



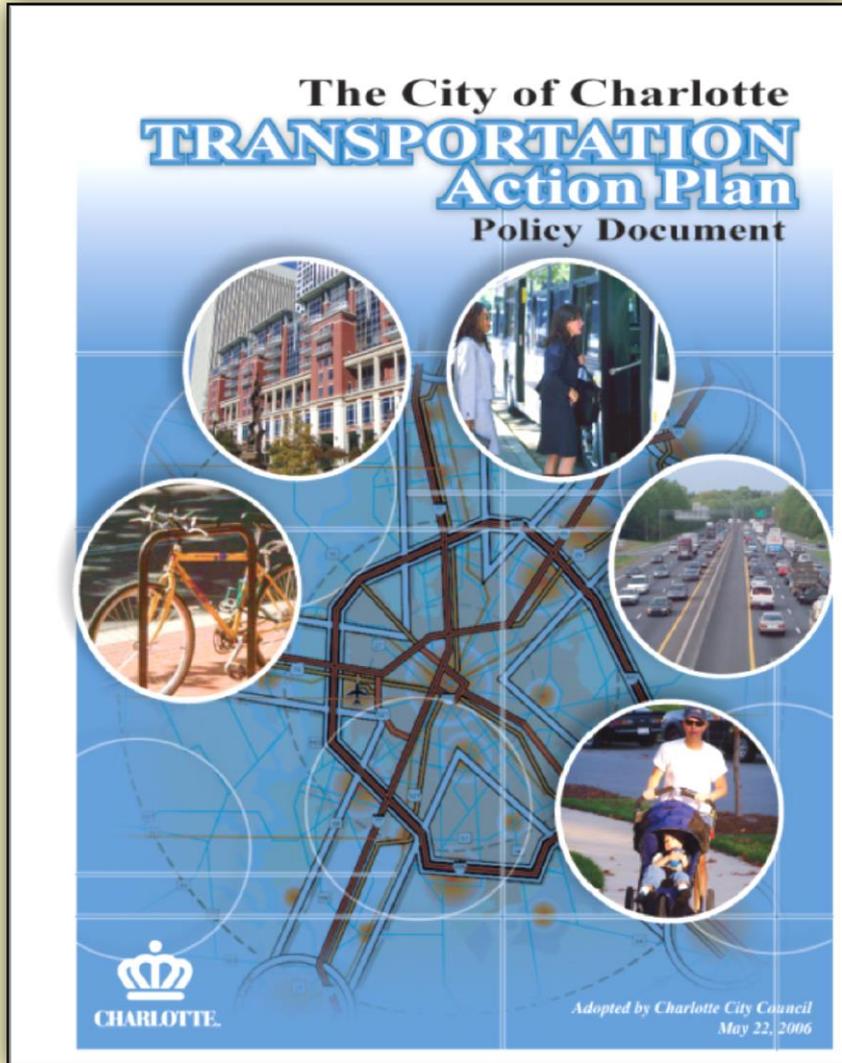
Complete Interchanges: The City's Perspective

Matt Magnasco, P.E.
Street Connectivity Program Manager

July 23, 2014

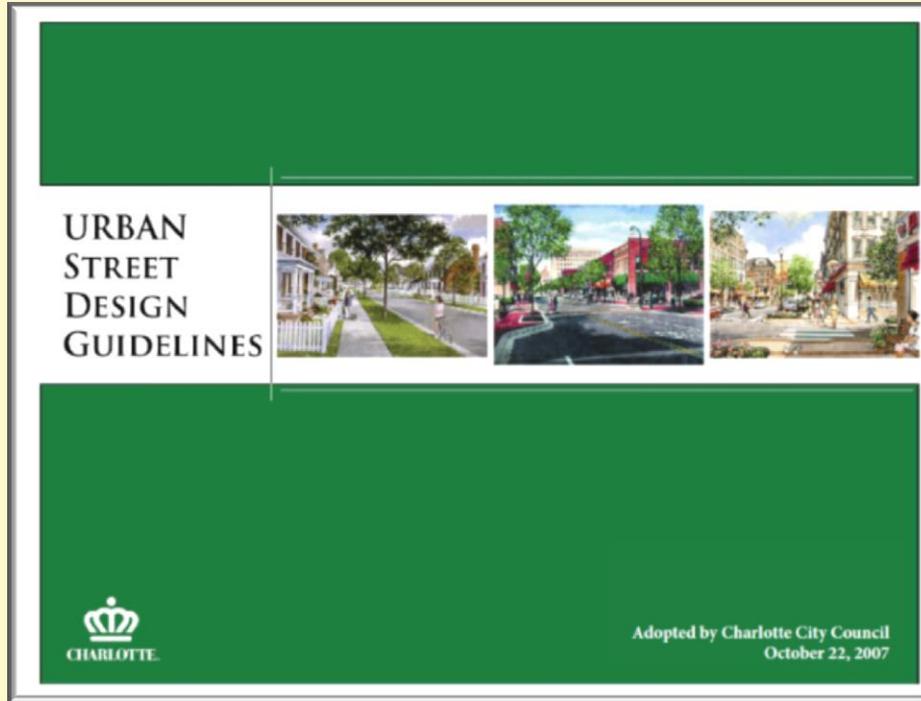
- Background
- How City & NCDOT have partnered on I-485
 - 1990's: No accommodations for peds or bikes
 - 2000's: Transitions to complete interchanges
 - 2010's: Complete Interchanges (Prosperity Church Rd.)
- City-initiated interchanges and retrofits
 - I-77/Clanton Rd.
 - I-77/South Tryon St. (NC 49)
 - I-277/South Blvd. – Caldwell St.
 - I-277/Kenilworth Ave.

