Building Communities through Transportation, Instead of Transportation through Communities

COMPASS EDUCATION SERIES

March 23, 2011

Gary Toth

Director of Transportation Initiatives

Project for Public Spaces

PROJECT FOR PUBLIC SPACES

34 years at the New Jersey Department of Transportation

4 Years Director of Transportation Initiatives at PPS

Invested Career in Helping Communities Get What They Want

How we got here and what are the consequences

Rebalancing the Transportation System

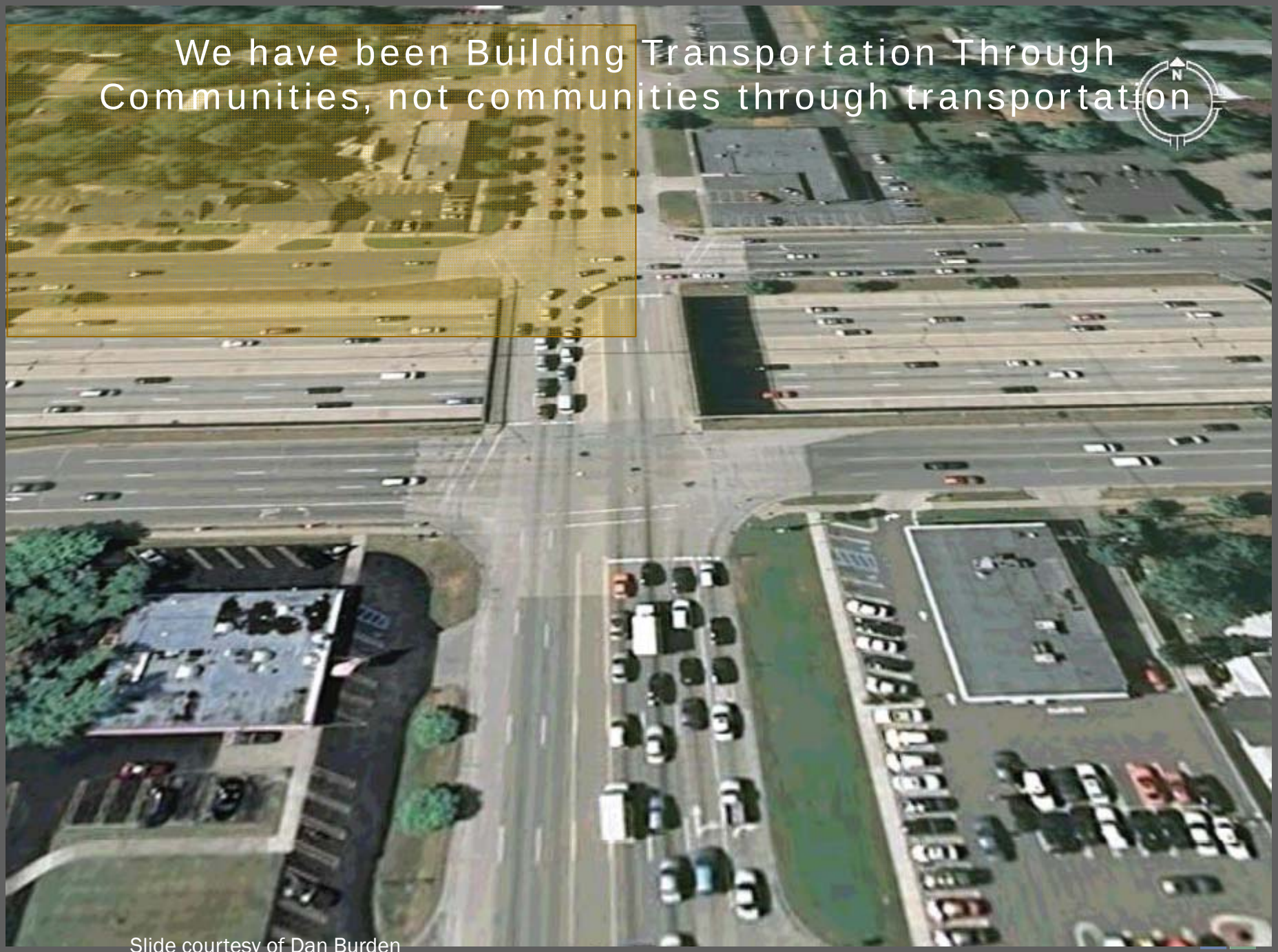
The Role of Land Use

What to Partner About

Closing thoughts

Is this the landscape we want to leave our children?

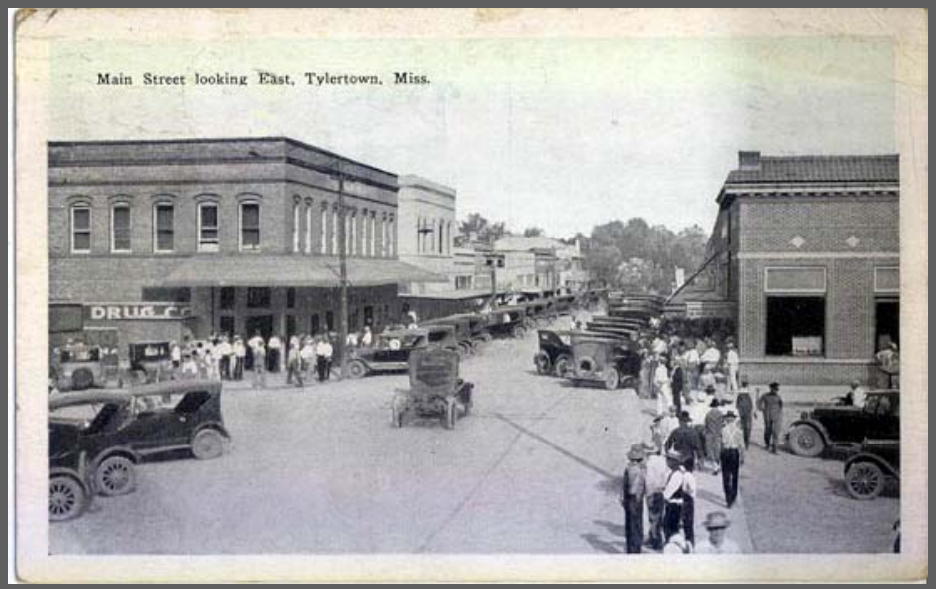
Slide courtesy of Dan Burden



Slide courtesy of Dan Burden

Pre-Automobile Era

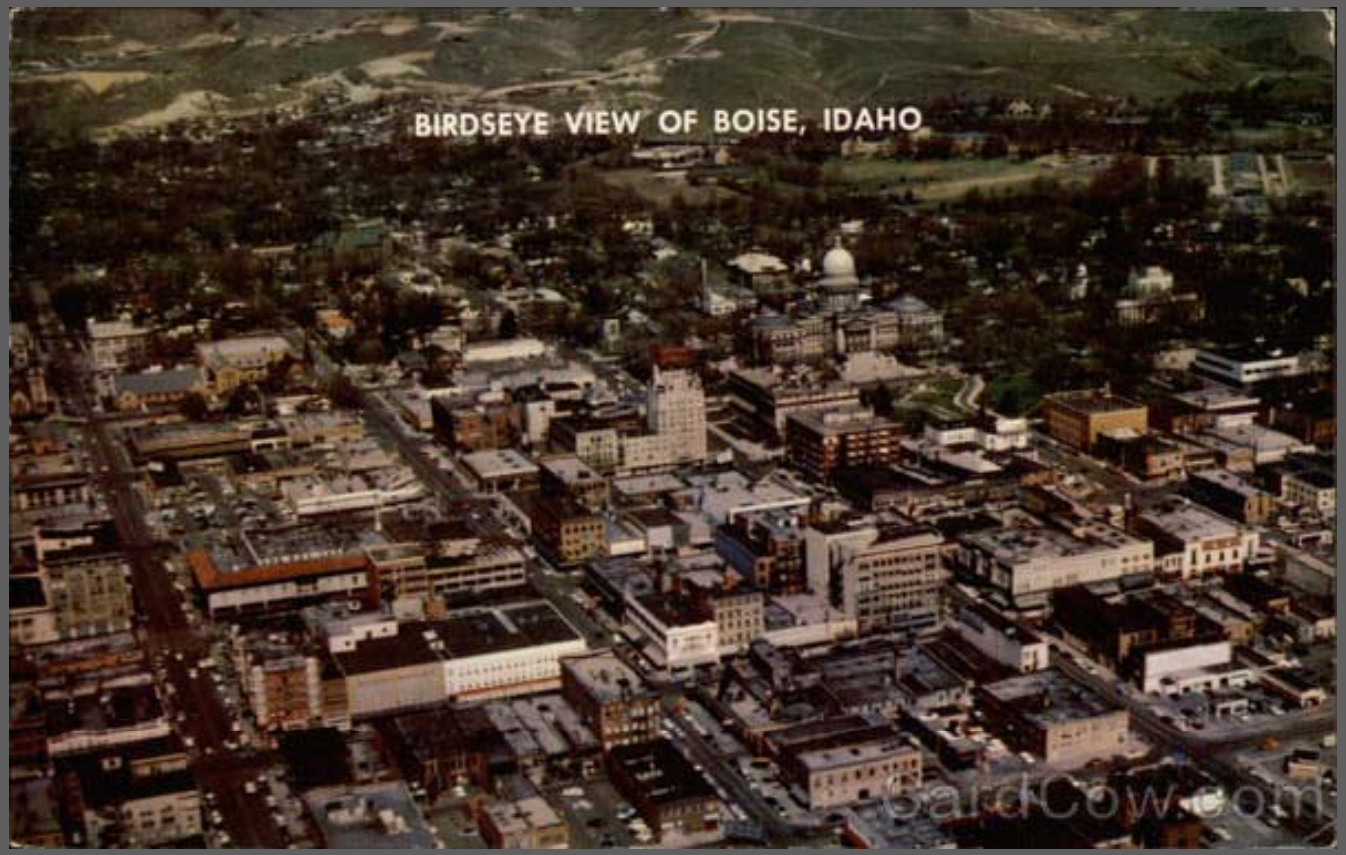
- City streets served as public places for economic and social interaction

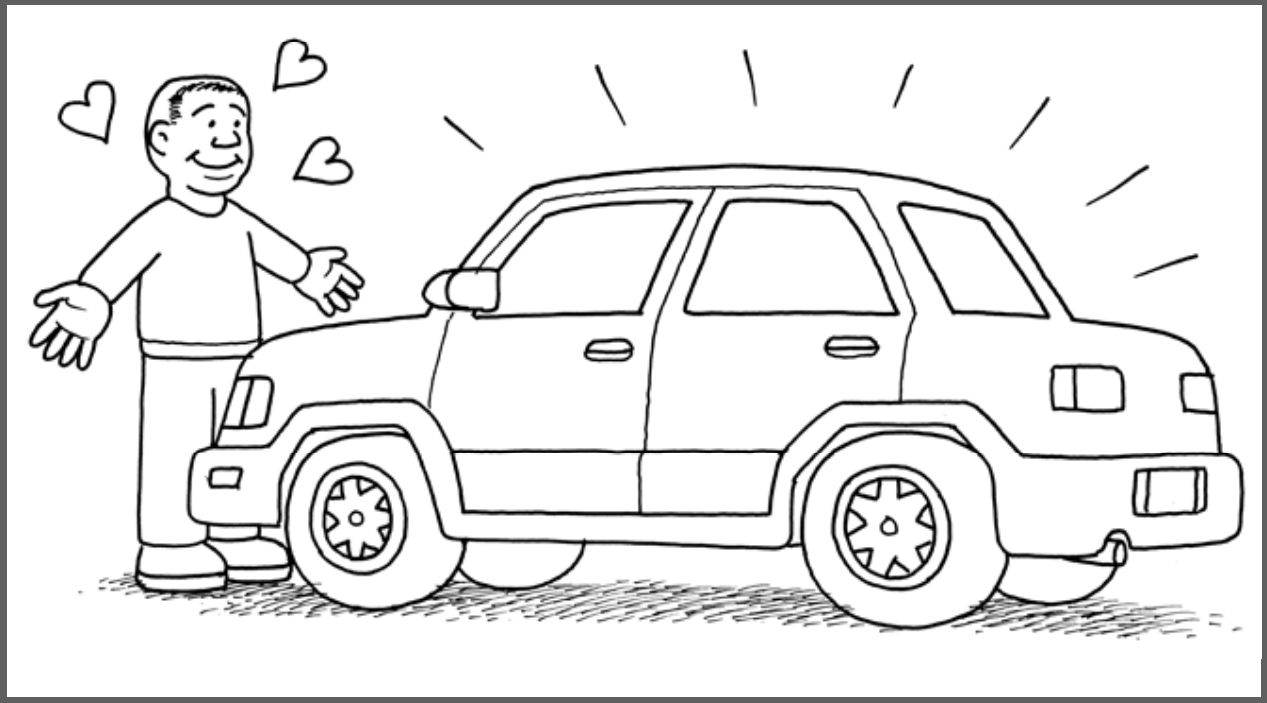


Streets used to have many purposes

Street design ***HAD*** to accommodate all users

Pieces of Community had to relate to each other





Graphic courtesy of Andy Singer

The Automobile Age

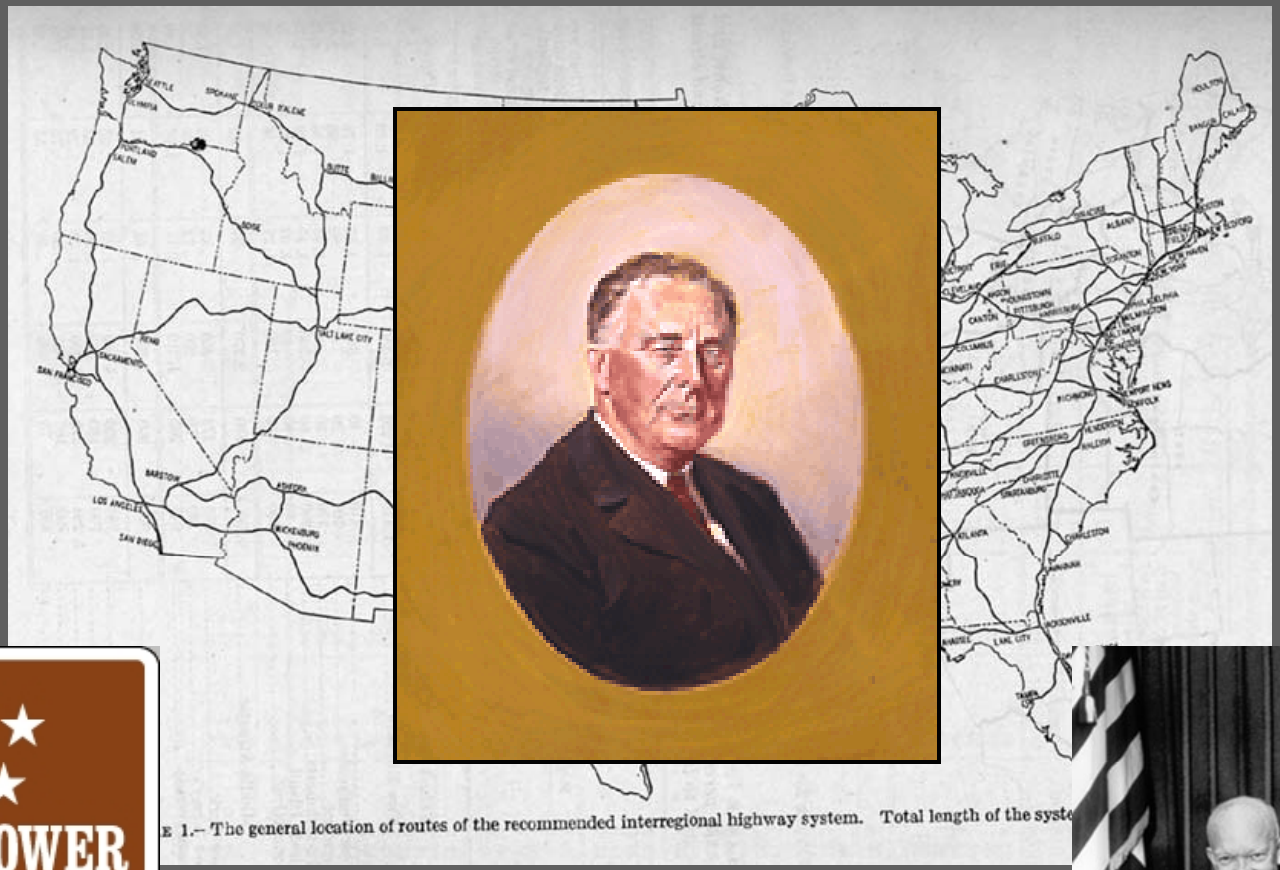
- The mobility provided by the automobile removed the need for those exchanges to be made in compact, mixed use cities and towns
- Once we could drive to access goods, employment, education and recreation, we were free to locate those uses in distant and specialized locations…and we did

Slide courtesy of Barbara Lawrence, NJ Future

The needs of the motoring public supersede all other contexts

We stopped viewing Streets as Places

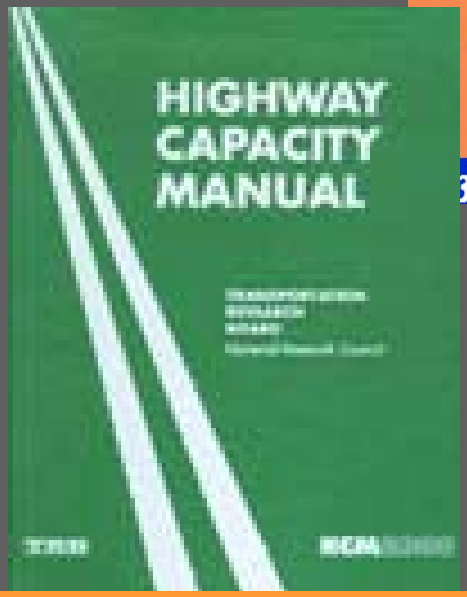
The Interstate Era Begins

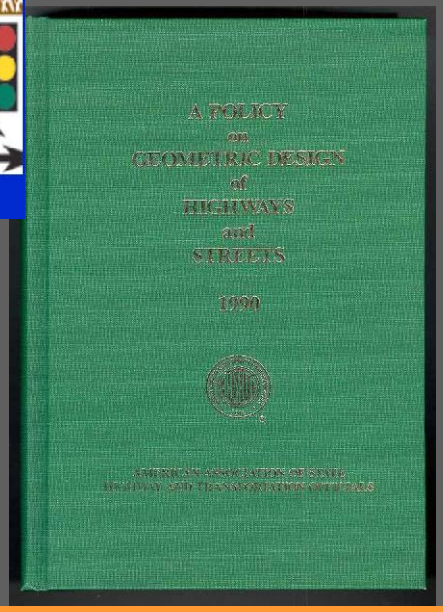


E 1.– The general location of routes of the recommended interregional highway system. Total length of the syste

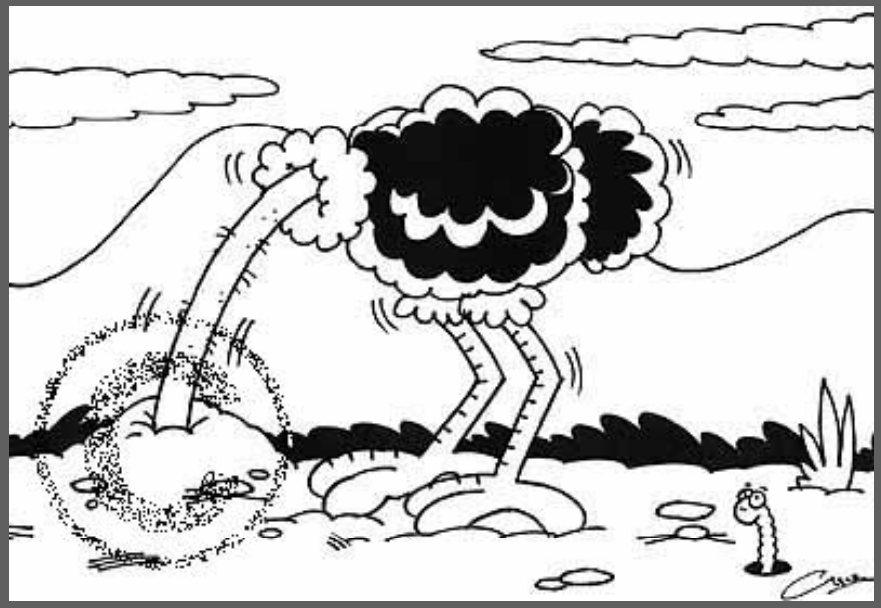
Dwight Eisenhower Library

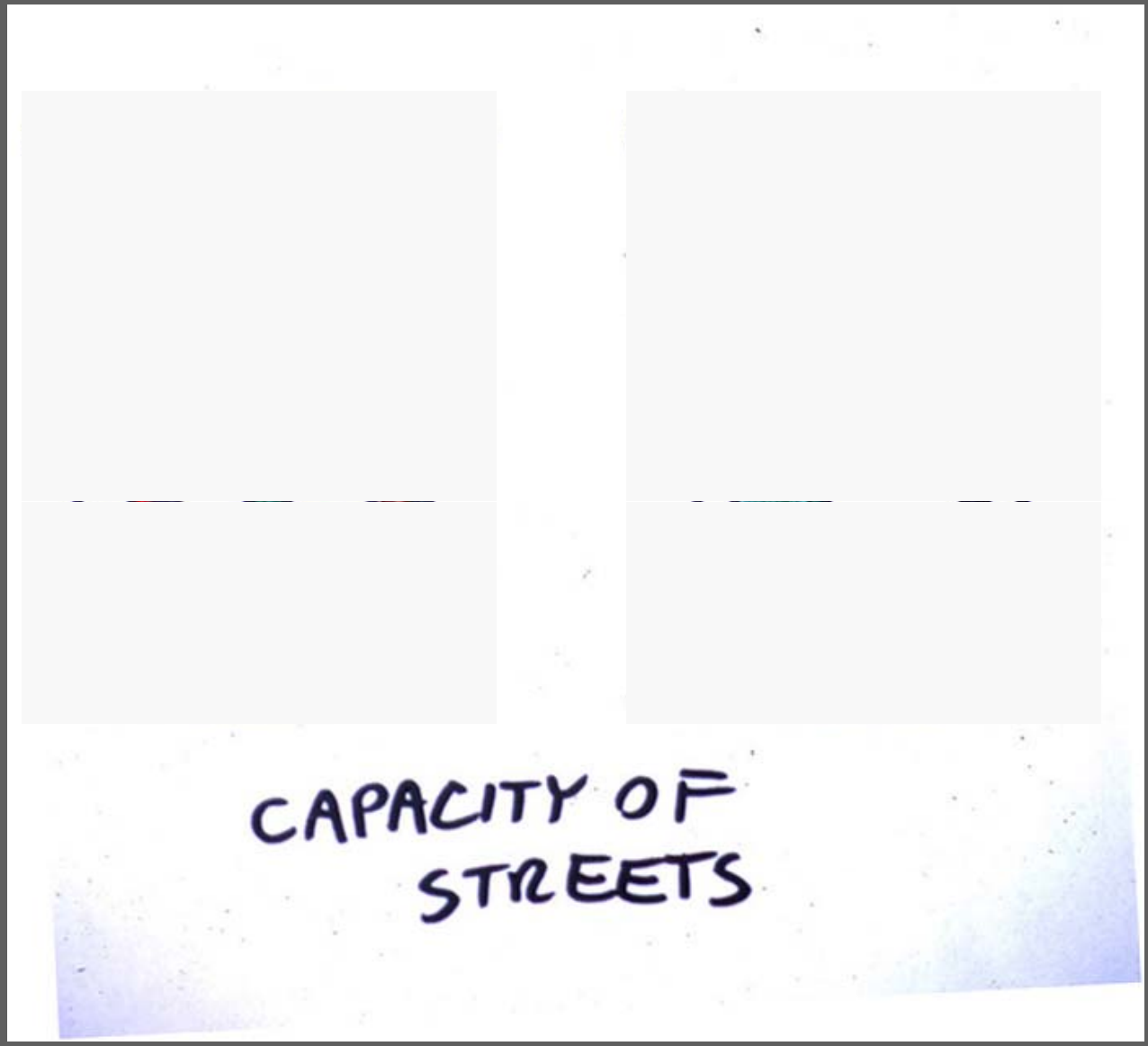
Transportation as a separate discipline flourished





