SMART GROWTH STREETS

AND EMERGENCY RESPONSE

CONGRESS FOR THE NEW URBANISM/U.S. DEPARTMENT OF ENVIRONMENTAL PROTECTION APRIL 1-2, 2008, WORKSHOP

On April 1-2, 2008, the Congress for the New Urbanism (CNU) and the U.S. Environmental Protection Agency (EPA), through its Development, Community, and Environment Division, convened a workshop to kick off an initiative to find street design solutions that are mutually acceptable to firefighters (their operational and response time needs) and New Urbanists and smart growth advocates (their goals for compact development with interconnected networks of narrow streets and calmer neighborhood traffic). The workshop was part of an EPA-funded initiative on smart growth streets and emergency response. As the first convening of firefighters, New Urbanists, and smart growth advocates, the focus of the workshop was to:

- Find areas where consensus already exists and that can be implemented immediately.
- Find areas where consensus does not yet exist.
- Set a one-to-two year research and action agenda designed to reach consensus on those areas where none exists now.

The workshop attendees represented diverse backgrounds and views. Listed in Appendix A, they included fire officials, university transportation research faculty, urban designers, traffic engineers, town planners, local transportation officials, and land use attorneys and planners.

BACKGROUND

The History

In 2007, the EPA's Development, Community, and Environment Division issued a Request For Proposals that had as its goal to bring together emergency response officials, local government officials, transportation experts, and developers in a collaborative problem-solving process around the issue of meeting the needs of emergency responder needs through the design of smart growth streets. In the spring of 2008, the EPA entered into a partnership with the CNU to help facilitate the initiative. The goal is to provide solutions that have the endorsement of those multiple interests and will be applied across the country in communities seeking to develop pedestrian-friendly streets approved by emergency response officials. The impetus for the initiative is the increasing interest by local governments and developers in utilizing New Urbanist smart growth techniques to create mixed-use, compact, walkable neighborhoods with a highly connected network of pedestrian-friendly streets. In that environment, streets are typically narrow, have tighter turning radii, on-street parking, sidewalks, and street trees, and provide greater travel mode and route choice, thereby reducing emissions and congestion on arterials.

While that design creates better pedestrian environments and reduces storm water runoff, it raises fire officials' concerns about impacts on emergency response operations and times. As a result, many communities have worked with fire officials to adopt street design strategies that do not compromise response times or building access. Although many older communities with traditional narrow residential streets have a long history of finding solutions to such issues, widespread adoption of more flexible standards is lacking. The absence of standards that both permit flexibility to account for local development conditions (including the possibility of narrower streets in appropriate contexts) and ensure the ability for emergency responders to perform (in a way that does not compromise community safety, response time, or liability) has resulted in deference to the minimum clear zone standard (20 feet or more) by fire officials in many communities.

In recent years, however, both firefighters and New Urbanists have found that building homes further and further from firehouses and other emergency responders has increased costs and emergency response times – a problem that is made more acute when street networks are poorly designed, disconnected cul-de-sacs. In contrast, they are finding that costs, response times, and community safety can be improved in compact neighborhoods that are located closer to fire stations and have highly connected street networks to provide more points of access.

The Sponsors

The *CNU* has a broad mission based on the conviction that cities and towns can again be great places – vital, walkable, diverse communities that exist in greater harmony with nature. CNU advocates the restructuring of public policy and development practices to support the restoration of existing urban centers and towns within coherent metropolitan regions. It supports the reconfiguration of sprawling suburbs into communities of real neighborhoods and diverse districts, the conservation of natural environments, and the preservation of the built legacy. (More information on CNU and its initiatives is available at www.cnu.org/initiatives.)