Transportation Action Plan (TAP)



- City's comprehensive transportation plan
- Describes projects, programs, and policies
- Adopted by City Council in May, 2006 (readopted 2011)
- Prescribes use of the USDG

Urban Street Design Guidelines (USDG)



- City's comprehensive design guidance for complete streets
- 6-step planning and design process
- Consider land use AND transportation simultaneously
- Adopted by City Council in October, 2007



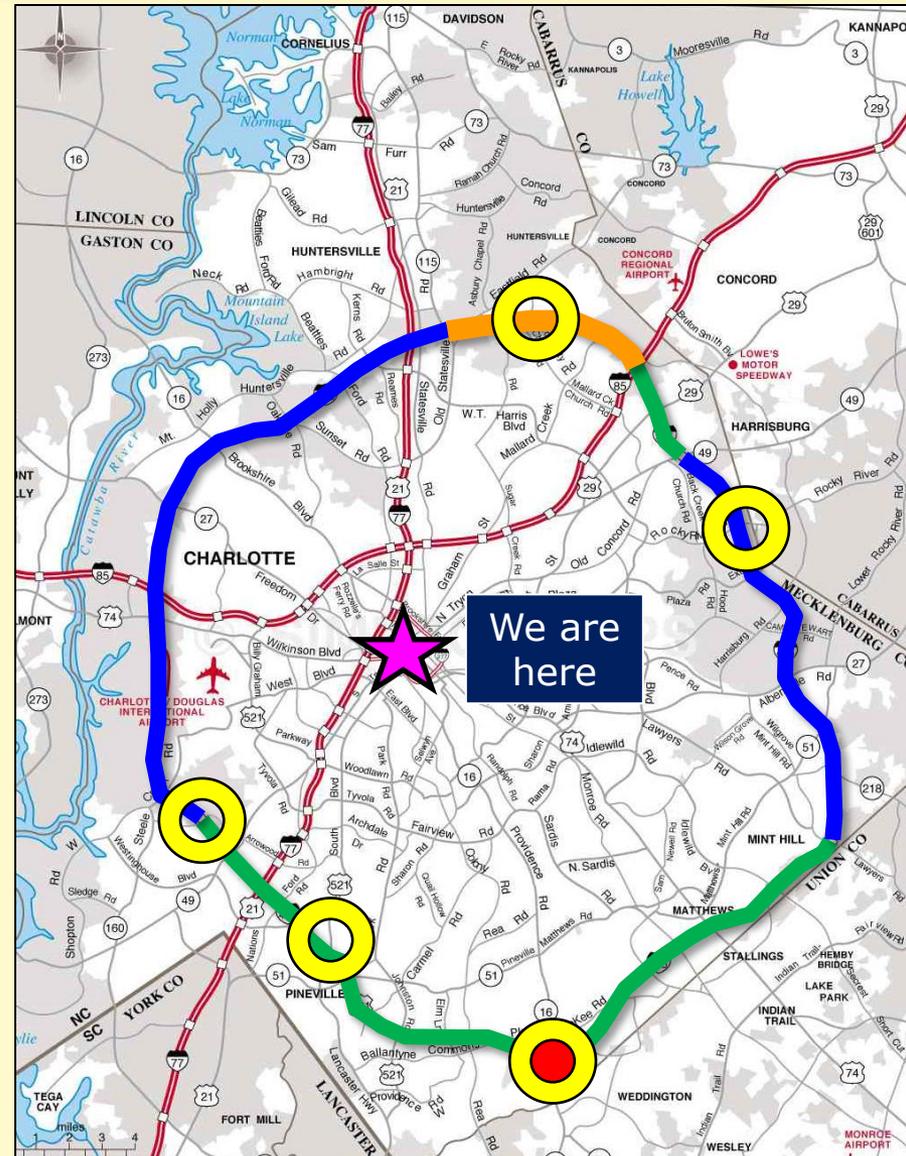
- Local jurisdiction needs policy and clear vision
- Stay engaged with NCDOT during planning & design
- Ask to be part of the plan review team (on NCDOT-funded projects)
- Bring money to the table

