiGiovanni advises that appraisers need time to reach their own conclusions about New Urbanism. "Give the appraisers six months to absorb everything. Give them information — the "Valuing the New Urbanism" study by Eppli and Tu, research by Zimmerman/Volk Associates — and challenge them as professionals to go out and take a look at this or at least call colleagues who deal with new urban communities." Also, DiGiovanni recommends working with an appraiser with a rigorous and technical approach, rather than somebody who happens to be easy to work with — banks have greater respect for the rigorous appraiser.

The developers brought a local Realtor along on the tour of projects. "Realtors are used to selling new construction by selling the house only," Anderson says, "they are thinking square footage and features. To have them see a whole project helps to shift their point of view."

The importance of selling the community as well as the home also influenced the developers' decision to halt the sales process until all the models are completed. "The sales up front require a lot more attention from us, as builder-developers, than if you walk right into a model and see what you get," DiGiovanni says. "Showing renderings is not the same as walking down that first block, closed on both sides."

MORE DEVELOPERS, BETTER RESULTS

The most acclaimed early examples of New Urbanism were brought into existence by individual developers — Robert Davis, who worked his magic on 80 acres of Florida sand; Henry Turley, who gave Memphis the congenial Harbor Town; and Joseph Alfandre, who founded Kentlands amid the single-purpose subdivisions of suburban Maryland.

Today, however, some of the most interesting new urbanist work is being carried out by groups of developers. By involving multiple developers, a sizable project can often be built more speedily, and it can incorporate great variety — in the kinds of buildings it includes, in the uses it accommodates, and in its range of styles.

Two prime examples are the Holiday neighborhood in Boulder, Colorado, and the Beerline B project in Milwaukee. Both projects consist of parcels developed by a variety of companies or organizations, under the coordination of a public agency.

Holiday is a quirky and complex 27-acre neighborhood on the northern edge of Boulder. Where it meets Broadway — a principal north-south thoroughfare served by quick, frequent buses to downtown Boulder — a small commercial center has been constructed. The Broadway section of Holiday has wide sidewalks and on-street parking; it beckons to people driving by, while making the thoroughfare calmer

The commercial center includes a restaurant and bar, a bakery/cafe, and a few service businesses with-



in walking distance — ground floor commercial with residential units above.

At a park shaped like a quarter-circle, Holiday makes a transition into an essentially residential neighborhood. Some houses, especially those designed by the local Wolff Lyon Architects, are in Victorian, Foursquare, and other traditional styles. Others are contemporary, with angular forms that jab at the sky, or galvanized metal cladding that glints in the sun, among other bold effects. There are detached houses, duplexes, rowhouses, carriage houses, live-work units. No single aesthetic dominates. Exploring the neighborhood's sidewalks and mid-block pedestrian passages, a visitor is apt to be struck by the many visual contrasts, but also by the human scale. Porches embellish traditional and contemporary houses alike (though some of the contemporary dwellings' porches look cramped — too shallow for gatherings).

One part of Holiday consists of Wild Sage Cohousing, a mini-community of 34 homes gathered around a grassy courtyard and a curved-roof commons building, built by Jim Leach's Wonderland Hill Development Company. On a one-acre site immediately adjacent to Holiday, Wonderland Hill is establishing Silver Sage, a cohousing project designed for an older clientele by McCamant and Durrett Architects and Bryan Bowen Architects.

Another part of Holiday is Northern Lights: 14 units (six duplexes and two carriage units) developed by the Affordable Housing Alliance on a site measuring just under an acre. Wolff Lyon gave Northern Lights many pleasing details, so although the houses are lower-cost, they don't look barebones. For instance, Tom Lyon designed decorative trim, which was made by residents as part of a sweat-equity arrangement organized by Habitat for Humanity.

For artists, Holiday offers Studio Mews, a live-



Clockwise from upper left: main street retail, townhouses, and the plan for the Holiday Neighborhood in Boulder



work section along a pedestrian walkway. To achieve "sustainability," the Holiday development has solar panels, passive solar designs, high-efficiency appliances, and other "green" components. As relief from Boulder's high housing costs, 138 of the 333 units are affordable, with deed restrictions to keep them that way.

New urbanists John Wolff and Tom Lyon played key roles in Holiday, acting as developers of the commercial segment, Northern Lights, and a residential section called North Court. The housing authority chose seven developers in all, including Coburn Development, Peak Properties & Development Corp., and Naropa University, a Buddhist-oriented local institution eager to obtain student and faculty housing. The combination of developers gave the Holiday neighborhood an assortment of ideas and expertise.

"The housing authority's role was to orchestrate the design process and take it through entitlement, negotiate affordability, and put in the infrastructure," Wolff says. Prepared land was then sold to developers. The housing authority accepted a smaller financial return than would have been demanded by a master developer from the private sector. Residential prices have ranged from \$104,000 for an affordable one-bedroom unit to \$740,000 for a detached house.

New urbanists often talk about having many designers in a project, to give it variety. The Holiday neighborhood suggests that variety can also spring from having multiple developers. With multiple developers, there's a greater likelihood of contrasting approaches to matters such as plans and styles.

Milwaukee modern

Under John Norquist, mayor for 15 years, Milwaukee started in about 1998 to plan the redevelopment of Beerline B, a corridor that took its name from an old rail line north of downtown that had served an assortment of breweries and other industries. The city controlled most of the 20 acres in the corridor, and acted as agent for other public agencies that held title to the rest of the land, says former city planning director Peter Park.

"We hired Dan Solomon and John Ellis [of Solomon/WRT in San Francisco] to work on neighborhood charrettes to design a new neighborhood, setting the stage for private investment," Park says. Taking the lead for the municipality was the Department of City Development, which encompasses planning, permitting, economic development, the public housing authority, the redevelopment authority, and city-owned real estate.

Many streets in the corridor had dead ends; the city decided to link them together where possible, connecting the formerly industrial lowland along the Milwaukee River to the bluffs of Brewers Hill, where old mansions stood. Regrading and new trails and staircases also helped overcome the separation between the neighborhood on the bluffs and the development envisioned below.

"We wrote a simple form-based code, setting four building types," says Park. The redevelopment plan "aimed to achieve good-quality pedestrian connections, build out the street-wall, and put in sidestreets for access to the river," notes senior economic development specialist Allison Rozek.

"Having the plan prepared with the community created a degree of certainty for developers," Park observes. "We sent out RFPs in parcels as small as we could [often under two acres], to encourage multiple developers." Height restrictions were included in the planning, to preserve views and build predominantly outward rather than upward, thus creating consistent street-walls and preventing a situation in which one



Houses in the Beerline B neighborhood in Milwaukee

tall building might saturate the market.

Guided by the code, developers produced their own take on what would be appropriate. Among the proposals winning approval — the city awarded sites through developer competitions — were condominium townhouses, stacked flats, and side-by-side duplexes designed to look like mansions. The competitions "raised the bar," says John Vetter of the architecture and development firm Vetter Denk. "You had to win them. It brought a higher level of design to a market that was starving for it."

Some of the first projects adopted a traditional aesthetic, but today "if there is a dominant style, it would be 'modernism,'" says Larry Witzling, president of Planning and Design Institute (PDI), which worked with Vetter Denk on River Homes, 42 contemporary units on both sides of the new, contemporary Milwaukee Rowing Club.

Private investment has poured in — more than \$200 million from 1999 through 2007. Over 1,000 residential units were built or approved during this period. The city has encouraged reclamation of this former brownfield corridor by spending about \$25 million in tax-increment finance funds on infrastructure, including construction of the Marsupial Bridge that carries motor vehicles on its upper level and pedestrians below, crossing the river. Restaurants and other retail, mainly aimed at neighborhood residents, have started to arrive, and prices have shot up. "There's housing from \$140,000 to \$1.5 million," says Vetter.

"My sense," says Park, "is that the development happened faster than if we had a single master developer. It created competition. In terms of product, we pushed innovative design, which gave it a competitive edge."

TND development tips

Robert Turner

When designing new urban communities, a great deal of time and effort goes into the creation of urban and architectural codes that govern the construction of a neighborhood. These codes function as a blueprint to help the town founder make the vision a reality. Renderings strengthen the codes through visualization.

But codes cannot be written to cover every situation. Renderings, for their part, work great during the permitting process and in the marketing efforts, but do not guarantee a successful project.

So what is the best way to ensure quality design and realization of that design? The selection of good architects and builders is important. A good design and construction team will make the project a financial success through attention to detail, budget, and craftsmanship. Those carrying out the plan must have a clear understanding of the intended outcome. The team of builders and architects should know the local vernacular, have a proven track record for marketable and aesthetically pleasing design, and be willing to bring value to the community through design and craftsmanship.

Beyond that, the following are tips that I have found help ensure the successful implementation of a new urban plan:

1. Prior to the charrette process, develop a market study that defines the home types and prices needed in the market place. Create design criteria (including materials and square footages) to meet the market needs.

2. If possible, have the architects and builders participate in the charrette.

3. Develop conceptual designs that meet all types of homes in the neighborhood, including different elevations for every floor plan. The cost of a good plan library will prove to be the best marketing dollars spent throughout the project. Pair plans with builders based on their qualifications and strengths (i.e., production homes with production builders and custom homes with custom builders). Get preliminary cost estimates to ensure market absorption.

4. Pick at least one of each plan type and develop it into construction documents.

5. Educate the builders and key subcontractors on the design intent.

6. Meet with the builders at least once a month to discuss new materials and methods of construction.

7. Develop a simple list of dos and don'ts pertaining to details and update it monthly based on execution in the field.

8. Ensure all civic buildings are of the highest design and quality. If founders don't deliver quality, they can't expect perfection from the building and design team.

9. Stay hands on — either as the founder or by hiring a town architect. Ideally, the first town architect should be someone who participated in the initial charrette. The founder should attend every plan review meeting until he or she feels comfortable with the quality of design.

10. The first few homes are the most important, because if execution fails early, it will be hard to regain. Be very clear about what is expected from all those working in the field.

11. Reward excellence though encouragement and praise, and give credit to those who are the true town builders — the design team and contractors who make it happen.

12. Don't get hung up on large square footage. Cut cost through size and not detail. Most buyers in TNDs will sacrifice size for quality of detail. The small, less expensive homes can carry their weight against the large, pricier homes if the detail and plan are properly executed.

13. Pay close attention to the little things. A very simple, properly executed detail in most cases is much better than a very expensive overdone detail. There is elegance in simplicity.

14. Put the money where it is best exposed. Things that are touched — e.g., heavy doorknobs and nice plumbing fixtures — make a lasting impression.

15. Be unique. If the conventional neighborhood is using six-panel interior doors, use four- or twopanel. If the competition is using stock crown molding, use one by four. If the competition is using a standard door casing, use something different. All these materials and fixtures can be kept to a minimum cost, yet the lasting impression will set one project apart from the rest.

16. In general, simplify. The fewer corners the better. Put the savings into quality detail.

Robert Turner is a developer of Habersham, a new urban community in Beaufort, South Carolina.



Architectural Styles and Building Types

16

Architectural styles	
Architectular styles	
and building types	272
Traditionalist-modernist contention	273
Classical roots of the vernacular	273
Why study the vernacular?	275
Lessons from pre-1920s buildings	276
Pros and cons of modernism	277
"Rational modernism"	279
Where Modern belongs	281
A Modern house in a	
historical setting	282
Treatment of civic buildings	284

Punctuating the plan	284
Evolving styles	286
Building types and arrangements	288
Live-work structures	288
Accessory dwellings	289
Multi-generation house	290
Flex space	290
Podium buildings	291
Liner buildings	291
Parking garages	
"buried" in the block	292
Townhouses	292

Stacked townhouses	293
Maisonettes	293
Mansion building	293
Houses with engaging fronts	293
Cottages	294
Carpet cottages	295
Back-to-back duplex	295
Courtyard housing	296
Streetscape pad buildings	297
Buildings that make transitions	
between different environments	298

Above: The Seven Fountains courtyard multifamily building in West Hollywood, California, by Moule & Polyzoides. Photo by Tim Street-Porter

Architectural styles and building types

What kind of architecture to use, and where to use it, has been a subject of intense debate among new urbanists. Is traditional architecture the best or only choice? Can Modern architecture serve New Urbanism's goals equally well? This chapter looks at questions of style in architecture, showing how either a traditional or a modernist mode of design can, when properly handled, produce a satisfying community environment.

Many new urbanists advocate traditional architecture. Some of them abhor modernism. A smaller number prefer Modern. After listening to arguments from all sides, we've concluded that either traditional or Modern styling can work well — when certain standards or conditions are met. The standards revolve around one main requirement: that the buildings foster a good relationship between the public and the private realms.

As has been emphasized throughout this book, New Urbanism aims to make it convenient and comfortable for people to get around on foot. The pedestrian experience has to be tolerable, and more than that, interesting. The public faces of buildings cannot be dull or uncommunicative; they must be engaging so that people will actually *choose* to spend time on the streets and sidewalks and in public spaces.

Put another way, the buildings must be worthy

of pedestrians' attention. At a typical walking pace of approximately 260 feet per minute — four or five feet per second — people have time to notice architectural details, and will become bored or impatient if the environment is rudimentary or lifeless. Small architectural elements, unnoticed by motorists hurrying past at 35 or 50 mph, become conspicuous to a person walking at a leisurely gait within just a few feet of the building.

The "architecture of community," as new urbanist building aspires to be, need not be spectacular, but it must offer something to please the eye, occupy the mind, or animate the spirit. This can be achieved through the elements of a well-composed facade, but it can also be achieved by providing signs of human activity or habitation. Windows, doors, a porch that's occupied or that looks like it would be an inviting place to sit — these are some of the elements that spur human interest.

The building and its grounds should help set up a well-modulated sequence between the public realm of the street and sidewalk and the private realm of the interior. Often this means incorporating some intermediate zones, which protect the privacy of the insides of dwellings while encouraging interaction.

In comparison to conventional postwar suburbs, the buildings in new urbanist communities are gener-

Houses in l'On, Mount Pleasant, South Carolina, bear the scrutiny of pedestrians who stroll by only a few feet away.



ally placed closer to the streets and sidewalks —giving the public realm a sense of enclosure. For this strategy to be fully successful, the buildings must be of sufficient height (in proportion to the street right-of-way). Buildings in a pedestrian setting must be constructed to a higher standard than those in an automobile-oriented environment. The compromises that are common in conventional homebuilding — window assemblies that lack proper trim; vinyl siding that poorly imitates wood — detract from the public realm and take much of the pleasure out of walking. The aim of new urbanists is to produce buildings that have good materials, effective proportions, skillful detailing, and usually a feeling of habitation or human activity.

Certain building types suit new urbanist purposes especially well. Thus the last section of this chapter examines building types and arrangements — from live-work units, to accessory apartments, to courtyard housing — that make for a complete community.

TRADITIONALIST-MODERNIST CONTENTION

Traditionalists and modernists have fought for decades. The reasons for the divide can be traced back to the early twentieth century, when the ascendant Modern Movement set about trying to create a radically different built environment — one shorn of traditional applied ornament and liberated from purportedly obsolete architectural forms. Modernists did not want only to make individual buildings that would be free to diverge from the buildings of earlier ages. They wanted a different pattern of city-making, a drastically redrawn urban structure.

The French-Swiss architect Le Corbusier saw a need to reorder urban circulation; the domain of motor vehicles would be separated, when possible, from the domain of pedestrians. Broad, fast expressways would charge through the cities, allowing motorists to exult in unconstrained freedom of movement. In common with the proponents of zoning, modernists wanted to remedy the messiness and disorder of the city by sorting things out.

Modernist thinking was also enamored of the idea of placing sizable buildings some distance from one another; the clearing of sizable portions of the ground plane would maximize occupants' exposure to sunlight and air (sorely lacking in the crowded slums of the times) and would give city-dwellers access to expanses of open landscape.

By the 1960s, the modernist urban vision had

been carried out piecemeal or wholesale in many of the world's cities, and its terrible consequences stood revealed. Too many of the open spaces between the new, taller buildings belonged, for all practical purposes, to no one; they became wasted or underused - or worse, threats to public safety. Expressways wrecked many fragile neighborhoods through which they passed. Observers saw that the modernist rejection of intermingled shopping, civic, residential, employment, and entertainment uses was producing dullness and inconvenience; it became hard to go about daily life on foot when walkable, diversified neighborhoods containing most of the things a person needed had been obliterated in the name of progress. Eventually the failures became conspicuous enough that they turned large numbers of people against Modern planning and to some extent against Modern architecture as well.

While there was much that was disturbing or dysfunctional about Modern buildings and about the urban structure of which they were a part, there were also good aspects to modernism. In every generation of the twentieth century, a number of Modern buildings provided inspiration; hundreds of such buildings became landmarks. Both traditional and Modern architecture can be useful. We need a clear understanding of where and how can they serve the goals of urbanism.

CLASSICAL ROOTS OF THE VERNACULAR

New urbanist designers and developers have intensively studied the streets, passages, and buildings of old cities and towns that function well. They measured the streets, the planting strips, the sidewalks, and the distance from the sidewalks to the buildings. If front porches were present, they measured how deep they were and how far they stood above the street and sidewalk level. They noticed the size and placement of windows and many other elements of old communities.

In doing so, new urbanists became familiar with traditional architecture and especially "vernacular" architecture — buildings produced by people without formal architectural training. The common buildings from a few centuries ago to about the 1920s generally accommodated community needs. Much of what's been learned about traditional architecture has been recorded in useful books such as Stephen Mouzon's *Traditional Construction Patterns* and Marianne Cusato and Ben Pentreath's *Get Your House Right*.

Good developers and their architects should - and do — study the architecture of any region they're entering. Pittsburgh-based Urban Design Associates, for example, has made a practice of examining the characteristic ways of building in places where the firm is designing new communities or improving existing ones, whether in California or Norfolk, Virginia, or the Gulf Coast of Louisiana. Similarly, Mouzon, of the New Urban Guild, looks for the basic patterns that historically predominated in an area. Many of the stylistic traits are then revived, refined, or reintroduced.

The root of traditional architecture, for most people in the West, is Classicism — the architecture associated with Greece and Rome. Classical architecture is often seen as having lessons for new urbanists. Classicism has the cardinal virtue of being based on the human body. A Classical building stands upright, symmetrically proportioned like the human body. It responds to, and expresses, gravity. The weight of the parts of the building is transmitted through columns, arches, and other elements. In ancient Classical buildings, the weight is usually supported by visible structural elements, often beautiful in themselves. In the Classically inspired buildings of our own times, the weight may be borne by a hidden structure of wood, concrete, or steel, yet the support is represented and articulated by columns, walls, and other visible, tra-

A courtyard of the Nashville Library, a Classical building from 2001 designed by Robert A.M. Stern Architects



ditional elements.

Just as a person has feet, legs, a trunk, and a head, a Classically inspired building has a base, a body, and a roof or cornice. Classical buildings feel satisfying partly because they mirror the composition of the human body and conform to the law of gravity and the need for balance. Subconsciously, they reassure us, as they interact with the world as we do.

In a Classical building, the whole is made up of many parts; large areas are composed of smaller pieces. The components work in concert to generate a sense of completeness. They provide what Washington, DC, architect Milton Grenfell calls "an ordered complexity." The successive levels of detail establish the building's scale and help to make the building intelligible. Humans have an instinct to create order out of disparate stimuli; Classicism may owe some of its appeal to the fact that people are gratified to discover harmonies and meaning in their environment.

The Classical tradition has enlarged as time has gone by, and adapted to differences between one region and another. Thus a Classical building in a cold or humid climate usually differs from one in a hot or arid locale. Classical buildings in the tropics often feature deep, prominent wrap-around porches which provide shade and which shelter large window openings that promote ventilation. By contrast, in Renaissance Italy, windows were kept small in relation to the wall area to limit the entry of sunlight.

Despite its adaptability, Classicism is conservative in its instincts; its practitioners have always been reluctant to discard a collected array of accumulated conventions and start over from scratch. A 21st-century Classical building will likely not be built by the same methods and with the same organization of rooms as one in ancient Rome, yet its lineage will be evident.

Because it takes time — usually at least a decade or two - for large numbers of people to understand and appreciate a new architectural form, there is often an advantage to employing a traditional style. Most people today have seen Classical and other traditional buildings from childhood on, and familiarity makes their language acceptable, valued, and often emotionally resonant. When new urbanists choose to root their buildings in the Classical canon (even while adapting to today's building materials and technologies and to the ways in which modern people use indoor and outdoor spaces), they do so in part because Classicism speaks to most if not all people; it is rooted



This small apartment building in Liberty Harbor North, Jersey City, New Jersey, by Khoury Vogt Architects shows how traditional architecture can take creative forms in new urban neighborhoods.

in gravity, balance, and solidity. It is responsive to climate and culture. It strives for beauty and harmony.

Within the broad realm of traditional architecture, a fully expressed Classicism stands at one end of the spectrum and vernacular architecture stands at the other. Vernacular buildings tended to be less elaborate, less ornamented, made of cheaper materials, often owner-built, and sometimes naïve in their approach to style. Nonetheless, vernacular buildings typically shared basic traits with their Classical predecessors; they expressed gravity; they often had a base, middle, and top; they tended to have vertically proportioned openings; they responded to local climate and culture; and not infrequently they incorporated simplified versions of ornament derived from highstyle buildings. As a result, many new urbanist designers see vernacular architecture as a logical choice for ordinary structures, such as houses of modest cost.

It should be acknowledged that today's "traditional" buildings are not constructed by the same means as those from 200 or 2,000 years ago. Contemporary house construction relies for the most part on mass-produced components such as plywood, gypsumboard, factory-made roof trusses, and pre-hung doors. Skill and perseverance are required if designers and craftsmen are to use these components in ways that produce properly proportioned, recognizably traditional dwellings.

Many organizations, including the Congress for New Urbanism, the New Urban Guild, and the Institute for Classical Architecture & Classical America, have made efforts to teach designers or tradespeople how to design and build well in a traditional manner. Instruction has delved into details such as how to give a window a traditional casing, a roof a proper eave and cornice, and so on. Some developers and builders have made a point of training workers in the requisite crafts. In Starkville, Mississippi, builder-developer Dan Camp has used traditional craft techniques to create a remarkable, Charleston-influenced neighborhood called the Cotton District. The Cotton District shows that perfection is not essential. Miami architect Victor Dover has observed: "Despite the fact that so many parts are a little off - headers above windows seem short, proportions stretched and squashed, ornaments oversized or undersized, porches so shallow, and so on - the whole is still charming."

WHY STUDY THE VERNACULAR?

There are several reasons for making an in-depth study of regional and vernacular architecture:

First, as already noted, the old buildings often nurtured a healthy relationship between the public and private realms — between pedestrians on the sidewalks and residents in their houses or on front porches, for example. Vernacular architecture and common town-building techniques helped to satisfy

The Cotton District, Starkville, Mississippi





Alys Beach, on the Florida Panhandle, melds traditional styles of Bermuda and Antigua, Guatamala. The buildings meet high environmental performance standards.

people's social needs — helped bring people into contact with one another.

Second, vernacular buildings from the past often used natural methods (such as cross-ventilation, overhangs, and optimal placement of windows and doors) to temper the extremes of the local climate. Natural methods declined during the era of cheap petroleum, but worldwide environmental threats have since revived interest in these older forms of adaptation to climate.

Third, vernacular buildings used materials predominantly from their own region. This helped generate a sense of place, a sense that the buildings fit their locale. It helped new buildings convey authenticity.

In many instances, historical architectural and building techniques have found widespread popular support, especially among homebuyers. The market reinforced the turn to traditional styles.

LESSONS FROM PRE-1920s BUILDINGS

Michael Mehaffy, an architect and planner in metropolitan Portland, Oregon, has identified a series of beneficial features associated with buildings from before about 1920. He points out that not only did they work well for the period in which they were built; they also avoided harming the environment as much as most buildings from more recent times. Buildings before 1920 "evolved under the necessary discipline of a low-carbon technology," Mehaffy notes. "For that reason alone, a number of their characteristics might be useful in achieving lower-carbon buildings and neighborhoods."

The characteristics praised by Mehaffy include:

• Exteriors with articulation, detail and ornament. These features can hide dirt and wear, and actually improve in appearance with time. They also seem to make important contributions to pedestrian scale and interest, which is necessary if we want to create a functional pedestrian environment and a healthy public realm.

• Complex relation of interior and exterior. The front porch and picket fence, common in residential settings before 1920, help to create connective layers of private and public, a kind of membrane system that extends from the innermost private spaces of a building to the most public realms outside. The same is true for galleries, arcades, stoops, colonnades, balconies and other traditional types.

• Focus of the building on its public realm. Most buildings prior to 1920 paid close attention to the way they addressed the public realm, with legible entries and ornamental details addressing urban space. These strengthened the relation of the building to its urban context, and strengthened the pedestrian realm around the building — a critical need, as Mehaffy sees it, for a low-carbon neighborhood.

• *Punched windows*. Window openings are cut into a solid wall plane, much like a hole punch cutting small pieces out of a sheet of paper. Punched windows are what you see in virtually all traditional building forms, where individual windows, or groups of windows, are surrounded by a load-bearing wall. These assemblies reduce the amount of glazing and make it easier to achieve an energy-efficient wall assembly. This can be contrasted against the "curtain wall," the comparatively energy-consuming innovation of modernist wall construction.

• Low-energy, locally adaptable materials. Often traditional buildings used locally available materials that did not require extensive industrial processing. Wood, for example, was relatively easy to work, and served to capture carbon. Even brick was usually quarried from local clay sources, and fired nearby with relatively modest energy requirements. These materials also made repair and modification easy and efficient, resulting in resilient and long-lasting buildings.

• *Thermal mass.* Many traditional building types have used relatively thick wall sections, which allowed for efficient moderation of temperatures. Though uncommon in North America, these are still widespread in Europe, where they've been brought up to date by inserting a thermal break into the thick exterior wall.

• Biophilic geometries. "This fascinating area of recent research seems to show that for optimum health, human beings need to experience the geometries of nature within their built environments on a daily basis," Mehaffy notes. "These include the obvious natural elements like plants, sun, and fresh air. But they also seem to include geometries that are characteristic of biological structures, including fractal scales, hierarchical groupings, characteristic proportions, roughness and texture, an optimum mix of unity and variety, spatial layering, a sense of prospect and refuge, and related geometries. Intriguingly, many historic buildings demonstrated rich aggregates of these characteristics. There is reason to believe they may have played a role in the care these buildings received, and their durability - their sustainability - over time."

PROS AND CONS OF MODERNISM

Though traditional styles remain popular, especially for houses, some question whether newly-built traditional buildings are really as attentive to climate and local conditions as vernacular buildings were. Architect and civil engineer Tony Sease, in Durham, North Carolina, observes that today's traditionallystyled houses are often placed on their lots with little regard to solar orientation and prevailing breezes. New traditionally-styled houses may resemble dwellings from the past, but typically they rely on modern materials, air conditioning, and other fuel-consuming mechanical systems to provide the comfort expected by the inhabitants, according to Sease.

Sease sees Modern design as having great potential for sustainability. "Well-designed modernist residential architecture successfully integrates the outdoors, whether through daylight, ventilation, or direct spatial relationships, in ways that traditional architecture *as typically used today* rarely does," he contends.

Modern passive solar, naturally ventilated houses may, according to Sease, be "greener" than vernacular-inspired houses that have their windows in the wrong sizes and the wrong locations and their porches where they offer little respite from the climate. On the other hand, some traditional neighborhood developers do arrange their houses to take solar exposure and other aspects of nature into account. Also, glass requires a great deal of energy to produce, and even with argon-filled insulating units, a Modern glass wall may result in higher heating and cooling costs than a well-insulated conventional wall with smaller windows. Not all Modern houses seize the opportunities for natural ventilation and optimal use of the



An Art Deco influence from the 1930s can be detected in this block of multifamily housing and retail designed by architect Dan Solomon for a street in South-central Los Angeles.



A modern-style building with residential above commercial in Prospect, Longmont, Colorado

sun. This makes generalizations difficult.

Whether a building is traditional or Modern, its designer and builder need to be attentive to factors such as these. The style of a building doesn't tell us how environmentally responsible a building is.

In at least a few instances, modernists have produced extensive urban areas that hold to a consistent and cohesive aesthetic. The Israeli city of Tel Aviv is an example. What is typically called Bauhaus or International Style (though it is less glassy and transparent than the International Style in the US) flourished in Tel Aviv in the 1930s. Even today the city is admired for its architectural consistency, created in large part by 17 former Bauhaus students who worked as architects in the Israeli capital. The harmony comes from unifying choices such as flat roofs; walls of smooth, unornamented concrete; asymmetry or regularity rather than symmetry; long, narrow balconies; and sparing use of glass (mainly in long, narrow horizontal windows). Some 1,500 International Style buildings were constructed in Tel Aviv, giving the city a coherence that is uncommon for modernism, which more often aims for more varied and individualized expressions.

Modernism is known for experimentation. The problem with aesthetic experimentation is that each designer may be devising his or her own private language. While the language of traditional architecture is diverse, it has been around long enough that many millions of people understand or appreciate it, at least at a basic level. Modern architecture, on the other hand, undergoes rapid change, which makes it hard for those outside of fairly small architectural circles to keep up with it. Cities are handicapped when a large proportion of the inhabitants are puzzled by what's built. "People are capable of being brought to modern architecture," says Miami architect Andres Duany, "but the modern architects have to stabilize their language, among themselves, and to hold it still for a substantial period of time — not just a fashion cycle. If not, it is all quite useless to the needs of the New Urbanism." New urbanist architects, in Duany's view, "must differentiate themselves by eschewing exaggerated individual expression and try not to follow fashion, which changes too often to support the cycle of urbanism."

Modern architecture has frequently been undermined by a lack of human scale. Buildings have adopted what architect Milton Grenfell calls a "numbing simplicity." Grenfell points out that a doorway in I.M. Pei's East Wing of the National Gallery of Art is simply "a rectangular hole in a limestone veneer walls. In contrast, just the door casing of John Russell Pope's West Wing changes plane and shape a dozen times or so in the space of 1 foot." Its complexity sculpts the light and creates a nuanced effect not found in overly simple designs. Ornament helps provide a welcome complexity and human scale. Without ornament, it's hard for architecture to achieve a power that lasts once the startling effect of dramatic (or exaggerated) forms wear off. Mies at least partly recognized the hunger for ornament; he embellished the Seagram Building's exterior with bronze I-beams that were essentially decorative. Appropriate ornament enhances

The Johnson Street townhouses in Portland, Oregon



the appeal of almost any building, no matter what the building's style.

"RATIONAL MODERNISM"

Modernism has become the principal style for large buildings such as office towers. This stems from a variety of factors:

• A stripped-down Modern style is often more economical to build than a highly embellished traditional design;

• Above a certain size, architects seem to have difficulty accommodating current-day activities in convincingly traditional forms. Quite a few of the "traditional" office towers built in the past 30 years look trite and poorly detailed. (Poor execution detracts from many smaller traditional-style buildings as well.)

• People often associate vigor and freshness with the Modern.

Some new urbanists see opportunities for a "rational modernism." Todd Zimmerman, a market analyst for new urbanist projects, says that buildings, regardless of style, should embody "human scale, clear and unambiguous relationship to the civic realm, and respect for context." He sees those goals as eminently achievable through Modern design.

Vancouver, British, Columbia, has done more than perhaps any other North American city to pursue rational modernism. Downtown Vancouver, predominantly Modern in style, owes its "enjoyable and inspiring urbanism" in part to "clear expressions of scale, structure, and materials," says Sease. Of the tens of thousands of residents who have moved to downtown Vancouver in the past 30 years, many live in glassy "point towers" (slender high-rises) that sit on top of podiums. The towers are distinctly Modern. The podiums address the streets satisfactorily — containing stores, restaurants, and service businesses or townhouse-like dwellings, all with doors opening to the streets and sidewalks.

John Punter, in *The Vancouver Achievement: Urban Planning and Design* (2003), identifies these as some of the major components that make the combination successful:

• Slim and elegant, highly glazed, view-articulated towers that catch the light and minimize shadow and wind vortex.

• Tower bases carefully integrated with groundoriented housing.

• Continuous street-wall buildings of a domestic



Modern towers in Vancouver, British Columbia, are designed with pedestrian-friendly bases. In this case, the buildings include ground-floor retail.

character, with carefully detailed row housing that overlooks and animates the street.

• Private, highly landscaped courtyards within or on top of the block.

• Underground car parking with unobtrusive entrances and minimal curb cuts.

• Ground-floor commercial uses separated from residential to manage noise.

Toronto has taken a similar but not identical approach. Generally in Toronto the podiums are three to six stories; the City likes them to be no taller than the street is wide. Ground-floor interiors of the podium structures are encouraged to be at least 15 feet high, floor to floor, to accommodate good-quality retail. The stories above ground level are usually 10 to 12 feet high; often they are occupied by loft-like condo units.

To ensure that large buildings contribute to the public realm and make the city compact, dense, and pedestrian- and transit-friendly, Toronto guidelines suggest the following:



Housing in the Beerline B corridor in Milwaukee

• Tall buildings should have a podium built to the street along the entire property.

• Street-level facades should have a high degree of permeability to ensure that they're interesting to walk by.

• Entrances should be clearly defined.

• The building should have well-articulated, human-scale detail. Developers are asked to submit drawings at a scale of approximately .25-inch equals 1 foot, in color and annotated. "This forces the developer and the architect to think about materials and finishes," says Robert Freedman, the City of Toronto's director of urban design. "We do tend to get the detail we want; it can make or break the building. In modernism, so much depends on clean connections."

• Weather-protection devices such as awnings

Modern and traditional houses side-by-side in Prospect

should be provided.

 Parking and loading access should be from a lane (alley) or a secondary street.

• Developers should provide streetscaping that meets standards in the City's streetscape manual. The manual organizes the public area between the building and the street into four zones: an edge zone (often with decorative paving); a furniture and planting zone, an unobstructed pedestrian way; and a marketing or furniture zone.

• Towers should be set back from the street, but they are encouraged to "visibly touch the ground." This is most often accomplished by carving back a small portion of the podium.

In downtown Vancouver, townhouse-like units in podiums are often separated from the sidewalk by a low wall and several feet of landscaping. The front door is raised a few steps above the sidewalk. Toronto, on the other hand, prefers to have the podium "come right to the edge of the sidewalk," Freedman notes. Consequently, the City tries to get retail - not residential uses - on the podiums' ground floor.

New Urbanism, as these examples suggest, need not be made up of buildings in traditional styles. "We live in a time of plurality and diversity, and most people do not hate modernism," New York architect John Massengale points out.

Architect Dan Solomon in San Francisco, contends that New Urbanism must be open to Modernism. He believes "the attempt to repeal the 20th



century is so fundamentally doomed that it marginalizes those who subscribe to it." Although the Modern Movement can be legitimately criticized for "its mistakes, its bad urbanism, its granting of autonomy (a destructive autonomy) to individual buildings and individual architects," those defects can be addressed, Solomon says, "without alienating ourselves from the culture that produces the new, and the inevitable, unalterable human impulse — or the impulse of our times — to gravitate to the new."

WHERE MODERN BELONGS

Modern architecture has raised hackles in traditional neighborhood developments (TNDs) where big-city density and intensity is absent — particularly when Modern and traditional buildings are built within sight of each other. Prospect, a TND in Longmont, Colorado, contains both traditional and Modern houses. The mix has left some people perplexed. Observes architect Bill Dennis: "It seems as though neither stylistic camp is particularly happy with the crazy quilt of styles, which seems to mock the 'realness' of either style." It is as if the cooks at Prospect "have started out making pot roast, and in the middle of dinner have brought in sushi," Dennis says. "Both can be good, but not together."

One problem at Prospect, a new urban council noted several year ago, is that the shapes of the roofs on the Modern houses are too diverse (an example of modernists having trouble achieving consistency or harmony among themselves). Another is that some of the windows facing the streets are too small, "leading to a feeling of 'stay away' instead of 'welcome.'"

Quiet communities of not very high density may be the wrong venues for a modernism that is highly individualistic. Architect Joanna Alimanestianu says: "In a village or rural setting the parts that make the whole are more visible. Everything and anyone who is different immediately comes to our attention. That which is strange can quickly become disturbing, even irritating. ... At Prospect the problem might just be that the architectural experimentation is too visible." In an urban setting, on the other hand, architectural experimentation may be fine. "We go to the 'city' to be aroused, inspired, and to absorb the energy," Alimanestianu says. ... "The unexpected is expected. We don't have to like it all — in fact, much of it we don't - but we aren't bothered. With the intensity of urbanity comes tolerance."

Let's suppose we wanted to find suitable loca-



Loft housing in Arlington, Virginia

tions for Modern design on the rural-to-urban Transect. In the rural T2 zone, an individualistic Modern house would probably be fine because in that zone each house stands by itself; it's not asked to contribute to a community. The house relates mainly to the landscape, and its public impact can be ameliorated by trees, bushes, and topography. It might also be acceptable in the sub-urban T3 zone where setbacks are fairly deep, allowing each building to stand apart.

In the urban center (T5) and urban core (T6) zones, Modern design may be an excellent choice. Modern high-rises of concrete, glass, or steel work well at the intense end of the spectrum. It is in the middle of the Transect, the general urban zone, that modernism seems to pose the biggest problem. In that setting, buildings are seen in concert; if modernists are unwilling to discipline their designs enough to make them contribute to a larger whole, the result may be visual discord. However, Sandy Sorlien, a consultant on SmartCode implementation, discourages any attempt to generalize on modernism's appropriateness by Transect zone. For every zone, she says, there are Modern buildings that fit the context. What matters, she says, is "frontage design and respect for the public realm."

A Modern house in a historical setting

One of the most urbanistically interesting houses built in Washington, DC, in recent years belongs to Jeff Speck, design director of the National Endowment for the Arts from 2003 to 2007 and, before that, director of town planning at Duany Plater-Zyberk & Co. In 2004, Speck decided to find and purchase one of the many lots in the District that, because of their odd shapes, had remained undeveloped throughout two centuries of Washington development.

Pierre Charles L'Enfant, in laying out the capital in 1791, gave the city a network of broad avenues and narrower side streets, punctuated by grand intersections. Because L'Enfant ran diagonal avenues across a rectangular street grid, the cityscape ended up with many small, angular plots of land at those junctures — plots that proved difficult to put to productive use. In 1928, planner Elbert Peets described the angled leftover areas as being "freighted with clumps of trees ... like undigested fragments of primeval forest." Even today many of them remain barren — "unintended collectors of windblown trash," according to Speck, who now is an urban design consultant.

Speck bought a triangular corner at Florida Avenue and 10th Street, NW. His goal was to "build a normative 2,200-square-foot four-bedroom house [the square footage includes a usable basement] on a lot totaling 552 square feet, demonstrating the viability of these neglected sites." For himself and his wife Alice, he designed a dwelling that was intended to be Modern but also to fit with its neighbors — mostly narrow two- and three-story brick rowhouses from the 19th century.

To maintain the existing streetwall, he gave the new house the same setbacks as those of the neighbors. As a result, the house has the shape of a flatiron with a 34-degree angle at its point, heading north. Triangular rooms are rarely comfortable, Speck says. "It's better to look at the triangle than to be in it." Consequently, the pointed area contains a fireplace in the second-



The Speck house

floor living area and other uses, such as storage, on the other three floors.

Speck persuaded the city to forgo its usual requirement of an off-street parking space, so there is no garage — not even a parking pad. "I got an office instead," he says, pleased at the trade-off.

The key to producing livable quarters on a tight triangular site, in Speck's opinion, is cantilevering. Balconies extend a few feet outward from the house's 10th Street side. Indoor space is cantilevered over the sidewalk on the Florida Avenue side. Thanks to the cantilevers, Speck was able to create rectangular rooms, which function much better than triangular spaces would have done. Both of these required zoning variances. "No space is wider than 12 feet," he says of the resulting interior. "It's a perfect small-room width," which he says can be traced back to the *existensminimum* of early European modernists.

Contextual aspects of the house are immediately evident to people walking past. Some of the windows have proportions that echo the vertical windows of the old rowhouses nearby. Others windows have more horizontal proportions, which relate to an industrial-style Howard University administration building just across 10th Street. Walls are clad in red brick, a traditional material for Washington houses. The part of the house closest to an adjoining rowhouse even has a couple of blind windows, repeating the rhythm of the old houses on the block. Some passersby have looked at the blind windows and assumed this was an old rowhouse that had undergone renovation. The house seems simultaneously fitting for its neighborhood, and fresh.

There's a much higher ratio of exterior wall to interior space than in a standard rectangular rowhouse. That helped drive up the cost. One compensating factor is the abundance of windows when a house has so much exterior wall; the windows make 12-foot-wide rooms feel bright and airy.

A hardcore traditionalist might question whether a building that comes to a knife-like point is the most pleasing urban solution. Flatiron buildings from a century ago tended to have somewhat rounded ends, often with windows and ornament at the point, which softened their From the angle at right, the house is highly contextual — with windows and a door showing the same proportions as the townhouse next door.



effect. But the Speck house seems to please people who pass by. They stop and run their hands over its red brick prow, just as people have been doing for years at the sharply angled stone point of I.M. Pei's East Wing of the National Gallery of Art downtown.

Ultimately, Speck's creation is an idiosyncratic house with modern elements, but that contributes to a traditional streetscape — by its use of setbacks, proportions, and materials that mesh with the neighbors and the urban structure.

Occasionally, developers have produced modernist houses well on a repeatable basis. The best-known example is Joseph Eichler, who from 1950 to 1974 constructed more than 11,000 houses in California. Eichlers were a branch of "California Modern," typically featuring glass walls, post-and-beam construction, flat or gently sloping roofs, and simple facades with geometric lines, which middle-class households could afford.

Unlike the Eichler tract houses, much modernist homebuilding has not possessed economies of scale — partly because Modern designers have sought individualized answers to common challenges. Duany observed in 2002 that New Urbanism needs to "establish a cadre of modernist architects that will share and stabilize the language so that both the people and the producers of construction materials can follow it." This would make it possible both to build Modern dwellings that make a cohesive community and to add onto existing Modern houses. Without such a broad-based approach, it becomes inordinately expensive to modify or expand Modern houses in a harmonious fashion over the years.

Builders and developers may in fact be moving toward a more stable form of Modern house design. Modern houses have become a staple of development in some regions — throughout the Intermountain West, for example. As these are constructed in larger numbers and placed close together, builders will have incentives to make groups of them look



Fairview, Oregon, terminates the street of townhouses.

comfortable with one another and enhance the public realm.

By most accounts, the market for Modern houses is growing. The US is changing, going through an significant upheaval in what is considered "normal."

"The loft ethos — exotic and urban a mere decade ago — is now an aesthetic that even middlebrow empty-nesters embrace," Zimmerman points out. Loft buildings generally avoid the trappings of traditional domestic architecture. As Americans become more receptive to living in cities and high-density suburban nodes, modernism will find fertile ground more frequently than it did in the past. The challenge is to ensure that it achieves human scale, relates to its context, and respects the civic realm.

TREATMENT OF CIVIC BUILDINGS

Buildings in new urbanist developments tend to be closely regulated on matters such as how they address the street, what proportions they adhere to, and where any parking is placed. New urban codes and regulating plans (discussed in Chapter 10) aim to shape the environment so that buildings, fences, and other elements will work together and give many of their public spaces a sense of enclosure - the feeling of an "outdoor room." In addition to governing proportions and placement, the codes and regulating plans may also specify building materials, to achieve a degree of harmony. (Within this overall consistency, variations are encouraged; the most satisfying environments are those offering a great deal of variety within a cohesive arrangement. Ornament and trim can enrich the composition.)

"Civic" buildings (defined broadly, to include governmental, religious, educational, and institutional structures) are generally exempted from much of the regulation that applies to other, less symbolic kinds of buildings, such as houses, stores, and offices. Civic buildings are permitted — indeed, encouraged — to stand out. The architect of a civic building is given far more freedom than the designer of buildings that serve less exalted purposes. New Urbanism recognizes that civic buildings are entitled to individuality and expressiveness. Thus, a highly sculptural creation (think of Frank Gehry's Guggenheim Museum in Bilbao) can fit in a new urban plan — as long as it's a building of political, religious, or cultural significance. These buildings are allowed to contrast with more commonplace buildings.

The municipal hall in Fairview Village,

An attempt should be made to provide conspicuous locations for civic buildings. Often they're placed where they become the focal point of a street, square, or park. People's eyes should naturally go to these structures. Important buildings deserve important sites.

PUNCTUATING THE PLAN

A traditional community layout offers many opportunities for positioning and shaping buildings so that they will visually tie the community together and offer well-chosen focal points. An example of how to go about this is Torti Gallas and Partners' work on a redevelopment project called Brookview, in the Claymont section of New Castle County, Delaware.

Brookview is situated along the Philadelphia Pike, a thoroughfare that has suffered from years of strip commercial development. Thomas Comitta Associates created a vision of how part of Claymont could evolve into a medium-density urban center. Torti Gallas later laid out the 66-acre area — as 14 urban blocks to be filled mostly with three- to four-story attached buildings with tight build-to lines — and care-



TORTI GALLAS AND PARTNERS

fully prescribed architectural treatments for the key buildings.

Where a main street (Manor Avenue) meets the Pike, Torti Gallas recommended that new buildings should have corner tower elements, which would stand out from a distance. Towers were also suggested for other prominent locations.

Where Manor Avenue abuts a neighborhood square, the firm's plan called for identical buildings to wrap around the end of the square, giving the space a sense of enclosure. The far end of Manor Avenue was proposed as the site for a symmetrical building on axis with the street; this would terminate the vista down the avenue. Where a linear green space known as Village Commons meets a large oval "Crescent Green," the buildings on the two corners across from the Green would be identical; this would dignify this juncture by using roughly the same technique as was recommended for buildings opposite the neighborhood square.

Facing onto the Crescent from across a curving street would be masonry buildings with walls all of the same material and in a consistent color. Torti Gal-

A plan of Brookview shows the block- and-street pattern and key architectural features. These are: 1) Tower elements on corners; Main Street composed to look like smaller buildings built over time with a maximum façade length of 48 feet; 3) Identical corners; 4) Relocated historic residence or other prominent structure; 5) Tower element on corner; 6) Massing that correlates to the width of green on opposite side of street; 7) Prominent element on street axis; 8) Tower element on corner; 9) Tower element; 10) Buildings on the crescent in the same style, of the same masonry material, with the first story articulated in the same manner, and with covered stoops and uniform vertical elevation changes; 11) Identical corners; 12) Prominent façade facing village commons; 13) Prominent element on street axis; 14) Building(s) composed symmetrically on street axis; 15) Prominent element on street axis. Note also the crescentshaped park at upper right - created to avoid building in a floodplain.

las's recommendations included details (such as calling for covered stoops to be on the fronts of all the buildings on the crescent street), thus unifying the setting and heightening the visual effect.

Dimensions would be planned so that buildings would appeal to pedestrians; the main street buildings, for example, would be composed to look like smaller buildings constructed over many years; they would have a maximum facade length of 48 feet per section, appropriate for people encountering them at a walking pace. The overall plan provided guidance to future architects on how to make a neighborhood that would be full of visually compelling processions and vistas. The procedures used at Brookview are an indication of how new urbanists can guide development of architecture and placement for a substantial area, making the place coherent. Note that not all of the buildings singled out for special attention in the Brookview project were civic structures. Some presumably were more mundane in their purposes; but they occupied critical locations, so the planners strived to make those locations count.

Evolving styles

Stephen Mouzon

It appears that we are about halfway into a thirtyor forty-year-long period of renewal of the humanbased languages, or styles, of architecture. Traditional planned towns and neighborhoods are in the vanguard of this movement.

The traditional architecture and traditional town planning movement began with the vision of just a few pioneers. Most of them were architects. Seaside, Florida, was the first such town. Progress was slow at first, until visitors could see a real picture of the vision. From that point forward, the success has been nothing short of legendary.

There will come a time, probably two or three decades from the beginning of the renaissance, when most architects will have relearned the patterns to a respectable level of fluency. They will be able to create places just as delightful as their ancestors. What then? Is the future to be nothing more than a museum of architectural history?

Far from it. Once a society as a whole has relearned the languages to a healthy level, the languages can begin to evolve again, just as they always have done since the beginning of civilization. New construction innovations will come along, and they will be folded into the industry's bag of tricks. New social realities will arise, to which the languages will respond. New patterns will arise, and old, irrelevant ones will fall away as architecture learns again to reflect mankind in all its complexity and history rather than just the tools of mankind at a single point in time.

The series of images on these two pages are all from the environs of Seaside. They illustrate the evolution from broken language to fluency. Adapted from *The Waters Pattern Book*, copyright 2004, Placemakers, by permission of Stephen Mouzon.

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1: Details of the first house were crude, and its vocabulary did not extend beyond that of a "Cracker Cottage."



2: Basic cupola grows into a tower room, with just a hint of pilasters between the windows.



3: The tower of Magnetic Attraction becomes more articulated and Classical than its predecessors.



4: The Honeymoon Cottages were some of the first good attempts at Classicism, with very few details needing refinement.



7: This elegant and refined house extends the language in a way that would not have been contemplated by earlier Classicists.







8: The Truman House explores and extends the Classical languages in a much more vigorous manner.



6: This house just outside the Lyceum is one of the earlier attempts to evolve the languages.



9: Who could have foreseen how the little cupola atop the first house would have inspired this tower 20 years later?




A main street lined with live-work shophouses in Habersham in Beaufort County, South Carolina, at left. The first live-work units in the New Urbanism were in Seaside's Ruskin Place, above.

BUILDING TYPES AND ARRANGEMENTS

New urbanists have been eager to use building types that support the following goals: a lively public realm; a high level of public safety (through "eyes on the street" and clearly defined public and private spaces); opportunities for social exchange; a mixture of uses; social and economic diversity, and beautiful surroundings, among others.

The upper echelon of the architectural profession sometimes becomes fixated on the artistic aspects of building — and pays too little attention to whether the buildings and their public spaces serve the full range of human needs. The aim of New Urbanism is to achieve a healthy balance — encouraging artistry and craft while, more importantly, creating buildings and places that enhance public and private life.

In pursuit of these goals, new urbanists have revived a number of building types and arrangements that had largely fallen into disuse. Some kinds of buildings have been adapted and updated.

Among the building types and arrangements that New Urbanism has focused on are live-work structures; liner buildings; accessory dwellings; podium buildings; cottages; courtyard complexes; stacked townhouses; and maisonettes. This section presents building types and arrangements that are not fully discussed in other chapters.

Live-work structures

These are a contemporary version of accommodations that were commonplace for centuries, until the Industrial Revolution greatly magnified the scale of production. Today, given the number of entrepreneurial startups, service occupations, independent contractors, part-time occupations, and people who are trying to balance work and home life, it makes sense to create neighborhoods offering a flexible mixture of working and living space. When handled skillfully, the intermingling of working and living spaces makes a community more stimulating and convenient.

As developed by Oakland, California, architect Thomas Dolan and others, live-works come in a variety of forms, partly reflecting whether their location is in a busy urban center or in some less intense section of the rural-to-urban Transect. In low-density areas, the work space may be attached to a freestanding house. One or more rooms may be designed to serve as an office, retail, or studio space - often equipped with its own entrance. When an office serving visitors is part of a house, it's usually attached to the front or side of the dwelling, as was long true of doctors' and dentists' offices. Rural properties frequently have a workshop in a garage or other building that serves as a place for work — usually placed behind the principal dwelling. In more urban settings, a live-work may occupy a rowhouse-like structure or a larger, multistory building. In some urban examples, careful attention is paid to light and space.

The most common kind of structure referred to as live-work is the "shophouse." It accommodates residential and commercial uses in a single building. Todd Zimmerman of Zimmerman/Volk Associates urban market analysts notes that it requires a legal separation between the two uses. A small shop or office usually occupies the building's first floor, while the upper floor or floors are kept strictly residential. The person running the shop or office may live in the upstairs space, but not necessarily. The ground-floor space can be designed to be leased separately to someone who doesn't live in the building.

Usually a live-work building contains a "destination business" — one that doesn't need a large volume of vehicular or pedestrian traffic in order to survive. Live-works are particularly suitable for locations where there isn't enough foot traffic to support high-volume retailing.

The work portion of the building may be required to meet more stringent fire standards than a solely residential structure. In some cases, the interior is designed so that a commercial use can expand into a larger portion of the building if the business thrives or if the location develops into more of an attraction. Generally the ground floor should have taller ceilings to accommodate a range of business uses.

Live-work units can diversify otherwise dull, single-purpose portions of a community. In an overwhelmingly residential neighborhood, Andres Duany, Michael Morrissey, and Patrick Pinnell point out, an occasional live-work creates a point of memorable intensity; it can offer welcome relief from relentless homogeneity.

In communities that are largely built up, a group of live-work units may be inserted between singlefamily houses and busy commercial strips or highways — easing the transition between those two different kinds of environments. In a newly planned area, a variety of kinds of live-works might be built, ranging from small, affordable starter housing (with potential business incubators) to larger units for people who can afford a more generous work space. Larger units are best suited to corner locations, where more parking is available on the streets. Live-works give a neighborhood a degree of economic diversity.

Some of the early new urbanist streets of livework units, such as the main street in Kentlands, had too many retail spaces of one inflexible size. Brian O'Looney of Torti Gallas and Partners notes that townhouse-style buildings will happily accommodate some retail uses such as hair salons or boutique clothing stores, but other uses will struggle, because the size is not right and the depth may be insufficient. (Many restaurants need about 6,000 square feet, whereas the ground floor of a townhouse building may be only 1,000 square feet.) In some cases, the size problem can be ameliorated by allowing a deeper building, like the 80-foot-deep units in the Parker Square town center in Flower Mound, Texas.

Accessory dwellings

An accessory dwelling is a secondary dwelling that shares its building lot with a principal residence. Typically the accessory unit is over the garage of a detached house or of a rowhouse. The garage may be attached to, or detached from, the main dwelling. Accessory units tend to be small — usually about 400 square feet — comfortably accommodating a single occupant or at most a couple. An accessory unit has its own entrance. When the accessory dwelling abuts an alley, it can provide some informal surveillance, useful for de-

An accessory dwelling, at left, and the main house in East Beach, Norfolk, Virginia. Both were designed by Donald Powers Architects.





terring crime.

Accessory dwellings are commonly used to generate extra income for the homeowner, to house grown children or relatives, or to supply a work space only a minute away from home. At Kentlands, one woman lived in her accessory unit and leased out the principal dwelling, thus living rent- and mortgage-free. Because these diminutive units allow people to rent living quarters in an area made up mainly of larger houses, accessory dwellings inject some economic and social diversity to the neighborhood, in an unobtrusive way.

Multigeneration house

A "three-generation house" allows up to three generations of a family to share a house and yet obtain the benefit of separate private quarters. It was designed by Opticos Design of Berkeley, California, in response to Latino families in King City, California, who noted that standard builder houses do not make it convenient for multiple generations of a family to live in one house.

The house's primary unit faces the street. Extending from the back of the primary unit is a wing that connects to a second unit, near the rear of the lot. Alongside the wing is a courtyard that residents of both units can share. (The units can be open for a communal living environment or they can closed off for privacy.)

A smaller secondary courtyard occupies part of the rear of the lot, and can be used by the resident of the property's third unit. That unit is situated above the garage, usually facing an alley. The garage apartment has its own stairway. The secondary courtyard may also be used as an off-street parking space.

The multigenerational housing type was coded into the Downtown Addition Specific Plan that Opticos worked on with planning consultant David Sargent. The plan required that a minimum percentage of newly created lots be developed with this type of house, so that the needs of this market will not continue to be ignored by production homebuilders.

Flex space

Because it takes a long time for some streets to develop into busy shopping precincts, new urbanists such as Torti Gallas and Partners have produced buildings whose ground floors can start off serving one use and be converted to another use when conditions are right. At Baldwin Park in Orlando, three-story buildings were designed so that the ground floor could shift from residential to retail once the demand for stores and restaurants intensified. Similarly, the Gables multifamily rental buildings in Celebration, Florida, were



A flex building in Baldwin Park with first floor designed to be converted from residential to commercial as the market requires

designed so that their ground floors could accommodate commercial use once the demand emerged. The ground-floor units typically are at grade from the very beginning; privacy issues are dealt with through facade decisions (such as choosing window sizes carefully and using blinds) and landscaping.

In a shophouse, the ground floor may start out residential. During conversion, the ground-floor facade can be demolished to create larger, more appropriate show windows for retailers. Usually the ground-floor interior would end up with a 16-foot plate height, according to Zimmerman.