Building communities is not our business

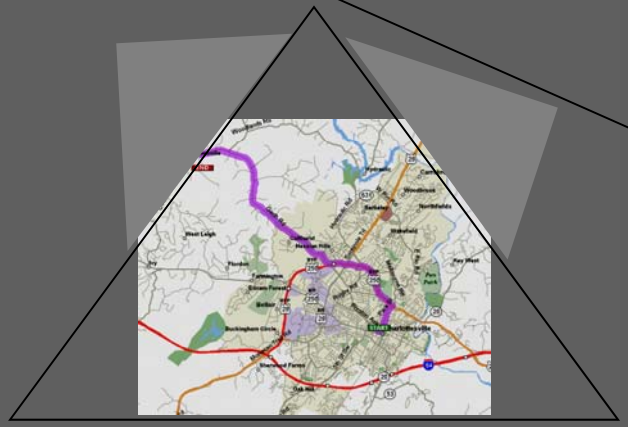




Slide courtesy of Ian Lockwood, Glatting Jackson

Focus on high speed mobility

Proximity



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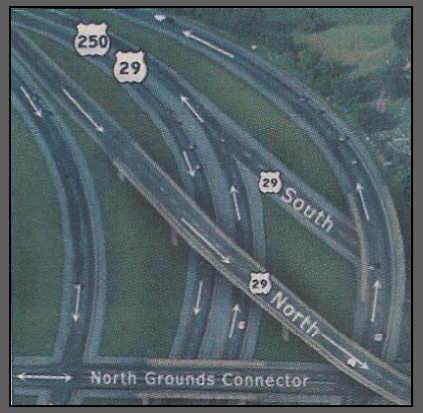
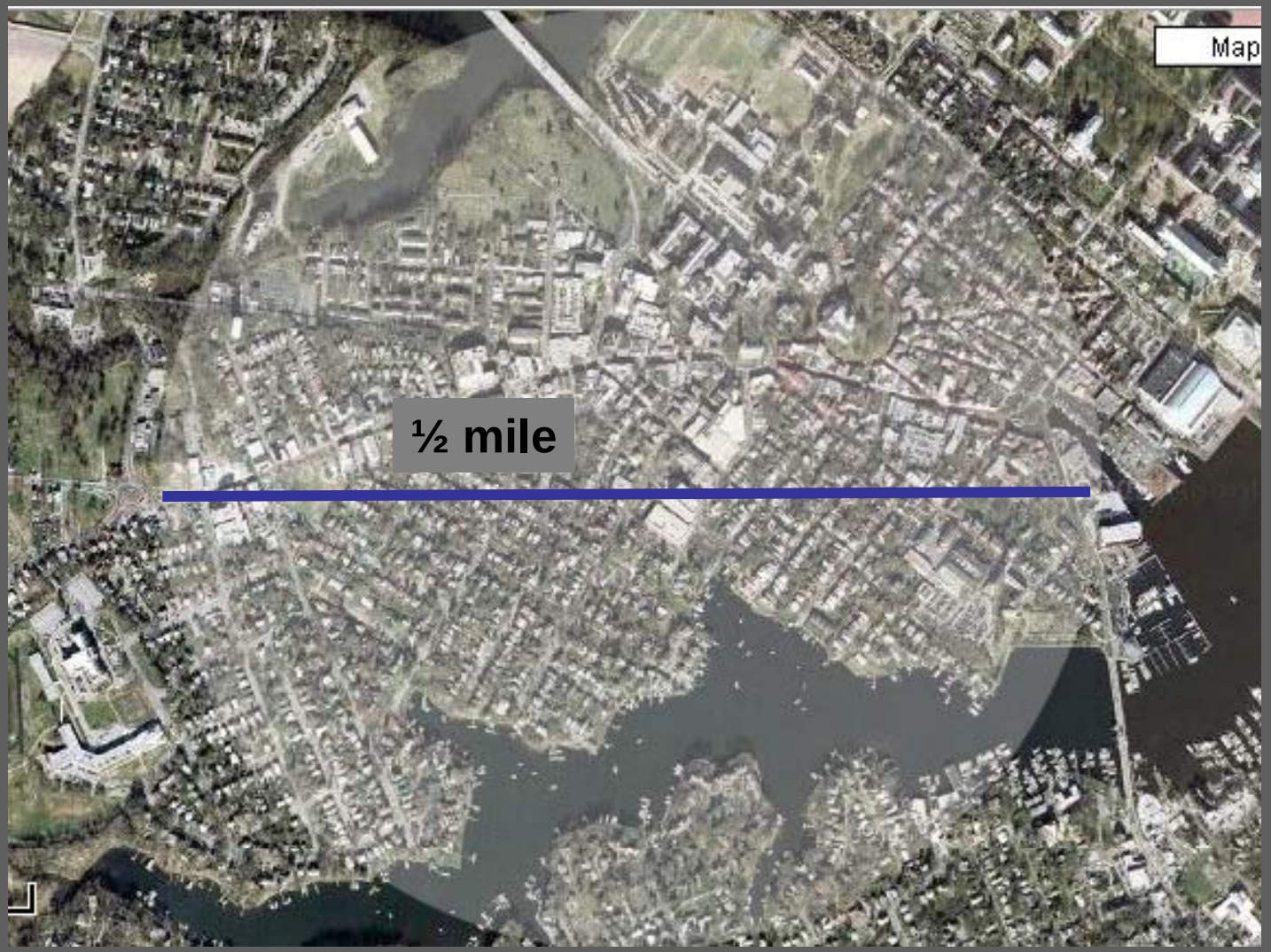


Speed

Slide Courtesy of Chris Sinclair, Renaissance Planning Group

Walking City (Pre-1890) – Annapolis



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Slide courtesy of the National Highway Institute

Streetcar Suburb (1890 – 1920) – Peabody Heights/Charles Village, MD

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Slide courtesy of the National Highway Institute

Early Auto City (1920 – 1945) – Chevy Chase, MD

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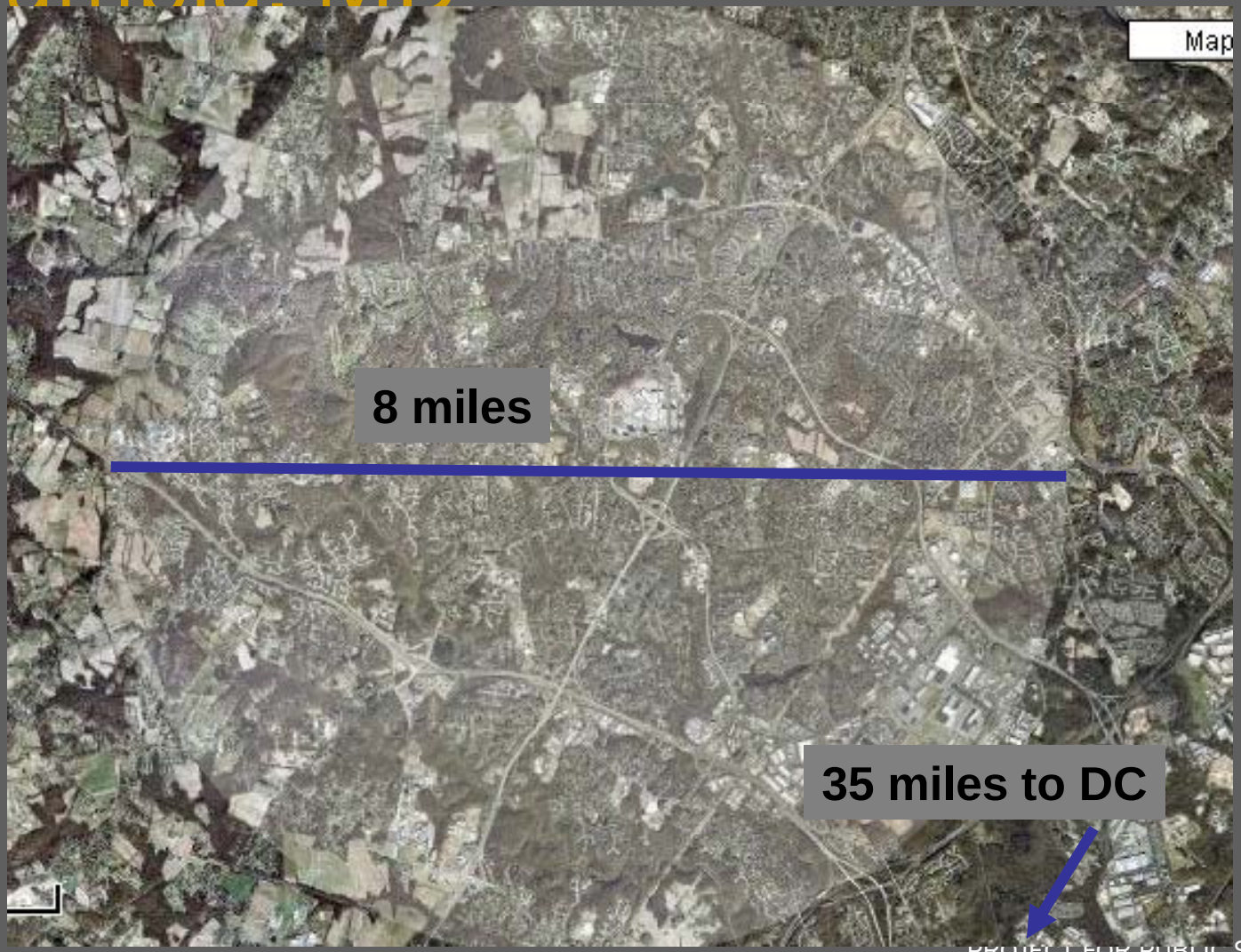
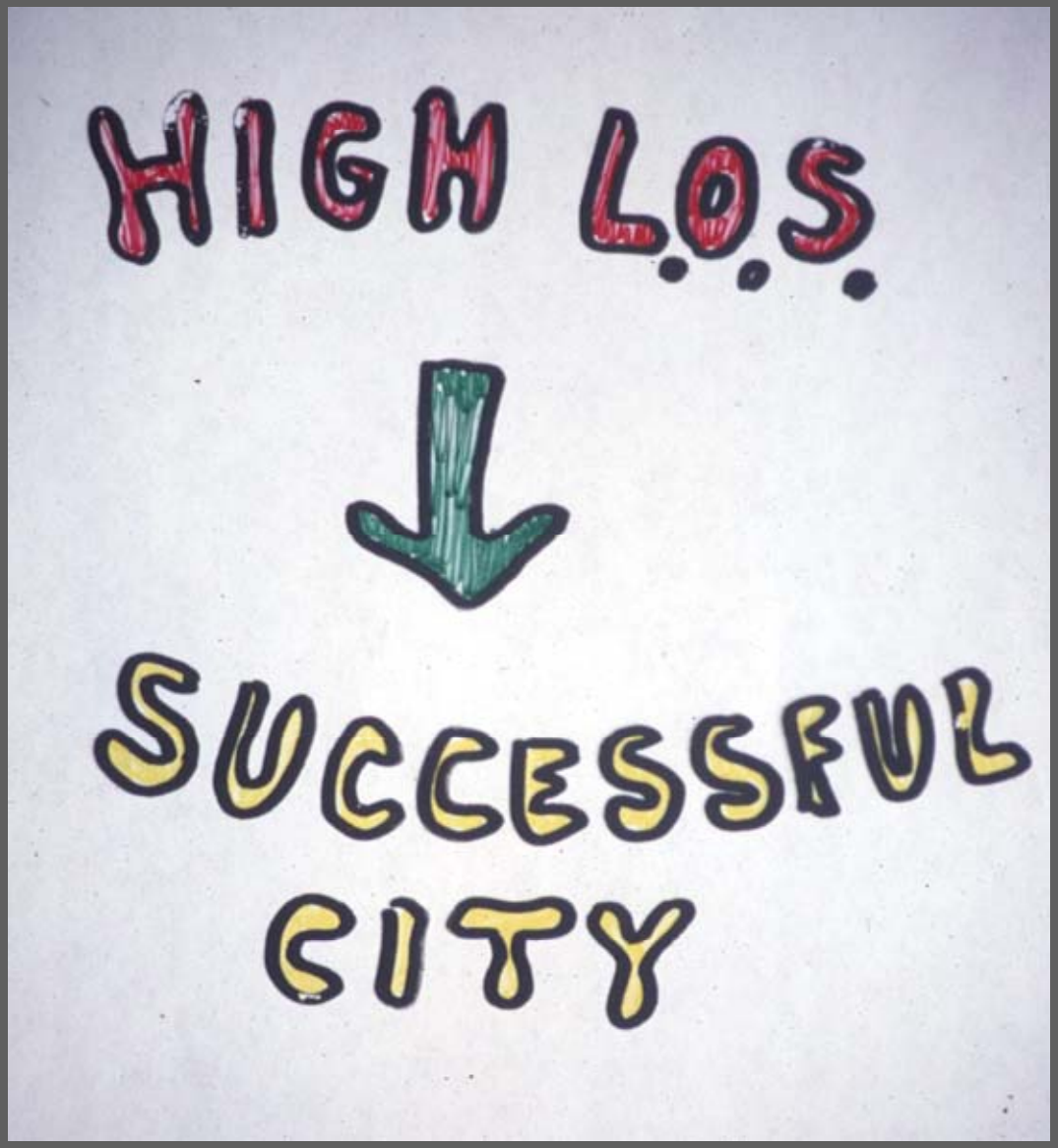
Slide courtesy of the National Highway Institute

Auto-Freeway City (1945 - ?) – Columbia, MD





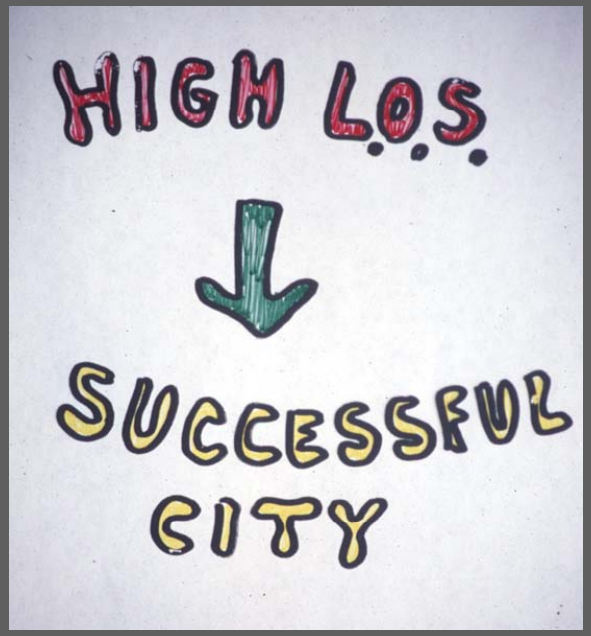
Slide courtesy of Ian Lockwood, Glatting Jackson

A successful street?

A successful street?

Is This a Successful Street?

Is this Sustainable?



Traffic Outcomes

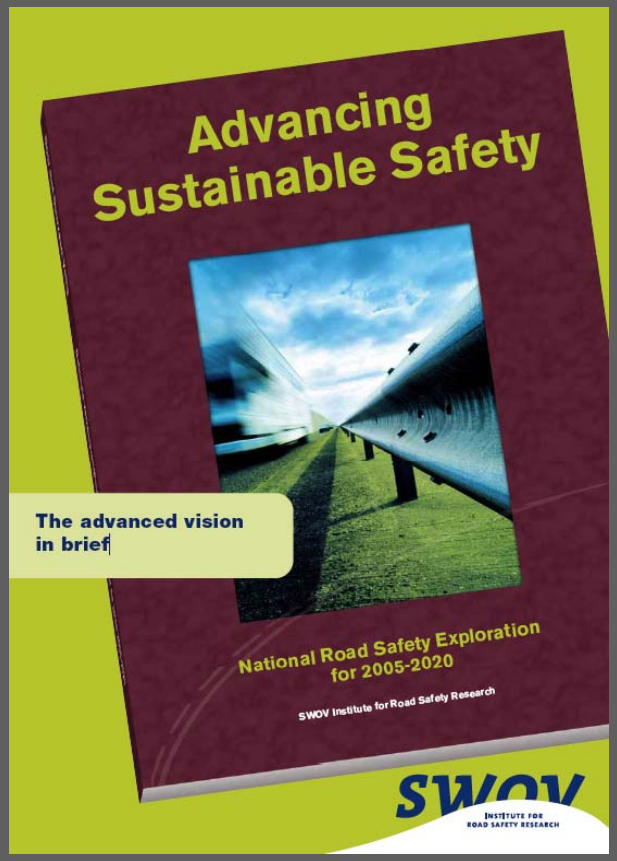
- **Commuters in the Boise area experienced over 4 million hours of delay in 2009 (225 thousand in 1982); total cost lost time was $91 million (2 million in 1982)**

Source: 2010 USDOT Annual Urban Mobility Report

Safety Outcomes

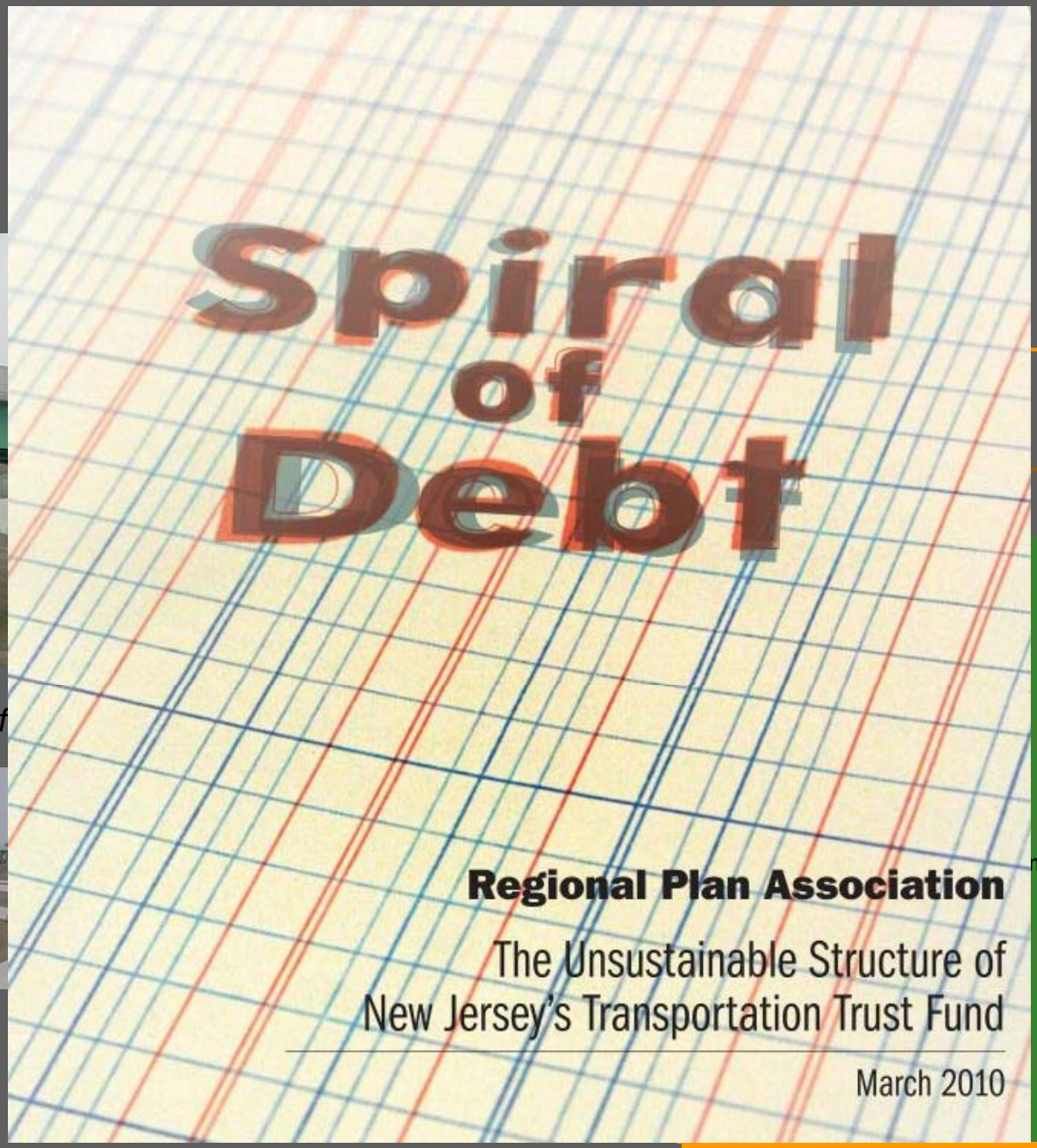
- Last year, over 33,000 Americans died on our roads
- In Mississippi, the number was 783 (2008)

Safety Outcomes



	US	Dutch Equivalent
1975	45000	51750
2008	37000	14800

Projects no longer af



n gap

$ 21.3

nance & Reconstruction

Total Statewide Revenue Available

Total Statewide Needs

PENNDOT

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Health Outcomes

- 225,000 die annually due to sedentary lifestyle
- Childhood obesity epidemic
- Type 2 diabetes on the rise – in children!

•The Transportation Prescription. PolicyLink. 2009.
•'Adult' diabetes on the rise in kids. MSNBC. October 30, 2009.
•Center for Disease Control

Social Outcomes

- **The average parent spends 17 full days a year behind the wheel; more than, bathing and feeding a child, and more than the average American takes for vacation.**

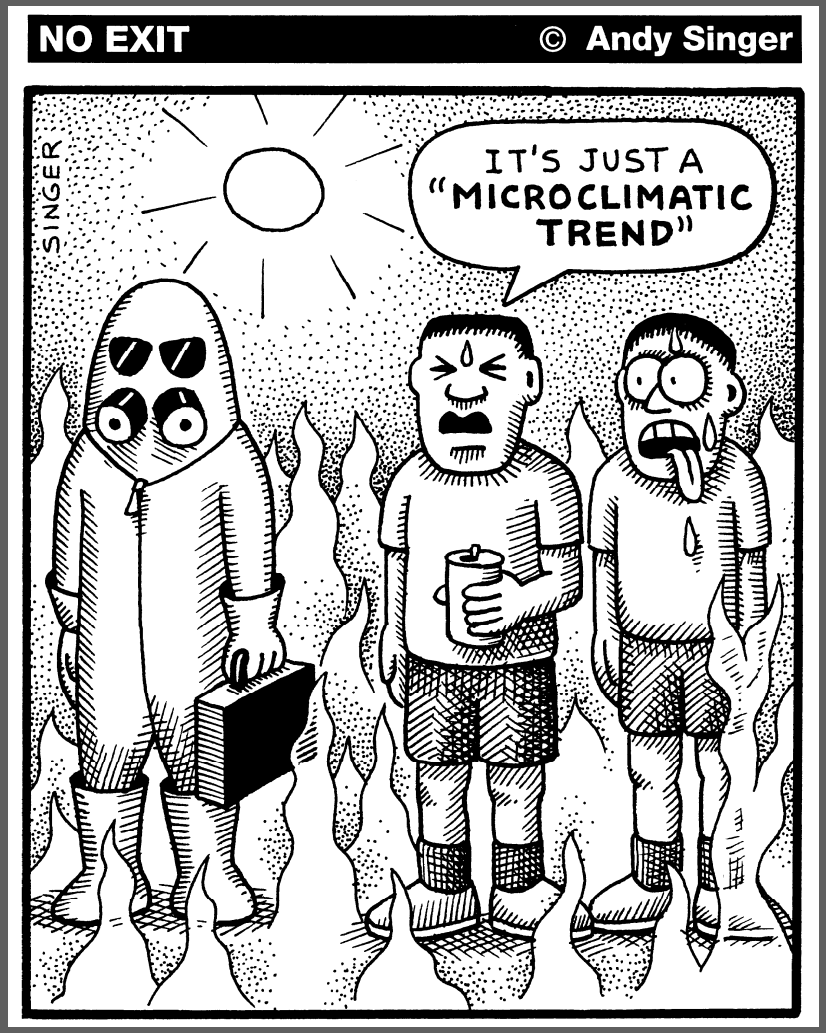
  Source: Surface Transportation Policy Project

- **In 1969, about half of U.S. children walked or biked to school. Today, fewer than 15 percent of children walk or bike to school. More than one-third of U.S. adults are obese and 17 percent of young children and adolescents are overweight.**

  Source: Centers for Disease Control and Prevention

Slide Courtesy of Astrid Glynn

Climate Outcomes

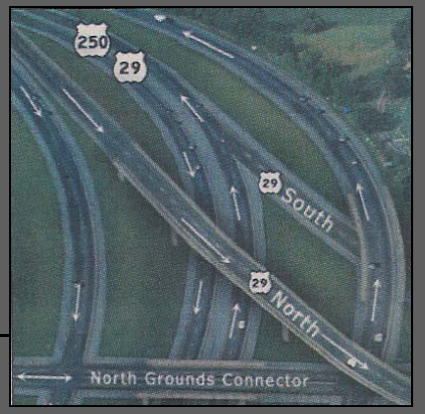


Cartoon courtesy of Andy Singer

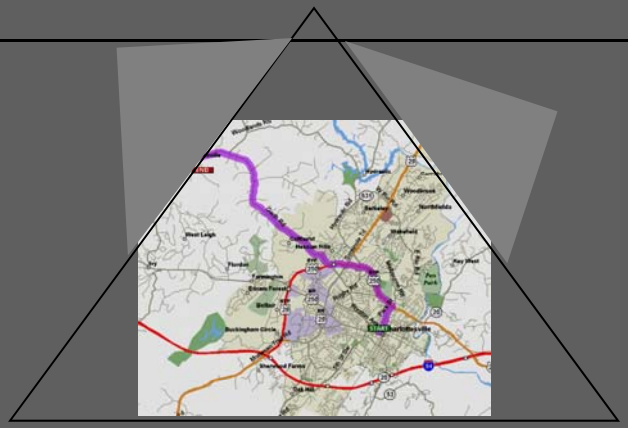
So what do we do?