- Opened in 1980's-1990's

- Opened in 2000's

- To Be Opened in 2014

- Rebuilt in 2002





CHARLOTTE™

The 1980's-1990's:

Designing only for Vehicles

- Southern Mecklenburg County considered rural
- NCDOT policies in effect
 - Bike policy 1978
 - No pedestrian policy
- Interchanges built only for vehicles
 - 4- or 5-foot paved shoulders (no sidewalks, C&G)
 - Concrete parapet wall bridges (no railings)
 - Free-flow on- and off-ramps
 - No apparent bike accommodations
- Interchanges designed for *highways*, not *streets*

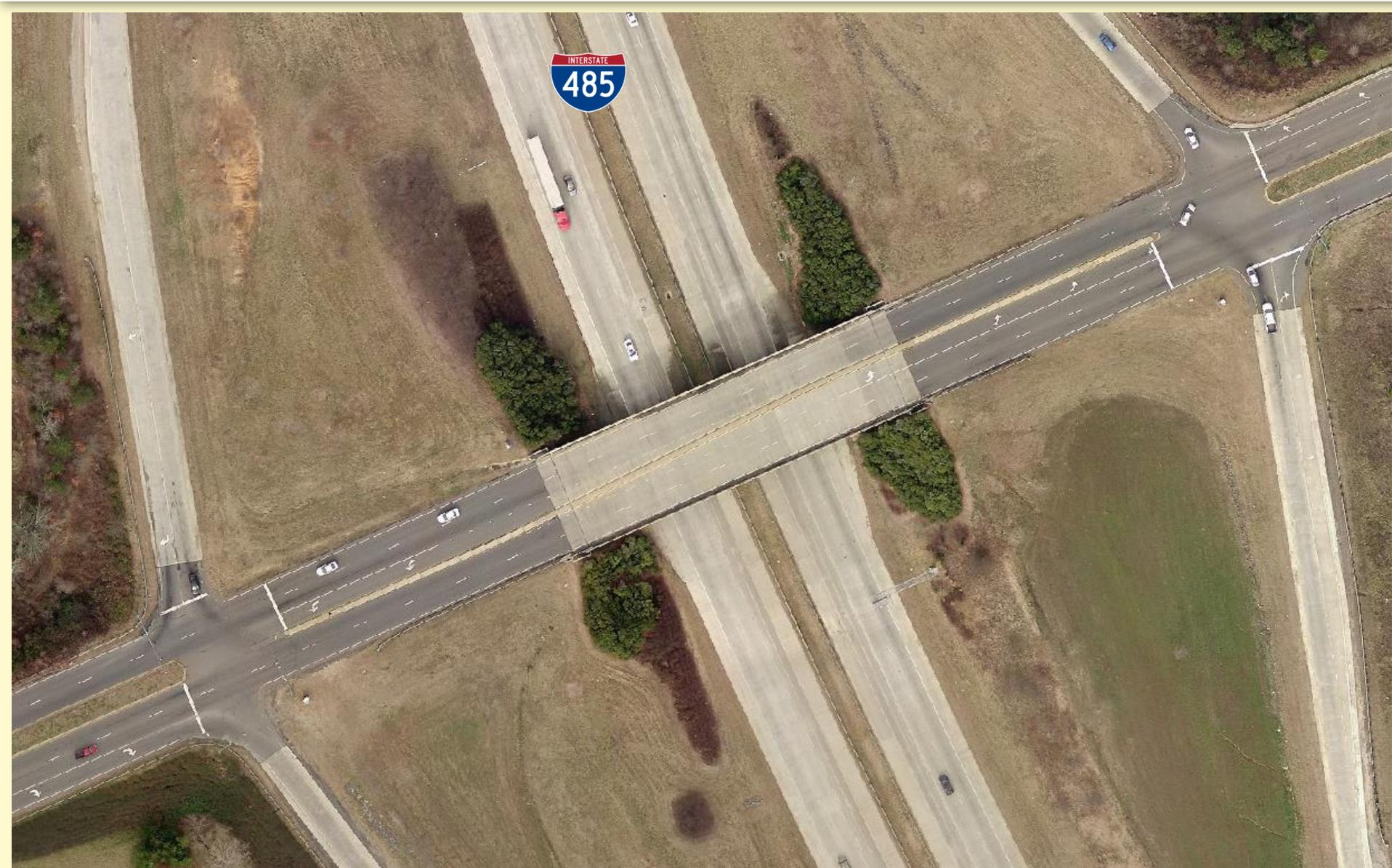
South Blvd.