Podium buildings

Some people use the term "podium building" to describe a structure that has a base (usually up to about eight stories) that's topped by a tower with a smaller footprint. This is the kind of podium that's common in downtown Vancouver, discussed earlier in this chapter. (See photo on page 279.)

The term has also been applied to buildings that have a concrete pedestal with wood-frame construction above. In new urban centers like Santana Row in San Jose, California; Abacoa, in Jupiter, Florida; and West Village, in Dallas, four or five stories of wood-frame construction sit on top of a concrete pedestal. The concrete construction of the base satisfies code requirements for commercial buildings, while the wood-frame construction satisfies code requirements for housing — and costs less per square foot. Brian O'Looney of Torti Gallas and Partners says some of the largest podium buildings in a new urbanist format are SB Architects' 380-by-540-foot podium blocks in Santana Row. In that San Jose center, hundreds of residential units sit atop a parking garage that's surrounded by street-level retail. In those blocks the residential uses form an enclave with its own street network and private garages.

The podium portion may contain a wide range of uses, including stores, restaurants, or offices. In some instances, supermarkets or big-box stores occupy the base, with apartments above.

Liner buildings

A liner is a relatively shallow building that conceals a large, outwardly uninteresting structure such as a parking garage, cinema complex, or big-box store. In Albuquerque, shallow liner buildings with retail activities on the ground floor and either offices or apartments above made it possible to build a multiplex cinema on one block and a parking garage on another without sacrificing the pedestrian-friendliness of the streets.

The liner building's basic purpose is to create a street frontage filled with restaurants, stores, and other businesses that engage passersby. Not every business is willing to occupy spaces that may be a mere 20 to 40 feet deep. The developer may have to seek out retailers capable of using small spaces. Fortunately, a space that may be too shallow for a restaurant may be perfect for an ice cream shop or a souvenir store. In some instances, the retailer makes the space more functional by stretching out along a considerable frontage, compensating for the lack of depth.

If offices are placed in the upper floors, they may have to be single-loaded (i.e., the offices will open to

A liner building in Belmar, Lakewood, Colorado, hides a multiplex theater



291



Shallow liner stores above, and in the plan below, hide a parking lot in Mashpee Town Center.



only one side of a hallway, which runs along the rear of the liner building). Though the floorplate is too small to satisfy some office tenants, there are advantages: All of the office space can be near the windows, gaining sunlight and natural ventilation.

Housing in a liner building usually sacrifices windows and access to sunlight at the back of the units. There may be a corridor at the rear — between the apartments and the large structure that the liner building is meant to conceal. Keep in mind, though, that cities are full of apartments in buildings with double-loaded corridors; those typically have no sunlight or ventilation on the perimeter of the corridor. This being the case, liner units are comparable to small urban apartments.

For decades, designers have tried to position something presentable on the fronts of dull structures such as parking garages. For some time, the usual tactic was to place retail in part of the groundfloor frontage. The trouble was that the upper floors of the garages remained visible, detracting from the atmosphere. Today's liner buildings are more effective at concealing and civilizing the garages because they hide not just the ground floor but the upper stories as well.

A shopping mall — either new or undergoing renovation — can be equipped with liner buildings on its street side. The mall may retain its customary, climate-controlled, interior circulation spine, yet become a decent urban neighbor when it has shops with doors opening directly to the sidewalks.

Parking garages "buried" in the block

In the Bethesda Row project, when Federal Realty Investment Trust reinvigorated and intensified the center of Bethesda, Maryland, the company was able to do this because Montgomery County constructed a large parking garage in the center of the project's principal block. The parking facility — except for its entrances and exits - became inconspicuous. It was largely surrounded by buildings containing restaurants and stores. A "buried" garage of this sort may, depending on the dimensions of the block, have conventionally-sized retail spaces rather than shallow liners along its perimeter.

Townhouses

A new urbanist townhouse is similar to a conventional suburban townhouse except that its garage — either attached or detached — is at the rear of the unit, accessible from an alley, rear lane, or auto court. Zimmerman/Volk Associates notes that unlike conventional townhouses, those in traditional neighborhood developments conform to the pattern of the community's streets and typically have shallow front-yard setbacks. To provide privacy and a sense of security, the first floor is raised significantly above grade.

These maisonette units in Norfolk, Virginia, were among the first built since the early 20th Century in the US, according to Todd Zimmerman. The building was originally designed with a parking garage lining the street.



Stacked townhouses

These structures are generally four stories and consist of a two-story unit over another two-story unit. Stacked townhouses have the advantage of resembling traditional four-story rowhouses, thus doing an effective job of defining the street space and giving it a sense of enclosure.

Maisonettes

A maisonette is an apartment with its own private exterior entrance at or near ground level; the apartments on upper floors of the same buildings may have a shared entrance. When sited with a shallow setback, the entrance to the first-floor apartment is elevated above the sidewalk to provide privacy and a sense of security.

Mansion buildings

This two- to three-story structure has a street facade resembling a large detached house, yet it contains multiple units. The building may be wholly residential or it may accommodate a variety of other uses - from rental or for-sale apartments, to professional offices, to a bed-and-breakfast. On the ground floor there may be retail space. Aesthetically, the mansion building's chief virtue is that its physical structure complements other buildings in the neighborhood. Its flexibility may be constrained by regulations that govern disability access, particularly if the building contains more than four residential units or contains commercial uses exceeding 3,000 square feet. "An attached version of the mansion, typically built to a sidewalk on the front lot line, is appropriate for town center locations," Zimmerman/Volk notes.



A 2-unit (1 per floor) mansion building in Habersham, Beaufort County, South Carolina, Each unit has 3 bedrooms and is approximately 2,000 square feet. Note side entrance for unit 2.

Houses with engaging fronts

At the neighborhood level, New Urbanism has produced houses that enhance the aesthetic character of the streets and that make it easier for people get to know one another. This means moving garages toward the backs of the lots, often placing them along rear alleys, so that engaging and expressive parts of the houses — elements that suggest human habitation — face the streets and sidewalks.

Where appropriate, houses are furnished with front porches, preferably at least eight feet deep so that they're comfortable enough that residents will use them. The porches are generally placed close enough to the sidewalk to facilitate spontaneous conversations with passersby; the porch is elevated enough so that someone sitting on the porch will be as high as,



A 4-unit mansion building in New Town at St. Charles, Missouri

Houses with double porches in New Town at St. Charles, Missouri





Katrina Cottages in Cottage Square, Ocean Springs, Mississippi

or higher than, people walking by.

The porches come in enormous variety. Houses built several decades ago sometimes had porches on more than one story, especially if the house contained more than one household. (Occupants of the second and third floors gained their own outdoor spaces where they could observe the life of the street.) In many traditional neighborhood developments built since the 1980s, even single-family houses have both first- and second-floor porches. These add to the visual character of the street, suggest sociability, and encourage natural surveillance.

Cottages

When American houses were flaunting elaborate roofs and excessive square footage, new urbanists such as Marianne Cusato set out to design and promote charming little cottages — dwellings that would meet the needs of small households, people of modest means, and individuals displaced by natural disasters. The goal was to satisfy a great social need and do it with a dignity that low-income housing often lacks. In the aftermath of Hurricane Katrina in 2005, Cusato and others designed "Katrina Cottages," which were small (often one main room plus a bedroom, a bathroom, and an open kitchen) but supplied with clever storage options, comfortable front porches, and well-crafted details. In various versions, these provided an alternative to the dismal trailers the Federal Emergency Management Agency had been using as temporary housing.

Cottages can be arranged into pleasant-looking courtyard clusters, or they can be lined up along a street, creating a pleasing rhythm. They can be used



A typical block of dovetailing carpet cottages as starter dwellings, which people can add onto as their financial wherewithal grows. They can be converted to offices and shops for small businesses. They can also be used by schools as alternatives to drab "portable" or temporary classrooms. Cottages can help neighborhoods to adapt and grow as years go by. Because of their simplicity and modest size, these dwellings are easy on the Earth.

Carpet cottages

For New Orleans' recovery effort after Hurricanes Katrina and Rita, "Carpet Cottages" were designed by Duany, Plater-Zyberk & Co. These are single-story, interlocking, party-walled courtyard units, intended as affordable for workforce and other low-income housing. The architects see them as especially suited to elderly or disabled people and to the multifamily market. The units range from about 800 square feet (one-bedroom) to 1,200 square feet (four-bedroom), and are linked together like a jigsaw puzzle. A block may consist of 10 to 16 units, achieving a density of up to 36 units per acre.

Among their advantages: Entry courtyards punctuate parts of the perimeter of each block of cottages. From the street, the impression is of independent units. Every dwelling gets a front garden or court. There are no elevators, lobbies, or long corridors, which are expensive to build and maintain and are often prone to vandalism when occupied by poor people. Party walls limit the number of ground-floor windows in the core

A plan and photo of a back-to-back

foursquare duplex by Wolff Lyon Architects

of the complex. In compensation, the designers call for sloped roofs and dormers equipped with windows to give the occupants cross-ventilation and light from above. Parking spaces can be positioned in front or near each unit.

As designed by DPZ, Carpet Cottages come in two types: the Dovetail and the Courtyard. The Courtyard Carpet Cottages have two or three bedrooms. Each unit has an external entry courtyard and direct entry from the street. Dovetail Carpet Cottages comes in four unit types, from one to four bedrooms, with T-shaped layouts.

Back-to-back duplex

In the Holiday neighborhood in Boulder, Colorado, Tom Lyon of Wolff Lyon Architects designed an affordable house based on the simple American Foursquare popular in the early 20th century. He devised a two-family dwelling that doesn't look like it's a two-family — because it has two fronts, each with a porch, one facing a minor street, the other looking onto a green shared by a group of houses. The two units, each 1,000 square feet, are arranged back to back.

Because each facade looks like a single-family house, this design is more compatible with single-family houses than a typical side-by-side duplex would be. The ample porches facing opposite directions give the residents more privacy than they would have if their porches were side by side. The design, which has since been used elsewhere, has the additional virtue of





MAIN LEVEL FLOOR PLAN Back to Back Duplex - Foursquare



Grenada Court in Pasadena, California, a 31-unit courtyard infill development by Moule & Polyzoides

enhancing the appearance of two settings rather than just one.

Wolff Lyon says this building type can provide densities of 15 to 20 units an acre and help solve siting issues where two frontages are present, as when there's a shallow lot depth (80 to 140 feet). One criticism is the paucity of private outdoor space. This may be at least partly overcome through generous porches (8 by 20 feet in one project); picket fences and walls demarcating the front yards; and "halfhidden gardens."

Courtyard housing

In the American West, where there's a strong history of bungalow courts and other courtyard housing, new urbanists such as Moule and Polyzoides Architects and Urbanists have reinvigorated the courtyard tradition. Courtyard housing, with its house-scale forms, fits into neighborhoods of single-family houses better than a conventional stacked-flat apartment complex does. Courtyard housing also balances building with open space, giving residents access to earth, gardens, and nature — and often a pleasing route from sidewalk to front door.

Courtyard housing can be designed for a range of densities, depending on the project's location. At lower densities, courtyards serve a variety of single-





family house arrangements. At higher densities, courtyards accommodate attached dwellings, which can be combined with stacked units.

A traditional bungalow court with freestanding dwellings can achieve a density of 8 to 12 units per acre, depending on the unit size and lot dimensions, according to Vinayak Bharne of Moule and Polyzoides. Two bungalows stand at the head of the courtyard and are designed as typical porch-dominated houses, facing the street. All the other units face the courtyard, which is entered from between the two end bungalows. Each house has a private patio. Cars are typically parked behind or to the side of the court. The 29-unit Duarte Courts project (11.8 units per acre), built in 2004 in Duarte, California, is one of the first reinterpretations of this housing arrangement in more than 50 years.

When a density of 15 to 20 units an acre is desired, the houses are designed as attached dwellings such as duplexes, triplexes, quadruplexes, and townhouses. Depending on the specific case, the private patios between buildings may be placed at the rear or be eliminated, making the central garden the primary communal room for the surrounding units. Cars may be parked in individual or tuck-under garages at the back of the units, in detached garages toward the rear of the lot, or in



A form of streetscape pad building in Davidson, North Carolina

an underground garage.

To boost the density to 20 to 40 units an acre, the court undergoes two further changes, Bharne observes. The units are stacked into flats over flats, townhouses over flats, lofts over flats, or other combinations, and the parking is provided in a garage beneath the building. Except for units that face the street, the dwellings are entered directly from the central courtyard. Those at the upper levels may be reached via individual or shared stairs, as in the 20unit Seven Fountains (29 units-per-acre) project in West Hollywood, California.

There are also hybrid courts with densities exceeding 40 units an acre. This density necessitates additional single-loaded or double-loaded stacking in parts of the building, with vertical circulation cores and corridors. It is thus possible to mix stacked and walkup dwellings, and blend higher and lower densities within a single lot or block, as in the 31-unit Granada court (48.8 units per acre) in Pasadena, California. This combination can serve as an effective transitional type, mediating between higher- and lower-density parts of a neighborhood, while creating a rich, variegated massing that is more appealing than the conventional, uniform multifamily stackedflat building.

Streetscape pad buildings

To help roadside commercial strips evolve into more urbane, pedestrian-oriented places, it often makes sense to place new buildings on the edges of the existing parking lots. At City Heights Retail Village in San Diego, four standard 6,000-square-foot pad-site restaurants, including Denny's, McDonald's, and Starbucks, were constructed where a parking lot met the sidewalk along a major commercial street. The pad buildings created an urban street edge; this form of development can be a first step toward converting a suburban-style, auto-oriented environment into a denser, pedestrian-friendly setting.

For many years, pad buildings — most often chain restaurants — have been popping up amid the asphalt of suburban shopping centers, but usually they have failed to make a pattern that really invites people to move about on foot. They could be organized more carefully, to conform to urban standards. Ideally, these buildings would have at least a second story, which would further define the street edge and add people and uses to the location.

Related to this, when the Davidson Commons shopping center was being planned in Davidson, North Carolina, the Town required that part of the shopping center be designed to have a two-story retail building with two faces. One facade faces a suburban street with on-street parking. The opposite facade looks onto the center's main parking lot. The stores are required to have entrances on both the street side and the parking lot side. On the second floor, a covered pedestrian walkway overlooking the parking lot provides access to businesses that don't rely on heavy foot traffic. The building is a hybrid, functioning as an auto-oriented strip shopping center, yet offering a bit of the pedestrian-oriented feeling of a traditional main street.

Another variation on retail structures on pieces of parking lots is a series of 22- and 24-foot-deep buildings that have been constructed at the edge of Mashpee Commons in Massachusetts. The stores are one story high, with pitched roofs — just enough building to define North Street, which they face. They bring a sense of completion to North Street; people used to walk through Mashpee Commons, see a street with buildings on one side and parking lot on the other, and quickly turn around. Now they see street with two developed sides, so they continue and explore its offerings.

Because the added buildings are only one room deep and have entrances on both the front and the back, their doors can be kept open in the summer, bringing breezes through. This makes a refreshing contrast to larger stores elsewhere that crank up the air conditioning and let their expensively chilled air spill onto the sidewalk through open front doors in an effort to entice customers to come in. The small volumes of the stores - 350 to 425 square feet - make excellent incubator spaces for beginning merchants, who may later expand into larger quarters.

Buildings that make transitions between different environments

How to make a smooth transition from one kind of setting to another is the critical challenge in many new urban developments. One example of how this is achieved is the Mission Meridian complex in a part of South Pasadena, California, that ranges from multistory commercial buildings to freestanding houses.

To complement a neighboring old, brick, commercial building, Moule & Polyzoides designed part of the 1.6-acre complex as a three-story, red brick building containing retail on the ground floor and 14foot-tall loft units above. To the rear of the new brick building is a courtyard surrounded by flats, townhouses, and lofts. The rest of the project is designed in Pasadena bungalow style — much like the circa 1920 one-story bungalows across the street — but at three stories, it is higher than normal for bungalows. Most units in the bungalow-style buildings are arranged around courtyards. At the far end of the project, three detached houses were built.

The variety of housing types and the use of porches, dormers, and other detailing help the 67unit project to look less massive, even though it achieves a density of 40 units an acre. The highest concentration is near a business district and a stop of the Gold Line rail route. The density tapers down to the detached houses at the other end, thus fitting into both a T5 (urban center) and a T4 (urban general) Transect zone.



A model of Mission Meridian, which makes a transition from mixed-use, at upper left, to a residential neighborhood.

A second example of how to combine differing units and complement settings that have different intensities is Livermore Village, an extension of the downtown of Livermore, California. Opticos Design organized approximately 300 residential units and 6,000 square feet each of retail and artist space so that the higher, four-story portion faces a linear park, while the building height is lower and the massing is broken into smaller elements on other edges of the 5.5-acre development.

Townhouse, live-work, and courtyard types are helping to reduce the apparent volume of the buildings and improve the character of the street. Flex space on the ground floor may be used for office or retail. The second and third floors integrate two- and three-bedroom townhouses. Sixty percent of the units have access to courtyards — a popular alternative to entrances on the streets. "Instead of entrances off of bad corridors, you get them off of the courtyard," says architect Dan Parolek at Opticos.

A third example is Eighth and Pearl in downtown Boulder, Colorado, by Wolff Lyon Architects.

Eighth and Pearl in Boulder, Colorado, with the mixed-use, more urban, portion at left and one of the townhouses at right.





This roughly half-acre development places shops and restaurants on the ground floor of Pearl Street — the pre-World War II main street of Boulder — and puts offices above. On the portion of the site that's farthest from Pearl Street are five townhouses, three of them with their porches and dooryards looking over Eighth Street, the other two facing a courtyard that runs through the center of the roughly half-acre development.

Thirty-nine parking spaces serving the project are cleverly hidden, most of them in a garage that's been built into the hill upon which the townhouses stand. Because of the slope, the townhouses are one story higher than the Pearl Street shops — gaining more privacy. Subtle changes in brick color and building articulation help the development fit into the existing neighborhood.

Eighth and Pearl orchestrates a transition from a T5 (urban center) to a T4 (urban general) Transect zone. The commercial buildings help to buffer the townhouses and their courtyards from street noise. As is often the case in developments that span two kinds of environments, Eighth and Pearl would not have been possible if the city had not rezoned the land to mixed-use (allowing a higher density) and had not relaxed the parking requirements.

This chapter draws significantly from Council Report III, published in 2003, which covered a CNU Council on style held in the spring of 2002 in Charleston, South Carolina.



Building

Building: Concepts,	
methods, and materials	302
Understanding production building	302
Volume and proportion	303
Windows	304
Porches and columns	306
Architectural trim	308
Eaves and eave returns	308

Materials
Fiber-cement
Using proportion effectively
Houses close to the street
Backyards and sideyards
Builder education
Appropriate, innappropriate
facade design

313

Appropriate, innappropriate	
site planning elements	314
Main building, back	
building, ancillary building	315
Other resources	316
Porch principles	316

Above: Houses in Doe Mill, Chico, California, are production-built but designed with variety and consistent details to support a walkable neighborhood. Photo by Robert Steuteville

Building: Concepts, methods, and materials

In conventional suburbia, poor details tend to retreat into the background. The smaller elements of buildings may be poorly designed and crudely constructed, but people don't notice them all that much while riding past in automobiles.

Not so with New Urbanism, where buildings are experienced up close at a walking pace. Details make the difference between a good place and one that doesn't feel right.

Here's the rub: much of the world is now built through high-production methods. There's a sizable gap between getting architectural details right and what production builders — or even relatively lowvolume builders — are prepared to deliver.

"To me, the whole issue is intellectually stimulating," says architect Donald Powers of Donald Powers Architects in Providence, Rhode Island. "How do you infuse the production world with a level of design that it has not had until recently, with the new urbanists?"

One strategy is "to raise the level of craft on the part of the builders and subcontractors," he says. "Another is to lower the level of craft that is required. I don't think that the two are in opposition. You can approach it at both ends."

New urbanists have done better at the first strategy than the second, Powers notes. "We have excelled at identifying the great details, to the extent that we are scaring a lot of production builders."

Like most new urbanists, Powers spends a good deal of time walking old neighborhoods with an eye for detail, "and I find very little that is perfect," he reports. "Much of it is about 80 percent there to get the approximation of the correct detail."

The skillful approximation leads to what Powers and other new urbanists, like John Anderson of New Urban Builders in Chico, California, call "the street version of the correct detail — the one that works for a house that finishes out at \$100/square foot, as opposed to \$170/square foot."

Anderson has what he calls the "little black dress, blue blazer solution." If certain elements of a house and street are right, he says, "it will forgive all kinds of other things." The key elements to focus on, Anderson and Powers explain, include volume and proportion, windows, porches, privacy in sideyards and backyards, efficient use of materials, trim details, and colors. To be smart about details is to deliver the maximum value and to create the best possible place — often for little additional cost and sometimes at a savings.

"We can deliver a tremendous amount of value to the land through the right plan and the right urbanism," Anderson says. "But if the houses are not delivered well, we can never harvest that value because it has been diluted or fouled up by houses that aren't working."

UNDERSTANDING PRODUCTION BUILDING

The production builder system is set up so that one subcontractor follows on another, Powers explains. "For the design to be easy to complete, it has to insist on relatively little interaction between the subcontractors," he says. "Any time you set up details that demand careful coordination or change the standard sequence of the trades, you create a problem."

The results are bad details, poor proportions, and a general flatness of appearance — flaws that recur

Starting with a volume that is based on 4-by-8 sheets of plywood goes a long way toward cutting construction costs, according to Powers.



2.12 Proportion of Opening



2.3 Massing to Avoid

Avoid a relentless number of extensions and gables that swell from every corner of the building and designs where no thought has been given to organizing the masses under a simple, coherent roof form.

McMansion massing



Avoid a floor plan that results in a complicated roof plan; it will be difficult to build and create a chaotic streetscape.



Advice on proportion and overall massing, above and right, from *Get Your House Right: Architectural Elements to Use & Avoid*, a book by Marianne Cusato and Ben Pentreath, Sterling Publishing.

Think about the roof when you are arranging your floor plan. Assemble the rooms coherently in a way that that can easily be covered without complicated hips and valleys. The house will be easier to build and will contribute to the streetscape.

time and time again in production-built TNDs. Money is often spent unnecessarily, while the problems remain — clustered around porch columns, windows, eaves and cornices, other trim, and building volume. Powers's research has revealed simple, relatively inexpensive strategies to deal with all of these areas. The strategies produce a good-looking house that may not be the cheapest possible construction "but is less expensive than you would expect," he says.

VOLUME AND PROPORTION

The design process begins in most TNDs with thorough research of the local vernacular. Elements from the best neighborhoods and streets in nearby cities and towns are often incorporated into a new

urban neighborhood.

"What we try to do, when we do a historical style, is use as many of the principles that the style incorporates as we possibly can," explains John Torti of Torti Gallas and Partners. "Windows are smaller on the second floor than the first, so there is a hierarchy there. Proportions are in keeping with that style. The relationship of solid to glass relates to that style. We respect the architecture when we take on that architecture."

Houses in traditional neighborhoods — and in New Urbanism — are usually simpler in form than what is found in a lot of conventional suburbia. "If you look at traditional houses, they are always driven by an absolute efficiency of form," Power says. "This also results in satisfying proportions compared to what you see today." Everything in the house should be laid out, if possible, on a two-foot grid, which allows 4-by-8-foot sheets of plywood to be used efficiently (see image on page 302). "Planning the entire house based on this module minimizes the number of cuts and waste," he says.

New Urban Builders has used a similar approach in its Doe Mill project, laying out all the floor plans on a two-foot grid and employing standard lumber dimensions as much as possible.

In production homebuilding, the truss supporting the roof is typically placed right on top of the second-floor plate, which puts the eaves just above the second-floor windows. This gives the sense that the roof is pulled down too low, giving the house bad proportions, Powers says. The solution is to order a truss with a much taller heel or plate that raises it up. "It doesn't add work, it just changes the dimension of what the builder is going to order," Powers says. "This has a huge effect. The eaves line up another foot above the top of the windows, which gives you room to build a proper level of trim all around. It's the difference between a proud hat and a dunce cap that is pulled down around your ears."

For more on proportions, see "Using proportion

effectively" on page 310.

WINDOWS

The important principles here involve proportion and shadow, Powers says. "The unifying nature of modern construction is the flatness. What we are always trying to do is increase the apparent depth of things." A builder can buy windows with built-in depth and shadow lines. Depending on the budget, this may be the best solution. But many production builders use vinyl windows that have no depth to their appearance. They are often installed with no trim, as well.

If vinyl windows must be used for cost reasons, Powers's solution is to use replacement windows set within a site-built and flashed window frame. This allows windows to be placed farther back in the depth of the wall, creating a stronger shadow (see images on this page). The flashing and frame add cost, Powers says, but are still less expensive than buying upgraded windows.

Another great way to add dignity to the house with minimal extra cost is to purchase taller windows and place them close to the floor (on the first floor, especially), he says. "We get the tallest windows we can order off the shelf — usually 6 feet or 6.5 feet tall, and set the heads at 8 feet above the floor, if we have



Vinyl windows save a lot of money but have a flat profile. The illustrations at left show how to use a vinyl replacement window to set the window back from the facade and give it a third dimension, shadow lines, and substantially improve appearance. room," he explains. "That results in great proportion that people always notice." These taller windows add about \$100/window.

"Muntins matter" is a maxim of developer Robert Chapman — they certainly have an impact on the appearance of homes in new urban neighborhoods. Muntins, historically serving as dividers of panes of glass in windows, also help create a sense of enclosure inside the building. True muntins (true divided-light windows) are rarely used anymore. Technology has made them unnecessary. And, in northern climates, windows need two panes of glass for insulation. Consequently, builders generally use sandwich, or flat, muntins inside the panes.

Sandwich muntins are inexpensive, but they look phony — especially when a house is brought close to the street and is highly visible to pedestrians. Most good-looking new urban projects do not use flat muntins. An exception is Kentlands in Gaithersburg, Maryland. However, Kentlands has other virtues - such as upgraded siding and roof materials, better-than-average architectural details, good planning, a great variety in housing types — which make up for the windows.

Most new urban developers with high standards use simulated divided lights (SDL). SDL windows generally have muntins with the same profile as the surrounding sash. It's best to get SDL with a spacer bar between the panes to prevent passersby from seeing a blank space between the inside and outside muntins.

Another note on the importance of muntins: They are used in Prospect, a TND in Boulder, Colorado, to tie together the project's diverse modern and traditional home styles (see page 192 in Chapter 10).

It's okay to simply do without muntins. That's the approach that Anderson takes in Doe Mill, where



Window details from Get Your House Right. Windows should have appropriately proportioned trim and visible sills.

houses have about 30 percent more windows than comparably sized units on the market. The windows make the insides feel light and airy. But the windows are plain one-over-one, because that's what's available from the supplier. "Nobody ever came to us and said 'what happened to our muntins?' " Anderson dryly observes. "Our competition typically uses dividers that look like adhesive tape. In my view, it's always better to go with one-over-one than those interior grids. It's cleaner."

Despite the minimalist look, the windows in Doe Mill compare favorably to those of houses in sur-



Doe Mill details: When porch railings must be three feet high by code, as in the second-story porch at far left, a split rail is used on the top. That allows a porch sitter to see out with fewer obstructions. The eaves, near left, are kept simple. Roof and attic lines are emphasized by the trim color The different siding pattern on the gable sets it off. The trim around windows makes them stand out. The corner boards, however, are painted the siding color, helping to unify the streetscape.

rounding subdivisions. "The competition doesn't trim their windows," Anderson explains. "They will run the siding right to the vinyl window without trim and without sill. We case and sill the windows, and that sets them off." Spectrally selective glass is used, which blocks certain sunlight wavelengths and is more energy-efficient.

Torti makes a distinction between "true vernacular," which uses traditional building techniques, and the building of traditional-style houses with low-cost, modern techniques. With "true vernacular," the walls are thicker and the windows naturally have depth. "The [inexpensive] windows we use have no [variation in] dimensions. So we employ different window trimming systems that embellish on the dimensions you see. We accommodate and try to make up for what is not there." In Florida, when the firm used concrete block walls covered with stucco, windows could be set far into the walls, creating shadow lines and dimension, Torti says. There, no trim was required.

PORCHES AND COLUMNS

In South Carolina projects by developers Robert Turner and Vince Graham, porches are at least eight feet deep and houses are placed on raised foundations (usually rising at least 30 inches above the ground). In affordable homes, porches are kept very simple, including exposed rafters and chamfered 8-inch-by-8inch columns. More formal porches include classical columns.

The eight-foot-deep porches in Doe Mill start

Porches are roomy and railings are optional in Doe Mill. The trim crew employed by New Urban Builders makes sure the posts and beams are aligned, at far right, adjusting for any mistakes made by subcontracting framers.







The square column is the most foolproof way to get production builders to correctly line up posts and beams on a porch (see illustrations above). Chamfers (upper right) simulate the narrowing of the column toward the top. With square columns, the support post is lined up at the corner. That is not the case with round columns (see comparison at left), which are a little more difficult for subcontractors, Powers notes.



Porches are often about eight feet from the sidewalk. To offer a degree of privacy and separation from the street. the porch should be raised a minimum of 18 inches, and preferably 24 inches, says John Anderson of New Urban Builders, who drew the illustration at right. The depth of a usable porch is ideally about eight feet. Note the post-and-beam detail. the column (post) is flush with the entablature (beam above). The column capital sticks out (this is true both in front and on the sides of the porch). A frequent mistake by builders is to make the capital flush with the outside of the beam.



PORCH FLOOR 30" ABOVE SIDE WALK GRADE

approximately seven feet from the sidewalk, and getting them right is critical to the aesthetics of the streetscape. "When you have houses that don't quite fit together in a neighborhood setting, you can often see it in the fenestration, and if there are porches, how they are detailed," says Anderson. A consistent height of the porch beam is one unifying element. Proper alignment of the posts and beams (a detail that production builders frequently get wrong) is also critical. Porches are elevated about 30 inches to give a sense of privacy.

A common mistake in TNDs is porch columns misaligned with the beam. While some homebuyers

A nicely proportioned porch in Newpoint, Beaufort, South Carolina



may not notice this particular mistake, it detracts from the authenticity of the neighborhood and ultimately the pedestrian experience, Powers says. The misalignment is caused by lack of communication between the framers and the trim workers. One way to avoid the problem is with a square column, Powers says (see images on page 306).

Porches provide a transition between the public and the private realm and give residents a vantage place to enjoy the spectacle of the street. Porches are popular with buyers, but are more expensive to construct than many builders realize. "Do you need porches on all of the homes? Absolutely not," says Jim Constantine of Looney Ricks Kiss. "One observation that we have made in older communities is once you get 60 percent of homes with porches, people begin to read the place as a porch-front community. So you may be able to get some tradeoffs by not having that feature on every house, and just doing some well-designed stoops." A drawing above by John Anderson of New Urban Builders provides some typical dimensions and guidelines for a usable, eight-foot-deep porch.

Anderson notes that porches more than 30 inches above the finished grade require a 36-inch railing, which interferes with the view of those who sit on that porch. "Railings on a porch less than 30 inches above finished grade can be designed with greater flexibility," he notes. If using lattice under the porch, the width of the openings in the lattice should match the width of the lattice itself. Another important point is that porches must be allowed to encroach on the

COURTESY OF DAVID MAYFIELD

building setback zone. The facade of the house — not the porch — defines the edge of the streetscape. See also Porch Principles on page 316.

ARCHITECTURAL TRIM

In Doe Mill, the trim includes the water table board, the attic line, the eaves, and the corner boards (in addition to window and porch details). All of these, with the exception of the corner boards, are painted a creamy white. The white trim stands out as an architectural element. The corner boards are purposely deemphasized. "The idea is to make the fronts of the houses read as a streetwall, not as highly defined individual planes," Anderson explains.

The trim is kept simple in form. The casings are butt-jointed. The barge rafters on the eaves are cut off at the end in a right angle. Yet it is critical that the trim be done right. That's why all of the trim work is by New Urban Builders employees — the "trim crew" — and the rest of the work is subcontracted out. "Trim is five percent of the cost and 80 percent of the appearance," explains Tom DiGiovanni, president of New Urban Builders.

Powers concentrates on reducing the number of steps required for builders to complete each piece of trim in a way that creates a reasonable approximation of the classical detail. One problem area is where the raking cornice and eave cornice collide. Because the raking cornice (below the roof on the gable end) has a different profile from the eave cornice, it is difficult to resolve this point. Powers recommends simply running the eave cornice across (see image on page 309). That's not classically correct, but it looks good and it requires the builder to make only one cut.

EAVES AND EAVE RETURNS

Where eaves turn the corner of the gable is a detail that is routinely mangled in new houses, Powers says. The most common "solution" is the notorious pork chop return (see image on page 309). Even when





builders try to create an actual return, it is often done wrong in two ways — the roof pitch is too steep and it is not symmetrical with the corner board of the house (see photo at top left). A correct eave return should not add cost to the house, Powers says. Two rules should be followed: 1) The small area of roof over the return should not be visible from the ground, which means the pitch should be 1:12, the minimum level that can shed water. 2) The return should be symmetrical in every way with the corner board. One of the simplest ways to handle this detail is the boxed eave (see page 308). In New Town, one of the least expensive TNDs, Whittaker Homes has eliminated eaves entirely on most houses (see photo below).

MATERIALS

Seaside, the first new urban community, effective-

A house in New Town — eaves are eliminated, but there

is still trim accenting windows, doors, porches, and

rooflines. Houses are clad in fiber-cement siding.

The raking cornice following the roofline has a different profile than the eave cornice — the connection between the two, above, is often poorly handled by production builders. The least expensive yet good-looking solution is to run the eave cornice directly across, as shown above.

ly limits exterior materials to those that were available prior to World War II. This regulation adds to the cost of housing, but it also has contributed immeasurably to Seaside's charm. The virtue of older materials — even relatively inexpensive ones — is that they are what they appear to be. Wood looks like wood, for example, corrugated metal like metal. As a result, Seaside buildings look just as warm and authentic up close as they do from a distance.

The lesson from Seaside is not that all new building material technologies should be rejected, but that those that are visible from the exterior should be chosen with care. Materials do make a difference in new urban projects. They add to or subtract from the quality of the public realm and sense of place. This is not just a matter of aesthetics, but ultimately of value. Choosing the right materials can mean a more appealing project.

FIBER-CEMENT

Fiber-cement boards are a popular choice for new urban projects because they look very much like clapboard siding. They are cut and nailed just like wood, and they lack the obtrusive channels and seams of vinyl siding. Fiber-cement boards are painted, so they offer an unlimited color palette. Unlike wood, fiber-cement boards need only be painted on one side, and these boards do not rot. When selecting fiber-cement boards, a smooth finish is a better choice than simulated grain. Real painted wood clapboard does not have a visible grain. Smooth finish therefore looks more natural,

Using proportion effectively

Colonial builders did not have many resources — they had to make simplicity look good. ... The most consistent aspect of traditional homes is that, regardless of style and budget, they are properly proportioned. The lesson that today's builders can learn from the builders of yesteryear is that well-proportioned homes look better at the same or less cost than poorly proportioned ones.

Giving a home proper proportion means creating comfortable relationships between walls and roof lines, cornices and gables, doors and windows, and each of a home's various elements. Windows and other wall elements usually maintain a strong vertical orientation, for instance, and the roof should never visually overpower the home beneath it.

Proper proportion also gives homes a public face that respects neighboring buildings. This is why Greek Revival, French, Georgian, Victorian and Queen Anne styles are often found successfully intermixed in some of the stateliest older neighborhoods in America. The styles can vary as long as the rules of proportion are maintained.

While no single element overpowers other features in a traditional home, the front entrance is a focal point, conceived as an integral part of an entry sequence that begins at the street. The front yard is proportioned and treated as a transition space that takes a visitor from the public realm of the street to the semiprivate realm of the porch or stoop. When a home has an entry sequence that begins at the curb, rather than at the foyer, there is less need for "exploding entries" and other costly gimmickry inside.

The above text was excerpted from an article written by J. Carson Looney and James Constantine, principals of Looney Ricks Kiss, which originally appeared in TND Series, Traditional Neighborhood Design, Volume II, published by HomeStyles Publishing. while simulated wood grain looks simulated. Boards are available in a variety of widths — most builders use a four-inch, six-inch, or seven-inch exposure, or face. The smaller the exposure, the more boards that have to be cut and placed. Some new urbanists believe that the four-inch face looks better, because it generates more shadow lines.

In Doe Mill, the siding on all of the houses is fiber-cement boards with a seven-inch exposure. The gable ends are subtly emphasized by a different pattern of the fiber cement siding, achieved by using panels and bats. "Part of that comes from the installers being up on scaffolding two stories in the air, making angle cuts on HardiPlank," Anderson says. "It's a little easier to put up the panels and bats."

Fiber cement needs to be painted, and the color is a dramatic element of Doe Mill. The subdivisions around Chico consist mostly of houses with acrylic stucco siding (for a Spanish look). "That comes in all kinds of stunning shades of beige, gray, and taupe," Anderson explains. Doe Mill, with its reds, blues, greens, and yellows, seems like living color by comparison. Residents have a wide palette to choose from, as long as they don't paint their house the same color as the house next door (unless both houses are white). Anderson believes color is an important factor in house sales. "It is often the first thing people register," he says. "'Oh, yeah, those colorful houses off of 20th Street.'"

HOUSES CLOSE TO THE STREET

According to Vince Graham, developer of I'On, Newpoint, and other South Carolina TNDs, it's important to have "the guts to pull houses up close to the street." In Newpoint, homes are 12 to 18 feet from the public right-of-way. I'On homes are placed only 6 to 12 feet back. These setbacks are quite common in traditional neighborhoods, but placing houses this close runs against the grain for modern developers — even among many of those who are doing TND. Of course, pulling the house up close goes hand in hand with using authentic-looking materials, and getting details right. "When you pull the house up to the street, you see the materials and the architectural details much more clearly," says Graham.

Narrow streets also work well with short setbacks. In I'On, residential streets range from 17 to 22 feet wide. Residents comfortably sit on their porches virtually on top of the passersby and traffic. The closeness of the houses reinforces the narrowness of PHOTOS AT RIGHT BY ROBERT STEUTEVILLE



the street and pedestrian activity — creating a synergy that further calms traffic.

Houses very close to the street, with plenty of windows, also mitigate against crime — making gates and other suburban security systems unnecessary.

BACKYARDS AND SIDEYARDS

Graham and Turner employ a few tricks that result in private space for each home. Pulling houses close to the street leaves more room in the back. Turner and Graham generally sell lots at least 110 or 120 feet deep (as opposed to many new urban projects, where lots are 90 to 100 feet deep). When garages are built, they are always detached, on alleys. These features — in combination with a fence, wall, or bushes on the perimeter of the lot — give residents real privacy.

Alleys, furthermore, are kept very informal. There are no curbs. In Newpoint, alleys are gravel





and dirt. In I'On, alleys have nine feet of asphalt pavement with four feet of gravel on both sides. The right-of-way is 20 feet. Care is used to preserve trees mid-block, giving the alleys the character of narrow, pleasant country lanes.

Doe Mill lots are 3,500 to 4,000 square feet, which is smaller than the competition even in a smalllot state like California. To compensate, usable space and privacy are maximized on the small lots. Three techniques work in tandem to achieve that goal.

• Passive/active orientation is sought for the houses. Each house has a passive side (north or west), and an active side (south or east). The active side is loaded with windows. The passive side has small windows that are placed at least six feet above floor level (to let in light, but not allow residents to see out). This orientation not only is energy-efficient, but also allows the active side to open up to a usable side yard. A five-foot easement allows that yard to extend right up to the passive wall of the neighbor's house. Virtually anything except a permanent structure with foundation can be placed in the easement area.

• Garages are detached, often with an accessory unit above. This shields the back yard from being viewed by the neighbors on the other side of the alley.

• Fences accentuate privacy. A 7-foot fence (6 feet solid, 1 foot lattice) runs along the easement line, separating the two yards. A 5-foot fence (4 feet solid, 1 foot lattice), runs between the houses in the front and between the garages in the back. This treatment completely encloses each yard.

Builder education

As New Urbanism gains popularity, more production builders are getting involved. Examples include Whittaker Homes near St. Louis, Missouri, and Veridian Homes in Madison, Wisconsin, two leading production builders in their markets who have focused on New Urbanism. Baldwin Park in Orlando, Florida, and Stapleton in Denver, Colorado, are two of many large new urban projects that use multiple production builders. Yet production builders often require substantial education to make the transition from conventional development to urbanism. Below, writer Jason Miller describes one education program for production builders.

At Home Town in North Richland Hills, Texas — nine miles northeast of downtown Fort Worth — volume builders are learning what it takes to create homes in a TND on the site of an abandoned airport.

A builder education program devised by Memphis-based Looney Ricks Kiss Architects (LRK) is helping developer Arcadia Realty to achieve its vision and, along the way, create a new breed of production builder.

The North Richland Hills program uses guidelines and thoughtful criticism to improve communication among the stakeholders, and provides a visual "roadmap" for the developer's desired end result. So far, this program is showing signs of success.

Why do it?

Because there was a need, says Bill Gietema, CEO of Arcadia Realty. "We measured what the consumer wanted and what they were willing to pay for. But

since neither production builders nor custom builders were familiar with how to pull off the details, we needed a way to communicate our preferences clearly to the tradespeople in a nonacademic document that was pictorial and usable in the field."

Absent this channel of communication, it is unlikely that the builders would have produced houses with coherent styles — i.e., Tudor, Victorian, Classical revival, and Texas Hill Country — that Arcadia is looking for. Production home builders tend to produce "generic" styles with over-detailed facades, yet without proper proportions or massing, according to Danny Lane of LRK.

Soon, LRK had a custom-tailored education program that would communicate the big picture and the details of how to achieve it to the Home Town builders. Several components comprise the ongoing builder education program:

Team-building. LRK started at square one by developing a rapport with the stakeholders, says Lane, LRK's project architect. "From the sales staff to the construction staff to the designers and architects, we got everyone on the same page, which helped me gain their confidence. It let them know who was reviewing their information."

Orientation to the guidelines. A series of visual guidelines was created to help the Home Town builders and their designers make sure they were designing appropriately. These working documents — which outline "appropriate" and "inappropriate" site planning elements and facade design (see accompanying images) — helped ensure that certain details weren't lost. Lot types and setbacks were reviewed, as were the architectural styles specific to Home Town. Details such as window surrounds, column/beam alignments, and dormer and cornice details were addressed in an attempt to retain the quality of several elements that is often lost in the move from tract or volume housing to new urban development.

Some of the changes to usual practice save builders money — e.g., getting rid of unnecessary dormers and towers, two-story entrances, and heavy brick detailing around windows and doors. But many of the requirements cost money — e.g., higher first-floor ceilings, raised foundations, and usable porches.

Critique of construction methods. "We go back and photograph examples of homes, and point out how they can improve or make slight modifications



Inappropriate facade design-North Richland Hills Town Center

Builders often make the mistakes illustrated at left. This drawing spells out very clearly the types of details that are not acceptable in most TNDs, where developers are looking for authenticity in style — whether traditional or modern. The floor plan is identical to the "appropriate" image.

Appropriate facade design—North Richland Hills Town Center



At right is a much better traditional facade for a house that is identical on the inside to the one with the "Inappropriate" facade. Notice how the details are not necessarily more expensive (and some probably save money), but they are far more tastefully chosen. The floor plan is identical to the "inappropriate" image. Home placement and landscaping are also areas where builders tend to commit errors in new urban communities. At right are some of the more common problems.

Inappropriate site planning elements—North Richland Hills



Appropriate site planning elements—North Richland Hills



The houses at left are skillfully placed to create privacy zones and frame a superior streetscape.

to the typical details that make a particular house special," says Lane. Another strategy is to compare construction documents from the designers and architects to the photos, bringing to light the lack of implementation between what's on the paper to what actually gets built.

Outline of the design review process. Lane made it clear what he expected to see on the designers' drawings: a site plan, ¹/₄-inch elevations, scale details, and so forth. He then let the designers know what they could expect from him. "I try not to design the entire front elevation. They usually see minor tweaks, minor modifications to details. I mainly pay attention to the scale and proportion of the front elevation. If they can get the scale and massing correct, it's accepted with minor modifications most of the time."

Modifications are made, for example, when builders use the same eave and cornice dimensions on dormers as on the sides of the house, creating what Lane calls dormers with "big hair." Dormers need proportionally smaller eaves. Builders frequently fail to align porch columns under beams. Instead, they align the outside of the capital with the face of the architrave (the capital should stick out slightly). Another common mistake is that gutters are attached to porch columns, rather than brought down the outside of the house.

Individual sessions. One-on-one conversations with the builders provide a nonthreatening venue to discuss the plans the builders want to build. Some conversations take place in the field, but all are focused on the individual builder's plans, architecture, questions, and concerns.

And then, they're off and building. Arcadia's resident architect (or "coach," as Gietema refers to him) makes weekly walk-throughs, checking the houses during the finishing and framing stages to make sure they're being done right. Lane continues the design review from Memphis.

"It's an evolving process for us," says Lane. "We're just trying to make it better."

Word on the street

By creating design and buildout expectations and then reviewing the built work, the builder education program shows the builders where they need to be, then helps them "clear the bar."

"We don't want to overburden the builders — especially the volume builders — with design criteria," says Lane, "but we do want them to take it to a higher level of implementation."

The builders are responding favorably, to the point of policing each other and creating a healthy competition amongst themselves.

They're taking what they learn in their critique sessions and using it in their other communities. Says Gietema: "Once [the builders] have a cadre of contractors and sales people who understand these processes and know that they're selling a neighborhood rather than a structure, they have a skill set that is valuable. Home builders understand that [gaining that skill set] is a barrier to entry for their competitors. It allows them and us to maintain a unique niche product that should appreciate faster."

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MAIN BUILDING, BACK BUILDING, ANCILLARY BUILDING

Detached houses are better understood if they're thought of as three units of massing — the main house, the back building, and the ancillary unit. The back building is a wing extending from the back of the house and connecting to the ancillary unit. The ancillary unit serves as a garage, a garage with an accessory unit above, a home office, or an entirely separate dwelling. The configuration of these three elements can help to create privacy in the backyard. See

From left to right, images of the main building, back building attached to the main building, and ancillary building attached to the back building. These are from *Get Your House Right* by Marianne Cusato and Ben Pentreath.



the images below for a visual explanation of how this works. Note that the main building can stand alone, or can be built with either a backbuilding or an ancillary unit. Also, the backbuilding can be placed on the front of a house (not shown in image). In that case, it becomes a front wing and can frame a small courtyard.

OTHER RESOURCES

Two books are highly recommended for those who are interested in learning more about construction of houses in walkable neighborhoods. They are: Get Your House Right by Marianne Cusato and Ben Pentreath and Traditional Construction Patterns: Design & Detail Rules of Thumb by Steve Mouzon.

Porch Principles:

This diagram describes the principles inherent in creating a comfortable front porch. The primary variables are height, distance from the street, and the fence in front. This was created by Architect Steve Mouzon of Mouzon Design and author of Traditional Construction Patterns.



BALCONY DEPTH Porches & galleries should be at least 8' deep unless limited by sidewalk width. Balconies should be no more than 4' deep maximum, 3' deep preferred. There are no intermediate acceptable set-

***Porch Floor Height This diagram illustrates the height that porch floors must be above the sidewalk at various distances to the sidewalk in order to provide proper psychological protection so people will choose to sit on the porch. But the porch can be too high, too. This chart shows the proper range & is based on no Frontage Fence between the porch and the sidewalk.

Adding a Frontage Fence, Frontage Hedge or Frontage Wall allows the minimum porch floor height to be reduced according to this diagram because each of the three provides varying levels of psychological protection to people sitting on the porch. The maximum

The porch railing also provides psychological protection to people sitting on the porch. Removing the railing requires the porch to be higher, but it cannot be raised higher than 30" with no railing because of building codes. Using heavier wood railings or masonry railings provides more protection and reduces the minimum height.

orches 8 **alconies**

Porch Principles

This is one OF THE MOST IMPORTANT PATTERNS. GET THESE TECH-NIQUES RIGHT. AND YOU CAN STILL CREATE A GREAT PLACE EVEN IF EVERY ARCHITECTURAL DETAIL ISN'T PERFECT. MESS THESE UP, AND THE PLACE WON'T BE WALKABLE NO MATTER HOW GOOD THE ARCHITECTURE IS.



Affordable Placemaking

Keys to affordability	318	
How to make urban		
housing more affordable	318	
City-scale ideas	318	
Neighborhood-scale options	319	
Block-scale ideas	320	
Scale of the building	320	
All units must look good for mixed-		
income housing to succeed	321	
The density advantage	322	
Inexpensive character	323	
Variety in housing types	324	
The Grow House	324	
Garage options and accessory units	325	

Accessory units add	
flexibility and affordability	325
Narrow streets save money	328
Avoiding underutilized	
collectors and arterials	328
Commercial parking	328
Policy	329
Inclusionary zoning	329
Location-efficient mortgage	329
Community land trust	329
Reduced parking requirements	330
Low-income housing tax credit	330
Partnering with a nonprofit builder	330
Density bonus	330

Housing trust fund	330
Streamlined review process	330
Single-room occupancy buildings	330
Transportation efficiency	331
Cutting Costs	331
How to use low-cost foundations	333
Make streets and alleys narrow	333
Reduce development costs	334
Simplify the grid	334
Use existing infrastructure	335
Katrina cottages and housing	
that can be manufactured	335
Vinyl siding	336
Tips for TNDs on a budget	338

Above: Attached greens in an affordable neighborhood for Army families in Fort Belvoir, Virginia, are inexpensive and well-used public spaces. Courtesy of Torti Gallas and Partners.

Keys to affordability

Architect and planner Peter Calthorpe identifies three strategies for making affordable housing more widely available. First, offer housing in a broad range of types and sizes, including accessory units over garages. Second, adopt inclusionary zoning; require that every development contain a percentage of affordable housing. Third, achieve transportation efficiency; make it possible for residents to reduce or eliminate automobile expenses by walking, bicycling, or riding mass transit, as can most readily be done in walkable, mixed-use neighborhoods.

One of the most talented communicators within the New Urbanism movement, Calthorpe is able to boil a complex issue down to its essentials. Broadly speaking, his three strategies focus on design, policy, and transportation solutions. That's a useful framework for discussing affordability, and that's how we break down the subject in this book.

At the core of the new urbanist pursuit of affordability is a simple, basic principle: find all the ways you can to cut costs *without compromising walkability and placemaking*. This calls for techniques on many different scales — from the street and block network to the construction of porches. Many of these techniques are examined in this chapter. Other ideas for housing affordability, involving construction details, are presented in Chapter 17.

When thinking about affordability, it's useful to consider New Urbanism and conventional suburban development (CSD) as two distinct systems. CSD may deliver the lowest cost per square foot of construction, but the economic advantage of its efficient construction system may be negated by a spread-out infrastructure and near-universal automobile dependence. Those disadvantages may push the overall cost of living higher in car-reliant suburban environments than it is in denser, mixed-use communities. This is dramatically demonstrated in the Center for Neighborhood Technology's Housing and Transportation Affordability Index, which examines the combined cost of housing and transportation for households in 52 metropolitan regions across the US. The combined costs are mostly lower in walkable cities and towns, regardless of size, than in dispersed, non-pedestrianoriented places. As transportation costs rise, the disparity increases.

To the urbanist, therefore, the challenge is to create affordable living conditions without sacrificing a walkable environment and a high-quality public realm. This chapter therefore examines many issues and techniques of affordable housing and cost-efficient living within the context of urban land planning.

How to make urban housing more affordable

Stephen A. Mouzon

Affordability is a problem that New Urbanism is well equipped to address — in ways that also improve livability. After consultation with other experts in the field, I've put together a series of ideas:

City-scale ideas

At the scale of the city, consider building entire working-class neighborhoods near the higher-priced ones. Every developer I've worked with wants an overlap between the price range of the working-class

Accessory units provide an informal, affordable dwelling option for residents of Prospect, in Longmont, Colorado.



Mixing small apartment buildings — like these in Doe Mill in Chico, California — into neighborhoods is a good way to improve affordability.



neighborhood and that of the more expensive one. We have had neighborhoods with different ranges of price points forever. It's just that recently the stratification has reached absurd levels; in typical suburban developments, price points are confined within ridiculously narrow ranges.

Before anyone has a knee-jerk reaction to the idea of building working-class neighborhoods near higher-priced ones — which might sound like a hybrid of conventional and new urban development to some — consider the following:

1) New urbanists rail against sameness at the scale of the neighborhood. "Why should houses not be different within neighborhoods?" is a question raised by new urbanists. I've asked that question myself. As I see it, the next logical step is to raise the same question at the scale of the city: Why should there not be a diversity of neighborhoods within cities?

2) Neighborhoods with differing but broad ranges of price points have been a fact of life in most naturally-occurring places that have ever been built. Clearly, there are strong natural forces creating this phenomenon. The difference between this and conventional suburban development (CSD) is that CSD has almost no range within its pods, whereas naturally occurring neighborhoods typically have larger spreads. In other words, one is diverse and the other is not.

3) Affordable housing must be connected to transit. A 2006 study by the Center for Housing Policy showed that families making \$20,000 to \$50,000 per year spend more on transportation than they do on housing — up to 30 percent of their total expenditures. Most of the costs go into automobiles because other options are not available.

Neighborhood-scale options

1) We should think about erecting five-story town center buildings whose first level contains basic services that construction workers can use, such as a bank, hardware store, laundry, and grocery. In the upper levels, build very efficient units that can be stacked in modular fashion. Later, when the construction workers are gone — or have dispersed to cottage courts and the like, throughout the neighborhoods — this kind of building can operate as a hotel. A nice hotel room is comparable in size to an efficiency housing unit.

2) Because affordability is partly a function of building cost but also partly a function of the cost of land, the developer must include some smaller lots. In addition to these lots being less expensive, their smaller size gives the plan a finer grain. Consider having a segment of the neighborhood in which the entire fabric is finer-grained. This would constitute the more affordable quarter of the neighborhood. This idea is anathema to what many of us have thought, but we need the tool of "the more affordable quarter" in our toolbox. We need to consider how we can dignify it.

3) We should do a "green overlay" that makes serious volumes of food production possible in or around the neighborhood. This shouldn't be just a feel-good marketing-fluff program, but rather an initiative that generates significant amounts of food. Food is part of the cost of living, just like mortgages and transportation.

4) We should build the neighborhood center buildings a few years earlier than usual. Do this by relying on simple steel-frame boxes, skinning them in corrugated steel siding or something similar. Use them as mini-storage until we're ready to start on the neighborhood. At that point, they can be converted as needed. Even if only a portion is re-skinned and built out, the entire neighborhood square will be enclosed. Units that began as simple steel boxes lend themselves more to being finished out as industrial lofts, which can be quite affordable.

5) Do everything you can to build a compelling public realm where people are enticed outdoors often. The more time people spend outdoors, the more acclimated they get to the local climate, and the less full-body refrigeration they require when they return indoors. And the less conditioning they need, the lower their utility bills will be.

Block-scale ideas

1) Cottage courts can work when turned crossgrain to the street in mid-block locations. Consider using Katrina Cottages, as long as the end unit on either side is a Katrina Turning Cottage. This cottage can turn its broad side to face the street, giving the appearance that it is the same size as larger houses on the street. KC-VII (see photo on this page) is currently the ideal Turning Cottage because it can expand in so many directions.

2) Katrina Condos can achieve a similar effect. The side of the end unit looks like a normal house facing the street on dense blocks where most housing is attached. Once you walk through the garden wall, however, you see a string of one- or two-story units facing one or two sides of a central court.

2) Build Katrina Carriage Cottages along side streets adjacent to the main street. Build them tight to the sidewalk. Later, when the main street becomes prosperous, the first-level garage, tucked under the carriage cottage, can be converted to commercial, making this a Katrina Live/Work.

3) Mews courts in mid-block can be very affordable and also quite cool.

4) If you have rambles (areas left natural) in the middle of blocks, consider scattering Katrina Cottages or carriage houses through the mews. The lot should be the size of the unit so that the ramble belongs to the entire block.



The Katrina cottage for the District of Columbia (KC-VII)

5) Scatter some cottages on alleys and rear lanes, placed on lots carved out of larger lots facing the street.

Scale of the building

1) Build Katrina Cottages wherever you can. By "build," I mean choose from the full range of delivery techniques: manufactured, modular, kit, panelized, and site-built. Select whichever one makes the most sense for your development.

