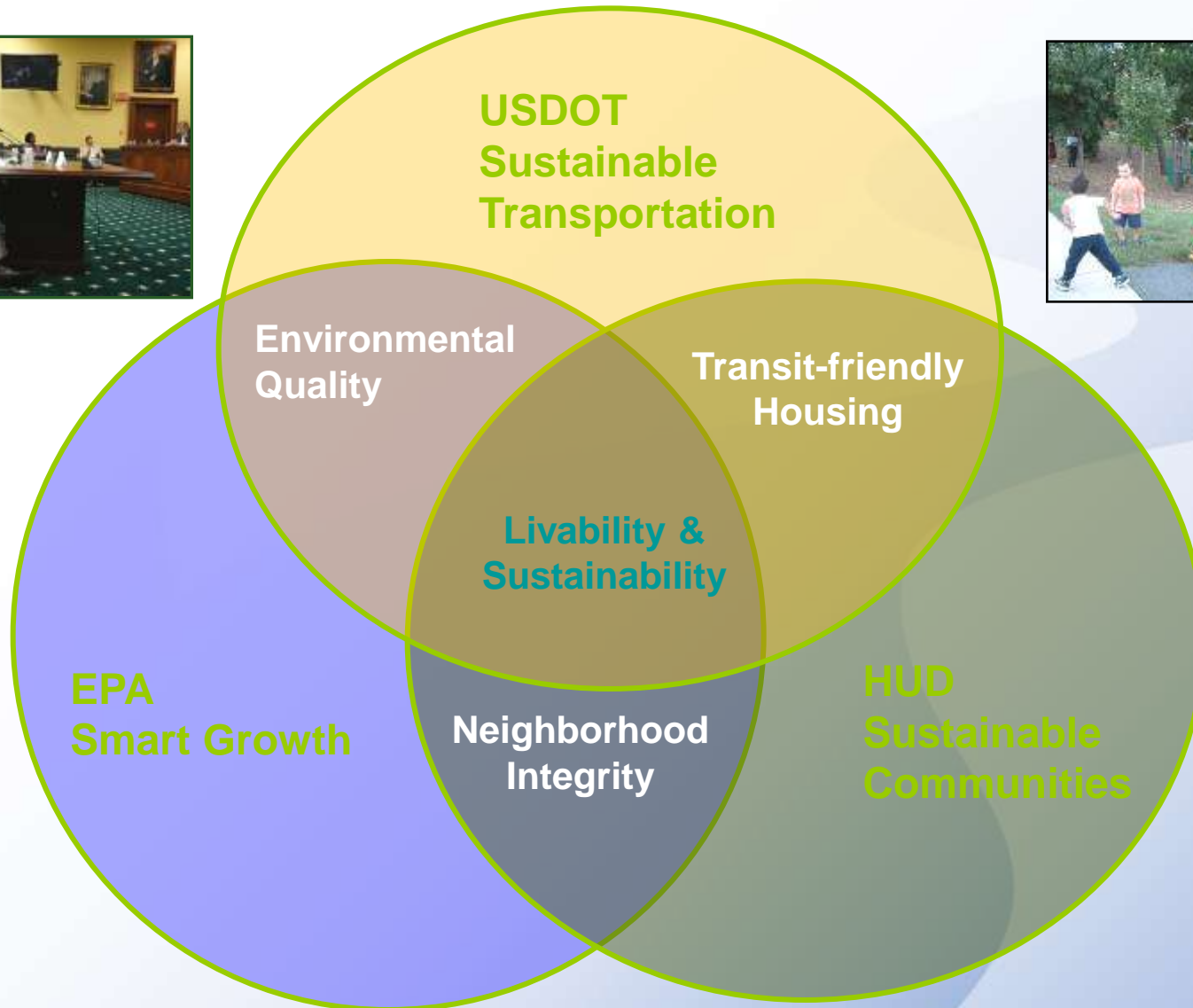




# Transportation Future

Kurt J. Schulte  
Kimley-Horn and Associates

# Taking Advantage of The Federal Livability Initiative



# BATON ROUGE, LOUISIANA

**Metro Population: 479,000**

**City Population: 430,317**

**Transit Ridership: 4,200,000**

Total Lane Miles: 1,828



# ALBUQUERQUE, NEW MEXICO

**Metro Population: 729,649**

**City Population: 448,607**

**Transit Ridership: 8,751,698**

**Total Lane Miles: 2,334**



# CHARLOTTE, NORTH CAROLINA

**Metro Population: 1,330,448**

**City Population: 540,828**

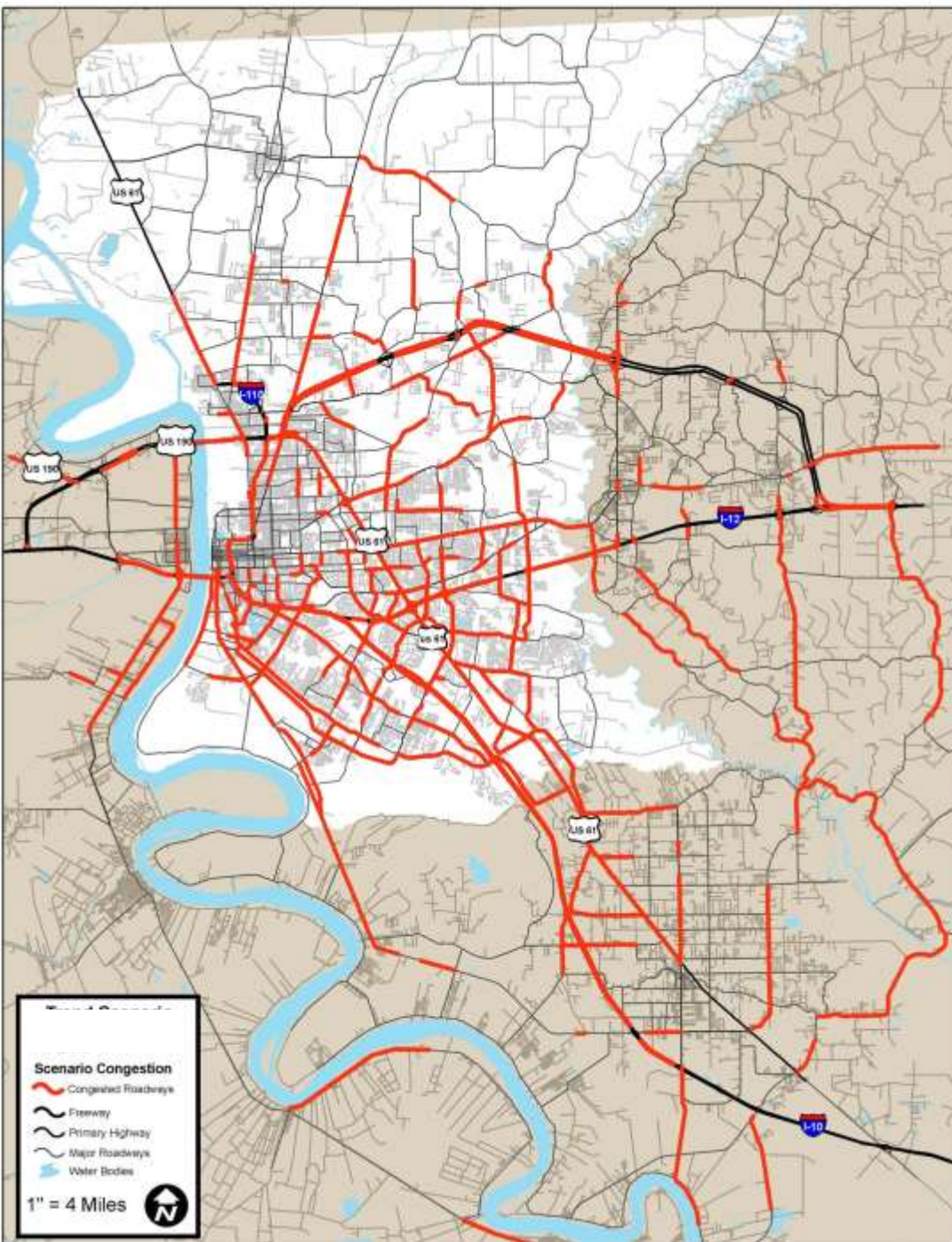
**Transit Ridership: 21,176,801**

Total Lane Miles: 1,274



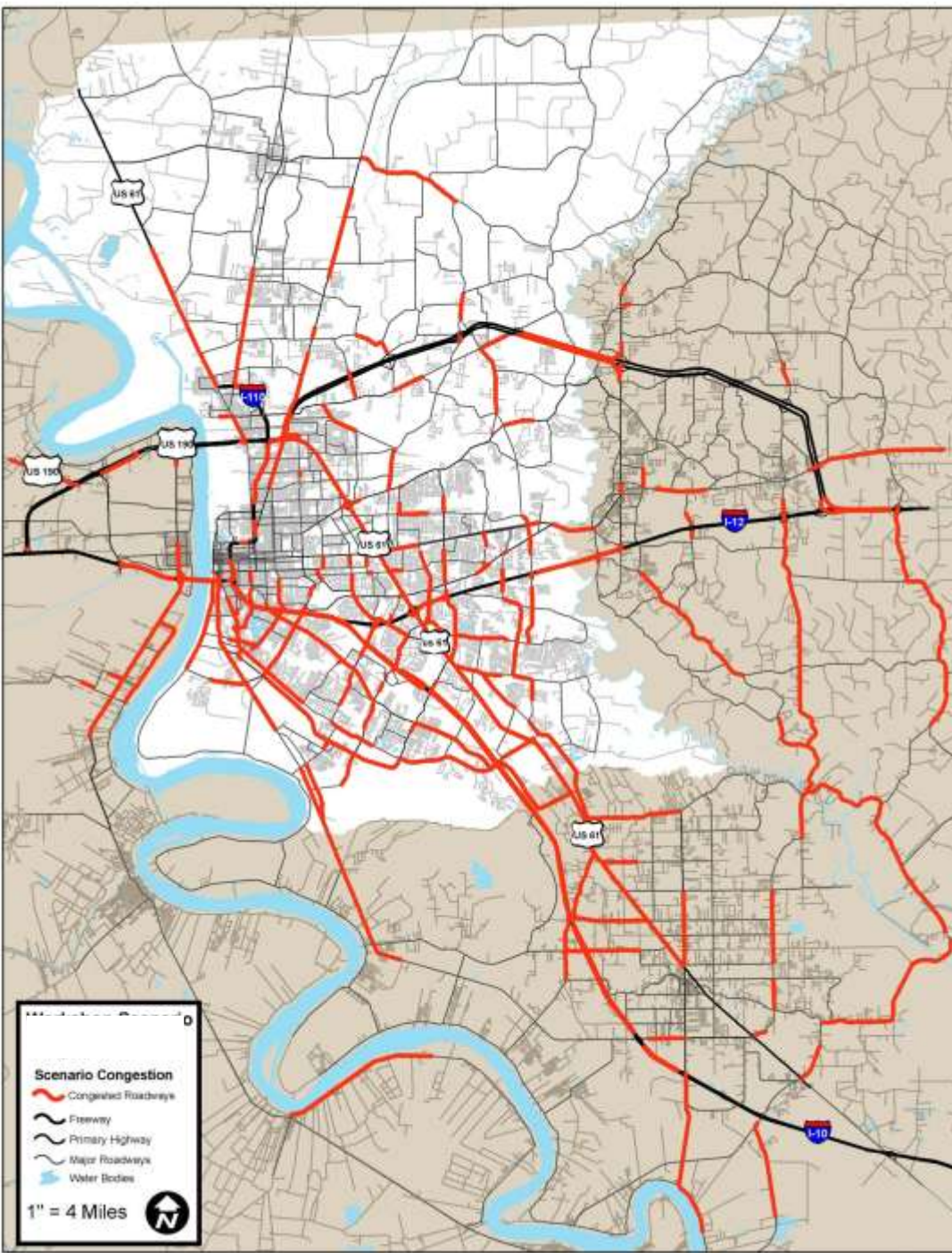
