Activating the Convenient Remedy

*Climate Change, Urbanism and Sustainable Transportation*

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Transportation, GHG and Energy

In the USA, Transportation accounts for 40% of total energy consumption
USA uses almost three times more energy for transportation than other western countries.
Technology may not be the remedy

American Cities use 220% more gasoline per person than European Cities

Vehicle Technology accounts for about 33% points of this difference

Urbanism and Mode Choice account for much of the rest of the difference

This data suggests that the exclusive focus in the USA on finding a technology fix to global warming is, to put it charitably, misguided

Source: Newman and Kenworthy - 1995

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Urban Density

Source: Institute for Sustainability and Technology Policy, Murdoch University
Density and VMT
Small American Cities

Source: www.fhwa.dot.gov/policy/ohim/hs02/re.htm

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Public Transit Use

Source: Institute for Sustainability and Technology Policy, Murdoch University

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Public Transit and Energy Use per Person, MJ

780
American Cities

1260
European Cities

Source: Institute for Sustainability and Technology Policy, Murdoch University
Public Transit is an efficient user of energy

Total Transportation Energy: 64,400

Public Transit Energy Total: 780

American Cities: 25,700

European Cities: 1,200

Source: Institute for Sustainability and Technology Policy, Murdoch University
Population and Vehicle Traffic Growth
USA

Vehicle Miles Traveled
Population

Population and Vehicle Traffic Growth
Portland Metro

- Population
- Vehicle Miles Traveled

0% 20% 40%
Role of Non-motorized Travel

Vehicle Miles Travelled per Person

Density

Davis, California

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Role of Walking and Bicycling
Cities afraid of death by congestion

Extra-wide freeways are among ideas to keep traffic — and local economies — moving smoothly in future.

By Larry Cooperman
USA TODAY

A plan to widen part of Interstate 10 in metropolitan Phoenix, from 14 lanes to 24 is the kind of gridlock that some planners say could stifle economic growth. For a 2-mile stretch between U.S. 60 in Tempe and the state Route 147, the interstate would have six-general purpose lanes, three express lanes and four lanes for local traffic in each direction. Work on the first phase, which planners expect to cost about $550 million, could begin by 2011. Political and business leaders in metro-area increasingly see traffic congestion as hurting their ability to compete with other regions for new businesses and young professionals. There’s no question that traffic is a major factor for business, that’s contemplate
The proposed expansion of a stretch of traffic-clogged Interstate 10 in the Phoenix area would widen the highway’s right of way to about 400 feet, according to federal highway guidelines.

Two Boeing 747-400s side by side: 422 feet, 10 inches wide

12 lanes
400 feet
12 lanes

Football field (including end zones): 360 feet long

Sources: Arizona Department of Transportation, U.S. Department of Transportation and Boeing

By Karl Gelles, USA TODAY
System Failure under Stress

Evacuees fleeing Rita in Houston stranded on I-10

www.slate.com/id/2126823/
Fatality Rate per 100,000 (All Users)

Bike Mode Share (%)
Bike PED Fatality vs. Mode Choice

- **Peds**
- **Bikers**

Fatality Rate per 100,000

Bike Mode Share (%)
Accident Severity vs. Year Incorporated

Year of Incorporation of City

Accident Severity*
Transportation Planning for the Neck of Charleston
New Urbanism in the Charleston Area
Battles in Urbanism

Enter through the narrow gate. For wide is the gate and broad is the road that leads to destruction, and many enter through it. But small is the gate and narrow the road that leads to life, and only a few find it.

Mat. 7:13-14

Higher density
Urban Streets
Marketing
Perception
The Neck of Charleston
The Battles over Johnnie Dobbs
We have too much to lose
LEED® for Neighborhood Developments
What is LEED-ND?

- Joint venture of USGBC, CNU, NRDC (SG)
- National certification for “smart” development
- Primary market: development teams
- Secondary market: planners & local government
How does LEED-ND apply?