2) Build Katrina Kernel Cottages. The KC-VII is the first of these. Because the cottage can grow so easily, a young family could see itself living in one of these when there are just two adults or when the children are very young; they could imagine adding a bedroom wing easily.

3) If you really want to go all out on the Kernel Cottage ideal (build very small and expand later), do something like the Wet Appliance that was proposed in a charrette in Kingston, Jamaica. A Wet Appliance is a roughly 8-foot-by-8-foot concrete box that includes the basic plumbed necessities of life — a bathroom inside the box, and a countertop with sink outside. Attached to a water and drain line, this can form the core of a house; a family can build the rest of the house around it.

4) Produce seriously passive-solar buildings. Passive measures cost little if anything, and can significantly reduce utility costs. Passive measures should be tailored to the region in which they're used, of course.

5) Build Katrina Condos. These are a combination of manufactured modules and "mansion condos." While working with Urban Design Associates on a project in the New Orleans area, I realized that there are close to 20 types and subtypes of New Orleans houses that could be modularized at up to 10 units or more per building, yet which would look exactly like the mansions. This works if you keep the units simple enough. They're composed of modular units that are shipped to the site complete, stacked up, and then roofed/skinned as necessary.

6) Build in a seriously vernacular fashion. The Classical/Vernacular Spectrum was the predominant construction cost-control device throughout most of human history until the early 20th century. Vernacular details naturally contain fewer parts and require less labor.

7) Reduce the footprint of the building. In most parts of the US and Europe, if you can reduce it to where the house is one room wide, it will cross-ventilate and daylight beautifully.

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ALL UNITS MUST LOOK GOOD FOR MIXED-INCOME HOUSING TO SUCCEED

If you wanted to briefly summarize the lessons that have been learned about how to create and manage mixed-income housing, three findings would appear at the top of the list:

• Make sure the facades of the lower-cost housing look just as attractive as those of market-rate housing.

• In whatever city you're working, measure the dimensions and proportions of the streets with the highest real estate values, and use those to design the streets of the new development.

Big windows and porches were keys to making affordable housing look good in the Randolph neighborhood of Richmond, Virginia.





These affordable houses replaced blighted public housing units in Portsmouth, Virginia. Windows, porches, color, and small changes in details make these houses attractive.

• Assign case managers to work with low-income tenants, so that those residents are able to function well.

Those recommendations come from Raymond Gindroz, principal emeritus of Urban Design Associates in Pittsburgh, and Willie Jones, senior vice president of The Community Builders in Boston.

New Urbanism and HUD's HOPE VI program have altered Americans' notions of how to produce and manage low-income housing. Fifteen or 20 years ago, people involved in creating low-income housing focused "almost entirely on how to build the cheapest possible box," according to Gindroz. But construction of bare-bones housing for poor people tended to drive out individuals and families with somewhat higher incomes — thus concentrating poverty and the problems associated with it.

Small houses, large porches

In the Randolph neighborhood in Richmond, Virginia, Urban Design Associates designed modestsized houses with appealing facades like those of older houses nearby. "These small houses," Gindroz notes, "have very large porches and very large windows, the most essential attributes of an urban house."

Architects and developers should "create the image you're looking for, be certain about what it is, codify it in such a way that you know what the most important elements are, and make sure they get communicated to the builders," he says. Massing, roof details, the types of windows used, and the composition of the windows can "make or break a neighborhood," in Gindroz's estimation.

Keeping builders in line

It's common for builders to want to use their own stock designs when they work in mixed-income urban projects. That can undermine the planners' intentions and reduce the neighborhood's appeal. "We have had the most success with providing standard plans that are then used — at least in the early stages — in order to be able to set the tone," says Gindroz. Jones points out that if homebuilders' products diverge from the project's vision, "it really can undermine the credibility of what you're doing." The first phase of a development is crucial to establishing the tone. Consequently, builders should not be given much leeway at the project's outset.

The right materials greatly affect a development's visual impact. Fiber cement siding, brick foundations, and in some instances brick facades "all create an image of high-quality housing," according to Gindroz. Jones recommends selecting materials that resonate with the target market. But he also suggests being alert to materials that can be produced more cheaply — as long as they don't look inferior. He has been involved in projects that combined brick with lower-cost vinyl fabrication, for example. The bottom line, according to Jones, is that "if you drop beneath the threshold" of good quality, the results will suffer — you'll end up with "a product that really looks and feels like an affordable housing deal as opposed to a great neighborhood."

When new urbanists propose deviating from existing standards — as they often do on matters such as street width — government agencies frequently object. "One of the techniques we have found consistently useful in this," Gindroz says, "is to document with measured drawings the dimensions and proportions of what are considered to be the very best residential streets in the city, with the highest real estate values, and have those prepared as precedents for the streets we're proposing. So that when the engineers come up and say, 'Your designs are substandard or below the standard,' you can point to the highest real estate value in the city and say, 'Well, how does it work here?' And very often it will introduce some flexibility."

Residents often don't want low-income housing introduced into their neighborhood. One way to dissolve the resistance is to propose putting a mix of low-income and market-rate apartments into a historic building that's in poor condition — a building that residents would like to see fixed up. He notes that middle-income neighborhoods often have a nuisance property in the vicinity; it may be an old industrial site or a former low-income housing project. Frequently the neighborhood will look favorably on converting that nuisance into low- and middle-income housing.

Creating a new image

Park DuValle, a HOPE VI project in Louisville, had to overcome the stigma of a crime-ridden public housing project that had occupied its site. The Community Builders hired a public relations firm to generate articles more than once a month, crafting a new image for the site. Public events, appearances on TV shows, a high-quality brochure, and other publicity altered how the public viewed the area.

Jones said that to make the marketing successful, it's important to have a wide range of housing ready when the project begins seeking move-ins. Persuading higher-income homebuyers to become some of the first occupants can set a positive image.

THE DENSITY ADVANTAGE

Traditional Neighborhood Development can reduce land costs, according to Greg Whittaker, who builds both new urbanist and conventional suburban products. "With a conventional project, you are getting three units to an acre. ... With TND, we average eight units an acre. You are looking at [per unit] land costs that are much lower." At New Town at St. Charles, one of Whittaker Homes' TNDs, the firm paid \$36,000 per acre for the land and is building at a gross density of 7 units per acre. That's about \$5,000 for the land for each house. New Town has scores of parks and public spaces, canals, fountains, playgrounds, carefully designed streets, civic buildings, and recreational facilities - far more amenities than the typical subdivision or master-planned development, and yet average development costs per unit are only \$30,000.

An infill development in Port Royal, South Carolina, is an example of how land costs can be kept low with New Urbanism on a per unit basis, yet per acre the yield may be high. The 43-home project, with a row of retail shops, occupies a formerly vacant 4.5acre parcel connected to the old main street. Considering how slow the real estate market within the historic area of town was in the early 1990s, when the transaction took place, developers Robert Turner and Vince Graham did not get the land cheap, paying the city \$160,000 (about \$35,000/acre). Because the lots were only 4,000 square feet, average land costs per unit were about \$3,200. The site was developed with single-family detached, cottage-style units designed by Eric Moser and Rick Thompson.

The cottages have an appealing look, with eightfoot deep porches across the entire front, and they started at \$78,000 in 1994. Four years later, when the project was nearly sold out, the top-priced model fetched \$159,000. Turner reports that the land yield — revenue per square foot of lot — is higher than the upper-end suburban-style projects outside of town. "I've proved that you can still build an affordable product and get a high yield on the land," he says.

Studies have backed up the experience of Whittaker, Turner, and other new urbanist developers. A 1995 study by the Canada Mortgage and Housing Corporation examined a 743-acre site in Nepean, Ontario. A conventional plan was compared to an alternative TND plan for the site. Life-cycle costs over a 75-year period (presented in 1994 Canadian dollars) include roads, sidewalks, sewer, stormwater systems, water, schools, parks, and municipal services. Total costs were \$501 million for the conventional plan and \$783 million for the new urban alternative.

Due to narrower lot sizes and more townhouses and apartments, the new urban plan produced a 71 percent higher density than CSD (6,857 dwelling units compared to 4,005 dwelling units). Overall life-

cycle cost savings for New Urbanism were calculated at 8.8 percent (\$10,977 per unit). For developers, the cost savings were even greater — 24 percent (\$3,100/ unit). The density advantage can help to create affordable housing if the underlying land costs are reasonable.

INEXPENSIVE CHARACTER

The key is to design "character" into the homes and streetscape, and yet keep costs down, Turner explains. Character comes from the porches and details. In the least expensive models, the porches are built with a simple post-and-beam construction method but are still full-size, creating a real "outdoor room" for residents. Even a simple, functional porch can be a charming design feature. Another key is offering a variety of house sizes, starting quite small (about 1,200 square feet), he explains. Allowing buyers to choose a detached garage, carport, or no structure at all for the car further expands the pricing flexibility.

Maximizing builder efficiency is important, Turner adds. One way to do this is to create multiple elevations — perhaps four — of the same floor plan. That creates variety on the streetscape, "but the builders can gear up and understand how to build a home," he says. "The first home is pretty good, but the second is better, and the third is better still." Sometimes costs can be saved in details without sacrificing integrity. "Exposing rafters saves money and can look good," he explains.



Facades and porches add variety and architectural interest to affordable houses in Fort Belvoir. Gable-in and gable-out designs, townhouses and detached houses, the occasional deeper setback, and/or sideyard houses help to ensure that a streetscape is never repeated.






When the housing market took a turn for the worse in 2006, Whittaker Homes designed new housing units available at more affordable price points in New Town at St. Charles, Missouri. Clockwise from lower left are value-engineered single-family detached houses, courtyard units with a livable lower level that leads to a sunken central court, and duplexes in a New Orleans style. The duplex and single-family detached units sit on concrete slab foundations, raised up from the street by grading. The mixing of housing types inherent to the New Urbanism offers opportunity to mix affordable units like these into developments with more expensive housing.

VARIETY IN HOUSING TYPES

New Urbanism also offers flexibility in housing types. Some developers are taking advantage of this by selling a certain percentage of homes that are smaller than the new detached units typically found in suburbia. When a housing recession hits, the flexibility can allow a developer to quickly create a less expensive product that is more in line with the customers' pocketbooks.

At New Town at St. Charles, a 755-acre TND, Whittaker Homes quickly shifted housing away from slower-selling rowhouses while reducing field employees and overhead, says Tim Busse, vice president and director of architecture for Whittaker. The developer created four new affordable housing types, mostly aimed at the \$110,000 to \$225,000 market (see photos of some of them above). These include:

• Apartments ranging from 535 to 1,070 square feet, mostly flats. One 22-unit building is 50 feet deep and 220 feet long, with double-loaded parking in the rear.

• Condominiums ranging from 640 to 904 square feet, built as stacked flats in two-story buildings. At

45-50 units/acre net density, the development costs are reduced to \$10,000 per unit (excluding vertical construction). Average development costs in New Town are \$30,000 per unit. One-bedroom studio flats were designed to sell from \$85,000.

• Duplexes targeted at seniors, ranging from 576 to 892 square feet.

• Value-engineered single-family houses on shallow, narrow lots, ranging from 1,268 to 2,779 square feet (the largest of these sell for \$275,500). The second floor is built over the garage.

These affordable units feature the same quality of construction as more expensive housing built earlier, Busse notes.

THE GROW HOUSE

Architects Marianne Cusato and Eric Moser developed the idea of the Grow House based on the Katrina Cottage idea. The designs all start with a cottage of 300 to 800 square feet and demonstrate how a larger house could be created over time through additions as the family's resources allow. See images on the next page.



One of many designs for the Grow House, by Moser and Cusato

GARAGE OPTIONS AND ACCESSORY UNITS

Shifting from attached garages to detached garages in the back makes it possible for the developers to give buyers the option of a less expensive carport — or even eliminating the garage altogether and using a parking pad. Conversely, an accessory unit can be built on top of a garage — with rental income used to offset mortgage payments. Residents of these units often park on the street — or sometimes one off-street space is included with the rental.

ACCESSORY UNITS ADD FLEXIBILITY AND AFFORDABILITY

Accessory dwelling units appear under many aliases — granny flats, garage apartments, carriage houses, ancillary units — and they almost invariably show up on any checklist of what sets new urban communities apart from conventional subdivisions. They are by no means ubiquitous, but developers report that granny flats have become a popular amenity and an important selling point in diverse projects. For an overview of selected projects with ADUs, along with financial, regulatory, and other details on these units, see the table on page 326.

For some homeowners, the most attractive aspect of accessory units is the potential for extra income from renting out the unit. Other homeowners view the extra space as a flexible addition that can be used as a home office, as lodging for young adults or elderly family members, or as a guest room with great privacy.

From a developer's perspective, ADUs provide an extra tier of housing options — affordable units that can attract people from diverse age and income groups. Another benefit is safer and livelier alleys. With more "eyes on the street," children and adults are more likely to use the alley for play and socialization.

Accessory units are usually no larger than 440 square feet, which is the space above a two-car garage (usually 20 feet by 22 feet). They can be laid out as efficiencies with a small kitchen area, a bathroom, and a living area (that includes the bed). A 36-footwide lot provides enough room for an accessory unit, a stair, and an additional parking pad. They are relatively inexpensive to build because no additional land or infrastructure is required. Accessory units provide informal affordability — the homeowner, not a developer or landlord — usually leases the units.

Higher density

Moreover, "accessory units are an easy way to get more people in the same area and therefore support low vehicle miles traveled and all of the good environmental outcomes from density," says developer Bob Chapman. "Accessory units offer density without making the street appear overbuilt." Garage apartments were added to 15 of the 24 single homes in the infill project Trinity Heights, which Chapman developed with architect Milton Grenfell. Because Chapman and Grenfell wanted to encourage builders to construct accessory units, they offered a financial incentive. Instead of charging builders a per lot fee, the developers asked for 17 percent of the home sale price. For the accessory unit upgrade, however, builders were assessed only six percent of the additional sales revenue.

Regulations vary on accessory units, but there are a few ground rules that apply in most cases. The unit must be under the same ownership as the principal building, and there is usually a requirement to provide an off-street parking space. But this is not necessary, and on-street parking can meet the requirement (see page 416). In most projects, the units are considered part of the main house and do not count toward the overall density, and Chapman explains why. "The developer will always choose to make \$20,000 on a house, rather than \$4,000 on a garage apartment. So you kill any chance of them being built if they are included."

granny flats, but do not wish to give an open-ended permission, have simply capped their construction at a certain percentage of home sites. Such restrictions are placed on Fairview Village, Highlands Garden Village, and Hometown Oswego.

Help with the mortgage

The benefit to the homeowner can be substantial. In Courtside Village, a neighborhood in Santa Rosa, California, garage apartments are included with every single-family home served by an alley. Of the first 50 accessory units completed, developer and designer Alan Cohen estimates that half of the 600 sq. ft., one-bedroom apartments are rented out at a rate of \$850 to \$900. The houses sold for \$390,000, including the accessory unit. Assuming a 15 percent down payment and a 30-year mortgage at seven percent, Cohen calculates the monthly mortgage to be \$2,205. A rental fee of \$900 covers 41 percent of the mortgage. Cohen adds that conventional developers in the area have noticed the success of Courtside's accessory units and have begun to build them in other subdivisions.

Project/ Location	ADUs built	As % of all SF ² homes	Average size	Cost of upgrade	Monthly rental	Count toward density?	Parking requirements	Where are ADUs allowed?
Amelia Park/ Fernandina Beach, FL	27	33%	500 sq.ft.	\$43,000- \$65,000	\$600-\$750	No	1 space	All lots
Courtside Village/ Santa Rosa, CA	50	18%	600 sq.ft.	\$35,000 (included in home price)	\$850-\$900	No	1 space	All detached home alley lots
Fairview Village/ Fairview, OR	50	18%	600 sq.ft.	\$20,000 ³	\$500-\$700	No	None	All lots (limited to 50% of homes)
Highlands Garden Village/ Denver, CO	20	40%	425 sq.ft.	\$60,000- \$65,000	\$650-\$750	No	1 carport	All detached home lots (limited to 40%)
Hometown Oswego/ Oswego, IL	5	10%	500 sq.ft	\$40,000	None are rented	No	1 pad (limited to 25%)	All detached home lots
Kentlands/ Gaithersburg, MD	45	4%	600 sq.ft.	\$30,000	\$900	Yes ⁴	1 space	All lots
Orenco Station/ Hillsboro, OR	27	15%	400 sq.ft	\$40,000- \$50,000	\$500-\$700	Yes	1 space	All detached home lots
Prospect/ Longmont, CO	40	36%	650 sq.ft.	\$35,000- \$50,000	\$1,000	Yes	2 spaces	All detached home lots
Southern Village/ Chapel Hill, NC	5	1%	500 sq.ft.	\$50,000	\$500-\$600	Yes	1 space	All lots 50 feet wide or above
Trinity Heights/ Durham, NC	15	62%	500 sq.ft.	\$37,000- \$43,000	\$650-\$700	No	1 space	All detached home lots

Accessory dwelling units (ADUs) in selected projects¹

Some public agencies that seek to encourage

¹All figures are from a 2002 article in New Urban News²Single-family³ This amount assumes that the decision to build an ADU is made before the garage is built ⁴ An ADU from 0 to 699 square feet counts as a 1/4 dwelling unit; larger units count as 1/2 and 3/4.

In Trinity Heights, a garage and an apartment cost an additional \$37,000 to \$43,000 (the price of the garage alone was about \$15,000). Since the apartments rent out for \$700/month, the homeowner can recoup about double the added mortgage expense for the accessory unit and garage. Typically, the price of the garage is included in the price of the primary structure, and upgrades range from \$40,000 to \$65,000. Nevertheless, rental fees usually cover the extra monthly mortgage for the accessory unit, and then some.

Developers are also seeing homeowners move into the garage apartment and rent out the principal building. This strategy works as a holding pattern for people who plan to retire to Amelia Park, for example. The garage apartment becomes a weekend home, while the principal townhouse is a steady source of income until retirement.

Access and amenities

Developers and builders use a variety of strategies for access to the accessory unit. Many are accessed by an outside stair leading up to a small balcony. Others feature an indoor stair. Some entrances face the side yard of the home, while those at the end of blocks face the street. "These are better for a home office or a rental," says Michael Mehaffy, who worked on Orenco Station for PacTrust, the developer.

In Courtside Village, the stairs are internal, and the entrance faces the extra parking pad off the alley. This offers homeowners and tenants the greatest degree of privacy. An unusual approach is used in the largest units in Amelia Park, those built over attached, three-car garages. They come with a separate entrance within the garage, where one of the parking spaces is reserved for the tenant.

The basic amenities in most accessory units include a bedroom, a bath, and a small kitchen. Many developers offer a range of options, from loft units to more highly finished versions with separate rooms. Hometown Oswego in Illinois has a few 500 sq. ft. units that feature a kitchen, separate living rooms and bedrooms, and walk-in closets. "People love them, " says developer Perry Bigelow, "it's the most efficient use of space we offer."

Municipal regulations are a potential hurdle for developers. Even though Trinity Heights is an infill project in the City of Durham, the city charter had to be amended to allow accessory units to be built. Even with this amendment, the local law stated that the units could not be within 15 feet of the property line, even at the back alley. This shifted the units toward the middle of the lot, reducing usable yard space. (Fortunately, Trinity Heights lots are 140 feet deep).

In Portland, on the other hand, the regional planning authority now allows accessory units in all area jurisdictions. "It is expected to help with the supply of affordable residences and to contribute to a more resource-efficient development pattern," Mehaffy explains.

Tucked away behind homes, accessory units tend to fly under the radar, but in the projects where they



An accessory unit in Highlands Garden Village, left, features a deck overlooking an alley and community gardens. One in Courtside Village, below, has a separate entrance facing a parking pad.





Accessory units in Prospect

have taken hold, developers are uniformly positive about their impact. "They are one of our real success stories," says Rick Holt, one of the developers of Fairview Village. "We've added them to rowhouses as well as single-family homes, and they have introduced a greater blend of people in our community." Ninety percent of the accessory units in Fairview Village are rented out.

"In Amelia Park, we are discovering that when people live in the garage apartments, the alley thrives as a civic location," Embry says. "Also, we are achieving the mix of affordability that we want on an inclusionary basis, rather than through the pods of the conventional subdivision. It's a practical way of achieving one of the more elusive goals of the New Urbanism."

NARROW STREETS SAVE MONEY

Narrow streets can save a substantial amount of money. A July 2003 study, prepared for HUD's office of policy development and research, according to Livable Places Update, reveals that narrow streets cost substantially less than conventional streets. A 100foot section of 24-foot-wide street cost \$26,000, according to the estimate at the time; the same length of 36-foot-wide street cost \$40,000. Furthermore, 2 to 2.5 houses may fit on that length of street in a TND, but in CSD, it would probably accommodate only one. The street in front of a suburban house therefore costs three times as much per house.

AVOIDING UNDERUTILIZED COLLECTORS AND ARTERIALS

Suburbia takes a dendritic or tree-like form; every subdivision is in the form of a pod branching off of an arterial road. The main branch of the pod is a col-



An accessory unit in Fairview Village

lector road, which carries all traffic in and out of the subdivision. These arterials and collector roads have to be built first, requiring a considerable up-front investment. Furthermore, the arterial roads - and in larger master-planned communities the collectors - are not lined with houses, because there is little demand for a new home on a heavily trafficked road. This represents an enormous infrastructure investment not directly paid for through the sale of adjacent lots and homes.

New urban projects, which are based on the interconnected street and block pattern, don't need collector roads and have less need for arterials (which can be designed as boulevards or main streets). This means that every thoroughfare (except for a highway) can be fronted by salable lots. Unfortunately, many planners and developers are missing this lesson and are building suburban-style collectors in large new urban communities. This not only looks wrong — it wastes money.

TND developers furthermore have the option of drastically reducing upfront infrastructure costs by starting with a single street or two, or a neighborhood green. They build houses on both sides of the street or around the green, creating an immediate sense of place and enclosure that adds value to the community and sets it apart from conventional subdivisions.

COMMERCIAL PARKING

New Urbanism has a cost advantage in parking. Conventional developers build shopping malls with parking lots big enough to handle the cars on the busiest days of the year (the Friday after Thanksgiving or the day before Christmas). Office parks, movie theaters, and restaurants have other peak demand times for parking, which have to be accommodated entirely with off-street parking when they're in a stand-alone suburban setting. A new urban town center, by contrast, allows for shared parking, by mixing the uses. Allowing parking on both sides of the street further reduces the need for large parking lots. Off-street parking spaces can be cut by 50 percent or more, says traffic engineer Walter Kulash. Approximately two spaces per thousand square feet of building are required for a mixed-use town center, whereas a conventional suburban project may require four or five per thousand square feet. In extreme cases like Seaside, Florida, a vibrant new urban town center can get by with little or no off-street parking.

POLICY

A variety of policies and programs are available to jurisdictions and organizations that want to promote affordable housing. The following policies and programs can work hand in hand with new urban design:

Inclusionary zoning

A jurisdiction with an inclusionary zoning policy requires developments to have a specified percentage of affordable housing. Programs around the country have set the requirement anywhere from 5 to 35 percent. Inclusionary zoning has been adopted in many municipalities. Perhaps the best-known government program is the one that operates in Montgomery County, Maryland. That county's ordinance requires that in developments of more than 20 units, 12.5 percent of the housing must be affordable. Moderateincome first-time homebuyers (those whose income is no more than 70 percent of the area median household income) may purchase two-thirds of the units and the local housing commission or local non-profits may purchase the remainder for use in their affordable rental programs.

Critics of such laws contend that the market-rate units subsidize the affordable units, which raises the cost of the market-rate units. While this may often be the case, it is less true if the developer can meet the requirement by offering smaller units with fewer amenities.

One benefit of inclusionary zoning is that it levels the playing field by requiring all the developers in a jurisdiction to comply. Over time, such a program can provide a substantial volume of affordable housing. From 1974, when Montgomery County's ordinance was adopted, to 2001, more than 10,000 affordable units were built there.

Municipalities sometimes provide incentives to the developer to compensate for providing affordable housing, according to *Affordable Housing Toolkit for Communities in the Chicago Region*. The incentives include density bonuses, expedited permitting, reduced parking requirements, and waivers or reductions of fees.

Projects such as Stapleton in Denver, King Farm in Rockville, Maryland, and Northwest Landing in Dupont, Washington, have satisfied requirements for providing a percentage of affordable units. Aided by the wide variety of housing types in new urban projects, developers appear able to meet these requirements without sacrificing profits. The mandates prevent market forces from driving all of the units above affordable levels.

Location-efficient mortgage

This is a mortgage that helps people become homeowners in urban locations where there is less need to drive; families in these locations can save money on transportation costs. "Standard loan underwriting recognizes that a buyer can afford to spend 28 percent of his or her gross monthly income on a mortgage payment," according to the Natural Resources Defense Council. "The Location Efficient Mortgage increases this to up to 39 percent by recognizing transportation-related cost savings, thus increasing the size of the loan available to the consumer. A household earning \$50,000 a year, for example, can qualify for a \$163,000 mortgage under current lending practices In compact, transit-accessible and pedestrian-friendly neighborhoods, if household members save \$200 per month on transportation over their suburban counterparts they can qualify for a \$213,000 home."

Community land trust

"A community land trust (CLT) is a private nonprofit corporation created to acquire and hold land for the benefit of a community and provide secure affordable access to land and housing for community residents," the *Affordable Housing Toolkit* explains. A land trust permanently takes land out of the marketplace. People who buy houses on land owned by the community land trust gain equity in the house, but not in the land. Equity increases in the house can be limited to an annual percentage.

Reduced parking requirements

Every additional parking space required raises the cost of a residential unit by 15-30 percent, according to Jeffrey Tumlin of Nelson/Nygaard Consulting Associates. Commercial parking spaces cost about \$20,000 for land and construction and that expense is passed on to consumers, he adds. Reduced parking requirements — especially in mixed-use, walkable environments that generate fewer automobile trips — can lower costs considerably.

Low-income households, most of whom live in rental housing, need less parking. According to the 2000 US Census, 22 percent of rental households do not own a car. Only 31 percent of rental households own more than one car, the census finds. Parking requirements geared to two-car households force unnecessary expenditures on low-income and rental households.

Low-income housing tax credit

In Highlands' Garden Village in Denver, 40 percent of the senior apartment units are "affordable" — defined as within the budget of someone earning 60 percent of the area's median household income. Twenty percent of the other multifamily units are affordable. In addition, 20 of the single homes have accessory apartments.

In exchange for providing affordability, the developers of Highlands' Garden Village received housing tax credits, tax-exempt bonds with low interest rates, and \$1.1 million in city and state block grants. "We really believe in a diverse community," says Jonathan Rose of Affordable Housing Development Corp. "We think that's part of what makes cities work." The market-rate portion of the development did extremely well, selling and leasing faster and for higher rates than expected.

Partnering with a nonprofit builder

Another strategy is for the builder or developer to team up with the city housing authority or local nonprofit developers — making a deal in which the government or nonprofit organization will purchase a certain number of lots at a discount. In the Peninsula Neighborhood in Iowa City, Iowa, the developer agreed to a 10 percent discount on 38 lots for affordable units to be built by a nonprofit or notfor-profit builder. Such a deal can help a city meet affordable housing goals while providing the developer with better absorption. It's important, however, that the affordable units comply with the same design codes as the market rate units.

Density bonus in exchange for affordable housing

Montgomery County, Maryland, provides a density bonus of up to 22 percent beyond what is allowed under current zoning — if the developer increases the percentage of affordable units up to 15 percent, from the baseline requirement of 12.5 percent.

Housing trust fund

Municipalities such as Cambridge, Massachusetts, Chicago, and San Diego have set up trust funds dedicated to providing affordable housing. The municipality typically decides to provide a certain level of funding annually or dedicates a specific fee or percentage of revenues from a tax (often from real estate and development-oriented taxes or fees). Private sources may also provide grants; Harvard seeded the fund in Cambridge with \$6 million. Housing trust funds are usually geared to affordable housing development and construction. Beneficiaries are those earning 80 percent of the area median income (AMI). A particularly effective way to fund a housing trust fund is through a real estate transfer tax that is dedicated to affordable housing.

Streamlined review process

Allowing developers to get approvals quickly will lower development costs, but does not guarantee that those costs will be passed on to consumers. Consumers are more likely to reap the savings if there is competition; that means that the streamlining will have to be widely applied. Form-based codes are one way to allow developers to obtain approvals more quickly while ensuring that communities gets the design that they want.

Allow single-room occupancy buildings

Tiny, single-room occupancy buildings (SROs) have helped to provide an affordable alternative in places such as high-priced San Diego.

Susan Tinsky of the San Diego Housing Commission says development of SROs surged in the late 1980s and early 1990s. "Probably 30 to 40 developments" containing a total of 3,000 units were built, she says. The best of them became exemplars of walkable, mixed-use urban design. Though the units are small and austere, without full kitchens, and in some instances with bathrooms down the hall, the typical downtown SRO building "really fits with the historic architectural designs that already existed," Tinsky says. "It doesn't stand out."

The city encouraged SRO construction partly by adopting zoning that allows such housing anywhere in the downtown and by classifying it as a commercial use like a hotel, thereby relieving it from school fees, according to Tinsky. Because the unit density was high, some developers were able to build profitable SROs with no government subsidy.

Kitchens have been prohibited. Tenants initially resorted to using illegal hot plates, which caused fires. Cooking frequently clogged the in-room sinks. To alleviate those problems, the city later permitted microwave ovens and allowed sinks equipped with garbage disposals — improving safety and reducing maintenance costs, says architect Michael Stepner. "Allowing toilets in the room without having to build out a bathroom, according to code, reduced ongoing plumbing problems, although there was a high firsttime cost," he adds.

Because of high housing costs in the city, SROs have come to be inhabited by "a lot of working people, students, disabled people, seniors, and people down on their luck," according to Tinsky.

TRANSPORTATION EFFICIENCY

For decades, many families sought housing that they could afford by responding to the mantra "drive until you qualify." Millions of households bought property in the farthest suburbs, where houses were less expensive, and commuted long distances to work. Transportation costs were often ignored, even as studies showed that families were spending more on added car expenses than they were saving on housing. Low oil prices during much of this period allowed many US consumers to treat transportation as a "fixed cost" and to focus solely on the housing payments.

Rising gasoline prices have changed that outlook. Many believe transportation costs were a contributing factor to the housing price collapse and the rash of foreclosures that occurred in distant suburbs in 2006 and 2007, when gasoline prices shot up. Nobody knows precisely where gasoline prices will be in the future. It is likely, however, that long-term costs for driving will be higher than they were in the era of rapid suburban growth.

What is certain is that no one should be looking at affordable housing as an issue simply of housing cost. Housing and transportation — the two biggest areas of expenditures for US households — are intertwined and interdependent. Studies in recent years have determined that the design and the location of housing substantially alter transportation expenditures.

A study conducted by PB PlaceMaking, Robert Cervero, the Urban Land Institute, and the Center for Transit-Oriented Development measured vehicular traffic in 17 transit-oriented developments (TODs) in four urban regions across the US. The housing portions of those developments generated 44 percent fewer trips than the Institute of Transportation Engineers manual suggests. In peak periods, the difference was even greater — 49 percent fewer vehicle trips in the morning and 48 percent fewer during the afternoon and evening rush hours.

Even traditional neighborhood developments that have no connection to transit cut vehicle miles traveled by at least 20 percent. This finding has been verified by three studies. Asad J. Khattak and Daniel Rodriguez (2005), for example, found that residents of Southern Village, a new urban neighborhood in Chapel Hill, North Carolina, generate 22.1 percent fewer automobile trips than residents of a conventional suburban neighborhood. They make 2.4 times as many walking trips as the residents of the conventional neighborhood, even when controlling for demographic factors and preferences.

What does all of this mean in terms of household expenditures? A family living close to downtown spends half as much on transportation as a family living in an outlying suburb — a difference of nearly \$6,000 a year, according a 2006 study of the Minneapolis/St. Paul region by the Center for Neighborhood Technology and Reconnecting America.

Driving less lowers cost significantly. The American Automobile Association estimates that the total cost of driving, including depreciation, financing, licensing, registration, taxes, insurance, and operation, exceeds \$7,000 a year (based on a medium-sized sedan driven 10,000 miles per year.) If a household instead devoted that \$7,000 to mortgage payments, it could allow the household to afford a mortgage \$70,000 higher. (When interests rates are really low, it can pay for even more.) Those figures do not include the financial benefit of giving up a garage, which can cut up to \$50,000 from the cost of a house.

CUTTING COSTS

Except in the most expensive communities, good details and cost-cutting go hand in hand. That may



seem counter-intuitive — but good construction details are so important to human-scale communities that finding ways to achieve them affordably is a central mission of new urbanist builders, developers, and designers.

In conventional suburbia, the tendency is toward very busy facades, especially in the so-called McMansions that became highly popular in recent decades. "A roof line that jumps around and creates multiple valleys and points of infiltration and becomes a poster for the flashing council is expensive to build and warranty and everything else," says John Anderson, vice president of planning and design for New Urban Builders in Chico, California. "In a TND setting, that roof line can be calmed down and a significant cost savings can be realized."

Likewise, a floor plan that moves in and out, creating a lot of corners in the interest of boosting curb appeal can be simplified, saving costs in framing, foundation, and finish. "Or, a house that has the entire Andersen Window catalog thrown at it, with as much variety as possible for visual impact, can be calmed down," Anderson says. "These things can save folks a lot of money, particularly in the first round of (design) review."

New Urban Builders employs a technique that Anderson refers to as "mass customization" to keep base prices low and yet allow personalization of units. Porch railings on most houses are optional, for example (an exception is if the porch floor is more than 30

This bungalow court in Doe Mill has a net density of 17 units per acre. The 10 houses were among the most affordable offered in the community to date, and sold out guickly.

inches above the ground; then railings are required). Many people choose not to get the railings, and save \$1,200 to \$1,500. These can always be added later. (Railings going up the steps, on the other hand, are always provided and are made of welded steel from local fabricators; they are covered in a bronze powder coat finish.) Residents can also get what Anderson calls "Chevy" or "Cadillac" options on interior trim. In either case, "the basic chassis of the house is unchanged," he says.

Other techniques aimed at affordability include:

• Building with standard lumber dimensions. Because of the depth of the porch, the ceiling panels, which are eight feet long, don't have to be cut. "The idea that you would create a six foot porch out of eight foot material, and have material left over and labor to cut it — I think there is some false economy in that," says Anderson. New Urban Builders also lays out the floor plans in two-foot increments. "You have to standardize as much as possible," he adds. For more details on this approach, see Understanding Production Building on page 302.

• Accessory units. These rent for \$600 to \$700 per month, creating a supply of inexpensive apartments. That income, which goes to the homeowner, more than covers their \$50,000 cost. "Accessory units throw off \$200 to \$300 per month to pay the mortgage on the main house," Anderson points out.

• Courtyard housing. Doe Mill has four clusters of courtyard housing, where units have started

as low as \$170,000. That's \$50,000 less than the least expensive street-fronting houses in the project. The courtyard bungalows are very small, starting at 890 square feet, and most have no garage (they get surface parking spaces). But the biggest cost-saving measure is the density, which is 17 units/acre, net. That allows the developer to sell units cheap and get a high yield for the land.

• Less square footage, carefully laid out. The largest houses in Doe Mill are 1,860 square feet (with an optional 500 sq. ft. accessory unit), making these units much smaller, on average, than the typical US house. Small is less expensive, but to compensate, the interiors are carefully laid out and allow for customization. A tour of the houses - with their open layouts, emphasis on light, lack of formal dining rooms, and quality built-in cabinetry, is apt to remind visitors of Sarah Susanka's The Not So Big House. "It's a bit of serendipity, because most of the designs were in production when the book came out," Anderson says. "But we use it extensively in our sales process."

How to use low-cost foundations

The least expensive foundations, concrete slab, are specified at Fort Belvoir, Virginia, an Army base where TND neighborhoods are being built. Using a technique that the design firm Torti Gallas perfected in HOPE VI projects, lots are graded to create a slight elevation from the street — allowing for two or three steps up from the sidewalk (see photo detail on this page). This illustrates one of the trad-



All of the housing in Fort Belvoir is concrete on-grade to cut costs. To enhance privacy and visual separation, houses are set back from the sidewalk 10 to 14 feet, and yards are graded to raise the foundations 12 to 18 inches — usually three steps.

eoffs — and battles — the firm faces in affordable neighborhoods. Inexpensive foundations and minimization of grading are very important to keeping costs under control. As principal John Torti puts it: "We've become very experienced at grading, at fitting the house as gently as possible on the land. All kinds of good things happen when you do that. The costs come down and you get a better streetscape."

But there are principles the firm will not compromise on, and grade separation is one of them. "In my mind there is a minimum conceptual set of issues that needs to get resolved," Torti says. "We do not believe neighborhoods would work as well with the doors at the same grade as sidewalk." Builders usually complain about the steps, he adds, but costs can be cut by setting a consistent height from the sidewalk. "Once you decide to mound up the grading, you set the platform of all houses up several steps," he explains. "The relative juxtaposition of the house allows you to build closer and get a tighter, more well-knit community." To add to privacy, townhouses and single houses at Belvoir are set back from the sidewalk 10 to 14 feet.

Murphy Antoine at Torti Gallas says the firm has usually succeeded in providing a zero-step entrance at the backs of the houses, so that disabled people have unimpeded access. (These rear entrances become more practical when there are alleys behind the houses, facilitating rear access.) With moderate sloping of the land, "we can get as much as 24 to 36 inches of front grade separation and still maintain a zero-step at the back," Antoine says. He notes that combining grading and visitability "gets hardest at the densest end of single-family housing - small-lot rowhouses."

Make streets and alleys narrow

New urban developers can minimize costs by building roads no wider than necessary. "Anything greater than 24 feet wide in a residential area should always be questioned," says traffic engineer Walter Kulash. "Beyond 24 feet you are getting into freeflow traffic lanes, which you don't want." Kulash calls residential streets wider than 24 feet "wasted pavement."

Andres Duany, in his The Lexicon of the New Urbanism, uses diagrams to show that the pavement required for alleys is entirely offset by the elimination of driveways. Robert Turner, one of the most experienced TND developers, agrees with Duany. Others are not so sure, and the cost may depend on the width of the alley. Kulash recommends that alleys be 20 feet wide



Cost-saving planning techniques: attached greens in Fort Belvoir, above; relatively straight streets and regular-shaped blocks in New Town at St. Charles, below, make volume building easier.



(to allow adequate space for turning into garages), but that the paved area be only nine feet wide. Over time, vegetation sprouts through compacted gravel on both sides of the pavement, giving the alley a "country lane" feel. Dan Burden, of Walkable Communities, recommends alley pavement widths of 10 to 12 feet.

Reduce development costs in affordable neighborhoods

The land planning for the Fort Belvoir neighborhoods is done in a similar way to Torti Gallas's market-rate TNDs, except with a greater emphasis on cutting costs. Greens are generally attached, which saves a lot of infrastructure expense. "We don't necessarily put a street around every green in market-rate neighborhoods, but in an affordable neighborhood we do tend to attach the greens more," says Rob Goodill, principal in charge of planning for Torti Gallas. In some of the military neighborhoods — not those at Fort Belvoir — Torti Gallas has made the blocks a little longer, as well. The alleys are asphalt, 12 feet wide, with no curbs. Military families tend to be young and therefore often have children, and frequent tot lots are required. "In most of our designs, within 2 1/2 minutes of every house is a play area or a tot lot," Goodill says.

In designing New Town at St. Charles, planner Duany Plater-Zyberk & Company (DPZ) laid out relatively straight streets that do not deflect as much as they do in a typical DPZ plan. Since Whittaker Homes was planning to build as many as 300 units a year and keep prices as affordable as possible, lead designer Marina Khoury believed that relatively straight streets and blocks would help to achieve that goal. Traffic calming, however, is not compromised by the plan. Traffic is slowed by narrow streets and a series of man-made lakes that break up the grid.

Simplify the grid

The New Town idea of relatively straight streets can be taken a step further with a simple, rectilinear grid. Historic settlements throughout North America that new urbanists emulate are laid out on such grids. In an effort to provide amenities and calm traffic, new urbanists usually plan many deflections and modifications to street networks. These highly designed net-

A rectilinear grid, like the block and street pattern for LaGrange, Georgia, below, meets the criteria for smart growth. It would be easier and less costly to build than typical new urban plans.



COURTESY OF TOLAR LEBATARD DENMARK ARCHITECTS



Katrina cottages in Cottage Square, Ocean Springs, Mississippi

works accommodate a great variety of public spaces — but sometimes the interest of affordability may call for a more basic approach. If — as Steve Mouzon notes earlier in this chapter — there should be less expensive and more expensive neighborhoods, why not design affordable neighborhoods using a simple grid with occasional squares? That approach, in addition to small lots and narrow streets, results in very low infrastructure costs for new development — probably much lower than conventional suburban development on a per unit basis.

Use existing infrastructure

Small infill projects — like Trinity Heights in Durham, North Carolina; the Port Royal, South Carolina, project by Robert Turner and Vince Graham; and East Bay in Denver, Colorado — illustrate how new urbanist development, when built adjacent to old urbanism, can save developers money on infrastructure. These projects piggyback on existing neighborhoods, so infrastructure does not have to be built from scratch. Road and amenity costs are kept to a minimum, yet these developments provide quality streetscapes in the context of a larger walkable community.

Katrina cottages and housing that can be manufactured

Attempts by new urbanists to use manufactured housing go back to the early 1990s with Rosa Vista, a project designed by Duany Plater-Zyberk & Company but never built. Late in the 1990s, architect Susan Maxman worked with the US Department of Housing and Urban Development to create some urban prototype modular units that have been adapted for use in cities such as Milwaukee, Detroit, and Pittsburgh. Clover Field in Chaska, Minnesota, was the first TND to be built with manufactured housing, starting in 2002.

The concept really gained traction with the Katrina Cottage, one of the most versatile ideas to come out of the new urbanist Gulf Coast charrettes following Hurricane Katrina. It was designed to take the place of FEMA (Federal Emergency Management Agency) trailers and mobile homes, but it quickly became much more than that. Katrina Cottages were based on vernacular cottages that are small, elegant, and have provided low-cost housing for hundreds of years.

Katrina Cottages can be constructed by manufacturers or builders. Many are designed to be added on to. They are also designed to be energy efficient and to withstand high winds and sometimes even flooding. They are highly affordable, yet have nice architectural detailing. They won numerous awards including the People's Choice Award, in which the cottage beat out all kinds of furniture and products in a popular Internet design competition.

Steve Mouzon of the New Urban Guild has outlined a dozen versions of the cottage, which he defined as "a unit that may be manufactured, modularized, panelized, or site-built, and is 1,600 square feet or under."

Mouzon's versions and descriptions:

Katrina Tiny Cottage — 500 square feet or under for 1 story, or 700 square feet or under for 2 stories. This is largely concurrent with the definition of the Katrina FEMA Cottage.

Katrina Thin Cottage — Similar to the Katrina Tiny Cottage, except longer. The Katrina Thin Cottage is similar to a single-barrel shotgun house, except you don't have to go through a bedroom to get

to another room.

Katrina Double Cottage — Similar to a doublebarrel shotgun house, except you don't have to go through a bedroom to get to another room.

Katrina Duplex Cottage — Similar to the Katrina Double Cottage except the Katrina Duplex Cottage is actually two units.

Katrina Loft Cottage — Usually appears to be a one-story unit from the exterior, but contains a loft.

Katrina Tall Cottage — Two stories (or taller).

Katrina Courtyard Cottage — Made up of two or more modules that wrap around a courtyard.

Katrina Live-Work — Just what the name implies; live/work units capable of modular construction.

Katrina Commercial — Retail or office only. Contains open space plus a bath, probably a kitchenette, and maybe an office or storage room.

Katrina Corner Cottage — Able to turn either the end or the side (or both, in the case of a corner lot) to the street. These are particularly useful when designing a Katrina Cottage Court on two lots of an existing residential street because the long side is turned to the street and looks like a regular house, dampening the neighbors' objections to the smaller units.

Katrina Carriage Cottage — Technique for raising a Katrina Cottage an entire floor so as to park probably one car beneath (from the rear).

Katrina Kernel Cottage — Cottage capable of expansion directly from the unit, not just by connecting porches and the like. Because more of the walls get used up as the cottages get smaller, this is an exceptionally difficult type to design.

Tom Low of Duany Plater-Zyberk has produced a conceptual design of a modular classroom based on the Katrina Cottage; he calls it the Learning Cottage.

The term Katrina Cottage was coined by Andres Duany shortly before the Mississippi Renewal Forum in 2005. Marianne Cusato designed the first Katrina Cottage, a 300 sq. ft. unit in a Mississippi vernacular style, built as a prototype.

Whole house system

In "Newbridge at Tollgate Crossing," a development in suburban Aurora, Colorado, Cohen Brothers Homes is pioneering a house construction technique in an on-site factory. Cohen Brothers erected a 30,000 sq. ft. factory in Newbridge, a development with many TND characteristics, although it is single-use. In the high-ceilinged factory, Cohen's crew of slightly more than 30 employees has assembled entire houses. The process calls for each house to be built on a structural steel frame and fitted with everything from utilities, to carpeting, to appliances, to granite kitchen countertops. The house is subjected to a high-voltage pulse test which detects whether any part of its electrical system is loose, nicked, or improperly shielded. A "duct blaster test" tells whether the heating and cooling system is as air-tight as it's meant to be. Then the 40-foot-wide door of the plant opens, and the house is pushed out. A self-propelled mechanism transports it, at about a walking pace, to a foundation no more than about a quarter-mile away.

Compared to on-site (or "stick-built") construction, the Whole House system cuts construction time and reduces waste of materials. The system may alleviate a liability problem as well. Gene Myers, president of Denver-based New Town Builders, says of conventional homebuilding: "The cost of liability insurance is \$4,000 to \$5,000 per house." In moving construction into a factory, "we can make sure mistakes aren't made in the first place," he reasons. The workers do their jobs in a climate-controlled atmosphere.

The method is best suited to developments of more than 500 houses. "It's a great fit with new urbanist design," Myers said. "New urbanist design tends to be more compact, more vertical, as contrasted to sprawling ranch houses."

Vinyl siding

As of the first decade of the 21st Century, vinyl was the most common siding material in the US. Vinyl is inexpensive to buy and install (no carpentry is involved), and does not require painting. This saves a lot of money — perhaps \$10,000 on a moderatesize house — and many buyers are attracted by vinyl's

Duplexes in the Townhomes on Capitol Hill use vinyl siding skillfully.





The townhouse units at the center are clad in vinyl, flanked by brick units.

reputation for low maintenance.

But some characteristics of vinyl siding, as it is currently manufactured, create significant problems in new urban places. Vinyl is available mainly in muted colors, because of the way the material expands in the sun (dark colors absorb the rays and may cause too much expansion). Developments with lots of vinyl therefore tend to look dull. Deeper and darker colors have been introduced, but they cost more. Architects say vinyl's lack of color and texture requires extra effort in other areas, such as windows and trim, to add architectural interest and make an attractive streetscape.

Builders and developers are therefore well advised to be cautious in the use of vinyl in new urban projects. Nonetheless, some are attempting to use vinyl in innovative ways, while maintaining attractive streetscapes. Vinyl has been used in many TNDs, particularly some that involve public housing, military housing, and national production builders

The Townhomes on Capitol Hill, a 154-unit infill project in Washington, DC, designed by Weinstein Associates, is among the best-looking projects of the US Department of Housing and Urban Development's Hope VI public housing redevelopment program. Vinyl is used on about 40 percent of the exterior of the units, including about a dozen facades.

The vinyl was necessary due to the limited budget, according to project architect Amy Weinstein. "We wanted to do the brick work, and the only way that we could figure out how to accommodate that was to use a significant amount of vinyl," she explains. To improve the appearance of the vinyl, Weinstein used a number of strategies, the most basic involving 5.25inch-thick wood trim around the windows, doors, corners of buildings, eaves, cornice lines, and other details. "That's an awful lot of wood trim to catch the eye," explains Weinstein. "There's enough level of detail that when you look at it, you're looking at architecture — not just vinyl." The wood trim also adds color to the facade.

Weinstein specified vinyl siding without phonylooking wood grain. She also chose siding that comes in strips of three thin simulated clapboard pieces, with a vertical height similar to the brick course on neighboring townhomes. This created a lot of shadow lines on the vinyl. She selected some vinyl in a pattern of shingles. The foundations on the Victorian-style units were done in Dryvit, adding another texture and color.

The treatment of the windows is simple and elegant — here's where good taste actually reduces the budget. Weinstein and the developer, Telesis, chose not to use any shutters and mostly avoided muntins — rather than apply vinyl shutters and flat window muntins as is so often the case with vinyl-sided dwellings.

One method of dealing with vinyl siding is to govern use of the material through architectural codes. For a TND in Michigan, architects and planners Looney Ricks Kiss devised a code that included the following stipulations: 1) All entry trim, window trim, porches, fascia, and cornices shall not be constructed of vinyl. 2) Two or more vinyl-sided houses in a row without well-detailed front porches will not be allowed. 3) Butt joints must not be visible in front or on any bay projections, dormers, or surfaces less than 12 feet in length. 4) No vinyl siding will be permitted on estate lots.

A fairly common new urban solution for using vinyl on townhouses is to employ it on rear elevations and side elevations on the interior of blocks. Brick, fiber-cement, or some other material is chosen for the



Where houses are faced in brick at Fort Belvoir, the brick turns the corner by two lengths, giving the impression that it can support the heavy cornice. The vinyl on the side is dark, so as to minimize contrast with the brick. fronts of the houses and for side elevations that face streets (corner units). This approach has been used in a number of affordable new urban developments, such as Pleasant View Gardens in Baltimore and Winchester Greens in Richmond.

Vinyl has been used extensively as siding for new neighborhoods in Fort Belvoir in Fairfax County, Virginia. Designers at Torti Gallas required that 30 percent of the vinyl be of an upgraded quality, capable of providing strong colors. Dark-colored vinyl helps to make the transition from brick facades less glaring than it would be if the vinyl were light-colored (see photo detail on previous page). Torti acknowledges that the colors never get as good as they do with paint. "Color, even a beige, looks 10 times better painted than in vinyl." He says, "It's deeper, there is a better texture to it." At Belvoir, porches and brick facades contribute variety and additional color to streetscapes of houses largely sided in vinyl.

Tips for TNDs on a budget

Jim Constantine

1. Get cheap dirt on favorable terms — the wrong land deal can force a TND down the road to high costs.

2. Be selective about the jurisdiction — choose sites located in a community that is developer-friendly, grants speedy approvals, and preferably knows TND.

3. Target your consulting fees — lower-margin projects may not be able to absorb a full charrette or an entire cast of out-of-town experts.

4. Cut infrastructure costs — narrow those local streets, eliminate some curbs and even sidewalks, use unpaved alleys, and minimize brick pavers.

5. Free-up garage costs — give price-conscious buyers choices of porte-cocheres, carports, and plain old parking pads in order to cut the cost of housing cars.

6. Use proper proportion — low-cost windows, entries, columns, and cornices can look more elegant by simply following time-tested formulas for proportion.

7. Cheap and cute — have at least one small cottage-type product line that is priced low enough to motivate buyers based on cost alone.

8. Be selective with porches — a well-detailed porch can approach the square foot costs for simple-finished interior space and push a lower-priced home out of its bracket.

9. Don't go overboard on details — clean up busy architectural details, keep public spaces simple, and avoid fancy lamp posts and street furniture.

10. Get income from entry features — establish a presence at the entry with buildings rather than big dollar signage and landscaping that doesn't generate a dime.

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Marketing

19

Branding and marketing
smart growth communities
Placemaking is the benefit
Smart growth amenities,
benefits
How can you show the
smart growth difference?

	Co-branding	342
340	It's about choice	343
341	Brand identity	343
	Lessons learned	344
341	Great returns from	
	events marketing	346
341	Tips on marketing TNDs	349

Above: The focus of the photograph is not the appealing houses, but the bicyclist — whom we imagine is happy. That's why this is an effective marketing image. Photo courtesy of LeylandAlliance.

Branding and marketing smart growth communities

Jackie Benson

Note: Material in this section is adapted from "Branding and Marketing Smart Growth Communities," under EPA contract EP-W-05-025, and appears in the working publication "Smart Growth: The Business Opportunity for Developers and Production Builders," under the same contract.

The market is ready for smart growth, so how can we market it effectively? First, understand what it is you're selling. It's not a town center; it's greater convenience and social interaction. It's not a pocket park; it's eyes on the street and playing Frisbee on a Sunday afternoon. The job of branding and marketing is to communicate at every "touch point" with the buyer just how a Smart Growth (SG) community will enhance their *quality* of life. Buyers choose a community and a home based on the *experiences* they believe they will have - the positioning for smart growth communities must be about delivering on those experiences.

Compact, walkable, transit-oriented, mixed-use communities that preserve and enhance natural resources rank high on the list of more and more buyers today. These communities are commonly referred to as smart growth communities. A 2004 study by the National Association of Realtors found that 55 percent of Americans would choose compact, pedestrian-oriented, mixed-use neighborhoods. New home buyers are fed up with their choice of cookie-cutter, beige box homes in car dependent suburbia, long commutes, and no real sense of place. Many, especially Gen Xers (the generation born between 1966 and 1980), believe that buying a home in a smart growth community is "the right thing to do" and others want a new choice that provides more diversity in product, price, place and people. They want more than suburban sprawl or monoculture subdivisions with segregated price ranges and uses.

The bare feet make a delightful connection between walkability and higher quality of life in this ad for a new urban community.



Placemaking is the benefit

In this industry, ads and sales centers for conventional developments typically promote their competitive advantage as the amenities their community offers. It used to be enough to list a swimming pool as an amenity. Developers then started adding a community center, then an Olympic-sized pool, next a water slide, a zero-entry beach, and every imaginable service and feature to compete with other masterplanned communities.

Smart growth communities have a different set of amenities that require both education and "benefitoriented" communication to create the value proposition to the buyer. For these homebuyers, the *benefits* of smart growth communities are more important than the amenities. While more and more homebuyers have some familiarity with the term smart growth, what they want are the benefits that smart growth promises. Those benefits have to do with quality-oflife experiences as well as the cost savings and environmental benefits associated with these communities (see table on this page). Your particular combination of these benefits makes up your Brand Promise. Once this is established, the brand focuses all of its energy on fulfilling those promises.

Tributary, west of Atlanta, is a large masterplanned development with all the elements that make up a smart growth community, plus a location bordering a 2,500-acre state park and a future transit site for the Metro bus system. The developer asked buyers in a focus group setting to give the top reasons they chose this community. Community design, architectural quality, and green building (EarthCraft) were all in the top five.

In the branding for Tributary, the Gen-X buyer is the primary target. With all the choices available here, the positioning tagline used in all communications is: "Reshaping the Possibilities." Since the Gen Xers are all about making their own decisions and "doing it my way," the positioning invites buyers to create a way of life that fits their style and desires. The sense of community is palpable here and the developer began a "refer a friend" promotion that netted 20 new homebuyers in a three-month period, a true barometer for customer satisfaction.

In all communications, the story must be bold and straightforward about the benefits, not just the features, of smart growth communities. At this point in the market, there are fewer smart growth oppor-

Smart Growth amenities, benefits

Amenities	Benefits
Town Center or	Fewer car trips, more convenient,
neighborhood service	saves time, gas, and money.
Sidewalks and traffic calmed	More walkable, less dangerous for
streets, garages in rear of house,	children, "eyes on the street" safety,
homes close to street/sidewalk	promotes more active lifestyle
	with additional health benefits.
Community close to	Less time in the car, lower cost
schools, jobs, shopping,	of transportation, and less
services, recreation	pollution from vehicle use.
Diverse housing types,	More choices create a diverse com-
styles, prices, and smaller	munity, serving more buyers
IOIS AITU HOITIES	the neighborhood at various life sta-
	des Smaller homes and lots offer
	lower maintenance and cost of care.
Parks, planned open	Opportunity for recreation, com-
spaces, trails, bike paths,	munity interaction, nature study,
gardens, playgrounds	and environmental education.
Developer's commitment	Cost benefit of lower maintenance
to develop a sustainable,	and smaller lots. Personal benefit
environmentally responsible	is that the purchase of a home and
community	selection of this community means
	a decision to "do the right thing"
	and participate in smart growth.
Streetscapes and homes	More visually appealing streetscape
that offer a diversity of	which helps sell smaller homes
styles and a mix of sizes	and other house types.
Public gathering spaces with	Facilitates a sense of community
planned activities and com-	for residents to embrace and
munity sponsored events.	encourages civic participation
Plan that offers connectivity	Easy to get to all areas of the
throughout the community	community and safe for kids to
	navigate. Less traffic congestion,
	since there are more route choices.

tunities than there are potential buyers who would consider this alternative. So the law of supply and demand favors the communities that deliver on the promise of placemaking.