The *EPA's Development, Community, and Environment Division* focuses on smart growth issues of regional and national significance. Smart growth development practices support integrated environmental management approaches that both protect local ecosystems and support ecologically compatible development. Those practices support national environmental and public health goals by protecting sensitive watersheds, minimizing water quality impacts from development, reducing air emissions by increasing transportation choices, and encouraging clean-up and sustainable redevelopment of brownfields. (More information about EPA's smart growth streets can be found at www.epa.gov/smartgrowth/topics/streets.htm.)

Background Materials

Workshop participants had the opportunity to review an annotated bibliography summarizing 19 publications related to different elements of smart growth street design and the needs of emergency responders. The purpose of the initiative is to identify design solutions for communities seeking to develop pedestrian-friendly neighborhood streets (typically narrow and interconnected street networks) without compromising response times or building access. The bibliography and those publications that are available at no charge can be viewed at the Center for Urban and Environmental Solutions at Florida Atlantic University website, www.cuesfau.org/cnu/cnu-epa.asp.

WORKSHOP STRUCTURE, CONTEXT, AND PRESENTATIONS

Structure

The first day of the workshop was designed to create a level playing field of shared knowledge about the access and response time needs of firefighters and other emergency responders and the reasons New Urbanists and smart growth advocates desire neighborhoods formed around an interconnected network of narrow streets. The day also provided an opportunity for the participants to identify values and information that are in conflict or missing, or unknown.

Day two provided more time for group discussion. Following a panel presentation on building design issues as they related to firefighters' street width needs, participants were asked to review the values list generated the first day of the workshop. With those values in mind, they were to imagine a universal code that would address traffic safety, livability, and sustainability (versus a separate code for each) and propose performance measures that would comprise such a universal code. In their closing discussion, participants agreed on a shared set of values.

Context

The workshop began with opening comments by CNU President and CEO John Norquist and EPA Acting Smart Growth Director Tim Torma who characterized the day as the beginning of a longer dialogue. Each reviewed the reasons for the workshop and the need, according to Norquist, to "get back to the urban streets as we used to design them." He was referring to the shift after World War II to separate use zoning that places different types of development in separate pods, the "bigger is better" approach of many traffic engineers, and looking at community and street design from a single perspective (for example, fire depression or moving cars). Torma observed that the issue is "not so much about skinny or narrow streets, it is about streets that serve the entire community and make better places to live (a value that smart growth advocates, New Urbanists, firefighters, and other emergency responders share)."

Presentations

During the course of the two-day workshop, participants heard presentations by a mix of firefighters and transportation planners. The presentations focused on the following issues. (PowerPoints from the presentations may be downloaded from www.cnu.org/node/1994.)

Street design from a transportation planner's perspective (Patrick Siegman, Principal, Nelson/Nygard Consulting Associates). This workshop, Siegman observed, is more about learning from each other (not a single-discipline approach) and finding the right questions regarding traffic and fire safety, rather than necessarily finding the answers. We all want to reduce firefighters' exposure to traffic hazards en route to a call and see the number of fire and traffic fatalities and injuries go down. To frame the discussion, Siegman reviewed what the research is saying about the benefits of compact development, with interconnected, narrow streets that create shorter travel route options in addition to increasing their number. Such development, for example, reduces congestion on arterials by accommodating more trips on neighborhood roads and results in fewer severe crashes. (The fatal crash rate per 10,000 people is two to three times higher in the exurbs than in urban areas.) It also offers quicker response times, as substantiated in a Raleigh, North Carolina, study of response time efficiency which concluded that a fire station in a connected neighborhood can serve three times more properties than a station in the least connected neighborhood. The shorter and more direct the route, the better the response time.

