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CHARLOTTE DEPARTMENT OF TRANSPORTATION

What are Costs and Benefits of Complete Streets?

North Carolina Complete Streets Summit

July 23, 2014
Charlotte, NC

Topics

1. What are the costs of incomplete streets? What are the differences between costs and values?

2. How can policies affect decisions about costs? Why should communities plan for better networks of complete streets?

3. What are the typical costs of complete streets projects?

4. What are the likely costs and benefits of adding bicycle lanes, sidewalks and planting strips to create complete streets?

Topic #1:

What are the Costs of Incomplete Streets?

What are the Differences Between Costs and Values?

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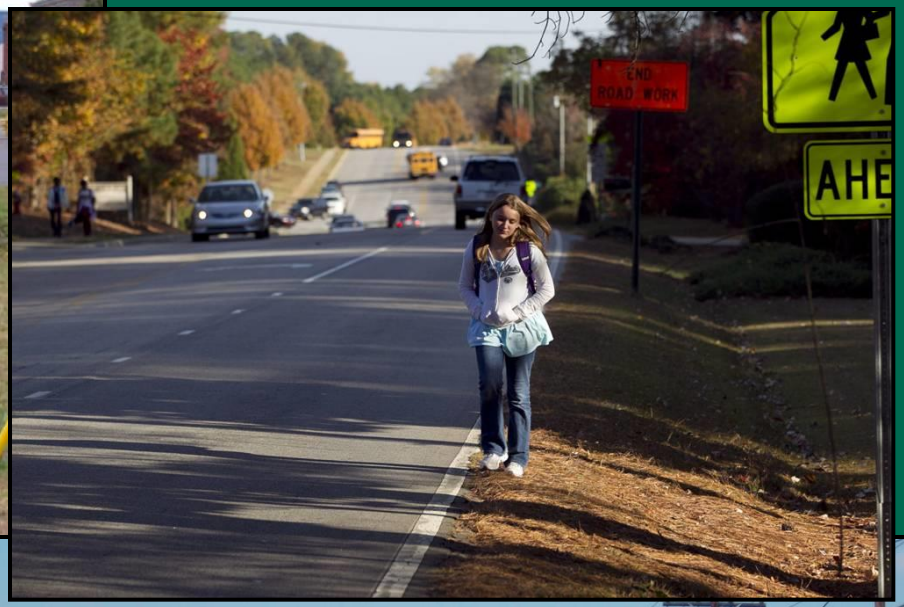
Walking on Incomplete Thoroughfares



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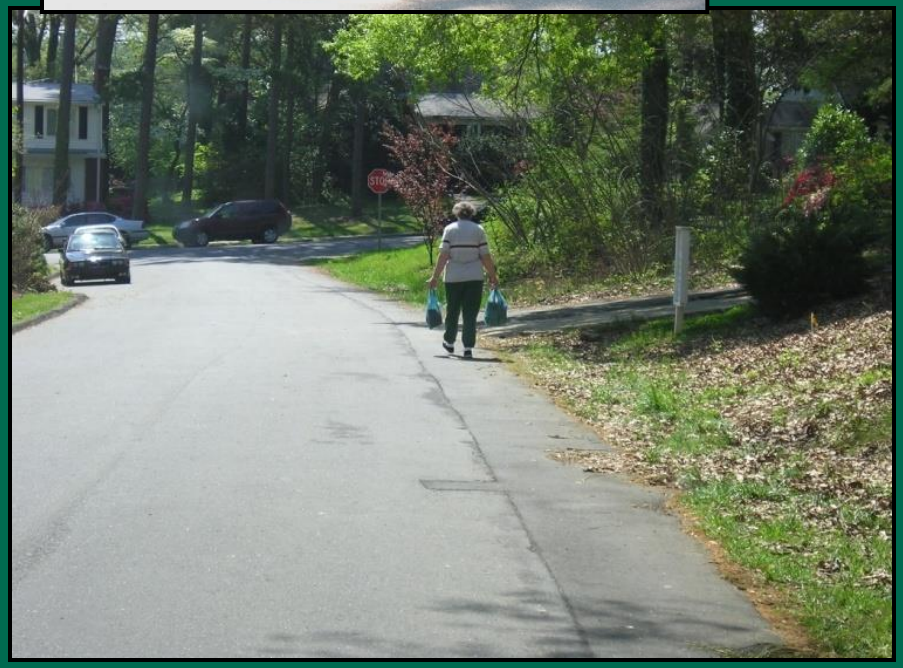
Walking on Incomplete Local Streets



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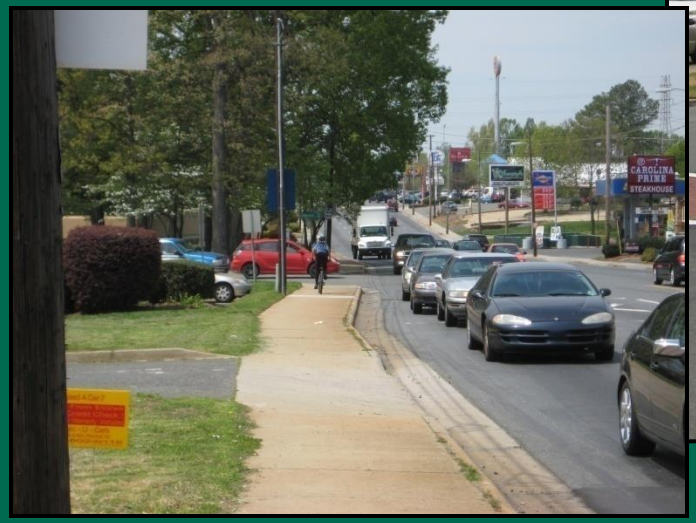
Bike Travel on Incomplete Streets



No Street Trees

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What Are the Costs of Incomplete Streets?

- Prevent/limit travel by pedestrians and bicyclists
  - Physical deficiencies
  - Perceived constraints
- Provide only short-term capacity for motorists
- Are not valued positively

Costs or Values?

- Potential site-specific costs can be calculated. Is this precision or accuracy?
- More streets may add costs to some development types or sites.
- Costs may be passed on to buyers or otherwise absorbed by developers.
- Site plans and development programs (the "product") may need to be adjusted.
- Not building more streets could lead to widening intersections and thoroughfares.