How can you show the smart growth difference?

In order for buyers to know that particular communities are designed around smart growth principles, developers and builders must *show* the difference as well as communicate a brand that sets these places apart from the ordinary. People believe what they can see. With TNDs (Traditional Neighborhood Developments) and other smart growth communities, building a streetscape, finishing parks, and planting street trees all help the buyer visualize a day in the life of their new community.

At New Town at St. Charles in Missouri, Greg Whittaker of Whittaker Homes found that placemaking commands a premium. He created his amenities, including the first of several neighborhood civic and retail centers, early in the development. As of March 2006, Whittaker Homes was pre-selling homes for delivery 13 months in the future at a rate of close to one a day. His prices ranged in 2007-2008 from not much more than \$100,000 to close to \$1 million. As you enter the community, you first notice all the people out and about. Community building with a wide variety of events and civic gathering places is the lifeblood of New Town. Whittaker's message is clear. New Town was designed with new urban principles to create these benefits for residents: convenience in getting around because there is a mix of uses; narrow streets lined with houses and businesses create safe streets for kids to walk to school and to their friends' homes; more choices with a variety of housing types for all ages and stages of life; and sustainable green development practices that are environmentally responsible and resonate with buyers.

The child as town planner puts a new twist on the language used by new urbanists.





An informal, lively sales center at the Village of Woodsong reflects the relaxed, friendly atmosphere of the community itself.

The results are clear: New Town has been outselling the competition.

Today we see developments that offer "parts and pieces" of the promise to buyers. These faux smart growth places often have neo-traditional homes, or "open space," or other amenities they perceive buyers desire. This creates more confusion for the buyer. When buyers visit a community that offers *all* the parts and pieces they can experience the amenities that create a great place to live.

Co-branding

Co-branding with known brands like Energy Star and other green building programs is another way to convey unique positioning and differentiation for smart growth communities. Green development certification programs and smart growth design and land planning awards by various trade/allied trade organizations (USGBC, Urban Land Institute, Smart Growth Network, NAHB/Best in American Living, CNU) recognize the value creation their brands lend to smart growth developments, The credibility of recognized brands gives the buyers a way to measure the claims and promises made by developers and builders.

McStain, a Colorado builder, has been out front with its commitment to environmentally responsible home building in smart growth communities like Lowry and Stapleton in Denver. McStain co-brands with entities like Energy Star and Colorado's Built Green program, and company officials cite consumer research that validates their belief that homebuyers value the benefits of these types of homes and communities.

A 2003 Genesis Homebuyer Survey reported that 40 percent of current shoppers would prefer to

purchase from a Built Green Builder. It also showed that three-quarters of buyers were willing to spend \$2,000 more on a new home in order to increase energy efficiency and lower utility bills. Another study found "two-thirds of Built Green buyers interviewed said that Built Green was a factor in their purchase decision" (Home Builder, September 2005). McStain houses sell for a premium and hold their value. Customer satisfaction was measured at 99 percent in 2004, well above the national average.

McStain conveys these benefits by being diligent and intentional about its brand. The company reenforces its green story with messages that include value, healthier indoor environments, energy savings, and conservation of natural resources.

It's about choice

Smart growth communities provide marketing leverage to the developer and home builder in any economic environment, because of their breadth of market. In smart growth communities with more choice in product, price, and place, marketing dollars go farther and more units of traffic can be served. Add to that the flexibility inherent in smart growth plans to react to the market (for example, lot sizes can be adjusted within block design) and the efficiency of mixed product offerings, and the equation is even more compelling. Regardless of whether the sales environment is tight, highly competitive, or slow, breadth of market makes sense in terms of serving more buyers.

A live/work unit in Habersham was used as a sales center, giving visitors the sense of what the town center would be like. Such a building retains value as a rental property after the sales center closes.



During challenging times, the buyer's "tradeoffs" in choosing a neighborhood can be influenced by: greater selection of house types and sizes, a range of prices, a choice of floor plans that fit various lifestyles, increased convenience, less maintenance, and a wider selection of both natural and created amenities. This again is where the story in the sales center and in all communications is critical to the success of the community. The brand promise and positioning must convey that this place offers a broader range of choices than other communities in the area.

Brand identity

As more and more municipalities discover and implement smart growth, they look to the development community and the builders to create the

A website is perhaps the number one medium for marketing. The home page for Hammond's Ferry features news and events, history, an invitation to explore the community, and images that offer a sense of place. The website, www.hammondsferry.com, has images that change and colors that reinforce the visual appeal.



Lessons learned

A different experience. The most important aspect of positioning for TNDs is to accentuate the different experience a buyer will have living in a TND versus a conventional subdivision. Don't be afraid to shout the difference. As you walk through the neighborhood, the memory points should be about the experience provided by the physical form of the place: not the parts and pieces, but the whole place. Point out that while you walk along tree-lined streets where homes are pulled close to the sidewalk, you experience the creation of a safe haven. Developer Vince Graham of The I'On Company in Mount Pleasant, South Carolina, calls this experiencing the outdoor room. Refer to the terminated vista and note how it invites you to walk farther and discover what's around the corner. Include photos of front porches to demonstrate that the homes are elevated so that the private and public realms are connected but not intrusive. Include a diversity of age groups and mixed demographic situations in your advertising and show the places where people gather. Remember that you are selling the *experience*.

Quality of life. Understand and use the term "quality of life" — not lifestyle. Lifestyle is about whether I play golf or work at home. Quality of life is about the experiences in my life that make it more enjoyable. American homebuyers have the highest standards of living, but are unsure whether they have the highest *quality* of life. It's time to remind buyers that *where* they choose to live affects their quality of life. Less commute time, more time with family and friends, less time maintaining a large home or yard, more time to enjoy nearby entertainment, recreation, or intellectual pursuits equals a better quality of life.

Building community. Sell community first,



then find out what house type fits the needs of your buyer. Master-planned communities have been doing a good job of this for a long time. The difference in this approach with a TND is that the community amenity may be the town center or a public green, not a golf course. And what we're selling is the experience of living in this community.

Community is a word that applies to the physical structure (the hardware) as well as to the interaction of people (the software). TNDs are designed to promote the building of community among the residents. Marketing plays a role in this "civic software" — a term created by Joel Embry of HomeTown Neighborhoods in Fernandina Beach, Florida — by offering community cultural events, activities, and celebrations that build traditions. Whether it's the classic Easter Egg Hunt or a storytelling event, make it "belong" to the community, and the reward will be that your buyers will tell others about the place where they live. In a TND, word-of-mouth is the number one traffic builder for qualified buyers.

Selling to today's home buyers requires understanding their needs and matching those needs to the wide selection of housing types, sizes, and locations. Relationship or interview selling is the most successful sales technique for a TND because the neighborhood must meet a real need expressed by the buyer. Great sales people know how to find the right solution that will make the experience and the benefits of living in a TND come alive to the buyer.

What's in a name? The name of your development supplies the first impression buyers will have. Names that sound like subdivisions don't help with your differentiation strategy. Names that have some civic, historic, or environmental story convey that you are more than just a residential subdivision. Many TNDs are incorporating town seals into their logos and using names that sound like places on a map. The town of Mt Laurel,

> The simple image of rocking chairs on a billboard conveys a powerful message to prospective buyers.



A brochure created for Fairview Village, near Portland, Oregon, announces "Portland's Next Great Neighborhood," and invites potential buyers to "Become part of the ongoing evolution of a great, new community." Among the endorsements are one from a US Senator, and another from a US Congressman. The piece sells community.

near Birmingham, Alabama, has the town seal in bronze on man hole covers, and made sure that a signature fire station was one of the first buildings completed. Kentlands in Gaithersburg, Maryland, was named for the land owner. Vickery in Atlanta is located on Vickery Creek and is tied to great stories about early settlers. Rosemary Beach, Florida, was named for the abundant rosemary plant native to the area. The name you choose should uphold or supply your community story — true stories are preferable.

Expand the TND language. There is definitely a vocabulary for this development form. Words and phrases such as public realm, town founder, outdoor room, sense of place, eyes-on-the-street, terminated vistas, gathering places, town square, greens, street calming, lanes, street walls (the homes), alleys, narrow streets, tighter curb radii, parking on the street — all have significance in differentiating the TND. It is always amazing that a unique vocabulary — one that differs from what buyers are hearing at other places they shop — has high recall, and buyers use that language on their second visit.

Build upon past success stories. When we were working hard to move a new TND through public hearings in one of Atlanta's suburban counties, we mentioned Seaside, Florida, when describing the proposed TND to one of the NIMBYs. He immediately said, "You mean this could be like Seaside? If that's what you're talking about, I'm for it!" There is frequently a great 1920s neighborhood to point to during your discussion of what your new development is modeled after. Compare your proposed TND to the known, sought-after neighborhoods in your town or region. Many TNDs use the "coffee-table-book approach" in the sales center — showing places where people vacation or visit for their uniqueness — Nantucket, Charleston, Savannah, Carmel, Cape May, Mackinac Island. When we relate the architectural styles of the TND to places that are familiar and authentic, we often hear the buyer say, "Oh, I get it now!"

Pattern books — a wise decision. In marketing TNDs, pattern books have been one of the most successful tools. The architects and planners who design TNDs have become quite proficient at creating books for sales associates to use when working with prospective buyers, and for developers to use with their builders' guild. LeylandAlliance's East Beach TND in Norfolk, Virginia, has a thorough pattern book created by Urban Design Associates (Pittsburgh). In another pattern book, Forest City Development brings the urban design and architecture of Denver's Stapleton to life.

A pattern book outlines the variety of housing types and how they fit on specific lots. It promotes authentic vernacular architecture, outlines tips on how to detail the designs, and sets codes for design, construction, and craftsmanship. For larger TNDs, pattern books are a must. They give sales associates a tool that shows that, if the massing and details are appropriate, many housing styles and sizes (prices) can live side-by-side.

The final "have-to." Both marketing professionals and developers who have created a TND will agree on one important "have-to": you must build enough spec homes to create a real streetscape on both sides of one of your first streets. It will be impossible for buyers to understand how you are different unless you show them. A big part of the sales critical path is the ability to walk the neighborhood, so plan to finish parks and greens and squares. The streetscapes and physical elements of a TND are part of the amenity package and should be treated accordingly. — Jackie Benson



Direct mail and email blasts are two other media for reinforcing the message.

great places that will change the real estate landscape across America. They will look to professionals who can help change the paradigm of development to offer more choices to homebuyers and renters.

For LeylandAlliance, a development company based in Tuxedo Park, New York, successful public private partnerships and dedication to building smart growth communities have generated recognition and opened the door to more and more opportunities. With the Norfolk Redevelopment Housing Authority, Leyland created East Beach, a successful TND in Norfolk. In South Carolina, the company partnered with the city of North Augusta to develop Hammond's Ferry, a 200-acre smart growth community on the Savannah River. These successes mean Leyland is invited to submit RFPs for projects where communities are looking for responsible developers. LeylandAlliance is very intentional about what its brand promise is, and it delivers on those promises to its civic partners and to the homebuyers.

Those developers and builders who have built a reputation for delivering great places and consistently reinforced brands identified with smart growth principles will be the winners.

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Great returns from events marketing

Monica Quigley

When we market and sell real estate in new urban communities, we are communicating much more than the features and benefits of any building or community amenity. As new urbanists, we believe that one's quality of life can be positively impacted by living in a place where people routinely interact with others as they live, work, learn, and play. We believe that this high quality of life can be a byproduct of a well-designed master plan that is carefully executed and true to the principles of New Urbanism. And, it is our job as marketers and salespeople to communicate these beliefs and help people understand the many intangible benefits of living in such amazing places.

Great returns can be realized by communicating the benefits of New Urbanism through event marketing. Marketing strategies that incorporate a multi-faceted events program as part of the overall plan can illustrate the quality of life to be realized in the neighborhoods that we develop, as well as help educate, build support, overcome objections, forge relationships, and sell product. The events strategy should include predevelopment, construction, and occupancy stages of the project and address various target markets, ranging from the general community, business community, politicians, prospective residents, Realtor community, and potential event partners, among others.

Across the years, I've been fortunate to learn from some great teachers when it comes to event marketing and some of their lessons follow below:

"Whisper," David Harries, Ryan & Deslauries USA. David taught me the lesson of getting people to whisper to others about your project at a very early stage. This lesson was perhaps best put to use at our Newburgh Waterfront project, located in a politically charged city with racial and economic challenges. How would we be able to reach out to such diverse groups to encourage them to attend our charrette? We started "whispering." We worked with our public partner to schedule advance meetings with leadership groups - religious, Latino, African American, business owners, and non-profit organizations - and held public meet and greet events to prepare people for the charrette. We published a pre-charrette paper in two languages, printed posters, sent e-mails and press releases. On the opening night of the charrette, over 1,000 people attended! The "whisper" resulted in amazing public participation, unprecedented press, and a resulting master plan that took into consideration the wishes and needs of all citizens.

Other ideas for "whispering" events include an "I love my business community" event in which you invite local business owners. They'll appreciate your hosting an event just for them and will in turn "whisper" good things about your project. Host a fashion show with incoming residents — they'll start to build friendships and get excited about their future move, as well as tell their friends about the fun they had.

"Make everything an event," Jackie Benson. When a condominium building was not selling as fast as desired, Jackie reminded me that everything is cause for celebration. Events create excitement and build confidence for prospective buyers. I took her advice, scheduled a special preview party, and sold five condominiums.

Now everything is an excuse for an event! New sales centers, civic building openings, Green Building tours, Traditional Neighborhood Development tours, wetland or Arbor Day planting parties, new speculative homes, model homes, porch parties — the list goes on and on. There is always a new reason to contact a prospective buyer and always a new reason for someone to visit. Don't forget to make pre-development milestones an event, too. Celebrate that grant funding or earthwork!

"Rituals + Festivities = Quality of Life," Max Reim, Live Work Learn Play. Max taught me the difference between rituals and festivities. Rituals are the little events that get repeated week after week, month after month. It's these events that build a history with others and create a true quality of life. For example, a weekly Stroller-Palooza event invites young mothers to bring their infants and strollers for a weekly walk in your community. The event costs practically nothing — maybe some juice and cookies — but the results are impressive and community life is reinforced. Bicycle rides, cooking classes, and yoga classes are other examples of recurring events, or rituals.



Due to an effective "whisper" campaign, a huge crowd attended the Newburgh Waterfront charrette to hear planner Andres Duany.



A rooftop dinner party in Hammond's Ferry

Festivities celebrate important occasions and build traditions that people embrace. Examples may include caroling at Christmas, an annual oyster roast, a music festival, a yearly celebration of river life, or perhaps the fall harvest of an organic farm that is part of your community. Look for ways to build events that incorporate both rituals and festivities. They will become the heart of your community.

"Who else can we get involved?" Irina Woefle, IWPR. Irina is a creative publicist with a mind that constantly thinks of ways to get people and organizations to work together. What organizations and people can you partner with for special events? East Beach, located in Norfolk, Virginia, was the site of the Tidewater Builders Association's annual home show event — Homearama — and attracted over 100,000 people to its opening! When Hammond's Ferry held its grand opening in North Augusta, South Carolina, project manager Turner Simpkins invited local Realtors to man the speculative homes, therefore building trust and excitement with the brokerage community. At Warwick Grove, New York, residents were invited to help plan the first anniversary event and opened their homes for "Private Residence Tours," a big hit with the public. Garden tours, holiday tours as fundraisers for a local hospital or charity, or decorator showcase homes can attract people who might never have visited your community.

"Make friends and let them shine," Steve Maun, LeylandAlliance. Steve Maun and his partners have built a new urbanist development company based on fostering alliances with others who share a common vision to create great places. They seek out talented and committed planners, architects, city leaders, environmentalists, engineers, and others to work together and the company makes certain its alliance partners are recognized for their achievements. The same lesson of making friends and letting them shine can be applied to event planning. For example, an incoming restaurant in a town center can be showcased through advance dining events to build a following for the emerging business. At Hammond's Ferry, the developer sponsored monthly catered dinners by just such a restaurant owner on the rooftop garden of an adjacent building. This event, by invitation only, is one of the summer's hottest social scenes. The restaurant owner shines and the community is profiled as a great place to live.

A developer might introduce a new product to the Realtor community before announcing it to the general public in an effort to increase the percentage of cooperative sales. The developer could host a preview party and familiarize the Realtors with the new product so they can reach out to their customers. This approach lets the Realtors shine and obtain sales that benefit both sides. Partner with a mortgage lender and let him or her shine, too!

New Urbanism is contagious and people want to be involved. Politicians, city leaders, the Realtor community, emerging business owners, builders, trades, volunteers, residents, employees — plan events that help them show their strengths and make friends at the same time.

Getting great returns from event marketing is easy when you take a strategic approach by clearly defining your objectives and your target audiences, and then integrating the events as a critical element of your on-going marketing plan. Equally important, a consistent program for your sales team to engage attendees and follow-up interested parties is an essen-

The opening of a civic building in Warwick Grove was an excellent occasion for a community event.





Ь COURTESY

Homearama in East Beach, where people tour new houses throughout a development, lured visitors from across the region.

tial part of maximizing the returns.

Questions to consider about event marketing:

- Does the event support your brand?
- What is the objective?
- How do you involve others?
- How is it financed?
- How do manage the effort?

• How do you sustain the energy of a comprehensive program?

• Are your sales staff and key employees trained to engage attendees?

• Do you have a follow-up program in place?

• How do you track the results?

Keys to get great returns from event marketing: • Build your network.

• Court your residents and your future residents.

• Help your Realtor community be informed, sell professionally, and make more money, then say "thank you."

• It's a small world; nurture your business friends.

• Don't forget your internal "publics" - your employees, trades, and business partners.

Make it fun and rewarding!

• Promote, promote, promote and make sure you follow-up.

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TIPS ON MARKETING TNDs

Notes from a presentation by Andres Duany at I'On, a TND in Mount Pleasant, South Carolina, in January 1998.

1) Calm down the unit. Suburbia sells "curb appeal," while TNDs sell community. In conventional suburbia, the unit is everything, so it must be impressive. That is the reason for the hyperactive suburban facades, a strategy known as "curb appeal." With TND, the purchaser buys the community as well as the house. "When you are selling quality of life, it takes the heat off of the unit. You can calm the unit down. You don't have to have seven gables - because you are not selling the unit individually. You are selling the entire street, and the street has seven gables," Duany said. One of the biggest mistakes you see in second-rate neotraditional communities is the "incredibly hyperactive streets."

2) Offer privacy to compensate for smaller lots. Answer questions about lot size by offering privacy. People want large lots because they want privacy not because they want a lot of lawn to mow. In TNDs, the builders must provide that privacy through backyard fences, placement of outbuildings, and house design. "This is what you need to communicate to people. It's not about the size of the yard; it's about privacy. Of course, once you say that, you must deliver privacy." In the beginning, you may have to create a scale model of a block made to demonstrate privacy. After the model homes are complete, the model will no longer be necessary.

3) Deliver the public realm quickly. The chief amenity in a TND is the public realm. This is difficult for marketers and sales people to explain, especially in the beginning of the project. "You need to get as quickly as possible to the point where you can show the streets and the squares — that's where the magic kicks in."

4) Build both sides of a street. Developers make two common mistakes in sequencing. One is to build an entire block first instead of two sides of a street. "The magic does not kick in until you have the second block built, and you have both sides of the street. Always develop both sides of the street before moving on to the next." The second is to allow builders to indulge their instinct to be as far away from the other builders as possible. Builders like to spread all over the place, but it is not in the best interest of





The physical development should support the marketing message — as illustrated in the first phase of Doe Mill in Chico, California, left and above. A short block, built on both sides of the street, terminates at a deflected vista — creating an immediate sense of place.

the project. "Try very hard to compress the builders together. Otherwise, you can have hundreds of units built, and the magic hasn't kicked in yet." From a development standpoint, financial discipline is required to keep builders together, because doing so may mean turning down sales offers on scattered lots. But sales in a disciplined project ultimately will make up for any initial losses.

5) Look at retail as an amenity. Developers may say that they can't afford to subsidize a small grocery store in the early years of a project, when they wouldn't think twice about building a clubhouse in a conventional project. "I ask them, 'are you making money on the clubhouse?' " The corner store is a terrific amenity, and it should come out of the amenity budget.

6) Sell quality of life, not standard of living. Conventional suburban real estate is sold in terms of standard of living, which can be clearly measured — e.g., square footage, number of bathrooms, number of bedrooms. TNDs are sold in terms of quality of life, which is not so easily measured. It's very difficult to "quantify a streetscape."

7) Get customers to relax. When sales prospects arrive at a TND, they must go through a "decompression." Customers are harried and disoriented, often going through six subdivisions in a single day. They feel tired, lost, and stressed. "They are going through a painful experience, so you must calm them down. ... Instead of taking them through the bathroom right away, take them on to the porch to sit." Or, sit them down in a very comfortable room with classic furniture. Offer them a really nice drink. Because TND is selling quality of life, not pure quantity, customers must relax before they can hear the message. At Seaside, enthusiastic nonprofessional sales people gave the tours of the town. The professionals were brought in to make the final close.

8) Have a central sales office. In a TND, it is important that customers first go to a central sales office, where they can be sold the concept. People should talk to builders later in the process, because builders are only interested in selling their units, not the community as a whole.

9) Create an organized walking route. When the project is far enough along to have amenities, the developer should orchestrate a "promenade," for sales prospects. They should be walked down certain streets, taken to the post office and the corner store. This will give them an idea of the quality of life in the project.

10) Sell the dream of running a home-based business. TND offers more flexibility in terms of accommodating home businesses, and marketers should use this to their advantage. "Sell the dream of being your own boss, owning your own business. That's a huge dream that is not being sold in suburbia."

11) Use a consistent vocabulary. Come up with a name for the product you are selling — e.g., traditional neighborhood, traditional town, traditional village — and stick with it. If the competition is cookie-cutter suburbia, it should be referred to as "conventional suburbia." You don't have to say "sprawl," because suburbia already has negative connotations.



Building Community

352 354 356

357

20

Building community: the
track record
Community and diversity
Safety by design
Community-building
events and activities

Cohousing meets the	
New Urbanism	358
Enhancing community life through	
nonprofit organizations	359
Programs, activities, and	
events	359

The cycle of a community	359
Funding	360
Building a board of directors	360
Going forward	361
Getting along with homeowners	

Above: Activities like the annual Fourth of July parade in New Town at St. Charles, where these children are taking part, help to build community. Courtesy of Whittaker Homes.

Building community: The track record

An important selling point of new urban developments is that their design promotes "community." This is a strong marketing pitch, responding to a genuine sense of civic and personal disengagement in today's fast-paced, physically disconnected world.

In The Human Cost of Unplanned Growth and Visions of a Better Future, Douglas E. Morris argues that loneliness, depression, violence, and other manifestations of individual or societal distress can be traced at least partly to the physical breakdown of community. He declares, "The way we live our lives is determined by the physical landscape in which we reside." Americans' spiritual and psychological health has deteriorated over the last half-century as sprawl has exploded and historic cities and towns have fragmented, Morris contends.

New urbanist developers have often portrayed traditional neighborhood developments (TNDs) as places capable of alleviating those problems — places where people find it easier to form bonds with their neighbors. Where houses are closer to the street, front porches overlook the sidewalks, small parks as well as schools, libraries, churches, and other civic or religious buildings are integrated into the neighborhood, people are generally more satisfied with life.

How much evidence is there that this is true? Certainly there's some. It is an exaggeration to say that physical structure *determines* how we live, but it does *influence* people's behavior and *affect* their well-being. Here are a few pertinent findings:

• One of the first sizable new urban developments, Harbor Town, in Memphis, underwent a postoccupancy evaluation by the research division of the architecture and planning firm Looney Ricks Kiss. A mail survey and interviews gathered information from residents of Harbor Town (which contains varied housing plus parks, stores, other businesses, and a school); for comparative purposes, the researchers also collected information from residents of Riverwood Farms, a suburban development of single-family detached houses.

At Harbor Town, residents reported that they had



A map of one Harbor Town resident's social network is shown above. The black dot in the center of the circle is the resident's home, and the homes of 11 close friends are shown in black. Light gray shading represents 31 acquaintances. Residents living on neighborhood squares exhibited the tightest spatial clusters in their social networks.

gotten to know several times as many people as in their previous neighborhoods. They had formed extensive social networks within the 110-acre development. The networks were larger than those of the Riverwood Farms residents. Inhabitants of Harbor Town reported that they had met fellow residents through community activities and events, through walks in the neighborhood, through shopping in the town center, and through mutual friends. Harbor Town's sociability was attributed in part to design factors — front porches, the proximity of houses to one another, and the availability of common gathering spaces such as the town center and parks.

• In a study of Celebration, Florida, 90 percent of Celebration residents said the development's physical characteristics — including varied housing types, front porches, parks, and the proximity of neighborhoods to downtown — had improved their quality of life. The survey supported the idea that walking to school or to stores contributed to people's satisfaction and sense of community.

The survey's findings were consistent with the ob-

servations of Andrew Ross, a cultural anthropologist from New York University who wrote The Celebration Chronicles after living for a year in Celebration. "It's pretty undeniable that social relationships are built on proximity and do arise from the physical design of the town," Ross stated. He pointed out that in Celebration "it is impossible not to know your neighbors" within a two-block area. "Many single women live in the town and think of the town as a kind of coparent," Ross said. "The downside is that they also feel that their behavior comes under more scrutiny, being in a small town." Celebration is a place that emphasizes community, yet Ross found there was room for considerable variation in the degree of socializing. Some residents keep to themselves. "That's a good thing in many ways," he said, "because it suggests that people who value their privacy can live in a place like this quite comfortably."

• Orenco Station, a new urban development in Hillsboro, Oregon, scored well in a study that compared the 190-acre development with an old innercity neighborhood in northeast Portland and a wellestablished suburban neighborhood in southwest Portland. The study by sociologist Bruce Podobnik of Lewis and Clark University concluded that "this new urbanist community is indeed fostering a high level of social cohesion and community interaction."

Podobnik focused especially on social capital, which he defined as "the bonds of familiarity and trust that can grow between people within small groups and larger communities." He said Orenco Station appears to have generated "a high level of *bonding* social capital (meaning, within-neighborhood cohesion)."

Subsequent research in 2007 confirmed that Orenco Station residents report a substantially higher sense of community than two older city neighborhoods and a new, affluent suburb also studied. That research found that Orenco Station residents' participation in neighborhood groups increased over time to nearly double the level of the comparison neighborhoods. Orenco Station is particularly rich in informal get-togethers where residents can form social bonds.

• A study in Galway, Ireland, one of the fastestgrowing places in Europe, found that "residents living in walkable, mixed-use neighborhoods are more likely to know their neighbors, to participate politically, to trust others, and to be involved socially." Writing in the September 2003 *American Journal of Public Health*, Kevin M. Leyden of West Virginia University reported that "social capital" is substantially stronger in mixed-use pedestrian-oriented neighborhoods in or near the city center or in older, mixed-use suburbs than in Galway's newer automobile-dependent suburbs. "The results," he said, "are clear and consistent: the more places respondents report being able to walk to in their neighborhood, the higher level of social capital."

• Kentlands, a new urban project in Gaithersburg, Maryland, garnered high ratings in walkability, community attachment, social interaction, and community identity — four criteria that were assessed by a pair of academic researchers in a 1999 study. Joongsub Kim of Lawrence Technological University and environmental psychologist Rachel Kaplan compared Kentlands to Orchard Village, a conventional suburban Gaithersburg development of similar size and similar housing types and price levels. Kentlands surpassed the conventional development in community attachment — "residents' emotional bonding or ties to their community through a sense of ownership, community satisfaction, and feelings of connectedness to the past environment."

Kentlands residents told the researchers that their community was strong on community interaction, with "ample neighboring opportunities," "easy casual social encounters at the clubhouse," "community participation," and "social support." This may be partly the result of self-selection — Kim and Kaplan found that Kentlands seemed to attract extroverted or socially active people. However, Kim pointed out that "shy or less socially active people do become more socially interactive or involved over time, at least in part due to the physical characteristics of Kentlands,"

Young people converse in Kentlands' town center



353

such as the closeness of the homes, the ample porches, and the proximity of sidewalks to the houses. Orchard Village residents, by contrast, "conveyed regret that their community is not as conducive to the formation of social interaction."

At Kentlands, walkability or easy access to community services, such as the shopping centers, elementary school, clubhouses, and lakes, was cited as a major strength. One resident told the researchers: "It is so exciting and convenient for me, my wife, and kids to be able to walk to the newly built cinemas in the Market Square Shopping Center, enjoy the movies, grab pizza or ice-cream in the Kentlands Shopping Center, and walk back home. ... It was something that we couldn't do in our previous suburban neighborhoods."

COMMUNITY AND DIVERSITY

Emily Talen, a planning professor now at Arizona State University, examined New Urbanism's community-building techniques in the British journal *Urban Studies*. She found that new urbanists use two main techniques to build a sense of community: they integrate private residential space with surrounding public space, and they design and place the public space carefully.

"Social interaction is promoted by designing residences in such a way that residents are encouraged to get out of their houses and out into the public sphere," Talen wrote. "This requires a shrinkage of private space: houses are typically positioned close to the street, lots and setbacks are small, and houses have porches facing the street." "Porches generate pedestrian traffic by projecting the human presence within the house to those passing by on the street," she noted. "Individuality in housing design, within certain parameters, is encouraged in order to avoid the proliferation of 'cookie cutter' neighbourhoods."

"Sense of community and neighbourliness are engendered by having small-scale, well-defined neighbourhoods with clear boundaries and a clear centre," Talen said. Streets are thought of as public space, not just as voids between buildings; they are made to accommodate the pedestrian. By designing streets and sidewalks to be safe and comfortable for people on foot, it's possible to get residents to use them often and have more encounters with their neighbors.

Public spaces in the form of parks and civic centers serve as symbols of civic pride and sense of place, Talen



The square in the neighborhood center at New Town at St. Charles has diverse uses, including a jazz concert, above, and a pickup football game, below.





Residents of the Waters share the day's news - one from the porch rail and the other leaning on the fence.

said; the public spaces emphasize the notion of community. Mixed land uses, whose ability to encourage social interaction and a sense of community was first articulated by Jane Jacobs nearly half a century ago, give people an incentive to drive less and walk more. Mixing of housing types can foster contact between people of differing social classes, economic strata, and backgrounds. This holds the potential to make the community more integrated and nearly complete.

There are limits, of course, to the claim that proximity or interaction produces community. And New Urbanism is not just about community; it is also about such things as improving the ability of individuals to find parks, stores, services, and civic spaces close to home; reducing reliance on automobiles; living more efficiently; placing less of a burden on the planet's natural resources; and creating environments that are more beautiful and engaging.

Questions of community are complicated by the fact that some people prefer living among people much like themselves, while others prize diversity. Diversity is one the principles of New Urbanism, as reflected in the Charter of the Congress for New Urbanism. You can find considerable diversity in the historical models that new urbanists admire. These include small towns, where during their heyday, a wide range of people typically lived within walking distance of one another. They also include early twentieth-century planned communities like Mariemont, Ohio, where the size, character, and costliness of the housing stock in some instances varied block to block, encompassing differing economic and social strata, all within a quarter-mile or a half-mile.

Probably the most notable expression of new

urbanist diversity has been the federal government's HOPE VI program, which has replaced failed public housing projects with mixed-income developments, often containing an assortment of races and socioeconomic groups. These developments are predicated on the idea that bringing different groups together will be good for society. A mix has also been achieved In some privately built, market-rate developments. On the whole, though, the private-sector, market-rate projects have been less diverse than big-city HOPE VI undertakings. Where market-rate new urbanist projects have been built in upscale suburbs, racial and economic diversity has not been particularly pronounced. Except where government subsidies are offered, market-rate developments in affluent suburbs tend to attract people with medium to high incomes.

From a community-building perspective, there are differing views as to what is desirable. During much of the twentieth century, scholars and others saw homogeneity at the block level or the neighborhood level as something that helped people form bonds with those living nearby. Sociologists argued that a stable neighborhood was one that avoided much mixing of different classes. More recently, awareness of social injustice and of the damage caused by segregation has led many Americans to advocate mixed neighborhoods — places that span a wide range of incomes and other characteristics. Consequently, some new urbanists have argued that we should be making a more concerted push for affordability and socioeconomic mixing.

One way to make a community more diverse is to bring houses, apartments, and condominium units close to workplaces, stores, restaurants, and other places where people spend time. Places that are walk-

A street scene at Park DuValle, a HOPE VI public housing redevelopment designed according to new urban principles



able and that serve multiple purposes can provide a degree of social integration. Another approach to community-related questions, Talen says, "would be for new urbanists to tone down their social aspirations and declare that they are simply meeting the human requirements of physical design, rather than actively creating certain behaviors. Physical design need not create sense of community, but rather, it can increase its probability."

New urbanists arguably are less concerned with getting people to expand their social contacts than with more concrete issues relating to the common good. For example, new urbanist neighborhood structure offers more access and independence to children, elderly, the disabled, and others who cannot drive or who find it hard to drive. A high-quality public realm, enjoyed by all, is good for everyone, rich or poor. Seeing one's neighbors in public and commercial places such as streets, local cafes, restaurants, and taverns offers intrinsic benefits regardless of whether these meetings lead to community solidarity. Additionally, the "eyes on the street" and clear delineation of public and private space of traditional neighborhoods may discourage crime.

The community-building aspects of New Urbanism have benefited from practitioners' sophisticated understanding of public, semipublic, and private spaces and of how to make effective transitions between these spaces. Greens, squares, civic buildings, and other civic spaces have been woven into the fabric of the neighborhood, nurturing community life. Just about everyone gains from these features, which enhance people's opportunities to meet their neighbors.

SAFETY BY DESIGN

New urban communities create more "eyes on the street" by narrowing lots, bringing houses closer to the street, building usable porches, constructing residential units above stores, and promoting pedestrian activity. New urban design also advocates a clear distinction between public and private spaces, discouraging amorphous "open space" areas within neighborhoods that are neither secure nor well supervised. The evidence shows that new urbanists have been successful to date in suppressing crime in innercity neighborhoods.

In Diggs Town, a Norfolk public housing project that was revitalized using new urban principles, police calls dropped dramatically after the new design was implemented, and they continued dropping for years afterward. A study of Diggs Town, published in *Housing Policy Debate*, quoted one resident as saying that before the redesign, he generally heard two or three gunshots a night. After the new design was implemented, gunshots were heard once every three or four months. Police calls in the neighborhood dropped to two or three a week from 25 to 30 per day.

The 428-unit Diggs Town was built in the 1950s on superblocks with poorly defined open spaces between buildings. "The street pattern did not allow access to the inner parts of the complex or facilitate supervision by residents," according to the study. "This isolated the central part of the project, leaving it open to criminal and other undesirable activities."

The redesign, by Urban Design Associates (UDA) of Pittsburgh, kept the same building configuration, but added small streets with on-street parking and traffic-calming measures to provide easy, pedestrian-friendly access to the center of the project. All houses were given front yards and porches with plenty of room for sitting. Private back yards were fenced off and gated.

Diggs Town's redesign was accompanied by other social interventions, including community policing. This makes it difficult to identify the precise impact of the physical design relative to other changes, but the authors concluded that the physical changes have had a significant effect. The researchers acknowledged that ungated streets may open a development to lawbreakers, but this vulnerability is more than offset by the stronger social ties associated with New Urbanism.

In Baltimore, a crime reduction nearly as dramatic as Diggs Town's was achieved through the HOPE VI program. The high-rise public housing buildings known as Lafayette Courts were demolished, and Pleasant View Gardens — a new neighborhood of 228 townhouses and 110 apartments — was built on the project's 21-acre site. Torti Gallas and Partners, the architects, created naturally supervised streets and public spaces and private backyards, which helped to bring crime under control.

In 2006 an economic impact analysis by the Leland Consulting Group found that crime dropped by 17 percent in a Denver public housing project after it was redeveloped as the Curtis Park HOPE VI project. That reduction contrasted with a 7 percent crime increase in comparable neighborhoods. Another study, by Sean Zielenbach of the Housing Research Foundation, found that in 1990, US census tracts containing public housing suffered crime rates 141 percent



The plan for Flaghouse Courts in Baltimore is connected to existing streets on all sides — the opposite of a gated community. HOPE VI developments have lowered crime in surrounding neighborhoods.

higher than the rest of their cities. By 2000, in census tracts where the public housing underwent redevelopment through HOPE VI, the crime rates were only 26 percent higher than in the rest of their cities.

COMMUNITY-BUILDING EVENTS AND ACTIVITIES

Developers, homeowners associations, and other organizations have turned to many events and communication techniques to build community. Here are some of the most important ones:

Newspapers: Many developers publish newspapers for current and prospective residents of their developments. "Community newspapers have more credibility than glossy brochures," says Doris Goldstein, a Jacksonville, Florida, lawyer whose practice focuses on new urbanist development. "Brochures scream 'subdivision,' while newspapers say 'town.' Newspapers don't have to be fancy. In fact, it's probably best to print them in black ink, on standard newsprint. Avoid making them slick and "corporate."

Community intranets: These can provide a convenient, centralized source for information, but the medium has not yet proven successful at building community. Enthusiastic homeowners have sometimes launched their own websites that extol their communities and the benefits of New Urbanism.

Celebrations: Many new urban communities have

Fourth of July parades, with kids riding bikes and with a picnic on the green. An Independence Day parade seems utterly instinctive. It's part of the "town" feeling. You might sponsor a contest for youngsters to decorate bikes or wagons in a patriotic theme.

Halloween is an occasion for a burst of local activity. The houses in new urban communities, purposely designed to address sidewalks and passersby, lend themselves well to trick-or-treating. At Afton Village in Concord, North Carolina, the annual holiday celebration and Christmas tree lighting ceremony brings people together — with Santa Claus meeting the youngest children, with a high school group providing music, and with other fun touches such as horse-drawn carriage rides. The event can be combined with charitable endeavors, such as collecting food for families in need. At Afton Village, a wine store puts on a New Year's Eve celebration, with hors d'oeuvres, music, and, of course, wine. Easter is an opportunity for an Easter egg hunt and contests.

Town center activities: Many new urban communities hold events in their community buildings. At Kentlands, in Gaithersburg, Maryland, lectures and discussions take place in the mansion that was preserved from the property's earlier history as a farm. In some communities, the merchants' association organizes a community party with music, food vendors, and entertainment for kids, from spring to fall. This also helps the shops and their owners and employees become part of the community's life. Prairie Crossing, a conservation-minded TND in Grayslake, Illinois, holds an organic plant sale at Station Square. Serenbe, in Palmetto, Georgia, holds a farmers' market on Saturdays, sometimes including cook-offs, bake-offs, and food-preparation demonstrations. Many new urban communities have regular movies, concerts, and other events on the town square.

Races, yard sales, tours, and classes: A 5K or 10K run can energize a community for a day, especially when combined with a picnic. In some locales, the community association promotes a community-wide yard sale. Prairie Crossing holds classes on a variety of crafts. At I'On in Mt. Pleasant, South Carolina, the I'On Trust sponsors a tour of private gardens, including professional demonstrations on gardening-related topics. Many communities have websites presenting a day-by-day calendar of events.

The nonprofit Serenbe Institute for Art, Culture & the Environment brings mid-career and senior artists — painters, potters, glassmakers, photographers, sculptors, writers, and playwrights — to Serenbe, where they work and interact with residents and the environment. Artists-in-residence also offer classes and workshops for the general population, and master classes for more accomplished participants. The Traditions Committee of the Institute is carrying out an oral history project aimed at creating a video and audio record of Serenbe's founding and growth.

COHOUSING MEETS THE NEW URBANISM

Cohousing, a form of community that shares some of New Urbanism's aims, has begun to arrive in a few traditional neighborhood developments. Two of the first cohousing projects built within TNDs, are Hearthstone, in Denver, and Wild Sage, in Boulder, Colorado. Each Colorado project occupies a block within a larger new urban neighborhood. Hearthstone is a 1.6-acre section of the 30-acre Highlands' Garden Village, and Wild Sage is a 1.5-acre portion of the 25-acre Holiday neighborhood in north Boulder.

The cohousing movement first arose in Denmark and now includes more than 80 developments in the US. A typical cohousing community contains no more than a few dozen households, whose residents take turns cooking in a common dining room for the entire group, who share some other facilities, and who manage the development collectively. Tight social bonds form among members of the group, but it is not a commune. Members have private kitchens in their homes — group dining is not for every meal — and each unit is individually owned.

The physical organization of a cohousing project differs in some respects from New Urbanism's orientation. The emphasis is more on spaces shared by members than on the truly public realm of sidewalks, welldefined streets, and civic spaces. Instead of featuring front porches that look out onto sidewalks, cohousing developments may focus inward, onto shared passages and landscapes. Often the parking for residents' vehicles is positioned on the perimeter — not ideal from the perspective of forming seamless connections within a neighborhood. The drawback of perimeter parking is offset somewhat by the fact that many cohousing communities have fewer cars per household than typical real estate developments. A few cohousing projects include alleys, notes Jim Leach, president of Boulderbased Wonderland Hill Development Company, which built both Hearthstone and Wild Sage.

At those two developments, as in many other cohousing developments, there is a large semipublic space on the interior of the block, for use by the cohousing residents. Thus, the focus for outdoor socializing is in or near the center of the block rather than along exterior sidewalks and streets. However, at Wild Sage, the common house has two entrances — one facing the interior courtyard, the other on a public street.

It's not unheard of for a cohousing community to include some commercial spaces. Kathryn McCamant and Charles Durrett, two of the leading architects of cohousing in the US, designed the FrogSong cohousing development in Cotati, California, to have stores along one of the project's edges, with housing above. The mix of uses enhances the convenience and the finances of FrogSong and it gives the adjacent community beneficial services.

The fact that a cohousing development includes meeting space may prove advantageous to the TND as a whole. The cohousers' meeting space may provide a convenient place for gatherings of the neighborhood. Also, the cohousing communities' experience in conducting discussions respectfully — avoiding animos-



Hearthstone's mid-block courtyard, above, and the plan, below, which is embedded into Highlands' Garden Village.



ity is important in such a self-contained community — can be useful to an entire TND.

Enhancing community life through nonprofit organizations

Jan Pomerantz

A number of developers of new urbanist and other master-planned communities have concluded that design, by itself, is not enough to make a successful community. What are also needed are *catalysts* that nurture community life. Consequently, in developments as different as Kentlands (in Gaithersburg, Maryland), Prairie Crossing (in Grayslake, Illinois), Stapleton (in Denver, Colorado), and I'On (in Mount Pleasant, South Carolina), nonprofit organizations have been formed for this purpose, often with help from their developers.

These entities are known by various names - often they're called trusts, councils, foundations, or institutes. All are nonprofits founded by developers to enhance their communities; the fundamental aim of these organizations is to support the values and well-being of their communities. These nonprofits are particularly valuable early in a development's history, since potential homebuyers are often attracted to a place that offers a way to make friends and connections quickly. These organizations help to create good and enduring communities that can generate higher prices and market a lifestyle different from what is attainable elsewhere. Over time, these entities continue to enhance neighborhoods and make them desirable, giving purchasers a clear signal of the benefits of becoming residents.

The nonprofits are developer-established separate legal entities that provide cultural and special events, educational programs, and other community-building services. They supplement, rather than replace, the activities of the developer and the property owners' association. They foster a "civic infrastructure" that encourages group participation, enjoyment, and education.

Programs, activities, and events

Community-building organizations founded by developers are generally organized under state law as nonprofit corporations. Unlike property owners' associations, however, they can qualify for tax-exempt status under the Internal Revenue Code.

Historically, they have offered a wide range of initiatives benefiting the community at large — from

concerts by professional symphony orchestras to mentoring programs for public school students, to community parades on July 4th, to grants to social service nonprofits. Most initiatives fall within one of three categories:

1. Philanthropic donations and grants to charitable causes that provide assistance to members of a community or to citizens and organizations in the larger surrounding community;

2. Social programs and events, including cultural and civic activities, for residents and for those living beyond the immediate community; and

3. Opportunities that nurture volunteerism and leadership development.

These types of initiatives reinforce the aspirations of community-building organizations to "connect neighbors with their community by providing cultural and civic activities and promoting volunteerism" (the purpose of the I'On Trust), "serve as an educational resource on new urbanism and smart growth" (the aim of the Kentlands Community Foundation), and "support ... future enrichment, health, welfare and culture" (the goal of the Daniel Island Community Fund).

The cycle of a community

In the acquisitions phase of development, the activities of such nonprofits (generally underwritten by the developer at this stage) often include:

• Making donations to charities and sponsoring causes important in the greater community;

• Hosting programs, events, and activities that help communicate the vision for the community; and

• Encouraging members of the development team and others to underscore the importance of the community-building process.

During the acquisitions phase, some developers use nonprofits to integrate conservation and community into their developments. Often called Community Stewardship Entities or Community Stewardship Organizations, these types of organizations (such as the Spring Island Trust, in Spring Island, South Carolina) underscore the vision of environmentally-responsible development.

Throughout the planning phase of a community, there may be even more opportunities to enhance the nonprofits' future success. Methods include:

• Earmarking land for civic purposes, such as conservation areas, schools, and community gardens;

• Hosting programs, events, and activities that underscore the founders' commitments to, for ex-
ample, education, family, the environment, historic preservation, or workforce housing; and

• Expanding activities by members of the development team and other interested parties in local schools and other nonprofits.

The Liberty Prairie Conservancy in Prairie Crossing is an excellent example of integrating a commitment to conservation with a wide range of community-building activities (such as organizing restoration workdays to protect and restore two preserves and working closely with the community's organic farm and charter school).

Once residents move into a community, shifting priorities may require a realignment in the activities of nonprofits. The new directions may include: Engaging in strategic philanthropy, targeting causes that particularly impact the interests and needs of the community; and providing leadership training opportunities to current and future residents.

The Stapleton Foundation has won recognition for its innovative and effective programs, including a community-based, healthy living program called ALPS — "Active Living Program of greater Stapleton."

As a community evolves from developer-managed to self-managed, the organization should evolve to support the mission of enhancing the community. The nonprofit will eventually be managed by its residents. The nonprofit's activities may expand to include:

Providing grants to fledgling local organizations, particularly those that may become free-standing nonprofits over time; and increasing leadership training opportunities for the nonprofit's board and committees and institutionalizing volunteer management processes (to maximize the volunteer commitments of residents).

Another well-recognized model is the I'On Trust, which enhances life in I'On and greater Charleston. The Trust's programs include competitive grants to organizations that operate in the Trust's focus areas (including the Community of I'On Artists), organizing numerous holiday celebrations, performances and events (including a Memorial Day concert, a July 4th parade and a Holiday Tour of Homes, as well as hosting concerts and performances by local resident groups and professional performers), and nurturing volunteerism and philanthropy in greater Charleston.

Funding

The major (and sometimes exclusive) source of funds for these nonprofits typically is transfer fees (or community enhancement fees) collected on the resale (and sometimes on the initial sale) of property within a community. The fee is usually a fixed percentage paid directly to the organization upon each conveyance or reconveyance of a property. The organization must be run as a separate entity, independent of the founder; the fee cannot be paid to the founder.

An early commitment by a developer is needed to assure that such a funding vehicle is included in the recorded covenants and restrictions. Such documents will include the transfer fee provisions, which determine whether the fee is charged to the seller or to the buyer. Tax implications need to be considered when setting up the funding process. The transfer fee — a percentage of a residential unit's gross selling price, typically ranging between 0.25 percent and 1.5 percent — is payable to the organization at the closing of the transfer of title. It is normally not included as a part of other fees (such as memberships), to avoid confusing residents and prospective residents.

Some similar nonprofits are funded through other vehicles, such as open space, occupancy, and building permit fees. Membership donations, grants, and sales of products and services (such as admission fees) are other ways of generating revenue.

Sometimes revenue comes from a combination of these approaches (e.g., transfer fees plus "membership" contributions). Fees should be distinguished from those charged by homeowners' associations.

Building a board of directors

Once the preliminary steps have been taken to structure the organization, the next objective is to begin organizing a group to guide the nonprofit. Most developers start with key members of their own development staff, often adding other members over time (including residents, business owners, and educational, cultural, and governmental leaders). When resources become available, hiring of professional, paid support staff generally becomes a priority. (Alternatively, some developers designate a member of the development staff to support and manage the nonprofit.) Dedicated staff assistance (either part-time or full-time) helps to build volunteer leadership within the community and assure quality programming.

The developer may form a board of directors for its nonprofit entity immediately. Alternatively, the developer may begin building group support through an advisory group or informal committee structure before formally establishing a board.

Going forward

From the start, it is important to consider how residents may use the community facilities for meetings, performances, educational sessions, and volunteer activities of the community-building entity. Since the community holiday celebrations, social activities, and neighborhood gatherings promoted by such organizations often require venues of many different kinds, a developer should consider whether and how the nonprofit might use schools, community centers, and library facilities. Other spaces that might be considered are band shells, outdoor amphitheaters, auditoriums, and health and fitness centers.

The success of these organizations often depends upon the community's ability to match program goals with adaptable and convenient spaces. Since the mix of activities will likely change over time, it's critically important that the design of the facilities be flexible.

The competition to attract residents who will raise community vitality and livability to a high level will be a significant challenge for new urbanist developers and planners. Nonprofits formed by developers can turn such a challenge into an opportunity — to build civic life that says "live here, participate here." Organizations such as these can do much to bring about good and enduring neighborhoods.

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Getting along with homeowners

Doris S. Goldstein

Developers of new urban communities — Founders — are often disappointed and rather surprised to find out that they are not universally beloved by homeowners. In fact, Founders may have more trouble with homeowners, and homeowners' associations (HOAs), than conventional developers, for the following reasons:

1. In conventional development, the developer gets in and gets out. New urban development takes years or even decades, and even when the residential portion is built out, the Founder is likely to retain an ongoing interest in the town center. 2. Most Founders are, of necessity, control freaks. They have a vision, they are personally invested in their projects — many are individuals or family members, not big corporations — and they persevere. Otherwise, many of these projects would never survive the uphill battle to get built. But the qualities that make them good Founders make them poor HOA participants. Homeowners have their own ideas and want to make their own decisions, some of which will be different from the decisions the Founder would make. Unless the Founder is willing to step back and let go, this leads to conflict.

3. In communities where homes are custombuilt, rather than built by production or speculative builders, the architectural review process seems perversely designed to foster ill will. For most, this is the homeowner's first exposure to the Founder. When an application is rejected, homeowners feel that they, and their sense of style and taste, have been personally rejected. This bad feeling festers and carries over to later relationships with the Founder.

Having good homeowner relationships is not something that comes naturally. It takes effort and it also means recognizing that the process is not entirely intuitive. Here are some specific suggestions for Founders to improve the relationship with homeowners:

Don't give the HOA anything you don't want to kill. Most HOA officials are interested in preserving property, keeping assessments low and avoiding controversy. A concert on the green may be fun, but it means trash to pick up and wear and tear on the lawn — and fielding complaints from the handful of homeowners who don't like the noise or the traffic. Limit the HOA to simple maintenance responsibilities for common areas outside of the town center. Keep the town center and any other areas where you want to have lively programming out of the hands of the HOA. Activities can be sponsored either by the merchants or by a 501(c)(3) or 501(c)(4) organization.

Know what hat you are wearing. The HOA is an artificial construct, and it's necessary to understand and respect the boundaries. From the very beginning, recognize that the HOA is a separate entity — not an extension of the developer — and exists to serve the homeowners. Even when the Founder controls the board by electing a majority of the directors, the Founder always needs to be aware of the responsibility owed to the homeowners, and to act in the best interest of the community. It's also important to observe the formalities of operating a separate corpora-

tion, such as noticing and holding board of directors meetings and keeping corporate records. (In most states, it's the law as well.)

Maintain a clear line of demarcation between the Founder and the HOA. If at all possible, the developer should not manage the association. Instead, hire an individual to be the HOA manager — even if it's a part-time position — and give the manager an office with a door that says "Association Manager." When homeowners show up with complaints that are HOA issues, the Founder should direct them to the Association Manager for help. This reinforces for the Founder and the homeowner the separate role of the HOA (and saves the Founder a lot of time and headaches, too).

Give the HOA exactly what it is owed, nothing less ... and nothing more. The HOA must have a separate bank account. The developer's share of HOA expenses for the lots it owns must be paid into the HOA account on a regular basis. HOA expenses need to be paid out of the HOA account, even if it means apportioning costs. When the landscapers are planting trees, they are working for the Founder. When the landscapers are mowing the green, they are working for the HOA.

If there is not enough money in the HOA account to meet the HOA's expenses, the developer will, as a practical matter, need to underwrite the deficit. (This is not unexpected in the early months of the association, when there are relatively few homeowners paying into the association.) However, don't pay HOA expenses out of the developer account. Instead, transfer money into the HOA account and show it as a loan. The Founder can forgive the loan later — and the opportunity to do so may give the developer some leverage at turnover.

Founders should resist the urge to provide services without charge. It's like letting bears feast on your picnic. They get lazy, and then they turn on you. Don't do it.

Don't lowball the budget. The amount of assessments is less important to homeowners than whether or not the assessments go up. Even if assessments are modest, owners will resent that they are paying more than they were before.

Train homeowners for leadership, and then turn over control. Developers usually want to hang on to control as long as possible, but there are real benefits to an early turnover. If the Founder has reserved the appropriate development rights, kept the town center separate, and properly circumscribed the HOA's responsibilities and powers, an early turnover greatly reduces tension between the Founder and the HOA.

To learn how to manage the association, homeowners need to participate on the board of directors while the Founder is in control. When it is time for owners to elect a representative, open two seats, not just one. When there is only one homeowner representative on the board, that director will feel a responsibility to stick up for the homeowners, and will tend to be more confrontational. Having two or more homeowners on the board, even when they are not a majority, tends to make them more cooperative.

Pay attention to the message being conveyed by your architectural review process. A lot of resentment starts there and resurfaces elsewhere. A town architect with good people skills who can help homeowners through the process is worth a great deal in future good will. Ideally, by helping homeowners informally and making suggestions before plans have progressed too far, the developer can avoid ever having to reject a plan during a formal review process.

Communicate the vision. Don't assume that homeowners automatically "get" new urbanism. Many homeowners are attracted to traditional architecture but don't understand why interconnectivity is important. They like having a restaurant they can walk to, but don't want people outside their neighborhood to eat there, too. (Never mind that the restaurant wouldn't stay in business without the outside traffic.) Especially when the residential areas are built first, make sure owners understand what they are buying into.

On the other hand, don't disclose ideas about what specific businesses or facilities might be built until you are committed to building them. This is one of the dangers of the charrette process, where a lot of possibilities are tossed around but only some will actually be built, so temper expectations during the charrette. Later on, make sure that all master plans or other representations are clearly labeled as conceptual drawings.

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Sustainability and Environment

21

Sustainability and environment	364
Land use	364
Protection of water and	
watersheds	365
Automobile dependence	366
Energy use	367

Global warming	368
Coastal areas	369
The Transect as an	
organizing tool	370
Sustainable development	
meets New Urbanism	371

Food production	373
Vernacular and earth-friendly	373
Energy efficiency tips	373
Cool Spots, bright idea	374
Figuring density	375

Above: A wetland in Battery Park City, Manhattan, filters stormwater from adjacent buildings. Photo by Payton Chung.

Sustainability and environment

Urbanism can greatly benefit the environment — by concentrating development in compact patterns that use natural resources more efficiently. These compact development patterns make it possible to preserve more land as natural, agricultural, or open space and to reduce auto emissions, energy use, and stormwater runoff. The reasons are simple: Smaller lots cover less land and require less water, which is in short supply in many metropolitan areas. Curtailment of outward development means less paving is needed; therefore less runoff pollution is generated. A mix of uses and well-designed streets offer the opportunity to walk, which results in less driving, less petroleum use, and less air pollution.