# Future EBR Scenario Performance

# MPO Forecast Scenario



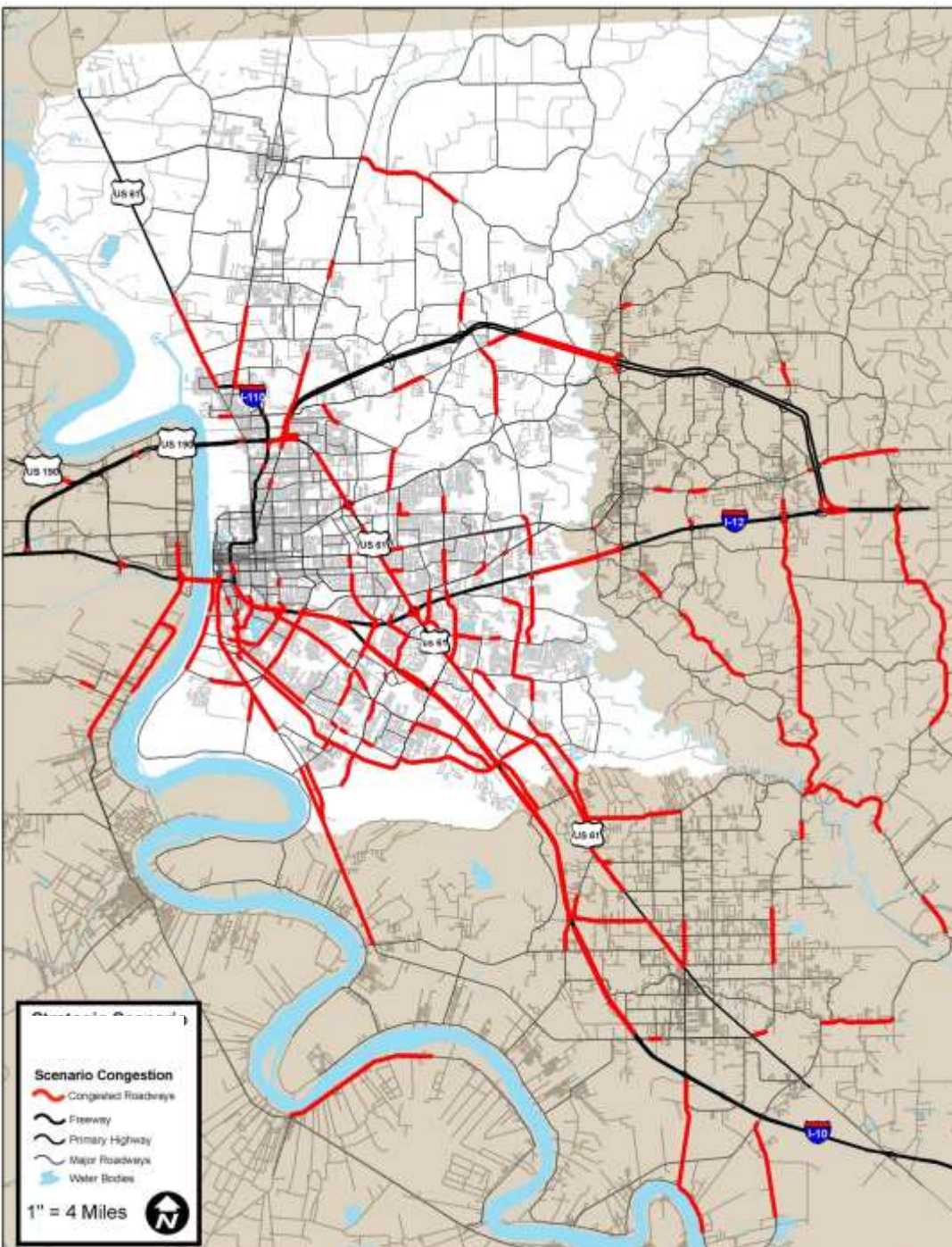
**Congested Roads Map**

# Workshop Scenario



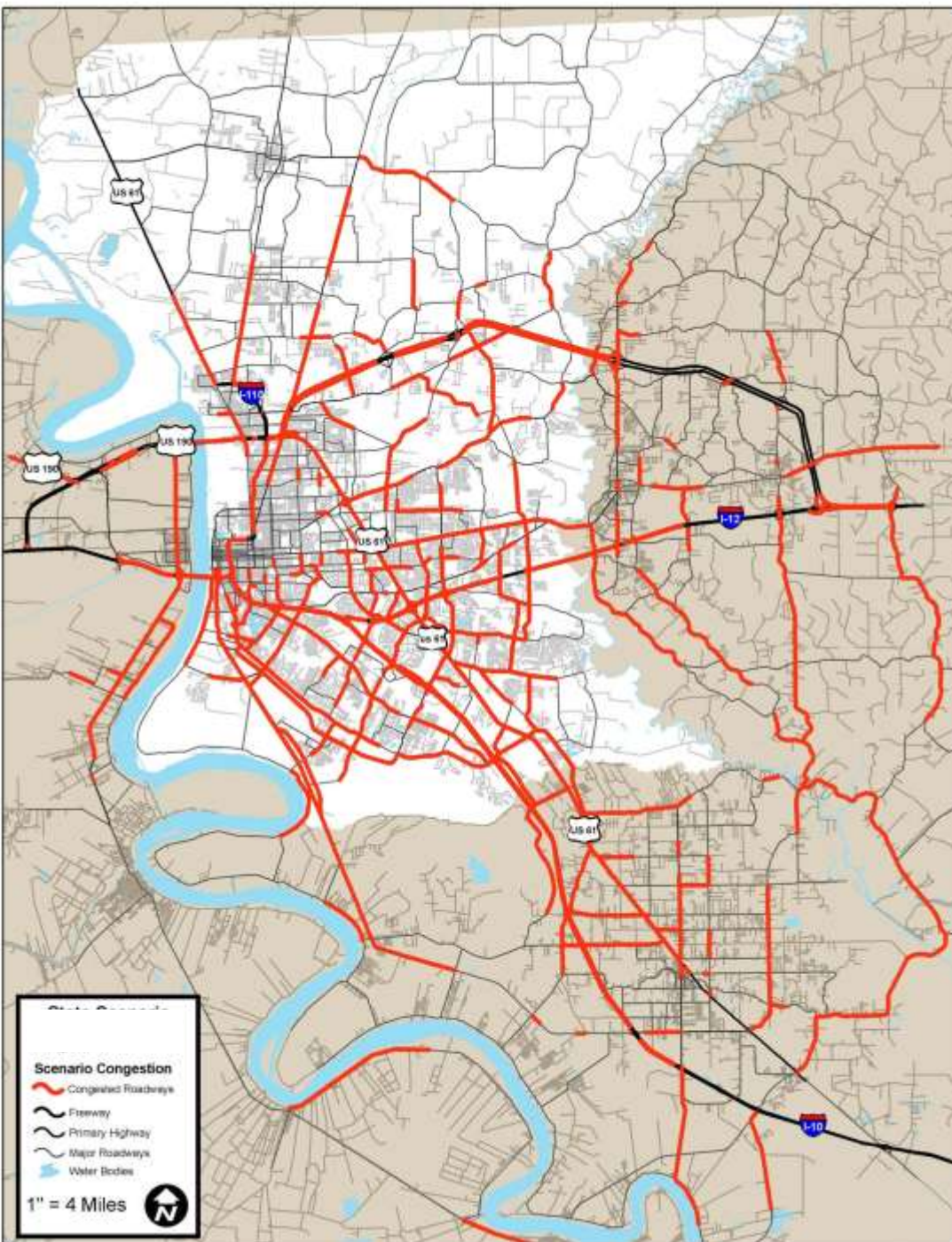
**Congested Roads Map**

# Strategic Scenario



Congested Roads Map

# Low Housing Scenario



**Congested Roads Map**

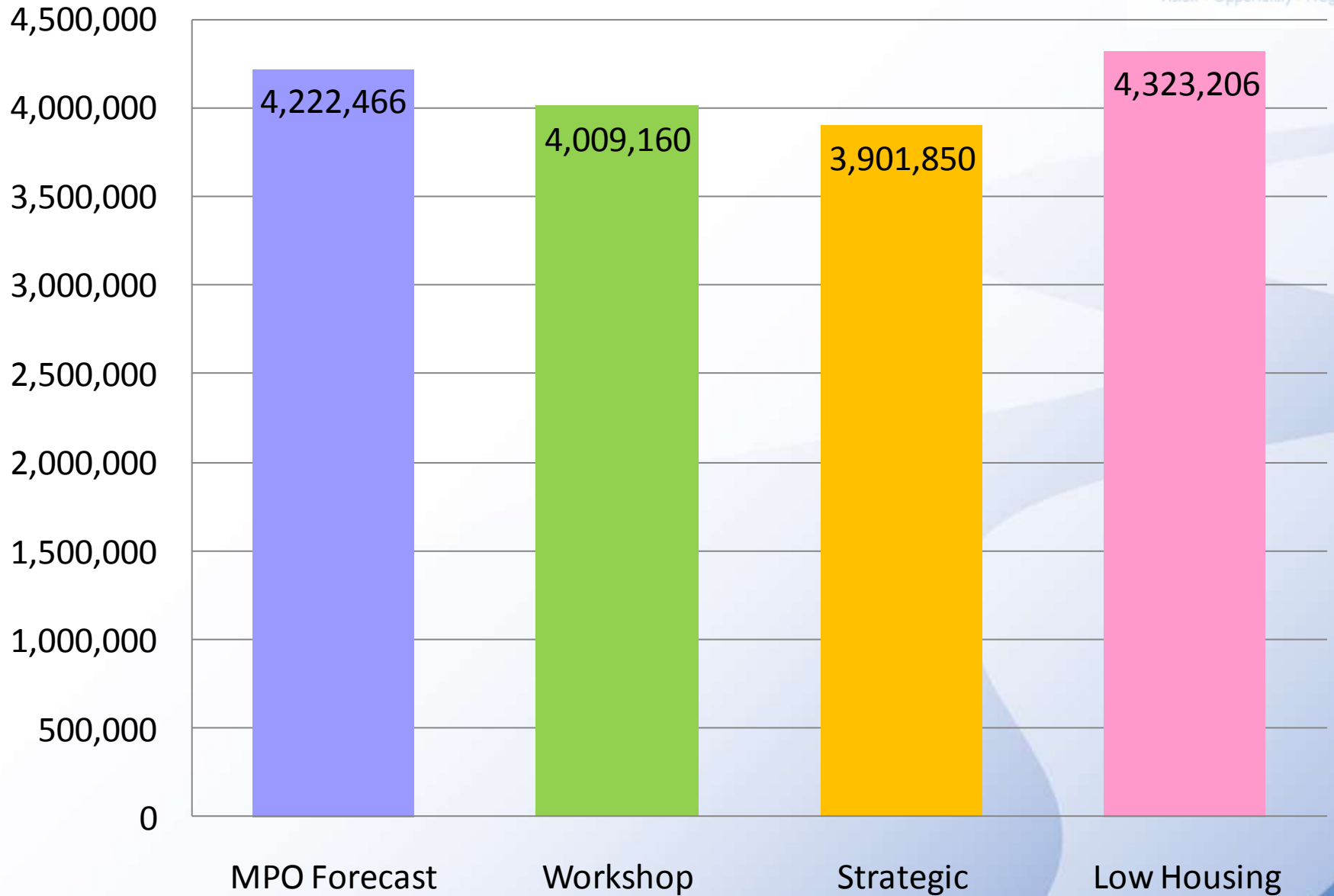
# Delay

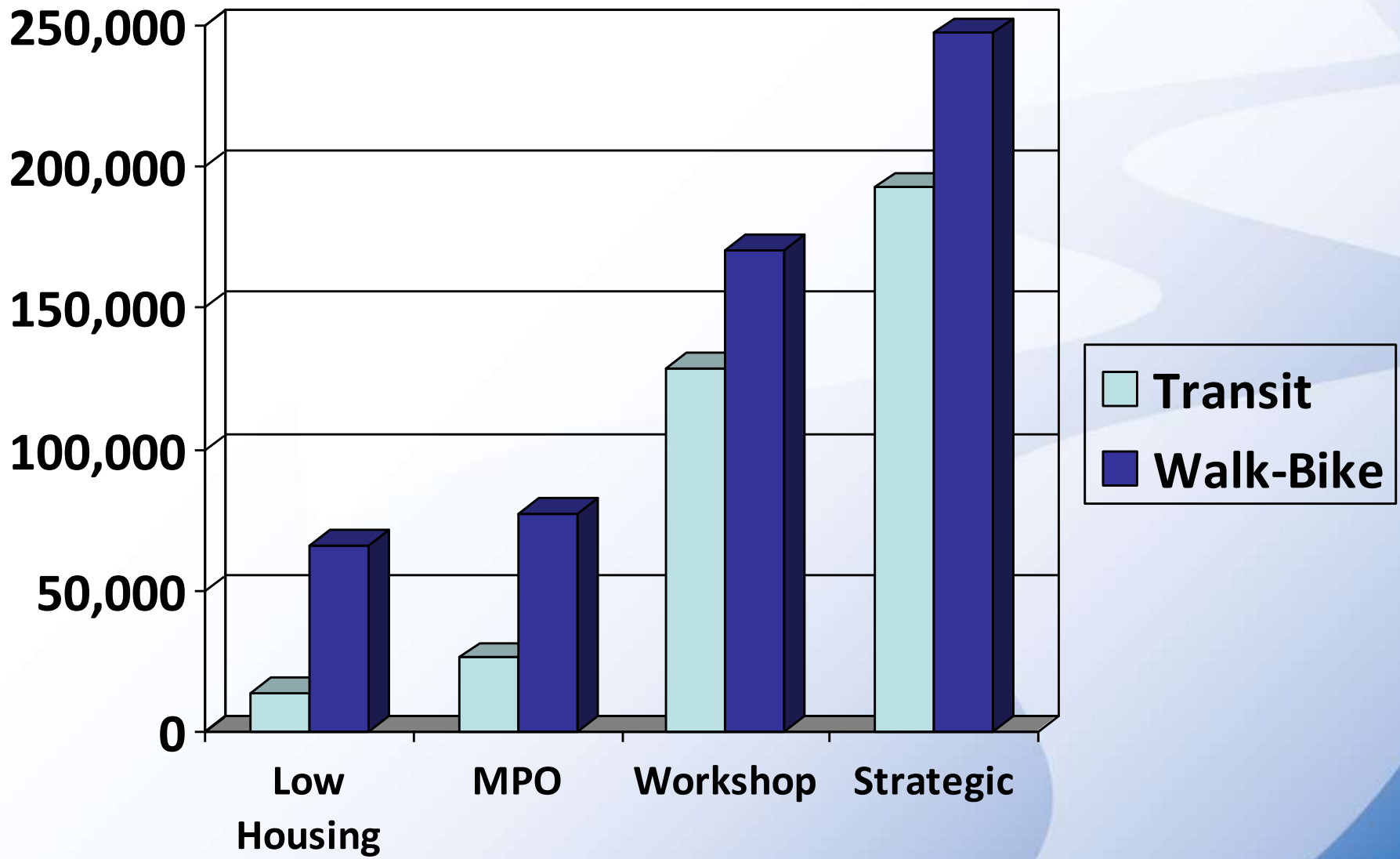


# Gallons of Fuel Wasted Annually



# CO2 (tons per year)





# Envisioning a New Future

# Multi-Modal Toolbox

## Roadway Tools



**New roadways** provide extra capacity in areas that are not fully developed and are expected to grow. This tool can be used to alleviate congestion by expanding the network and providing more options for the transportation system.