Measuring Values is Difficult

<u>What are the dollars associated with ?</u>

- Neighborhood livability
- Congestion relief
- Emergency response (fire, police, Medic)
- Higher property values due to traffic calming and street trees
- Increased walkability and public health benefits
- Cost-effective service provision (solid waste, school buses, access to transit)

Topic #2:

How Can Policies Affect Decisions About Costs?

Why Should Communities Plan for Better Networks of Complete Streets?

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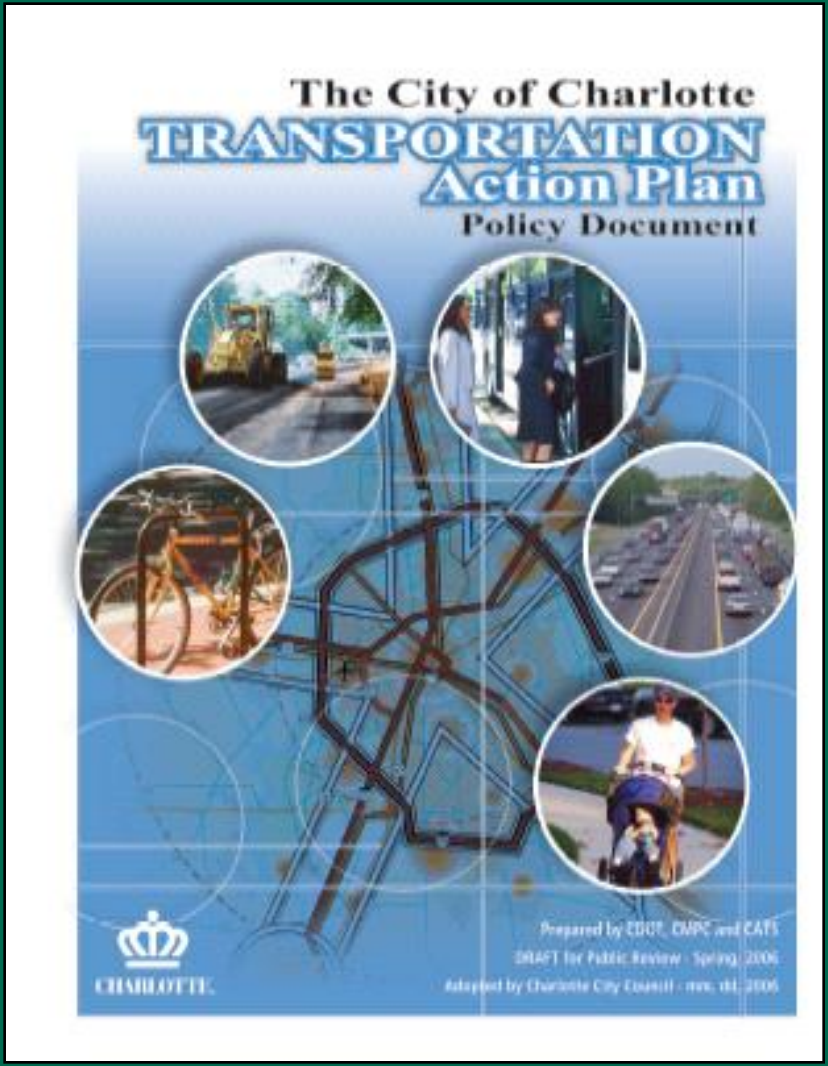
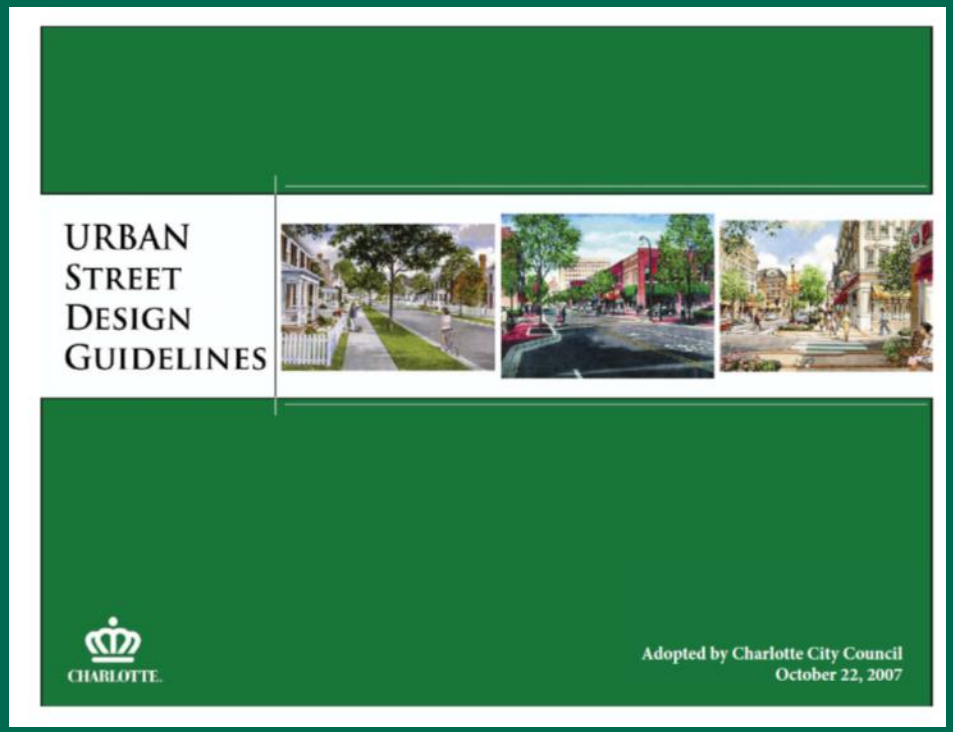
Transportation Action Plan (TAP) and Urban Street Design Guidelines (USDG)

- TAP is Charlotte's long-range comprehensive transportation plan
- TAP describes policies, projects and programs
- USDG describe how to design streets and blocks