In the early days of New Urbanism, these environmental claims were largely theoretical. Since then, a considerable amount of research has been conducted, and solid empirical studies now confirm some of the new urbanist arguments about the environment. Also, new urbanists are increasingly using techniques developed by the "green" or sustainability movement — especially methods aimed at conserving water, filtering runoff on site, and making effective use of natural processes. This integration of New Urbanism and sustainability is likely to accelerate in coming years.

The following is a summary of what we know about New Urbanism/smart growth and the environment.

LAND USE

In 1995, the Charleston Harbor Project examined a development project known as Belle Hall in Mount Pleasant, South Carolina. The goal was to assess the comparative impact of conventional development versus New Urbanism on the 583-acre site. If the project, in a rapidly growing suburb of Charleston, were developed under preexisting conventional zoning, it would have 30 acres of wetlands as its only open space once construction was completed. New urbanists Dover, Kohl & Partners were hired to plan a traditional town on the site. The firm found that by applying compact new urban planning techniques,



the town could accommodate the same volume of housing and commercial structures on only one-third of the site; 400 acres could be left as open space.

The study, which illustrated that the New Urbanism is more compact and occupies a smaller footprint on the land, had its limitations. It said little about whether the two Belle Hall scenarios would be equally marketable or realistic. When the study was conducted, few new urban communities had been built, so the real-world land use implications were impossible to quantify.

Seven years later, the first real evidence supporting the Belle Hall study's conclusions arrived in a study by the Center for Urban and Regional Studies at the University of North Carolina. The study, "Greening Development to Protect Watersheds: Is New Urbanism the Answer?," looked at 50 new urban projects in a variety of locations in the southeastern US, and contrasted them against an equal number of nearby conventional developments. The new urban communities averaged 2.5 times the density of the conventional developments (7.2 versus 2.8 units/acre). Those numbers actually understated some of New Urbanism's environmental benefits — new urban communities are by definition mixed-use, including retail and at least some workplace components, helping to reduce the need for transportation, whereas conventional developments are largely single-use.

Those new urban communities have met the demands of the marketplace, competing directly against their conventional counterparts, while accommodating more development on significantly less land. The five-state study stretched from Maryland to Georgia, a region that differs somewhat from other sections of the country, particularly the Southwest. In parts of the Southwest, "sprawl" development is denser than in other parts of the nation. Yet even in the Southwest, research indicates that New Urbanism achieves more compactness than conventional development, according to Eliot Allen of Criterion Planners/Engineers, who has quantified the environmental impacts of several hundred developments, both conventional and new urban.

Allen notes that new urban principles favor protection of agricultural and forest resources, open space, and sensitive areas such as wetlands and wildlife habitat. A 1995 American Farmland Trust study of California's Central Valley found that compact growth would reduce agricultural land conversion by 53 percent, from one million to 474,000 acres, when compared with conventional development patterns.

PROTECTION OF WATER AND WATERSHEDS

On land that is being built upon for the first time, New Urbanism is far better than conventional development at protecting watersheds, mitigating the impact of runoff, and restoring degraded streams. That was the finding of the UNC researchers, who added: "New Urbanism offers a greener and more compact alternative to sprawl on the suburban fringe." Their study found that in greenfields, "new urban developments are more effective in incorporating watershed protection techniques than conventional developments." The researchers were especially impressed by the frequency with which new urban development protects "hydrologically sensitive areas" such

	•	
Characteristic	Atlantic Station	Cobb/Fulton
Acres	139	1200
Туре	Brownfield	Conventional
Use	Mixed	Single
Density	High	Low
Starting runoff	6.7 million ¹	26.3 million ¹
Runoff managed	3.4 million ¹	23.6 million ¹
Source: US EPA		

Stormwater framework comparison

¹cubic feet/vear

cubic ieel/yeai

as forested lands, steep slopes, and terrain with porous soils. Even though the new urban developments had higher average gross housing densities, they were more likely to restore degraded streams, incorporate practices that mitigate the impact of runoff, and use techniques that pave over less land.

On infill sites, the results were not so dramatically favorable to New Urbanism. Still, new urban developments equaled conventional developments in the degree of protection they afforded to sensitive areas and in their use of detention and infiltration techniques; they surpassed conventional developments in restoring damaged stream environments and incorporating techniques that limit impervious surfaces.

New urban designs reduce per capita water imperviousness, which, in turn, cuts storm runoff volume and protects groundwater recharge, according to Allen, at Criterion. He cites an EPA study in Atlanta that found conventional suburban development (CSD) created 0.28 acres of imperviousness per dwelling unit compared to a new urban design of 0.03 acres/dwelling unit. An analysis of a greenfield site in Huntersville, North Carolina, compared pavement required for a new urbanist plan (551 square feet per dwelling), versus a conventional plan (2,018 square feet per dwelling, nearly four times as much). This reduction in pavement saves the developer money in addition to providing environmental benefits, the analysis showed.

Off-street parking imperviousness alone can be reduced by as much as 50 per cent in a mixed-use new urban project compared to CSD. Less runoff minimizes downstream flooding hazards, mitigates stream warming from elevated runoff temperatures, and significantly reduces the transport of nonpoint source pollutants. Reduced imperviousness also protects groundwater recharge and, in turn, municipal water supplies and ecosystems such as wetlands.

On the water consumption side, the higher densities of New Urbanism offer benefits. A 1997 University of Washington study of Seattle-area households found that 6,500 sq. ft. traditional-style parcels use 60 percent less water than 16,000 sq. ft. suburban parcels, Allen notes. Through economies of scale that derive from higher densities and mixed uses, New Urbanism can also help enable such water efficiency technologies as graywater reuse, rain harvesting, and alternative wastewater treatment methods, he adds. The last point is theoretical — few new urban communities (or conventional projects) as yet include alternative water reuse strategies.

AUTOMOBILE DEPENDENCE

This is an area in which new urbanists have made significant claims — that mixed-use, compact development will reduce the need for automotive travel, and increase other modes such as walking and transit. A series of studies by researchers such as John Holtzclaw, Robert Cervero, and Reid Ewing have backed up this claim with comparisons of urbanism and suburbia.

A 2008 study conducted by PB PlaceMaking, Cervero, the Urban Land Institute, and the Center for Transit-Oriented Development measured vehicular traffic in 17 transit-oriented developments (TODs) in four urban regions across the US. The housing portions of those developments generated 44 percent fewer trips than the ITE manual suggests. In peak periods, the difference was even greater — 49 percent fewer vehicle trips in the morning and 48 percent



RiverPlace trip generation

Transit-oriented development

TPU	n a	on	org	nitia	n
	uu	GII	GI (แบ	
		• • • •			

	% below morning
City	peak ITE ¹ rate
Washington, DC	59.9
Portland, OR	49.6
San Francisco, CA	47.5
Philadelphia/Newark ²	30.5

Source: Transit Cooperative Research Program

¹ Institute of Transportation Engineers

fewer during the afternoon and evening rush hours.

That finding was reinforced by a 2007 study in King County, Washington, by Larry Frank of the University of British Columbia, which found that residents of the most walkable neighborhoods drive 26 percent fewer miles per day than those living in the most sprawling areas.

Even on greenfield sites without mass transit, new urban design has a positive impact. A series of similar studies found that higher density, a mixture of uses, and better connectivity reduce driving at least 20 percent. Residents of Southern Village, a traditional neighborhood development in Chapel Hill, North Carolina, generate 22 percent fewer automobile trips and take 2.4 times as many walking trips as residents of nearby Northern Carrboro, a conventional suburban development area similar in size and demographics, according to a study by Asad Khattak and Daniel Rodriguez (2005). Southern Village features a mixture of uses, a park-and-ride lot for bus transit, walkable streets, and lots 60 percent smaller, on average, compared to Northern Carrboro. In Southern Village, 17.2 percent of trips are by walking compared with 7.3 percent in the conventional community.

Residents of Fairview Village, a new urbanist neighborhood, own about 10 percent fewer cars per adult, drive 20 percent fewer miles per adult, and make about four times as many walking trips as residents of more conventional neighborhoods, according to Jennifer Dill (2004). Residents of Fairview Village took fewer vehicle trips and more nonmotorized trips for local errands than residents of the control neighborhood.

Comparing two suburban areas near Nashville, Tennessee, Eliot Allen and Kaid Benfield (2003) found that the combination of better transportation acces-



sibility (improved roadway connectivity and transit access) and a modest increase in land-use density reduces per capita driving by 25 percent.

One would expect the automobile reduction benefits to be even higher in areas closer to the metropolitan center. That has turned out to be the case in Atlantic Station, a large new urban development in midtown Atlanta. When the 140-acre brownfield development won its entitlements, it was required to reduce vehicle miles traveled by residents by 25 percent. A study in 2007 found that the results have been far greater. Travel diaries indicated that residents of Atlantic Station drive an average of just 8 miles per day, dramatically fewer than the 34 miles a day driven by the average resident of the Atlanta region (see graph above). The study had a low response rate and a high margin of error, so it cannot be regarded as definitive.

Software is available that enables planners to estimate how much VMT is reduced by various urban design features and other factors. A trip-generating program called URBEMIS, developed for the California Air Resources Board, prompts users to fill in sitespecific data, such as density, transit service, mixed uses, and characteristics of development within walking distance. It then offers trip reduction credits of up to 55 percent for high density, up to 9 percent for a mix of uses, up to 2 percent for neighborhood retail, up to 15 percent for transit service, and up to 9 percent for "pedestrian/bicycle friendliness." URBEMIS can also help to provide estimates of how various de-



velopment patterns affect greenhouse gas emissions. The estimates can be used by governments when reviewing development applications and assessing fees the developers should be charged.

ENERGY USE

New urban projects potentially save energy due to travel-mode shifting from automobiles to walking, biking, and transit, and substantially shorter travel distances for remaining auto use, according to Allen of Criterion. (The classic Peter Newman and Jeffery Kenworthy study *Cities and Automobile Dependence* (1991) calculated that transportation fuel consumption per capita declines by one-half to two-thirds as urban densities rise from four to 12 persons per acre.)

"New Urbanism is the magic that can bring about a substantial reduction in the driving that we do," says John Holtzclaw of the Sierra Club. "All you have to do is create the conditions so people can do things by foot — and they will do things by foot." The steepest increases in energy savings attributable to density occur in the range of 3 to 18 units per acre. Doubling density from 3 to 6 units an acre saves more energy per household than does complying with the federal government's Energy Star program, Holtzclaw says.

Allen notes that less energy is used at higher densities in part because there are more common walls, which reduce space heating losses. According to US



Potential energy savings from density

NEW URBAN NEWS 2005, FROM RESEARCH BY AMY SHATZKIN AND JOCELYN HITTLE, ADAPTED FROM JOHN HOLTZCLAW'S LOCATION EFFICIENCY CALCULATOR (DENSITY), AND LAWRENCE BERKELEY NATIONAL LABS, ENERGY SAVER CALCULATOR (ENERGYSTAR)

Department of Energy data, space heating requirements can be as much as 20 percent less on a square foot basis for dwellings in multiunit buildings compared to detached structures.

The New Urbanism can also save energy embodied in construction materials, Allen adds. According to University of North Carolina research, attached dwellings have an average of 750,000 BTU per sq. ft. of embodied energy in their construction material versus 790,000 BTU for detached dwellings. Savings can be even larger when infrastructure is evaluated on a per capita basis, e.g., a one-block street segment embodying 100 million BTU serving eight households in a conventional design versus 20 households in a new urban design.

Further progress toward energy-efficiency is likely to be stimulated by LEED for Neighborhood Development, a program that has been organized by the US Green Building Council in collaboration with the Congress for the New Urbanism and the Natural Resources Defense Council. In the past, LEED (Leadership in Energy and Environmental Design) had recognized projects that incorporated energy-efficiency into their buildings. LEED-ND goes further: It recognizes projects on the basis of their energy-efficient locations as well. If widely sought after, LEED-ND ratings could affect developers' decisions on where to build — encouraging more compact, walkable, and transit-accessible projects.

GLOBAL WARMING

There is little chance that the US will meet ambitious targets for carbon dioxide emission reductions without a major switch to smart growth and New Urbanism, according to a book-length report published by the Washington, DC-based Urban Land Institute. *Growing Cooler: The Evidence on Urban Development and Climate Change* places compact development on par with fuel efficiency as an essential tool in fighting global warming.

The authors conducted "an exhaustive review of existing research on the relationship between urban development, travel, and the CO2 emitted by motor vehicles," ULI says. More than 100 rigorous studies have been completed in this area, according to authors Reid Ewing, Keith Bartholomew, Steve Winkelman, Jerry Walters, and Don Chen. "A meta-analysis of many of these types of studies finds that households living in developments with twice the density, diversity of uses, accessible destinations, and interconnected streets when compared to low-density sprawl drive about 33 percent less."

Shifting 60 percent of new growth to compact development by 2030 would have the same benefit as a 28 percent increase in US fuel efficiency, they estimate. If combined, these policies would produce an even greater benefit.

To prevent temperatures from rising by more than 2 or 3 degrees Centigrade, the scientific consensus is that greenhouse gases will have to be cut

Projected US mileage, vehicle miles traveled, and CO2 emissions



New Urban News, *source: Center for Clean Air Policy, from ULI report*

60 to 80 percent below 1990 levels by 2050, the authors note. Given that greenhouse gases have already risen 20 percent since 1990 — and the US population will grow by 100 million by mid-century — the task is daunting and may be impossible without compact development patterns, according to *Growing Cooler*.

"There is no doubt that moving away from a fossil fuel-based economy will require many difficult changes," write the authors of *Growing Cooler*. "Fortunately, smart growth is a change that many Americans will embrace."

Data from existing cities backs up the claim that urbanism can alleviate global warming.

New York Magazine ran an essay in December 2007 by Justin Davidson declaring that the nation's



*Major parts of these cities

biggest city is far more environmentally benign than lower-density communities. "The average American churns out 24.5 metric tons of planet-heating pollutants every year; a New Yorker produces 7.1," Davidson emphasized.

Portland, Oregon, long in the vanguard of compact development, in 1993 became the first municipality to adopt a strategy to reduce greenhouse gases. Among the city and metropolitan area's public policy initiatives have been construction of two light-rail lines and 750 miles of bicycle trails, encouragement of infill development and transit-oriented development, plus many smaller steps, such as offering city employees low-priced bus passes. By 2005, greenhouse gas emissions in Multnomah County, which includes Portland, dropped below the level of 1990, and per capita emissions fell 13 percent. Between 2000 and 2005, the transportation portion of Portland's carbon footprint per capita dropped by 6.6 percent while the 100 largest metro areas in the US went in the opposite direction — up by an average of 2.4 percent. Urbanism, when combined with effective public transit and other initiatives, helps clear the air.

COASTAL AREAS

Current development patterns, if continued for just two more decades, will cause irreversible damage to the US coastal environment, according to a Pew Oceans Commission report. The 2003 report, "Coastal Sprawl: the Effects of Urban Design on Aquatic Ecosystems in the United States," notes that 25 percent of the acreage along the nation's coast will be developed by 2025, up from 14 percent in the late 1990s.

If this projection holds true, coastal areas nationwide will pass an environmental tipping point beyond which marine life significantly declines, the report states. More than half the US population currently lives in coastal areas (within 50 miles of a shore).

New Urbanism and smart growth are keys to minimizing this ecological damage, according to the report. It contrasts New Urbanism's compact, interconnected, mixed-use, walkable neighborhoods with single-use, low-density suburbia.

"Suburban zoning has become an engine of pollution rather than a shield against it," according to report author and award-winning conservationist Dana Beach. In contrast, new urban neighborhoods lower land consumption, reduce impervious surface TABLE 17: Wind Power. This table prescribes opportunities for the placement of Wind Turbines within the Transect

T3

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T4

T5

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T6

SD

T2

T1

SMARTCODE

municipality

Wind Farm

Horizontal Axis

Vertical Axis

Public Furniture

88

TABLE 17 WIND POWER

Specifics

PHOTOS COURTESY OF JAIME CORREA ASSOCIATES







Jaime Correa's work on the SmartCode places wind power on the Transect, above. From top to bottom at right, wind farms belong in the extreme rural zone, while smaller wind turbines are slightly less rural. In urban centers, Correa recommends vertical turbines.

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per capita, and cut auto use, the report says.

THE TRANSECT AS AN ORGANIZING TOOL

While commentators focused attention on the need to shift from dispersed, carbon-spewing patterns of development to comparatively efficient, compact, mixed-use communities, new urbanists have been escalating their efforts to incorporate advanced technologies into what they build.

Miami architect Jaime Correa urges designers to use the Transect to figure out where any specific energy- or environment-conserving technique is suitable. One example is natural drainage. Some environmental activists have been urging developers to install "rain gardens" — depressed areas that can take stormwater runoff and allow it to percolate gradually into the ground. The problem, says



The Transect of green roofs is illustrated by Chicago City Hall (T6), and a rural house in Norway (T2).



Tom Low of the Charlotte, North Carolina, office of Duany Plater-Zyberk & Co. is that there may not be enough room for an individual rain garden on every urban lot. And even if there were, a rain garden might not be appropriate there. Rather than install rain gardens everywhere, Low says natural drainage systems should sometimes be introduced at the scale of the block or the neighborhood.

"Management of water in the center of cities should be different from rural areas," Correa says. "We need to think of the appropriate scale and of how the scale will really be the solution."

Another example: Some advocates of cleaner energy have been pushing for individual properties to be equipped with their own power-generating equipment, ranging from solar panels to windmills. In some places, these fit well. Correa has presented an image of a vertical wind turbine that could fit on a small building. But there are other instances in which energy production would be better handled at the scale of a neighborhood, district, or larger area.

One of the flaws in efforts like LEED is a lack of attention to context. Except for the more recent LEED-Neighborhood Development program, LEED certifies projects without regard for whether they sit in the center of a city or occupy a remote site that will require users to drive long distances, generating "greenhouse" gases. Using the Transect to determine where particular environmental techniques make sense can help to avoid that problem.

SUSTAINABLE DEVELOPMENT MEETS NEW URBANISM

Sustainable development usually focuses on reducing the environmental impact of buildings by cutting their energy and water use and by using recycled and renewable building materials. The New Urbanism is primarily concerned with restoring human scale and "place" to developments by building in the form of neighborhoods, towns and villages.

These two trends are beginning to intertwine. You can sense the convergence from the title that Chicago architect Doug Farr chose for his 2007 book on the topic: *Sustainable Urbanism*. Environmental technologies and urbanism both require a steep learning curve, and often incur significant added expenditures of cash, time, and effort, yet a growing number of projects around the country are combining the tenets of New Urbanism and sustainability. Minimal pavement reduces environmental impact in Woodsong.



One early example is Woodsong, a 22-acre traditional neighborhood development (TND) that Buddy Milliken began building in Shallotte, North Carolina, in 1999. Planned by Duany Plater-Zyberk & Co. (DPZ), Woodsong relies largely on natural methods to handle rainwater. A detention pond in front of a group houses collects rainwater and lets it slowly soak into the ground; while serving its environmental purpose, the pond also acts as a neighborhood centerpiece. A ditch that cut across the mostly wooded property prior to development has been modified by installing small check dams, known as gabions, to slow the water's flow. A narrow concrete street has a three-foot-wide strip of pervious concrete in its center; the rain seeps through the porous pavement and a rock subbase and enters the ground, rather than being concentrated in storm drains. Methods such as these help the development to harmonize with the environment. Milliken sums up natural drainage principles in the phrase "slow the water down, spread it around, and get it into the ground."

In Seattle, the design firm SvR incorporated natural drainage, along with walkable streets, into a 34-block, 1,600-unit, mixed-income HOPE VI project known as High Point. Among High Point's features are porous concrete sidewalks, vegetated and grassy swales (sometimes called "bioswales") along

A bioswale by a High Point street.



the streets, and front-yard "rain gardens" (slightly depressed areas where storm water tends to gather and soak into the ground). "Whereas conventional street and storm drain maintenance costs increase over time as the result of aging materials, pipes, and drains, natural drainage systems actually become more effective over time, as plants and trees mature," says Mary Vogel, a designer who advocates such techniques.

In 2006, Tom Low of DPZ's Charlotte, North Carolina, office organized one of the first efforts to calculate how much it costs to use methods like these in a TND. Low led a team that estimated the financial consequences of using natural drainage techniques in the 42-acre first phase of Griffin Park, a 300-acre TND that was about to get under way in Greenville County, South Carolina. Some elements would add to the cost, such as a series of rain gardens. But those costs would be more than offset by savings from installing less pipe, fewer curbs and gutters, and narrower streets, among other things. Altogether, engineering costs were estimated to drop by 31 percent. Low coined the term "Light Imprint New Urbanism" to describe this method. Read more about it on pages 263-265.

Green techniques must take into account local conditions, such as soils and rainfall. Milt Rhodes, an urban designer in Raleigh, North Carolina, says each location has a "water budget" — the result of processes that include rainfall, absorption, overland flow, and transpiration. Consequently there must be a stormwater master plan, which focuses on how to best handle the water. Here are a few ways that water has been handled naturally while enhancing the character of new urban developments:

• At I'On in Mt. Pleasant, South Carolina, two small canals were dug to help cleanse and control the flow of water in two man-made lakes. The canals provide an excellent vantage point for viewing I'On's buildings and are attractions in themselves.

• At WaterColor, on the Florida Panhandle, a semicircular grouping of cottages looks onto a recessed, landscaped green — the Rose Garden — which collects water during heavy rain and lets it seep into the ground.

• At New Town at St. Charles in Missouri, stormwater is carried through surface canals, which help unify the urban landscape and create attractive scenery.

The consensus among new urbanists is that sustainable techniques must be guided by the site's location on the urban-to-rural Transect. There has been a systematic effort to delineate where each technique is suitable across the Transect's six zones. Bioswales, for example, are appropriate in relaxed suburban settings but are out of place in more dense and formal urban places. Just as the character of buildings should change from one end of the Transect to the other, natural elements should also be organized along the Transect to help achieve New Urbanism's goals.



A canal in I'On allows stormwater to flow and serves as civic art.

FOOD PRODUCTION

The energy and global warming issues have brought new thinking on food. A consensus is emerging that we need to encourage food production in and around our neighborhoods and cities. New urbanists have immersed themselves in this idea — envisioning how agriculture and gardening can be designed in and around neighborhoods at many scales. To read about the work being done on agricultural urbanism, see pages 427-430.

VERNACULAR AND EARTH-FRIENDLY

For some, sustainable development conjures up images of odd-looking 1970s solar homes and other "alternative" technology houses, which clearly could make a mess of a streetscape. But the first phase of the 1,145-acre Civano development in Tucson, Arizona, is a reminder that new urban building styles are usually based on vernacular architecture dating from prior to energy intensive modern climate control systems.

"The detailing and scale of traditional homes are, in many ways, in harmony with nature," says Brad Oberg, who, as part of a Pittsburgh firm called Ibacos, worked with Civano's builders to help them meet strict energy and water efficiency standards. Oberg explains that large roof overhangs were not added just to look nice — they also control heat gain in the summer. Even when historical details cannot be used to actively lower energy use, they don't get in the way, either, Oberg says. "None of the solutions will neg-

Roof overhangs in Fort Irwin in the Mojave Desert helped to slash energy use.



Energy efficiency tips

John Anderson of New Urban Builders offers 10 tips on designing neighborhoods and homes for energy conservation in sunny north central California:

1) Orient the long side of a rectilinear block running north/south — this allows narrow and deep lots to be laid out with the narrow end facing west.

2) Keep the street pavement narrow -24 to 28 feet - and plant trees capable of covering the street with a canopy. This reduces heat stored in the pavement in front of every house.

3) Use sideyard building types with windows on one side of the building limited to sill heights of 6 feet or higher. This offers greater privacy to the neighboring lot while providing day lighting on at least 2 sides of most interior rooms, reducing the heat gained from interior lighting.

4) Use 8-foot deep full porches on the western end of the building.

5) Use 24- to 30-inch overhangs for the main roof over windows on the second floor.

6) For the air conditioning main distribution system, use rigid metal duct to reduce static pressure, and flex duct for the last 6 to 10 feet to cut noise. The reduction in static pressure can allow cooling capacity to be cut by a half-ton without reduction in performance.

7) Locate the AC ducts in floor joists of 2-story houses and soffits or lowered ceilings of 1-story houses, keeping the cooled air ducts out of the hot attic.

8) Locate the condenser close to the HVAC unit and in a shaded portion of the side yard.

9) Build a tight house with positive ventilation.

10) Use spectrally selective glass in all windows.

TORTI GALLAS AND PARTNERS





Good design doesn't have to be showy. The houses at left, both circa 2007 in Britain, meet equally high environmental standards. The house on the right was less expensive to build and sold more quickly, according to designer Ben Pentreath.

atively impact the aesthetics of the houses — we're very careful not to let technology supplant the builders' choice of style."

Civano buildings are equipped with high-efficiency insulation, water, and solid waste systems. Particularly in water-scarce Tucson, the efficient fixtures and neighborhood swimming pools (thus reducing the need for private pools) could prove beneficial. The goal is to reduce energy demand by 75 percent, water use by 65 percent, and air pollution by 40 percent (through less automobile use). The environmental and design benefits were estimated to add, on average, \$12,500 to the price of a home, a 9.5 percent premium. Savings on energy and water would knock the premium down to 6.6 percent.

Torti Gallas and Partners took a similar approach with its military housing at Fort Irwin Army base in California and its Salishan project in Tacoma, Washington. The firm developed a passive solar "kit of parts" for Fort Irwin that includes large traditional overhangs to reduce the need for cooling.

For confirmation that green design doesn't have to look odd, consider houses in the United Kingdom designed by Working Group, a London-based architecture, design, and planning firm. Working Group has concentrated on producing traditional-looking houses that relate well to the street while at the same time satisfying stringent energy standards. Often they have brick walls, six-over-six windows, and traditional-looking paneled doors with transoms and hoods — components much like houses of two centuries ago. Ben Pentreath, director of the firm, says that while using traditional styling it's possible to achieve high energy-efficiency.

Working Group, he points out, had produced more than half the houses winning UK Home Excellence Awards as of 2007. Houses in traditional styles tend not to be razed as quickly as avant-garde dwellings, which quickly go out of date. Consequently, traditional houses probably rate better in terms of preserving "embodied energy" — the energy expended in their construction.

COOL SPOTS, BRIGHT IDEA

Eliot Allen of Criterion Planners in Portland, Oregon, favors an idea called "Cool Spots," a catchy name with a double meaning — it refers to compact, transit-oriented nodes that are both trendy and friendly to the climate.

Cool Spots is a regional planning tool that uses the Transect and pedestrian shed concepts, both of which are crucial to new urbanists. Key transit nodes are mapped in a region (see plan 375), along with pedestrian sheds to nearby destinations such as stores, schools, and parks (see image on page 376). A Cool Spot is identified and divided into Transect zones (see image on page 376). Form-based coding can then guide development.

Looking more closely at the map of potential Cool Spots in the Grand Rapids, Michigan, area, one can easily see smart growth locations and open spaces that should be protected. The beauty of this system is that such planning can be translated into hard greenhouse gas reduction numbers for any metropolitan area.

Cool Spots can reduce a neighborhood's energy use and greenhouse emissions as much as 40 to 50 percent, Allen says. That's based solely on land use and doesn't include further reductions from alternative energy, hybrid vehicles, and other changes in technology and lifestyle.

Allen says the following achievements are possible in energy use and production of greenhouse gases:

• The most obvious improvement is a reduction in automobile use. Cool Spots have been shown to reduce driving by up to 75 percent through walkability, proximity, and access to transit.

• A shift to more multifamily buildings can reduce energy use up to 15 percent.

• The use of "district heating and cooling systems," which serve more than one building, can save

A map of transit nodes and pedestrian sheds in the Grand Rapids, Michigan, area identifies Cool Spots for development (see black and dark gray areas).



Figuring density

Density is important because it is correlated with many environmental factors. Lower-density development means more land consumption, energy use, and pollution, and higher rates of human death from auto accidents. New Urbanism has higher density than conventional suburban development. Yet density figures are often confusing.

Density figures are given in at least three forms.

Gross density for developed areas includes residential units, commercial land, office/industrial uses, civic/institutional uses, and open space of various kinds. This calculation is easy — just divide total units into total land area — but may have little meaning because it often includes many kinds of urban forms.

Gross density for specific projects usually includes residential land, roads, and easements in the denominator. This calculation is easy for single-use CSD, but difficult for NU, which includes all kinds of uses in individual projects.

Net density includes just the land used for residential units in the denominator.

Net density is the best way to compare density on the scale of individual projects, according to Eliot Allen. Of the several hundred projects that Allen has measured, net densities in CSD commonly fall in the range of 4 to 7 units/acre. Net NU densities commonly fall in the 15 to 30 units/acre range, he says.

Another way to compare NU and CSD is to look at gross densities for developed areas. According to researcher Rutherford Platt of the University of Massachusetts, urbanized areas in the US averaged 3 units/acre in 1920. Since 1960, all development has averaged less than 1 unit/acre. *The Christian Science Monitor* reports that development since 1982 has averaged less than 0.5 units/acre. Measured in this fashion, *New Urban News* has found that new urban projects overall yield approximately 3 units/acre — the same as historic urbanism.



To map out a Cool Spot, find clusters of destinations near transit nodes, above, and designate Transect zones, at right.



15 percent of the energy required for heating and cooling. In suburbia, density is too low to employ such systems, but they're common in Europe, Allen says. Cool Spots — ideally mixed-use to spread peak utility demand throughout the day — would be compact enough to accommodate this technology.

• Compact, mixed-use development reduces the volume of energy lost through transmission lines, since these lines are shorter in development of this kind than in widely dispersed suburban environments. Energy losses can be further reduced through cogeneration and other neighborhood energy generation systems.

• Cool Spots are sited where existing infrastructure, such as sewer pipes, is already in place. Many occupy grayfield sites, such as suburban shopping malls and other commercial developments that are ripe for redevelopment. Reuse of the existing infrastructure cuts down on the "embodied" energy expended to build the infrastructure to begin with.



Health and Aging

378

379

380 380

381

22

Human health issues	
Walking to school	
Determining walkability	
Aging well	
Lifelong Communities	

Lifelong Communities standards checklist Mobility Social interaction Healthy living

	Dw
382	Sei
382	The visit
383	Guides
384	

Dwellings	384
Services	384
visitability challenge	385
des to visitability	386

Above: A family walks in Prospect, Longmont, Colorado. Photo by Robert Steuteville

Human health issues

What's more likely to get you killed? Living in a relatively high-crime city like Chicago, Philadelphia, Houston, Dallas, Pittsburgh, Baltimore, Milwaukee, or Minneapolis/St. Paul? Or living in the wealthier, quieter suburbs of those cities? By a significant margin, the answer is the latter, according to a study by the University of Virginia's William Lucy.

The reason is that driving is dangerous, and it's particularly risky to young people, who die at a disproportionately high rate from traffic accidents. But — and this is an important point for new urbanists — some streets are more dangerous than others. Driving is relatively safe on narrow local streets with a slow design speed — the kind of streets that new urbanists have been pushing governments to allow. It's downright deadly on the wide roads that meet modern traffic engineering standards and are common in the sub-urbs. According to one study, a two-foot increase in street width translates to 35 to 50 percent more injury accidents (see more on this in Chapter 8).

A 2008 study of 24 California cities revealed the relationship between street patterns and fatality rates. A set of cities with older, more intricately connected street networks — including Davis and San Luis Obisbo — had fatality rates one-third of the least safe cities on the list, those characterized by suburban sprawl. Researchers were Wesley Marshall and Norman Garrick of the University of Connecticut.

The dangers of suburban streets are not confined to direct injury and death. A professor at the University of California, Raymond Novaco, has studied commuters for two decades. "Most people having to drive an hour and a half for a distance of 40 miles are bothered by the commute," he says. "It's not just subjectively being bothered — their mood. It affects their blood pressure, tolerance for frustration, their cognitive efficiency."

There's more. In *Health and Community Design* (2003), researchers Lawrence Frank, Peter Engelke, and Thomas Schmid released compelling evidence that sprawl and single-use environments harm physical health by reducing exercise and contributing to obesity.

• In Atlanta, the proportion of white men who

are obese declines from 23 to 13 percent as density increases from 0-2 dwelling units/acre (du/a) to 8 or more du/a.

• The probability that a black male in Atlanta will be obese drops by two-thirds (from .34 to .11) as density increases.

• Among white males and females, after adjusting for age and income, the data show a significant positive relationship between self-reported levels of physical activity and more compact and mixed-use environments.

• In the San Diego area, residents of a more walkable community, Normal Heights, were found to be more physically active than those in Clairemont, a community not attuned to pedestrians.

• In the Seattle region, the authors point to studies that "describe the specific types of land use patterns [i.e. mixed-use, interconnected streets] that are correlated with walking and biking for work and non-work purposes."

• There are health advantages to living in conventional suburban environments as well. Exposure to airborne pollutants is likely to be lower in low-density environments compared to cities. But taking into account exercise, stress, and exposure to dangerous thoroughfares, the health effects of mixed-use, walkable communities on overall populations is beneficial, according to researchers.

Recognition of the link between health and com-

Walking to school in Southern Village, a new urban town in Chapel Hill, North Carolina.



COURTESY OF JOHN FUGO, MONTGOMERY DEVELOPMENT CAROLINA CORF

munity design is growing. Howard Frumkin, Lawrence Frank, and Richard Jackson, in *Urban Sprawl and Public Health* (2004), say this: "Mixed land use, a balance of density and reserved greenspace, a balance of automobile transportation with walking, bicycling, and transit, the provision of attractive and functional public spaces, the mingling of different styles and price levels of housing — these and other strategies offer the potential to increase physical activity, decrease air pollution, protect source water, control injuries, and improve mental health and social capital."

Community design affects people's ability to meet others; that is one reason why it influences people's mental states. "Social connectedness is clearly good for mental health," Frumkin, Frank, and Jackson affirm. "People with strong social networks live longer."

The Robert Wood Johnson Foundation (RWJ), one of the nation's leading nonprofit funders of health programs, has created a multi-million-dollar campaign called Active Living by Design. RWJ supports the fight against obesity through community design and planning that encourages physical activity, i.e., New Urbanism. Active Living by Design chose Southern Village, a new urban community in Chapel Hill, North Carolina, as the base for its operations, largely because of its sidewalks, tree canopies, and other features that encourage walking and exercise.

In general, new urban communities seem to rate better than dispersed conventional developments in volume of walking. A study by sociologist Bruce Podobnik found, for instance, that the pedestrianoriented design of Orenco Station has succeeded in enticing people to walk to local stores. Many Orenco residents surveyed by Podobnik said they shop in the town center almost daily. The nearness of a clubhouse, parks, and sports facilities also encourages Orenco residents to walk to those facilities. The walkable design is "likely to improve the health of residents over the long term," Podobnik said.

Two studies of new urbanist projects showed substantial increase in walking. Southern Village in Chapel Hill, North Carolina, has 2.4 times the walk trips of a nearby similar-sized conventional development. Residents of Fairview Village in Fairview, Oregon, walk four times as much as residents of more sprawling subdivisions.

WALKING TO SCHOOL

New Urbanism calls for bringing parks, schools, and basic commercial activities within walking dis-

Children Are Walking Less and Becoming Increasingly Overweight



tance of people's homes. This requires a reversal of some of the major trends of the past several decades.

"Forty years ago, half of all students walked or bicycled to school," *New York Times* health columnist Jane Brody reported in 2007. "Today, fewer than 15 percent travel on their own steam. One-quarter take buses, and about 60 percent are transported in private automobiles, usually driven by a parent or, sometimes, a teenager."

In decades past, children obtained some exercise from going to and from school. At the same time, they got to know their neighborhoods and the people who lived there. Thanks to the shift toward bigger, consolidated schools, difficult-to-traverse suburban street networks, and other factors, that's no longer true. The decline in walking is exacerbating the current epidemic of childhood obesity.

One source of the problem is an inflation in the number of acres demanded for schools. Ohio, for example, requires a minimum of 10 acres for an elementary school, 20 acres for a middle school, and 35 for a high school — plus one acre for every 100 students. For years the Arizona-based Council of Educational Facility Planners International (CEFPI) promoted such standards. Needless to say, these hulking school sites are difficult to fit into neighborhood or Main Street settings.

Recently there have been signs of a change in direction. CEFPI has backed away from such standards. Since 2003, three states — Rhode Island, Maine, and South Carolina — have eliminated minimum acreage requirements for new schools. "Creating more neighborhood schools … makes sense from a learning standpoint, an economic standpoint, and it makes sense if you want to have schools that are part of a community's fabric as opposed to part of its sprawl," declared South Carolina Governor Mark Sanford.

New urbanist developers are paying attention. In North Richland Hills, Texas, Arcadia Realty has been building a 300-acre new urban development which is well-connected, by a pedestrian network, to the Walker Creek Elementary School. "We wanted the school to be engaged with its environment — not sitting in the middle of an ill-defined site, behind parking lots or lawn," says Mark Vander Voort of the Dallas-based architectural firm HKS, which designed the school. The L-shaped school sits right on its property line. "That's hardly ever done," Vander Voort says. "Most suburban schools have a big pickup and dropoff area" in front.

Bill Gietema, CEO of Arcadia, has suggested that elementary schools be no more than 1.5 miles apart, provide sidewalks at least five feet wide on both sides of the streets, leave a minimum distance of five feet between sidewalk and curb, plant street trees every 30 feet, and station a crossing guard wherever a child has to cross a road wider than 27 feet. Equally important, Gietema says, is the idea that the school should be sized to accommodate approximately 500 children. That, he says, is half the current size of a conventional school.

The Chapel Hill Carrboro School District in North Carolina is benefiting from locating the Mary Scroggs Elementary School in Southern Village, a new urban development with about 1,200 residential units. All of the children in Southern Village can reach the local school on foot or by bicycle. As a result, the school needs only half as many school buses as other new schools of comparable size in the district.

DETERMINING WALKABILITY

Because the ability to walk to daily destinations is so important, a number of tools have been developed that enable planners, developers, or members of the public to ascertain an area's walkability.

One is "Walk Score," a Web-based instrument that is meant to evaluate any address according to whether it's rich in destinations that people can walk to. Just plug the address into www.WalkScore.com and you'll get a Walk Score rating, on a scale of 0 to 100. When *New Urban News* checked the system, it turned out to have a number of flaws. For example, it appeared to measure distances as the crow flies rather than as a pedestrian would cover them by walking the street network.

Ross Brownson, Christine Hoehner, and Laura

Brennan Ramirez at St. Louis University School of Public Health have produced a different tool — a checklist developed with financial support from RWJ's Active Living Research program. It rates places on land use, presence of public recreational facilities, availability of public transportation, and quality of the environment. To see it, visit prc.slu.edu/iafc.htm and click on Active Neighborhood Checklist tool and protocol.

A third instrument, which Criterion Planners developed for use by planners and urban designers, is INDEX, a geographic information system tool that has been in existence since 1994. Urban designers and approximately 200 communities nationwide have used INDEX to create and score integrated land-use transportation scenarios, including detailed measurements of pedestrian environments. Allen says: "The software simulates actual walking routes on sidewalks and crosswalks, and calculates proximities to neighborhood destinations, streetscape conditions, and facility deficiencies."

INDEX has proven useful in regional planning processes. The City of Sacramento's pedestrian master plan "is underpinned by an INDEX analysis of 17,000 blocks from the pedestrian perspective of safety and convenience," Allen says. INDEX measures nearly a dozen parameters of the pedestrian environment, down to one-foot tolerances, so that improvement costs and priorities can be specified in community plans. The City of Chula Vista, California, uses it to score the walkability of new neighborhood design proposals.

AGING WELL

In the 1980s, David B. Wolfe, a consultant on issues involving older people, argued that facilities for the elderly were designed all wrong. Wolfe said it was a mistake to house old people, and their services, in self-sufficient, internally organized complexes. It would be more healthy, he said, to organize concentrations of the elderly more like traditional towns.

Buildings would be close to sidewalks leading to nearby services and attractions. Instead of having a dining room that served only a set population of elderly residents, some of the food services could be provided in restaurants along a main street. Other people, not all of them old, might use the same restaurants. For some residents who were up in years, the contact with a more varied population would be stimulating. The option of walking down the street to independent enterprises would bring vitality to what would otherwise be long and mundane days in an institutional setting.

That may not fit the needs of the frailest of the elderly, but it still seems an idea worth pursuing for many people in their later years. For the Treasure Coast Regional Planning Council in Florida, the architectural firm Dover Correa Kohl Cockshutt Valle (now Dover, Kohl & Partners) studied how to integrate institutional uses into engaging, walkable environments. As part of the Fox Property Study, the firm depicted a conventional suburban geriatric center — institutional in feeling, patterned after a hospital, accessible by car. The firm suggested an alternative: an assisted-living facility conceived as a courtyard building in a neighborhood. A courtyard building close to the street, intimately connected to a neighborhood, could be within walkable distance of shops and entertainment. It might be a boon to the residents' satisfaction and mental health and perhaps beneficial for their physical well-being as well. See page 27 for image.

LIFELONG COMMUNITIES

In February 2009 the Atlanta Regional Commission, which promotes planning in the 10-county Atlanta metropolitan area, had Andres Duany lead a charrette aimed at helping local and county governments foster "Lifelong Communities" — places where people can comfortably live from childhood to old age. Supported by AARP and the Robert Wood Johnson Foundation, the Lifelong Communities Initiative focuses on policies, programs, and designs that allow individuals and families to remain in a neighborhood as they age and as their physical or mental abilities change.

Living in one place throughout a lifetime is difficult or impossible in many American neighborhoods. It's especially challenging in automobile-dependent suburbs.

The problem has grown as life expectancy has lengthened. According to National Vital Statistics for the US, an American born in 1900 could expect to live 49 years. Today American lifespans are much longer: 78 years for men and 81 years for women. "Senior housing," in its usual forms, is a flawed answer. Often senior housing is set too far apart from the rest of the community, generating isolation and inactivity. Increasingly, older Americans say they would prefer to continue living in places made up of people in a broad range of ages, and in walkable communities. Duany and his team at Duany Plater-Zyberk & Co. (DPZ) brought together experts in health care, aging, mobility, transportation, accessibility, architecture, planning, and design. They explored how to make it possible for people to remain in their homes and communities for as long as they desire. This work is based on the premise that it is not possible to meet the needs of the growing older adult population with supportive programs or innovations in health care alone; what's required is a rethinking of the way we plan for and regulate the built environment.

Among the conclusions of the charrette were these:

• Communities intended for lifelong occupancy must adhere to the fundamental principles of New Urbanism. Walkability, a mixture of uses, and a mix of building types are valuable. They make neighborhoods and communities more versatile and convenient.

• Building and zoning codes need to address accessibility throughout the entire urban and suburban environment — "comprehensive environmental accessibility," as it was termed by Scott Ball, DPZ's project manager for the charrette. The consensus of charrette participants was that over the past 40 years, federally mandated accessibility standards would have been significantly more productive had they been formulated within a zoning framework rather than relying solely on building codes. Attempts to guarantee accessibility



A design for a community based nursing home, above, and the building with retail on the first floor, below.



for the disabled have usually focused on such things as eliminating obstacles to wheelchair access within buildings and in certain other places, such as street corners and bus stops. Those efforts have produced benefits, but society now needs to pursue accessibility more continuously. As Kathryn Lawler of the Atlanta Regional Commission put it, walkable urbanism and the well-being of older people demand attention to the whole scale and spectrum of the human habitat, "from the bathroom to the door handle, to the street, to getting on the bus, to getting downtown."

• Traditional building forms must be modified to reflect the fact that people are living longer, often with disabilities or chronic health problems. In Lifelong Communities, a "zero-step entry" should be provided for as many houses, apartments, and other buildings as possible. If new urbanist designs call for raised stoops, elevated porches, and other inaccessible building elements that create barriers in front, especially careful attention must then be paid to side or rear entry alternatives.

Accessibility to buildings should be maximized in places where pedestrian and transit accessibility is also maximized. Zoning policy might require a certain level of accessibility in all units, and mandate greater accessibility for units near town centers and transit connections, Lawler suggests. Generally, communities should conceive their accessibility goals broadly — as improvements in overall livability — rather than in terms of extracting specialized concessions from developers. A broad approach to accessibility would include greater density — a "give" to the developer that offsets the "take" of building modifications. Both are wins for the disabled.

To examine those issues further, the Commission set about developing a set of standards at the building, street, community, and regional scales. Below is a checklist we have adapted from that project.

Lifelong Communities standards checklist

MOBILITY

Provides access and transportation to people of all ages and abilities. Real mobility begins inside the individual unit or house and carries throughout the entire built environment.

A plan for assisted living in the form of cottages, below. Instead of entrances within institutional corridors, the cottage-based plan allows for dignified external entrances. The medical and support services are provided via hallways that connect to the backs of all of the cottages.









At the building scale:

• All new construction at a minimum incorporates potential for accessibility retrofit, such as is provided by continuous grab-bar blocking throughout the bathroom.

• Accessible spaces appropriate to the fluctuations in ability that are experienced over a lifetime.

• Adequate lighting at critical areas.

At the street scale:

• Welcoming and unintimidating streets.

- Traffic calming strategies make the environment feel safe.

- Acoustic barriers such as plantings and fencing positioned to reduce traffic noise.

• Engaging frontages include diverse urban and building forms that vary in style, color, and material.

• Walkable/fall-safe sidewalks.

- Sidewalks are closely managed during any construction and repair to avoid cluttering of pedestrian environment with utility components.

- Level changes are clearly marked and well lit with handrails installed when appropriate.

- Curb cuts at all intersections.

- Sidewalk paving is non-reflective and makes a textural contrast to walls. It is flat and non-slip.

- Trees near sidewalks have narrow leaves that do not stick to paving when wet.

- Consideration is given to how the built environment can provide a variety of sensory cues at decision points, such as junctions or grade changes.

Adequate pedestrian lighting.

• Crossable Streets

- Appropriate and well maintained crosswalk markings.

- Traffic signals are sidewalk-mounted rather than suspended, where they direct the motorist's attention above the pedestrian realm.

- Crosswalks at signalized intersections must be appropriately detailed for visibility and multi-sensory navigation.

- Signal timing suitable for older people (walking at 3.5 ft/sec).

- Countdown crossing signals installed.

- Adequate pedestrian lighting.

- Traffic-calming strategies to make street crossing safe.

Accommodation for specialized vehicles.

• Sitting arrangements provide respite and facilitate conversation.



A main street community center design includes a single-story hall on the corner connected to a twostory building with meeting and activity rooms.

Sturdy seating with arm and back rests.

- Seating materials do not conduct heat or cold.

• Areas of sun and shade are considered in the design of the street.

• Gates and doors require no more than 5 pounds of pressure to open and have lever handles.

• Publicly accessible toilets are readily available at regular intervals.

At the community scale:

• Centralized transit waiting areas.

• All transit stops provide protection from rain, wind and sun.

• Smart transit technology alerts riders to bus or shuttle arrival time.

• Smart transit technology alerts bus drivers to riders waiting in covered or sheltered waiting areas.

At the regional scale:

• Neighborhood center transit stops.

• Provision of bus rapid transit and light rail.

• Transit training for previous non-riders.

• Transit/shuttle driver training to accommodate needs of older riders.

• Flex routing during off-peak hours to provide door-to-door or curb-to-curb service.

• Access to interregional travel, including airport, train and bus stations.

SOCIAL INTERACTION

Social interaction is critical at all ages and stages of life, but particularly as one grows older. Isolation can dramatically increase physical and mental health problems. It is critical that the built environment facilitate significant social interaction and the creation of a supportive community at every opportunity.

At the building scale:

- Sitting areas at the main entrances.
- Centralized mail pickup/drop off locations.
- Common rooms and shared dining areas.
- Outbuildings (e.g., workshop or den).

• Small-scale activity spaces include card rooms, TV rooms, reading/book rooms.

• Flexible space for emerging interests and activities.

At the street scale:

• Front yard gardens, porches, and stoops.

• Add streetscape improvements over time to reinforce the areas where people end up gathering.

At the community scale:

• Community rooms (large enough for exercise classes, meetings, movies).

- Opportunities for meaningful volunteer activities (e.g. after-school tutoring).
 - Centralized mailboxes.
 - Active and passive open space.
 - Dog parks.

• Intentional age-integrated activity space, including playgrounds and schoolyards.

- Community gardens.
- "Third places."

• Male space (e.g., hobby shops, recycling and repair facilities, local mechanics).

- Barber shops, beauty salons.
- Coffee shops, bars.

At the regional scale:

• Access to cultural activities and entertainment venues.

• Connection to major educational institutions (continuing education).

HEALTHY LIVING

Living longer is the great benefit of old age, but getting and staying healthy is essential to maintaining a high quality of life. Community design must facilitate access to basic and preventive healthcare and encourage physical activity.

At the building scale:

• Fall-safe environment.

• Adaptive medical technology and monitoring.

• Accessible spaces as appropriate based on community accessibility standards.

At the street scale:

- Walkable trajectories to daily needs.
- Fall-safe environment.

At the community scale:

• Designated walking loop.

• Exercise and recreation venues (e.g. bocce, dancing, tennis, yoga, tai chi).

• Swimming pool.

• Health clinic equipped with telemedicine, periodic staffing by nurses and physicians.

- Community concierge (and case management).
- Neighborhood access to healthy foods.

At the regional scale:

• Transit or shuttle connection to major medical centers and hospitals.

DWELLINGS

Incorporate elements that allow the building to change with its inhabitants rather than inhabitants having to constantly find new dwellings as their needs change. Outside of individual units, a community must contain a full range of housing types, including supportive housing and even skilled nursing care, to ensure that those who have invested in a place's social and civic infrastructure can remain there as they change.

At the building scale:

• Accommodations for caregivers, older family members or adult children.

• Accessible spaces as appropriate based on community accessibility standards.

• Adequate lighting.

At the community scale:

- Diversity of housing.
- Workforce housing.
- Range of supportive housing types.

• Range of specialized housing types (cohousing, models that address dementia or other disabilities).

SERVICES

Lifelong Communities must provide access to a full range of basic and supportive services. Services should include a range from basic daily needs to more specialized skilled care.

At the building scale:

• Range of in home services.

At the street scale:

• Community bulletin boards.

At the community scale:

Community must have local access to ordinary daily needs:

- Groceries including fresh fruits and vegetables.
- Dry cleaner.
- ATM/Bank.
- Drugstore.
- Nail salons.
- Beauty shops.
- Barber shops.
- Post office.
- Controlled-tenant restaurants.
- Bakery.
- Hardware store.

• Health clinic equipped with telemedicine, periodic staffing by nurses and physicians.

• Community concierge (which can include case management).

• In-home and in-facility skilled nursing care.

At the regional scale:

- Hospitals.
- Entertainment & cultural venues.
- Major and specialized shopping outlets.

THE VISITABILITY CHALLENGE

Public buildings and publicly-assisted housing have been required for quite some time to accommodate the disabled. Private houses, however, have generally been exempt from such mandates.

One proposed solution to the access problem is called "visitability." At its simplest, visitability means that an individual in a wheelchair will be able to visit any house — because each house will have a no-step entrance on the front, side, or rear that can be reached without obstacles. Once inside, the visitor will have access to at least a half-bath on the first floor. Doorways of the bathroom and other first-floor rooms will be at least 32 inches wide, allowing a wheelchair to pass through.

Visitability can complicate the making of compact communities in which residents' front rooms are



Houses in Knoxville, above, are wheelchair accessible from the rear. A drawing shows how grading can create a visitable rear entrance, below.



just a few feet from public sidewalks. On behalf of the Congress for the New Urbanism, designers Ray Gindroz and Andres Duany wrote an article about the subject in 2002 after discussions involving new urbanists and advocates for the disabled. It contained these conclusions:

• "Multifamily buildings with elevators and single-family houses with deep front yards often can be built with a zero-step entrance from the street."

• "For building types too close to the sidewalk to achieve this from the front, a zero-step entrance can be provided in the back yard."

• "A zero-step entry can be accomplished either with a ramp or by grading the site with side yards at a higher level than the street."

Some HOPE VI projects sponsored by the US Department of Housing & Urban Development require visitability, although it's not a blanket mandate.

Visitability has received increasing attention from local and state governments since the early 1990s. By 2008, governments across the US had established 33 mandatory and 24 voluntary programs intended to make houses visitable. For the most part, such provisions apply only to housing built with public funds or other public contributions, such as land. Some new urbanists worry, however, that over time, the requirements could become more far-ranging and more rigid.

"CNU suggests caution in hastily endorsing new standards because these can harbor unintended consequences to urbanism," Gindroz and Duany stated in their article.

"The expansion of interpretation that frequently follows such legislation could eliminate building types such as the four-to-eight-unit walk-up apartment buildings which are so useful for interspersing affordable housing into single-family residential areas," they warned. "If taken to extremes, urbanists could be left with only two legal residential building types — the single-level house and large elevator-accessed apartment buildings — further reducing Americans' options to any but the most crudely diagrammatic communities."

Duany voiced concern about requiring an accessible bathroom on the first floor of every unit, contending that large bathrooms could devour small live-work units. He has suggested that bathroom requirements be based on a size-of-unit threshold.

Gindroz has argued that certain "essential qualities of urbanism" involve changes of level. Townhouses and porches offer better privacy if they are elevated above the sidewalk, for example. The challenge, he says, is to "find the right design solutions and means to implement them."

Because of varying construction methods and the differences among building sites, this is not always easy. An example: A house built on a crawl space uses wood floor joists. According to most codes, these must be 18 inches above the ground. The floor structure itself measures 12 to 16 inches. "So," says Gindroz says, "you're up to about three feet above the ground." Any attempt to overcome such elevation changes will have to take into account construction practices and building codes.

At College Park, a Memphis HOPE VI project designed by Torti Gallas, housing was built at grade. Though detached and semidetached dwellings at College Park have front yards that put some distance between house and passersby, some of the rowhouses and stacked units come as close as six feet to the sidewalk. This is less than ideal for living quarters built level with the sidewalk.

It's sometimes possible to resolve the elevation question by sloping the land. On naturally flat sites, however, this involves making "a lot of artificial



Rendering shows a house with a setback enabling front accessibility.

grades to get the water away," Murphy Antoine of Torti Gallas says, "and it's tougher the denser you go. You end up pushing a lot of dirt around." That can be costly. At the City West HOPE VI project in Cincinnati, Torti Gallas addressed the visitability issue by creating alleys from which a person in a wheelchair could enter the houses.

Another consideration is that when houses in historical styles, such as bungalows, are built at grade, they sometimes appear odd. They look as if they've sunk into the ground. To people who are accustomed to seeing certain kinds of houses sitting on raised foundations, the lack of a visible base can be aesthetically jarring.

Guides to visitability

Information on visitability available in print and on the web includes these reports:

• "Strategies for Providing Accessibility & Visitability for HOPE VI and Mixed Finance Homeownership," from the US Department of Housing and Urban Development. Prepared by Urban Design Associates of Pittsburgh, it includes plans and elevations for incorporating visitability into single-story houses, two-story houses, and condominiums or coops featuring first-floor accessible flats.

• An illustrated paper, "Visit-Ability: An Approach to Universal Design in Housing," by Steven Truesdale and Edward Steinfeld at the IDEA Center (Center for Inclusive Design and Environmental Access) at the State University of New York at Buffalo.

• "Increasing Home access: Designing for Visitability," a report disseminated by the AARP Public Policy Institute. The report was written by Eleanor Smith of the advocacy group Concrete Change and by Edward Steinfield and Jordana Maisel of the IDEA Center.



Policy

New Urbanism and smart growth	388
Key policies for smart growth	388
California greenhouse gas bill	389
Maryland's techniques	390
New Jersey initiatives	390

Louiciana	Spoake
Louisiana	Speaks

- Wisconsin's code effort
- Oregon urban growth boundaries
- Envision Utah
- Backlash against smart growth

Federal policies for better

391

391

391

391

392

development patterns 392 Role of municipal administrators 393 Advice from design centers 394

New Urbanism and smart growth

In some places, new urbanists have been able to build compact, walkable, mixed-use developments without government policies that encourage or mandate this form of growth. Seaside achieved its tight-knit, pedestrian-scale character in the 1980s at a time when the local jurisdiction, Walton County, Florida, had no planning department. In the years since Seaside began, many other new urbanist developments have come into being without a government framework aimed at fostering principles such as compactness and pedestrian orientation.

Generally, however, New Urbanism stands a better chance of being implemented when governments set the stage. Thus the importance of the "smartgrowth" movement. The term "smart growth" is sometimes treated as if it's synonymous with New Urbanism, but in fact the two are complementary rather than identical. At the risk of oversimplifying, we would point out that New Urbanism concentrates mainly on design — of buildings, streets, blocks, public spaces, neighborhoods, districts, and corridors. Smart growth focuses primarily on public policies, especially policies about the locations where government investments should be made and about how planning should shape cities, towns, and regions.