Smart growth streets and emergency response issues (Carl Wren, Chief Engineer, City of Austin, Texas Fire Department). The goal of emergency responders, Wren commented, is to save lives. Issues for fire service agencies include response times, turning radii, and phased development where subsequent phases do not happen, leaving incomplete road connections. Response times are important to emergency responders as to how fast a fire develops (Wren cited a fire that grew in three and a half minutes and killed 100 people) and because clinical death can occur in four to six minutes; biological death sets in shortly after (in 10 to 11 minutes). Other issues important to fire officials include the need to deploy firefighters and equipment at the scene of a fire (street width is an important factor), the collapse zone of a building, and the cost of equipment. (As the emergency responder that often arrives first, fire engines must carry equipment for multiple scenarios – from HazMat to water rescue to the Jaws of Life – in addition to the equipment needed for fire suppression [ladders, hoses, tarps, air packs for each fire fighter, etc.].) When planning a development, Wren, concluded, get to know the needs and capabilities of your local fire department.

Best practices and issues learned from firefighting on narrow streets in existing neighborhoods (Neil Lipski, former Deputy Fire Chief, City of Milwaukee, Wisconsin). Lipski's comments focused on the issues of getting to a scene efficiently, tactics and training, and taking control of equipment specifications. Manufacturers are giving cities the specifications. Lipski noted, and that must be turned around. For example, the city of Milwaukee specified a custom-built engine that works on the city's hundreds of miles of narrower streets. Also important to firefighters is a grid network of roads to provide multiple means of access and the placement of fire hydrants. Not having room to operate where narrow streets are used has never been a problem, Lipski observed. It is more an issue of tactics and training of personnel. Firefighting is about the ability to adapt to and alter the course of a fire – its intensity, travel, and exposure.

Impacts of street widths on speeding and traffic safety (Peter Swift, Transportation Engineer, Swift & Associates). Swift highlighted a 1997 study (in a city of 72,000 people) that, over eight years, tested a number of independent values that most frequently lead to accidents. The conclusion was that street width was the most statistically significant variable. The chance of an injury accident increases by 25 percent with every two feet of additional street width. In addition, studies show that most pedestrians who are struck by a vehicle going 36 miles per hour or higher die of their impact-related injuries within six months. Such findings support New Urbanists' push for narrower streets and neighborhood roads designed (and signed) for 20 mph (a rate at which pedestrian injuries are survivable) or less. Other traffic-slowing techniques include creating a sense of enclosure by bringing buildings and trees close to the street; varying road widths; creating mid-block bulb-outs; allowing greater parking density (coupled with parking setbacks from corners to give fire equipment room to turn); and using of bicycle lanes, which at the time of a fire can be used as a pull-off area to allow fire engines to pass or stage. Alleys, which provide an addition fire access point, and no-parking red zones dedicated for set-up of emergency equipment also facilitate fire equipment.

The traffic safety, emergency vehicle access, and street width recommendations from Traditional Neighborhood Development Streets Guidelines: A Recommended Practice of the Institute of Transportation Engineers [ITE] (Rick Chellman, Principal, TND Engineering). The cited peer reviewed publication, Chellman noted, supports Swift's findings that narrower streets with lower design speeds are safer and that accidents on roads with 26 mph

or greater have a much higher chance of resulting in a fatality. (Braking and the reaction time require 100 feet to stop at 20 mph, but 300 feet at 40 mph.) Fatality rates do not start to fall again after streets get to a certain width. Street width should be no wider than the minimum needed to accommodate the normal vehicle mix on that street. Chellman emphasized the importance of designing a road with the community context in mind: "You must consider where you are and what you are designing for." (For example, drivers in a non-auto dominant development will behave differently than in an auto-dominant one.) Noting that context includes the region, Chellman cited Oregon's neighborhood street standards) that allow 28-foot-wide streets with parking on both sides. That standard might work in Oregon or Texas, but not in New England which has a tradition of narrower streets. In Peoria, Illinois, wider streets allowed cars to move quickly through the downtown at high speeds, with the result that people also left the downtown. Changing the design of a street can harm a city, Chellman noted, demonstrating the impact of public policy.