How the TAP and USDG Work Together

- TAP Goal 2 – provide <u>more</u> and <u>better</u> travel choices
- "More" (quantity) specified in TAP policies and TAP programs
- "Better" (quality) defined by the USDG



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Creating More Streets

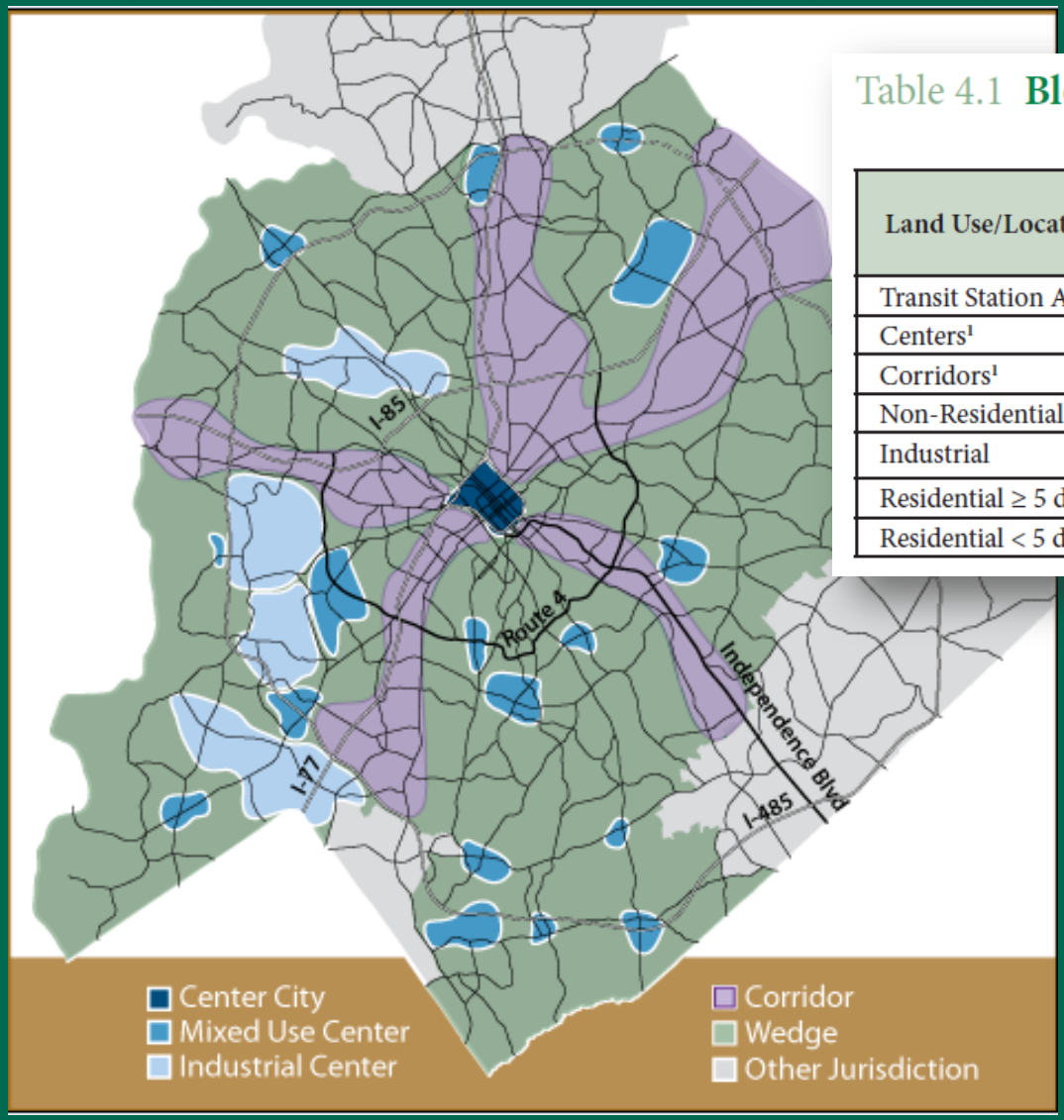
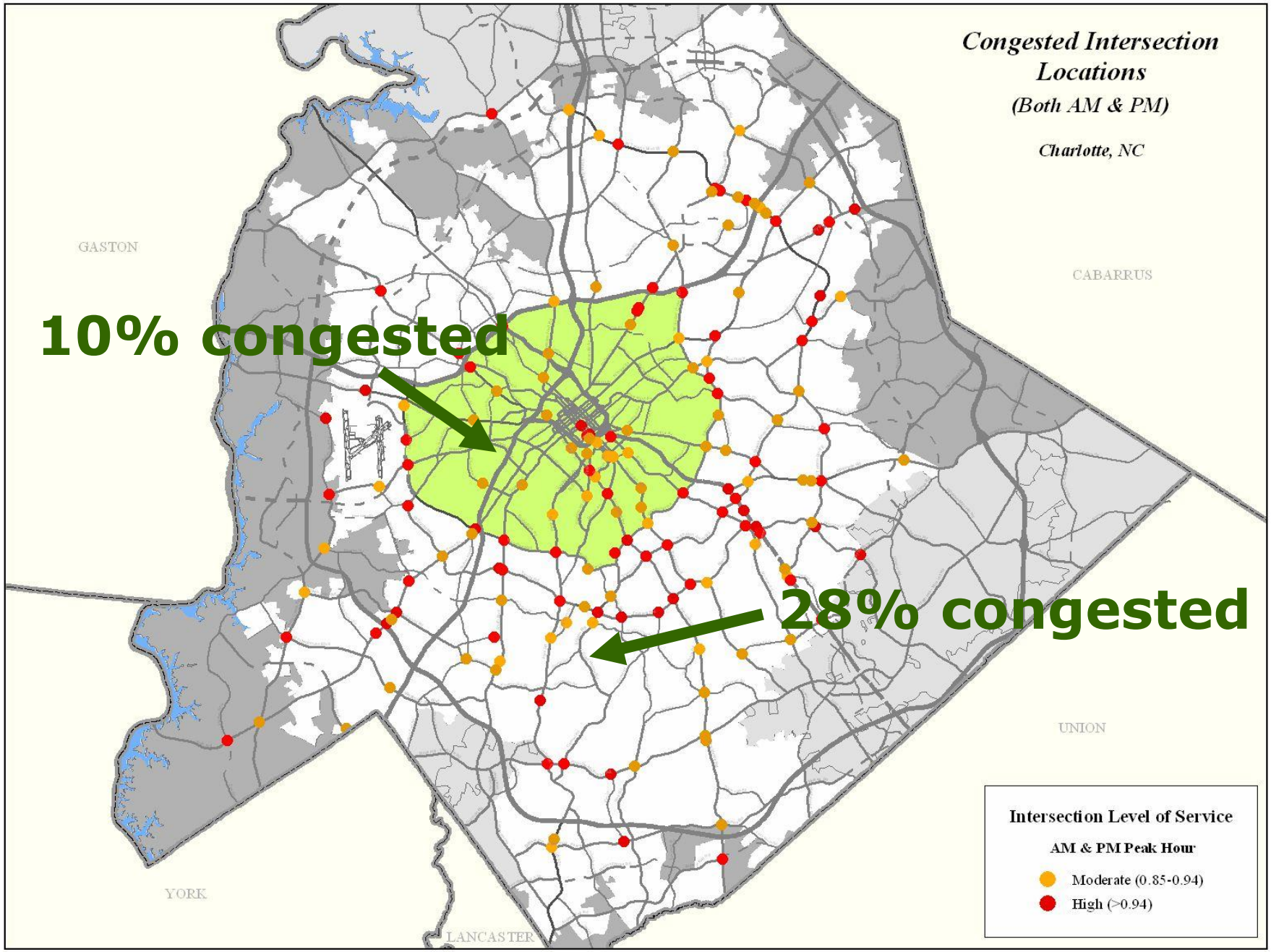