Rebalance the system

Proximity



Speed



Accessibility

Slide Courtesy of Chris Sinclair, Renaissance Planning Group

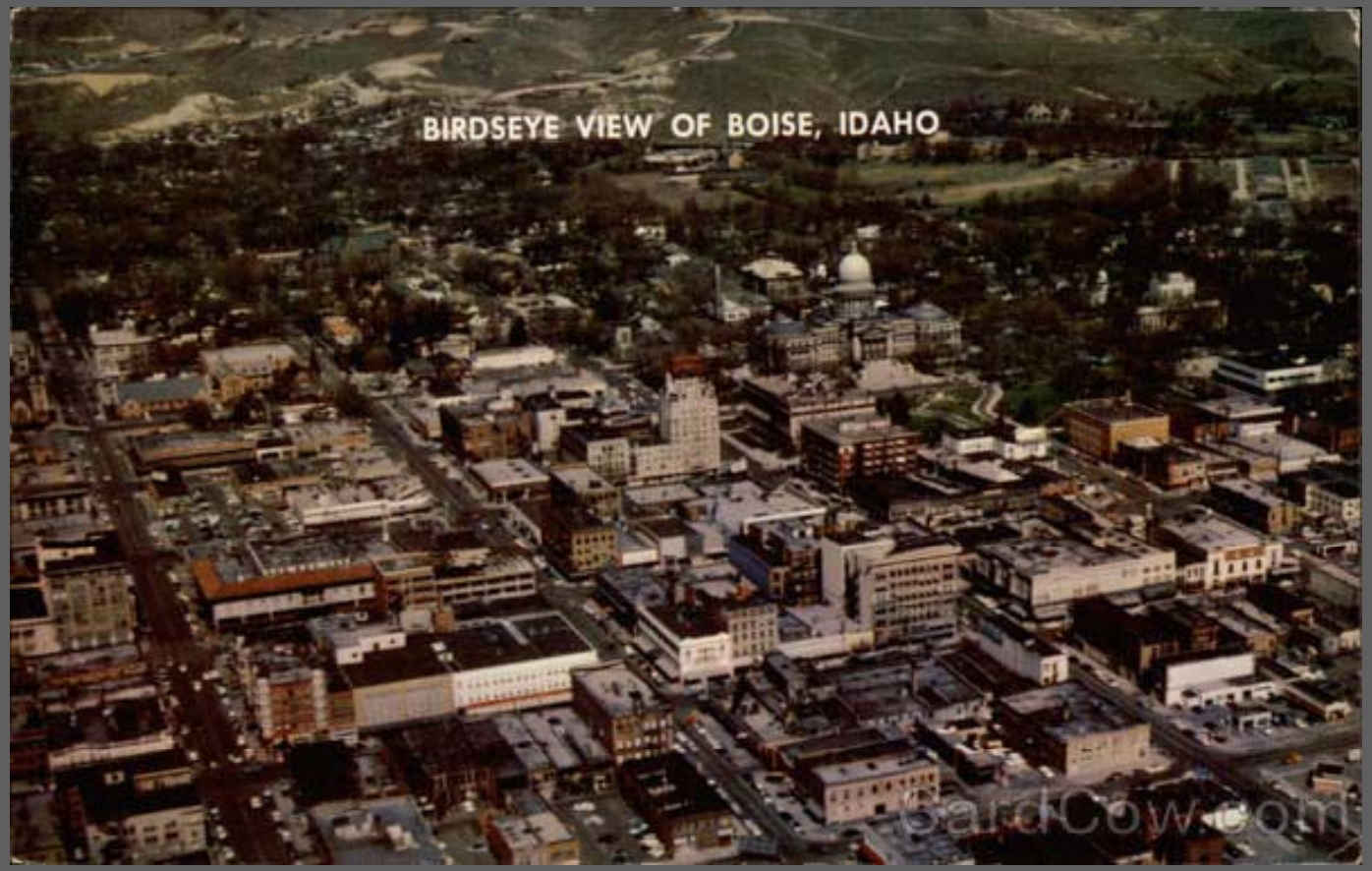
Rebalancing the system

Get the Streets Right

- Create Pedestrian Friendly and Complete Streets
- Create Streets that are Places
- Rightsizing roads
- Getting the Network Right
- Getting the Manuals Right

Use Transit for More than Mobility

Re-integrate Transportation and Land Use

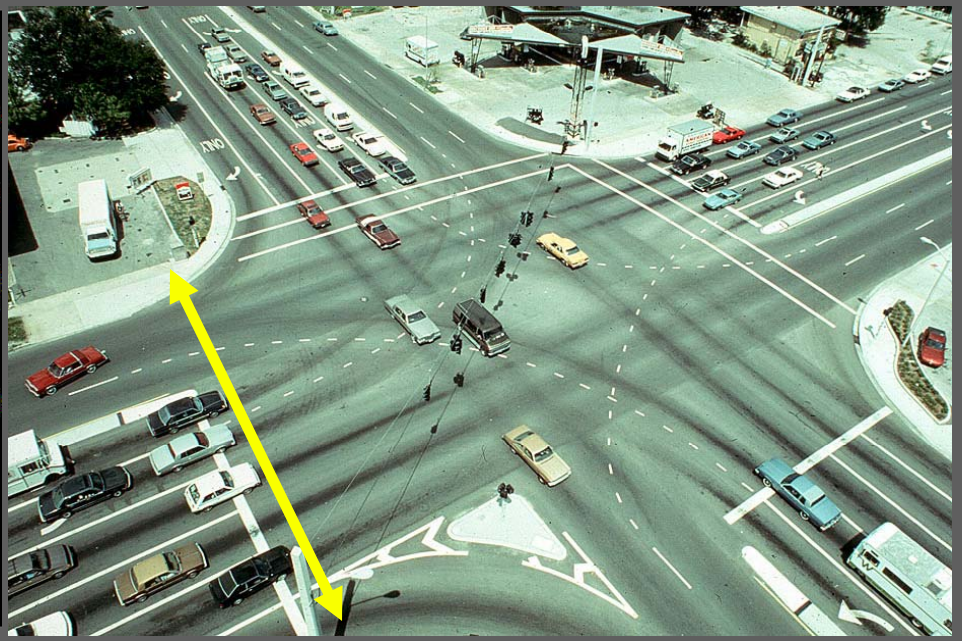


what can we do?

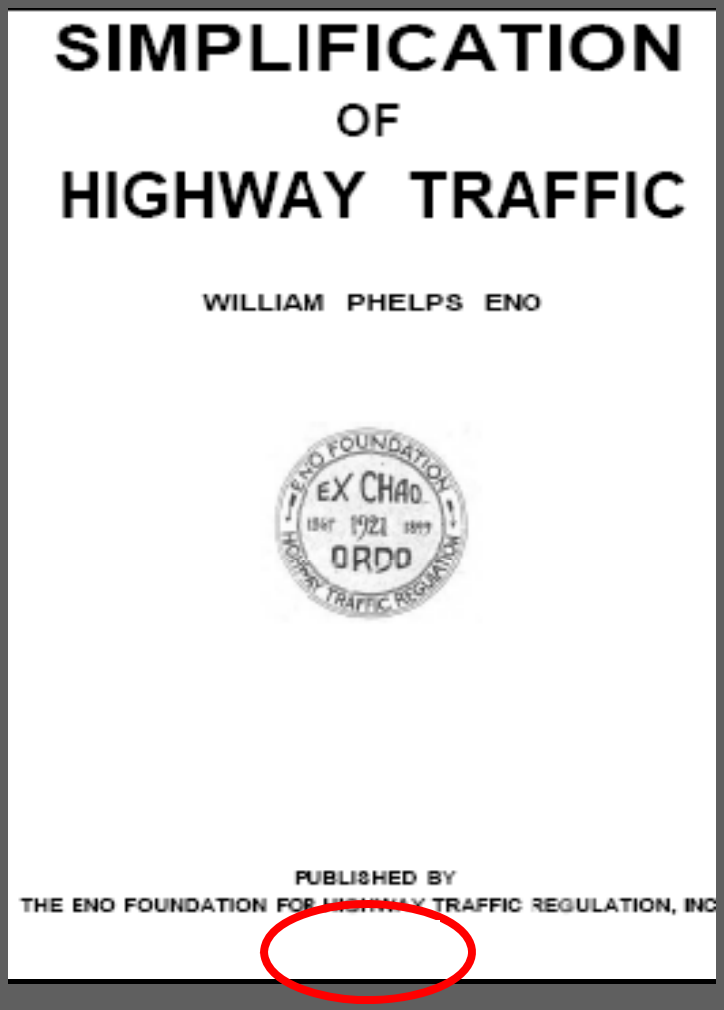
Create Pedestrian Friendly and Complete Streets

Can you spot the pedestrian?

Could you cross here?



Active Living Resource Center



Many of our suburban and country highways are being improved for motorists. Most of them are now unfitted for all other users. It is no longer safe to walk, ride or bicycle on roadways, especially at night when it is extremely perilous. The entire width of some highways is taken up by the roadway and on others what is not needed for roadway is left ungraded or so rough that it is useless for pedestrians, equestrians or cyclists.

No highway should be permitted to be without due provision for pedestrians and where practical for equestrians or bicyclists.

There should be a sidewalk or reasonably well made foot-path on one side at least of every highway. There should of course be two sidewalks or foot-paths on important highways.

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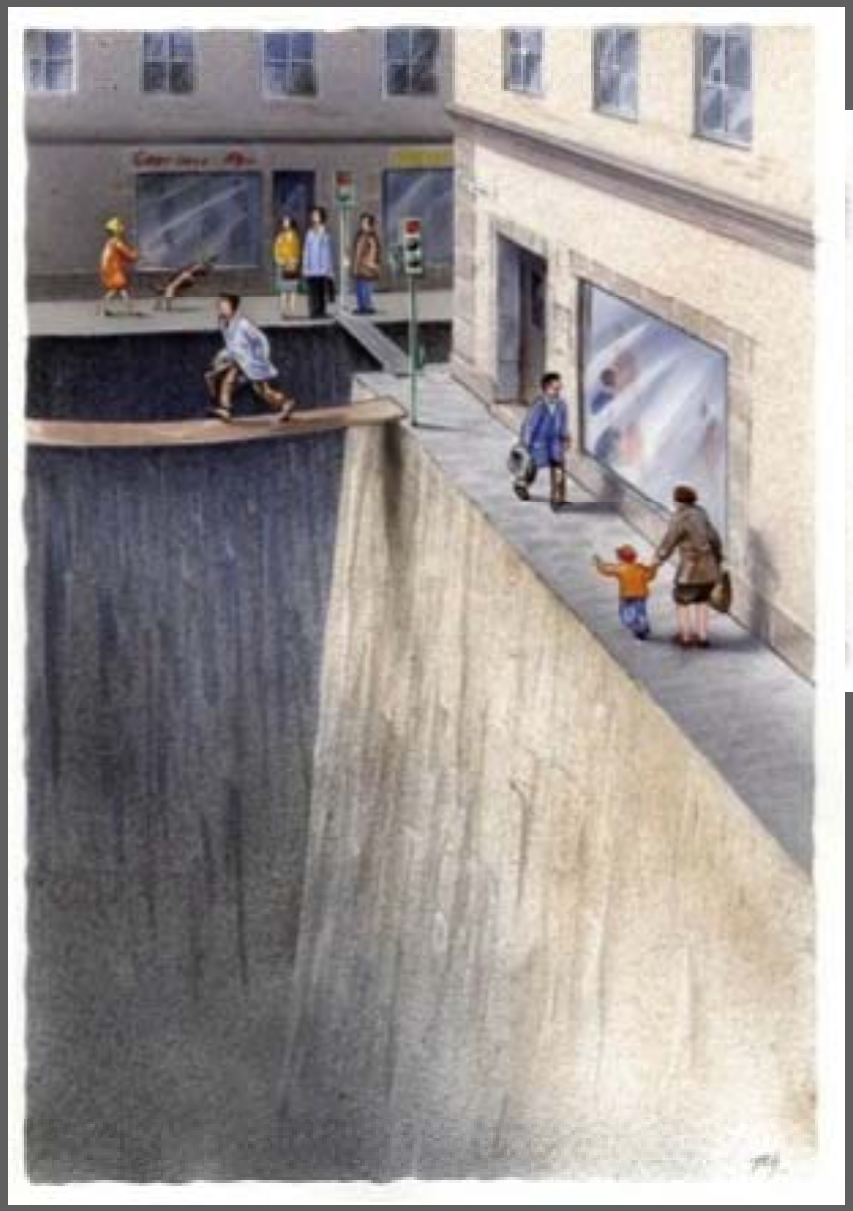
Slide Courtesy of Dan Burden

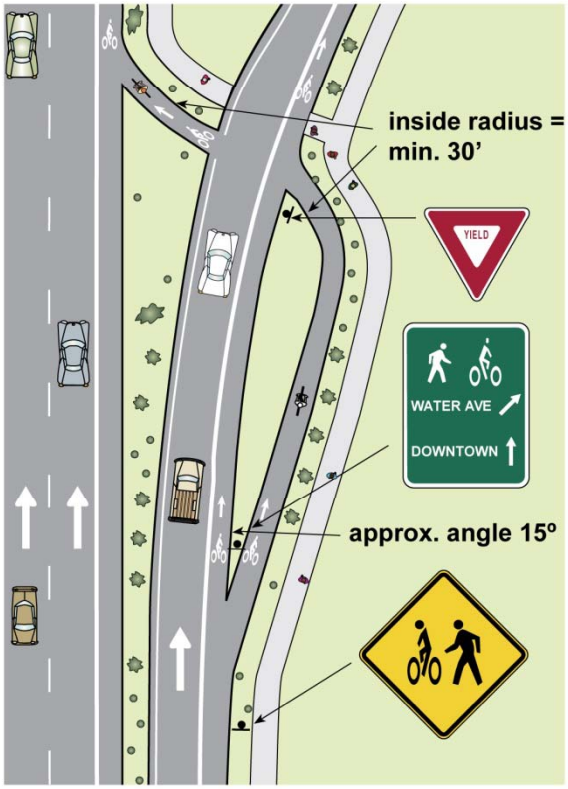


Graphic courtesy of Claes Tingvall
via David Levenger


HIKERS and BIKERS
Move to the side of
the road when a
vehicle approaches

Bikeway Design

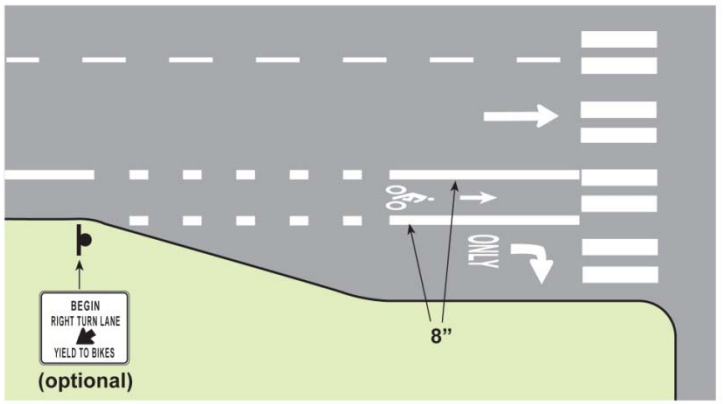
- Statement of Principals
  - Safe Access to All Destinations
  - All Streets are Bicycle Streets
  - Street Design should accommodate all users



Chapter6, fig, Exit ramp configuration detail -
Caption: *Pedestrian and bicyclist crossing at high-speed exit ramp*

Range of Bicycle Users

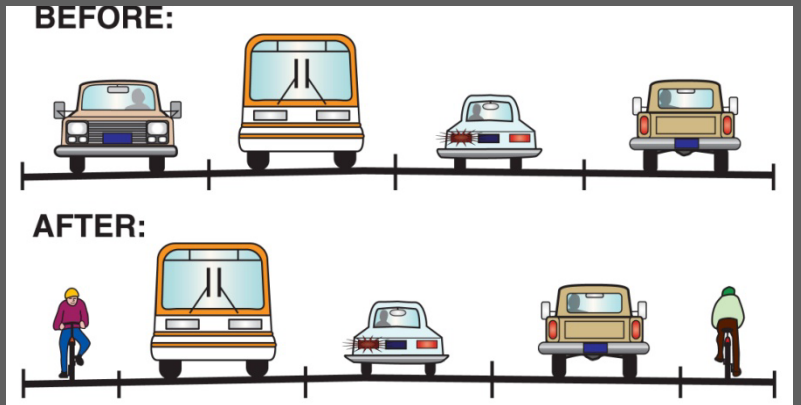
- Strong and Fearless
- Enthused and Confident
- Interested but Concerned
- No Way, No How



Chapter 6, Bike lane left of RTL conventional landscape -
Caption: Standard right turn lane with through bike lane

Building a Bikeway Network

- Facility Types and Applications
- Traditional Facilities
- Innovative Treatments
- Implementation Approaches



Chapt 2, fig, Restripe 4 to 2 travel lanes with center turn lane - Caption: *Road diet - 4 lanes reduced to 2 lanes, center turn lane and 2 bike lanes*

Complete Streets

A *Complete Street* is safe, comfortable & convenient for travel by automobile, foot, bicycle, & transit regardless of age or ability

AARP

UBLIC SPACES

Complete Streets policies are NOT:

- a mandate for immediate retrofit
- a silver bullet
- a design prescription

There is no such thing as a
'complete streets cross-section.'

Slide courtesy of Dan Burden

Photomorph courtesy of Dan Burden

2nd Avenue, South

Photomorph courtesy of Dan Burden

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Cahaba Road

Photomorph courtesy of Dan Burden

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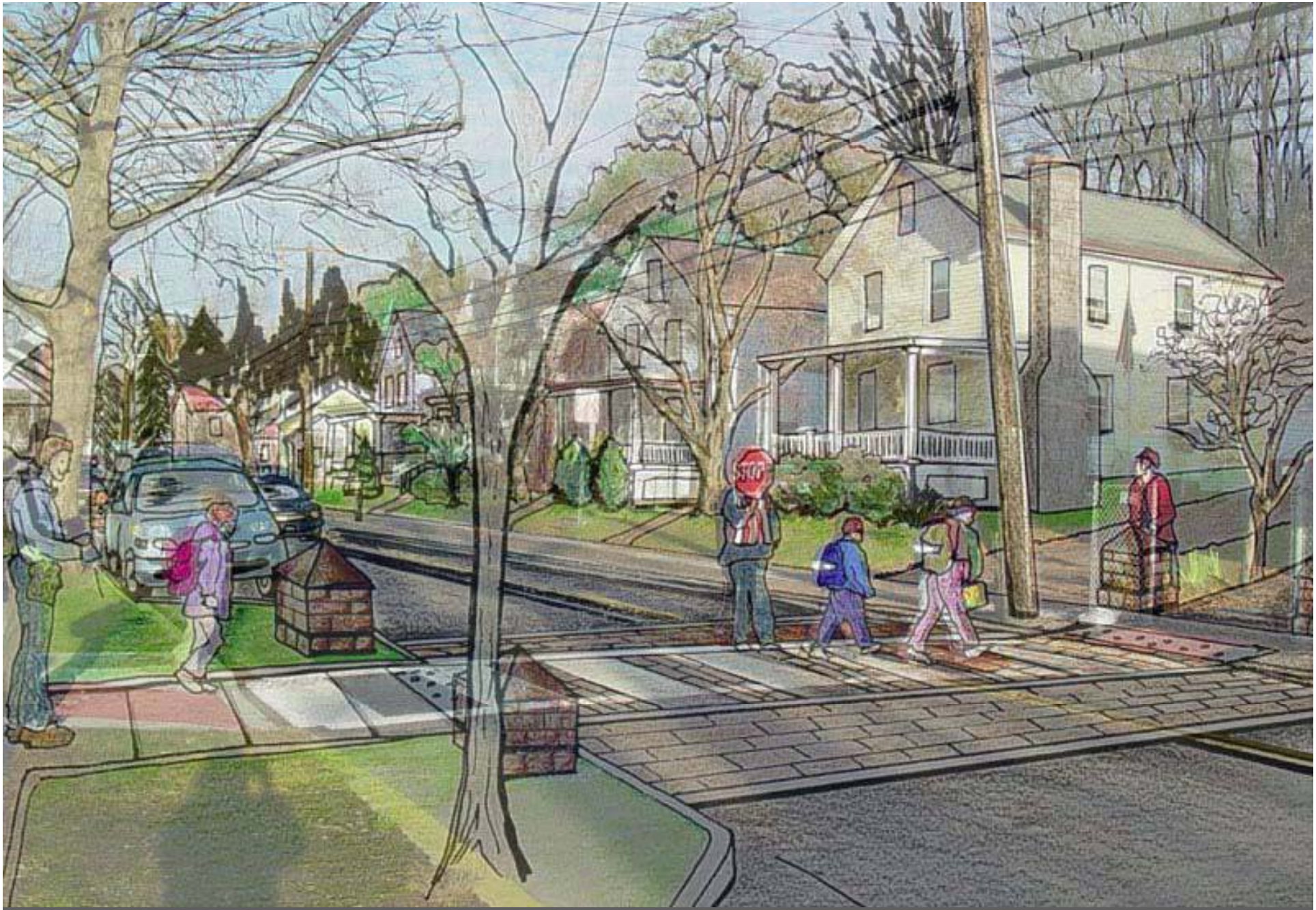
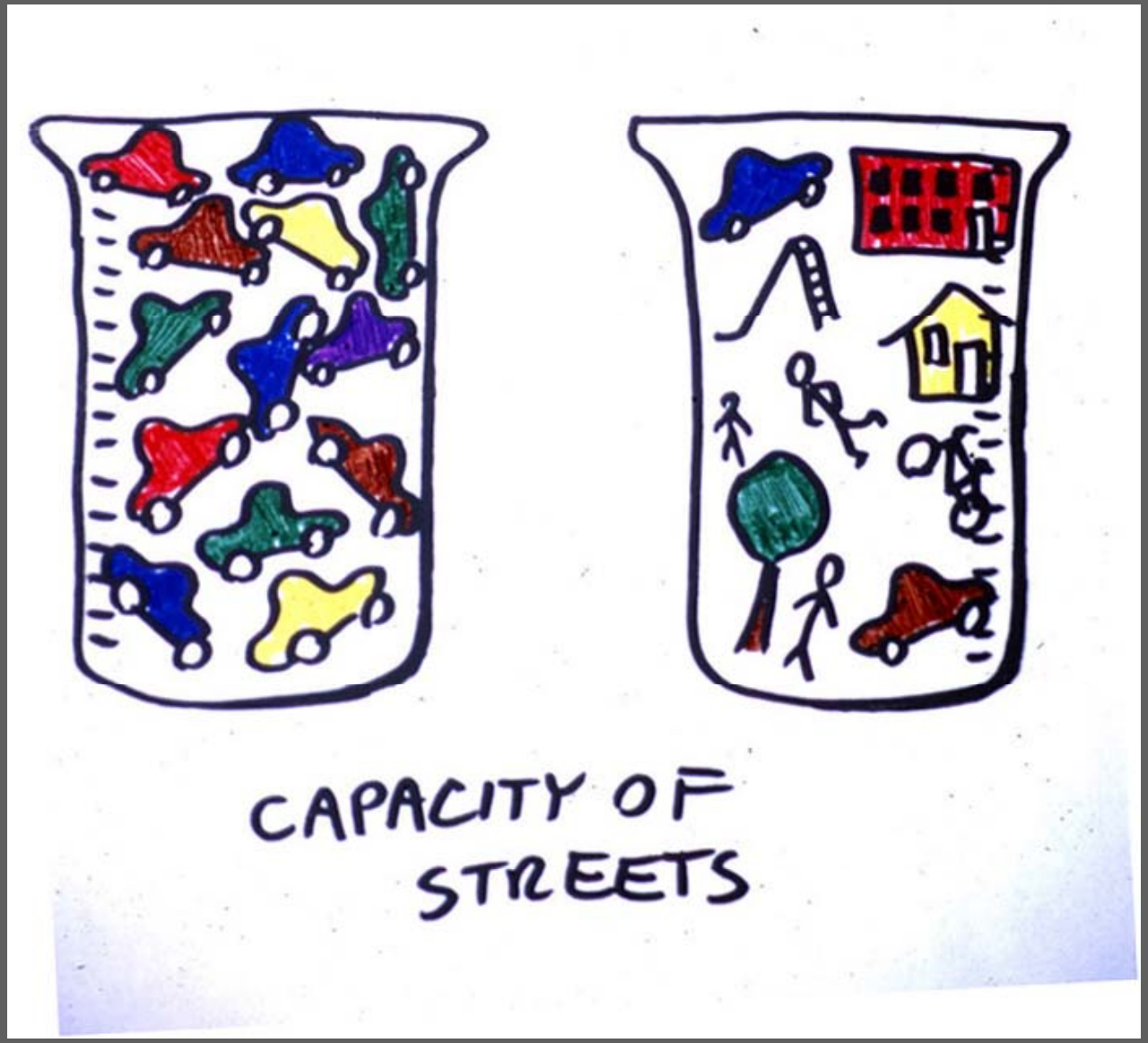
STOP