- developments of multiple buildings and developer-supplied infrastructure
- May be mixed-use, or entirely residential or commercial if adding diversity to surrounding area
- Will inform land-use component of LEED
LEED-ND Pilot Status

- 371 Applications
- 238 Registered projects
- Representing 42 states, 8 countries
- 104 sq. mi, “bigger than Boston”
Registered LEED-ND Pilot Projects (208)
Focus Group Projects (60)
Three Stages of Certification

- Stage 1: Pre-Entitlement
  - Review of Preliminary Design Documents

- Stage 2: Post-Entitlement
  - Review of Entitled Design

- Stage 3: Post-Construction
  - Built Project
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>Pilot program starts</td>
</tr>
<tr>
<td>2007/8</td>
<td>Initial project certifications complete</td>
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<tr>
<td>2008</td>
<td>Pilot complete, standards revised</td>
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<tr>
<td>2009</td>
<td>ND criteria finalized and adopted by CNU/Smart Growth/USGBC</td>
</tr>
<tr>
<td>201X</td>
<td>Zoning code version of LEED-ND</td>
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</tbody>
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How is LEED-ND organized?

- Three Big Questions:
  - Where?
  - Locate in or near existing urban areas
  - Avoid sensitive areas
  - What?
  - Compact, connected, & complete place
  - How?
  - Project construction and maintenance
Where: Smart Location and Linkage

- Prerequisites
  - Smart Location
  - Water and Wastewater Infrastructure
  - Imperiled species and habitats
  - Wetland and water body conservation
  - Farmland preservation
  - Floodplain avoidance
Where: Smart Location Pre-Requisite

- Infill, Redevelopment, Or Adjacent and Existing Transit
- Planned Transit Service
- Drive Less than Regional Average
- Wetland and Water Body Protection
- Imperiled Species And Ecological Communities
Where: Smart Location and Linkage

- Credits
  - Brownfields Redevelopment
  - High Cost Brownfield Redevelopment
  - Preferred Locations
  - Locations w/ reduced automobile dependence
  - Bicycle Network
  - Jobs and Housing Proximity
  - School Proximity
  - Steep Slope Protection
  - Off-site Land Conservation
  - Site Design for Habitat or Wetlands Conservation
  - Restoration of Habitats or Wetlands
  - Conservation Management of Habitat or Wetlands
Adjacent

Infill or Redevelopment

Transit Service

Brownfields
What:
Neighborhood Pattern and Design

• Prerequisites
• Open Community
• Compact Development
What:
Neighborhood Pattern and Design

• Credits
  • Compact Development
  • Diversity of Uses
  • Diversity of Housing Types
  • Affordable Rental and For-Sale Housing
  • Reduced Parking Footprint
  • Street Network
  • Walkable Streets
  • Superior Pedestrian Experience
  • Transit Facilities and Subsidies
  • Access to Surrounding Vicinity
  • Access to Passive and Active Public Spaces
  • Local Food Production
  • Community Outreach and Involvement
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How:
Green Construction and Technology

- Prerequisites
- Erosion control
How:
Green Construction and Technology

• **Credits**
  • Certified Green Building
  • Energy Efficient and Water Conserving Buildings
  • Building Reuse: Adaptive and Historic
  • Minimize Site Disturbance: During Construction and After
  • Contaminant Reduction in Brownfield Remediation
  • Maintain and Reduce Stormwater Runoff Rates
  • Stormwater Treatment
  • Hazardous Waste Pollution Prevention
  • Heat Island Reduction
  • Solar Building Orientation and Access Prevention
  • On-Site Power Generation and Renewables
  • District Heating, Cooling and Power
  • Infrastructure Energy Efficiency
  • Water efficient Irrigation
  • Graywater and Stormwater Reuse
  • Local and Recycled Materials
  • Comprehensive Construction and Solid Waste Management
  • Light Pollution Reduction
Existing Public Adoption Strategies

- Criteria for developer selection/entitlement (Chicago)
- Criteria for public funding/sales tax exemption (IL)
- Used to determine development impact fees (Kane Co.)
- Appearance in planning RFP’s (Minneapolis)