When traffic volume on a roadway exceeds its capacity, **roadway widening** can be used to increase the number of lanes. This creates extra capacity in those areas that "bottleneck" during peak travel times.



**Traffic calming** is a set of strategies which aim to slow down or reduce traffic, thereby improving safety for pedestrians and cyclists. Calming can include the following techniques: speed humps/bumps, chicanes, curb extensions and pedestrian refuges.



**Intersection design** is the physical arrangement of the area of operation for each movement of traffic at the crossing of two or more streets. Intersection improvements can include separate right/left turn bays and flared-out lanes to increase capacity at the intersection.



**Signal timing** is the sequence and duration of each phase of a traffic signal. Having signal timing along a corridor can increase the efficiency of the street by allowing for the most possible amount of vehicles to pass in the shortest time.

## Transit Tools



**MetroRail** is an urban rail public transportation system that utilizes DMU (Diesel Multiple Unit) technology on freight rail infrastructure. Station spacing is typically 1-2 miles that serves both suburban riders as well as urban riders. The capacity of this type transit technology is much higher than bus service.



**MetroRapid** is a rapid bus system which limits the amount of stops on particular routes and increases the frequency of buses. Rapid bus service can implement advanced signal systems such as signal pre-emption and priority to allow for faster and more direct service.



**Commuter rail** is a passenger rail service that connects people in larger distances. Station spacing can be from 5 - 7 miles and have low frequencies.



**Streetcar's** are similar to light-rail vehicles however their service is different. Streetcar service primarily covers urban areas like downtowns and urban center and have frequent service with close station spacing of approximately 1/2 mile.