Table 4.1 Block Lengths for Local Streets

Land Use/Location	Preferred or Typical Block Lengths for Local Streets	Maximum Block Length for Local Streets
Transit Station Areas[1]	400′	600′
Centers[1]	500′	650′
Corridors[1]	600′	650′
Non-Residential Uses[1,2]	500′	650′
Industrial	600′	1,000′
Residential ≥ 5 dua (gross) in Wedges	600′	650′
Residential < 5 dua (gross) in Wedges	600′	800′

Benefits of Shorter Blocks

- Walkability
- Route choices
- Traffic calming
- Development flexibility
- Capacity


Congested Intersection Locations
(Both AM & PM)
Charlotte, NC
GASTON
CABARRUS
10% congested
28% congested
UNION
YORK
LANCASTER
Intersection Level of Service
AM & PM Peak Hour
Moderate (0.85-0.94)
High (>0.94)

Changing Philosophy

Previous:	**Now:**
• Focused on motorists	• All modes considered equally
• Almost no distinction by land uses	• More consideration of land use/ urban design
• Emphasis on thoroughfares	• More streets in the network

Topic #3:
What are the Typical Costs of Complete Streets Projects?

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Costs of Street Conversions through Resurfacing

Per-mile cost for projects implemented through resurfacing contracts:

$250,000 - $300,000 total

Incremental per-mile cost attributed to conversions:

$40,000 - $50,000

Costs of Street Conversions as Ped/Streetscape Projects

$1.5M to $2M

Per-mile cost when street maintains original width and alignment

May Include:

- Intermittent islands
- Pedestrian refuge islands
- Curb bulb-outs
- New/upgraded sidewalks
- New driveways
- Upgraded curb and gutter (approximately 50% of project)
- Milling and resurfacing

Topic #4:

What are the Likely Costs and Benefits of Adding Bicycle Lanes, Sidewalks and Planting Strips to Create Complete Streets?

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2 Lane Streets with Curb and Gutter

Street Option	Construction Cost Per Mile	Sidewalk	Bike Lanes	Lane Width	% Difference
12’ Lanes (28’ F-F)	$3,800,000	-	-	-	-
12’ Lanes + 5’ sidewalk (28’F-F)	$4,000,000	3.80%	-	-	4%
11’ Lanes (26’ F-F)	$3,750,000	-	-	-1.30%	-1.5%
11’ Lanes + 5’ sidewalk (26’ F-F)	$3,950,000	3.80%	-	-1.30%	2.50%

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3 Lane Streets with Curb and Gutter

Street Option	Construction Cost Per Mile	Sidewalk	Bike Lanes	Lane Width	% Difference
12′ Lanes (40′ F-F)	$4,800,000	-	-	-	-
12′ Lanes + Bike Lanes (50′ F-F)	$5,100,000	-	5.40%	-	5.5%
12′ Lanes + Bike Lanes + 6′ Sidewalk (50′ F-F)	$5,350,000	3.40%	5.10%	-	8.5%
11′ Lanes (36′ F-F)	$4,700,000	-	-	-2.10%	-2.0%
11′ Lanes + Bike Lanes (46′ F-F)	$5,000,000	-	5.50%	-2.10%	3.5%
11′ Lanes + Bike Lanes + 6′ Sidewalk (46′ F-F)	$5,250,000	3.40%	5.20%	-2.10%	6.50%

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4 Lane Divided Streets with Curb and Gutter

Street Option	Construction Cost Per Mile	Sidewalk	Bike Lanes	Lane Width	% Difference
12′ Lanes (75′ F-F)	$5,200,000	-	-	-	-
12′ Lanes + Bike Lanes (85′ F-F)	$5,600,000	-	4.90%	-	5%
12′ Lanes + Bike Lanes + 6′ Sidewalk (85′ F-F)	$5,800,000	3.10%	4.70%	-	8%
11′ Lanes (71′ F-F)	$5,050,000	-	-	-2.80	-3%
11′ Lanes + Bike Lanes (81′ F-F)	$5,400,000	-	5.10%	-2.80	2.5%
11′ Lanes + Bike Lanes + 6′ Sidewalk (81′ F-F)	$5,600,000	3.20%	4.90%	-2.80	5%