South Blvd.



Arrowood Road



Arrowood Rd.



Can 90's-era Interchanges Be Retrofitted?

- Yes, but not easily
- Widen berms
- Add metal handrails to parapet walls
- Reconfigure ramp termini (no free-flow)
- Narrow lanes to 10-11 feet





CHARLOTTE

The 2000's:

The Transition to Complete
Interchanges

- Streets and highways are designed for future expectations
 - # of lanes → future traffic volume
 - Pipe sizes → future impervious area

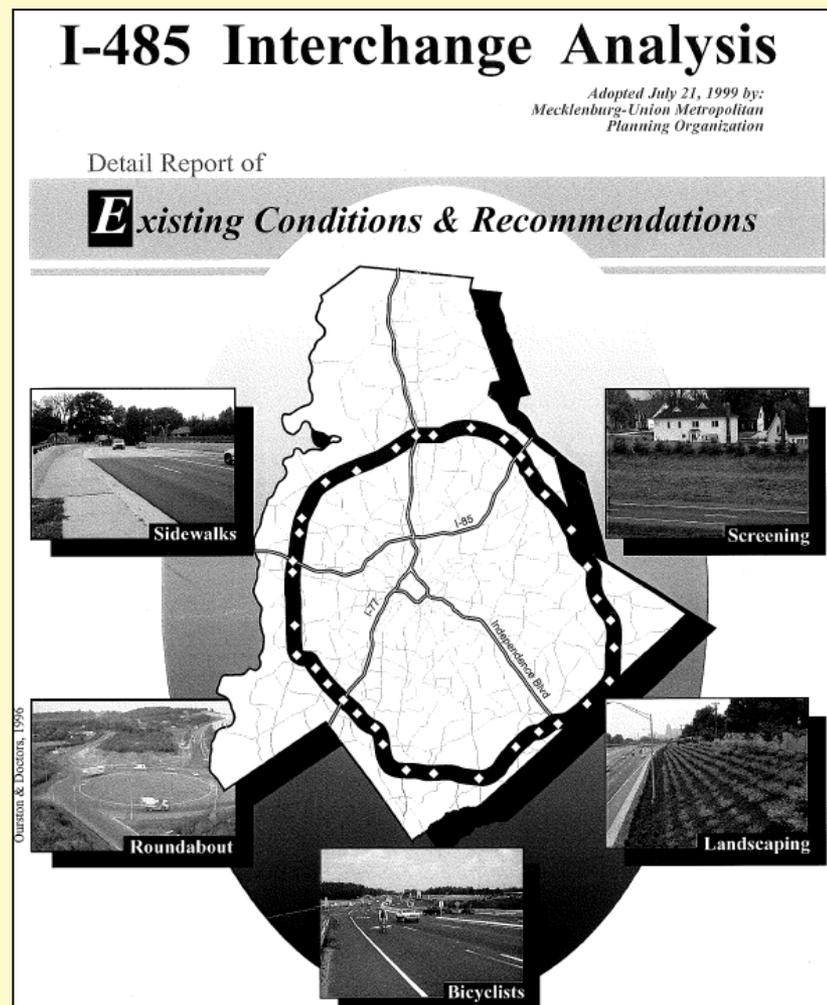
So why do we not design for future land use conditions and users?