STOP


STOP

Think of Streets as Places



Slide courtesy of Ian Lockwood, Glatting Jackson


People put the Place back in streets

Characteristics of Streets as Places:

Design street elements and adjacent buildings for the human scale

Balances the going and staying needs of users

Support and encourage activities and destinations

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Characteristics of Streets as Places:

Provide a feeling of safety

Invite activities on both sides of the street

Reward slow movement by lowering speeds

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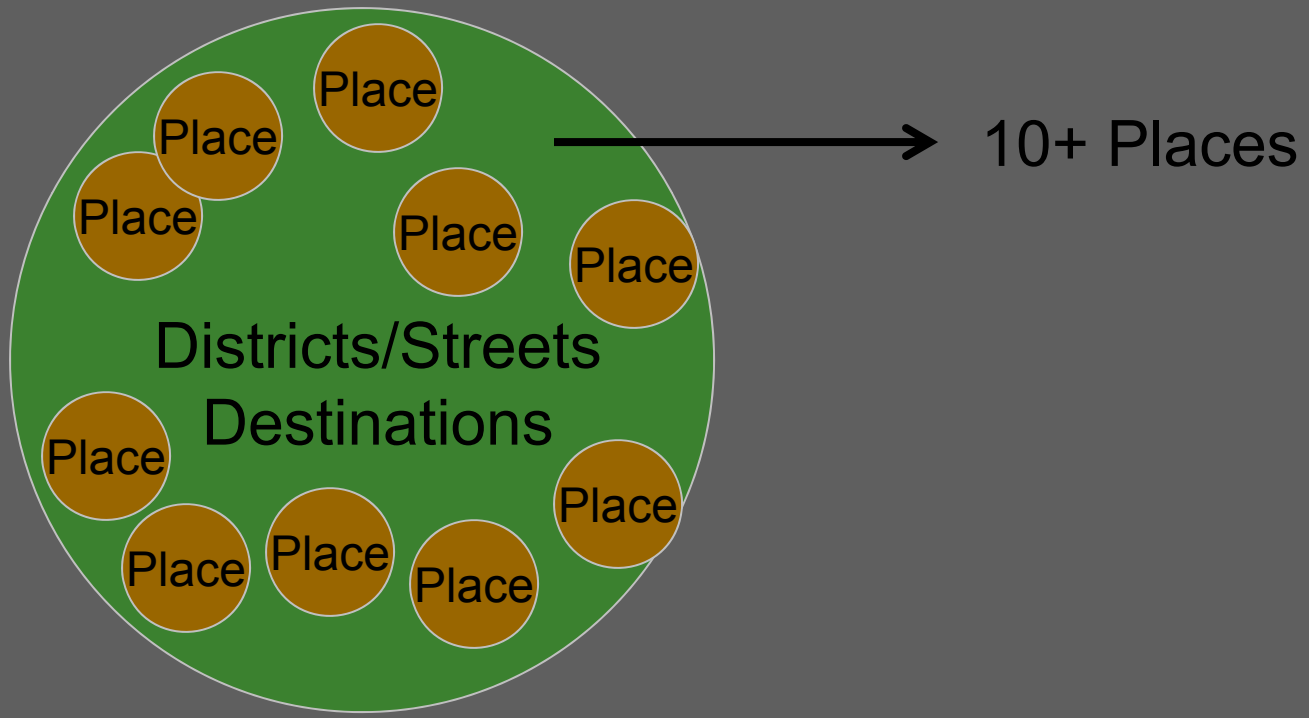
Characteristics of Streets as Places:

Reflect community identity

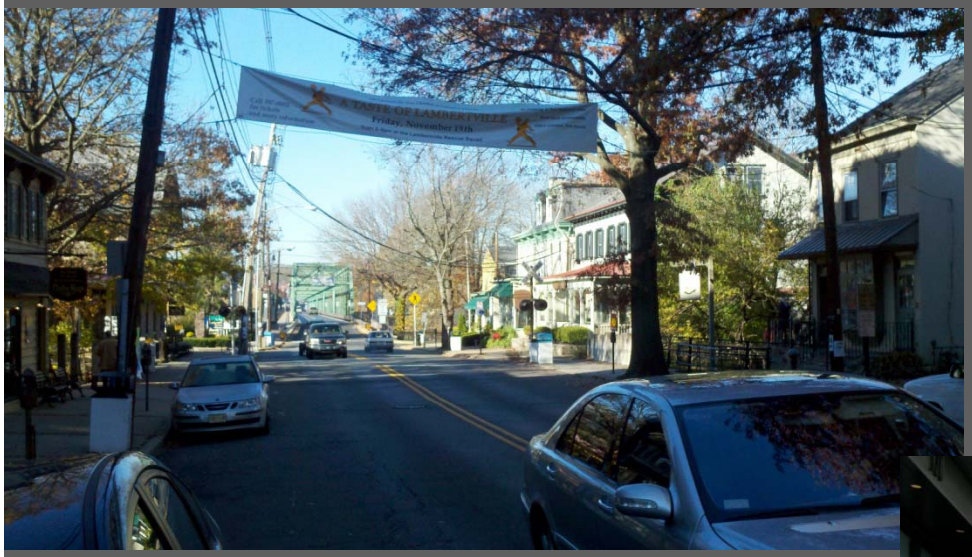
Move community towards local sustainability

Show a sense of ownership

The Power of Ten



The Power of Ten



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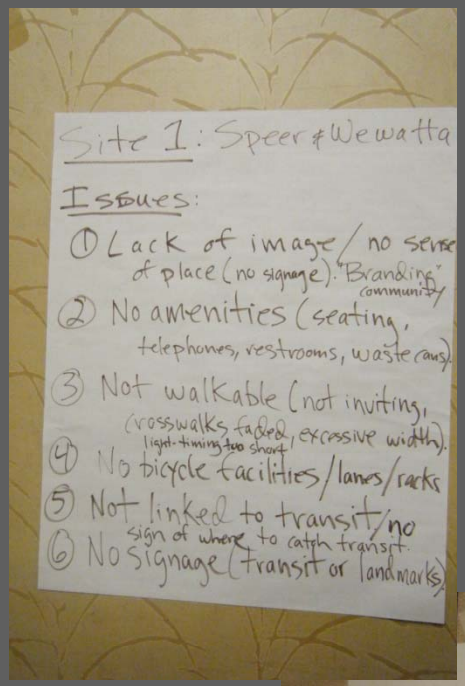
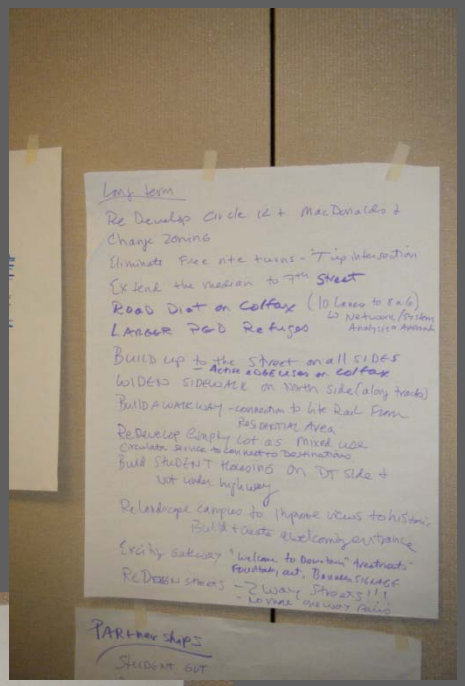
The Street Audit Tool





Rightsizing

Charlotte Observer, June 2004

Slide courtesy of Dan Burden

This: One less travel lane; bike lanes; parallel to back-in diagonal parking on one side; new pavement

Pottstown PA

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Slide courtesy of Dan Burden

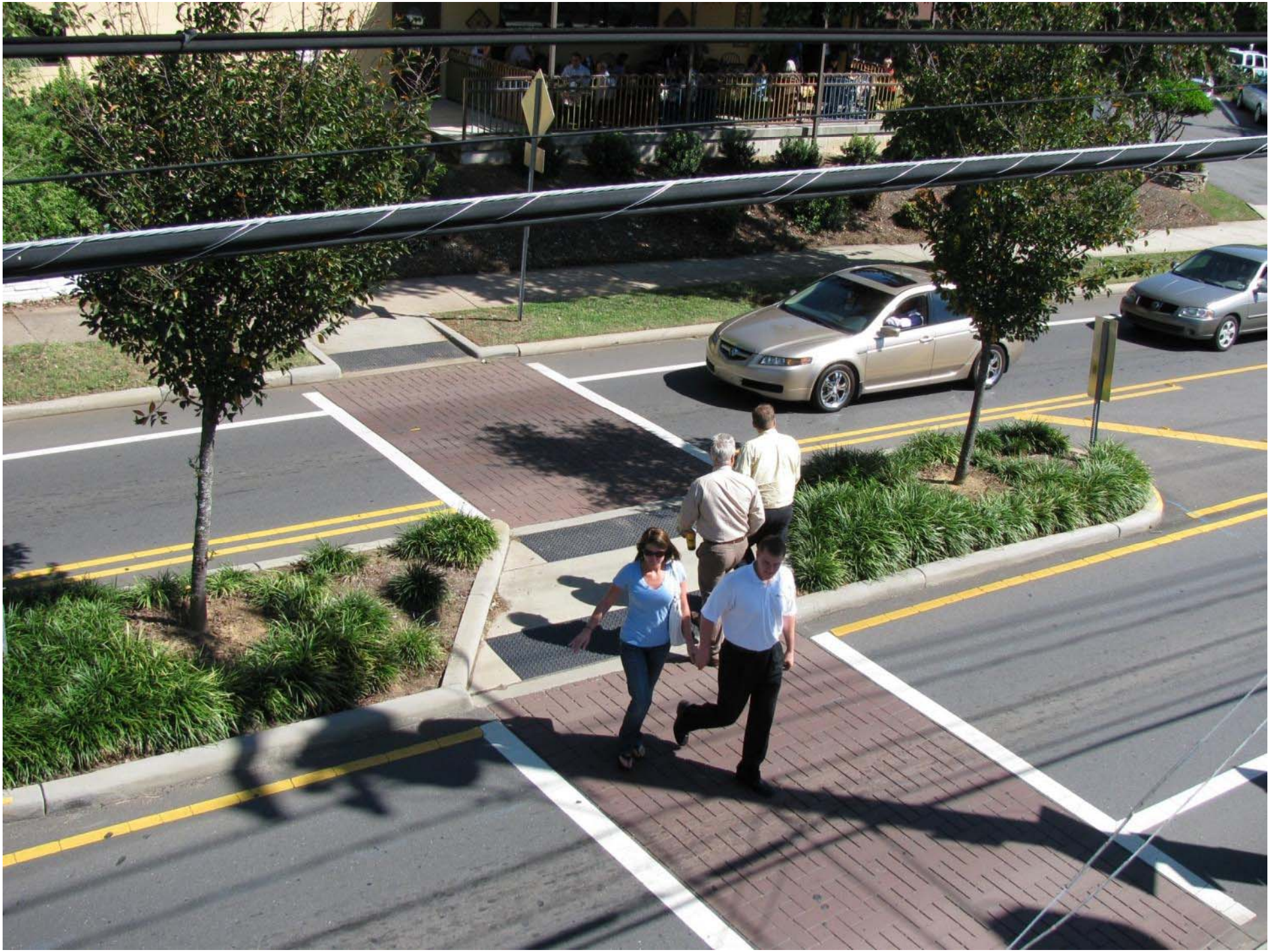
Slide courtesy of Dan Burden

Charlotte Projects

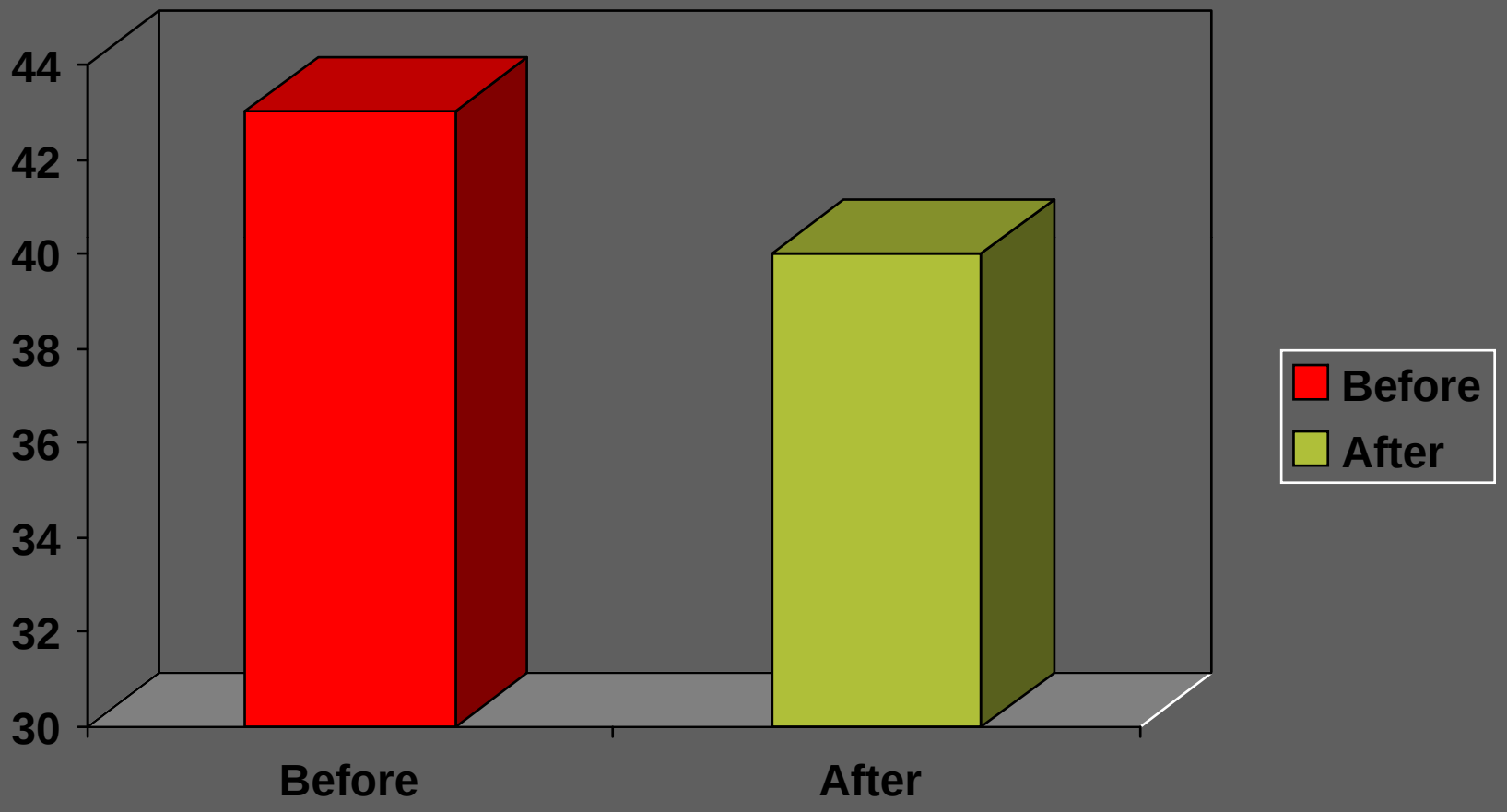
Completed		Anticipated/Underway
9	Thoroughfares rebuilt/extended	17
19	Streetscapes and road-diets	8
11	Intersections	8
37	Sidewalks	66
9	Area Plans	6


East Boulevard
Charlotte


Lebowski's
Grill & Pub

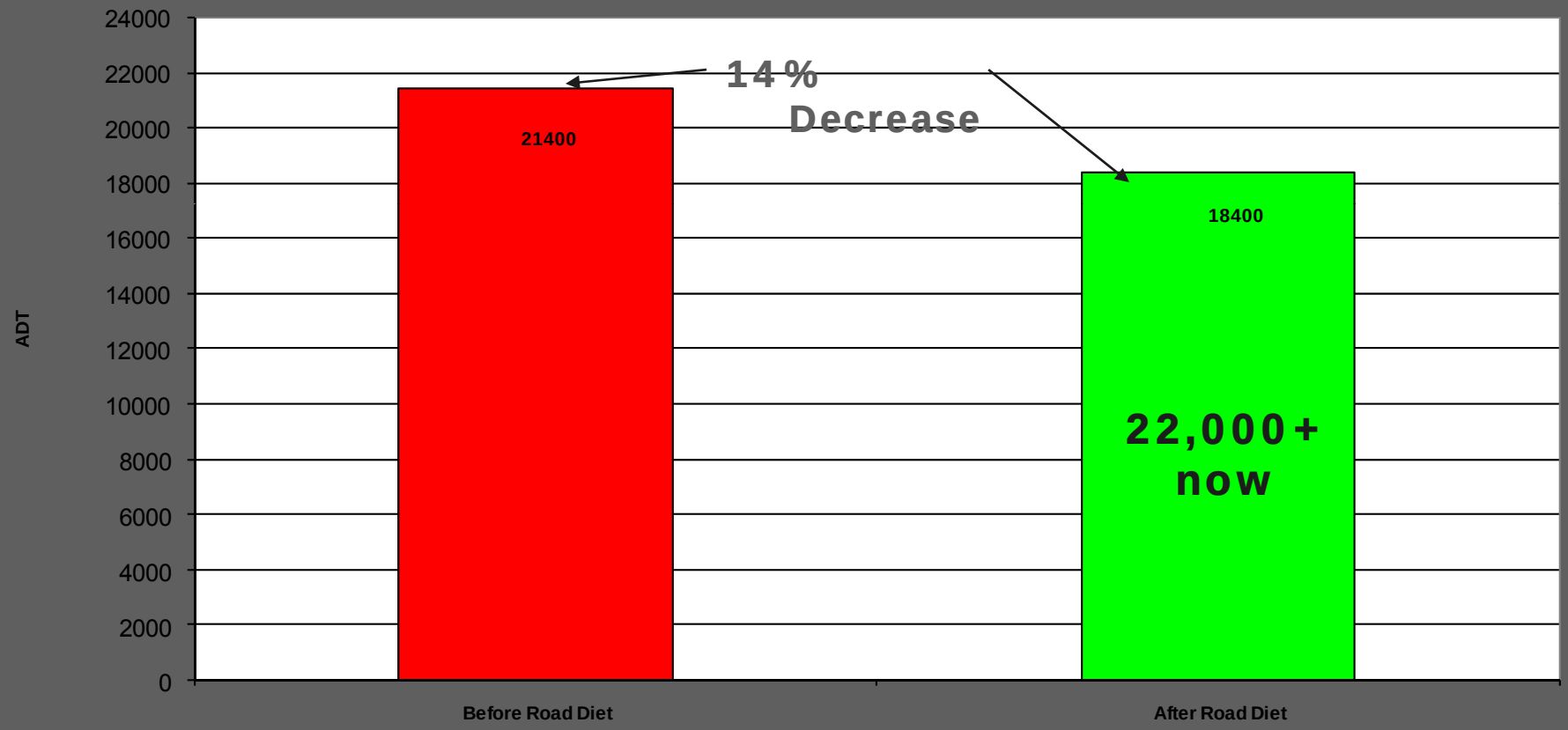


85th Percentile Speed



Corridor travel times remained the same...

Average Daily Traffic



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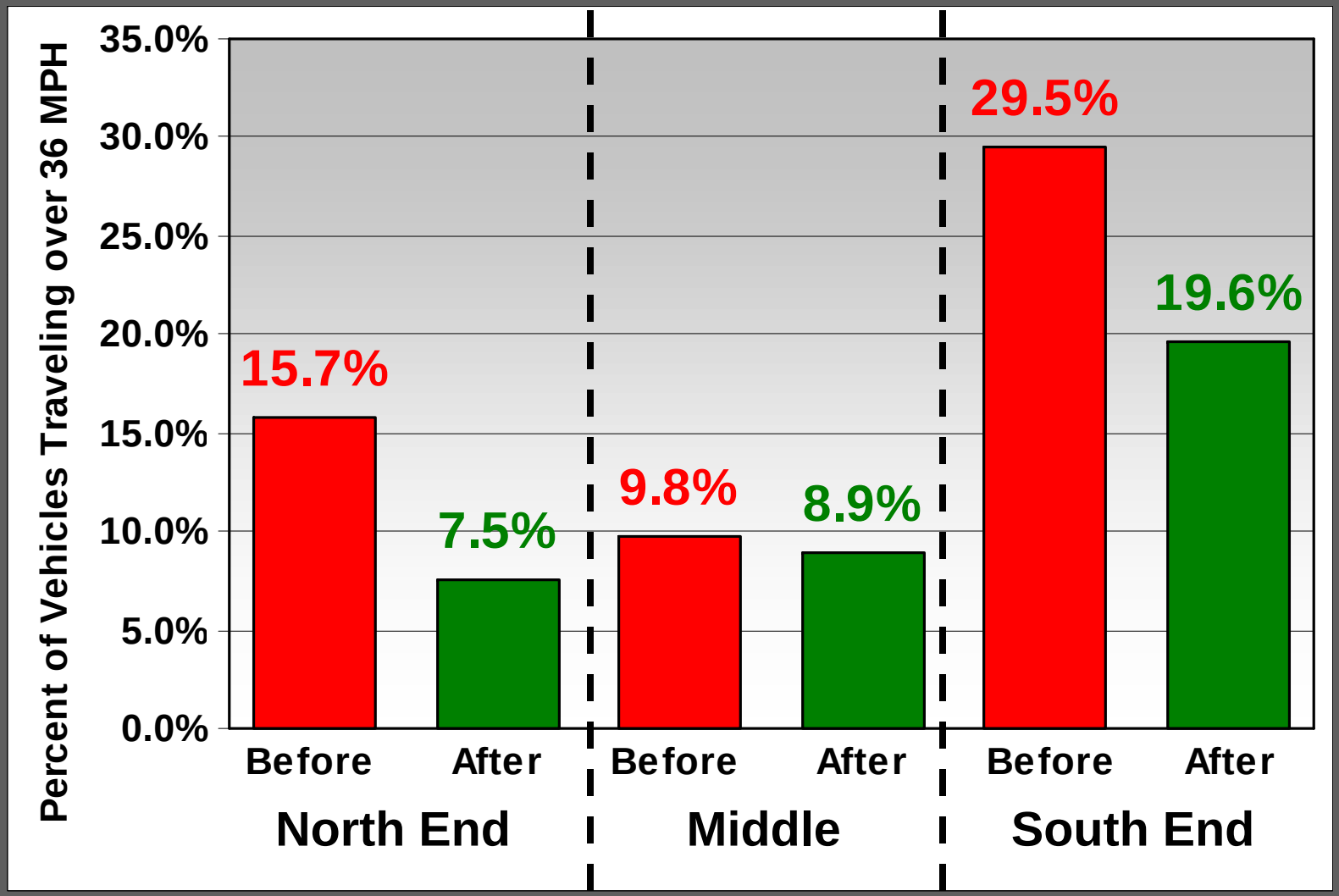
Reinvented Edgewater Drive
Orlando, Florida

Speeding Analysis



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Other Results

	Before	After
Crash Rate	12.6/ MVM	8.4/MVM
Injury Rate	3.6/MVM	1.2/MVM
On Street parking	29%	41%
Pedestrians	2136	2632
Bikes	375	486

Evaluation Matrix

Avoid Increasing Traffic On Neighborhood Streets	YES
Reduce Speeding on Edgewater Dr	YES
Increase Bicyclist Volumes	YES
Increase Pedestrian Volumes	YES
Reduce Crashes	YES
Increase On-Street Parking Use Rates	YES
Increase Pedestrian Satisfaction (Residents)	YES
Increase Parking Satisfaction (Residents)	YES

Noise levels go down...