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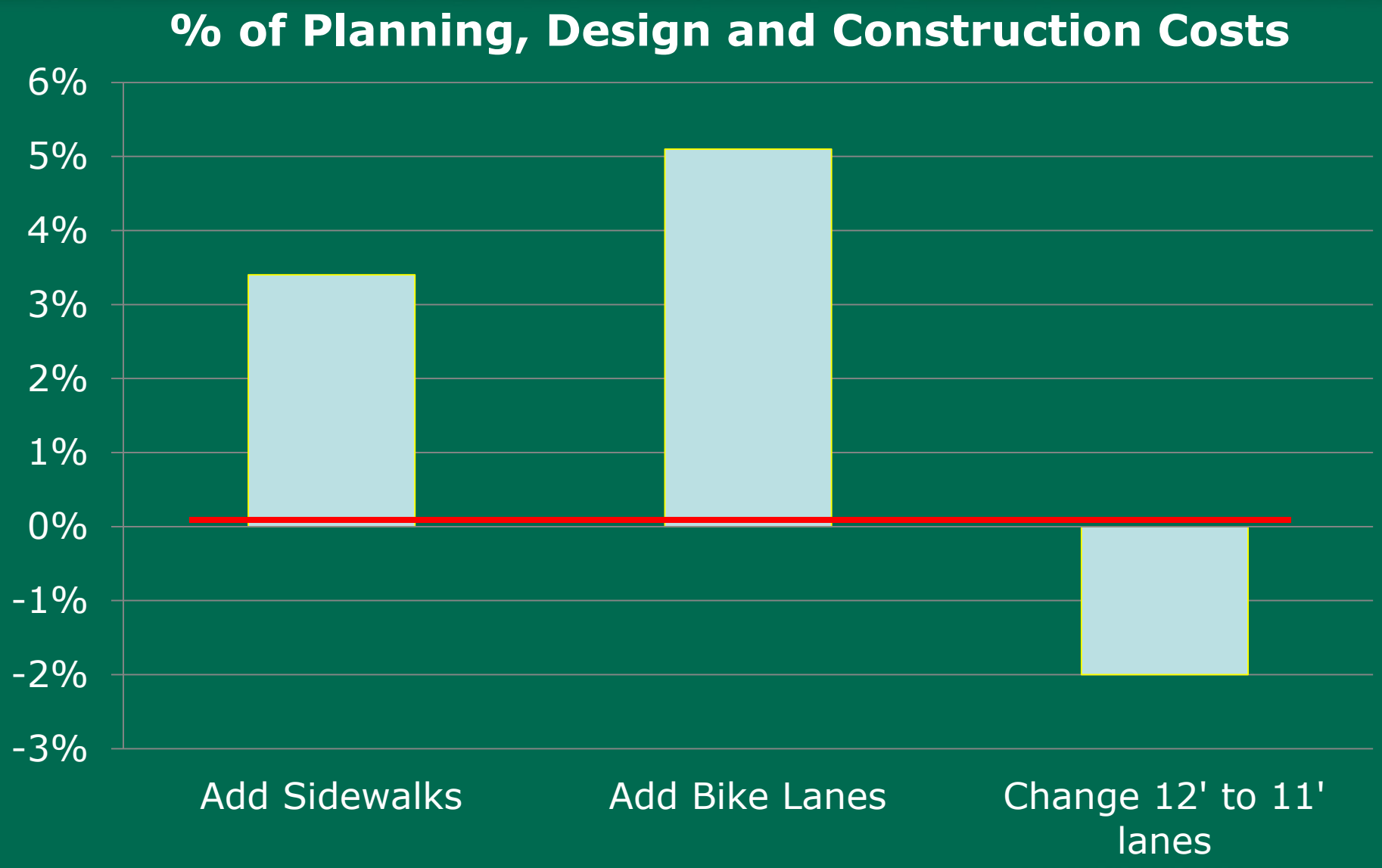
Street Components as Percentage of Costs



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Construction Costs Year-to-Year

Source: NCDOT

Our New Measures of Performance

- Intersections per square mile.
- Signalized intersections per square mile.
- Lane miles per square mile.
- Percent of thoroughfare miles with sidewalks.
- Percent of thoroughfare miles with bicycle lanes.
- Percent of signalized intersections with acceptable Pedestrian LOS (A-C).
- Percent of signalized intersections with acceptable Bicycle LOS (A-C).

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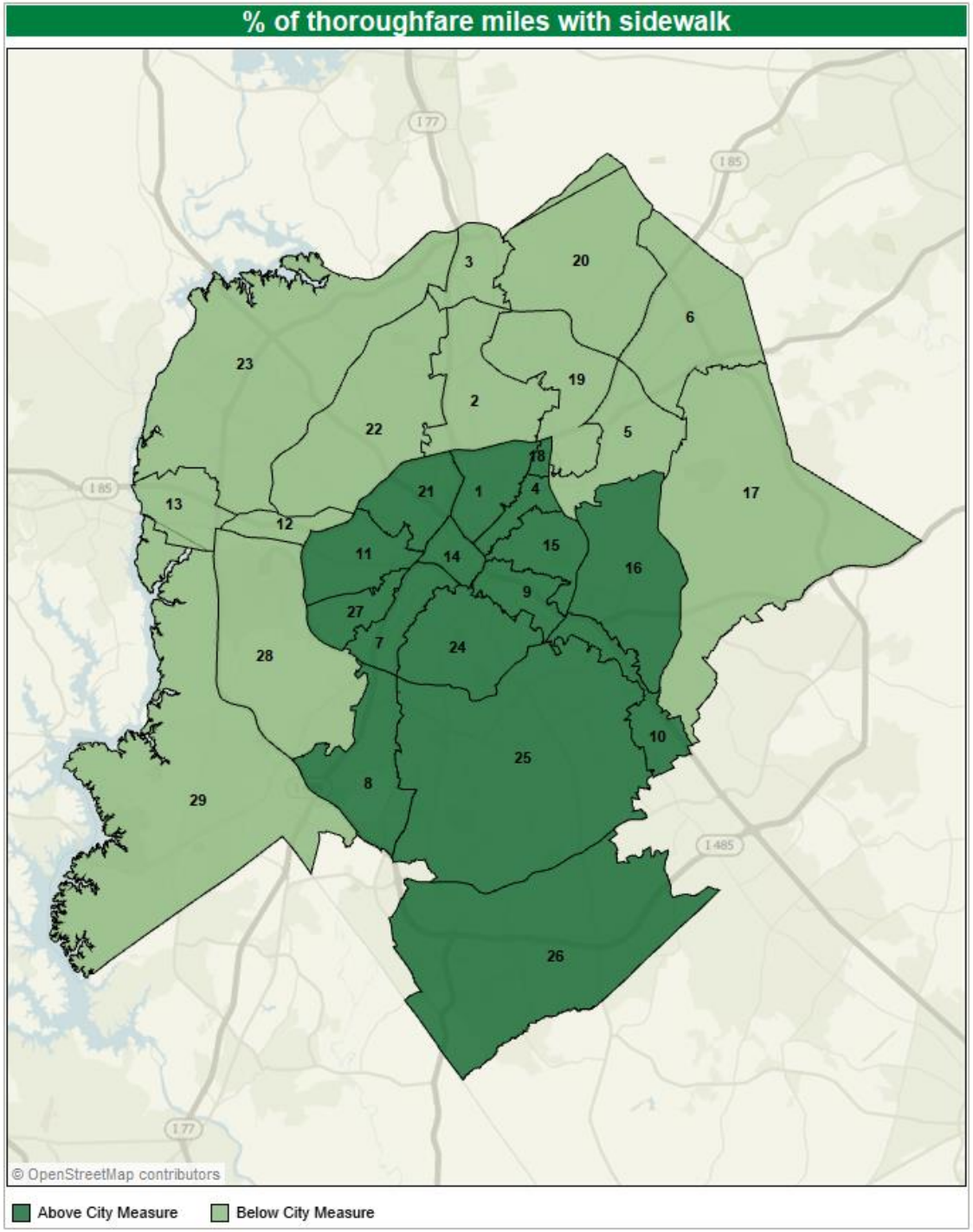
Percent of thoroughfare miles with sidewalks.