- Sidewalks/accessible ramps
- Bike facilities
- Lane widths
- Curb radii

Beginning the Transition to Complete Interchanges

- 1999 MPO transportation & land use policy
- General recommendation:

“Design interchanges to accommodate pedestrian and bicycle travel ... including sidewalks ... and extra width ... at bridges.”
- Specific land use, street network recommendations for each interchange



2000's: Transitions To Complete Interchanges

- NCDOT Pedestrian policy has been implemented
- General characteristics
 - Bridges designed for future sidewalks (4-5 feet)
 - Room provided but no sidewalks built
 - Parapet walls w/ railings
 - Streets still have paved shoulders
 - Few apparent bicycle accommodations
- Beginning to see interchanges designed for *streets*

2000's-era Transition: Rocky River Road



2000's-era Transition: Rocky River Road



A 2000's retrofit: Providence Rd. (NC 16)

2001

2004



Providence Rd. (NC 16) Retrofit: A First Effort at Complete Interchanges



4-foot bike lane



CHARLOTTE

1999-2014:

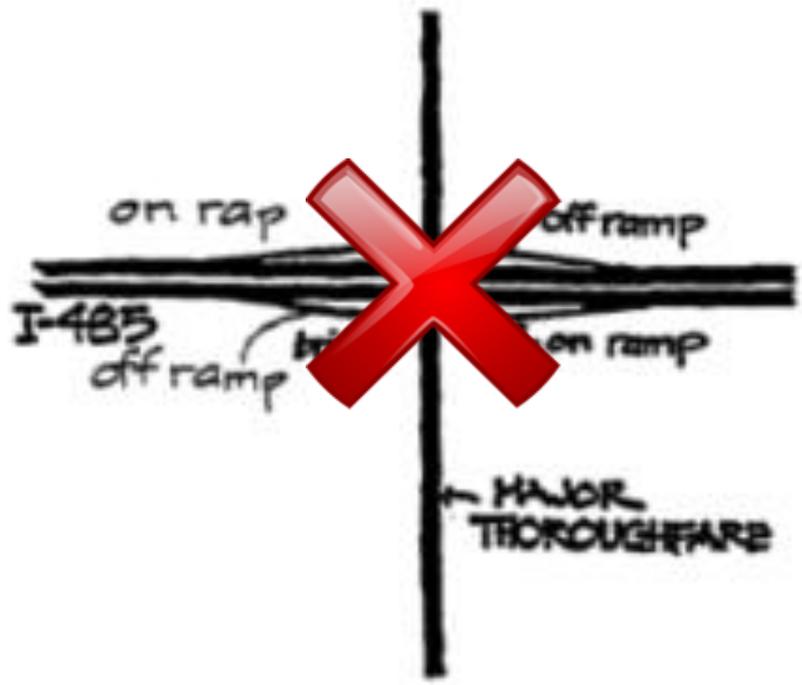
Prosperity Church Road –
A Collaborative Complete Interchange

1999 Prosperity Villages Plan



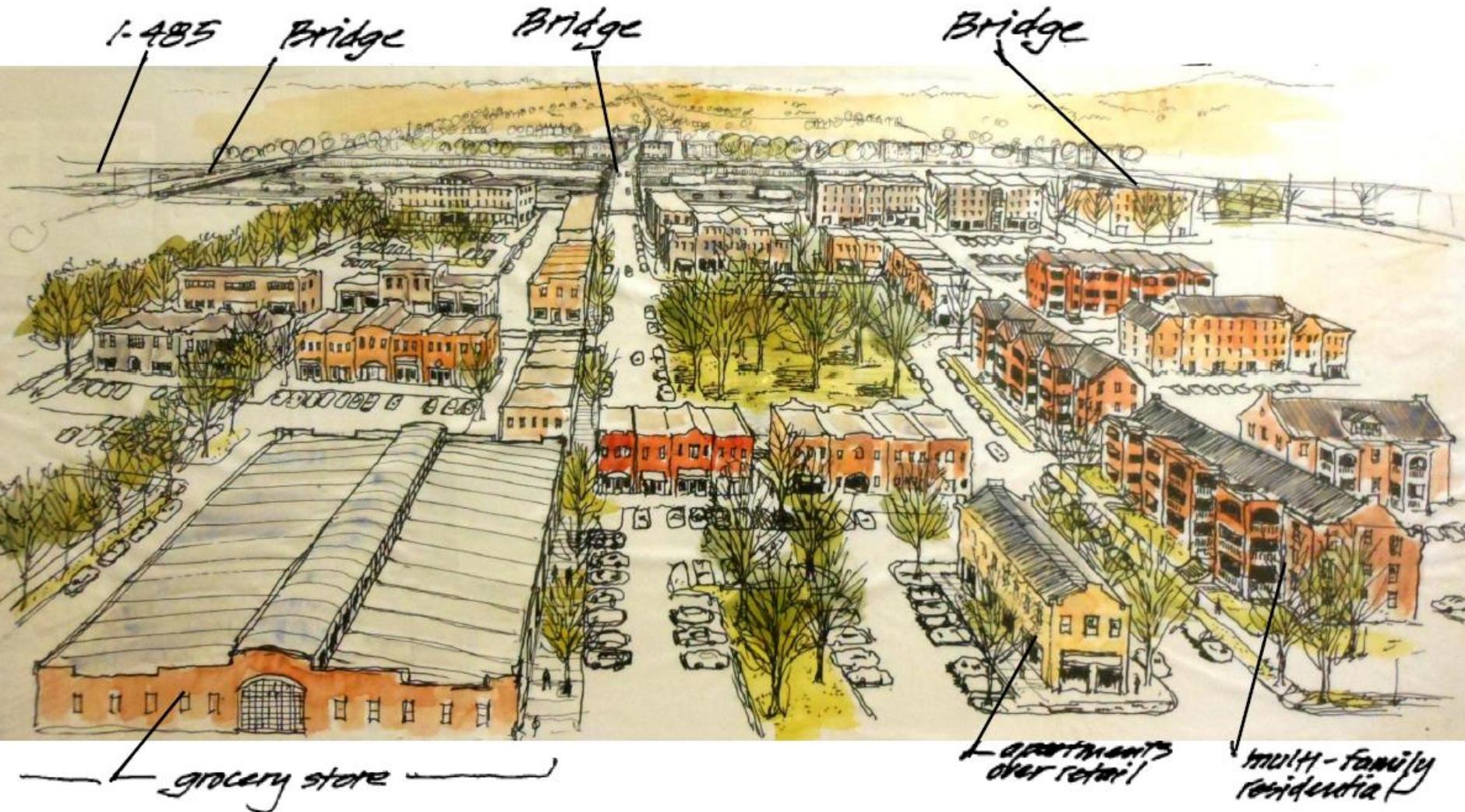
- Design Prosperity Church/I-485 interchange differently
- Create gridded network of narrow streets
- Mixed uses instead of highway commercial
- Streets designed for ALL modes of travel