Prospect Park West
New York City

Prospect Park West
Bicycle Path and Traffic Calming Update

January 20, 2011
Presentation to Community Board 6

NEW YORK CITY DOT

NYC Department of Transportation
Traffic Management Division

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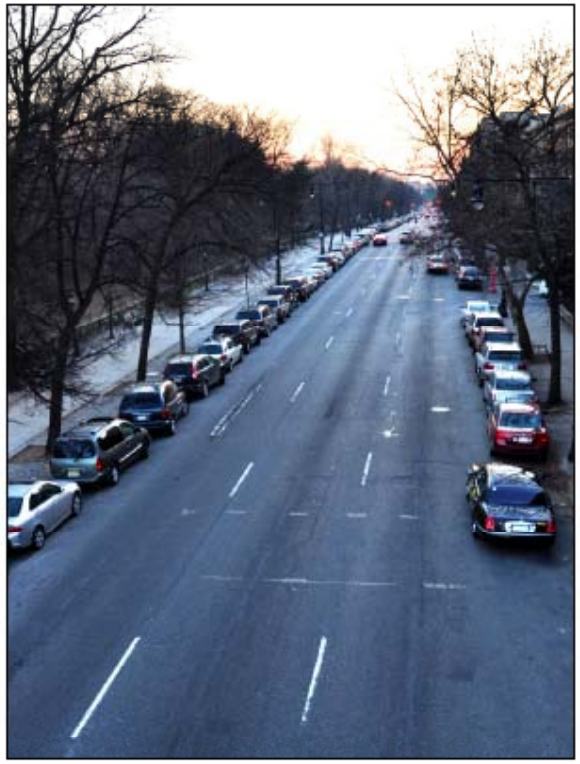
Prospect Park West
New York City

Roadway Design – Before & After



PPW_After_JP_

Prospect Park West
New York City

Traffic Speed – Before & After

- **BEFORE:** 3 of every 4 vehicles broke speed limit
- **AFTER:** Only 1 in 5 vehicles exceed speed limit

Prospect Park West Between 5th and 6th Streets Percent of Vehicles Over 30 MPH

Time Period	BEFORE	AFTER	
	March 2009	July 2010	October 2010
AM Peak	76%	11%	22%
Mid Day	72%	-	31%
PM Peak	73%	23%	14%
Average	**74%**	**20%**	

Prospect Park West Between 5th and 6th Streets Average Speed (mph)

Time Period	BEFORE	AFTER	
	March 2009	July 2010	October 2010
AM Peak	34.1	25.1	27.7
Mid Day	34.6	-	27.9
PM Peak	32.8	26.6	25.9
Average	**33.8**	**26.6**	

Source: NYCDOT Radar Study

Prospect Park West
New York City

Safety

	Before Period*		After: 7/1/10 to 12/31/10	Percent Change
	Total Before	Average per 6 Months		
Crashes	89	29.7	25	-15.7%
Crashes w/ Injury	16	5.3	2	-62.5%
Total Injuries	19	6.3	5	-21.1%

* Before period is the 2nd half (7/1 to 12/31) of 2007, 2008 and 2009

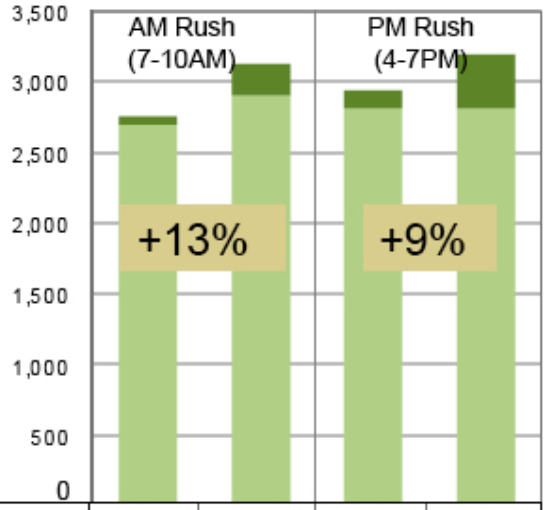
- Crashes are down 16%
- Crashes that cause injuries are down 63%
- Before the project, a crash was twice as likely to include an injury (18% vs. 8%)
- Injuries to all street users are down 21%
- No reported pedestrian injuries in the after period
- No pedestrian or cyclist injuries from ped-bike only crashes reported by NYPD

- Motor vehicle crash data per NYPD, between Grand Army Plaza and Bartel Pritchard Square
- Analysis compares the average of the three prior years (2007-09) between July 1 and December 31 only and July 1 to December 31, 2010

Prospect Park West
New York City

Combined Vehicle and Bicycle Counts

Prospect Park West Combined Vehicle and Bicycle Counts
AM & PM Rush



	Before	After	Before	After
Bicycle Counts	58***	210***	130***	386***
Motor Vehicle Counts	2,700*	2,909**	2,807*	2,807**
Total	2,758	3,119	2,937	3,193

*Average of counts conducted April 21-23, 2009 and May 11-20, 2010 at Carroll St
**Counts conducted October 19-28, 2010 at Carroll St
***Bicycle counts conducted 06/09/09 and 10/12/10 at 4th St

Prospect Park West Commuter Volume has INCREASED

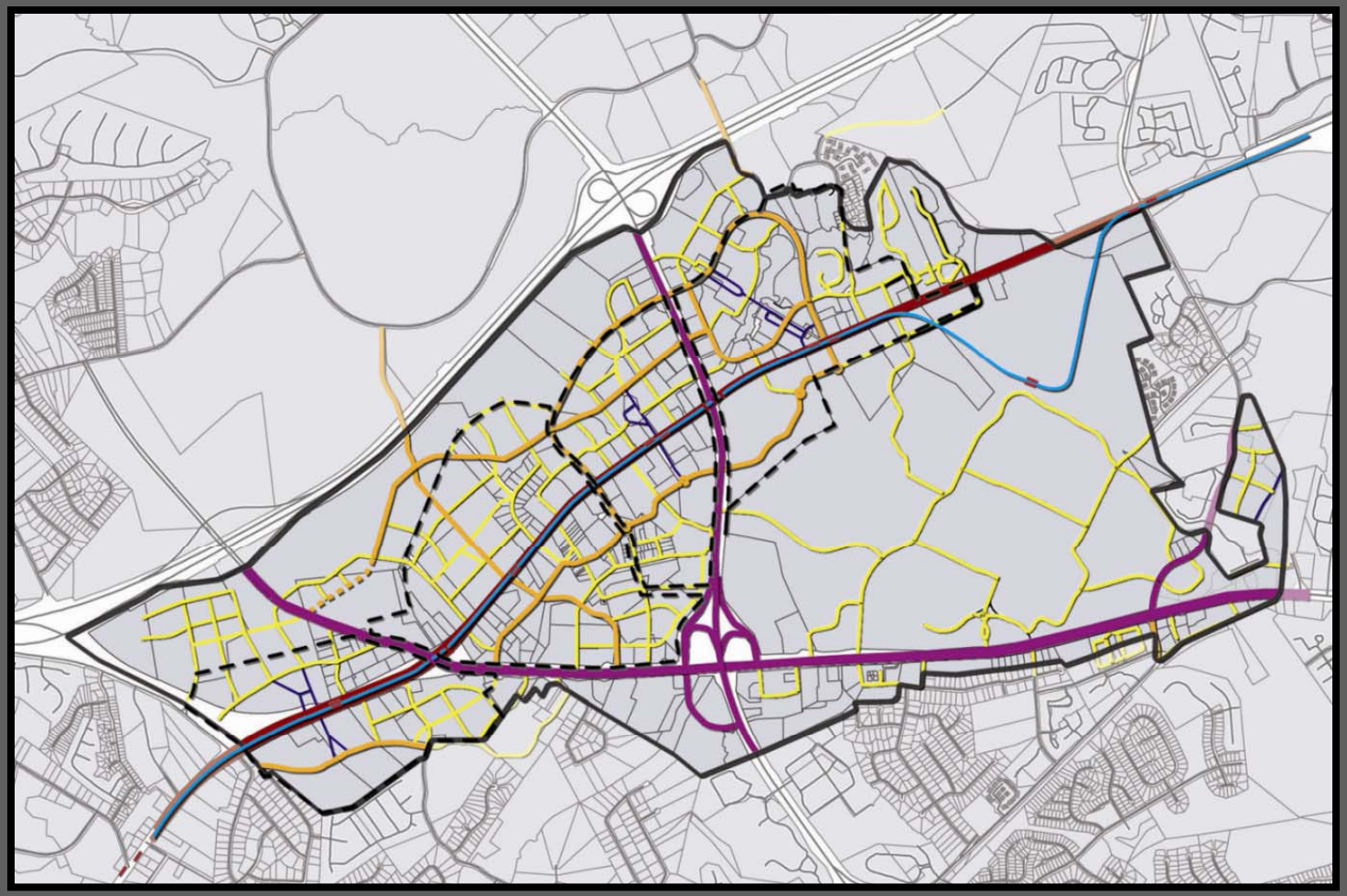
- Prospect Park West handles 13% & 9% more commuters during the AM & PM rushes, respectively, after street reconfiguration
- Bicycle traffic comprises 12% of PM rush period traffic

Prospect Park West
New York City

Travel Times - Before & After
(12-Hour Average)

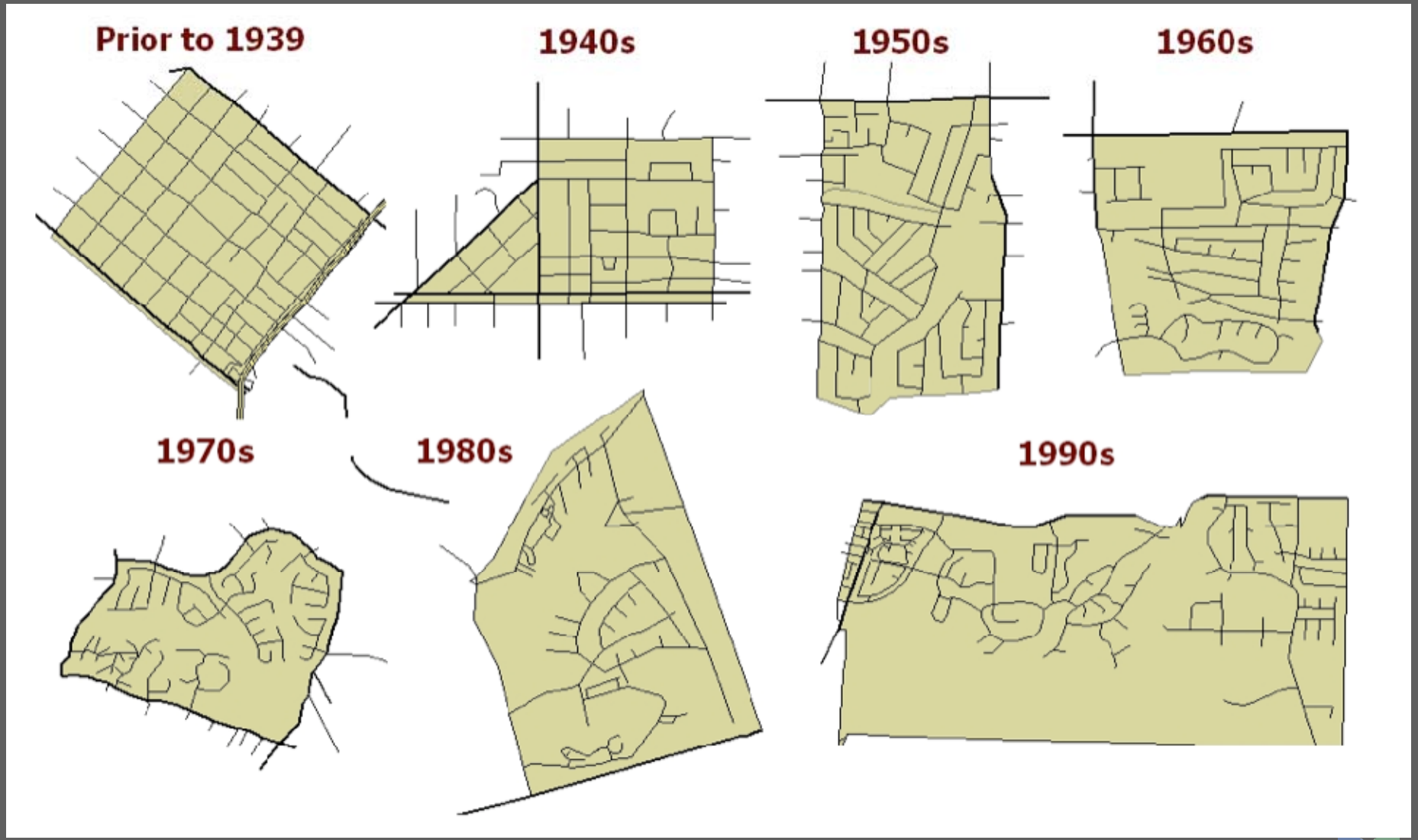
Faster speeds versus getting there faster

Getting the Network Right



From Charlotte DOT

Evolution of the Street Network



Build Connected Networks

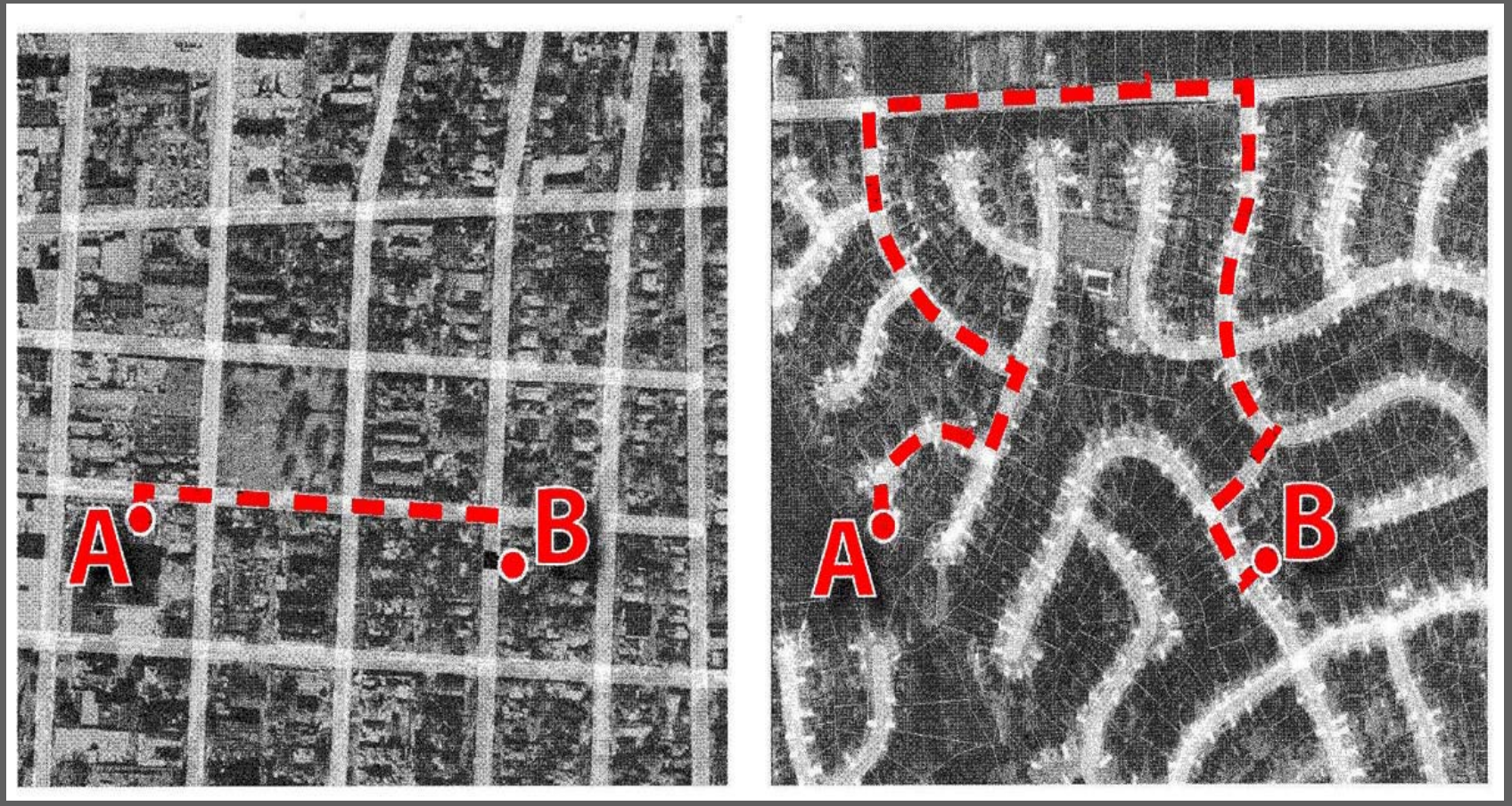
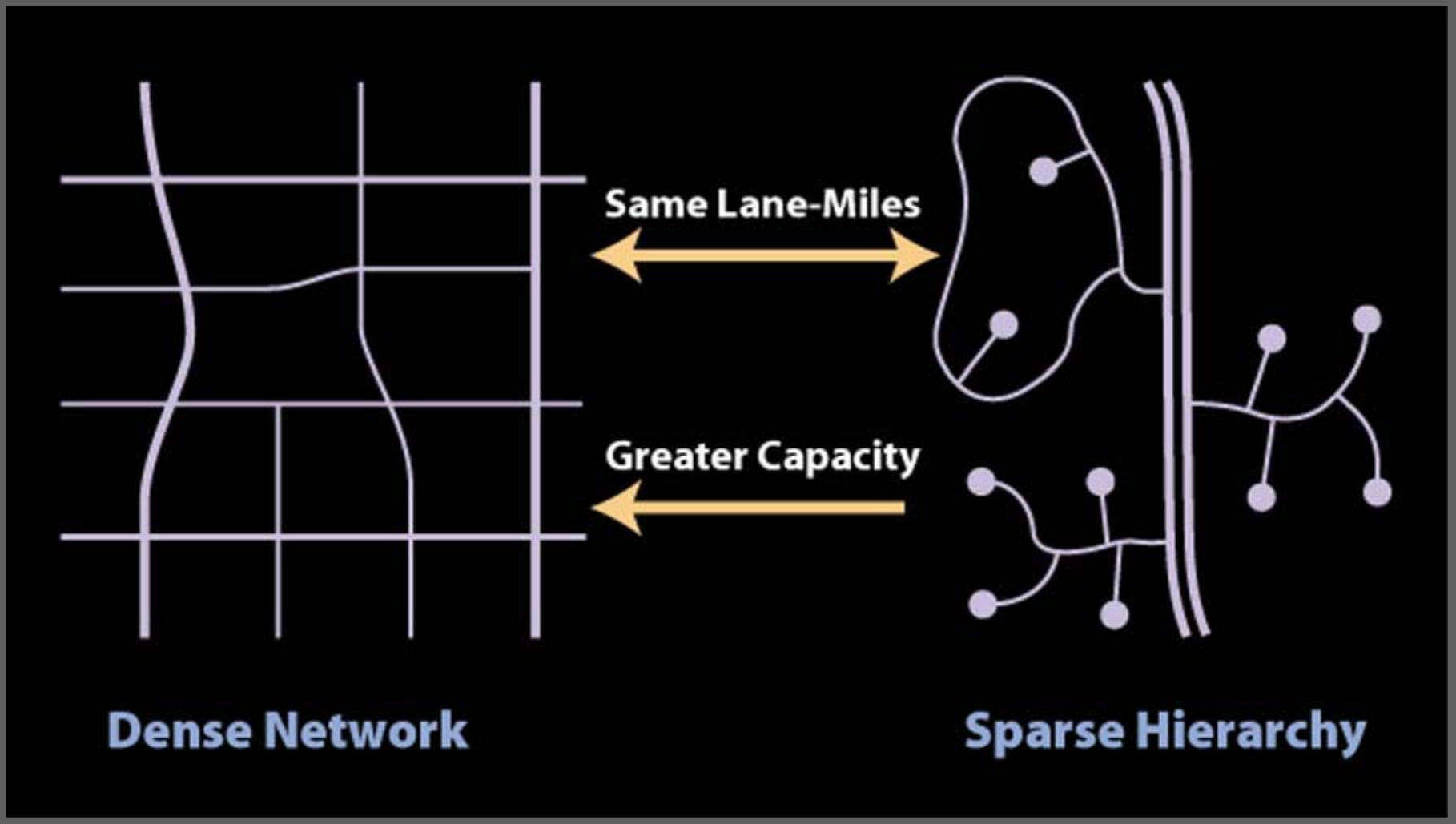
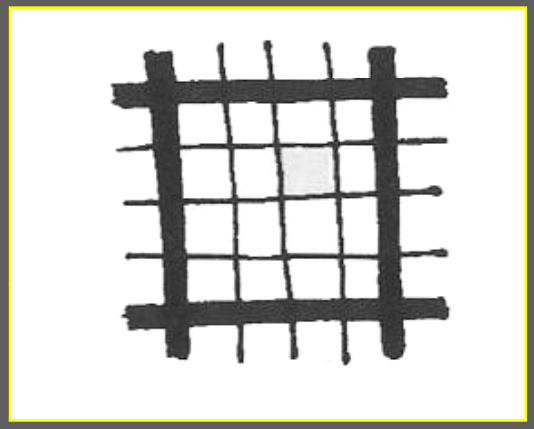


Illustration: Frank, LD "Health & Community Design"
Greenwald, M.J. *Transportation Research Record* 2001
Slide courtesy of Kate Kraft, RWJF

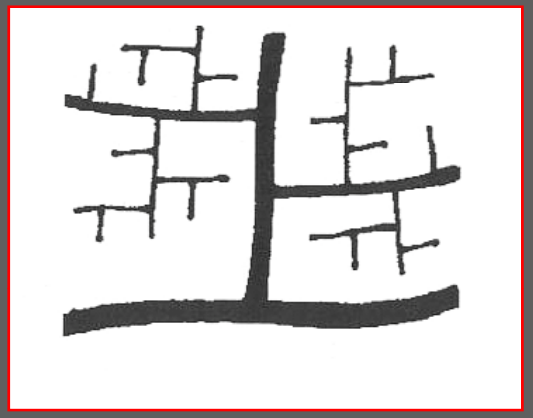


Slide courtesy of Troy Russ, Glatting Jackson

Risk of Severe Injury or Fatality



versus

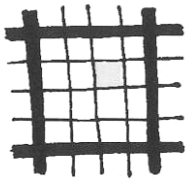


Chance of being Severely Injured
30% Higher

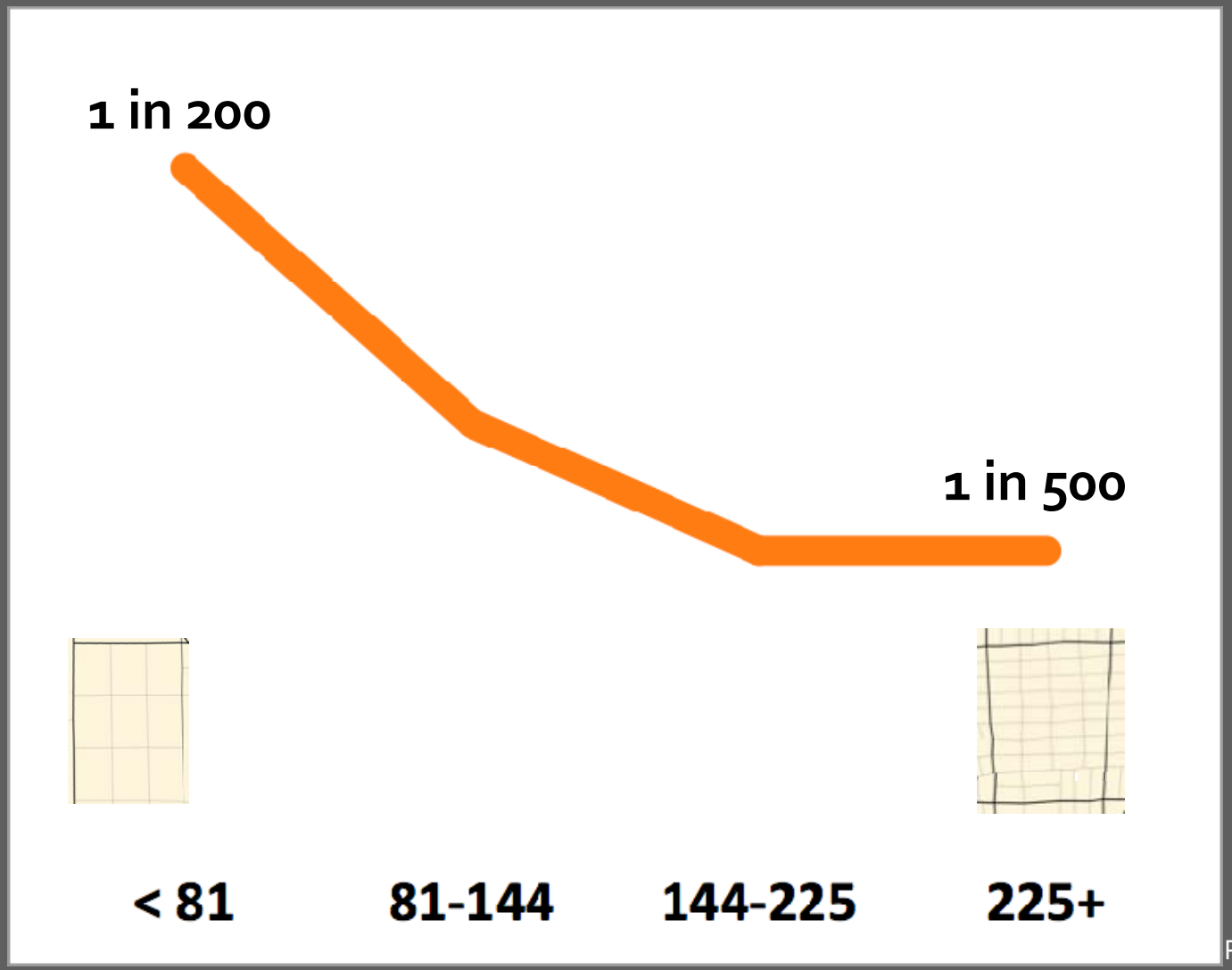
Chance of being Killed
50% Higher

From Research by Norman Garrick, University of Connecticut

PROJECT FOR PUBLIC SPACES



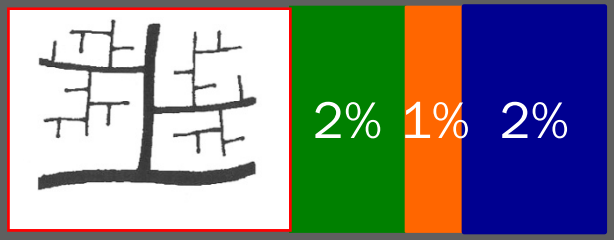
Odds of Dying in a Road Accident based on Intersection Density*