In practice, the two movements are intertwined. As Rick Bernhardt, the planning chief of Nashville-Davidson County, Tennessee, puts it, "The application of smart growth is through the practice and principles of New Urbanism." The aims of smart growth have been defined by the Smart Growth Network, a coalition initiated by the US Environmental Protection Agency (EPA) and made up of numerous organizations across the country. The Smart Growth Network sets forth the following goals:

1) Strengthen and direct development toward existing communities. 2) Preserve open space, farmland, natural beauty, and critical environmental areas. 3) Build compact communities. 4) Build walkable neighborhoods. 5) Mix land uses. 6) Provide a variety of transportation choices. 7) Create housing opportunities and choices. 8) Foster distinctive, attractive communities with a strong sense of place. 9) Encourage citizen and stakeholder participation in development decisions. 10) Make development decisions predictable, fair, and cost-effective.

KEY POLICIES FOR SMART GROWTH

So, what public policy initiatives are most important to facilitate meeting those goals? Many big ones come to mind:

• Zoning reform in municipalities across the US.

• Regional planning to reduce petroleum use and lower greenhouse gas emissions.

• Transportation reform to promote interconnected networks of streets and better transit systems.

• The proactive retrofitting of suburban areas, particularly abandoned shopping centers and malls, as mixed-use, walkable, transit-friendly town centers.

• Taxes on carbon emissions and/or higher levies on petroleum use.

While some progress has been made on these fronts as of 2008, unfortunately state and federal governments have barely begun the reforms needed to implement smart growth. Even at the local and regional levels, where more progress has been made, we have barely scratched the surface. Smart growth will likely be an urgent priority for decades to come.

More than a hundred form-based codes have been adopted, but thousands more municipalities need to do so. Currently, zoning enables what can best be described as "dumb growth." The nature of zoning, which is adopted municipality by municipality with many years between code updates, means that reform is slow.

The popularity of the SmartCode is encouraging, but there is much government could do to speed the process. States could require municipalities to adopt ordinances with smart growth principles. Only one state, Wisconsin, has done so. Wisconsin limited the proposal to municipalities of a certain size and has not enforced the law. Nevertheless it has had an impact. The federal government, likewise, could promote form-based codes through the leverage of transportation dollars. Municipalities that have adopted transitoriented development coding might get priority for funding of a train station, for example.

Regional planning is another area where much more could be done — especially with the support of state and federal dollars. The importance of smart growth to fighting global warming is clear from the research, yet regional planning efforts have only recently begun to address that issue head on. Recent planning methods and software systems — like the latest Index and Urbemis programs — can demonstrate tremendous reductions in CO2 through better development patterns. Without funding these planning methods, government is "flying blind" with its infrastructure dollars, spending much larger amounts of money on transportation systems that do not serve the needs of the 21st Century and defeat other costly programs to cut greenhouse gases.

That brings us to transportation reform. As of 2009, the government is embarking on a massive effort to upgrade the national infrastructure. While some shift has been made toward funding transit over roads, most of the projects are planned as if this were still the 20th Century and we are trying to promote greater automobile use. The Congress for the New Urbanism proposal to focus thoroughfare spending on creating and supporting interconnected street networks is the kind of reform that we need to support smart growth. This would have the added benefit of rebuilding neglected thoroughfares in cities, which have gotten the short end of the stick for decades as rural highways garnered most of the money. Better street networks, more walkable thoroughfares, and better transit funding and planning are likely to remain transportation priorities through the first quarter of the 21st Century and beyond.

As the we move into the second decade of the 21st Century, petroleum dependence, global warming, problems in the real estate market, and fiscal troubles are all vital issues with regard to smart growth. As we stated in Chapter 13, the only way the real estate market will be in balance in the next quarter century is through smart growth.

As for fiscal discipline, Edward Gramlich, when he was a Federal Reserve governor, said in 2002 that the US could save \$250 billion over 25 years by adopting smart growth strategies rather than allowing sprawl to continue. Gramlich cited a study by Rutgers University's Center for Urban Policy Research that estimated that three-quarters of the savings would accrue to developers and occupants of future housing in the form of lower development and utility costs. The rest of the savings would take the form of reduced land and road costs for state and local governments. The Rutgers study, "Linking Vision With Capital: Challenges and Opportunities in Financing Smart Growth," has been described as the first comprehensive look at smart growth from a combined governmental and real estate finance industry perspective.

Smart-growth advocacy groups have translated their agenda into public policy at the state level in California, New Jersey, Michigan, Massachusetts, Delaware, Maryland, and elsewhere. Below are summaries of state smart-growth initiatives.

CALIFORNIA GREENHOUSE GAS BILL

California Senate Bill 375, designed to curb sprawl, mandates that major regional transportation planning agencies draw up plans that tell how each region will meet specific greenhouse gas reduction targets.

State transportation money can then be used to support growth in infill and transit-oriented locations, rather than sprawl. The law does not require municipalities to change their zoning or force builders to shift their practices.

"The state will use its annual \$5 billion pot of transportation money to encourage regions to embrace compact residential development," *The Sacramento Bee* reported. Building groups garnered a provision that will ease California Environmental Quality Act regulations for development projects that meet the emissions reduction goals, "giving homebuilders incentive to pursue high-density projects near transit," the *Bee* said. In other words, some of the state's extensive pre-entitlement environmental reviews will be streamlined for certain projects.

Some smart-growth advocates are optimistic about SB 375's impact. The law creates "a regional framework in California that links financial incentives for local government agencies to smart growth," according to San Francisco urban planner Laura Hall. "There will now be a legal welcome mat for smart growth codes and implementation strategies for reducing greenhouse gases that result from land use patterns," she says.

However, the law will have little or no effect until 2011, and even then municipalities are not mandated to take any action, notes planner and journalist Bill Fulton, who coauthored *The Regional City* with Peter Calthorpe.

"The bottom line is that the law won't be sweeping unless the state and the regional planning agencies take it seriously," he wrote in his blog.

SB 375 will have a positive impact only if planners make the most of it, Hall observes. "It's up to new urbanist practitioners, especially those of us in California, to prepare and put forward those tools and strategies based on the work we've collectively done over the past 20 years," she says.

MARYLAND'S TECHNIQUES

Maryland's smart growth legislation of 1997 used state funding as an incentive to promote better development. "Maryland's program represents the first recognition that sprawl and irresponsible exurban growth are subsidized - not just with transportation dollars but with homeownership, school construction, and other programs," says Bruce Katz, director of the Center on Urban and Metropolitan Policy at the Brookings Institution. The goals of the smart-growth program were to: 1) mix land uses; 2) take advantage of compact building design; 3) create housing opportunities and choices; 4) create walkable communities; 5) foster distinctive, attractive communities with a strong sense of place; 6) preserve open space, farmland, natural beauty, and critical environmental areas; 7) strengthen and direct development toward existing communities; 8) provide a variety of transportation choices; 9) make development decisions predictable, fair, and cost-effective; 10) encourage community and stakeholder collaboration in development decisions.

The Office of Smart Growth worked with local governments and developers to help bring model smart-growth projects to fruition and coordinate the efforts of state agencies, such as the departments of planning and transportation. A key goal was to channel growth into already-developed areas or those that were logical sites for development. The primary tool for containing growth, the Smart Growth Areas Act, created "priority funding areas" — zones in which development may qualify for state funds.

After Gov. Parris Glendening left office in 2003, successor Robert Ehrlich eliminated the Office of Smart Growth. Some observers have said the program was less effective at preventing development of rural areas than at encouraging development in older town and urban centers. Critics pointed out that when development is discouraged in one county, development sometimes leapfrogs into more distant counties — or even across the state line into Pennsylvania. It's worth noting that Maryland has probably more new urbanist development than any other state of its size — development that arguably has been reinforced by the smart-growth program. Good examples such as Kentlands, in Gaithersburg, have shown Marylanders that there are practical alternatives to sprawl. New Urbanism and smart growth tend to go hand in hand.

NEW JERSEY INITIATIVES

New Jersey has been working for years on methods of reining in sprawl. In the late 1990s, then-governor Christine Todd Whitman set in motion state activities that included purchase of 300,000 acres of open space and spending of \$400 million on redevelopment of deteriorating cities in New Jersey. Whitman promised that the state would provide speedy plan approval to developments that met the goals of the State Plan. "That means good projects can get the green light in weeks instead of years, and quicker approvals mean lower costs," Whitman said.

New Jersey was the first state to adopt a separate building code for older buildings. The code is based on the premise that older building features (such as stairs, corridors, and doorways) that do not meet today's standards should not automatically be replaced. The rehabilitation code prompted a rise in adaptive reuse. Whitman's successor, James McGreevey, attacked sprawl as the cause of many of New Jersey's intractable problems, including overcrowded schools and clogged thoroughfares, promising, "Not one dollar of taxpayer money will be spent to subsidize sprawl anymore." He pledged, "If you want to build and grow consistent with smart growth, then we will help you get regulatory approvals quickly and make sure the infrastructure is there to support you."

New Jersey has expanded rail transit and encouraged transit-oriented development. In Washington Township, eight miles from Trenton, grants from the state helped bring about the 400-acre Washington Town Center, which has attracted many residents, including more young families than anticipated. Families with children are typically assumed to prefer detached houses with large yards, but these families have chosen to live in Washington Town Center, whose detached houses are on very small lots (about 4,000 square feet), partly because of the neighborly atmosphere and the convenience of the mixed-use center.

LOUISIANA SPEAKS

In the aftermath of hurricanes Katrina and Rita, Louisiana initiated a regional planning effort for the southern portion of the state, from New Orleans west to Lake Charles. This undertaking, dubbed "Louisiana Speaks" and coordinated by Calthorpe Associates and Fregonese Calthorpe Associates on behalf of the Louisiana Recovery Authority, held a months-long outreach and consultation process that reached 27,000 of the state's residents. It resulted in a proposed regional plan calling for focusing investment in existing cities and towns and for building new mixed-use, walkable communities. The new communities would be coordinated with transportation and protection infrastructure, such as coastal restoration and strengthened levees. The effort may eventually be extended to the entire state, its proponents hope.

WISCONSIN'S CODE EFFORT

Wisconsin is the only state that has attempted to overcome new urbanists' greatest challenge - local zoning laws that prevent development of mixed-use, walkable neighborhoods — by requiring municipalities of a certain size to adopt a Traditional Neighborhood Development (TND) ordinance. Passed by the legislature in October 1999, the Wisconsin smart growth law called for the University of Wisconsin to develop a model TND ordinance to work parallel to existing ordinances. All cities, villages, and towns with a population above 12,500 were asked to adopt the model ordinance or something very similar. This law had no teeth to penalize cities and towns that did not comply. Not surprisingly, many municipalities missed the deadline. Nevertheless, this law resulted in the adoption of many new urban zoning codes. By 2007, at least 13 municipalities adopted the state TND model ordinance or something very similar, and at least another 13 adopted the law as a "guidebook."

In the Madison area, the law is having a significant impact. Municipalities are working together to resolve issues with regard to TND codes, and the local building industry is embracing the concept. Dane County, where Madison is located, has at least a halfdozen TNDs underway. The law, still unique nationwide, was championed by 1,000 Friends of Wisconsin. For more information: www.1000friendsofwisconsin. com/smartgrowth.

OREGON URBAN GROWTH BOUNDARIES

Oregon became a pioneer in smart growth legislation when it approved a law in the early 1970s requiring urban growth boundaries (UGBs) around metropolitan regions. In the Portland area, the boundary limited the spread of development but did not initially change the character of development within the boundary very much. One of the biggest shifts it ushered in was greater construction of multifamily housing, giving moderate-income people more choices of where to live. In recent years, the region has strived for more fundamental changes, organizing substantial development around mixed-use centers at light-rail transit lines. A prime example is Orenco Station in suburban Hillsboro. Oregon's 1991 State Transportation Rule also encourages high-density, mixed-use villages around transit stops. The Portland area's 2040 Framework Plan recommends that growth be concentrated in the central city, in regional and town centers, along main corridors, and in lightrail station communities. The framework plan has no specific mandates and gives local jurisdictions flexibility in how they interpret the call for denser development. More specific guidelines are found in the Urban Growth Management Functional Plans. Portland is a hotly debated model for metropolitan smart growth policies, which suffered a setback when voters statewide passed Measure 37, a property rights initiative. Nevertheless, Jeffrey Tumlin, principal at Nelson\Nygaard consultants, argues that Oregon's experience has "shown urban growth boundaries to be highly effective. UGBs have helped to reduce costs of public services and facilities, saved farmland from urban sprawl, and have led to better coordination of city and county land-use planning." For more information on Oregon policies: www.lcd.state.or.us.

ENVISION UTAH

Utah decided to get a handle on growth issues thanks largely to the Coalition for Utah's Future, a civic organization made up of business, political, environmental, and civic leaders in the Salt Lake City region. The Coalition launched Envision Utah, which conducted more than 100 public workshops and a series of opinion surveys on competing growth scenarios. On the basis of these efforts, Envision Utah developed a "Quality Growth Scenario." The plan called for walkable, mixed-use developments to accommodate much of Utah's housing and job growth. Encouraged by this program, a light-rail system called TRAX has been installed in parts of the Salt Lake City region, and mixed-use development has sprung up at some locations along the rail lines. Envision Utah is pursuing a "Three Percent Strategy," aimed at focusing a third of future development on three percent of the land.

Complementing the work of Envision Utah, the state legislature passed the Quality Growth Act in 1999. The Act created a commission to review growth strategies and assist local governments with money to preserve agricultural lands and open space. Within a decade, the commission spent \$19 million of state money to conserve critical lands, and gave nearly \$2 million in planning assistance to local governments and regional planning organizations. More than 80,000 acres have been preserved or restored, thanks to money from the commission and more than \$100 million from other sources. The commission has also worked on aligning state infrastructure spending with Quality Growth principles. For more information: www.envisionutah.org.

BACKLASH AGAINST SMART GROWTH

The progress of smart growth and New Urbanism has sparked an organized counter-attack by libertarian and free-market forces over the past few years. In 2003 Randal O'Toole, director of the Thoreau Institute in Bandon, Oregon, convened the first conference of a group called the American Dream Coalition. He portrayed smart growth as a threat — a grim combination of "rail transit boondoggles, neighborhood densification, urban-growth boundaries, traffic 'calming,' and other intrusive planning policies." Participants in the American Dream Coalition, from the Buckeye Institute, the Cascade Policy Institute, the Heartland Institute, the Heritage Foundation, the Reason Foundation, and other libertarian and free-market organizations, have argued that government is ineffective, wasteful, or untrustworthy (or all three). "We are against coercive measures and social engineering and [government programs] that don't do anything," O'Toole says. "We are for free choice."

"If people want to live in sprawl, they should be able to," says Wendell Cox, a transportation specialist and critic of smart growth. Andres Duany maintains, on the other hand, that new urbanists actually have expanded the choices available to Americans. The birth of New Urbanism "was market-driven," he says, in developer-created settlements like Seaside not foisted on an unwilling populace by agents of the government. He also notes that new urbanists have spent much of their time "fighting government" because "this country is coded to the hilt" in ways that make communities and daily life worse. It's fair to say, nonetheless, that smart-growth policies (including those supported by many new urbanists) do not allow absolutely anything to be built anywhere.

One of the things that bothers new urbanists is that although some smart-growth opponents ardently fight new urbanist requirements and standards, these same opponents have done little to overturn the requirements and standards that underlie automobile-dependent, separate-use development. Some of the opponents of smart growth seem to have a double standard. And all-out libertarians presumably would get rid of government-imposed rules; it's doubtful that the pragmatic mainstream of American society would consent to wiping the slate clean. Human nature usually leads the inhabitants of a community to establish rules and regulations. Those rules are a mechanism by which a community pursues its vision of the good life.

Charles Bohl, director of the Knight Program in Community Building at the University of Miami, describes some of the critics as "marketists" — individuals who venerate the market and who fail to see that some core American values, such as community, cannot be acted upon without government regulation and policy-making. In the journal *Markets & Morality* (Vol. 6, No. 1), Bohl says marketists suffer from "a selective Alzheimer's ... with respect to why regulations and town planning were created in the first place: because people got tired of waiting for the *market* to get it right." The idea that nearly every major decision must be left to the market amounts, in Bohl's view, to "a devaluing of the democratic process and the very concept of community."

New urbanists differ among themselves on whether to require compact, pedestrian-oriented development patterns in entire communities or only in parts of them. As a practical matter, governments are usually careful not to mandate dense development where the real estate market is unlikely to support it. In most jurisdictions that are amenable to New Urbanism, high density is required only in certain nodes, centers, or corridors; elsewhere, lower density is permitted.

FEDERAL POLICIES FOR BETTER DEVELOPMENT PATTERNS

At the federal level, transportation policies are a major concern for the advocates of compact develop-

ment. The discrepancy between how much the government pays for mass transit construction and how much it pays for highway construction is a particular problem. The federal government pays 80 to 90 percent of the capital costs of major highways, whereas it has been paying no more than 60 percent of the capital cost of new mass transit projects, according to a report from the Brookings Institution's Center on Urban and Metropolitan Policy. Why should one form of transportation be favored over another, especially when mass transit is more energy-efficient and fosters a more land-conserving, socially beneficial pattern of development?

Density will become increasingly necessary as the nation's population grows — and forecasts envision the US population becoming tens of millions larger by the middle of the century. The transportation system should be one that will accommodate a shift toward higher density, whether the density is concentrated in centers and nodes or in corridors (like the Rosslyn-Ballston Metro rail corridor in Arlington County, Virginia).

Pennsylvania has enacted a law authorizing establishment of Transit Revitalization Investment Districts — partnerships between local governments, transit agencies, and the private sector to produce transit-oriented development and to help maintain areas around stations. In Georgia, the Atlanta Regional Commission, which disburses federal transportation dollars for its region, is placing 1 percent of its funds into a Livable Centers Initiative, which encourages mixed-use, pedestrian-oriented planning and development.

Metropolitan areas with more smart-growth characteristics tend to outperform more sprawling regions of similar population in many transportation measures, according to an EPA study, "Characteristics and Performance of Regional Transportation Systems." Regions with more compact, pedestrian-oriented development patterns experience lower vehicle miles traveled (VMT), less congestion, greater use of transit, and fewer vehicle emissions.

More rational and compact development patterns save governments money, according to "Investing in a Better Future: A Review of the Fiscal and Competitive Advantages of Smarter Growth Patterns," a Brookings Institution report by Mark Muro and Robert Puentes. If governments throughout the US mandated development patterns of this kind, they would save 11 percent, or \$110 billion, on road-building over 25 years, and 6 percent, or \$12.6 billion, on water and sewer costs, the study found. Such patterns would also reduce air pollution. Automobiles are calculated to emit as much as 30 percent of the total US production of carbon dioxide responsible for global warming.

Housing is another area of concern. The federal HOPE VI program seems to have done a generally good job of replacing failed public housing projects with mixed-income developments, mostly organized to form or fit into appealing neighborhoods. The new developments have better-defined private outdoor spaces, better public areas, and a scale more suited to pedestrians than did many of the old public housing projects. That being the case, it makes sense to support more development of this kind.

ROLE OF MUNICIPAL ADMINISTRATORS

At the local level, much can be accomplished through form-based codes, which shape the buildings and their relation to the streets and public spaces. Many governments have adopted form-based codes, such as the SmartCode, for parts of their communities.

The implementation of New Urbanism's principles is also a matter of routine municipal administration, as shown by the accomplishments of city officials such as Rick Cole in Ventura, California, Stephen Lawton in Hercules, California, and Richard Bruckner in Pasadena. With the support of the city council, Cole, as city manager, has applied new urbanist thinking to Ventura's neighborhood planning, downtown planning, and transportation design. In Hercules, northeast of Oakland, Lawton, as director of community development, has overseen much of the work of redeveloping a former dynamite manufacturing property into pedestrian-scale neighborhoods with access to small shops and to a planned multi-modal transportation center (including rail and ferry service). Similarly, the City of Boulder, Colorado, has undertaken many initiatives, including redeveloping a former drive-in theater site into a mixeduse neighborhood, taking an intelligent approach to downtown parking, upgrading the frequency of bus service, creating an extensive network of biking and walking paths, and limiting development of the foothills of the Rocky Mountains.

Lawton identifies some of the main challenges as:

• Rapid development, and pressure for rapid development, which shrinks the time for, and the qual-

ity of, decisions.

• The elaborate regulatory framework around growth.

• Tight budget and resource constraints, often with perverse incentives.

ADVICE FROM DESIGN CENTERS

For the public and private sectors to make wise decisions, it's helpful to have organizations that they can turn to for civic-minded design and planning consultation. In Tennessee, two of those local or metropolitan sources are design centers — in the capital the Nashville Civic Design Center, and in Chattanooga the Planning & Design Studio. Nashville's center, which sprang up thanks to the energy of local architects and others concerned about the quality of local design, is separate from government. It was inspired by the much older Planning & Design Studio, which Stroud Watson of the University of Tennessee architecture faculty established in 1981 to foster civic improvements in Chattanooga.

Chattanooga's center, which has been incorporated into the Chattanooga-Hamilton County Regional Planning Agency, has influenced the redevelopment of the downtown and the riverfront. Nashville's Civic Design Center has created *The Plan of Nashville: Avenues to a Great City*, which is helping the metropolitan area take on many projects — from enhancing key terminated vistas, to converting commercial strips to urban avenues, to designing better low- and moderate-income housing, to reclaiming vast underused, unloved areas.

The importance of design centers lies in their ability to weigh in, at the right time, on upcoming projects. Such centers can exert more influence than outside organizations are often able to wield.



New Urbanism Abroad

 $\overline{24}$

New Urbanism in

Canada and abroad	396
The leadership of Prince Charles	396
European streets and public spaces	398
The Canadian experience	398
Australia	401
Asia	401

Above: Citta Nuova, designed by Leon Krier and Tagliaventi & Associates, is one of many new urban developments in Europe. Photo courtesy of A Vision of Europe.
New Urbanism in Canada and abroad

Born in the US, New Urbanism has expanded into a global movement, one that is influencing development in Canada, Mexico, Australia, India, China, Britain, and other parts of the world. Initially New Urbanism was shaped by these conditions of American life: a widespread reliance on automobiles, an abundance of land, a history of separate-use zoning, and a skepticism about government control of development. The challenge that new urbanists faced in the US was how to produce a workable urbanism despite those largely anti-urban conditions.

In other countries, the situations are different. Some have less land available for development. Some are more attuned to mass transit. Attitudes toward planning and regulation of development reflect their own, often less individualistic histories and cultures. Consequently New Urbanism in the rest of the world has evolved somewhat differently than in America.

Certainly the world has learned from the American experience. The government of Great Britain has studied American New Urbanism for ideas on how to produce more housing in the United Kingdom. Prince Charles has built the traditional village of Poundbury. Canadians have combined a Modernist architectural sensibility with the new urbanist insistence on well-defined streets and public spaces. People from a number of countries formed the Council for European Urbanism, in consultation with Americans such as Andres Duany. New urbanists from the US have worked on many large projects in overseas locations.

Much of the modern world faces the same challenges as the US: How to achieve a reasonable balance between automobiles and other forms of transportation; how to provide a rewarding public realm as well as enjoyable private spaces; how to develop previously unbuilt terrain while inflicting the least possible damage on the environment; how to reinvigorate blighted urban districts; and how to nurture a diversity of people, uses, and activities.

Many nations lack the ingrained American resistance to intensive government planning. Thus, while New Urbanism in the US received its initial impetus mostly from entrepreneurs launching private-sector projects like Seaside and Kentlands, governments in Canada, Australia, and other countries have played a significant role in what gets built and where it's situated. In some of these countries, governments are able to demand densities high enough to support mass transit. They are able to insist upon substantial employment in the new developments, in marked contrast to American TNDs, which have tended to emphasize residential, civic, retail, and recreational elements, often to the exclusion of substantial offices, manufacturing, and most other business employment. Many projects overseas have had a strong social component, such as the inclusion of a sizable proportion of low- and moderate-income residents.

Because of the stronger role of government overseas, New Urbanism there frequently works at a larger scale. It may encompass an entire downtown or city or region. The result, at least in theory, is that the principles of New Urbanism can eventually alter the way in which whole metropolitan areas function. The ambitious implementation of new urbanist ideas in other countries could, in the long run, affect how communities are developed in the US.

THE LEADERSHIP OF PRINCE CHARLES

Prince Charles studied New Urbanism at a very





early stage — in the 1980s, when the movement was known as Neotraditionalism or traditional town planning. Charles met with Duany and grasped the movement's key ideas, making them his own. Not only did he expound on them; he invested in them, commissioning Leon Krier to plan the 400-acre Poundbury on land the prince owned on the edge of the old town of Dorchester, in southwest England. While much of the London press scoffed, Charles went forward. Lo and behold, Poundbury succeeded financially and otherwise; some of the critics were honest enough to eat their words.

Poundbury looks like a village from a few centuries ago. Its houses employ materials such as stone, brick, and stucco and are rendered in vernacular styles. Windows are vertically proportioned and relatively small, like those from long ago. Buildings come right up to the streets, which are narrow and irregular. "It looks like it was laid out by goats," Boston Globe architecture critic Robert Campbell said after a tour. Many of the medieval towns that give people pleasure feel as if they could have been laid out by goats; the quirkiness, the lack of a strong apparent order, is not necessarily a condemnation. Humans enjoy incidental and pleasant surprises in their surroundings. Poundbury reflects that. Poundbury also does a good job of complementing the older portions of Dorchester; its compatibility with the existing townscape is a real virtue, one that's lacking in much contemporary development worldwide.

Gathered around Poundbury's irregular paved square, where cars park, are shops that cater to some of the residents' daily needs. (See photo on page 403). Much of the parking for the houses is secluded in mews on the interiors of the blocks. Some of the

The old town hall in Gladbeck, Germany, at lower right, and new construction adjoining it





A street of new buildings in Plessis-Robinson, France

houses face the mews, which helps to give the mews life. Poundbury's residential areas seem to coexist well with the small stores, the "doctors' surgery" building, and a chocolate factory. Some buildings have already gone through changes of use; one structure that contained a high-tech company has been converted into a kindergarten, leading Krier to observe that town planning must be less about planning for particular uses than about planning buildings both large and small, providing long-term flexibility.

It's highly unlikely that a project of this sort would have come into being in the US. The twisting streets - obstacles to large American fire trucks and the almost medieval character of the houses are elements that new urbanist developers would rarely if ever think of using in America. They crop up more often outside the US. Medieval villages have been used as models for development in Mexico and Central America (especially in areas with a resort trade). Urban forms like these, which for a long time were widely regarded as anachronisms, deserve more consideration.

Charles has established the Prince's Foundation for the Built Environment, aimed at influencing planning and development. The British government launched a major program of brownfield reclamation, affordable housing production, and redevelopment, drawing in part from New Urbanism. In Germany, Harald Kegler's Laboratory for Regional Planning, in Wittenberg, has focused on challenges such as revitalization of old industrial areas in the former East Germany.

Traditional city-making continues in countries such as France, Italy, Spain, Belgium, and Sweden. In



Città Nuova, planned and designed by Leon Krier and Tagliaventi & Associates, is one of many new urban developments in Europe.

Plessis-Robinson, a suburb of Paris, Mayor Philippe Pemezec demolished impersonal Corbusian slab buildings containing 2,000 apartments. In their place he created a complete new traditional center inhabited by 6,000 people. In Gladbeck, Germany, nondescript Modernist buildings have been razed, and the old Town Hall with its tiled saddleback roof has been joined by new traditional buildings, defining a town square. In Alessandra, Italy, Leon Krier and Tagliaventi & Associates designed Città Nuova, a traditionally-styled neighborhood center that includes three public pedestrian piazzas and a series of buildings with small shops on the arcaded ground floors and apartments above. (Parking is underground.)

In Spain, "you can see dozens of huge town-planning extensions designed and built as new traditional centers," says Gabriele Tagliaventi, an Italian architect who heads A Vision for Europe, an international association based in Bologna. Lotta Hedberg, a planner in Oslo, says many cities have become interested in building in central areas such as former industrial sections and in "more traditional street design." She adds: "Most European architects are Modernists and prefer a Modern design, but there are examples of traditional design."

EUROPEAN STREETS AND PUBLIC SPACES

Some of the most interesting experiments in street and road design are taking place in Europe. Until his death in early 2008, Dutch traffic engineer Hans Monderman was at the forefront, stirring debate by eliminating many customary elements, such as traffic lights, speed limit signs, curbs, and pavement markers, from small towns in Holland. "All those signs are saying to cars, 'This is your space, and we have organized your behavior so that as long as you behave this way, nothing can happen to you,'" Monderman observed. He argued that "it is only when the road is made more dangerous, when drivers stop looking at signs and start looking at other people, that driving becomes safer." Those methods are not meant for every circumstance — they're more applicable to village and small towns than to cities and other places where the traffic is heavy — but they enlarge the realm of possibilities.

New Urbanism increasingly is in touch with Europeans such as the Danish architect Jan Gehl, who has devoted much of his career to the creation and refinement of public spaces — in Europe and across the globe. "All of our life happens on our feet," Gehl told a CNU conference. "We never take the car into the living room, into the library, the pool. We are a slow, linear, horizontal, 5-kilometer-per-hour walking creature. So the more I studied these things, the more I was sure that the key to understanding good places is just this — it's the human body, how we move, how our senses work, how we interact with other people."

THE CANADIAN EXPERIENCE

Canada was quick to begin producing TNDs. In the 1990s, metropolitan Toronto and especially the

City of Markham welcomed numerous developments of tightly packed three-story housing, close to the streets and sidewalks. Garages were placed along rear lanes (alleys). Parks were interspersed throughout the developments. The styling favored tradition.

The results, however, left much to be desired. Builders didn't know how — or didn't take the trouble to learn - to choose traditional details judiciously and execute them well. Exteriors of houses were cluttered with superfluous gables, dormers, columns, and ornament — a failing that's common in conventional subdivisions in the US as well. Front porches abounded, but often they had such shallow dimensions that they were not very useful. The mix of types of units was limited. Although some of these developments felt dense, they nonetheless tended to lack the retail and other elements that make dense living satisfying.

As time has gone by, the performance of some developers has improved. Canada Lands Company (CLC), a "crown corporation" - owned by the federal government but operating as a for-profit real developer of surplus federally owned property, such as decommissioned military bases - seems to be doing an increasingly good job. CLC's mission is to produce developments that generate a reasonable financial return while also benefiting their communities. Because its profits go into the public coffers, and because its sole shareholder is the government, which can be more patient than most private investors, CLC has been able to take a long-term approach.

CLC personnel began visiting and studying new urbanist projects, mainly in the eastern and southeastern US, in the mid-1990s. With increasing experience, the company has become more adept at applying New Urbanism's ideas. "We didn't really understand the New Urbanism movement in 1996-97," Mark Mc-Cullough, a CLC executive, says, noting that there were not many developments to examine at that time. At the 200-acre, 3,200-unit Currie Barracks project being built in Calgary, Alberta, McCullough says, "we want to create a more complete community," in comparison to some of CLC's earlier lower-density, largely residential developments. "Currie Barracks will be much more dense, urban, and transit-friendly, with more investment in the public realm," he says. At Currie, every house is to be within four minutes' walk of a bus stop and within two minutes of a park.

One of Canada's strengths is its willingness to support ambitious city and regional planning. The City of Calgary, Alberta, is overseeing a plan that will



An aerial photograph of Garrison Woods in Calgary, Alberta.

convert a bedraggled 113-acre section of downtown east of City Hall into a predominantly residential "East Village" emphasizing high density, mixed uses, and quality of the public realm. The plan is based on what are called "three simple principles: 1) build to the sidewalk, 2) make the streetfront visually and physically permeable, and 3) put the parking behind, under, or above the building."

Government planners wield more influence in Canada than in the US, and they've been able to insist on mixed uses and on higher densities and greater income diversity than are common in many American suburbs. An estimated 10,000 people will live in Calgary's East Village; at least 20 percent of the housing will be nonmarket. East Fraserlands, a 126acre site previously occupied by a sawmill next to the Fraser River in Vancouver, British Columbia, is being developed into an urban neighborhood containing a town center and 4,500 to 5,000 housing units, some of them in 14-story towers.

The City of Surrey, British Columbia, teamed up with the James Taylor Chair at the University of British Columbia to produce the East Clayton Neighborhood Concept Plan, which guides the development of a 460-acre model community intended to contain up to 5,800 housing units, at a density ranging from 2 to 45 units per acre, and 540,000 square feet of commercial space. The City Council adopted a set of principles aimed at ensuring the development, on the outskirts of Vancouver, has walkability, a mix of housing types, interconnected and narrow streets, along with natural drainage systems. Patrick Condon, who holds the James Taylor Chair, describes the plan as the Vancouver region's foremost blueprint for reducing infrastructure cost and environmental impact through a combination of urbanist and sustainable principles.

In Toronto, the Toronto Waterfront Revitalization Task Force released a strategic master plan that proposed reconnecting the industrial waterfront properties to the city's street grid. From that initiative has come a plan to remove part of the elevated Gardiner Expressway, a barrier between downtown and the waterfront. A surface road, more amenable to pedestrians, is to take its place. Among the other development priorities in the report is the creation of up 100,000 new housing units and 10 million square feet of commercial space in mixed-use neighborhoods, a waterfront walkway and new parks, improvement of public transit, and an environmental cleanup of the mouth of the Don River.

Urban designer Ken Greenberg of Greenberg Consultants in Toronto says that "the key things that were done here from a policy standpoint were done before the term New Urbanism was invented." He maintains that Toronto's progressive policies of the 1970s preserved urban neighborhoods and limited office expansion, setting the stage for the "extraordinary amount of housing construction going on in downtown today." He says, "In terms of the agenda of New Urbanism, there has been a major shift in land use, bringing people closer to where they work, bringing down commuting distances, and bringing buildings to the streets."

Because of Canadians' relative acceptance of planning, the mayor of Vancouver was able to launch the EcoDensity Initiative, which aims to accommodate substantial population growth. It is introducing denser forms of housing into many parts of the city, encouraging accessory units in single-family houses, and linking much new development to mass transit. Downtown Vancouver has combined New Urbanism's emphasis on appealing, walkable streets with a Modernist affinity for bold, non-frilly architecture. Many slender residential towers have sprung up in the downtown, some of them on reclaimed industrial land. Many of the towers have bases two to four stories high that contain stores and restaurants or that contain townhouses or units resembling townhouses.

This kind of building produces urban densities capable of supporting a full range of retail and services as well as transit — yet it feels in scale with human beings as it comes to ground level. Each townhouselike unit typically has its own door opening to the sidewalk, helping to make an engaging streetscape. Some have small stoops or raised patios or outdoor spaces overlooking the sidewalks. Thanks to buildings like these — and a municipal policy favoring dense, mixed-use development — the population of



The downtown core of Vancouver, at left and below, gained roughly 42,000 residents between 1986 and 2005. The downtown has become an ambitious test of whether highrise construction, architectural modernism, and new urban planning can all coalesce in a pleasing form.



downtown Vancouver has doubled in about 20 years, to approximately 85,000. It is forecast to continue growing. The "Vancouver model" has its usefulness and is now being applied in other Canadian cities and in some US cities as well.

That Modernist aesthetics are compatible with New Urbanism's well-defined sidewalks, streets, and public spaces might have been demonstrated by some place other than Vancouver. The western US has cities — Seattle and Portland, among others — that have followed paths similar to Vancouver's, but it was the British Columbia city that pursued the combination of Modernism and New Urbanism with the most gusto.

Canada has also shown how commercial corridors outside the city center can be densified over the years. The Kitsilano section of Vancouver is an example. With the encouragement of city government, major streets in Kitsilano have gradually filled with four-story buildings; typically they have stores, restaurants, and services on the ground floor and housing above. At first there was nervousness about whether people would want to live in second-, third-, and fourth-floor apartments close to the traffic noise; some buildings were set back farther on the upper floors for just that reason. But eventually it became obvious that people did not mind living directly above the edge of the sidewalks, and that the straight-up walls of four-story buildings did a good job of enclosing the street space. Property by property, non-urban single-story buildings with onpremise parking lots — such as convenience stores are being transformed into a four-story urban fabric, often with parking underneath the buildings.

AUSTRALIA

"Sprawl's negative effects are less pronounced in Australia" because infrastructure is more thoroughly planned and cities grow in a more orderly fashion, the Australian firm Ecologically Sustainable Design says in a 2005 book the firm edited, *Australian New Urbanism: A Guide to Projects*. "Some Australian states with relatively strong planning agencies have provided a strong basis for a transition toward New Urbanism over the last fifteen years, as public sector planners and designers have joined forces with forward-thinking politicians," the editors say. Indeed, some of the Australian plans seem better integrated contextually than many North American greenfield projects.

The Australians have brought interesting thinking to transportation and neighborhood centers. In the US, many TNDs have been designed so that the major thoroughfares pass to the side of the neighborhoods rather than going directly through them. Leading Australian new urbanists advocate mixed-use neighborhoods that straddle important thoroughfares. See "The movement economy and drive-by visibility" on page 80.

Centering the neighborhood on a primary thoroughfare is an interesting Australian contribution to new urbanist thought, one that might work in the US if transportation departments can be persuaded to tame the traffic through the center.

Cities in Australia and New Zealand have not seen their inner areas die and their population move to the fringe. The retention of their dense, mixed-use fabric has played a vital role in inspiring New Urbanism in Australia, according to Kaufman, Morris, Peter Robinson, and Evan Jones. A number of the bigger projects in Australia are joint ventures, initiated by the public sector with private-sector funding and development expertise. While Australian states have strong planning controls, local governments do not have nearly the power and competitiveness found in their counterparts in the US. These institutional differences provide the basis for an effective shift toward New Urbanism. The underlying philosophy is to redirect virtually all development toward a more sustainable form, rather than create islands of new urbanist neighborhoods in a sea of sprawl, as has often been the case in the US.

The Australian Council for New Urbanism (ACNU) held its first meeting in 2001 and a second in 2005.

ASIA

New urbanists from the US have been applying their skills in India, China, Iraq, the United Arab Emirates, and other parts of Asia at a growing pace. One of the earlier projects in South Asia was the Ghonsoli Neighborhood plan, the redesign of a 1,320-acre area near Mumbai, India, by Dhiru Thadani and Peter Hetzel of Washington, DC. At a gross density of 55 dwelling units per acre, with 30,000 units, 1.5 million square feet of offices, a million square feet of neighborhood and regional retail, and a half-dozen hotels, this demonstration project makes almost all new urbanist developments in the US seem puny by comparison. As New Urbanism gains a foothold in India and China, the most populous nations on Earth, one of the original American goals - pursuing alternatives to sprawl - may seem almost quaint.

The original Indian plan envisioned superblocks 700 feet by 1,700 feet on a side, served by automobile-oriented arterial roads and transit stations 1.2 miles apart. The new plan is a radical transformation, yet the architects were able to use 95 percent of the proposed streets from the original plan, which helped gain the support of local planners who were invested in the prior proposal. The original streets were redesigned as three urban types — a boulevard, an avenue, and a "shopping street" with room for street vendors.

Inside the superblocks, the architects overlaid a much finer grain of streets and blocks. Block lengths in the revised plan have walkable dimensions, rang-

Ghonsoli Neighborhood plan



ing from 250 to 500 feet. Local precedents can play an important role in New Urbanism overseas. "We were constantly looking back to the original Fort District in old Bombay [Mumbai] for the size of spaces, streets, and blocks," explains Thadani, who grew up in India. The districts in the plan include a community college, a clock merchants district, a medical center, a botanical garden and nursery, a "sites and services area," where the very poor are given land to build a house, and a crematorium — an integral part of religious and cultural life for Hindus. Open space is more abundant in the new area than in old Mumbai. The intent is to do what American new urbanists usually do: make the open space memorable greens, squares, and parks in important, easy-to-find locations.

Each neighborhood will include mixed-use areas with ground floor retail. One neighborhood will include a centrally located " shopping street," terminating at a transit station, with shops and a 40-foot-wide paved median to accommodate street vendors, an important commercial activity in India. Vendors often set up near transit stations, creating very crowded conditions. The station will not only have room for vendors, but also a large plaza for community activities.

On the exterior, buildings for poor people will not look much different from more expensive, market-rate structures. This is consistent with the aim of much of the affordable housing produced by new urbanists in the US. The buildings for the poor will have smaller units and more of them.

More recently the Indian-born industrialist Anil Agarwal promised \$1 billion to create a world-class university in the State of Orissa, near Calcutta, and commissioned Ayers Saint Gross Architects and Planners, with Thadani as the firm's lead person, to design the institution — Vedanta University, which is anticipated to grow to an enrollment of 100,000 — and an accompanying town that may eventually be home to 400,000 people. Construction in rapidly modernizing Asian countries often proceeds at breakneck speed, unconstrained by the drawn-out NIMBY battles and the lengthy approval processes found in the US. Consequently, the results of new urbanist endeavors there should be noticeable much faster than has been the case with American projects.



Parking

Parking and urban design
For natural areas
Solutions for single-family
detached neighborhoods
Moderate-density solutions
Center, core, and district
challenges
Center, core, and district
strategies

404 404

404

404

406

407

Parking management and policy	
across the Transect	411
The origins of minimum	
parking requirements	412
The Lexicon and	
SmartCode on parking	413
Parking and density	414
Transect calibration	416
Shared parking	416

Parking facts	416
Reducing the need for parking	417
Alleys and lanes	417
Lot design	418
Parking courts	418

Above: A parking lot designed as a civic square in Poundbury, Dorchester, England. Photo by Philip Langdon

Parking and urban design

Brian O'Looney, Neal Payton, and Patrick Siegman

From the moment private automobiles first appeared on city streets, parking has posed a major design problem for the public realm. As vehicle use became more widespread, the need for parking could not be accommodated solely at curbside, where horses used to be tethered. The desire to limit curb parking to make room for traffic lanes also grew, and jurisdictions began to adopt requirements to store vehicles on private land.

As experience now shows, off-street parking alleviated the initial congestion caused by haphazard parking, but has not necessarily improved the quality of the public realm. In residential districts, for example, the quality of streets is often destroyed by repetitive curb cuts, paving for driveways, and monotonous walls of garage doors.

Today automobiles are stored in a variety of ways, each with different costs and impacts. In seeking parking solutions in service of the public realm, we can consider appropriate solutions at a variety of urban intensities. The discussion that follows considers the place of parking from the most rural to the most urban areas.

FOR NATURAL AREAS

In areas approaching natural conditions, parking will typically be limited to surface lots. Ideally, such parking is located so as to cause minimal impact to the environment, adjacent to access roadways, and in areas with little visual presence.

Casual, or circumstantial parking, say between existing trees, can be designed to virtually disappear when no cars are present. (See photo below). Opti-

Parking lot at rural park



mal solutions include permeable paving such as welldrained gravel or decomposed granite, which allows precipitation to be absorbed locally. Buried perforated-pipe drainage systems can minimize erosion during downpours.

SOLUTIONS FOR SINGLE-FAMILY DETACHED NEIGHBORHOODS

The alley, or rear lane, is the key planning and design device to improve the quality of the public realm in neighborhoods with largely single-family detached housing (sub-urban and low-density general urban zones). Alleys typically reduce the amount of paving required per block by replacing and consolidating paving dedicated to driveways. (See page 417 for more on alleys and rear lanes.)

The single-family residential marketplace usually demands enclosed garages, but driveways, curb cuts, and garage doors all largely detract from an appealing public realm. Alleys keep street frontages free of these negative features, making them more hospitable to pedestrians. Alleys also reduce curb cuts, leaving more space for parallel parking. Meanwhile, curbside parallel parking can still serve a large percentage of a neighborhood's parking load and provide a safety barrier between moving vehicles and pedestrians.

In those rare cases where alleys are difficult to implement, well-designed stem driveways can access garages or parking areas toward the rear of a lot. In corner or "key" lot situations, garages are ideally located in an outbuilding, off a secondary street. In such cases it is recommended that garages be set back from the wall established by the facades along the primary street. See diagram on page 405.

Building typologies in suburban residential areas typically include single-family houses, and, in more intensive areas, duplexes and two- and three-story townhouses. Alley-accessed parking and parallel parking can serve all these types.

MODERATE DENSITY SOLUTIONS

More intensive residential environments can range from townhouses and occasional stacked mai-

sonettes (also called two-over-twos) to a variety of small and medium-sized apartment buildings (from eight-unit walkups to courtyard buildings). While townhomes may rely on an alley-accessed garage or tuck-under arrangements, multifamily buildings demand more intensive parking solutions, often using surface parking lots.

As a parking solution, surface lots often destroy the sense of enclosure within the public realm, disallowing "civic rooms" through a lack of spatial definition. For economy, surface lots are also rarely implemented with a level of detail that befits a public plaza. For this reason, it is suggested that surface lots be separated from primary frontages by "liner" buildings (such as rows of townhouses) and be screened from secondary frontages when such buildings are not feasible. Screening devices such as fences, walls or hedges are best built coplanar — lined up — with adjoining building facades to mask the presence of lots behind them.



Parking solutions for low-to-moderate density residential buildings



A lot layer diagram from the SmartCode. The garage in an outbuilding would be located in layer 3, set back slightly more from the side street.

the design of multifamily buildings: the ballooning of block sizes. A typical double-loaded four-story apartment building designed to completely surround its required amount of surface parking (1.5 spaces per unit for a typical mix of 1 bedroom and 2 bedroom units) would create a block 735 by 835 feet in size! This poses a challenge in well-planned pedestrian-oriented communities, where neighborhood permeability, and therefore smaller block perimeters are goals.

Given the difficult economies of parking, when building small, surface-parked multi-family buildings, it is better to devise blocks where two or three sides of the blocks containing these buildings are lined with less parking-intensive residential building types (like townhouses or live-work units).

CENTER, CORE, AND DISTRICT CHALLENGES

There are numerous difficulties in attempting to effectively manage parking in dense pedestrian-oriented environments. While scholars such as Donald Shoup (see page 417) have documented the effect that parking prices and other factors have on parking demand, their work is largely unrecognized by planners and engineers. Lenders tend to require conventional parking ratios in transit-oriented developments, and there is an overreliance on the Institute of Transportation Engineers' *Parking Generation Manual*, which reports largely on surveys of single-use sites with little or no transit and is statistically unreliable for any uses other than suburban office buildings and some retail uses. This lack of information causes higher development costs — and parking costs are a major cause of housing unaffordability.

The consequences of poor planning practices and commercial parking demands are evident throughout the American landscape. Old formulas for shopping malls specified one space for every 200 square feet of gross leasable area (5 spaces per 1,000 square feet). Ratios, whether imposed by government or sought by the market, often remain conservative: retailers frequently demand one space per 225 square feet (4.5 spaces/1,000 square feet). Many municipalities require one space per 75 square feet for restaurants (12 spaces/1,000 square feet).

These parking ratio assumptions are now being challenged. A recent report sponsored by the Urban Land Institute and the Center for Transit-Oriented Development found that TOD's produced half as many vehicular trips as conventional development. (Search for TCRP Report 128 on the Internet.) Jurisdictions around the country have begun to study their actual parking patterns and are finding that demand is much less than their codes currently require. Palo Alto, California, has been requiring 4 spaces per 1,000 square feet for all non-residential uses in downtown Palo Alto, but actual observed peak demand was only 1.91 spaces per 1,000 square feet. If the city actually sought to build enough parking to provide 4 spaces per 1,000 square feet for all of its existing downtown buildings, 5,210 more spaces would need to be built, a construction burden of over \$298 million (at \$51,000 a space, local cost) for an 80-acre downtown.

One particular problem with commercial environments is that the overall parking requirement is tied to annual peak demands. For example, no one wants to arrive at an airport on Thanksgiving morning to find no available parking. In primarily retail environments, conventional parking design practices recommend setting the design hour to the twentieth busiest hour of the year (mid-afternoon on the second Saturday in December), plus a 5-10 percent "effective supply" overage of additional spaces to allow for efficient turnover and minimize search time for spaces at peak use.

Because retail parking lots are typically designed for this peak use, *over half the provided parking sits empty 40 percent of the year*. Therefore, a critical smart growth parking strategy for commercial cores is to target peak parking demands. For example, during the ten busiest days of the year, employees can be required to take public transit, where available, or be shuttled from a remote lot. Parking management systems, like those from Signal Park and other manufacturers, can be used to direct customers to available spaces (see photo below), greatly reducing the need for the 5-10 percent "effective supply" assumption which is factored in to minimize search time.

Nonetheless, town-center shared-parking solutions recommended by conventional transportation consultants still often arrive at ratios of one space for every 325 square feet of general commercial space, assuming free parking, little or no transit service, and no transportation demand management programs. In optimized surface parking lots, a single parking space

Open space wayfinding system, BWI Airport



requires around 300 square feet of land, including the portion of drive aisle necessary for access. This means that to surface park any single-story commercial building under conventional suburban assumptions, over half the available land area must be dedicated to a parking lot (see image at right). For a two-story building, three-quarters of the land must be set aside for parking. This is why American suburban corridors are pocked with an acne of asphalt.

CENTER, CORE, AND DISTRICT DESIGN STRATEGIES

Parking strategies become increasingly difficult at higher densities, but solutions based on careful layout and planning can minimize impacts on the public realm.

At the transitional edge between residential and mixed-use/commercial zones, multifamily parking requirements may be managed using what is often referred to as the "Texas Donut." These are unadorned parking decks bordered on two sides by a 10- to 15



Single story commercial use and its required parking

foot zone for open ventilation, and wrapped on all four sides by 35- to 40-foot deep four-story woodframe liner residential buildings. (See image on page 408.) Texas donuts as small as 220 feet by 246 feet

	6					
Туре	Stacked Maisonette/ 2 over 2	Live/Work	Charleston 3 Unit	Manor/Small Apt	Medium Apartment	Texas Donut
Lot Configuration						
lmage						
Building Height	3 to 3-1/2-Story	3-Story	3-Story	2 to 2-1/2-Story	3-Story	4-Story
Gross Density	22 D.U. / A.C.	20 D.U. / A.C.	24 D.U. / A.C.	26 D.U. / A.C.	28 D.U. / A.C.	55 D.U. / A.C.
Building Construction	Wood	Wood	Wood	Wood	Wood	Wood
Construction Cost (2002)	\$85,000/D.U. \$65-85/gsf	\$130,000/D.U. \$65-85/gsf	\$125,000/D.U. \$65-85/gsf	\$80,000/D.U. \$65-85/gsf	\$75,000/D.U. \$68.18/gsf	\$85,000/D.U. \$77.27/gsf
Parking Location Third Layer Second Layer						
Parking Type	Alley accessed Tuck-under/Tandem	Alley accessed Tuck-under/Tandem	Alley accessed Tuck-under/Tandem	Surface Lot/ Tuck-Under	Mid-block Surface Lot	Embedded 5 Level Parking Deck
Parking Layer	3rd Layer	3rd Layer	3rd Layer	3rd Layer w/streetscreen	3rd Layer w/streetscreen	3rd Layer w/Liner
No. Pkng. Spaces/SF (D.U.)	2 Sp./1100 sf (1 D.U.)	2 Sp./1900 sf (1 D.U.)	2 Sp./1900 sf (1 D.U.)	2 Sp./1150 sf (1 D.U.)	2 Sp./1500 sf (1 D.U.)	1.5 Sp./1300sf (1 D.U.)
Cost per Space (2003)	\$6,000-\$12,000/space	\$6,000-\$13,000/space	\$6,000-\$13,000/space	\$4,000-\$10,000/space	\$4,000-\$10,000/space	\$10,000-\$15,000/space
Minimum Block Size	70'x180'	80'x200'	90'x200'	140'x200'	200'x150'	200'x200'

Parking solutions for medium density buildings



"Texas donut" in King Farm, Rockville, Maryland

feet have been constructed, but economic efficiencies are gained when the blocks are roughly twice that size (220 feet by 380 feet) and double-loaded wings are added to the basic configuration.

To create a pleasant pedestrian realm within commercial environments, the ideal solution is to bury the parking underground. In established communities where land values are high, such as Washington DC, this has been done for decades. However, the cost of underground parking is often prohibitive, even in

Concept of first phase of Southlake Town Square in Southlake, Texas, below. Note that project is surface parked. Full build-out of Southlake master plan with parking decks is at right.





Fort Worth Masterplan (preexisting conditions in darker gray). Note the parking decks spanning streets on the right side of the image.

many close-in suburbs.

Structured parking is also rarely an option in the initial phases of a new pedestrian-oriented development — particularly when the new development must begin its life competing with the suburban strip-center paradigm. Local government cooperation can help through tax-increment financing (TIF) and public improvement districts (PIDs). But it is often left to the designer to creatively manage parking without financial assistance, and without the initial option of structured parking.

Today the majority of new pedestrian-oriented single-use commercial districts and "lifestyle centers" relegate parking to large decks at the least desirable



border of their sites — a solution that ultimately limits their direction for future growth. The structural economics of parking decks may also have negative impacts on the redevelopment of existing urban centers. For example, Fort Worth's 200-foot by 200-foot historic grid is today assailed by economically sized parking structures that must bridge blocks too small to fit them and display large unadorned facades to the public realm. See image on previous page.

New pedestrian-oriented districts of entirely commercial space pose great design challenges, since office and retail require much more parking per square foot than residential requires. One model is Southlake Town Square, where the City of Southlake had initially prohibited residential uses in the plan for its twostory commercial center. Cognizant of the parking load this directive imposed, block arrangements were studied by David M. Schwarz Architects that managed the vehicle demands yet placed the pedestrian first. Ultimately an alley system was created to access an efficient, unadorned parking deck at the center of each block. See images on page 408. The Southlake design allows individual blocks to accommodate their parking load without sacrificing any prominent public street façade to a garage or parking lot. It also allows the three-quarters of building facades that do not face these streets to be built more economically. Meanwhile, the alley entrances create physical separations between buildings, allowing all offices to have windows, and the buildings to be built without party walls according to the least expensive construction type in the building code (in this case Type III, unsprinklered).

As an urban plan, the arrangement has the additional benefit of allowing two sides of each block to be built without requiring a parking deck. Two adjacent blocks then create what the architect calls an "attachable urban fragment." A project may thus begin with an urban place, which provides the "critical mass" from which to grow. As that place is extended, the buildings that frame urban additions of streets and squares will also screen the required surface parking load. Eventually cost-effective structured parking decks can be added — and transportation demand

	ТБ					
Туре	Mixed-Use Res./Retail	Office/Retail	Office/Retail (2 sides) w/Res. Deck Liner	Mid-Rise Apt/Hotel	High-Rise Res./Retail	High-Rise Office/Retail
Lot Configuration						
Image				nigo Courtes Mathan		
Building Height	3 to 4-Story	2-Story	4-Story	6-Story	7+ Story	7+ Story
Gross Density	57,000gsf / A.C.	36,000 gsf / A.C.	63,000 gsf / A.C.	70 D.U. / A.C.	80+ D.U. / A.C.	100,000+ gsf/ A.C.
Building Construction	Wood over Conc. Podium	Steel/Bar Joist	Steel/Conc. & Wood Liner	Proprietary Light Steel	Steel Frame/Concrete	Steel Frame/Concrete
Construction Cost (2002)	\$105/gsf	\$110/gsf	\$112/gsf	\$103,000/D.U. \$93.64/gsf	\$150,000/D.U. \$155.00+/gsf	\$145.00+/gsf
Parking Location Third Layer Second Layer						
Parking Type	Parking Decks	Freestanding Precast 5 Level Parking Deck	Freestanding Precast 5 Level Parking Deck	Partially Embedded 6 Level Parking Deck	Underground Garage Parking	Underground Garage Parking
Parking Layer	3rd Layer w/streetscreen	3rd Layer w/Bldg Liner	3rd Layer w/Bldg Liner	3rd Layer w/Bldg Liner	Underground	Underground
No. Pkng. Spaces/SF (D.U.)	2 Sp./2000 sf (1 D.U.)	2.08 shared sp./1000 sf	1.21 shared sp./1000 sf	1.5 Sp./1300sf (1 D.U.)	1 Sp./1000sf w/transit	1.5 Sp./1000 sf w/transit
Cost per Space (2003)	\$10,000-\$15,000/space	\$10,000-\$15,000/space	\$10,000-\$15,000/space	\$15,000-\$21,000/space	\$27,000-\$37,000/space	\$27,000-\$37,000/space
Minimum Block Size	380'x500' or 320'x750'	500'x485' or 440'x550'	495'x515' or 435'x600'	350'x410'	120'x280'	120'x280'

Parking solutions for high density mixed-use buildings

TORTI GALLAS AND PARTNERS



Commercial block section

management programs introduced to reduce demand — when the project has entered its adolescence and has enough economic vitality to pay for them. While parking is wasteful of land horizontally, in relation to retail and office occupancies, it is quite efficient vertically. For every two stories of office over retail built to standard market heights, a developer can build four levels of a parking deck. See image above

One challenge of projects with central aboveground structured parking is the size of blocks that result. While the 460 foot by 480 foot blocks for the two-story buildings at Southlake are large, suburban commercial district plans with greater densities potentially require giant block sizes.