TYPICAL DIAMOND INTERCHANGE

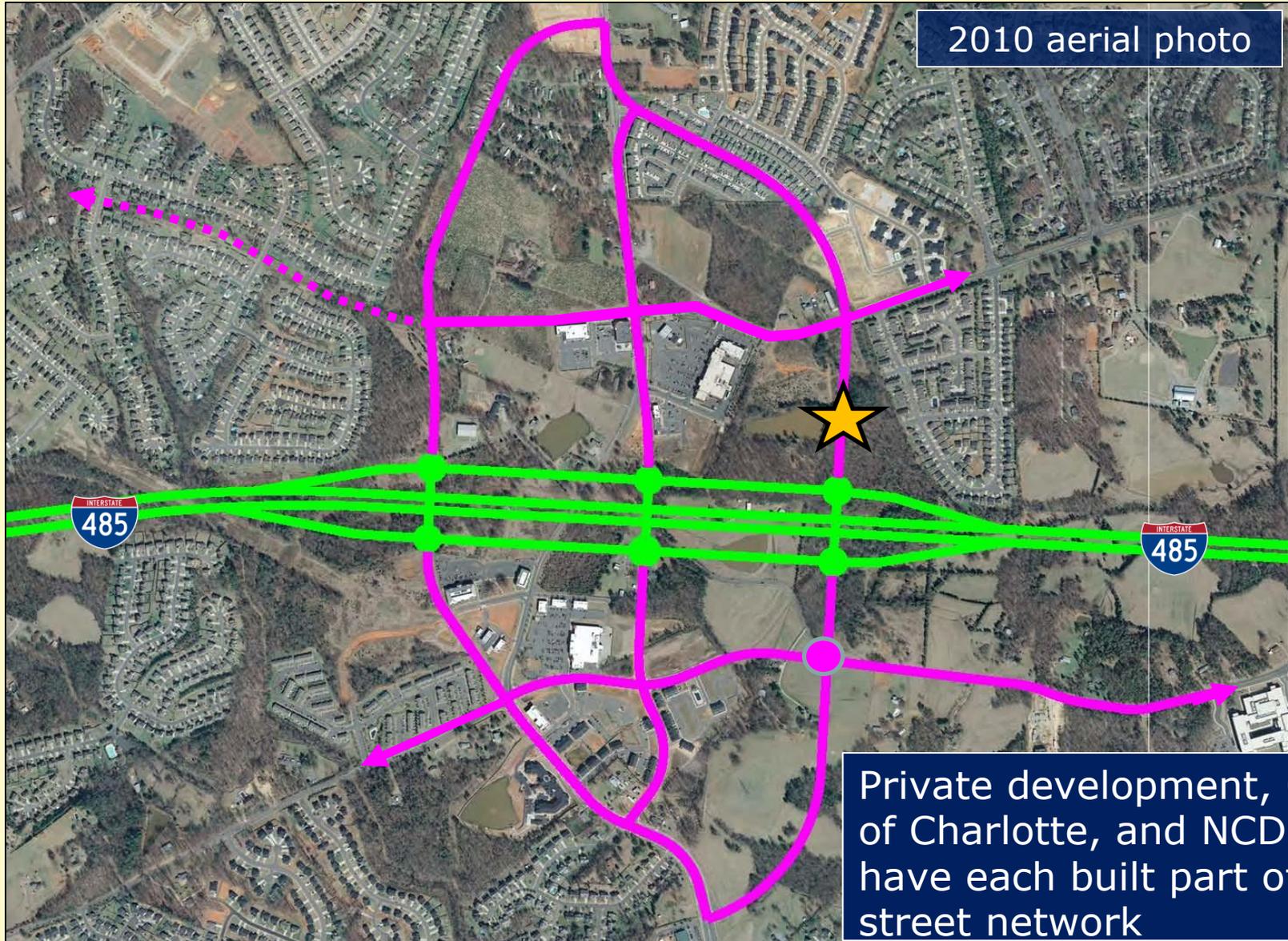


- unrelated development on 4 quadrants
- traffic concentrated at 1 bridge

Prosperity Village Center Concept: Land Use + Transportation Together



Prosperity Village Thoroughfare Network





Prosperity Church Village Implementing Urban Design Vision



Prosperity Church Road (Central and Eastern Bridges)



Prosperity Church Road



Key Points about I-485

- Local jurisdiction(s) need to have a clear, defined vision
 - You are your own best advocate
- Start conversations with NCDOT early in planning
- Stay involved
- City's partnership with District, Division offices was key