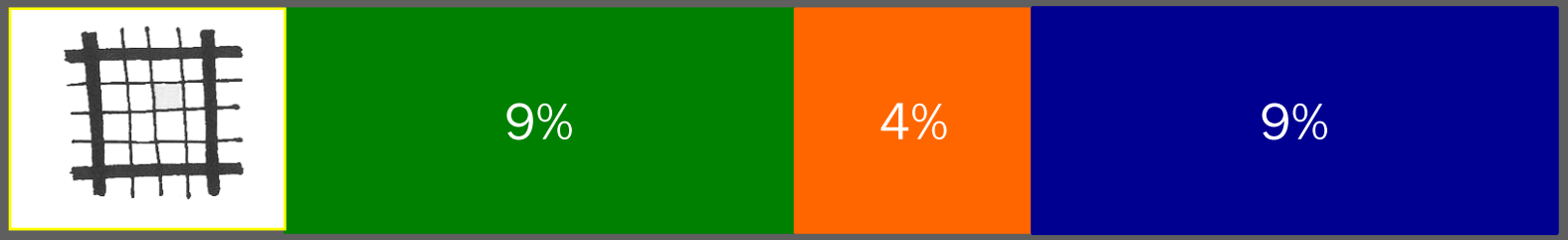


PACES

*Given that an injury occurred

Percentage of People Walking, Biking or Taking Transit





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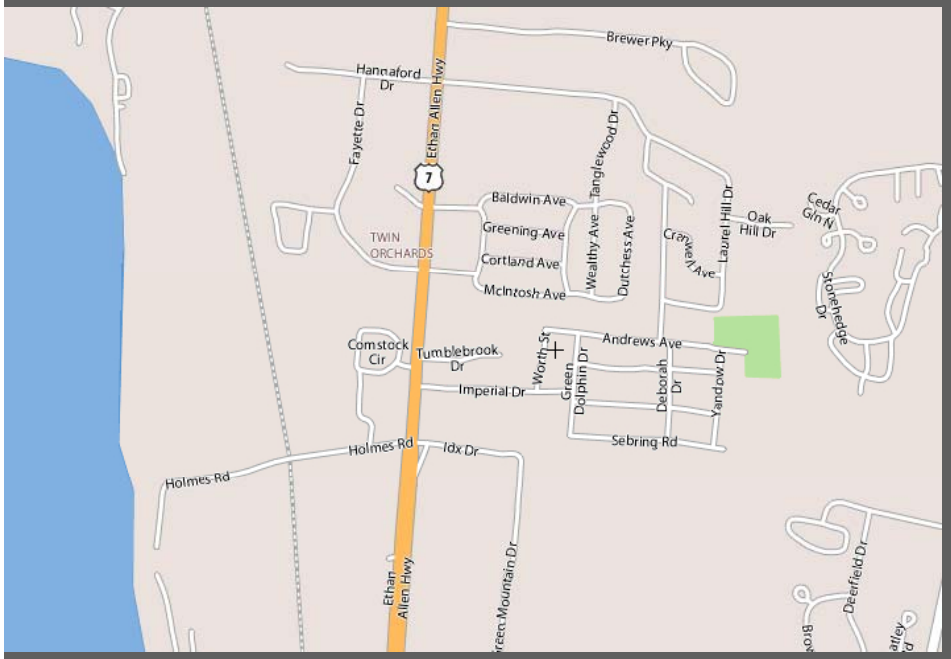
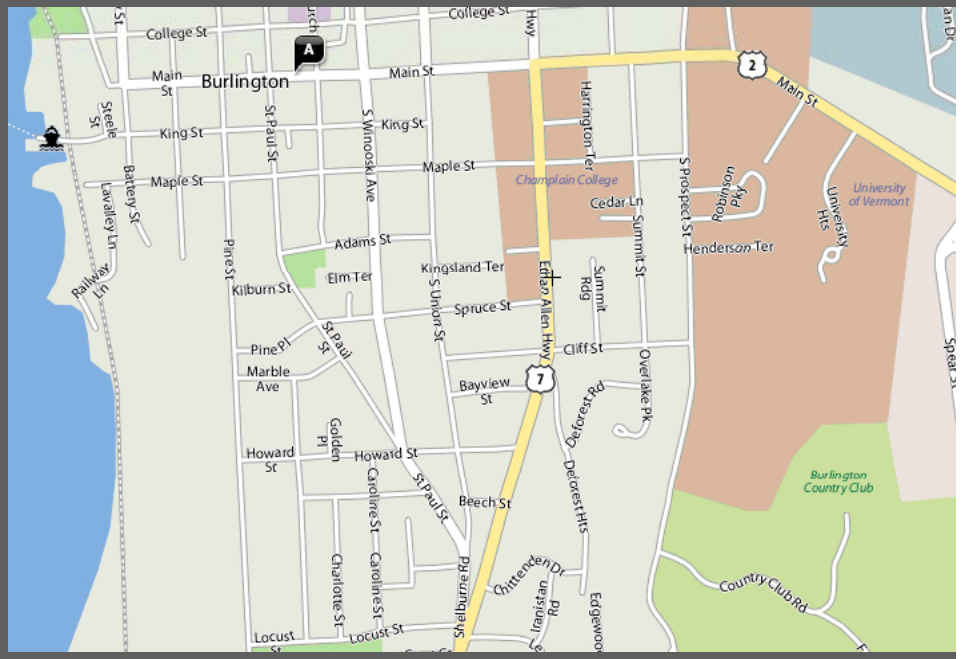
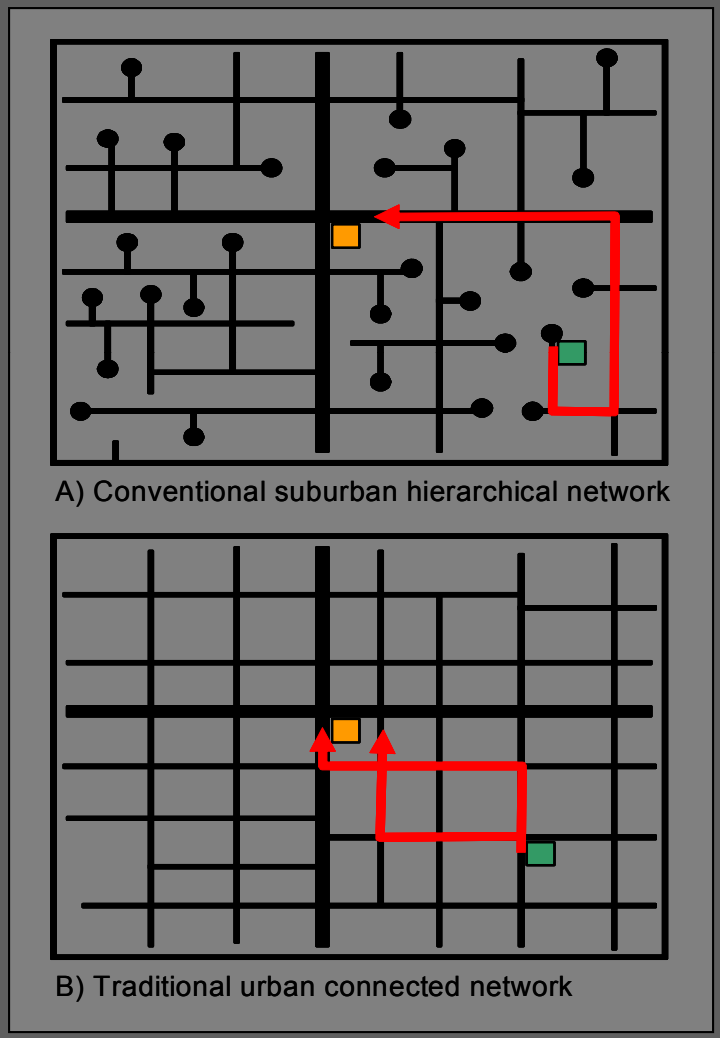
Networks Foster Context Sensitive Streets





Benefits of Connectivity

- Disperses traffic
- Reduces impacts on collectors
- Direct routes
- Lower vehicle miles of travel
- Encourages walking and biking
- Transit-friendly
- Block structure provides development flexibility
- Limits width and number of lanes on major thoroughfares

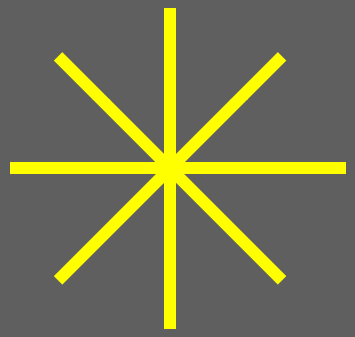


A) Conventional suburban hierarchical network

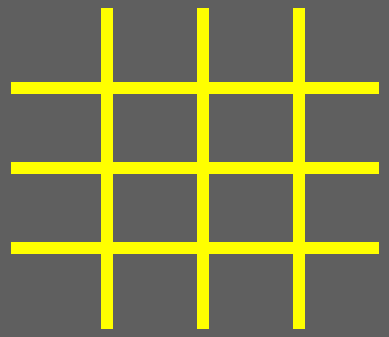
B) Traditional urban connected network

Network Types

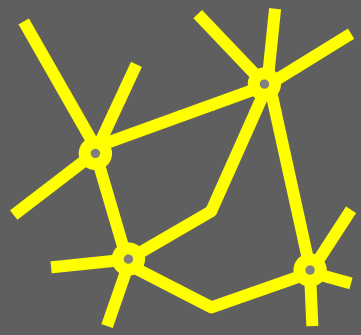
Amorphous



Radial



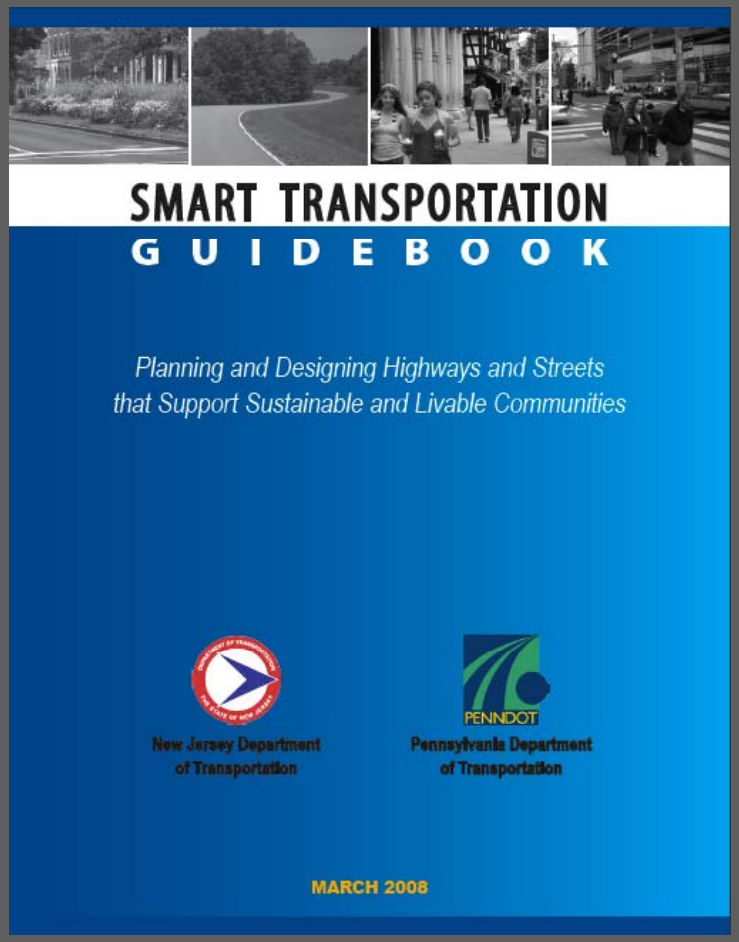
Grid



Hub and Spoke

Slide Courtesy of John Nordquist, CNU

Getting the Manuals Right



What Current Manuals Give Us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BAIL BONDS FIANZAS
(323) 459-2966
INFINITY
INSURANCE4MYCAR.COM
Choice INSURANCE
AND MORE C
LIQUOR
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935-9323
FREE INSTANT QUOTE
(323)933-9888
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INSTANTQUOTE:INSURANCE4MYCAR.COM
PARKING
AUTO INSURANCE
SAME DAY COVERAGE
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Venice Bl
STAY THIRSTY, my friends.
LIQUOR
INSURANCE
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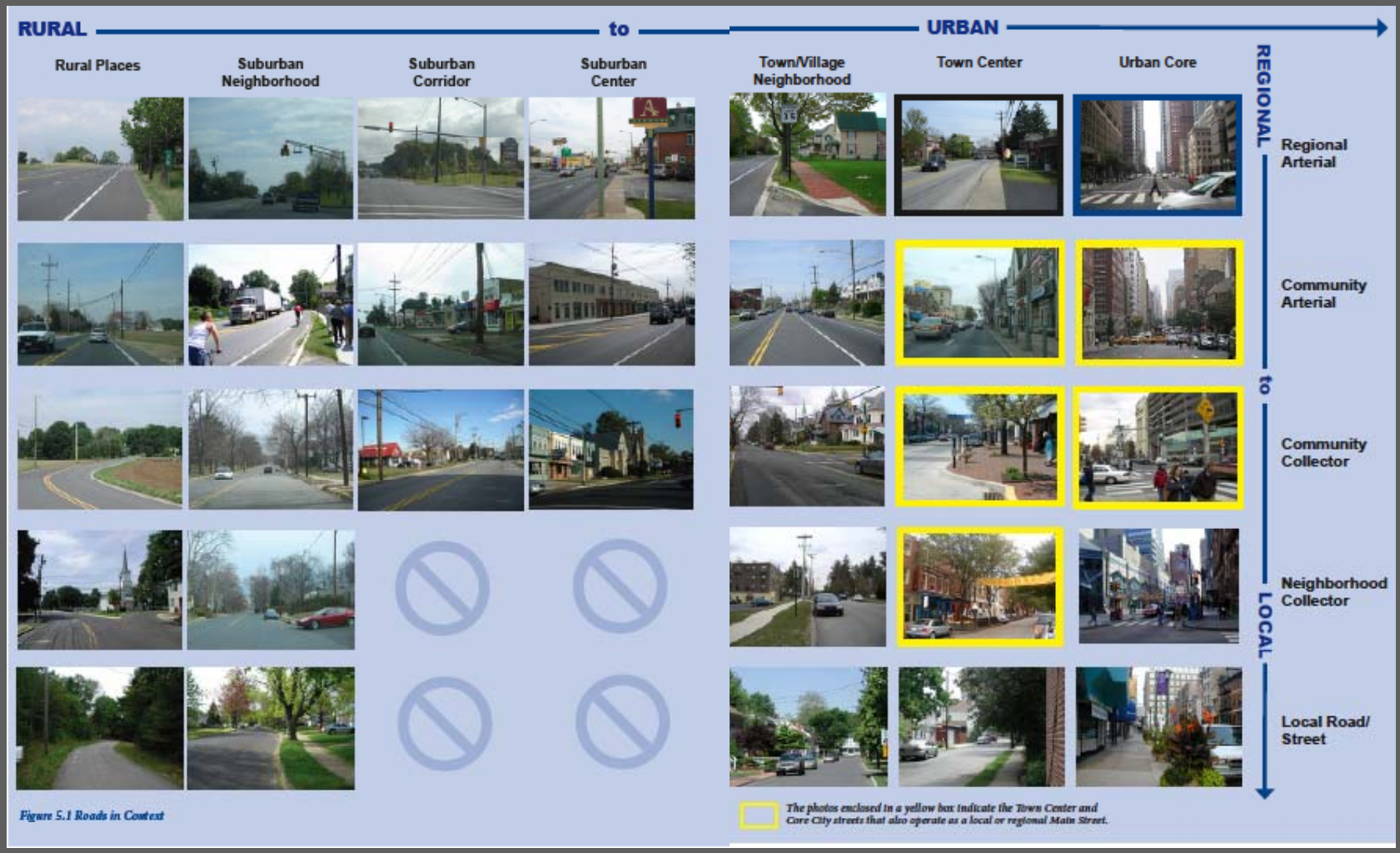
Don't know much about aut
We can fix that.
Mobil

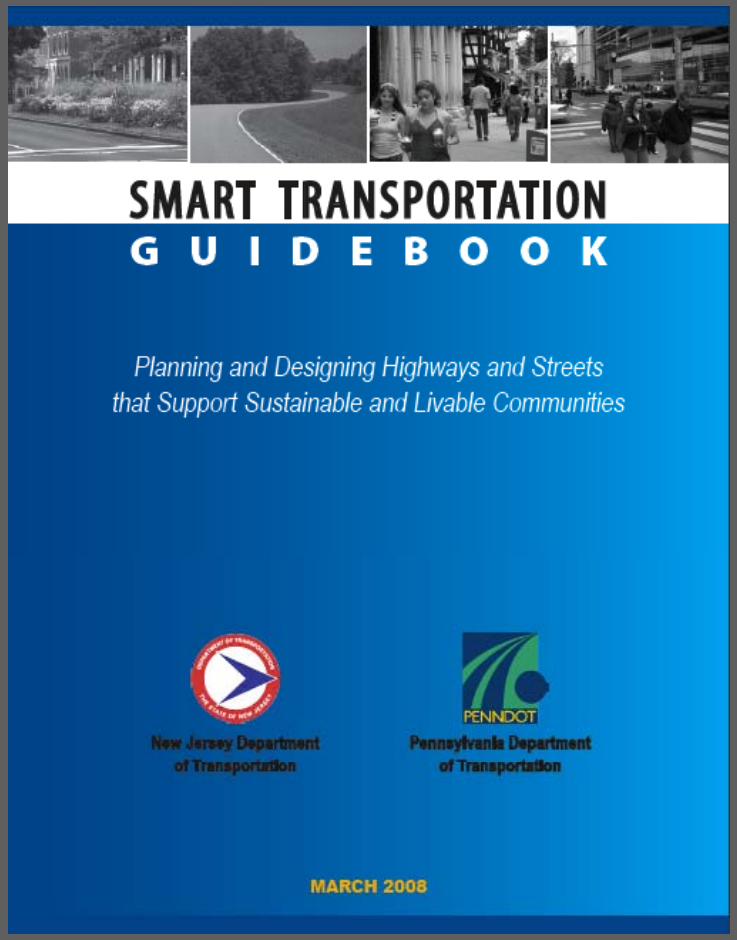
What Manuals Can Give Us


ecotour
ecopilot
TENERIFE

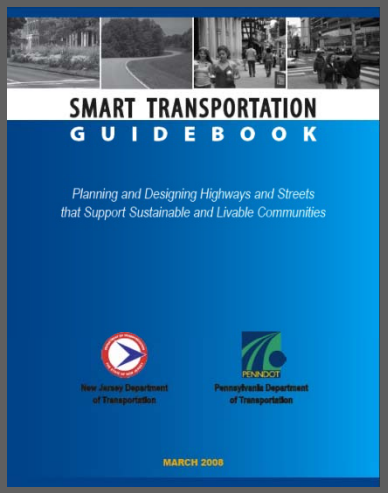
New Manuals Add Context in

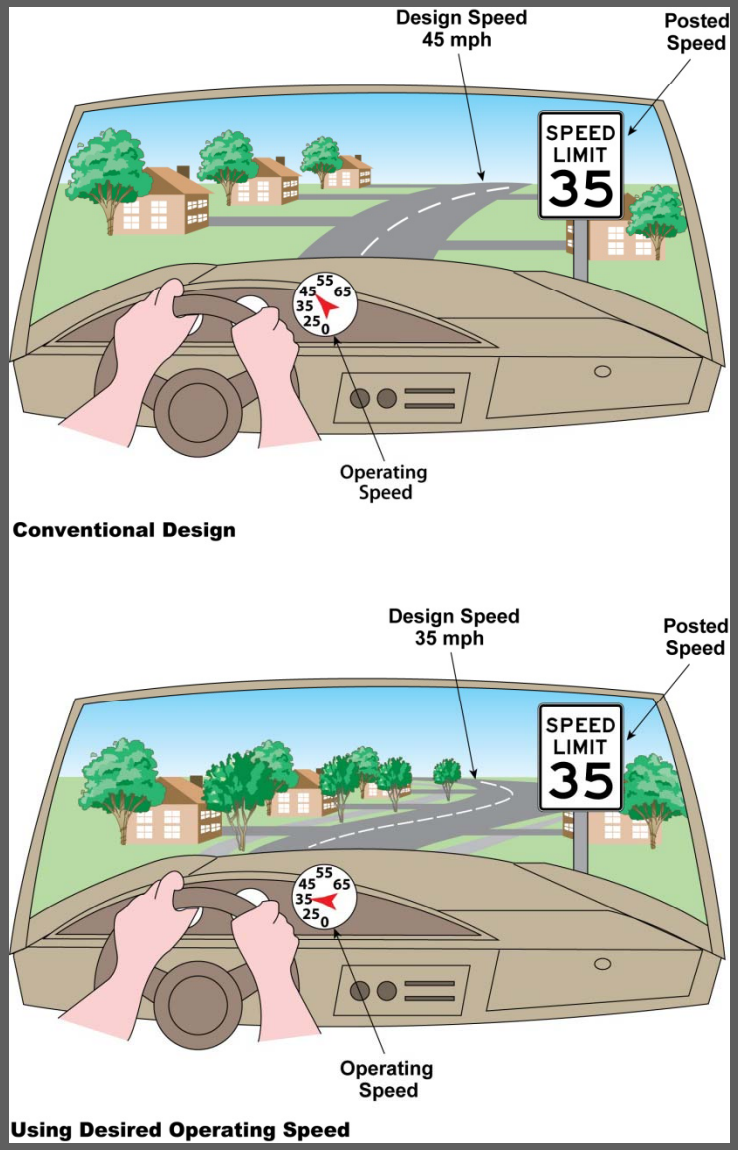


Radical Source??



http://www.dvrpc.org/asp/pubs/reports/08030A.pdf


SMART TRANSPORTATION
GUIDEBOOK
Planning and Designing Highways and Streets
that Support Sustainable and Livable Communities
New Jersey Department of Transportation
Pennsylvania Department of Transportation
MARCH 2008