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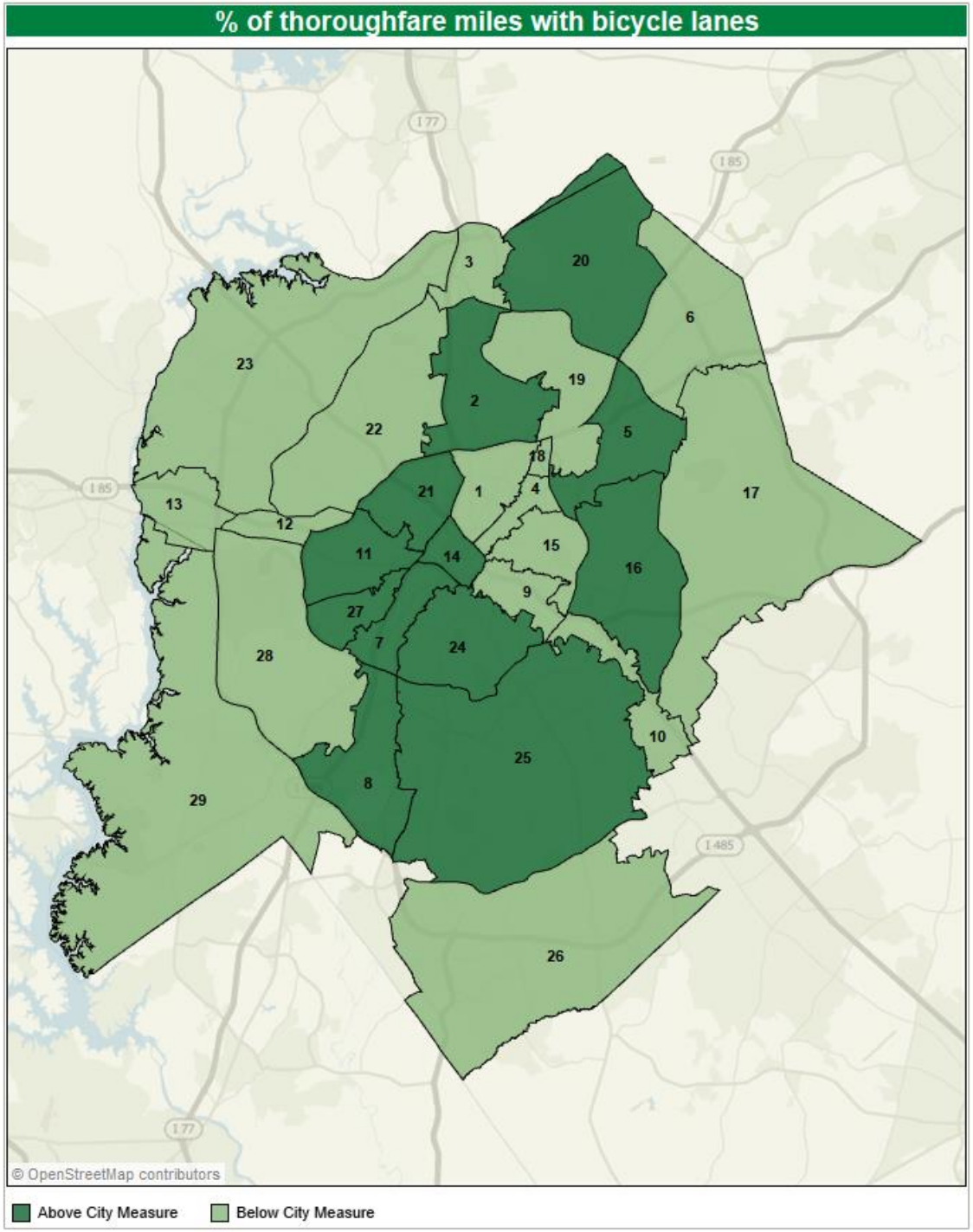
Percent of thoroughfare miles with bicycle lanes.