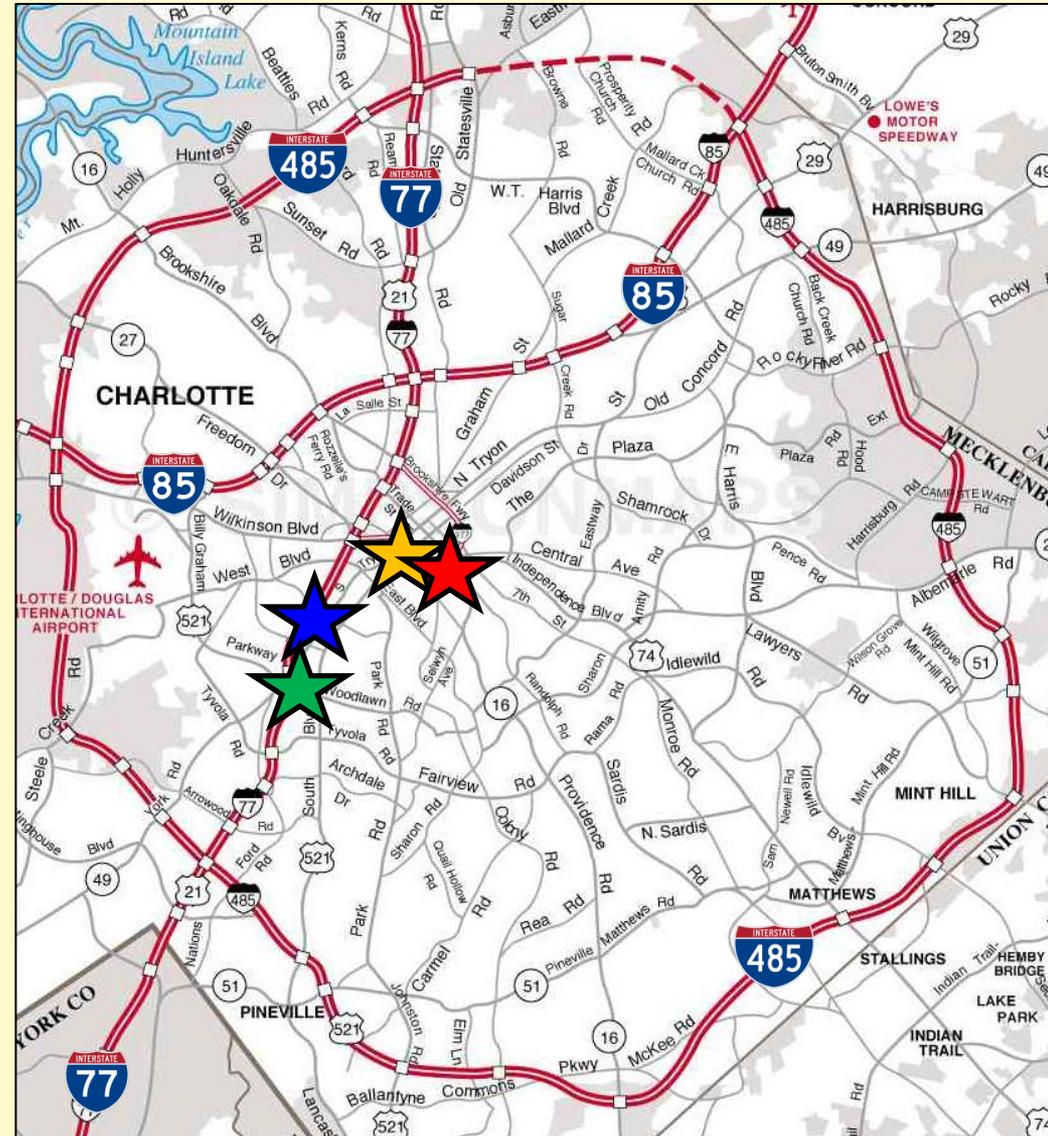
CHARLOTTE™

The City of Charlotte's Interchange Retrofits

- Retrofit interchanges as capital \$\$ allows
 - Resurfacing
 - Bridge replacements
 - Adjacent land-development projects
 - Other City capital projects (like sidewalk)
- Implement USDG, given site constraints
 - Work within the existing bridge width
 - Get NCDOT District, Division support
 - Need NCDOT Structures, Congestion Mgt. approvals
 - FHWA potentially involved

Orientation Map

- **I-77 / Clanton Rd.**
- **I-77 / South Tryon St. (NC 49)**
- **I-277 / South Blvd. – Caldwell St.**
- **I-277 / Kenilworth Ave.**



Scope of Interchange Retrofits