**Park and Ride** lots are created to encourage transit usage for people that are not within walking distance of a transit station. The benefit of park and ride lots is that it encourages transit use.

## Bike & Pedestrian Tools



**Sidewalks** are an important element of pedestrian travel in urban and suburban areas. Quality of sidewalks is important for people to connect to businesses and other destinations.



**Bike lanes** are located on the edge of a street or between the travel lanes and the parking lanes. Typically they are 5-6 feet in width and allow for cyclists to have their own space on the street.



A **multi-use path** should be constructed at a minimum of 10 feet wide. They are built to separate pedestrian and bicycle traffic from automobile flow.



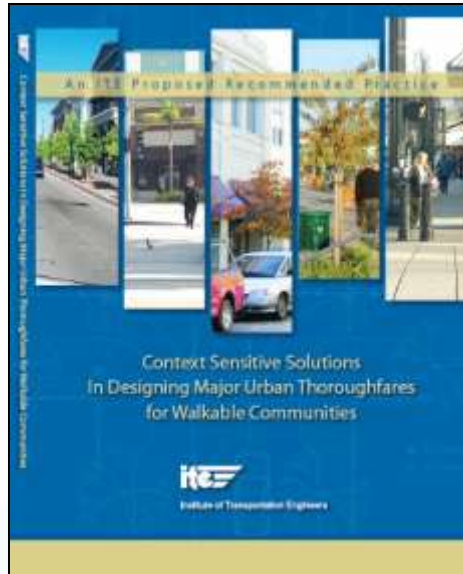
**Streetscaping** along a corridor can be funded in a number of different ways, but its purpose is to increase the attraction of the pedestrian by using landscape elements to beautify the corridor.



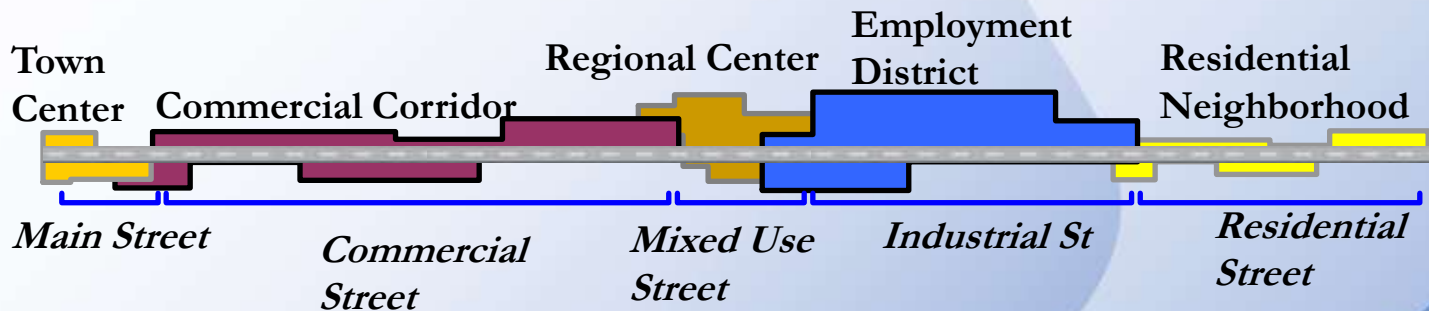
**Pedestrian crossing** are used to connect different neighborhoods and can be at intersections or at mid-block locations. Crossing can also be in the form of a pedestrian bridge in order to cross more high volume thoroughfares.

# Context Sensitive Solutions

Putting it all together



***“One Size Does Not Fit All”***



# Tenets of CSS

- Balance
  - Safety
  - Mobility
  - Community objectives
  - Environment
- Multimodal
- Involve public, stakeholders
- Interdisciplinary teams
- Flexibility in design
- Incorporate aesthetics