Another David Schwarz project, Frisco Square, illustrates this point. The City of Frisco is ultimately envisioned to have 250,000 residents; Frisco Square contains its city hall, library, and police station. Eventually, it is expected that the Dallas Area Rapid Transit rail system will be extended to the site. The Frisco downtown is limited in height to primarily four-story buildings, arranged at the edge of blocks so that these buildings fully envelope their parking load, avoid expensive construction, phase easily, and create a pleasant pedestrian-oriented environment. However, to meet these goals — and use parking decks that are not more than five levels high (a city requirement) — the blocks in Frisco are enormous: 900 feet by 500 feet. See image on this page.

At Frisco, as at Southlake, efforts to limit the perceived length of streets have included mid-block vehicular breaks that read as streets and notched corners of the larger blocks to accommodate squares and plazas. Clearly other criteria could also have allowed smaller block sizes: taller parking decks; underground parking; permanent residential space; transportation demand management programs; and more expensive construction, such as party walls, could have been used. (Indeed, the City of Frisco did recently allow some areas to be broken into smaller blocks by increasing allowable deck heights and exchanging commercial uses for permanent residential.) Nonetheless, the Southlake and Frisco master plans show that one of the biggest challenges facing planners of new



Block, Frisco Square

commercial districts today is reducing the actual and perceived size of blocks containing structured aboveground parking.

One solution is the "half-donut," which marries commercial uses on one or two sides of the block with residential units on other sides, wrapping a parking deck. This model was used at City Place in West Palm Beach by Elkus Manfredi Architects, creating blocks of 330 feet by 360 feet. See plan below. In this design, full-depth commercial buildings are built on two faces of a block, while an alley serves the back of commercial buildings and ventilates a parking deck. Liner residential buildings adjoin the parking deck and face the block's other two sides.

Another option is the use of tartan street grids that intersperse larger (deck-bearing) blocks with smaller ones, as in Jindalee Town Center, by Ecologically Sustainable Design. See plan on the next page. Alternatively, if the financial resources are available, a large deck surrounded with liner buildings containing active uses can be built at the outset of a project. Located at the center







Jindalee Town Center, Ecologically Sustainable Design

of a project, as in the Miramar Town Center plan, by Torti Gallas and Partners, it can be used to handle overflow parking from neighboring blocks. See plan below.

A newer advance that promises to greatly reduce block sizes is the adoption in America of mechanized and even robotic parking systems, In case of the former (essentially key or card activated lifts), both the size and cost of space required can be reduced, particularly for residential or other applications without large peak access demands. These systems also can be used to activate urban parcels that would have been previously undevelopable due to burdensome parking requirements or unusual site arrangements, as has been done by Panoramic Interests and other developers in Berkeley, California. Robotic parking,

The center block above in Miramar Town Center, Miramar, Florida, includes a parking deck that will handle overflow from adjacent blocks.





Embedded parking deck at PATH station, Harrison Commons, Harrison, New Jersey,

on the other hand, consists of large frames of computer-controlled horizontal and vertical elevators. In this way, the space required for drive aisles and ramps is eliminated as is the need for lighting, heating and cooling of a parking structure, reducing not only the space required for parking, but the operating and liability costs.

Paradoxically, the inclusion of mass transit often increases the size of blocks in a new urban center. Certainly, the presence of mass transit reduces the vehicular load from adjacent uses; in a transit-oriented design, the parking requirement for nearby residential buildings may, for example, be reduced by half. However, mass transit systems are often governed by elected officials and staffers who follow a philosophy of providing ample "free" parking at stations, rather than providing parking at market rate, or limiting parking and emphasizing transit-oriented development. As a result, transit stations, particularly those along rail lines in suburban locations, then require huge volumes of parking for commuters who may live only a few miles away. This often results in at least one large parking structure near the entrance to the transit station. One solution to integrating this into an urban plan is to "wrap" or "sleeve" it with liner buildings, as Torti Gallas has proposed for Harrison Commons' PATH station, across the Passaic River from Newark, New Jersey. See image above.

PARKING MANAGEMENT AND POLICY ACROSS THE TRANSECT

For policy makers, understanding the physical requirements and constraints of parking through the entire Transect of urbanism could have profound effects on regulations and management policies. For example, in older, moderate-density areas, the land area required to meet parking requirements "on-site" is often greater than land owners possess. In smaller cities and towns these parking requirements are often the single greatest obstacle to revitalization. In denser, center and core areas, the excessive cost of structured parking affects the ability to provide affordable or even moderately-priced housing. In other words, in the case of parking, more is not necessarily better — often just the opposite.

While parking policies are nuanced and complex, it is clear that the three most prevalent mistakes in parking policy are: 1) Requirements for excess offstreet parking; 2) Bundling of parking costs within office and residential rents/sales and, — for those places that have on-street parking — 3) Keeping on-street parking free or cheaper than off-street options.

Jurisdictions often base off-street parking requirements upon the safe consensus (what did our neighboring community do?) rather than any solid statistical basis. Consequently, communities have chosen conservative parking ratios for parking minimums, which in aggregate have overparked much of suburban America. If city planners set a high priority on providing ample on-street parking, then in all but the lowest-density settlements, high minimum off-street parking requirements must be set. By requiring that the private sector build lots of off-street parking (enough so that there is plenty of parking even when parking is given away for free), the city planners can ensure that on-street parking will be available, at the price of a high barrier of entry for development.

A number of communities, including Los Angeles, San Francisco, Milwaukee, and Portland, Oregon, have recently eliminated parking minimums and in some cases replaced them with parking maximums, in order to prime economic development and protect the urban realm. The entire nation of Great Britain has also abolished parking minimums.

Two major forces underlie this change: a growing understanding among planners that minimum parking requirements have failed at their intended purpose of reducing traffic congestion, and a realization that

The origins of minimum parking requirements

Minimum parking requirements are government regulations that are designed to ensure that cities have more parking than if the matter were left up to the free market. Why were they first proposed?

Influential traffic engineers such as Wilbur S. Smith and Charles S. LeCraw of Yale University's Eno Foundation for Highway Traffic Control promoted parking requirements in works such as their 1946 book *Parking*. In a section titled Evils of Curb Parking they argued that curb parking retards the movement of traffic (therefore penalizing the majority of street users), is a major factor in creating accidents, increases the cost of commerce by creating congestion, induces decentralization, and increases fire hazards.

To eliminate these perceived evils, Smith and LeCraw and many of their contemporaries wrote approvingly of the emerging practice of setting minimum off-street parking requirements. If enough off-street parking were required to meet all possible demand, it would be much easier to prohibit curb parking. City streets could then be filled from sidewalk to sidewalk with moving traffic. Forcing the creation of this much supply had the predictable result of ensuring that most destinations in fact did wind up with free parking.

What were the consequences? Hawley Simpson, who later became president of the Institute of Traffic Engineers, predicted the problems that later arose from free off-street parking. "Rather than assisting in solving the street traffic problem" he said, "it may very probably have the opposite effect by inducing a large amount of unnecessary vehicle usage. Free storage is an economic fallacy."

Decades later, research has demonstrated that Hawley Simpson's observation was right. Dozens of studies show that when parking is given away free of charge, people drive more. Shoup and Wilson's studies of employee parking pricing in Southern California, for example, show that when employees pay for parking, the rate at which they drive to work decreases by 27%, all else being equal.

The hopeful proposition that imposing minimum parking requirements would, as San Diego's zoning code describes their purpose, "reduce traffic congestion and improve air quality," has proven to be wrong. Instead, by reducing the price of parking spaces, minimum parking requirements have induced higher vehicle ownership and more vehicle travel, and thus made traffic congestion and air pollution worse. — *Patrick Siegman* with modern management tools, such as multi-space parking meters, pay-by-cell-phone systems, residential parking permits, and parking benefit districts, curb parking can be managed to ensure that spaces are always available, without resorting to minimum parking requirements.

Cities with the best parking practices typically vary their parking management practices across the Transect. Typically, the management of on-street parking should vary from unmanaged in natural areas, to priced parking in the core. However, because of the tendency of automobile drivers to park in one Transect zone and walk to a different Transect zone when it is to their advantage (for example, when there is free, unregulated parking in a single-family neighborhood a few blocks from a downtown core where parking is priced), parking management in each block of a city should be designed with attention to what is happening in all of the blocks nearby. For example, in Boulder, Colorado, in the primarily single-family neighborhoods adjacent to downtown, existing residents receive permits to park on the street for a nominal fee, while a limited number of commuters (up to four permits to park on each block are issued to commuters) can park for a higher fee. In Aspen, in a similar situation, residents park free, while commuters pay \$7 per day.

"Unbundling" parking costs from other goods and services, so that individuals and businesses can choose to save money by using fewer spaces, is another key strategy for reducing traffic congestion and parking demand. The costs of parking are often buried within other real estate products, which skews market choices toward more driving and greater vehicle ownership. Market efficiencies are gained by requiring that parking spaces be leased or sold separately. Bellevue, Washington, now requires parking costs to be listed as a separate line item in office leases. As a result of this and complementary transportation demand management requirements, 30 percent fewer individuals drive alone to their offices than before the policy was enacted.

Fair-market pricing can also be used to effectively manage on-street parking. A huge mistake in many communities is to price the more convenient on-street meters more cheaply than off-street parking options. A good rule of thumb for the optimal pricing of onstreet parking is to set the price (now utilizing innovative time- and situation-adjustable computer controlled meters) so that one out of every nine spaces is always available. Those who are in a rush or who desire the convenience of parking near their destination tend to be willing to pay more, depending on the demand at that time of day. The city of Pasadena, California, revived its dormant primary retail street (Colorado Boulevard) partly by refining the price relationship between on-street and more remote parking structures, (as well as removing numerous onerous off-site parking requirements for restaurants and retail establishments).

Even in private, suburban pedestrian-oriented centers, right-priced meters can assist in parking management. At Easton Town Center in Columbus, Ohio, and The Greene in Dayton, Ohio, Steiner and Associates charges nominal fees for metered parking directly in front of the retailers (where the rest of the off-street parking in slightly less convenient lots behind buildings is typically provided for free). Proceeds from these meters go to local charities.

This sampling of innovations that cities and towns are employing to "rationalize" their parking is indicative of the need to develop policies that are inextricably related to their effect on physical form and economic development. The precise solutions are highly tailored to their specific locales. They are not static, but for the most part are constantly evolving as patterns and habits evolve. In every case, they result from the calibration of parking quantities, policies, and management techniques with an understanding of how parking is provided and placed within the Transect or urbanism.

Brian O'Looney and Neal Payton are principals with Torti Gallas and Partners in Silver Spring, Maryland, and Los Angeles. Patrick Siegman is a Principal with Nelson\Nygaard in San Francisco. This text is updated from essays that appeared in the June 2004 Council Report VI on New Urban Retail published by Town Paper Publications and the Spring 2006 issue of Places: Forum of Design for the Public Realm.

THE LEXICON AND SMARTCODE ON PARKING

According to *The Lexicon of the New Urbanism*, "the manner of accommodation of parking is a major distinguishing characteristic between CSD and TND. TND masks parking behind buildings to enhance the pedestrian quality of the frontage." The collection of diagrams on page 414 is a good summary of the parking techniques used by new urbanists, distilling some of the concepts discussed by Brian O'Looney, Neal Payton, and Patrick Siegman earlier in this chapter.

On-street parking includes the regular and diagonal varieties, slip lanes, and swales, *The Lexicon* indicates. Off-street parking for individual houses can be accessed from the rear alley or the front — the images show numerous ways to accommodate either configuration. The four front-loaded methods protect the streetscape from being dominated by garage doors.

The design of commercial parking lots is also a key to the New Urbanism — note the four methods available to new urbanists. The recommended image — a building fronting the street, with its parking in the rear, accessed by alley — is the ideal. Yet the ideal is not always an option; hence the other tools in the new urbanists' toolbox. Two show the building up to the sidewalk. One is accessed from the front via a tunnel; the other has some of the parking on the side. Both are allowed but not ideal. The last method, calling for some parking in front, is used when necessary. Note that *The Lexicon* does not include the typical suburban building in which all of the parking is placed in front. This kind of design is not part of the New Urbanism, but is permitted in special districts (see Chapter 1).

PARKING AND DENSITY

The Lexicon makes the point that "parking determines density." Developers are often limited in the number of residential units that can be placed on a site by parking demands and requirements. It makes sense to use design to get the most out of available parking — and lot width is a factor in this problem.

Historically, urban lots have often been sized in 25-foot increments, but *The Lexicon* recommends using 6-foot increments. (See images on the next page.) This is the most efficient system because an on-street parking space requires at least 18 feet and an off-street space at least 9 feet of frontage. A 36-foot-wide lot provides double the parking — and



Parking techniques available to new urbanists are laid out in the *Lexicon for the New Urbanism*. The placement of parking determines much of the quality of the public realm.

PLATTING SYSTEM BY RODS The following classification of lot width assumes alley/lane PLATER-ZYBERK & COMPANY, IMAGE USED WITH PERMISSION parking in addition to onstreet parking. 6 RODS 9 RODS 3 ROD 4 ROD Lot Width 18 ft 24 ft 36 ft 54 ft Lot Depth 100 ft 100 ft 100 ft 100 ft Lot Area 1800 sq ft/.04 ac 5400 sq ft/.12 ac 2400 sq ft/.06 ac 3600 sq ft/.08 ac Residential DUANY 2 units max 2 units max 3 units max 4 units max Commercial 1500 sq ft 2000 sq ft Parking 3 spaces IMAGES © 3 spaces 6 spaces 8 spaces The smallest modern lot width The next useful width is 24 ft, The width of 36 ft (2 x 18 ft) is The next increment of width is therefore 18 ft, which accomwhich provides parking for two particularly efficient, permitting that accommodates additional head-in parking is 54 ft (3 x 18 modates two 9 ft places at the cars and a comfortable passage 4 cars to park at the rear of the rear of the lot and one parallel beside them. The passage would lot and an additional two along ft) delivering eight places. This lot place on the street. This width allow an entrance by front-loaded the street frontage for a total easily accommodates court yard and edge yard buildings. The 54 is also excellent for the internal parking, except that the pracof six. This quantity indicates disposition of a rowhouse (rear tice would lead to an abysmal adaptability for multi unit and ft width is the narrowest lot that yard building), providing space streetscape. This dimension mixed-use buildings. This width will absorb front-loaded parking for a bathroom or a staircase in permits bedrooms to double up while maintaining a tolerable permits a wide rowhouse (having tandem to a bedroom. across the width but it does not all the principal rooms facing the streetscape. increase the parking capacity, garden) as well viable edgeyard which remains at three or sideyard buildings 24 ft wide.

PLATTING SYSTEM BY RODS

The following classification of lot width assumes alley/lane parking in addition to onstreet parking. Lot Width Lot Depth Lot Area Residential

> Commercial Parking



12 RODS

72 ft

100 ft

7200 sq ft/.165 ac

7 units max

3250 sq ft



24 RODS

144 Ft.

100 ft

14400 sq ft/.33 ac

14 units max

6500 sq ft

27 spaces

The system of platting by 6-foot rods, above and left, maximizes density, according to the Lexicon of the New Urbanism. As density determines parking, the Lexicon says, a system of platting commensurate with parking maximizes density. Three rods (18 feet wide), is the narrowest practical lot width to maximize parking.

	13 spaces
The r	next increment, 72 ft (4 x
18 ft)	is the smallest that can
incor	porate a double head-in
parkir	ng lot, with room for planting.
Assu	ming a building pad of 50 ft
depth	, this lot will accommodate
10 pl	aces to the rear and 3 in
front.	This number will deliver
6-8 a	partments (37-49 units/ac)
oran	office building of 3250-4250
sqft.7	This lot width yields the high-
est d	lensity for surface parking.
Highe	er densities are achieved by
the p	rovision of parking decks
or tra	nsit.

Higher increments involve the doubling of the 72 ft lot to 144ft. Wider lots tend to degrade the scale of the urban fabric. Efficiency does not increase over the 72 ft lot and bigger buildings should be accommodated through greater lot depth.

	REQUIRED PARKING (See Table 10)			
	T2 T3	T4	T5 T6	
RESIDENTIAL	2.0 / dwelling	1.5 / dwelling	1.0 / dwelling	
LODGING	1.0 / bedroom	1.0 / bedroom	1.0 / bedroom	
OFFICE	3.0 / 1000 sq. ft.	3.0 / 1000 sq. ft.	2.0 / 1000 sq. ft.	
RETAIL	4.0 / 1000 sq. ft.	4.0 / 1000 sq. ft.	3.0 / 1000 sq. ft.	
CIVIC	To be determined by Warrant			
OTHER	To be determined by	Warrant		

SHARED PARKING FACTOR

TABLES FROM THE SMARTCODE. DUANY PLATER-ZYBERK & COMPANY



The tables above summarize the parking requirements from the SmartCode

thus double the potential density — of a 25-footwide lot, for example. This can make the difference between a development making a profit or not.

TRANSECT CALIBRATION

Parking standards should be calibrated to the Transect. The SmartCode, for example, requires 2 parking spaces for each dwelling in T2 and T3 (rural and suburban zones), 1.5 parking spaces per dwelling in T4 (general urban zone), and 1 parking space per dwelling in T5 and T6 (urban center and core zones). For office space, the SmartCode requires only 2 spaces per 1,000 square feet in the urban center and urban core, but it requires 3 spaces per 1,000 square feet in less urban zones. The justification for calibrating parking to the Transect is that people walk and use transit more, and drive less, in the urban cores and centers. They should not be required to pay for parking that they do not need. They generally have the option of buying more parking if they wish, but that can be left to the market to determine. It should be added that less infrastructure devoted to parking makes urban centers and cores more vibrant. It also reduces traffic. The SmartCode excludes retail spaces under 1,500 square feet from any parking requirements - thus encouraging "the kind of smaller independent shops that contribute to urban vitality." The design standards maintain streets free of curb cuts to create more on-street parking.

On-street parking directly in front of the principal building frontage counts toward parking requirements in core, center, and general urban zones. Parking for an ancillary unit is usually covered under this requirement, because the ancillary unit is placed over a two-car garage, which provides off-street parking for the main building. An on-street parking space is therefore available for the ancillary unit.

SHARED PARKING

Parking requirements can be reduced further for mixed-use developments, according to the Smart-Code. This is based on the SmartCode's sharedparking calculations (see table above). An example: Suppose the residential portion of a development requires 10 spaces while the office portion requires 12 spaces. Independently they would require 22 spaces, but when divided by the sharing factor of 1.4 (see ta-

Parking facts

• For each parking space required, the cost of a residential unit rises 15-30 percent. The number of units that can be built on a site goes down by 15-25 percent.

• Commercial parking spaces each cost around \$20,000 in land and construction — a price that is passed on to all consumers, whether they drive or not.

• If more than 3 parking spaces are required per 1,000 square feet, you are mandating more parking area than building area.

• Every parking space is a magnet for cars. Parking therefore increases congestion, which in turn raises road maintenance and construction costs.

• Downtown parking ratios: Palo Alto, 1.8 spaces/1,000 square feet. Santa Monica, 2.4 spaces/1,000 square feet. Kirkland, Washington, 2.0 spaces/1,000 square feet, Philadelphia's Center City, 0.89 spaces/1,000 square feet.

Source: Jeffrey Tumlin of Nelson\Nygaard Consulting Associates ble on the previous page), the project would require only 16 spaces. A second way to calculate: If there are 22 spaces available for mixed-use residential and office parking, multiplying this by the factor 1.4 gives the equivalent of 30 spaces. Thus a building or buildings with square footage that corresponds to 30 parking spaces would be allowed.

The SmartCode also allows a 30 percent reduction in parking requirements in urban transit-oriented developments. These are intense, mixed-use projects with frequent transit service.

REDUCING THE NEED FOR PARKING

An important goal for urbanism is to make parking less necessary in the first place. You can do that by building places that are walkable, compact, and mixed-use. Some planners advocate the elimination of parking requirements altogether.

Donald Shoup, an urban planning professor at UCLA, contends in his book *The High Cost of Free Parking* that "parking requirements cause great harm: they subsidize cars, distort transportation choices, warp urban form, increase housing costs, burden low-income households, debase urban design, damage the economy, and degrade the environment."

Shoup is at the forefront of planners who advocate that government get out of the business of setting minimum parking standards — or establish policies that nudge developers to provide less parking. According to Shoup:

• "Off-street parking requirements encourage everyone to drive wherever they go because they know they can usually park free when they get there." Those who don't drive nonetheless subsidize the parkers, through higher prices that are charged to everyone for goods and services. • "Parking requirements create especially severe problems in older commercial areas," where it is often impossible to erect new buildings at traditional densities while satisfying municipal parking ratios.

• "Off-street parking requirements especially harm low-income and renter families because they own fewer cars but still pay for parking indirectly." Nonprofit developers in San Francisco have estimated that parking requirements add 20 percent to the cost of each affordable housing unit and reduce the number of units that can be built on a site.

• "Past some critical point, more parking spaces harm rather than help" the central business district. They reduce compactness and proximity — chief advantages of an urban location.

ALLEYS AND LANES

Alleys and lanes — intrablock thoroughfares that accommodate automobiles — are critical to the parking strategy of traditional neighborhoods. Alleys and lanes allow parking to be accessed from the rear and reduce curb cuts — increasing the number of on-street parking spaces. The following are characteristics of well-designed alleys and lanes:

Pavement that is not too wide. A good design for a residential alley is 12 feet of pavement with four feet of gravel on either side. It is not a bad thing if some weeds pop up in the gravel area. This softens the appearance of the alley. Pervious pavement (gravel, for example) is also good in that it let's stormwater seep into the ground, requiring less stormwater infrastructure and lowering costs.

Accessory units over garages. Accessory units over garages provide surveillance of the alley or lane, making them safer and less prone to criminal activity. The "eyes on the alley" effect does not require that every

Alleys with deflections, in East Beach at left and New Town at right, are more interesting and slow down traffic. Note other design elements like accessory buildings and landscaping.





garage have a unit above — but some of them must. The most important accessory units are at axis points, where those inside the units can look up and down the alley or lane. Some regulating plans require accessory units at these points. Accessory units serve a dual purpose — they also improve the appearance of the alley by taking the emphasis away from the garage doors.

Garages, often with accessory units, strategically placed at the ends of alley. A well-placed pair of outbuildings can enclose the alley visually. Alleys — designed to handle unattractive necessities like garage doors, utility infrastructure, and refuse containers — are best when not conspicuously visible from the street.

Jogs in the pavement. Alleys and lanes with deflections and jogs are more attractive to passersby because they are less visible and more interesting. A view of 4 garage doors is much better than a view of 15. Alleys that are relentlessly straight are not only ugly, they are boring. Alleys also tend to be places where children play. A deflection or jog will further slow down cars, making them safer.

Informal plantings. A few informal plantings and trees can go a long way to making an alley attractive.

Pairs of single garage doors. This costs a little more but it looks a lot better than a double-wide garage door.

A basketball hoop. The ultimate sign of a successful alley or lane is one in which children will play.

LOT DESIGN

It is generally preferable that parking lots not be visible from the street, but sometimes that situation is unavoidable. Sensitive design can go a long way to mitigate this. Walls and fences can help to define the

When parking lots must face the street, a little screening goes a long way. This fence was built around a small lot in Alexandria, Virginia.

street, for example, separating the pedestrian realm from a parking lot.

Another approach is to design the parking lot as a civic space. For an example, see the photo on the cover page of this chapter of a small parking lot in the commercial center of Poundbury in Dorchester, England.

Another way to create substantial parking in a town center is to design head-in parking on a square. The square in Seaside, Florida, was the first new urban example of this technique.

PARKING COURTS

Mid-block parking courts are an alternative to garage parking (see photo and plan below). You can find them in such developments as Alys Beach and Seaside in Walton County, Florida, and Poundbury in Dorchester, England. Parking courts are small parking lots designed as courtyards and with enough spaces to serve an entire block. Spaces can be dedicated to an individual house, or they can be open to whoever needs a spot. Parking courts work best when they include shade trees to protect vehicles from the summer sun.

For new urbanists and proponents of smart growth, parking is a huge issue. The design and construction of places that are human-scale while meeting modern parking needs present a host of challenges. Fortunately, there are solutions to every problem.

Parking courts in Alys Beach — in the plan at right and photo below — handle off-street parking.







DTO BY ROBERT STTEUTEVIL

PHOTO BY LAURENCE AURBACH



Landscape

Greening cities and towns	420
Killer tree pits	420
Better practices	421
The economic equation	422
Principles for a well-landscaped city	423
The nature of trees	424
A Transect-based	
approach to trees	425

Urban landscape types	
and forms	426
Agricultural urbanism	427
Reconciling housing	
and agriculture	428
Making agriculture	
succeed in a town	429
Organic farming in a TND	430

Above: A big canopy of trees adds a magical, timeless quality to a street of houses in Newpoint, a traditional neighborhood development built in the 1990s in Beaufort, South Carolina. Photo by Josh Martin.

Greening cities and towns

Based on satellite images of 40 US cities, *American Forests* reported in 2003 that "urban areas have 21 percent less tree canopy today than they did 10 years earlier." Tree canopy covers only 12 percent of Buffalo and Lackawanna, New York. Trees shelter less than 20 percent of metropolitan San Diego. (At the other end of the spectrum, one of the lushest cities is Savannah, Georgia, where trees shelter more than 60 percent of the land and buildings.)

As tree cover declines, cities suffer in many ways. Fewer trees are left to counter the urban "heat island" effect. Planning consultant Jonathan Barnett notes that in a city like Omaha, trees sheltering parking areas can reduce peak summer temperatures by nine degrees — enough to affect people's comfort. Trees are useful for removing pollutants from the air and for absorbing carbon dioxide, giving off oxygen, and relieving human stress. If a metropolitan area has enough tree cover, it is less vulnerable to flooding and sewer overflows and less in need of expensive civil engineering projects.

For new urbanists, a chief concern is the viability of street trees. Urban designers depend on rows of trees to narrow the perceived width of thoroughfares, to generate a sense of enclosure for outdoor areas, and to make public areas more inviting for pedestrians.

Toronto urban design director Robert Freedman says tree die-off has become a pressing issue particularly for cities in northern climates, where ice-melting salt on streets and sidewalks seeps into the soil and poisons curbside trees. Early tree death could intensify as global trade spreads diseases and insects from distant parts of the world.

Killer tree pits

Some common procedures exacerbate tree problems. For decades, it's been common to plant street trees in "tree pits." But if these excavations are too small, the root system cannot support the tree for more than a few years, according to James Urban, an authority on trees in built-up areas. The lack of room for roots stunts the tree's growth, and soon the tree begins to die, says Urban, principal of Urban Trees and Soils in Annapolis, Maryland.

A conference in Toronto on urban trees also identified the following as causes of tree death:

• Poor soil. Developers sometimes scrape the topsoil off of properties, leaving dirt that has little feeding value for trees.

• Compaction. Trucks and heavy equipment unintentionally compress the dirt, turning it into a

Trees not only provide shade and beauty, they also help to define space. At left is an avenue in Tarragona, Spain.



PHOTO BY STEVE MOUZON

practically solid mass, which the roots cannot easily penetrate.

• Inadequate drainage. If the soil around and below the tree is clay, water has a hard time dispersing. The tree may, in effect, drown.

• Utility trenches. Contractors and municipalities often dig trenches for the many wires and pipes serving contemporary developments. The trenches frequently go deep enough to destroy root systems, causing trees to topple or die within a year or two.

• Tree grates. Many cities install decorative metal grates around newly planted trees. As the trunk grows, it may end up fighting the encircling obstacle. Though some tree grates are designed so that the innermost section can be removed as the trunk expands, rarely do municipalities remove them promptly enough. The grate girdles the trunk, stopping the flow of water and chemicals between the top and bottom of the tree. If the tree doesn't die first, it may lift the grate and create a hazard for pedestrians.

• Excessive paving. Covering the tree pit with bricks or paving stones may injure the growing trunk and roots and may prevent needed water from reaching the roots. Sidewalks become problems when they compact the soil, overly confine the roots, and prevent the tree from getting enough rainwater.

Better practices

The fundamental solution to most city tree problems is simple: Give each tree access to more and better soil. Instead of allowing utility crews to dig trenches through the root area, municipalities could in some instances require tunneling for utilities. Paul Ostergaard of Pittsburgh-based Urban Design Associates says the best approach is to put the utilities in alleys, allowing trees along the street frontage to grow with fewer impediments.

Instead of installing tree grates, municipalities could leave the soil exposed, covered with mulch, stone dust, or other substances, or planted with flowers. The surface should be appropriate to the context. The higher density the setting, the more formal the treatment. "Exposed soil areas are fine for certain parts of the Transect, but you wouldn't want that in T5 [urban center] or T6 [urban core]," says Kevin Klinkenberg of 180 Degrees Design Studio in Kansas City.

Urban says that when nearby residents or businesses agree to water flowers around trees, the trees fare better, receiving much-needed water during sum-



HOTO AND ILLUSTRATION BY JAMES U



URBAN TREE SOIL TRENCH

mer hot spells. People are more conscientious about watering flowers than trees. Some specialists say that automatic irrigation is usually unnecessary if the trees have a reasonable quantity of high-quality, uncompacted soil from which to extract moisture. However, Jonathan Barnett, of Wallace, Roberts & Todd, says, "The tree needs some kind of assistance for the first couple of years. The best answer is to provide an access pipe that can help someone water the tree roots by hand when it is clear there is a drought." In heavily trafficked areas, it may be necessary to install a fence or other barrier to keep pedestrians from trampling the base of the tree.

"Trees are an essential form giver in the urban environment and should be an integral part of the Transect," Ostergaard says. "In urban residential neighborhoods, rows of trees can flourish in broad tree lawns and front yards because of the amount of exposed soil. In more dense urban areas, large concentrations of trees are most often found in squares and parks, where permeable surfaces can be created."

Ostergaard says northern communities that are considering installing medians in their streets might follow the example of Grant Street in downtown Pittsburgh. There the city installed an elevated, treeplanted median, lined with granite. It shields trees from road salt while providing safe harbor for pedestrians.

"Any tree pit that is effectively a flower pot is a mistake," Barnett says. "Eventually the tree will reach the limits of root expansion and start to die." One form of "structured soil volume" recommended by Urban is a "continuous soil trench," which runs beneath sidewalks or other pavement, linking the soil area of two or more trees together. A continuous soil trench gives each tree more room for root growth and offers an alternative to small, isolated tree pits. Most trees do not send their roots deeper than three feet, so the soil trench usually need not be deeper than that. The soil may require the addition of some organic material, such as compost. The most critical factors are how much soil is provided, whether it drains properly, and whether it is loose enough - i.e., not hardened through compaction. A base of gravel can be installed beneath sidewalks to improve drainage and give the roots access to air.

Urban has devised a system that uses a grid or cage of plastic to support the sidewalk. The supports

can extend below grade, and the resulting space is filled with soft rooting soil. The sidewalk becomes, in effect, a roof over the rooting space. "By fixing soil problems, we open the door to a larger number of species," Urban points out. With approximately 10 species dominating municipal tree planting, there is currently too much vulnerability to pests and diseases, which can quickly wipe out much of a city's tree cover.

Some communities have resumed planting elms. Many American elms were killed by Dutch elm disease, a fungus that began to be spread by beetles in the US in the 1930s. But some elms resisted the disease, and from them the Elm Research Institute in Keene, New Hampshire, has cultivated what it describes as a disease-resistant "American Liberty" elm, which looks like the tree that graced tens of thousands of streets. Nearly 300,000 have been planted in more than 1,000 communities. The Institute says Liberty elms send their strongest roots downward rather than laterally, can grow as high as 100 feet, and "are tolerant of salt conditions and soil compaction," thus serving well as street trees. Other organizations, too, have cultivated disease-resistant elms, including the Princeton, New Harmony, and Valley Forge varieties.

The economic equation

Transforming municipal tree-planting will not be cheap. Urban says it will cost \$5,000 to \$10,000 per tree to get all the factors of soil, drainage, and pave-

Best practices call for tree preservation where possible — here's a guide for tree preservation and new plantings in Verano, a development in San Antonio, Texas. The new trees are a darker shade.



FROM THE VERANO COMMUNITY DESIGN BOOK, GATEWAY PLANNING GROUP AND J. ROBERT ANDERSON LANDSCAPE ARCHITECTURE



GATEWAY PLANNING GROUP AND J. ROBERT ANDERSON LANDSCAPE ARCHITECTURE

Instructions on tree planters from the Verano Community Design Book.

Continuous soil ducts and paneled, pervious, paving provide healthy tree environments and functional spaces

Gravity fed acequias along streets or walks feed tree roots and cleanse stormwater

ment design right for downtown commercial sites. The figure would be much lower for residential areas. Some money can be saved by not purchasing tree grates or installing irrigation. Additional money may be saved by not having to remove so many young, dead trees.

Trees produce measurable economic benefits - for property owners and for communities. Some studies have found that homebuyers will pay 3 to 7 percent more for properties with ample trees, says Kathleen Wolf of the University of Washington Center for Urban Horticulture. Businesses have been willing to pay 7 percent higher rents for office buildings that are well-landscaped, Wolf says. At maturity, a tree may add tens of thousands of dollars to a property's value — some of which goes back to the municipality in property tax revenue. Chicago has found that planting trees and other vegetation helps to revitalize and redevelop both residential and business areas. In 1990, Chicago had an estimated 430,000 street trees. By 2003, the number grew to an estimated 538,000, many of them planted by private interests responding to the city's investment.

"I am convinced that we can achieve very high canopy rates in very dense areas if we treat trees as infrastructure and give them what they need for soil," says Urban, who wrote the tree section of the reference volume *Architectural Graphic Standards*. "If you combine 'new urban trees' with green roofs and other ways of softening our cities, along with large urban parks, I am fairly confident we can make cities very viable from an ecological standpoint. I certainly can envision a 40 percent canopy coverage at typical New Urbanism density."

PRINCIPLES FOR A WELL-LANDSCAPED CITY

James Urban has compiled 10 strategies, of three different kinds, for successful development of trees in cities. They are:

Soil-based strategies:

1) Plant the easy places first.

2) Make bigger planting spaces, balancing the size of areas of pavement and areas of soil.

3) Preserve and reuse existing soil.

4) Improve soil and drainage though methods such as breaking soil compaction, amending or replacing soil, and maintaining or creating needed drainage. FROM THE VERANO COMMUNITY DESIGN BOOK, GATEWAY PLANNING GROUP AND J. ROBERT ANDERSON LANDSCAPE ARCHITECTURE



Tree-based strategies:

5) Respect the base of the tree, avoiding paving within the area of the tree's future "trunk flare" (the expanding lower part of the trunk).

6) Make space for roots by designing spaces for roots under the pavement and choosing approaches that take different conditions into account.

7) Select the right tree for the right place.

Management-based strategies:

8) Establish reasonable tree and soil budgets, balancing the design quality of all elements in the landscape.

9) Create detailed tree and soil construction documents so that construction decisions are project-specific and respect the science of trees and soils.

10) Design for maintenance.

THE NATURE OF TREES

Editor's note: the following was excerpted from the Verano Community Design Book, by Gateway Planning Group and J. Robert Anderson Landscape Architecture. Verano is a large new urban community planned in San Antonio, Texas.

Trees define spaces, connect the natural to the urban, and create a sense of place. Many people can recall positive childhood memories associated with trees. Verano builds a dense infrastructure of urban trees by planting trees on every roadway. These newly planted trees contribute to the existing character of native trees already on the site. There are five predominate street tree types: continuous, grates, medians, pedestrian promenades, and parkways.

Continuous

Plant trees within continuous planting beds when:

PLANTING GUIDELINES *Plant various species to avoid large groups of single species trees susceptible to endemic*

Use trees to create shaded walkways, thereby contributing to safe and healthy streets.

TREES IN TRANSECT

Street trees will be preserved or planted throughout the site, in all T-Zones, transition from rural, naturalistic plantings to more formally designed urban

disease.

ZONES

plantings. **STATISTICS** An average acre of forest removes about 3.6 tons of carbon dioxide and produces about 4 tones of oxygen per year, enough for about 18 people.

- Bioswales are within the streetscape
- Creating a garden-scale environment
- Larger tree growth is needed

• Balancing the scale of buildings, pedestrians, and roadways

Carefully consider the mature size and form of trees and shrubs to insure the proper scale and function within the space.

Grates

Plant trees within tree grates when:

• High pedestrian volume requires maximum hardscape

• Forming urban spaces and/or patterns

• Smaller tree forms are acceptable and/or required

Making an artistic statement

Use tree grates within T5 and T6 zones. Carefully consider the mature size and form of the tree species and its ability to grow within a reduced space. Use continuous soil ducts to improve tree health and form.

Tree grates can be substituted with hardy groundcover to soften streetscape.

Medians

Select trees based on mature canopy heights and forms. Smaller medians will require oval tree shapes to ensure adequate clearance for cars, trucks, and buses.

Transplanting large, existing, on-site trees is environmentally sound, good for neighborhood character, and helps preserve the natural history at the site.

Promenade

Trees within the pedestrian promenade are unique in their character and function. The pedestrian promenade is an oasis within the urban setting functioning as a thoroughfare as well as a unique destination.

Trees within the promenade provide:

- Clustered landscape settings
- Shade for pedestrians

• Unique accents, such as palm tree corridors, bald cypress groves, and heritage live oaks

Park drive

Trees along the park drives provide a visual and physical connection between the preserved natural areas and the newly developed areas. Trees should:

• Be in rows on the built side of the street

• Be clustered and accented along the T1 (natural) side of the parkway.

• Reflect the existing native trees of the T1 areas

• Shade multiuse paths

• Define spaces and balance the scale of additional planting beds and areas

• Maintain visibility at street and path intersections

A TRANSECT-BASED APPROACH TO TREES

Duany Plater-Zyberk & Co. has settled on a gradation of tree-planting for various parts of the Transect. In rural sectors of the Transect, T1-T3, "the plantings should be informally grouped (clustered), and can include various tree types and sizes," explains Jorge Planas at DPZ. The rural sectors can often accommodate large trees. "As you move to the urban parts of the Transect, T4-T6, the trees begin to take on more steady patterns, and types should not vary," he says. "The tree size is recommended to be smaller, and thus with a tighter spacing."

In commercial areas, spacing may be less steady, Planas says, because businesses don't want their storefronts and entrances to be obscured. "Tree spacing and types should take into account the buildings and views into them," Planas suggests. Where the design calls for tree pits in mostly paved commercial areas, DPZ has recommended using brick paving that allows water to reach the roots. Planas warns that a street will look cluttered if varied kinds of fencing are installed around trees. He recommends "simple and traditional pit guards of the upside-down 'U' [type] linked together."

If large trees are desired for commercial settings, it's best to plant them on boulevards, usually in the median, Planas says. Continuous planting strips of trees can work on the street side of a boulevard "provided the sidewalk is ample enough," he notes.



This table from the SmartCode shows six common types of tree shapes and their appropriateness within the Transect zones. The local planning office selects species appropriate for the bioregion.

425



LANDSCAPE CHARACTER OF OPEN SPACE

Use landscape in parks and open spaces to define spaces, emphasize important aesthetic experiences, and to encourage residents and workers to enjoy the outdoor environment user enuer.

Use a diversity of styles and landscape types to match the goals of Verano's mixed use development while retaining some of San Antonio's unique, historic styles. Provide informal through formal spaces to allow the widest range of plant material and provide a structure to transition from zone to zone.

Incorporate majestic and graceful shade trees (live oaks, red oaks, cedar elm, and pecan), ornamental trees (crape myrtles, mountain laurels, Texas redbuds), accent plants (prickly pears, yuccas and century plants) and many native peremindis and anomental grasses. Use open spaces to provide color, shade and texture and to continue the tradition of San Antonio's high quality, pedestrian friendly, environments.





HARDSCAPE & AMENITIES

Use fountains, patios, elegant stone walls and archways to recall the past of San Antonio within Verano's new urban style.

Incorporate art and iconic architectural elements, such as columns or sculptured walls, to attract pedestrians, residents, and consumers as well as to establish a sense of place.

Incorporate local stones and materials into walls, planters, and paving. Use large rocks and boulders found on site as accents along paths and within planting beds.





PLAYGROUNDS

Design playgrounds to be age appropriate and have native planting for children to learn and appreciate local plants and to encourage unstructured creative play.

Incorporate non-toxic plants that are free of sharp thorns, especially in young children's play areas.

Incorporate turf covered earth mounds, highly aromatic vegetation, soft textured plants, butterfly gardens, and uniquely shaped plants for high interest and activity.



SUSTAINABILITY

Limit lawn areas to avoid high water consumption. Native plants and drought tolerant species will conserve water, promote a sense of regionality, support wildlife, and minimize maintenance.

Maximize the use of on-site generated organic products for mulching, soil amendments and landscape management. Allow for compost, recycling, and rain collection facilities.

Incorporate the Best Management Practices (BMP) from the San Antonio Form Based Zoning District to reduce storm water run-off.



Trees define spaces, create vertical elements, provide shade, and add an historic value to

provide shade, and add an historic value to open space environments. Cluster trees naturally in parks and greens to provide habitats, extend the existing vegetation, and to add interest and aesthetic value. Use trees in rows to define formal allees, create outdoor rooms, and to balance the scale of buildings and/or enhance architectural elements. Shade all walkways, multi-use paths, and parking faclitites.

Preserve all significant trees and woodland to maintain drainage areas which retain soil moisture, cool nearby built-up areas, and create pleasant places for walking and exercise.





The great diversity of **urban landscape types and forms** is illustrated above. From the *Verano Community Design Book*, Gateway Planning Group and J. Robert Anderson Landscape Architecture.

AGRICULTURAL URBANISM

Andres Duany and other new urbanists collaborated with organic farmer and author Michael Ableman on a plan to combine urbanism with a variety of agricultural activities on the 538-acre Southlands tract near Vancouver, British Columbia. Their proposal, for the Century Group Lands Corp., envisioned "agricultural urbanism" — the integration of farms and gardens of varying scales (including shared gardens, farmers' markets, and agricultural processing) into a walkable development that would accommodate nearly 2,000 housing units.

Organized along the Transect, the residential and food- and plant-growing activities would range from high-density housing with window boxes, to somewhat less dense houses with kitchen gardens, to quarter-acre plots, 50-acre farms, and perhaps one farm of 160 acres. A land trust would manage the agricultural lands, lease parcels to farmers, and prevent parcels from being sold and developed as years go by. If implemented and successful, the proposal would help show how communities can be designed to be more self-sustaining in their food production.

A small number of agricultural and social reformers have argued for years that more of North America's food should be produced close to where the consumers live; agricultural urbanism may be one way to accomplish that.

In agricultural urbanism, "all aspects of urbanism are focused on food production," according to Duany Plater-Zyberk & Company. When this concept is applied to a piece of existing farmland, it allows food production to be tripled — even though a third of the land is developed, Andres Duany notes. "It's an upward trade, instead of downward trade," he says. "By harnessing people living on the land, you actually increase production."

One concept that DPZ has developed as part of agricultural urbanism is the market square — see rendering on the next page — a plaza that is "centrally situated between agricultural land and residential development and is anchored by a university's Urban





The Market Square

The Market Square is centrally situated between agricultural land and residential development along a high street spine lined with ground-floor retail, live-work units and community facilities.

The Square will be anchored by a University Centre for Urban Agriculture. It is within a ten-minute walk of all residences and will be part of a regional transportation network, connecting it to the existing town and village centres.



- Multi-purpose Building University Center for Agriculture
- Culinary Institute
- 4 Farmers' Market
- Agricultural Support: Barns & Sheds 6 Planting Fields
- (Bakery, Cannery) Mixed-Use Buildings Q Market Square 10. Community Gardens

8

Value Added Agriculture Processing

Value Added Agriculture requires the processing and preservation of foodstuffs to increase the price. Bakeries and canneries are examples of two programs that buffer market and crop fluctuations, allow the use of less than perfect produce (value where none might otherwise exist), and make use of less skilled or part-time work, including a part of the population that might not otherwise be employed. Therefore, the inclusion of these spaces into the program of the agricultural town is important for its economy.

The Market Square concept developed by Duany Plater-Zyberk & Company is a key public space where the town meets the agricultural edge.

Agriculture studies department."

Another concept is value-added agriculture, "the processing and preservation of foodstuffs in a way that increases their market value." Examples include bakeries and canneries "that buffer market and crop fluctuations, allow the use of less than perfect produce ... , and make use of less skilled or part-time labor, including a part of the population that might not otherwise be employed."

Reconciling housing and agriculture

The charrette proposed four principal scales of agriculture at Southlands. They are:

• Rural agriculture, consisting of farms of 20 to 160 acres, including grazing, hunting, and periodically uncultivated land.

- Small farms of 5 to 20 acres each.
- Specialty farms of 1 to 5 acres.

• "Intraurban agriculture," including community gardens of 50 to 5,000 square feet; front gardens and kitchen gardens for individual residences; and container gardens (roof gardens, balcony boxes, and window boxes).

The specialty farms would be especially important, acting as transitions between the larger outlying agricultural expanses and the denser center where most of the population would live. Plans from the charrette show specialty farm areas of up to five acres that would extend like fingers into rural terrain.

Marina Khoury, director of town planning at Duany Plater-Zyberk & Co., says agricultural urbanism, as pictured at Southlands, differs from what new urbanists usually attempt. In new urbanist plans, "we're used to seeing an urban-rural edge," a relatively sharp demarcation, she says. At Southlands, by contrast, "we tried to weave it together." Bob Ransford, an urban land-use consultant, notes that "the agriculture is physically brought in with a fairly jagged edge."

The Planning Team identified many food-related activities that could be included in Southlands:

· Community gardens in neighborhoods and at the edge.

Agricultural Urbanism

Research is ongoing to develop techniques for assimilating agriculture into an urbanism acceptable to the expectations of modern life and meeting the choice of lifestyles of Transect-based plans.

The ability to grow food has implications for communities on multiple levels: from food security and health issues, to ensuring a local economy, to the vast environmental benefits of local farming, and the social benefits of a productive activity in which all members of a community can engage.

The One Acre Block as the Model

This study uses the single acre as a point of reference to show the insertion of dedicated agricultural areas into different building types along the transect.

Some buildings which cannot have a dedicated growing area can contribute by using roofspace for water or energy collection; most would probably have at least window boxes.

Maintaining an agricultural potential without losing quality of life requires a conscious effort to balance sunlight, building heights, and block sizes. In reality, the plan would allow several blocks to be joined, with mid-block connections being non-vehicular, reducing the cost and impact of heavy paving, and dedicating more resources to bicycle and walking paths.



• Allotment gardens where townhouse and apartment dwellers could rent small plots.

• A market square with a focus on agriculture. Anchoring the market square would be a center for urban agriculture, occupying facilities that would be built for Kwantlen University College by the developer. Its backside would open up to farms, Ransford says.

• A farmers' market with mixed use and live-work units.

Making agriculture succeed in a town

All of the smaller-scale agriculture would be organic, eliminating conflicts over pesticide spraying that sometimes arise where housing sits next to farms. A land trust would manage the agricultural lands, lease parcels to farmers, and prevent parcels from being sold and developed as years go by. The land trust would regulate some farming operations. "You can't have every farmer growing the same crop" if the goal is to feed the local population, Khoury points out.

Doug Farr, the Chicago architect and author of *Sustainable Urbanism*, worked on developing detailed

checklists of the responsibilities of the various entities, including the municipality, the developer, and farmers. The team produced a Transect diagram showing where the various agricultural activities fit. They range from forageable land in T1 (natural zone) and T2 (rural zone); to community gardens in T2, T3 (sub-urban), and T4 (general urban); to roof gardens and balcony boxes in T4, T5 (urban center), and T6 (urban core).

Community gardens in Highlands' Garden Village in Denver





Goodbee Square, in Covington, Louisiana, was designed so that every house faces a square with community gardens, tot lots, and other amenities. The squares also provide stormwater detention.

Ransford thinks the agricultural urbanism concept could be especially useful in regions that have urban growth boundaries. "Some of the worst urbanism is at the edge," he observes. "Land sits there with developers speculating that it's the next land for developing." Of the thinking that has gone into Southlands, he says: "It's a new ethos that will start to influence the New Urbanism. It's a timely issue to be dealing with."

ORGANIC FARMING IN A TND

Across North America, there is increasing demand for fresh food grown without chemicals and without long-distance trucking. A study in Loudoun County, Virginia, found that a view of farm land is as valuable as a view of a golf course. New Town at St. Charles, Missouri, is one of the first traditional neighborhood developments (TNDs) actually to implement a farming program. An organic farm was begun there in 2008. The site chosen for the farm — adjacent to residential neighborhoods on two sides and within a few blocks of the town center — treats farming as another mixed use that adds vitality to the community.

At New Town at St. Charles, the farmhouse, built over three years while the farm was being readied, is powered in part by a 1.8-kilowatt wind turbine. Another windmill — an old-fashioned one like those that dotted Midwest landscapes in the 1930s — pumps water for irrigation. The site includes a restored barn and two new barns — one of them designed specifically for horses. Also completed are three greenhouses and more than 150 raised beds "for farm production and individual lease by residents," according to developer Greg Whittaker.

The farm is intended to be an amenity for residents but also a food source and a viable business. "Aside from produce, the organic farm will generate additional revenue through the sale of bedding plants, Halloween pumpkins, and Christmas tree sales — all of which will benefit from the demands of an ever growing community," the developer says.

An amphitheater made of brick pavers and stone has been built on the farm site as a space for retail sales and special events. The farm is expected to be a venue for barn dances, festivals, and other community events as well as a destination for school trips. Part of the farm will be allocated for community garden plots, available for lease to residents.



The plan for the organic farm in New Town, above, brings agriculture right to the edge of the neighborhood: see the house lots fronting the farm. The windmill, barn, and greenhouses of the New Town farm make an attractive neighborhood edge.



Index

Project citations in tables are not indexed. Tables are indexed under specific topics.