Design Speed
45 mph
Posted
Speed
SPEED
LIMIT
35
55
45
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35
25
0
Operating
Speed
Conventional Design
Design Speed
35 mph
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Speed
SPEED
LIMIT
35
55
45
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35
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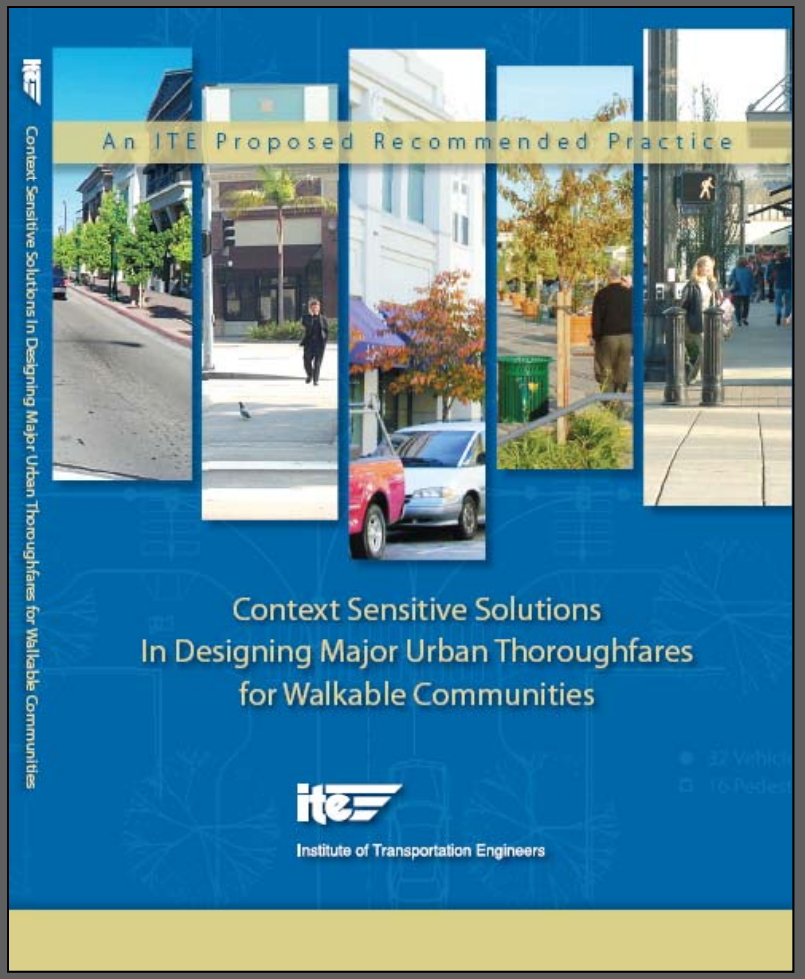
0
Operating
Speed
Using Desired Operating Speed

Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities

An ITE Proposed
Recommended Practice



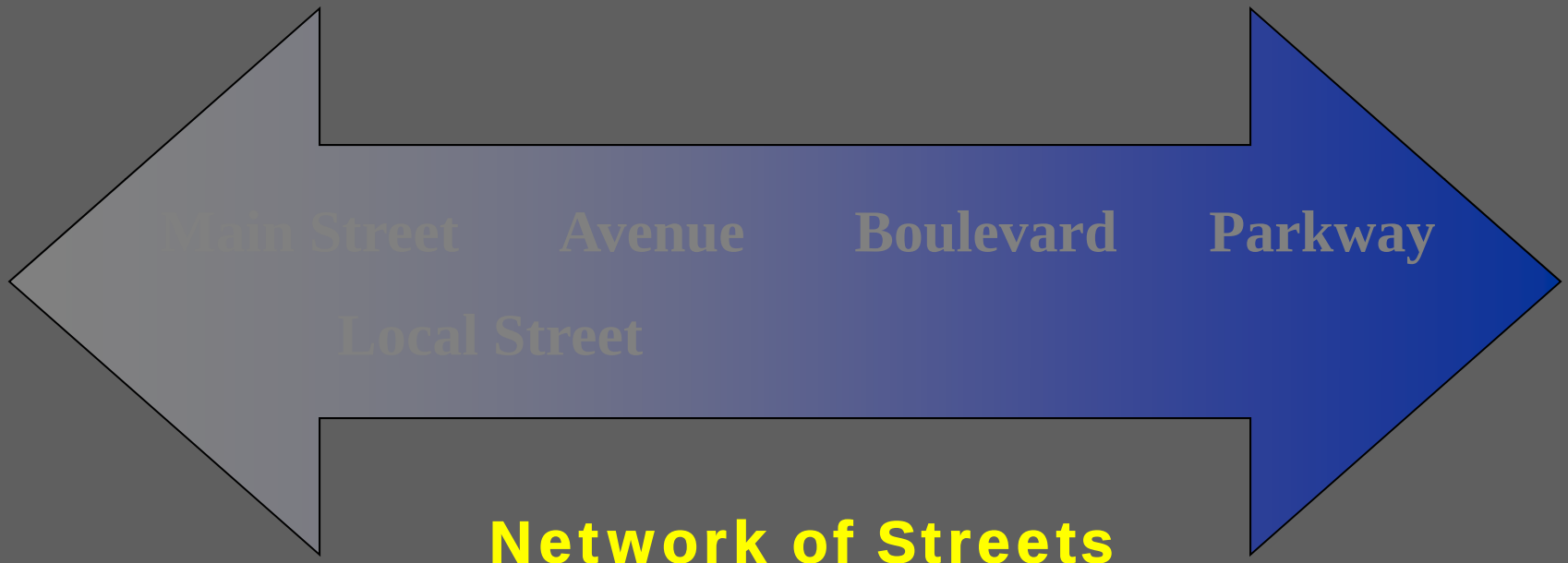
PROJECT FOR PUBLIC SPACES

Charlotte, NC – Design Guidelines

Element	Boulevard	Avenue	Main Street
Posted speed	35-40 mph	25 – 35 mph	25 mph
Design speed	40-45 mph	30 – 40 mph	25 mph
Through lanes	4 (typical)	2 – 4	2 (typical)
Lane width	11’ preferred, 10’ acceptable (35 mph) 14’ outside opt.	11’ preferred, 10’ acceptable 14’ outside opt.	10’ – 13’
Medians/ center turn lanes	At least 17’ (typical) Landscaped	Center turn lane or median opt.	Center turn lane optional
Bicycle Accommodations	4-6’ lane desirable	4-6’ lane desirable	Shared lane
On-street parking	Frontage street only	Optional	Minimum 7’
Sidewalks	Minimum 6’	Minimum 6-8’	Minimum 10’

Source: City of Charlotte, 2005.

A Variety of Street Types

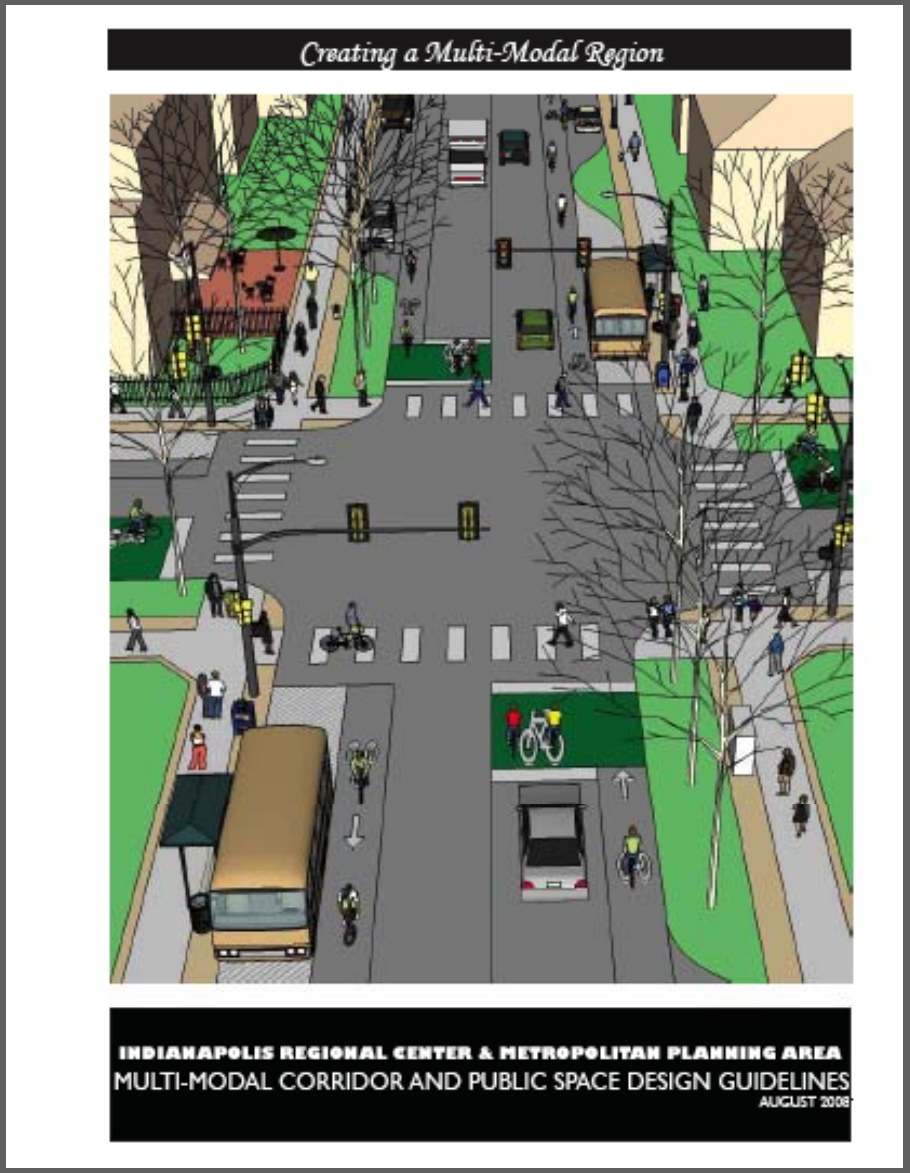


Network of Streets

Pedestrian-Oriented

Auto-Oriented

Indianapolis Regional Center and Metro Planning Area Multi-Modal Corridor and Public Space Design Guidelines



Abu Dhabi
رؤية 2030
Vision

مجلس أبوظبي للتخطيط العمراني
ABU DHABI URBAN PLANNING COUNCIL

PROJECT FOR PUBLIC SPACES

Table 4.1 Streets as Places Audit Criteria

CONTEXT DESIGN AND CONNECTIVITY
Does the design include provisions for many types of uses?
Is it easy to get from one use to another?
Does the design contain spaces that will attract people at times other than rush hour?
Does the design have continuity of street level activity?
Are ground floor uses active and welcoming and does the street have a welcoming character?
Are building front doors noted and well served by the pedestrian realm?
Is the scale of nearby buildings comfortable for pedestrians, with choices of places to sit or use?

SAFETY CONSIDERATIONS
Are pedestrian crossings safe?
Are junction designs safe for all users?
Does the design contain spaces that children can use independently?

DESIGN CONSIDERATIONS
Do buildings give "life" to the street?
Does the area project a distinctive image from a distance?
Is seating and other street furniture well located?
Is lighting safe and adequate for the different users of the street?
Does the design fit with the image goals of the municipality and the UPC?
Does the design create a unique area?

PEDESTRIAN PROVISIONS
Are pedestrian crossings well designed?
Are crossing distances minimized?
Do signalized crossings have adequate time?
Does the design ensure that pedestrians can easily walk to and through the area?
Are uses easily visible and inviting to pedestrians?
Does the design ensure that vehicles do not detract from the pedestrian experience?
Are protected pedestrian crossings shown at the correct spacing, and do these crossings relate to areas where pedestrians desire to cross?
Is there leftover space in the pedestrian realm, or is there too large a furnishing zone? If so, how can this space be minimized or programmed?

TRANSIT PROVISIONS
Are transit stops and stations easy to find and get to on foot?
Are transit maps and schedules readily available and visible?
Are there sufficient passenger waiting areas at bus stops and taxi lay-bys?

BICYCLE PROVISIONS
Are bicycle facilities prominent and well designed?
Are bicycle routes well marked?
Is there adequate bicycle storage?
Do bicycle facilities meet DOT guidelines, and are they continuous across all intersections?

VEHICULAR PROVISIONS
Is the design vehicle context sensitive (e.g. corner radii not over designed)?
Have all turning movements been checked for vehicle designs?

CLIMATIC AND ENVIRONMENTAL CONSIDERATIONS
Does landscaping complement the street and is it sustainable from a water use perspective?
Is there too much landscape area shown given the irrigation budget?
Is the landscaping appropriate for the local environment and soil conditions?
Will the pedestrian realm be shaded during most of the day?
Is shade continuously provided via trees, buildings, canopies, etc.?

CULTURAL CONSIDERATIONS
Does the design foster people acknowledging one another, as appropriate for Abu Dhabi's culture and gender mix?
Does the design encourage a mix of ages, gender and ethic groups that generally reflect the community at large?
Does the design provide private places for women?
Does the design have spaces for groups to gather?

Example Typologies Brunswick

DESTINATION STREET

Destination Street:
A thoroughfare of moderate capacity and low speed that serves a regional urban destination, such as a main street district. Pedestrian and bicyclist comfort is prioritized.

Precedents:
- **Maine Street, Brunswick**
- Main/Bayview Street, Camden
- Main Street, Rockland


Maine Street, Brunswick

THOROUGHFARE TYPE	DESTINATION STREET
Right-of-Way Width	Varies
Pavement Width	Varies
LAND USE CHARACTER	WALKABLE, URBAN CORE
GENERAL USES	Offices, Retail, Residential, Civic
PUBLIC FRONTAGE QUALITY	HIGH
Drainage Type	Curb
Curb Radius	5 - 15 ft.
Walkway Type	Sidewalk
Landscape Type	Planted
# VEHICULAR LANES	2 - 3
Traffic Lane Width	10 ft.
Parking Lane Width	7 - 8 ft.
Target Design Speed	20 - 25 mph
BIKEWAY TYPE	BICYCLE LANE, SHARROW
Riding Surface Width	5 - 6 ft.
Movement	Uni-Directional
Bicycle Parking	Rack, Shelter, Locker
TRANSITWAY TYPE	REGIONAL BUS, LOCAL CIRCULATOR, AMTRAK


Maine Street, Brunswick


Main/Bayview Street, Camden


Main Street, Rockland

COMMERCIAL ARTERIAL

Commercial Arterial:
A thoroughfare designed to provide a high degree of vehicular mobility at moderate speeds to regional serving commercial land uses. While the design of this thoroughdare type generally favors motor vehicles, future redevelopment opportunities should include bicycle and pedestrian facilities.

Maine Precedents:
- **Outer Pleasant Street, Brunswick**
- Bath Road, Brunswick
- Civic Center Drive, Augusta

Image from Outer Pleasant

Outer Pleasant Street, Brunswick

THOROUGHFARE TYPE	COMMERCIAL ARTERIAL
Right-of-Way Width	Varies
Pavement Width	Varies
LAND USE CHARACTER	AUTO-ORIENTED, SUBURBAN
GENERAL USES	Gas Stations, Big Box Retail, Motel
PUBLIC FRONTAGE QUALITY	LOW, MEDIUM
Drainage Type	Curb, swale
Curb Radius	15 - 25 ft.
Walkway Type	Sidewalk
Landscape Type	Planted
# VEHICULAR LANES	3 - 6
Traffic Lane Width	11 - 12 ft.
Parking Lane Width	n/a
Target Design Speed	30-35 mph
BIKEWAY TYPE	BICYCLE LANE
Riding Surface Width	5 - 6 ft.
Movement	Uni-Directional
Bicycle Parking	Rack
TRANSITWAY TYPE	REGIONAL BUS, LOCAL CIRCULATOR


Outer Pleasant Street, Brunswick


Bath Road, Brunswick


Civic Center Drive, Augusta

PROJECT FOR PUBLIC SPACES

RENEW
LOS ANGELES COUNTY

A Model Design Manual for Living Streets

Made possible by funding from the Department of Health and Human Services through the Los Angeles County Department of Public Health.

PROJECT FOR PUBLIC SPACES

A Model Design Manual for Living Streets

Chapters

- Public Process
- Street Design
- Network Design
- Intersections
- Pedestrians and Bicycling
- Traffic Calming
- Transit Accomodations
- Land Use
- Sustainable Stormwater Management
- Streetscape

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Using Transit for More Than Mobility

PROJECT FOR PUBLIC SPACES

Thinking Beyond the Mode
Pedestrian and bike connections

From Charlotte Urban Street Design Guide

From Belleville via Dan Burden

From Miami via Dan Burden

Thinking Beyond the Station

Stops function as community destinations

PROJECT FOR PUBLIC SPACES

From Project for Public Spaces Image Library

Thinking Beyond Transportation

Stops serve as anchors for local businesses

From Project for Public Spaces Image Library

Thinking Beyond the Service
How to Accommodate Passengers

Transit Bulb-out at near side of intersection

Thinking Beyond the Service
How to Accommodate Passengers

From Accessing Transit Handbook, Florida DOT

From Accessing Transit Handbook, Florida DOT

From Charlotte Urban Street Design Guide

PROJECT FOR PUBLIC SPACES

Back to Our Roots

Integrated Transportation and Land Use

PROJECT FOR PUBLIC SPACES

Why is land use important?

- Greatly defines a street's character
- Shapes travel patterns for cars and people
- Influences block sizes
- Must be planned and designed with transit to achieve great streets

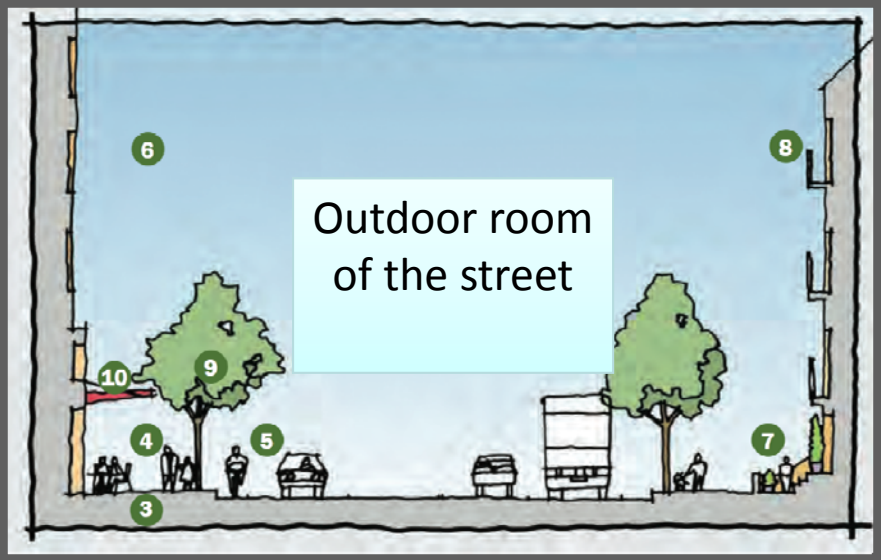
From LA County Model Street Guide (Draft)

What do you want your community to be remembered for?

LIC SPACES

Principles

- Compactness, connectivity, completeness & continuity
- Buildings should complete “the outdoor room” of the street
- Provide a mix of land uses



From LA County Model Street Guide (Draft)

USDOT Sponsored Study shows most cities losing the battle with gridlock

Urban Mobility Report, 2010

* cost of congestion $24 billion in 1982 -- $115 billion in 2009.

* wasted fuel in 2009 topped 3.9 billion gallons – equal to 130 days of flow in the Alaska Pipeline.

* Cost to the average commuter: $808 in 2009, $351 in 1982.

* Yearly peak delay 34 hours in 2009, 14 hours in 1982.

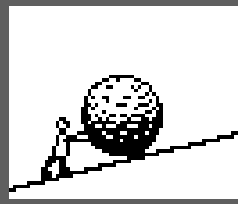
Urban Mobility Report, 2010

Congestion extends to more time of the day, more roads, affects more of the travel and creates more extra travel time than in the past.

And congestion levels have risen in all size categories, indicating that even the smaller areas are not able to keep pace with rising demand.

Urban Mobility Report, 2010

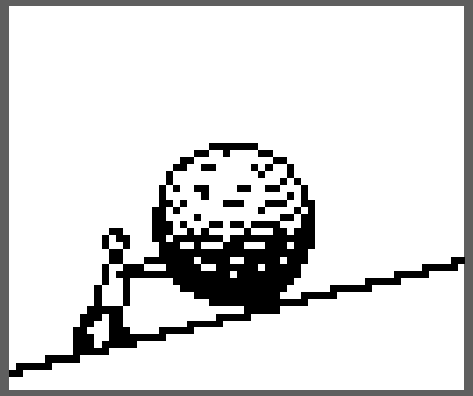
CAN MORE ROAD SPACE REDUCE CONGESTION GROWTH?



It is clear that adding roadway at about the same rate as traffic grows will slow the growth of congestion.It is equally clear, however, that only 14 of the 101 intensively studied urban areas were able to accomplish that rate. There must be a broader set of solutions applied to the problem, as well as more of each solution than has been implemented in the past, if more areas are to move into the "maintaining conditions or making progress on mobility" category.

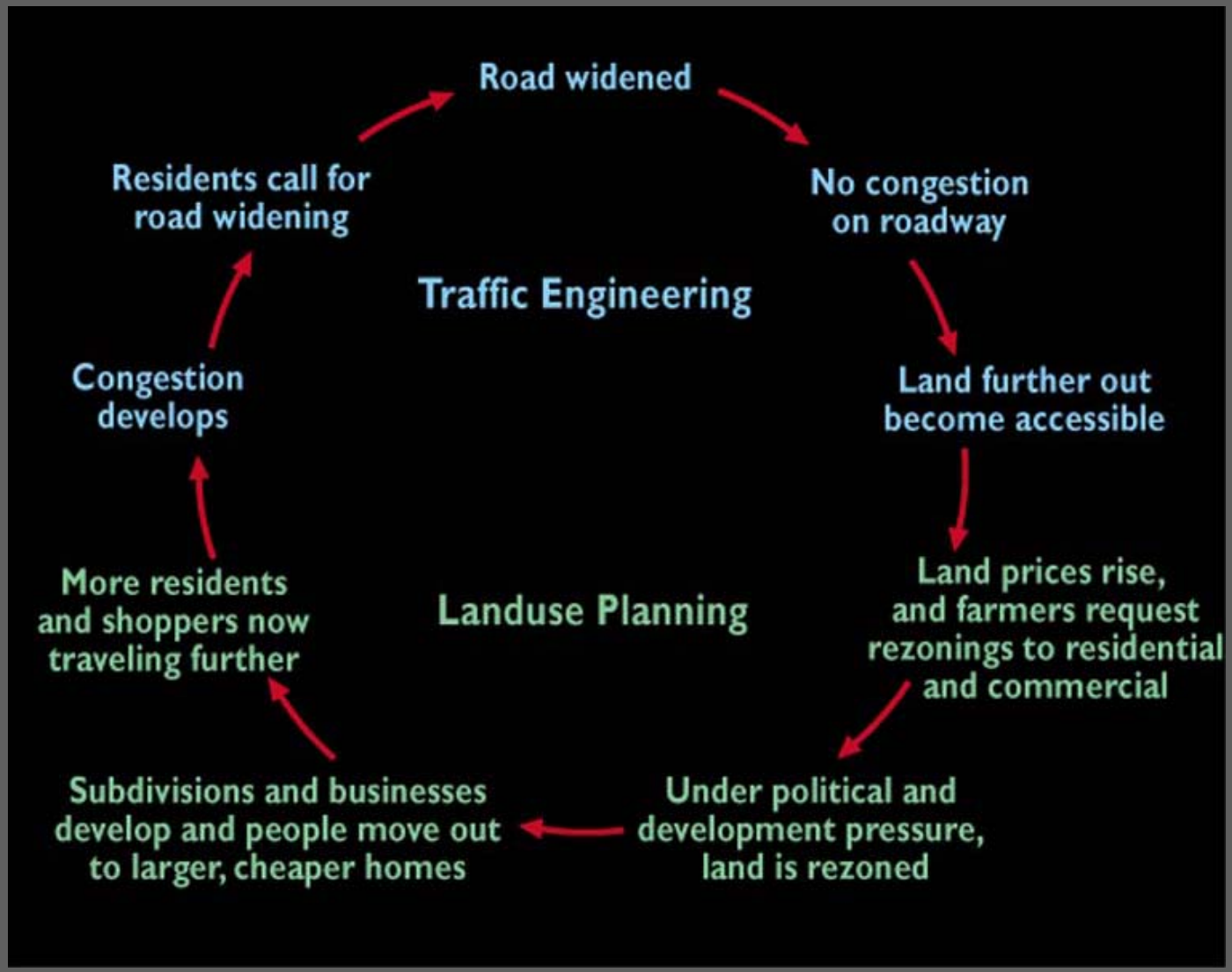
PROJECT FOR PUBLIC SPACES

Why is congestion outpacing roadbuilding?