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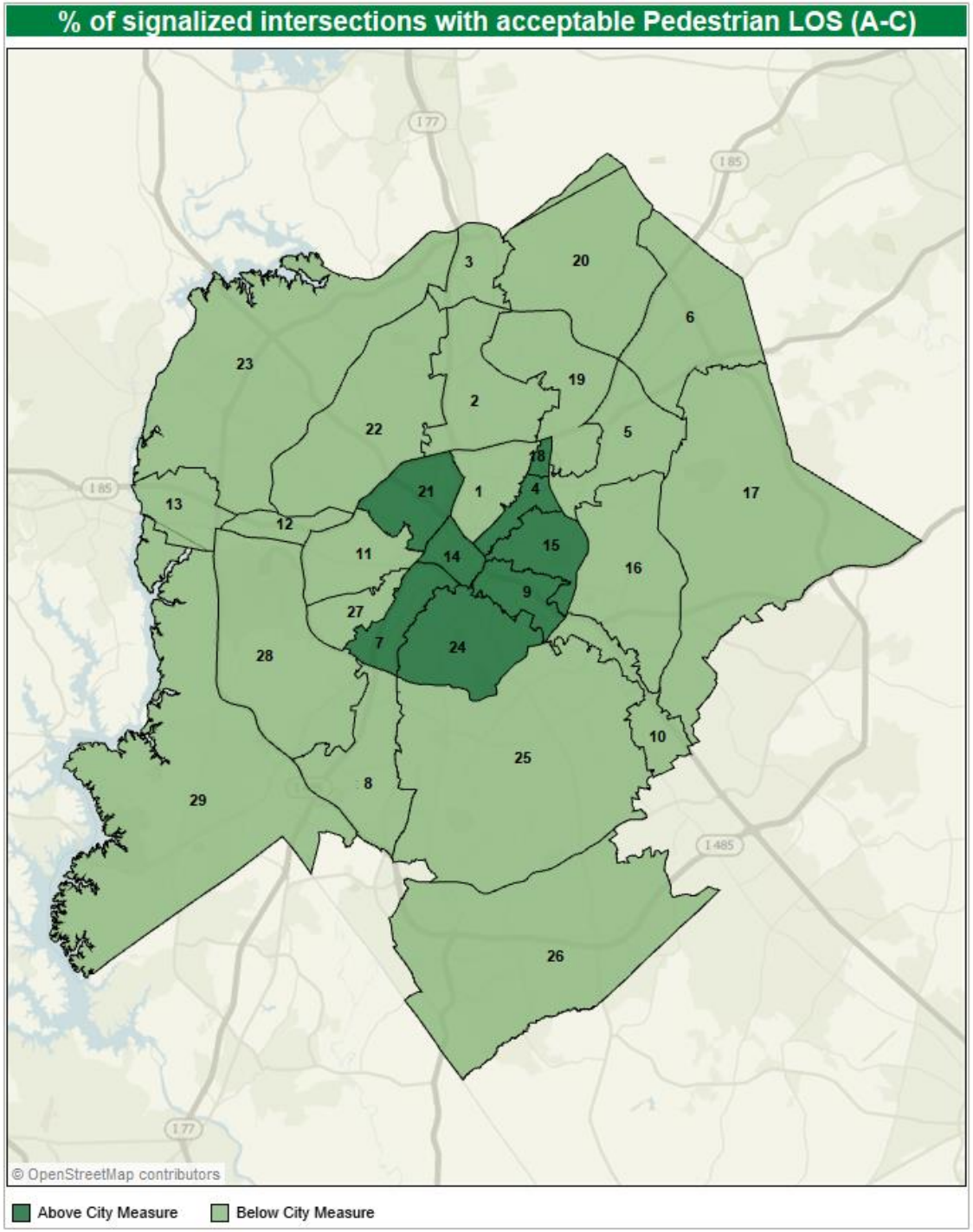
Percent of signalized intersections with acceptable Pedestrian LOS (A-C).



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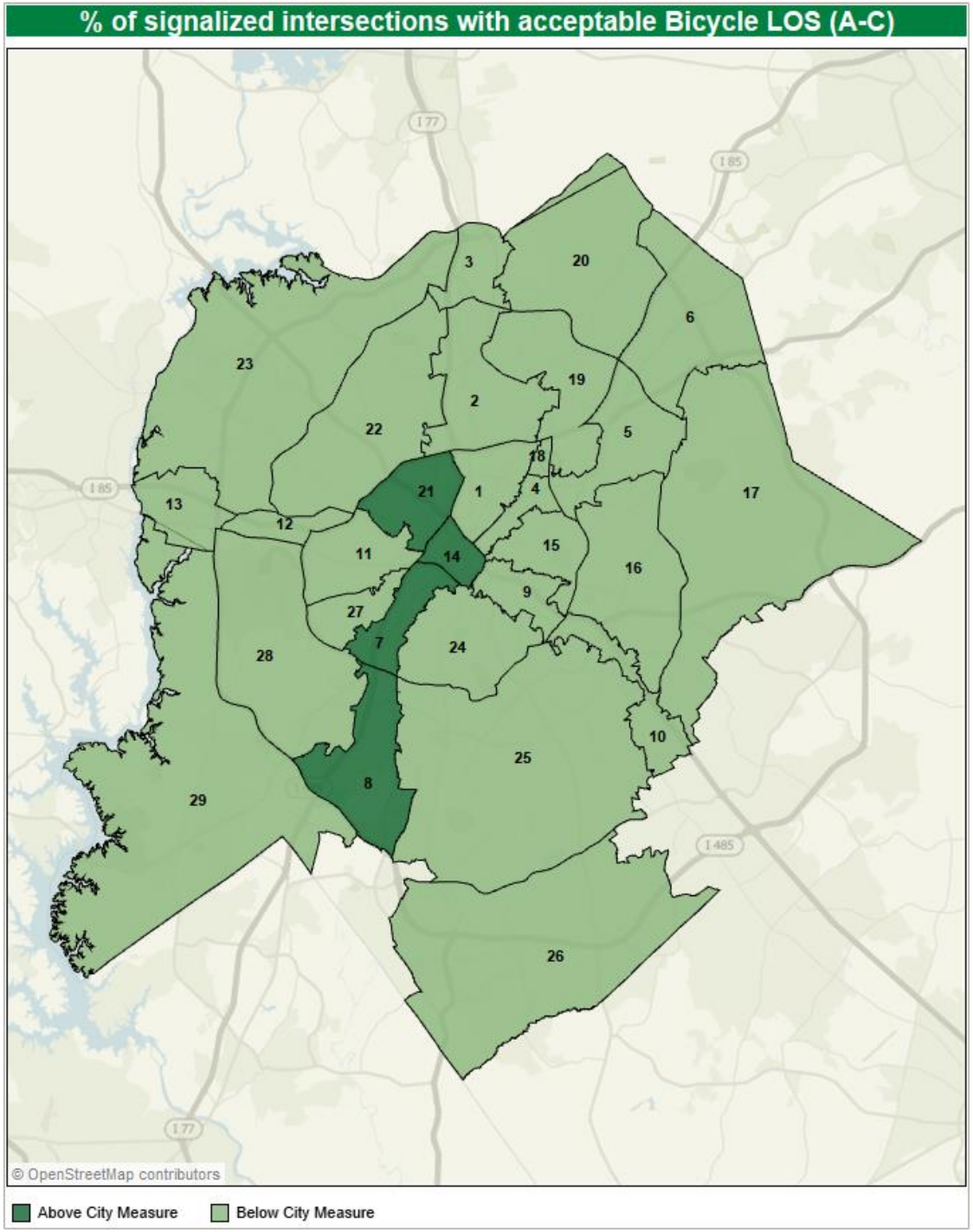
Percent of signalized intersections with acceptable Bicycle LOS (A-C).