A

AASHTO. See Green Book Abacoa Town Center, Florida, 291 Access, for office tenants, 112-113 Accessibility. See Visitability Accessory dwelling units, 289-290 access and amenities, 327-328 in affordable housing, 325, 332 alleys and, 417 carriage house lots and, 258 over garages, 417-418 in selected projects, 326 Accidents fatality rates on streets and, 378 street design and, 136-137 Active Living by Design program, 379 Addison Circle (Addison, Texas), 50, 110, 127, 191 ADUs. See Accessory dwelling units Advertising messages. See Marketing Affordable housing, 317-338 through accessory units, 325-328 block-scale ideas for. 320 building scale and, 320-321 city-scale ideas for, 318-319 cutting costs for, 331-338 density and, 322-323 development cost reduction in, 334 Grow House and, 324 in HOPE VI projects, 322 neighborhood-scale options for, 319-320 policy for, 329-331 single-room occupancy in, 330-331 style and, 323-324

transportation for, 331 trust fund for, 330 variety in, 324 Afton Village (Concord, North Carolina), 50, 357 Aging, 377-386 Agricultural land, 34, 365 Agricultural urbanism, 427-430 and housing, 428-429 and organic farming in TND, 430 Albuquerque, New Mexico as downtown/infill redevelopment, 57-58 liner buildings in, 82 shallow storefronts in, 82 Alleys. See also Streets garages and, 417-418 narrow for cost-savings, 153, 166, 311, 334 parking and, 404, 414, 417-418 utilities and, 266-267 Alliance for Modern Transit and Livable Communities (Tampa, Florida), 36 Alternative urban networks, 37 Alys Beach, Florida, 276, 418 Amelia Park (Fernandina Beach, Florida), 326, 328 Amenities retail as. 350 in smart growth communities, 341 American Association of Highway and Transportation Officials (AASHTO), 139 Anchor stores, 85, 86 junior anchors, 95 as magnets, 86-87 Ancillary building, 315-316. See also Accessory dwelling units parking for, 416 Apartments. See Multifamily

housing Appearance, of community documents, 214 Appraisers, real estate, 267 Arcades, 194 Architectural codes. 190-191. See also Building codes; Design; Legal planning; Urban codes; Zoning drafting and enforcing, 190-191, 214 in new urban communities, 207 Architectural control, 212 Architectural patterns, 204 Architectural styles building types and, 271-300 Classicist, 274-275 evolution of, 286-287 Modernist, 273 pre-1920s, 276-277 traditional, 273 vernacular, 275-276 Architectural trim, 308 Architecture, liners and, 89 Arlington, Virginia, TOD corridor in, 120, 126 Art Deco, 277 Arterial roads, 81-82, 142 use of term, 140-141 Asia. 401-402 Assisted living plan, 382 Associations documents for, 212-214 management by, 207 "A" streets, 21 Atlanta area Lifelong Communities in, 381 walkability in, 231 Atlantic Station (Atlanta, Georgia), 251 Attached partial wrap, 94 Australia, 401
Automobiles, 27. See also Arterial roads; Parking; Roads; Streets; Transit-oriented development; Transportation issues Cool Spots and, 375 drive-through retail and, 102-103 New Urban development and, 366-367 pedestrian vs. driver needs and, 144-145 reducing use through design, 13 street design and, 134 AutoZone Park (Memphis, Tennessee), 182 Avalon Park (Orlando, Florida), 233 Avenue, 162 use of term, 141

В

Baby Boomers, as urban market, 228, 229 Back building, 315-316 Back-to-back duplex, 295-296 Backyards, 311-312 Balconies, 316 Baldwin Park Village Center (Orlando, Florida), 105, 171, 172, 290, 291 Ballparks, as civic buildings, 182 Barriers (physical), 173 BART. See Bay Area Rapid Transit Battery Park City (New York), 43, 71, 363 Baxter (Fort Mill, SC), 50 Bay Area Rapid Transit (BART), 121, 122, 125, 126, 223-224 Bay Street (San Francisco, California), 69-70 Beerline B (Milwakee, Wisconsin), 53-54, 70, 267, 269, 280 Belle Hall (Mount Pleasant, South Carolina), 364 Belmar (Lakewood, Colorado), 51-52,77 big stores in, 93-95 liner buildings in, 95-96, 291 no-wrap stores at, 95 Benefits, of smart growth

communities, 341 Best practices, for greening urban environments, 421-422 Best Practices Guide (New Urban Publications), 249 Bethesda Row project (Bethesda, Maryland), 58, 227, 292 Bicycles bus racks for, 155-156 facility planning for, 156 promotion of, 154-156 Big box retailers, 90 district for, 98-99 impact of, 93-96 on main streets, 97-98 in neighborhood, 92 parking for, 96 in urban center, 90-92 Bike lanes, 155 Bioswales, 372 Birkdale Village (Huntersville, North Carolina), 55-56, 81 Black plans. See Figure/ ground drawing (black plan) Blocks big blocks, 95 in New Bombay, 402 new urban sizes of, 248 parking and, 409-411 small, 150-151, 153 stores in, 21, 25, 90-93 as units of neighborhood, 22 Block-scale ideas, for affordable housing, 320 **Bloomington Central Station** (Minnesota), 126 Board of directors, for communityenhancing nonprofits, 360 Boca Raton Community Redevelopment Agency, 73 Boulder, Colorado Holiday Neighborhood in, 267 municipal initiatives in, 393 parking in, 413 Pearl Street project in, 111 walkable. mixed-use street in, 387 Boulevard, use of term, 141 Bradburn (Westminster,

Colorado), 50, 82 case study, 245-246 Branding brand identity and, 343-346 co-branding and, 342-343 of smart growth communities, 340-350 Brea, California, 72-73 Britain design in, 374 housing in, 374 New Urbanism in, 396-398 parking lot in, 403 Brookview (New Castle County, Delaware), 284-285 Brownfield sites, 53-55, 66 Beerline B as, 70 in Britain, 397 other brownfield redevelopments, 55 BRT. See Bus rapid transit "B" streets, 21 Builders education of, 312-315 planner control of, 322 Builders guild, 249-250 Building, 25, 26. See also Architectural styles; Design Height, stories, 194 institutional, 27 main, back, and ancillary, 315-316 production building, 302-303 specialized types, 211 as transitions between environments, 298-300 types and arrangements, 288-300 Building codes. See also Architectural codes; Pattern books; Urban codes; Zoning for flex house, 116 for live/work units, 116 Building process, 301-316 of Lifelong Communities, 382-383 sequencing of, 349-350 Building supply box, 91 Building types architectural styles and, 271-300 context buildings, 189-190

mixture of, 252 object buildings, 189–190 specialized types, legal issues of, 211–212 Build-to-lines, 189, 194 Built Green Builder, 343 Bulbouts, 146–148 Bungalow court, 296 Buses bicycle racks on, 155–156 in New Urbanism, 132 TOD and, 118–119, 130 Business centers, 43 Bus rapid transit (BRT), 118–119, 122–124

С

Calgary, Alberta, Canada, 71, 399 California, greenhouse gas bill in, 389-390 California Modern, 283 Cambridge, Massachusetts, retail in, 83-84, 125-126 Canada, 71, 323, 398-401 Canals, stormwater flow in, 372 Capital improvements, 213 Carbon dioxide emissions, 368 Carpet Cottages, 295 Carriage house lots, 258 CDD. See Community development district bonds Celebration (Osceola County, Florida), 267 building community in, 352-353 business park in, 109 downtown in, 49 flex space in, 290-291 play space in, 175 school in, 49 town center of, 171 walkability of, 49, 171, 191, 229 Center historical, 19 parking in, 406-411 reclaiming, 71-72 Center for Transit-Oriented Development, 406 Center tier of Transect, 19

Central America, 397 Central Park Neighborhood (Verano), 173, 174 Century section (Kansas City), 37 Chamfers, 306 Chapel Hill Carrboro School District, North Carolina, 380 Character, in affordable housing, 323 Charleston Harbor project, 364 Charlotte-Mecklenburg Schools (North Carolina), 179-180 Charrette, 215-226, 249 alternative plans produced by, 223-224 conduct of, 225-226 phases of, 220-222, 226 physical arrangement of, 222 plan from, 219-220, 221-222 principles of, 217-220, 225-226 schedule for, 221 sponsorship and funding of, 217 techniques for, 222 workflow for, 220 Charrette Ready Plan, 219 Charter of the New Urbanism, 24-25, 32, 188, 355 Chattanooga, Tennessee, design in, 394 Cherry Hill Village (Canton Township, MI), 50 Chicago, Illinois green roof on City Hall, 370 tree-planting in, 423 Chicago Metropolis 2020, 36 China, 401 Chula Vista, California, 380 Churches, 27, 170, 171 as civic buildings, 181-182 Circulation networks, 153 Cities, 24, 42-43 fire response in, 137-138 greening of, 420-430 revitalizing, 65-74 Cities on Rails: The Redevelopment of Railway Station Areas (Bertolini and Spit), 120 Città Nuova (Alessandra, Italy), 395, 398

City Heights Retail Village (San Diego), 297 CityPlace (West Palm Beach, Florida), 78, 87, 410 as downtown/infill redevelopment, 57 City-scale ideas, for affordable housing, 320 CityVista (Washington, D.C.), 65 City West (Cincinnati, Ohio), as HOPE VI public housing redevelopment, 61-62 Civano (Tucson, Arizona), 373-374 Civic buildings, 14, 170-172, 206, 284 ballparks as, 182 legal perspective on, 206-207 post offices, 180-181 religious buildings, 181-182 schools, 176-180 town hall, 169 Civic lot, 172-173 Civic sites, in greenfield developments, 48 Civic spaces, 172-175 dog parks as, 176 fun with, 176 mid-block, 175 play places, 174-175 after terrorist attacks, 173 Clairemont (San Diego, California, area), 378 Clark's Grove (Newton County, Georgia), 242 Classical style, 273-275, 287 Classicism, 274 Classrooms, temporary, 179-180 Claymont section (New Castle County, Delaware), 284 Clover Field (Chaska, Minnesota), manufactured housing in, 335 CLT. See Community land trust (CLT) **Clustered Land Development** (hamlet), 46 CNU. See Congress for the New Urbanism Coalition for Utah's Future, 30 Coastal areas, environment

in, 369-370 Co-branding, 342-343 Code issues, for liner buildings, 96 Codes, 183–204. See also Architectural codes; Building codes; Regulation; SmartCode; Zoning fire, 266 form-based, 123, 184-195 for object and context buildings, 190 rehabilitation, 194-195 Rhode Island Rehabilitation Code, 195, 196 statewide requirement for, 193-194 for TNDs, 270 and Transect in regional planning, 37-39 urban, 188-189 what to code, 188 Cohousing, 268, 358-359 Collaboration, in charrette, 217 Collector, use of term, 140-141 College Park (Memphis, Tennessee), HOPE VI project at, 386 Collier County, Florida, 36 Colonnades, 194 Columbia Heights (Washington, DC), 120, 125 Columbia Pike (Arlington, Virginia), 186 Columns, 306-308 Commercial areas in Canada, 401 in cohousing community, 358 in greenfield site, 46 parking in, 406-408, 410, 414, 416 in town centers, 209-210 Commercial buildings, placement of, 82 Commercial parking, 328-329 Common areas, dedication of, 208 **Commons Neighborhood** (Denver, Colorado), 70-71 Community civic buildings for, 170-172 cycle of, 359-360 diversity and, 354-356

marketing of, 344 principles of human-scale, 12-25 revitalizing, 65-74 trademark of name, 212-213 Community building, 351-362 Community centers, 80 schools as, 177 Community Character Plan (Collier County, Florida), 36 Community design, focus on, 12 Community Design Manual (Collier County, Florida), 36 Community development district (CDD) bonds, 240 Community land trust (CLT), 329 Commuters, transit design for, 121 Compact development patterns, 364, 376 Condos, Katrina, 320-321 Congestion, parking and, 416 Congress for the New Urbanism (CNU), 24, 67 regional planning and, 35 thoroughfare planning and, 142 Construction critique of methods, 312-313 energy use and materials, 368 Context buildings, 189-190 Context-sensitive design, vs. context-determined design, 138-139 Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities, 142 Continuous planting beds, for trees, 424 Continuum, 93-94 Contra Costa County, California, 40 Convenience centers, 79 Conventional planning and zoning codes, 184-185 Conventional suburban development (CSD), 238-239 New Urbanism compared with, 318 parking and, 413-414 single-use, 248

water imperviousness, storm runoff, groundwater, and, 365 Cool Spots, 39, 374 mapping of, 376 Cooperation, for emergency response planning, 153 Coral Gables, Florida, 238 Core tier of Transect, 17-18 parking in, 406-411 transit and, 130 Corner stores, 79, 87 Cornice, 309 Corporate campus, 112-114 Corridors, 14, 25 Costs. See also Affordable housing; Infrastructure budget tips for, 338 drainage systems and, 263-265 of new urban development, 238 of office parks, 114 of street design, 148-149 of TOD, 252 for transportation, 331 of tree-planting in urban areas, 422-423 Cottage lots, 257 Cottages, 294-295, 320 for assisted living, 382 at Port Royal, 323 Cottage Square (Ocean Springs, Mississippi), 294, 335 Cotton District, The (Starkville, Mississippi), 275 as downtown/infill redevelopment, 57-58 Counties, fiscal benefit from villages, 237 Country Club Plaza District (Kansas City), 37, 76, 238 Courtside Village (Santa Rosa, California), 326-327 Courtyard housing, 260, 296-297, 332-333 Covenants, 206 in greenfield communities, 48 private, 188, 207 restrictive, 206 Covington, Georgia, school in, 178 Crime, design and, 356-357

Crocker Park (Westlake, Ohio), 73 CSD. See Conventional suburban development Cupola, 286, 287 Curb, 311 Curb appeal, 349 Curb return, 145–146 Curtis Park HOPE VI project (Denver, Colorado), 356

D

Daniel Island (Charleston, SC), 50 Davidson Commons (Davidson, North Carolina), 297 DC USA shopping center, 125 Death and Life of Great American Cities, The (Jacobs), 12 Debt. forms of. 240 Debt/equity ratios, for development projects, 239, 240-242 Del Mar Station (Pasadena, California), 60, 72 Demographic trends, 68, 228, 229-230 Denmark cohousing in, 358 cycling in, 154-155 Density, 232-233 acceptance of, 234 accessory units for, 325-326 for affordable housing, 330 of courtyard housing, 297 in East Village (Calgary, Alberta), 71 energy savings from, 367-368 federal policies for, 393 figures for, 375 in Houston, 252 of infill developments, 67-68 large-lot development and, 230-231 medium, 250-252 Modernism and, 281 parking and, 404-406, 409, 411-412, 414-416 TND and, 322-323 water runoff and. 366 Denver, Colorado, 251 RTD in, 122, 127 school spaces in, 176

Departments of transportation, reforming, 144 Design. See also Architectural codes; Materials; Pattern books architectural styles, 191-192 backyards, 311-312 context-sensitive vs. contextdetermined, 138-139 of corporate workplaces, 112 cross-functional, 217-218 environment, automobiles, and, 367 for experiences, 101 parking, 403-418 review process for, 315 role of, 68 for safety, 135-138, 356-357 street, 21, 129, 134-138 vs. target speed, 141 Design and development center, in greenfield development, 48 Destination business, 289 Detached houses, main, back, and ancillary buildings, 315-316 Detached partial wrap, 94-95 Detention pond, 263 Detroit, Michigan, manufactured housing in, 335 **Developers** architectural codes and, 190 design controls by, 191-192 groups of, 267-269 resistance to New Urbanism by, 238 tax exempt organizations and, 208-209 Development cost reduction in, 334 debt and equity for, 240-241 drainage systems and costs of, 263-265 land, 247-270 patterns of, 24 rights, 212 Development projects, debt/equity ratios for. 239 Diggs Town (Norfolk, Virginia), 356 Direct mail, 346 Districts, 20-21, 25

for big box retailers, 98-99 parking design strategies for, 407-411 Diversity and community, 354-356 in housing, 236, 249 Doe Mill (Chico, California), 50, 175, 265-267, 301, 304, 305-306 apartments mixed into, 319 architectural trim at, 308 house siding at, 310 porches at, 306-307 privacy elements at, 311 yards at, 311 Dog parks, 176 Downtown/infill redevelopment, 57-58 Downtowns. See also Town center(s) in Celebration, 49 in Minneapolis, Minnesota, 77 parking in, 416 post office in, 180-181 Downtown Silver Spring (Silver Spring, Maryland), 77 Drachten (Holland), 150 Drainage systems, development costs and, 263-265 Drives, 161, 163, 167, 168 use of term, 141 Drive-through retail, 102-104 Driving, street dangers and, 378 Duplex, back-to-back, 295-296 Dwellings. See also Housing in Lifelong Communities, 384 parking spaces for, 416

Е

Earth-friendly development, 373–374 East Bay (Denver, Colorado), 335 East Beach, TND (Norfolk, Virginia), 41, 106, 146, 289, 345, 346, 349, 417 East Clayton Neighborhood Concept Plan, 399 East Fraserlands (Vancouver, British Columbia), 399

East Garrison project (Monterey, California), 100-101 East Germany, 397 Easton Town Center (Columbus, Ohio), 413 East Village (Calgary, Alberta), 71, 399 Eaves, 308-309 design of, 192 returns for, 308-309 Education. See also Schools of builders, 312-315 for charrette, 220 Eighth and Pearl project (Boulder, Colorado), 111, 298-300 Elderly. See Aging Ellen Wilson Homes public housing project, 69 Elongated block, 22 Email, for marketing, 346 Embedded parking, 411 Emergency response citywide scale solutions for, 152-153 street design for, 152 vs. traffic calming, 152 urban streets and, 137-138 Emission reductions, smart growth and, 231 Employment centers. See also Workplace characteristics of, 108-111 Enclosure of public realm, 14-15 shopfronts and, 99-100 Energy conservation in Cool Spots, 375 tips for, 373 urban housing and, 231 Energy use, 367-368 Engineering, of drainage, 263-265 England (Britain). See Britain Environment auto use and, 366-367 in coastal areas, 369-370 density and, 367-368 energy and, 231, 367-368 global warming and, 368-369 sustainability and, 363-376

Transect and, 370-371 water, watersheds, and, 365-366 Envision Utah, 30, 31, 34, 391-392 Equity, forms of, 240 Europe. See also specific locations cycling in, 154-155 New Urbanism in, 395 streets and public spaces in, 398 Events marketing, 346-349 Excelsior & Grand (St. Louis Park, Minnesota), 77, 235 as town center development, 56-57, 66, 73 Exercise. See Walkability Extensions to towns, 63-64 Exterior design. See Facades

F

Facades of affordable housing, 323 design of, 313-314 of small houses, 321 Fairview Village (Portland, Oregon), 51, 84, 171, 181, 284, 345 accessory dwelling units in, 326, 328 case study of, 242-244 walkability in, 379 Farming. See Agricultural urbanism Fatalities, street patterns and, 378 Federal policies, for development, 392-393 Feedback loops, 218-219 FEMA (Federal Emergency Management Agency), Katrina Cottages and, 335 Fences, 312 Fiber-cement siding, 322 Figure/ground drawing (black plan), 14, 15 Financing, 235. See also Investment for communityenhancing nonprofits, 360 investment, 241 of mixed-use TOD projects, 121 strategies for, 237 Fire code, 266 Firefightersemergency

and, 152, 153 responses on city vs. suburban streets, 137-138 First-ring suburbs, TOD and, 121 Five-minute walk concept, 39 501(c)(3) organization, 208-209 Flaghouse Courts (Baltimore, Maryland), 357 Flex houses. See also Live-work units; Mixed-use buildings building codes for, 116 mixed-use on small scale, 114-116 Flexibility through accessory units, 325-328 in corporate building and site layout, 113 in housing, 232-233 Flex space, 290-291 Floor plan, 303 Food production, 373 Food-related urban agriculture, 428-429 Form-based codes, 123, 184, 186-188, 195-201 Fort Belvoir (Fairfax County, Virginia), 60-61, 317 affordable housing in, 323, 333, 334 vinyl siding in, 337, 338 Fort Collins, Colorado, 234 Fort Irwin Army base (California), 374 Fort Worth, Texas, parking in, 408, 409 Foundations, low-cost, 333 Founders, homeowners and, 361-362 Frame, as portion of civic space, 173 France, 397, 398 Free-flow traffic, 134-135 Freeways, 142-144 Frisco Square (Frisco, Texas), 410 FrogSong cohousing development (Cotati, California), 358 Frontages, 21, 23 Front porches, 194, 293

response street design

Fruitvale Village (Oakland, California), 121, 126 Function architectural, 190 in community documents, 214 of open space, 206 Funding. See Financing

G

Garage apartments, 212, 325, 326, 327, 328. See also Accessory dwelling units Garages, 418 accessory building units over. 417-418 in affordable housing, 325 yards and, 312 Gardens. 428-429 Gas stations, inverted, 104 Gated communities, 229 General urban zone, 19 Geriatric center, 27 Germany, 154-155, 397, 398 Ghonsoli Neighborhood plan (India), 401 Gladbeck, Germany, 397, 398 Glen, The (Glenview, Illinois), 85 Glenwood Park (Atlanta, Georgia), 176 Global movement, New Urbanism as, 396-402 Global warming, 368-369 God's Own Junkyard (Blake), 12 Goodbee Square (Covington, Louisiana), 430 Government. See also Regulation in greenfield communities, 48 New Urbanism and, 237-238 regional, 34 Government buildings. See Civic buildings and uses Grand Rapids, Michigan, 375 Grange, Georgia, 334 Granny flats, 212, 325, 326. See also Accessory dwelling units Grates, for trees, 424 Grayfield sites, 51-53, 77-78 advantages of, 78

bus transit and, 132 residential development in, 229 Great Britain. See Britain Great Cleveland Regional Transit Authority, 122-123 Green Book, 139, 142, 144-145 Greene, The (Dayton, Ohio), 413 Greenfield sites, 47 designing, 45-48 grocery stores in, 87 Kentlands as, 44-45 new urbanist projects on, 44 Orenco Station as, 45-48, 125 other sites, 50-51 Greenhouse gas emissions, 368-369 Greening, 419-430 "Greening Development to Protect Watesheds: ...", 364-365 Green measures, for heating, 277-278 Green roofs, 370 Griffin Park (Greenville County, South Carolina), 263, 372 Grocery stores, 77, 87-88 Grow House, 324, 325 Growing Cooler, 369 Growth management, 40 Guidebooks, for regional architecture, 40 Gulf Coast region, 38, 203

Н

Habersham (Beaufort, South Carolina), 51 78, 83, 141, 288, 343 Haile Village Center (Gainesville, Florida), 51, 171, 233, 267 "Half-donut" plan, parking and, 410 Hamlet, Clustered Land Development as, 46 Hammond's Ferry (North Augusta, Georgia), 63, 343, 346, 348 Harbor Town (Mud Island, Memphis, Tennessee), 49–50, 78, 87, 229, 267 building community in, 352 as greenfield project, 45

Harrison Commons (Harrison, New Jersey), 411 Hayes Valley neighborhood (San Francisco, California), 144 Health aging and, 377-386 obesity and, 378 Health and Community Design (Frank, Engelke, and Schmid), 378 HealthLine (Cleveland, Ohio), 123 Healthy living, in Lifelong Communities, 384 Hearthstone (Denver, Colorado), 358 Heritage at Freemason Harbor (Norfolk, Virginia), 233 Hiawatha light rail line (Minnesota), 126 High Cost of Free Parking, The (Shoup), 417 High density mixed-use buildings, parking for, 409 Highlands' Garden Village (Denver, Colorado), 326, 327, 330, 358 High Point (Seattle, Washington), 264, 371-372 Highways. See Freeways; Roads; Streets Hillsborough County, Florida, 33, 35, 192 Historical preservation movement, 12 Holiday neighborhood (Boulder, Colorado), 267-268, 295-296 Holly Park public housing (Seattle, Washington), 128 Home businesses, 350 Homeowners, founder relationships with, 361-362 Homeowners' associations. See Owners' associations HomeTown (North Richland Hills, Texas), 178-179 Hometown Oswego (Oswego, Illinois), 326, 327 HOPE VI public housing redevelopment, 61-62, 68-70, 322, 355 at College Park (Memphis,

Tennessee), 386 crime reduction and, 356-357 low-cost foundations for, 333 other Hope VI redevelopment, 63 program for, 68 in Seattle, 127-128 visitability and, 385 Housing. See also Building affordable, 317-338 agriculture and, 428-429 diversity in, 236 with engaging fronts, 293-294 facades of small, 321 federal government and, 393 flexibility in, 232-233 large-lot oversupply, 230-231 in liner building, 292 market study for, 40 multigeneration house, 290 pods of single-use, 26 price change for selected Zip Codes, 231 setbacks of, 310-311 TODs and, 120, 130-131 urban, 228-229 variety, 324 Housing and Urban Development (HUD), Department of, 68 Houston, 250-252 Human Cost of Unplanned Growth, The (Morris), 352 Hurricane Katrina, 30, 38, 215

I

Identity, in corporate campus, 113 Illinois, codes in municipalities, 185–186 Inclusionary zoning, 329 INDEX geographic information system, 380 India, 401–402 Infill developments, 45, 65 affordability and, 322–323 defined, 67 investing in, 236 Trinity Heights as, 327 Infrastructure costs of, 153

in rural and natural zones, 20 using existing for cost reduction, 335 Injuries. See Accidents Interiors, small, 101 Intersections, 153 Intown Living (Breen and Rigby), 229 Intranets, community, 357 Intraurban agriculture, 428 Inverted gas stations, 104 Investment funds for new urban and smart growth, 241 for long term, 238-239 in new neighborhoods, 236-246 Investors as market for mixeduse buildings, 115 profits for, 242-243 l'On (Mount Pleasant, South Carolina), 51, 141, 267, 272, 310, 372 building community in, 357, 359, 360 Iraq, 401 Irregular block, 22 Italy, 397

J

Jindalee Town Center (West Australia), 410 Johnson City (Tennessee), 36 Journal of the American Planning Association, on street trees, 137 Junior anchors, 95

Κ

Katrina (hurricane), 30, 38, 215 Katrina Condos, 320–321 Katrina Cottages, 294, 320, 335–336 Kentlands (Gaithersburg, Maryland), 44–45, 51, 81, 267 accessory dwelling units in, 326 building community in, 353–354, 359 investment in, 236, 237, 242 live-work units in, 84 marketing of, 345 mixed-use buildings in, 115 schools in, 178–179 town center in, 88 traffic control at, 149 King County Department of Transportation (Seattle, Washington), 124 King Farm (Rockville, Maryland), 51, 88, 127

L

Lafayette Courts (Baltimore, Maryland), 356 Lake Forest, Illinois, model, 81 Lakelands (Gaithersburg, Maryland), 44, 51, 236, 237 Land conversion, compact growth and, 365 Land development, 247-270 Landscaping, 314, 419-430 alleys and, 417 principles for, 423-424 for urban areas, 426 Land trust, community, 329 Land-use patterns, 364-365 Lanes, 166 for bicycles, 155 parking and, 417-418 Large-house lots, 255 Large-lot housing, oversupply of, 230-231 Laws. See Legal planning; Zoning Leander, Texas, Urban Commuter Rail line in, 127 Learning Cottage (Charlotte-Mecklenburg Schools, North Carolina), 178-179 LEED for Neighborhood Development, 35-36, 151, 368 Legacy Town Center (Plano, Texas), 110, 191 Legal planning, 205-214 The Lexicon of the New Urbanism (Duany), 118, 249

on parking, 413-414 Libraries, 170 Life expectancy, 381 Lifelong Communities, 381 standards checklist for, 382-386 Lifespan, as multiple-use building, 114, 116 Lifestyle. See Quality of life Lifestyle centers, 77, 80, 408-409 Lighting, pedestrian, 266 Light rail transit. See also Transit-oriented development; Transportation issues land values and, 252 in Minneapolis, 121 new development of, 127-128 in Portland, Oregon, 125 Lindbergh Center (Atlanta, Georgia), 126 Liner buildings, 291-292 issues for, 95-96 in town centers, 89, 92 urban vestibule and, 97-98 LINK Light Rail (Seattle, Washington), 128 Linmark Associates v. Township of Willingboro, 207 Livable Places Update, 148 "Liveabove" building type, 114, 115 "Livebehind" building type, 114 "Liveinfront" building type, 114 Livermore Village (Livermore, California), 299 Liverpool, Village of, 31 Live/work and office lots, 262 Live-work units, 84, 114-116, 211, 288 Local governance, in greenfield communities, 48 Location-efficient mortgage, 329 Loft, 114, 115, 284 Longleaf (Florida), 51 Lot dimensions, 248-249 Lots design for parking and, 418 large-lot housing, 230-231 at The Waters, 253-262 Louisiana, regional planning in, 391 Low-density housing, village vs.,

238 Low-income housing, 322, 330. See also Affordable housing

Μ

Main building, 315-316 Main-main configuration, 86 Main street(s), 158 designs of, 86 revitalization of, 78 urban town center focus on, 82 use of term. 141 Main street retail. See Retail Maintenance of non-association property, 213 standards, 210 Maisonette units, 233, 292, 293 Management entity, 210 Mandatory development requirements, 188, 213 Mansion buildings, 293 Mansion lots, 254 Manufactured housing, 335-336 Mariemont, Ohio, 355 Market for flex houses (live-work), 114-116 for housing, 40 target analysis of, 231-233 for TOD development, 131 for urban places, 228-234 studies for, 270 Market Common (Clarendon, Arlington, Virginia), 59-60 Market demand, 227-234 Marketing, 339-350 charrette and, 226 events marketing and, 346-349 "have-to" for, 345 rights, 212 spending dollars wisely, 250 of TNDs, 349-350 Market Square (Kentlands, Gaithersburg, Maryland), 354 Market Square concept, 428, 429 Markham Ontario, Canada, 399 Maryland, smart growth legislation in, 390

Mashpee Commons (Mashpee, Massachusetts), 43-44, 77 liner stores in, 292 neighborhood green in, 172 retail in, 76, 82, 83, 87, 297-298 as town center development, 56 Massachusetts Bay Transportation Agency (MBTA), 122, 126 Mass customization, for cost-cutting, 332 Mass transit systems. See also Transit-oriented development (TOD) design of, 121-122 parking and, 411 Master plan, 250 Materials. See also Design; Windows; specific materials in affordable developments, 322 siding, 309-310 MBTA. See Massachusetts Bay Transportation Agency Medians, trees for, 424-425 Medium density parking for, 404-406, 407 in urban locations, 250-252 Merchants, distinctive, 100-101 Meriam Park TND (Chico, California), 182 Metropolitan Place (Seattle, Washington), 124 Metropolitan regions, 24 pedestrian-oriented development in, 393 transit-oriented development in, 118 Mexico, 397 Mid-block public spaces, 175 "Mid-box" retailers, 93 Middleton Hills (Wisconsin), 51 Midtown Atlanta, 234 Military new urbanism, 60-61 Millennials, as urban market, 228 Milwaukee. Wisconsin. manufactured housing in, 335 Minimum parking requirements, 412-413 Minneapolis, Minnesota downtown in, 77

light rail in, 77, 126 Miramar Town Center plan (Miramar, Florida), 411 Mission Meridian (South Pasadena. California), 298 Mississippi Renewal Forum, 16, 30, 38, 39, 215 Mixed-income housing, 321-322 Mixed-use buildings, 67, 89, 111 in Belmar, 93-94 flex houses as, 114-116 investment in, 236 liner buildings, 94 parking for, 407-408 in St. Louis Park, Michigan, 73-74 in TODs, 128-129 zoning for, 123-124 Mixed-use center issues for, 112-114 schematic view of core, 112 spatial framework for, 111 Mixed-Use Development Handbook (Urban Land Institute), 85 Mixed-use redevelopment, 67, 72 Mixed-use TOD projects, 121 Mizner Park (Boca Raton, Florida), 52, 73-74, 77 Mobility, in Lifelong Communities, 382-385 "Modern Communities" (GfK Roper), 229 Modernism, 273 backlash against, 12, 172 California Modern and, 283 in Canada, 400-401 in historical setting, 282-283 pros and cons of, 277-279 rational, 279-281 suitable locations for, 281-284 Montessori schools, 178 Montgomery, Alabama code-based development in, 183 SmartCode in Pike Road, 193 Mortgage assistance for affordable housing, 326 location-efficient mortgage, 329 Mt. Pleasant (Newton County, Georgia), 242

Movement economy, drive-by visibility and, 80–82 Movie theaters, 93–94, 96 Multifamily housing, 232, 404–406 Multigeneration house, 290 Multiplexes, 93–94 Municipal incorporation, 207–208 Municipalities architectural harmony in, 190 role of administrators in, 393–394 Muntins, 305

Ν

Name of community marketing of community and, 344-345 trademark of, 212-213 Narragansett Landing (Providence Rhode Island), 74 Narrow streets, 141, 146-148 money-saving through, 328, 333-334 Nashville, Tennessee, 33, 34, 40, 193, 274, 394 National Charrette Institute (NCI) (Portland, Oregon), 216 Natural drainage, 263-265 Natural preserves, 34 Natural zones, 20 Naval Training Center (San Diego, California), 61 NCI charrette, 216-226 Neighborhood(s), 14, 25, 26, 92. See also Traditional Neighborhood Development affordable housing in, 319-320 characteristics of, 16 development of new, 70-71, 248-270 diagram of, 15 investing in, 236-246 in New Bombay, 402 patterns of, 13, 202 streets and, 153 thoroughfare locations in, 80 walkable, 15-16, 229 workplaces and, 108 Neighborhood centers

characteristics of, 79-80 connecting with larger thoroughfares, 46-47 Neighborhood general (NG) standards, 199, 200, 201 Neighborhood patterns, 202 Neotraditionalism, New Urbanism as, 42, 397 Nepean, Ontario, Canada, 323 Netherlands, cycling in, 154-155 Networks street, 35-36, 138 urban, 36-37 New Bombay (India), 402 Newbridge at Tollgate Crossing (Aurora, Colorado), 336 Newburg Waterfront charrette, 347 New Columbia (Portland, Oregon), 62 New Community Plan, for greenfield site development, 46 New Jersey "Rehabilitation Subcode" in, 195 smart growth projects in, 390 workplace buildings in State Plan of, 108 New Longview TND (Lee's Summit, Kansas), 149 Newpoint (Beaufort, South Carolina), 51, 141 landscaping in, 419 porch in, 307 vards at, 311 New Suburbanism, 13 New Town (St. Charles, Missouri), 45, 48-49, 150, 169, 176, 232 building community in, 351, 354 density in, 322-323 eaves in, 309 front porches in, 293 green techniques in, 372 housing diversity in, 249, 293 infrastructure in, 247 organic farming in, 430 parking in, 417 placemaking in. 342 streets in, 146, 334 variety in, 324 New Transit Town: Best

Practices in Transit-Oriented Development, The (Dittmar and Poticha), 119-120 New Urbanism. See also Traditional Neighborhood Development; specific projects in Asia, 401-402 in Australia, 401 in Belgium, 397 birth of, 12 in Canada, 398-401 charter of, 24-25 conventional communities compared with, 318 in Europe, 395, 396-398 financing of, 239 in Germany, 397, 398 investment in, 236 in Italy, 397 nature of, 9-10 in New Zealand, 401 premium in marketplace, 236-237 principles of, 14 reaction against, 392 regional plans shaped by, 29-40 resistance to, 238 smart growth and, 387-394 sustainable development and, 371-372 New Urbanism, The (Katz), 37 New York City metropolitan region, Regional Plan Association (RPA) and, 30 New Zealand, 401 Nonprofit builder, and partnering for affordable housing, 330 Nonprofit organizations, community life and, 359-361 Normal Heights (San Diego, California, area), 378 North Beach Place (San Francisco, California), 70 North Court, 268 Northern Lights (Holiday development), 268 North Nashville, Tennessee, 193 North Richland Hills Town Center (Fort Worth, Texas), 313-314, 380 Northwest Hillsborough County,

Florida. See Hillsborough County, Florida Norton Commons (Louisville, Kentucky), 51, 242 Norway, green roof in, 370 NU. See New Urbanism

0

Oakland, California, 114 Obesity, 378 Object buildings, 189-190 Octavia Boulevard (San Francisco, California), 142, 144 Office parks, 112-114. See also Employment centers; Workplace Off-street parking, 414, 417 requirements for, 412 and water runoff, 365-366 Older people, aging and, 380-381 One-way couplets, 37, 145 One-way streets, changing to two-way, 145 Onondaga County, New York, 29, 31-32, 34 On-site construction, vs. Whole House system, 336 On-street parking, 18, 138, 413, 414, 416 Open space community and, 354-356 preservation of, 34-35, 40, 206 Orchard Village (Gaithersburg, Maryland, area), 353 Oregon, urban growth boundaries in, 391 Orenco Station (Hillsboro, Oregon) accessory dwelling units in, 326 building community in, 353 buses in, 132 physical activity in, 32-34, 82, 229, 379 radial density formula in, 232-233 as transit-oriented development, 58-59, 82, 121, 125 urban growth boundaries and, 391 Organic farming, in TND, 430

Orlando Naval Training Center (Florida), 67 Ornament, 278–279 Oshara Village, New Mexico, 51 Outdoor rooms, 188–189 Owners, benefits for, 250 Owners' associations documents of, 250 501(c)(3) and, 207– 208, 209, 210–211 Founders and, 361–362

Ρ

Pad buildings, 297-298 Palo Alto, California, 406 Park drives, trees along, 425 Park DuValle (Louisville, Kentucky), 62-63, 69, 70, 191, 322, 355 Park East Freeway (Milwaukee, Wisconsin), 72, 142-144 Parking, 89, 403-418 for affordable housing, 330 for bicycles, 155 for big box retailers, 96 in center, 406-411 commercial, 328-329, 406-407 in core, 18, 406-411 density and, 404-406, 409, 411-412, 414-416 facts about. 416 free, 411 for high density mixeduse buildings, 409 Lexicon of the New Urbanism and SmartCode on, 413-414 lot design and, 418 management and policy across transect, 411-413 minimums and maximums for, 412-413 for natural areas, 404 off-street, 365-366, 412, 414, 417 on-street, 18, 138, 414, 416 platting systems for, 415 reducing need for, 417 for religious buildings, 182 for retail, 406

shared, 416-417 street, 414 structured, 18, 408, 409-410 in TODs, 129-130 Transect calibration of, 416 Parking courts, 418 Parking garages, 292 Parking lots layer diagram, 405 retail, 406 at shopping centers, 28 Parks, 174-175 Partial wrap attached, 94 detached, 94-95 Partnering, for affordable housing, 330 Pasadena, California, 71-72, 296, 297, 413 Paseo, Colorado, 71 Pass Christian, redevelopment plan for, 16 Passive/active house orientation, 311-312 Passive solar heating, 277, 320, 374 Pattern books, 40, 188, 191, 204, 345 Paving, rough, 148 Pearl District (Portland, Oregon), 122, 123, 236 Pedestrian(s), 14. See also Walkability in Brea, California, 73 curb return radius and, 145-146 drivers and, 144-145 paths and passages for, 164, 165 traffic endangering, 37 Pedestrian-friendly environment, 81 employment center as, 109 large-format retail stores in, 81 major thoroughfares as, 142 parking in, 408-409 shopfronts in, 99 street design and, 136 TODs and, 120, 129 trees and, 425 Pedestrian-hostile

activity, 20-21, 81 Pedestrian lighting, 266 Pedestrian sheds, 16 in greenfield development, 46 Pentagon Row (Arlington, Virginia), 89 Photography, fees for, 213 PIDs. See Public improvement districts Pike Road, Alabama, 193 **Pioneer Courthouse Square** (Portland, Oregon), 173 Pittsburgh, Pennsylvania, landscaping in, 422 Placemaking, 251, 252 affordable, 317-338 marketing and, 342 in smart growth communities, 341 Placement, of civic buildings, 14 Planned-unit development (PUD), zoning, 266 Planning. See also specific issues and transit-oriented development, 117-132 Planning codes. See also Codes; Form-based codes conventional, 184-185 Planning for Street Connectivity, 150 Plan of Nashville: Avenues to a Great City, 40 Planting, of trees in urban areas, 423-424 Platting, for parking, 415 Play places, 174-175 Plaza Pasadena (California), 72 Pleasant Hill BART station, 125. 223-224 Pleasant View Gardens (Baltimore, Maryland), 68-69, 356 Plessis-Robinson, France. 397, 398 Podium buildings, 291 "Pod" layout, of corporate campus, 113 Policies for affordable housing, 329-331 for smart growth, 388-389 Policy on Geometric Design of

Highways and Streets, A (AASHTO). See Green Book Pollution. See also Environment; Water and watersheds trees and, 420 Population, demographic shifts in, 229-230 Porches, 194, 293-294, 305, 306-308 community and, 354 principles of creating, 316 Pork chop return, 308 Portland, Oregon, 30, 278 accessory dwelling units in, 327 greenhouse gas reduction in, 369 streetcar in, 122-123 supermarket in, 87 2040 plan for, 30, 34, 35, 391 Port Royal (South Carolina), 181, 322-323, 335 Post office, 180-181 Poundbury (Dorchester, England), 396, 397, 418 Prairie Crossing (Grayslake, Illinois), 357, 359, 360 Prairie Village (Kansas City), 37 Predictability, of corporate campus, 113 Privacy, marketing of, 312, 349 Privacy elements, 311 Private covenants, 188, 207 Production building, 302-315 Profits, for investors, 242-243 Promenades, trees for, 425 Proportion, 14, 303-304, 310 Prospect (Longmont, Colorado), 229, 278, 280, 281, 318, 377 accessory dwelling units in, 326 design authority in, 191-192 town plan for, 50 Providence, Alabama, 51 Public housing. See also Affordable housing; Low-income housing; Mixed-income housing crime reduction by design in, 356-357 design of, 322 new urban principles and, 68-69 redevelopment, 61-62, 67

Public improvement districts (PIDs), 408 Public participation in new urban communities, 207 in regional planning, 31 Public realm, enclosure of, 14-15 Public sector, development in, 67 Public spaces. See also Civic spaces; Open space in Europe, 398 Public transportation. See Transportation entries, Public works, land development and, 265-267 PUD. See Planned-unit development Puget Sound Regional Council, 131

Q

Quail Creek Property Owners Association, Inc., v. Hunter, 207 Quality Growth principles (Envision Utah), 34, 392 Quality of life, marketing of, 344, 347, 349, 350 Quebec Square (Denver, Colorado), 98–99 Queen Street (Toronto), 133

R

Rail. See Transit-oriented development Randolph neighborhood (Richmond, Virginia), 321 Rapid transit. See Bus rapid transit; Transit-oriented development Rational Modernism, 279-281 Real estate agents, 250 Real estate appraiser, 267 Recall, citizen power of, 213 Recruitment, corporate campus layout and, 113-114 Redevelopment, 45, 142-144, 213. See also Infill; Mixed-use redevelopment; Smart growth Redmond Town Center (Redmond, Washington), 87, 109, 110 Regional center, 46, 80

Regional City, The (Calthorpe), 119 Regional level, of Lifelong Communities, 383 Regional Plan Association (RPA), 30 Regional planning, 30-40 codes and Transect in, 37-39 factors in, 40 initiatives in, 33 regional government and, 34 shaped by New Urbanism, 29-40 tax-base sharing and, 40 tips for coherent, 39-40 transportation in, 35-37 Regulation of affordable housing, 326 plans for, 188 urban, 188-189 Rehabilitation codes, 194-195 Religious buildings, 181-182 Rental units, income from, 326-327 Research, for charrette, 220, 225 Residences, in suburban zone, 20 Residential development, parking for, 404, 405, 407-410 Residential setbacks. See Setbacks "Residential Street Typology and Injury Accident Frequency," 136 Resources on construction of houses in walkable neighborhoods, 316 sharing of, 24-25 Restaurants, drive-through, 104 Reston Town Center (Reston, Virginia), 109, 110, 172, 251 Restrictive covenants, 206, 210 Retail, 76–104. See also Town center(s) as amenity, 350 big box stores in, 90 calculating demand for, 83-84 in city center, 86 drive-through, 102-104 grocery stores as, 87-88 neighborhood-friendly designs and, 97 new urban retail development, 102 parking and, 297-298, 406, 416

pedestrians and, 81 revitalizing/reusing shopping malls, 71, 72, 73, 74, 98, 229 shopfront design for, 99-100 stores within stores trend, 98 suburban, 92-93 terminated vista concept and, 84-86 types of, 79-80 Retail sites, obsolescence of, 77 Returns, eave, 308-309 Revenues for 501(c)(3) organization, 209 sharing of, 24-25 Revitalization programs, 65-74. See also Cities; Infill; Redevelopment Rhode Island Rehabilitation Code, 195.196 Richland County, South Carolina, 31 Rise of the Creative Class. The (R. Florida), 108 River Ranch (Louisiana), 51 Riverside (Atlanta, Georgia), 110 RiverWalk (Milwaukee, Wisconsin), 70 Riverwood Farms (Memphis, Tennessee, area), 352 Roads. See also Streets arterial, 81 bicycling on, 156 classification of, 139-140 Robert Wood Johnson Foundation (RWJ), 379 Robotic parking, 410-411 Rockville Town Center (Rockville, Maryland), 58, 106 Roofline, 309 Rosemary Beach, Florida, 51, 342, 345 Rosslyn-Ballston corridor, Virginia, 126-127 Rough paving, for traffic control, 148 Roundabouts, 149 RPA. See Regional Plan Association Rules enforcement, 213 Rural agriculture, 428 Rural growth boundary model, 35

Rural-to-urban Transect zones agricultural types and, 427 live-work structures and, 288 modern design and, 281 natural drainage techniques and, 264 Rural zones, 20

S

Safety of roundabouts, 149 street design for, 135-138, 356-357 St. Lucie County, Florida, 40 Sales, 350. See also Marketing Salishan (Tacoma, Washington), 374 Salt Lake City, Utah, 30 San Antonio, Texas, trees in, 422 San Diego, California, SRO in, 330-331 Sandpiper Development and Construction, Inc. v. Rosemary Beach Land Company, 213 San Elijo Town Center (California), 36, 37, 145 Santa Barbara, California, 15 Santana Row (San Jose, California), 78, 291 Sarasota County, Florida, 35 Saratoga Springs, New York Transect-based code in, 192, 194 Scale of buildings, 211 of Modern architecture, 278 of neighborhood, 16 of New Urbanism, 13 of workplace, 108-116 Schools design principles for, 176-180 neighborhood, 170 suburban, 26 walking to, 379-380 SDL. See Simulated divided light Seabrook (Washington), 45, 51, 151 Seaside, Florida architecture in, 286-287 building materials in, 309

design code of, 190 form-based codes in. 184 mixed-use buildings in, 114 parking in, 418 school in. 177-178 traffic control in, 42, 44, 45, 76, 148 value of, 238 walkability in, 388 Seaside Institute, 123 Seattle Housing Authority, 127-128 Second Street Studios, 114 Security of corporate campus, 113 in liner shops, 98 Serenbe (Palmetto, Georgia), 205, 357-358 Services, in Lifelong Communities, 384-385 Setbacks, 310-311 in core. 18 front accessibility and, 386 in general urban zone, 19 for porches, 308 in suburban zones, 20 Settlement Plan for Onondaga County, New York, 29, 31-32, 34 SG. See Smart growth communities Shallow storefronts, 82-84 Shared parking, 416-417 Shared roof structures, 212 Shared space, 150 Shopfront design, 99-100 Shophouse, 288-289 Shopping centers, 43-44. See also Retail; Shopping malls liner buildings in, 292 parking lots at, 28 resident comfort in, 98–99 types of, 79-80 Shopping malls, 71, 72, 73, 74, 98, 229 parking for, 406 Sidewalks. See also Walkability trees and, 422 Side-yard houses and sideyards,

212, 248, 249, 253, 259, 311-312 Siding fiber-cement, 309-310, 322 vinyl, 336-338 wood, 309 Signage, for cyclists, 155 Silver Sage (Holiday development), 268 Silver Spring, Maryland, 89 Simulated divided light (SDL), 305 Single-family housing parking and, 404 TODs and, 130-131 Single-purpose retail center, 43-44 Single-room occupancy (SRO), in affordable housing, 330-331 Single-use conventional suburban development, 248 Site, planning elements for, 314 Size, of urban development, 78-79 Small schools movement, 177 SmartCode, 17, 37-38, 184, 249 curb return and, 146 growth governed by, 38-39 implementation of, 192-194 Leander passenger rail system and, 92-93 on parking, 405, 413-414, 416-417 spread of, 192 states using, 192, 388 suburban retail in. 92-93 trees and Transect zones in, 425 wind power and, 370 Smart growth, 229-230, 239 energy and environmental considerations and, 231 New Urbanism and, 387-394 opponents of, 392 policies for, 388-389 state initiatives in, 389-392 Smart growth communities branding and marketing of, 340-350 showing differences in, 341-342 Smart growth funds, 241-242 Smart Growth Network, goals of, 388 Smart Growth Program (U.S. EPA), 242 Smart Growth Twin Cities initiative

(Minneapolis/St. Paul), 32 Social interaction building community through, 351, 352-354 in Lifelong Communities, 383-384 streets and, 134 Software, for urban design, 367 Solar heating, 277 South Asia, 401 Southern Village (Chapel Hill, North Carolina) transportation in, 87, 177-178 182, 326, 331 walking in, 378, 379 Southlake Town Square (Southlake, Texas), 81, 171, 191 parking in, 408, 409 South Lake Union area (Seattle, Washington), 71 South Main (Buena Vista, Colorado), 63, 64, 150, 189 Southside development (Greensboro, North Carolina), 73 South Waterfront (Portland, Oregon), 123 Space, shared, 150 Space heating, 368 Spain, 397, 398 Spatial framework for mixed-use center, 111 for TOD, 128 urban code for, 188-189 Special improvement district (SID), 240 Special taxing districts, 208 Speed, of traffic, 141 Speed bumps, 148 Sprawl development, 9, 365 Square block, 22 Square footage, cost-cutting through, 333 Squares as civic spaces, 172-173 streets in, 160 SRO. See Single-room occupancy Stacked residences maisonettes (two-over-twos), 404-405

townhouses, 293 Stand-alone businesses. suburban, 28 Stapleton redevelopment (Denver, Colorado), 52-53. 67, 81, 110, 127, 359, 360 resident comfort in, 98-99 retail center in. 111 school in, 111 State(s) code requirements in, 193-194 SmartCode used in, 192, 388 smart-growth initiatives in, 389-392 Statutory regulation, 210 Storefronts, shallow, 82-84 Stores. See Big box stores; Retail Stormwater absorption, 264, 265 in canal, 372 framework comparison, 365 Storrs Center (Mansfield, Connecticut), 100 Streetcars, 122-123 Street layouts, in regulating plan, 188 Streets, 25, 133-168. See also Alleys; Roads; Setbacks; Thoroughfares for bicycling, 156 connectivity with lanes, 150-151 design of, 21, 129, 134-138 edges of, 151-154 for emergency responses, 152-154 in Europe, 398 fatality rates and, 378 fire trucks and, 152 in general urban zone, 19 for Lifelong Communities, 383 main streets, 78 narrow, 141, 146-148, 328, 333-334 networks of, 16, 35-36, 138 one- and two-way, 145 parking and, 410 pattern of, 14 planning for, 40 residential, 158, 159

safety of, 135-138 sections of, 157-168 with setbacks, 310-311 standards for, 190-191 suburban. 20. 328 tartan grids for, 410-411 trees and safety along, 137 in urban core, 18 visualizing transformation of, 140 widths of, 134-135, 138, 266 width to height ratio to adjacent buildings, 141 Streetscape, 280 Streetscape pad buildings, 297-298 Strip retail center, in Brea, California, 72-73 Structured parking, 18, 408, 409-410 Studio Mews, (Holiday development), 268 Subsidies, for new urban projects, 239 Suburb(s). See also Conventional Suburban Development conventional, 238 conventional vs. urban cities and towns, 12 cost-cutting in, 332 fire response in, 137-138 first-ring, 121 health advantages in, 378 parking in, 407 residential streets in, 134-135 retail in, 92-93 retrofits of, 229 revitalization of, 72-74 schools in, 26 stand-alone businesses in, 28 streets in, 328 zoning and pollution in, 369-370 Suburban zone, 19-20 Sulphur Springs Neighborhood (Verano, San Antonio, Texas), 174 Summerset at Frick Park (Pittsburgh, Pennsylvania), 54 Super center big box, 91 Supermarkets attached partial wrap, 94

chains, 77, 87–88 in town centers, 88–89 Surrey, British Columbia, 399 Sustainable development, 363–376 *Sustainable Urbanism* (Farr), 371 Sweden, 397

Т

TAD. See Transitadjacent-development Target market analysis, 231-233 Target speed, for traffic, 141 Tarragona, Spain, avenue in, 420 Tartan street grids, 410-411 Taxation low-income housing tax credit, 330 owners' associations and, 209, 210 special taxing districts, 208 Tax-base sharing, 40 Tax-exempt organizations, 208-209 Tax-increment financing (TIF), 239, 240, 408 Taylor Street (San Francisco, California), 69-70 Team-building, 312 Temporary classrooms, 179-180 Terminated vista concept, 84-86.87 Terrorist attacks, civic spaces after, 173 Texas Donut, 407, 408 Theaters, 93-94, 96 The Waters (Montgomery, Alabama), 51, 175, 252 lot types, 253-262 Thoroughfares. See also Roads; Streets classification based on Transect, 139-140 as commercial streets, 18 connecting neighborhood centers with, 46-47 major, 142 neighborhood locations of, 80 sections of, 157-168 TIF. See Tax-increment financing

"T" model. 98 TND. See Traditional Neighborhood Development TOD. See Transit-oriented development Toronto, 279, 280, 400 Town and County Planning Model (Alberto & Associates), 31 Town center(s), 36, 55-57. See also Downtown anchor stores in, 86-87 in Bradburn, 245 civic buildings in, 170-172 designing, 101 diagram of, 85 historic, 19, 78 liner stores in, 89 other town center developments, 57 parking in, 89 plans for, 105-106 shared-parking solutions for, 406-407 special considerations for, 209-211 supermarket chains in, 88-89 tailoring to peoples behavior, 100-102 Town core standards, 196, 197, 198 Townhomes on Capitol Hill (Washington, D.C.), 63, 69, 336, 337 Townhouses, 292, 293 legal considerations of, 211-212 lots, 261 Town of Mt Laurel, The (Birmingham, Alabama), 51, 344-345 Towns, 24 agriculture in, 429-430 extensions to, 63-64 greening of, 420-430 revitalizing, 65-74 Traditional commercial districts, 111-112 Traditionalists, 273 Traditional neighborhood development (TND), 13, 45, 46, 228 in Australia, 401 budget tips for, 338 building community in, 352

in Canada, 398-399 cohousing within, 358 costs of, 263 density of affordable housing and, 322-323 housing flexibility in, 232-233 marketing of, 349-350 mistakes in, 249-250 Modern architecture in, 281 organic farming in, 430 parking and, 413-414 positioning of, 344-345 smart growth communities compared with, 342 supermarkets in, 88 tips for, 270 Traditional Neighborhood **Development Street Design** Guidelines (North Carolina), 141 Traffic calming of, 146-148 emergency response and, 152 in greenfield site commercial center, 46 in one-way street systems, 37 speeds of, 141 taming of, 150 town center strategy and, 81 Traffic lights, for bicyclists, 155 Traffic tables, 148 Transect, 16-17. See also Neighborhood(s) agricultural urbanism and, 427 codes and, 37-39, 184 for Cool Spot, 374-375 district in, 98-99 as environmental organizing tool, 370-371 mapping of, 38 parking management and policy across, 411-413 parking standards calibrated on, 416 roadway classification and, 139-140 site-specific code regulating plans and, 188 trees and, 421-422, 425 urban-to-rural, 11, 17

zoning, 194 "TransectMap" planning tool, 38, 193 Transect zones, 17, 18, 188 in greenfield developments, 47 Transit-accessible housing, 228-229 Transit-adjacent-development (TAD), 129 Transit agencies, governments and, 393 Transit boulevards, 37 "Transit-Oriented Development: ..." (Brookings Institution), 118 Transit-oriented development (TOD), 58-60, 117-132, 251, 252. See also Parking affordable housing and, 331 areas peripheral to, 130-131 automobiles, environment, and, 366-367 construction and land costs, 252 examples of, 125-127 in Houston, 251 light rail for, 127-128 market analysis for, 131 size of, 130 modes and applications, 124 other transit-oriented development, 60 preparing for, 131 principles of, 128-132 rail system design and, 121-122 types of, 119, 121 Transparency, of street edge, 151-152 Transportation, 24 for affordable housing, 331 environment, automobiles, and, 366-367 in Pasadena, 72 reforming, 389 in regional center, 46 Transportation departments, reforming, 144 Transportation issues, 14 in regional planning, 35-37 Transportation node, 120 Treasure Coast Regional Planning

Commission, Florida, 40, 381 Trees costs of planting in urban areas, 423 diseases of, 422 greening with, 420-425 nature of, 424-425 preservation of, 422 stormwater drainage and, 265 street safety and, 137 Transect-based approach to, 425 Tributary (Atlanta, Georgia, area), 341 Trim, 308 TriMet (Portland, Oregon), 132 Trinity Heights (Durham, North Carolina), 244-245, 326, 327 cost reduction in, 335 Trolleys. See also Buses; Streetcars historic lines, 122 Trust fund, for affordable housing, 330 2040 plan, for Portland, Oregon, 30 Twinbrook development (Rockville, Maryland), 117 Two-way streets, 145 T-zones, 17, 38

U

UGBs. See Urban growth boundaries Unbundling, of parking, 413 United Arab Emirates, 401 Upper Rock District (Rockville, Maryland), 107, 110-111, 236 Urban areas advantages of, 76-104 big box stores in, 90-92 districts as, 20-21 greening of, 420-430 landscape types and forms for, 426 landscaping principles for, 423-424 Urban codes. See also Architectural codes: Codes: New Urbanism; SmartCode regulation in, 188-189

Urban Commuter Rail line (Austin, Texas), 127 Urban core, 17-18, 90 big box stores in, 90 Urban development, medium density in, 250-252 Urban-format stores, 77 Urban growth boundaries (UGBs), 35 Urbanism agricultural, 427-430 durability of, 238 traditional, 12 Urban Land Institute (ULI), 406 Urban networks, 36-37 debate over, 37 Urban planning initiatives, 33 Urban projects, growth in U.S., 42 Urban redevelopment. See Infill; Redevelopment Urban-rural Transect, 11, 17 Urban Sprawl and Public Health (Jackson and Jackson), 379 Urban streets, 137-138, 157, 163 Urban Thoroughfares Manual, 35 Urban vestibule, 97 and liner, 97-98 URBEMIS software, 367 U Street Metro station, 120 Utah, Envision Utah, 30, 31, 34, 391-392 Utilities, land development and, 265-267

V

Value-added agriculture, 428 Valuing the New Urbanism (Urban Land Institute), 228, 236 Vancouver, British Columbia, 279, 280, 399–401 Variety, in housing types, 324 Vehicle miles traveled (VMT), 367, 368, 369 Ventura, California, form-based architecture regulation in, 190 Verano (San Antonio, Texas), 173–174, 239, 424 Veridian Homes

(Madison, Wisconsin), 312 Vermillion (Huntersville, North Carolina), 232 Vernacular home styles, 273-276, 306, 321, 373-374 Vickery (Georgia), naming of, 345 Village county fiscal benefit from, 237 vs. low-density housing, 238 TND as, 46 Village center, 36 Village of Liverpool, 31 Village of Woodsong, 342 Vinyl siding, 336-338 Vinyl windows, 304 Vision for Europe, A, 398 Visitability guides to, 386 in Lifelong Communities, 385-386 Visual qualities, of street edge, 152 Visual surveys, to measure attitudes toward density, 234 VMT. See Vehicle miles traveled Vocabulary, for marketing, 350 Volume, in building, 303-304 Voluntary development requirements, 188

W

Walkability, 229, 230 architectural styles and, 272 of arterial roads, 142 blocks and, 21 determining, 380 enclosure of public realm and, 14-15 five-minute walk concept and, 39 importance of, 379 marketing of, 340 regional development and, 30 regional support for, 34 to schools, 379-380 street edges for, 151-154 Walkable urbanism, 9, 10 "Walk Score." 380 Warwick Grove, New York, 348 Washington, DC, area, 126-127, 282-283

(Gaithersburg, Maryland), 84 Washington Metropolitan Area Transit Authority (DC), 121 Washington Town Center (New Jersey), 51 Water and watersheds neighborhood pools and, 374 protection of, 365-366, 371, 372 WaterColor (Florida), 372 Waterfront District (Hercules, California), 54-55, 127 Waterfront redevelopment, 74 Waters, The (Montgomery, Alabama), 17, 45, 170, 175, 193, 252, 355 Website design of, 250 for marketing, 343 Westbury (Portsmouth, Virginia), 69 Western Fire Code, 266 West Village (Dallas, Texas), 75, 291 Wet Appliance idea, 320 Wetlands, 363, 364 Whole House system, of manufactured housing, 336 Wild Sage (Boulder, Colorado), 268, 358 Windows, 304-306 vinyl, 304 Wind power, 370 Winter Springs Town Center (Winter Springs, Florida), 82 Wisconsin manufactured housing in Milwaukee, 335 TND codes in, 391 Woodford County (Kentucky), 32, 35 Wood siding, 309 Woodsong (Shallotte, North Carolina), 371 Worker retention, corporate campus layout and, 113-114 Workplace. See also Employment centers human-scale, 108-116 retail and. 85

Washingtonian Center

Ζ

Zigzag mainstreet designs, 86 Zoned Out (Levine), 185 **Z**ones center. 19 general urban, 19 rural and natural. 20 stores in, 90-93 suburban, 19-20 Transect, 17, 18, 188 urban core, 17-18 Zoning. See also Codes; SmartCode barriers to compact development, 186 density and, 230-231 inclusionary for affordable housing, 329 for Lifelong Communities, 381-382 mixed-use, 123 pollution and, 369-370 Transect, 194 Zoning codes. See also codes; Form-based codes conventional, 184-185

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