Source: Minnesota Department of Transportation

# Arlington, Virginia



Existing conditions

# Arlington, Virginia



Infill development; bus rapid transit

# Arlington, Virginia



Light rail transit

# What Makes People Walk?

- Practical Destinations



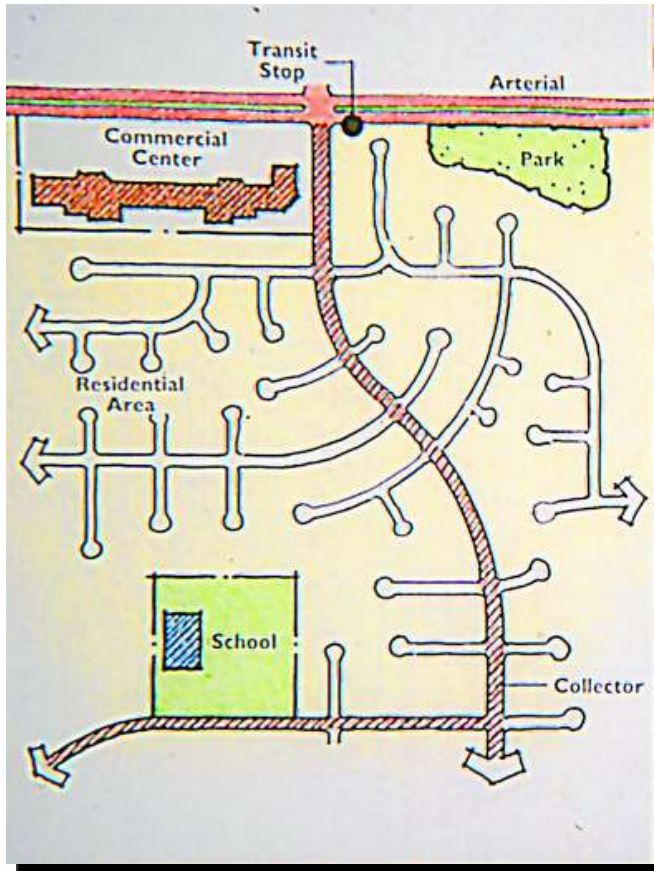


# What Makes People Walk?

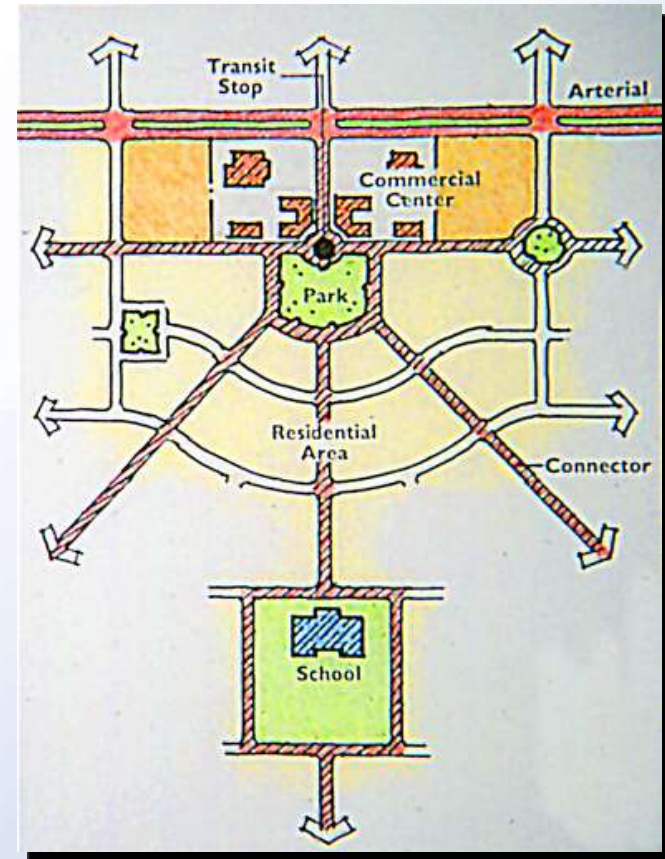
- **Pleasant & Interesting Environment...a Human Scale**



# What Makes People Walk?



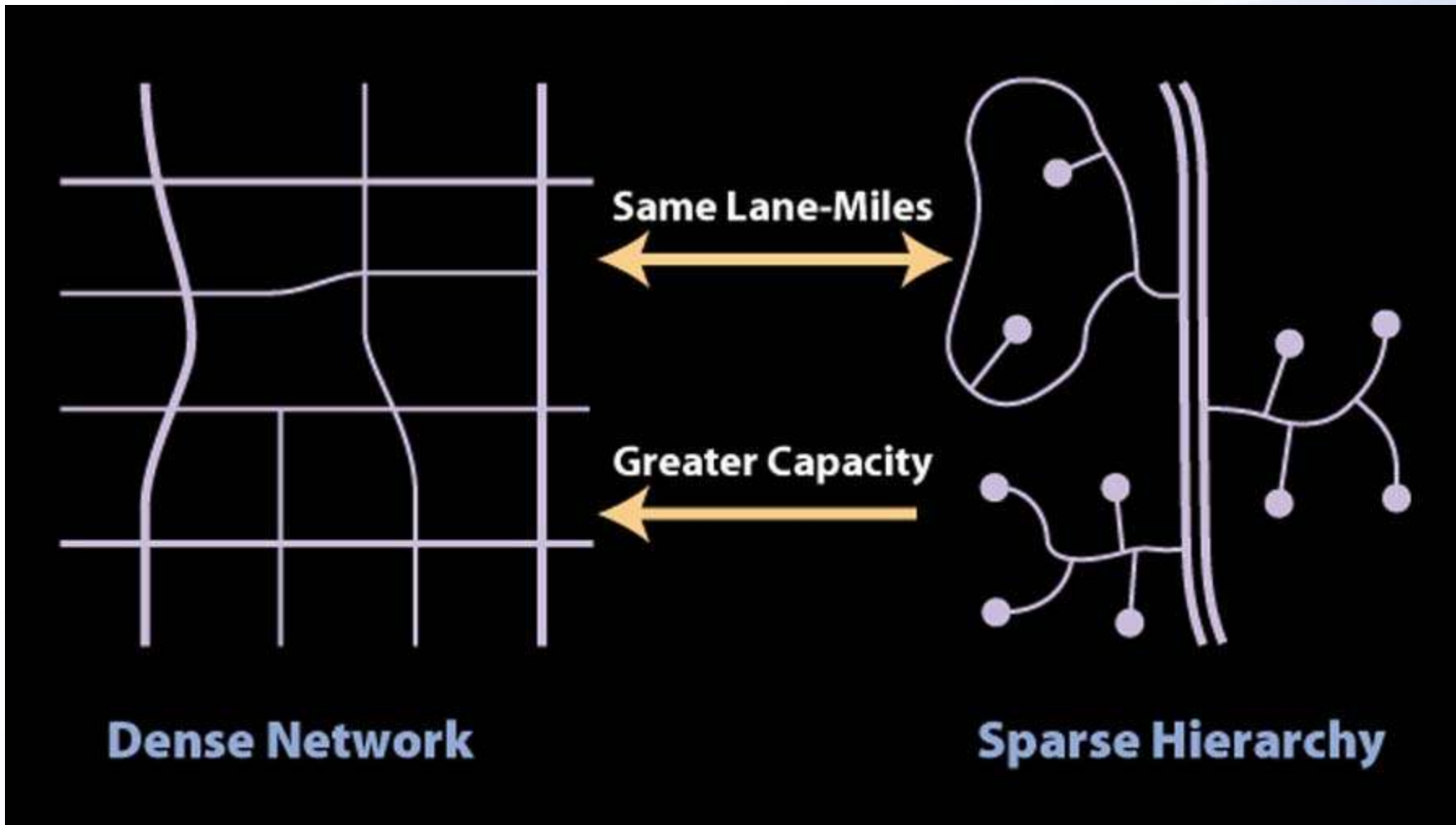
In most conventional suburban development, **streets separate uses**, discouraging walking and forcing even local trips onto arterial