The design of a street environment that communicates to drivers what is expected, particularly with regard to speed (Eric Dumbaugh, Associate Professor, Texas A & M). Speed, Dumbaugh began, is the defining factor. Keep speed down, and the number and frequency of crashes will be reduced. Keeping speed down is also important in an interconnected road network to avoid the risk of an accident or injury at intersections. The design of a road communicates what is expected of a driver; for example, at 11 mph, a driver will defer to a pedestrian. Likewise, shorter sight distances lower speed. (For that reason, the United Kingdom is reducing sight distance, instead of increasing it as engineers are typically taught to do in the U.S.) The correlation between road design and injury-causing speeds led a workshop participant to observe that road design should be an issue that the National Fire Academy looks at as part of overall community risk reduction.

The discussion also focused on the benefits to fire responders of narrower streets that reduce traffic accidents. One participant observed that if the number of emergency responses to auto-related accidents goes down because of narrower streets, fire equipment can be freed up for fighting fires. Because of fire prevention education, only about 20 percent (lower in some places) of fire department roll-outs are fire-related. (Fire fighters are often the first to respond to an emergency call because typically there are more fire stations in more places than emergency services; in addition, all firefighters are trained to perform emergency treatment. Firefighters often take a fire engine to such calls in case a fire occurs at another location while they are out.)

Building design issues (David Sargent, architect with Moule & Polyzoides; Neil Lipski; and Carl Wren). Carl Wren led off with three important observations that the group had heard:

- Firefighters share in the goal of improving traffic safety (the driving force behind the desire for skinny streets).
- Quick emergency response times are of critical importance because of the speed at which a fire grows or clinical death occurs (both in three to four minutes).
- Fire equipment specifications (which are usually prepared by another department) play a big role in street design.

David Sargent's presentation focused on the relationships among building types, street design, and emergency response. "The difference between schlock and great urban buildings," Sargent began, "is how the buildings treat and interact with the streets and what they offer pedestrians….

You must link the scale of the buildings to the scale of the public spaces." One way of doing that is the transect. (The transect divides a region into six zones that move along a continuum from the most rural areas to the urban downtown core where high densities are appropriate. The hierarchy of uses, which increase in intensity as they move from the rural to the urban, allows planners and developers to determine appropriate uses and design elements for each zone.) The transect, Sargent observed, provides a systematic way to design a public space that works for firefighters and pedestrians. ("We need a transect that describes what fire equipment should be used in each zone.") A problem in using the transect can occur, Wren noted, if portions are pulled out and used in isolation of the context.

An outcome of the discussion was captured in the comment of a firefighter who observed that form (what a road looks like) and function (e.g., if the road is safe) should be married together. Beauty should not have to be compromised for safety. In follow-up discussions, the panelists discussed the need to develop information on construction materials that are more fire resistant and, therefore, should be used in compact, higher-density developments to prevent the spread of fire. Also important are the use of fire sprinklers and property owner education about the importance of keeping fire alarms in working order.

PARTICIPANT DISCUSSIONS AND CONCLUSIONS

The workshop participant group discussions were divided around three principal topics:

- Shared core values
- Identification of information related to smart growth and emergency response that is in conflict, missing, or unknown (the information that will support the reasons for amending fire codes)
- Performance measures that would comprise a universal code that addresses safety, livability, and sustainability all in one code, rather than a separate code for each

The intent of those discussions was to define and share a body of information and, by synthesizing the different views and areas of knowledge in the room and stepping back and looking at the big picture (the relation of the road to the public realm), create a greater level of knowledge and understanding of the issues.

Core Values

Participants began and ended the workshop with a discussion of values. On the first day they created an initial list of core values (shown in Appendix B). Core values were defined as what one works for – the desired end-state or what motivates a city or county council to take action (for

Smart Growth Streets and Emergency Response: Shared Values

1. Life safety is important, should be inclusive, and extend from fire to traffic.

2. We value the efficient use of resources, including property, services, and infrastructure.

3. We value vibrant places that enhance pedestrian activity.

4. We value communities that include a range of neighborhoods and compatible uses.

5. We value streets, structures, and fire protection features that match the context of the neighborhood.

6. We value creative collaboration among those who serve and shape the built environment.

7. We value an ongoing process of education and capacity-building among those who serve and shape the built environment.

8. We value adaptation in life saving responses due to regional differences.

example, a community that cares about public safety). On the second day, participants built on the initial list of values and the knowledge gained through the two days of discussions to agree on set of shared values (highlighted to the right).