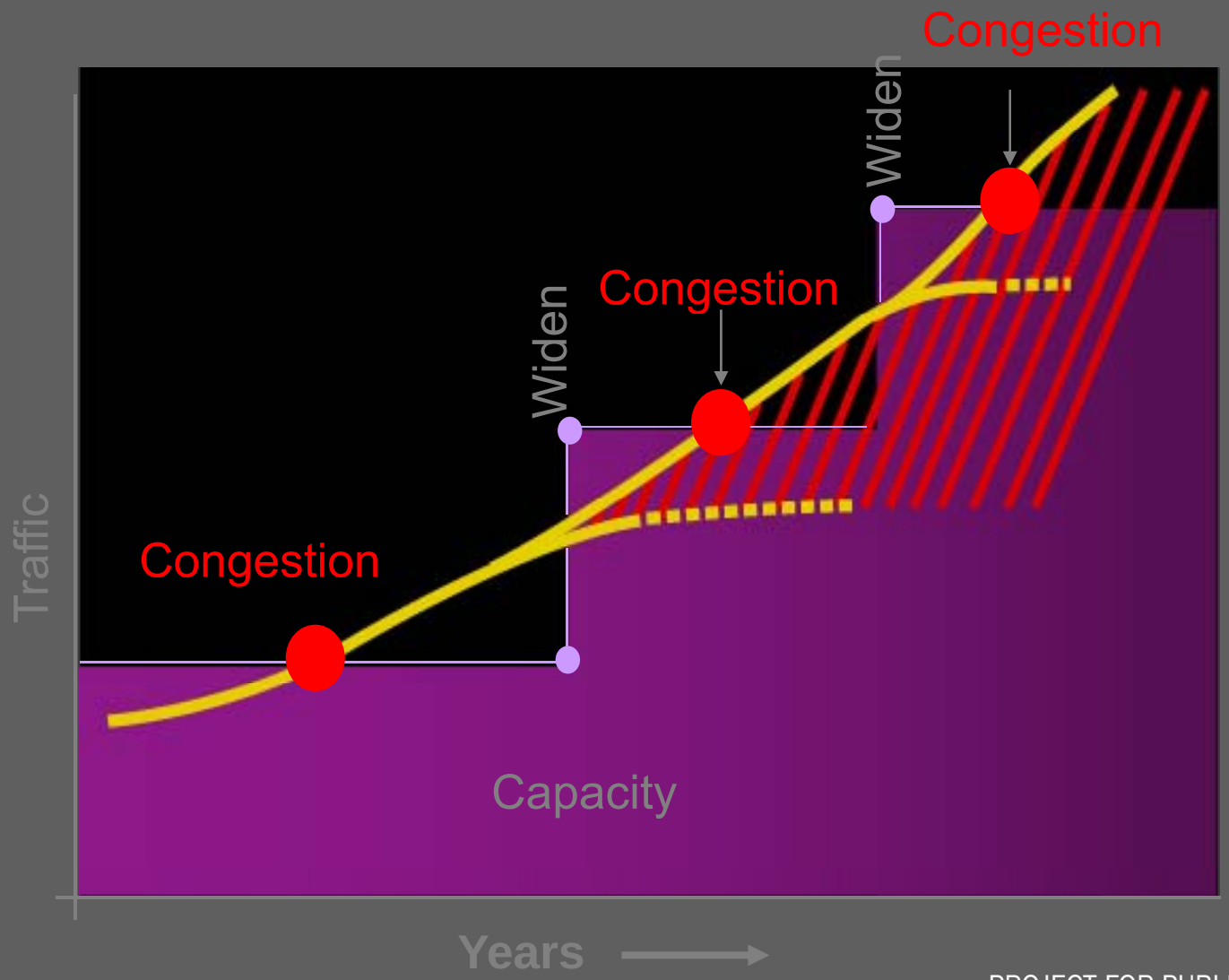


Why it's happening

"Sprawl factor"



What's really happening



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"Blue Cross and Blue Shield Plans to Encourage Congress and Nearly 89 Million Cardholders to Walk to Better Health"

Alter the behavior of your customers

"Research indicates that the U.S. could save approximately $77 billion in direct healthcare spending- and more than double that amount when lost workplace productivity is considered-if Americans with inactive lifestyles met the government's daily recommendations for physical activity. Physical inactivity can lead to many of the chronic health problems, including heart disease, stroke, colon cancer, diabetes, arthritis and osteoporosis, which are so costly to treat. The nation spends more than $600 billion each year on treatment for chronic illnesses. Research shows that a regular walking program can help control weight, condition the heart and lungs, and prevent the onset of health problems."

"Blue Cross and Blue Shield Plans to Encourage Congress and Nearly 89 Million Cardholders to Walk to Better Health"

Change behavior

"Research indicates that the U.S. could save approximately $77 billion in direct healthcare spending- and more than double that amount when lost workplace productivity is considered-if Americans with inactive lifestyles met the government's daily recommendations for physical activity. Physical inactivity can lead to many of the chronic health problems, including heart disease, stroke, colon cancer, diabetes, arthritis and osteoporosis, which are so costly to treat. The nation spends more than $600 billion each year on treatment for chronic illnesses. Research shows that a regular walking program can help control weight, condition the heart and lungs, and prevent the onset of health problems."

prevent the onset of health problems

"Blue Cross and Blue Shield Plans to Encourage Congress and Nearly 89 Million Cardholders to Walk to Better Health"

To reduce the cost of services to a manageable level

"Research indicates that the U.S. could save approximately $77 billion in direct healthcare spending-and more than double that amount when lost workpiace productivity is considered-if Americans with inactive lifestyles met the government's daily recommendations for physical activity. Physical inactivity can lead to many of the chronic health problems, including heart disease, stroke, colon cancer, diabetes, arthritis and osteoporosis, which are so costly to treat. The nation spends more than $600 billion each year on treatment for chronic illnesses. Research shows that a regular walking program can help control weight, condition the heart and lungs, and prevent the onset of health problems."

The Challenge

How do we…….

Alter the behavior of our customers

prevent the onset of health problems

To reduce the cost of *our* services to a manageable level

MAINEDOT
FHWA
STATE PLANNING OFFICE

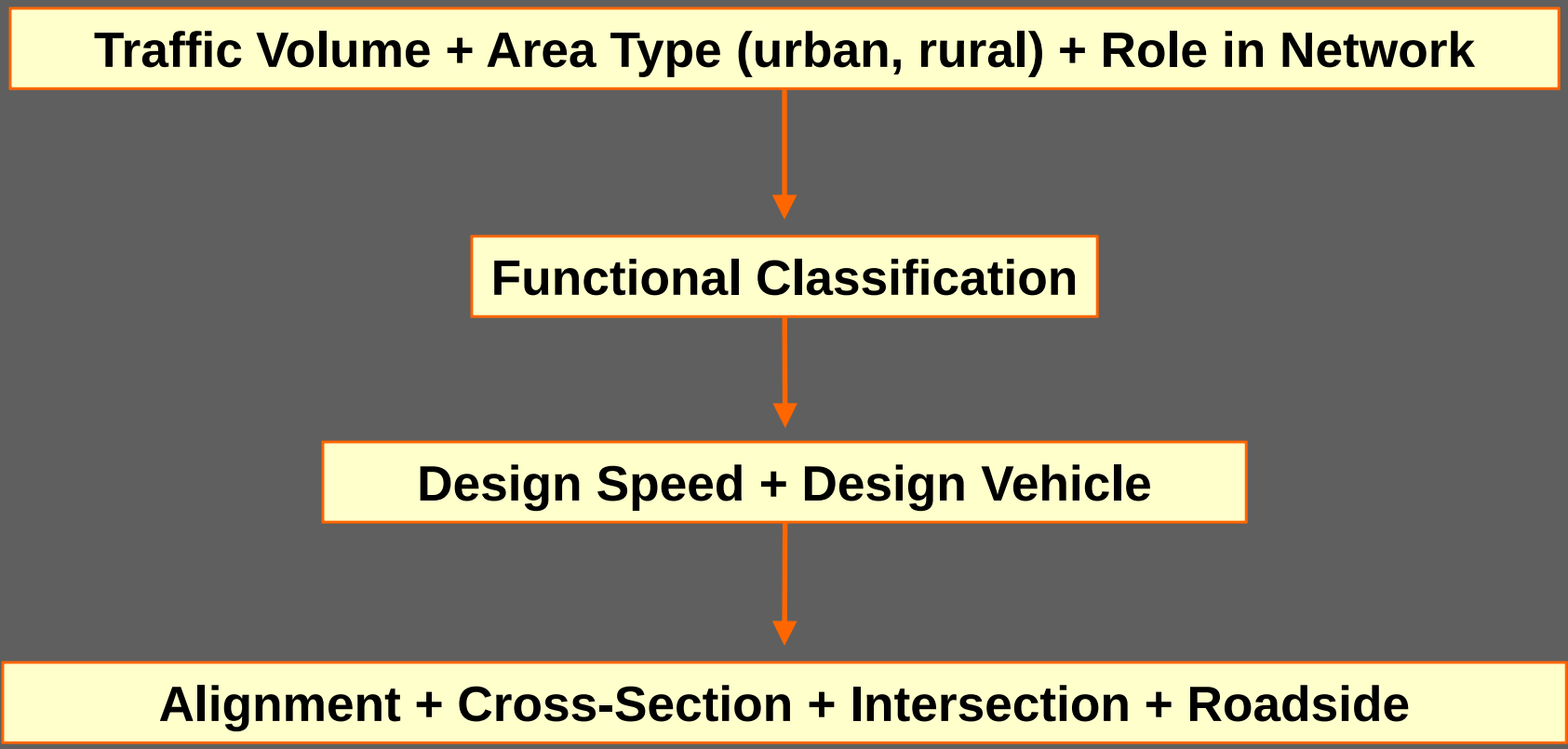
GATEWAY 1: A ROUTE 1 CORRIDOR PRESERVATION STRATEGIC PLANNING PROCESS

http://www.gateway1.org/

PROJECT FOR PUBLIC SPACES

Closing Thoughts

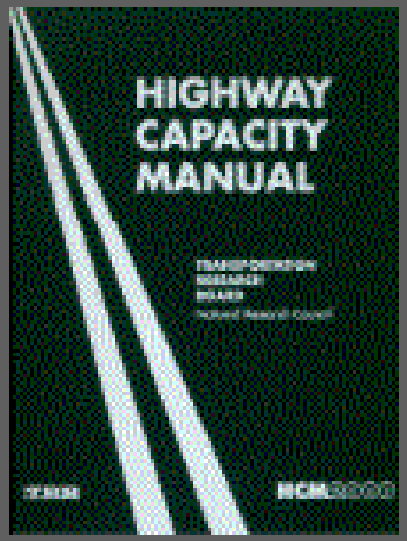
Traditional Highway Design Approach

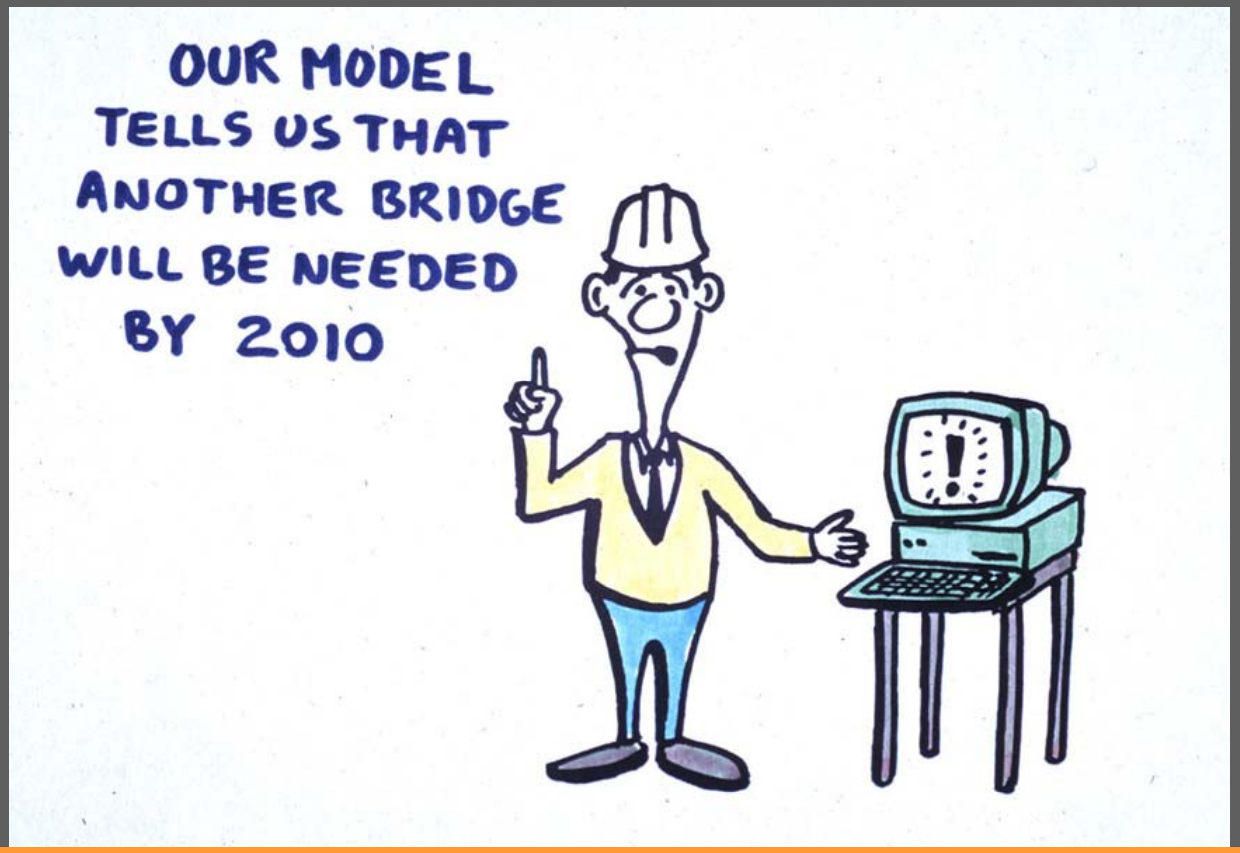


Placed Based Approach

The Deadly Duo

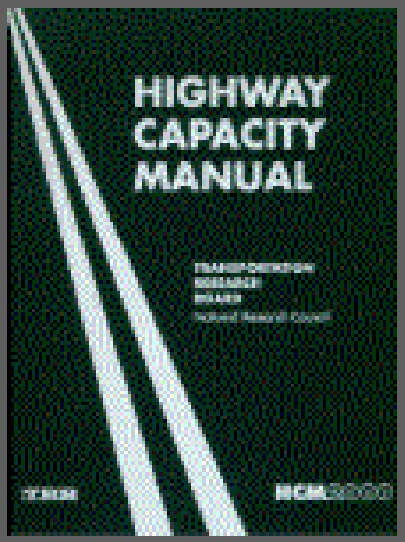
Travel Projections and Level of Service





"...it neither constitutes nor attempts to establish legal standards for highway construction."

(The Highway Capacity Manual *Development and Application*)



http://onlinepubs.trb.org/onlinepubs/trnews/rpo/rpo.trn129.pdf

Levels of Service

- **LOS A**
  - Free-flow operation

- **LOS B**
  - Reasonably free flow
  - Ability to maneuver is only slightly restricted
  - Effects of minor incidents still easily absorbed

From *Highway Capacity Manual*, 2000

Levels of Service

- **LOS C**
  - Speeds at or near FFS
  - Freedom to maneuver is noticeably restricted
  - Queues may form behind any significant blockage.

- **LOS D**
  - Speeds decline slightly with increasing flows
  - Density increases more quickly
  - Freedom to maneuver is more noticeably limited
  - Minor incidents create queuing

From *Highway Capacity Manual*, 2000

Levels of Service

- **LOS E**
  - Operation near or at capacity
  - No usable gaps in the traffic stream
  - Operations extremely volatile
  - Any disruption causes queuing

- **LOS F**
  - Breakdown in flow
  - Queues form behind breakdown points
  - Demand > capacity

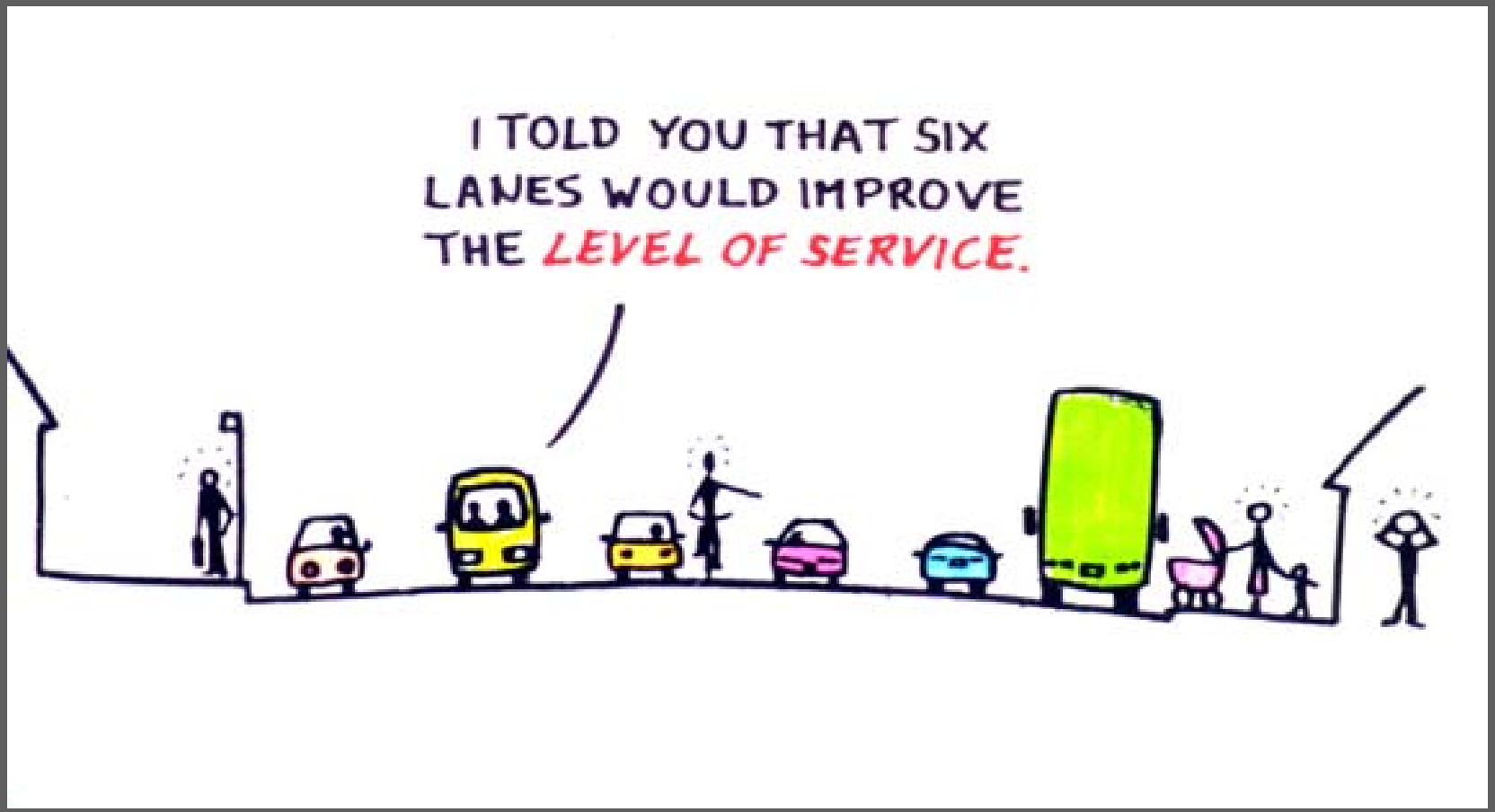
From *Highway Capacity Manual*, 2000

Why is this so significant?

The difference between LOS C

and E

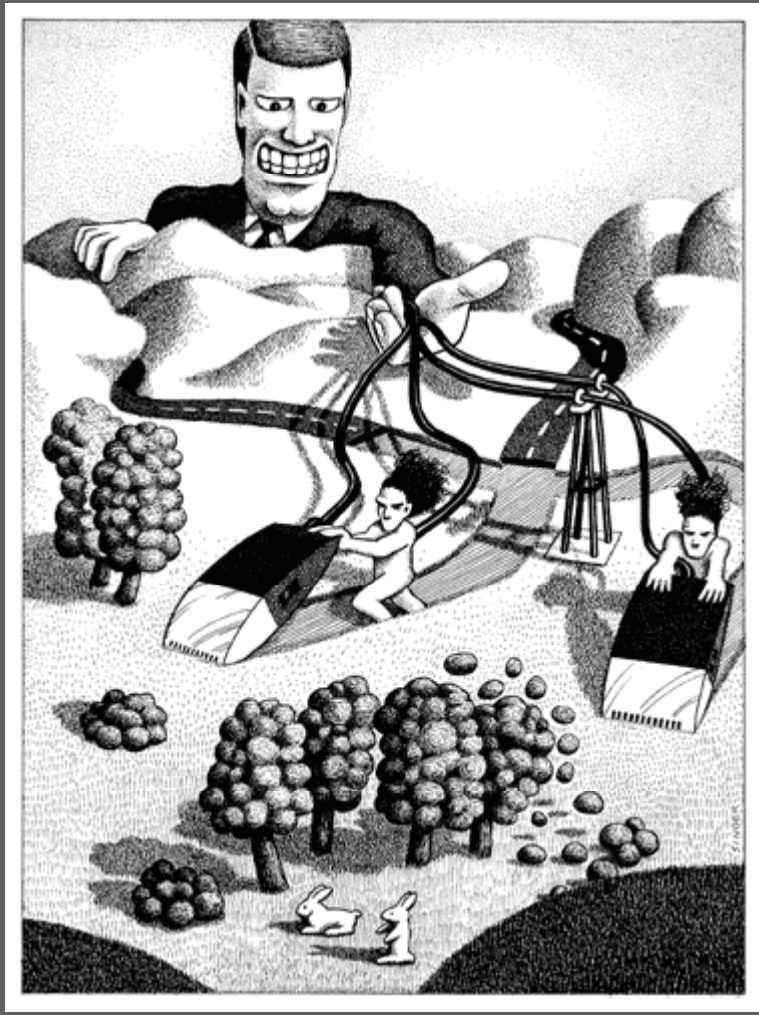
Could be the addition of a lane in each direction


I TOLD YOU THAT SIX
LANES WOULD IMPROVE
THE LEVEL OF SERVICE.

The High Price of Level of Service C/D 24/7/365?

The ‘slow’ network can only function if there is a ‘fast’ network.

Engineers are not bad people!



Engineers as problem solvers!

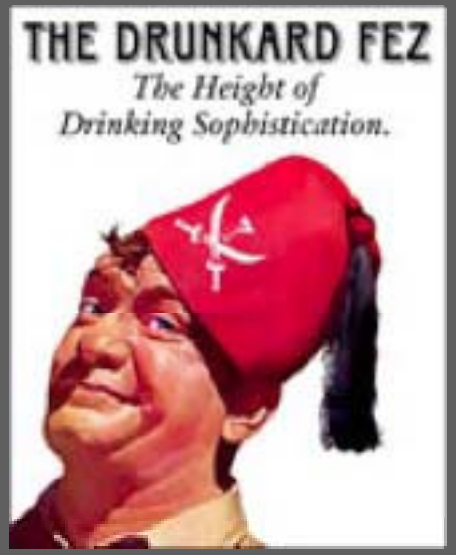
It is the time of French Revolution and the guillotine was hard at work everyday. Today they're leading a priest, a drunkard and an engineer to the guillotine.

Engineers as problem solvers!

They ask the priest if he wants to face up or down when he meets his fate. The priest says that he would like to face up so he will be looking toward heaven when he dies. They raise the blade of the guillotine, release it, it comes speeding down and suddenly stops just inches from his neck. The authorities take this as divine intervention and release the priest.

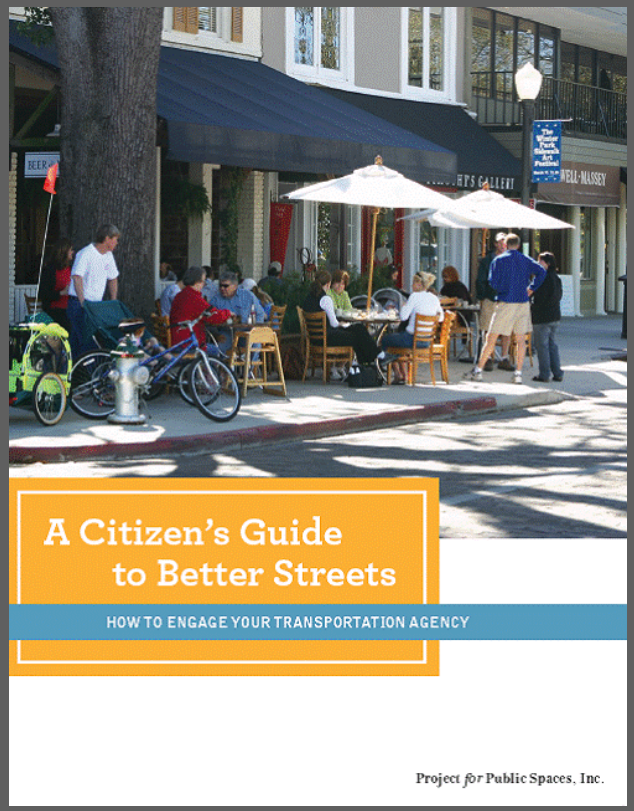
Engineers as problem solvers!

Next the drunkard comes to the guillotine. He also decides to die face up hoping that he will be as fortunate as the priest. They raise the blade of the guillotine, release it, it comes speeding down and suddenly stops just inches from his neck. So they release the drunkard as well.



Engineers as problem solvers!

The engineer is next. He too decides to die facing up. They slowly raise the blade of the guillotine, when suddenly the engineer says: "Hey, I see what your problem is."



http://www.pps.org/pdf/bookstore/How_to_Engage_Your_Transportation_Agency_AARP.pdf

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