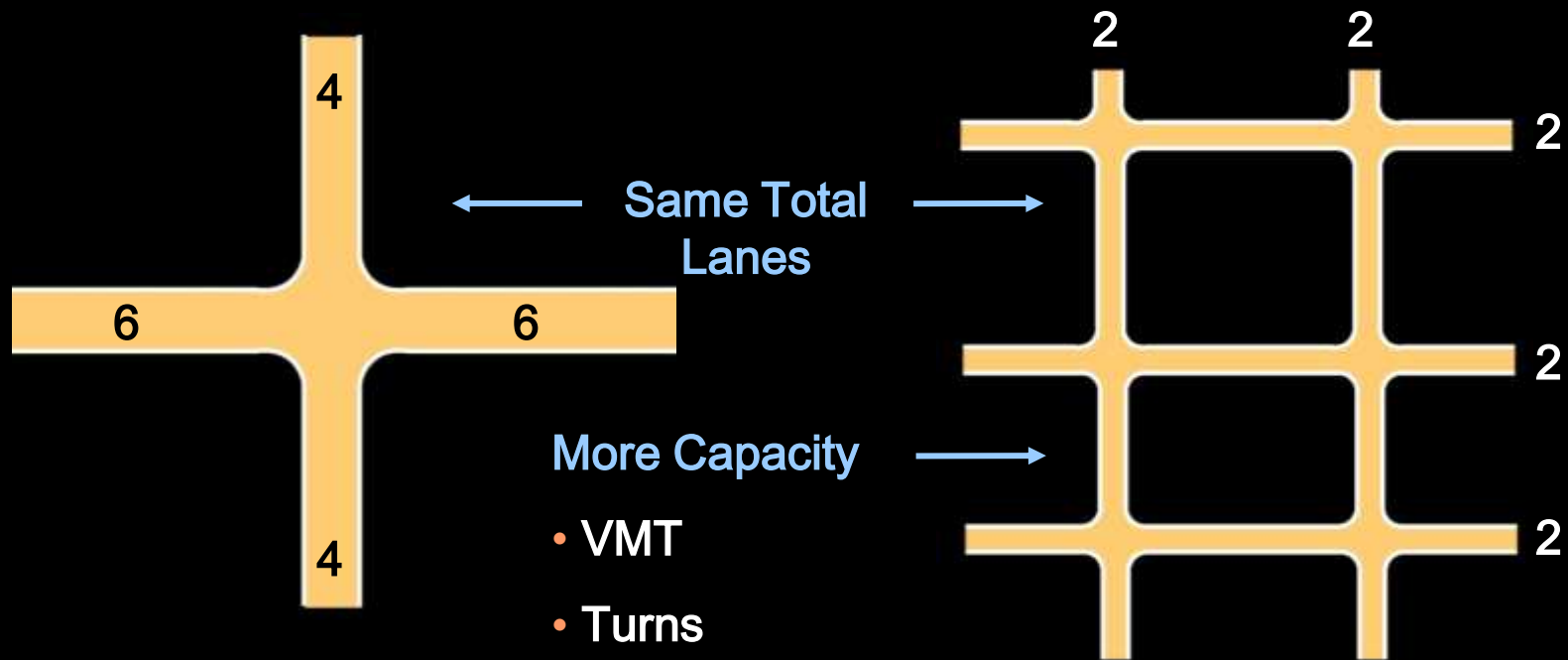
Walkable neighborhoods have **streets that connect uses**, with arterials reserved for through traffic.

# Walkable Networks

## Why Do Networks Work?



# Intersection Control



← Same Total Lanes →

More Capacity →

- VMT
- Turns
- Clearance Time
- Signal Phase

# Positioning for Funding

OBJECTIVES	WEIGHT				MEASURES OF EFFECTIVENESS	PROJECT SCORING BY STAGE		
	Public Workshops	Web Survey	Professional Allocation	Totals		Initial Gap Filter	Selection of solution	Ranking of solutions
Sustainable Growth	16	11	5	32	Projected Population Density within 1/2 mile	7	7	7
					Projected Employment Density within 1/2 mile	7	7	7
					Project is inside or within a CAMPO Activity Center	11	11	11
					Project is in or within 1/2 mile of Economically Challenged Area or Targeted Redevelopment Area	7	7	7
Mobility Choices	20	13	10	43	# of Modes within Project Limits	43	21	5
					Meets ADA standards	--	--	5
					Improved Connectivity Between Modes	--	11	8
					Multi-modal Level of Service analysis	--	--	17
					Improved Cycling Capacity and Safety	--	11	8
Investment and Economic Development	9	12	20	41	Project tied to a Corridor or Activity Center that will be Planned and Zoned in Sustainable Development Patterns	41	41	19
					Project Supports Sustainable Development Patterns	--	--	11
					Ability to Leverage Public and Private Funds	--	--	11
Safety	11	8	5	24	Number of accidents prevented if project had been in place	--	8	6
					Severity index of crashes	--	--	2
					# of ped accidents	--	--	2
					# of bike accidents	--	--	2
					Safety concerns expressed about location	24	8	6
					Design consistent with best practice	--	8	6
Efficiency	13	20	25	58	Person moving capacity added	--	24	17
					Capital Cost per person-trip per day capacity added	--	--	17
					Operating Cost per person-trip per day capacity added	--	--	10
					Implementability	58	34	14
Neighborhood Coordination and Connectivity	7	7	5	19	Is the project in an adapted neighborhood plan?	19	13	8
					Connection to amenities	--	--	5
					Connection to area	--	6	6
Environmental Stewardship	9	11	5	25	Fuel Consumption (VMT reduction)	--	7	10
					Within DDZ	25	8	5
					Design consistent with best practice	--	--	5
					Access recreation	--	5	2
					Access to neighborhood retail	--	5	3
Regional Coordination	15	18	25	58	Project in 2035 plan	41	34	24
					Support for project from partnering agencies	--	--	10
					Services or connects CAMPO designated activity centers	17	24	24
	100	100	100	300		300	300	300