A ninth value was discussed, but no final wording was agreed to. The value had to do with interdisciplinary planning (including the writing of local and state codes) and project review processes that engage fire officials early (from the initial conceptual stage), provide for accountability, and are fair and consistent.

What information is in conflict, missing, or unknown?

To answer the question, workshop participants were asked to consider the following factors:

- Street design standards
- Building/architectural standards
- Fire codes
- Zoning ordinances
- Subdivision regulations
- Planning requirements
- Station placement
- Response times

The following represents their collective view.

What is in conflict?

Fire Services and Codes

- Tactics and strategy versus mandated solutions (tactics need to be innovative to adapt, for example, to a narrow street in an older neighborhood)
- Apparatus standard design (size) versus flexibility to fit the context

Planning Regulations and Policies

- Policies (e.g., firehouse placement) and regulations (e.g., subdivision regulations)
- Messages and standards of various departments (e.g., fire and environmental engineering) that lead to mixed messages and conflicting standards
- The need for greater certainty and predictability versus local discretion
- Fire codes can be in conflict with each other and with Traditional Neighborhood Development (TND) codes

Streets

- Emergency responder goals to reduce response times through wider streets with greater clear zones and urban planner goals to reduce vehicle crashes by lowering vehicle speed and street width
- 20 or 24foot clear zone fire code regulation and walkability
- Cul-de-sacs versus connectivity and the related impacts on large arterials

What is missing?

Fire Services and Codes

- A fire code that allows flexibility without liability for fire officials
- A protocol and equivalency standards for how much fire codes (for example, the 20 foot clear zone) can be modified or waived and still meet the intent of the code (the lack of this information makes it difficult to know how much can be changed when participating in negotiations)
- Information on how to translate 20 foot clear zone standards, along with mitigation standards that take into account different contexts (e.g., buildings, street trees, and street widths), into guidelines and codes
- Impact of changes in standards by one department on other departments (e.g., a change in the required turning radii impacts the amount of stormwater run off)
- Replication of Peter Swift's outstanding study or the relationship between road width, speed, and traffic fatalities and injuries
- Fire-resistant building materials, particularly in less sturdy new buildings and buildings close together
- Information on how the Insurance Services Office (ISO) fire rating system works and how to work with the National Fire Academy and fire truck manufacturers before working on fire code changes
- A level of service for fire vehicle miles of travel

Planning Regulations and Policies

- A comprehensive approach to conflicts, such as those identified earlier, and a common lexicon that includes all the elements (e.g., fire response and smart growth)
- A standardized, collaborative process that involves fire officials at the earliest, pre-development stage of project design, not at the end when it is time for approval (and the message: do not submit your plan until you involve the fire officials)
- Cross-discipline discussions
- Information on the components of TND, how they fit together, and what to do when a project is not a true TND (problems are created when only portions of TND design are used)
- Mechanisms to marry the disciplines of TND and emergency response

Street Connectivity

- How to ensure that streets depicted in a development plan will actually be connected and facilitate the movement of fire vehicles
- The optimal street network design or configuration that will address both traffic safety and life safety and adequate response times for firefighters

General

- High level performance standards
- Education

What is unknown?