The Costs and Benefits of Complete Streets

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Complete Thoroughfares: Sidewalks on both sides

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Complete Local Streets: Sidewalks on Both Sides

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Sidewalks at Least 6’ Wide on Thoroughfares

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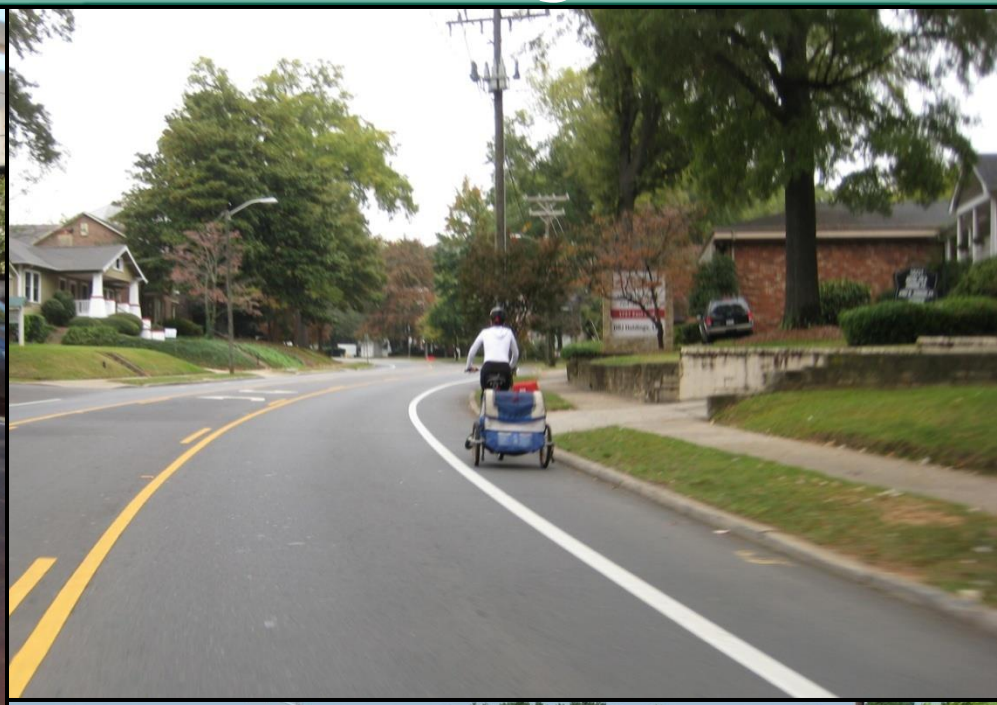
Complete Streets: Bike Lanes on Thoroughfares



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No Need for Bike Lanes on Local Streets

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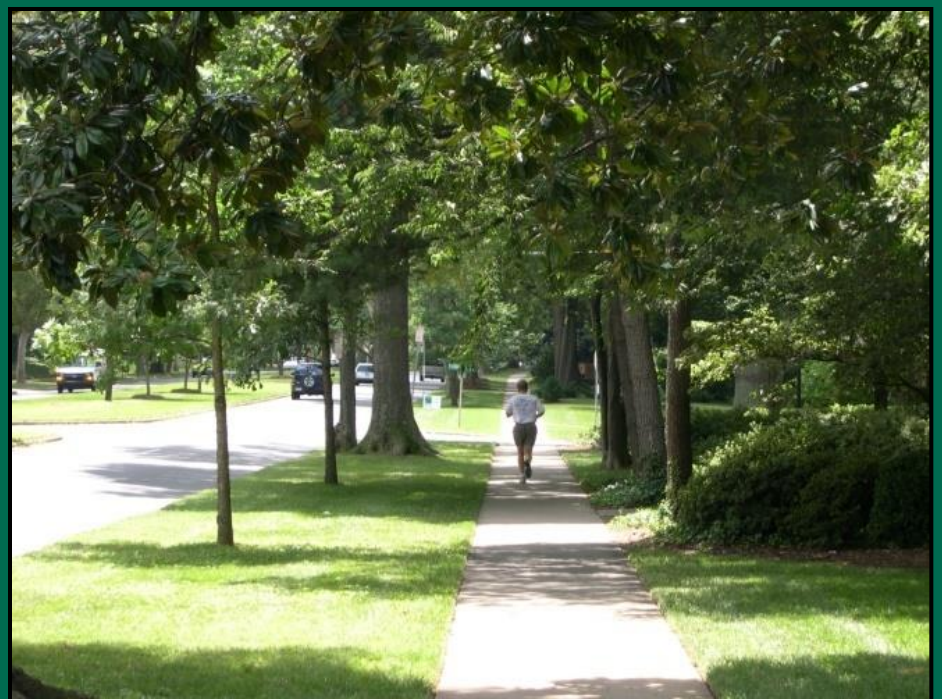
Complete Streets and Wider Planting Strips

- Larger street trees can grow without irrigation - better tree canopy
- Additional buffer for pedestrians (vertical and horizontal)
- Residents prefer greener streets