Fire Services and Codes

- Long-term life-safety impacts of new construction technology, design alternatives, and interior furnishings
- Actual costs of sprinklers (across regions)
- Per household cost of emergency services, including the differences in response services for lower density, cul-de-sac development, compared to higher density, connected street development
- How to influence the International Fire Code and the U.S. Fire Administration course at the National Fire Academy (also how to make the fire code a part of a broader life-safety code that addresses everything related to buildings, and possibly an expanded code that addresses neighborhood life safety
- How the ISO fire protection rating system works
- How fire tactics, equipment, staffing, and operations vary in cities or neighborhoods with narrow streets (generally older cities) and those with wider streets. Such a study would need to address the level of vehicle calamity and control for demographics, as homes in wealthier neighborhoods are generally better maintained, have newer wiring, smoke detectors, etc.
- Data and video documentation that compare accidents, deaths, response times, and how a fire is attacked using a sampling of streets with different widths and configurations. The goal is to incorporate a different road width for walkable neighborhoods with certain conditions (versus the standard 20 foot clear zone for all areas).
- Why fire vehicles go to calls where there is no fire and what the ideal fire vehicle disposition would be if cost (including personnel) were not an issue

Planning Policies and Regulations

- The impacts of development configurations on fire efficiency

Street Connectivity

- The optimal street network design or configuration that will address both traffic safety and life safety and adequate response times for firefighters
- An understanding of how street design that satisfies emergency response needs and walkability and vehicle safety needs has worked (e.g., through case studies)
- Whether insurance agencies would change rates based on data demonstrating that narrower streets reduce the number and impact of traffic accidents, therefore saving the agencies money

General

- How to address/accommodate for changes in the political atmosphere, as changes in public officials occur

Performance Measures for a Universal Code

Keeping the core values list in mind, workshop participants were asked to recommend performance measures that could become part of a universal code encompassing emergency response, traffic safety, livability, and sustainability in one code, rather than a separate one for each. Performance measures should be outcome-driven (i.e., they can be used to evaluate a direct result/impact of a policy or investment). The outcomes can be those that begin to emerge in the

short term and ones that require more time for differences to become evident. Performance measures can be used to inform planners and decision-makers when they modify local codes.

The following summarizes the suggested performance measures. After those measures is a list of additional factors to measure that were suggested during the discussion of performance measures.

Fire-Related Measures

- Improvement in emergency medical and fire response times
- Reduction in fire injuries and deaths and property loss
- Cost of fire safety (e.g., the cost of sprinklers and construction types and the per person cost of compact versus dispersed development [e.g., the transect])
- Public and private costs of fire losses (e.g., lives/injuries, property damage, public works, and public services)

Planning Policies and Regulations

- Increase in the number of meetings between a design team and enforcement stakeholders from the earliest stages of planning a project
- Increase (or reduction) in the number of projects that die from a lack of consensus
- Impacts of policies or plans on safety (fire, traffic, and health)
- Whether designs are sustainable in terms of environmental, social, and safety considerations. Specific measures noted included walkability, vacancy rates, and affordability.

Street Design-Related Measures

- Increase in pedestrian activity
- Reduction in vehicle miles of travel
- Reduction in the concentration of traffic (for example, through an interconnected road network)
- Increase in the level of service (including for those who are most apt to be killed or injured – generally seniors, youth, and those who are ill)
- Reduction in the number and impacts of traffic accidents (fatalities and injuries and property damage)

Additional Suggested Factors to Measure

- Neighborhood life-safety code
- Connectivity in relation to compactness
- The personal and community risks associated with a site (e.g., making the choice to build or live in a development far removed from the urban center and fire services)
- Impacts of equipment and apparatus specifications
- Efficient use of public resources to support life safety, including the location of fire stations
- Longer-term maintenance and operating costs of street infrastructure and fire departments
- How streets, building structures, fire equipment, and tactics fit the context of the neighborhood

Discussion comments about the measures emphasized the importance of demonstrating to local officials how streets can be more efficient; frame the concepts discussion in regionally acceptable terms (e.g., in California, sustainability, or in Texas, efficient use of government resources;

CLOSING COMMENTS AND NEXT STEPS

Representing the CNU, the EPA, and firefighters, John Norquist, Tim Torma, and Carl Wren closed the workshop, noting how much the participants valued in common, thereby creating a strong foundation for moving forward. The workshop, they observed, enabled urban designers and transportation planners to learn more about firefighter's needs (including how quickly a fire takes off and the influence of equipment on street design) and allowed fire officials to learn about the redundancy value of a road grid and safety value of narrower streets and speeds. The workshop also underscored the need for interdisciplinary approaches. Other closing observations called out the need to continue with the transparency of the workshop discussions and to see change at a scale that makes a difference (for example, code changes approved by the International Code Council and National Firefighters Protection Association and the creation of a document that outlines how a developer or planner can resolve the conflicts between TND goals and emergency responder needs). "I am optimistic," Carl Wren concluded. "We now need to bring more firefighters into the discussion."

APPENDIX A: WORKSHOP PARTICIPANTS

First	Last	Title	Company
Danielle	Arigoni	Planner	U.S. EPA Development, Community and Environment Division
Jim	Charlier	President	Charlier Associates, Inc.
Rick	Chellman	Principal	TND Engineering
Jon	Davis		CNU
Eric	Dumbaugh	Assistant Professor, Department of Landscape Architecture & Urban Planning	Texas A&M University
Edward	Erfurt	Associate	Glatting Jackson Kercher Anglin
Norman	Garrick	Associate Professor of Transportation	University of Connecticut
Frank	Kinnier	Captain	Chesterfield Fire & EMS
Neil	Lipski	Former Fire Chief	Milwaukee Fire Dept.
Marcy	McInelly	President	Urbsworks, Inc.
Richard	Milk	Community Development Coordinator	San Antonio, Texas
Jim	Murley	Director	Florida Atlantic University Center for Urban & Environmental Solutions
Frank	Nause	Asst. Fire Marshal	Chesterfield Fire & Life Safety
John	Nickles	Fire Marshal	McKinney Fire Department
John	Norquist	President & CEO	CNU
David	Sargent	Principal	Moule & Polyzoides
Jean	Scott	Senior Fellow	Florida Atlantic University Center for Urban & Environmental Solutions
Patrick	Siegman	Principal	Nelson/Nygaard Consulting Associates
Stu	Sirota	Principal	TND Planning Group
Dan	Slone	Attorney	McGuire Woods
Heather	Smith	Planning Director	CNU

Peter	Swift	Owner	Swift and Associates
Tim	Torma	Acting Director, Smart Growth Office	U.S. EPA Development, Community and Environment Division
Steve	Tracy	Senior Research Associate	Local Government Commission
Art	Villareal	Firefighter	San Antonio Fire Marshal's Office
Carl	Wren	Chief Engineer	Austin Fire Department

APPENDIX B: DAY ONE INITIAL BRAINSTORMING LIST OF VALUES

Day One: Initial Brainstorming List of Values

- Honesty
- Integrity
- Creating options
- Connectivity
- Building options for the future
- Life safety/building a large boundary around life safety
- Healthy communities
- Predictability (when the outcome of a code is predictable and fair)
- Public safety that supports sustainability
- Quality of life
- Reduction of fire-related deaths and traffic fatalities
- Property protection and property values
- Street and building solutions that respect regional differences
- Innovation/the ability to innovate (involves listening/being open to doing things differently)
- Context
- Communities that are connected, mixed-use, and denser
- Choices/diversity, complexity
- Priority of purpose (e.g., when deciding on street width)
- Balance (goes with priority of purpose)
- Collaboration
- Consistency
- Systems perspective
- Empathy
- Traffic safety
- Freedom to take risks
- Compromise
- Accountability
- Fairness
- Efficient use of tax dollars
- True cost (operational and maintenance as well as up-front)
- Outstanding customer service
- Fire prevention education
- Reduction in deaths from fire