Interchange	Add sidewalks	Add bike facilities	Reconfigure ramp termini	Complete rebuild
Clanton Rd.				
South Tryon St. (NC 49)				
South Blvd./ Caldwell St.				
Kenilworth Ave.				



2010 2013

Project justification: Originally a pure sidewalk project, grew into a larger Complete Street project.

I-77 / Clanton Rd.



I-77/NC 49 (South Tryon St.)

2009

2013

Project purpose:

Add sidewalk through interchange along NC 49.



I-77/NC 49 Sidewalk Before Construction



Google Street View, 5/09

I-77/NC 49 After



I-277 / South Blvd. – Caldwell St.



2007
2009

2013

Project purpose: Larger project to reconfigure interchange and Caldwell St. w/ development of NASCAR Hall of Fame.



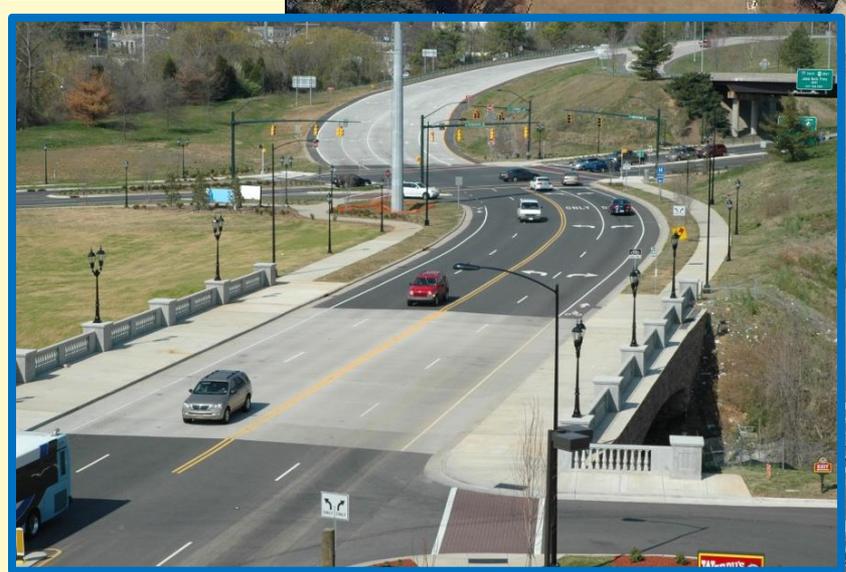
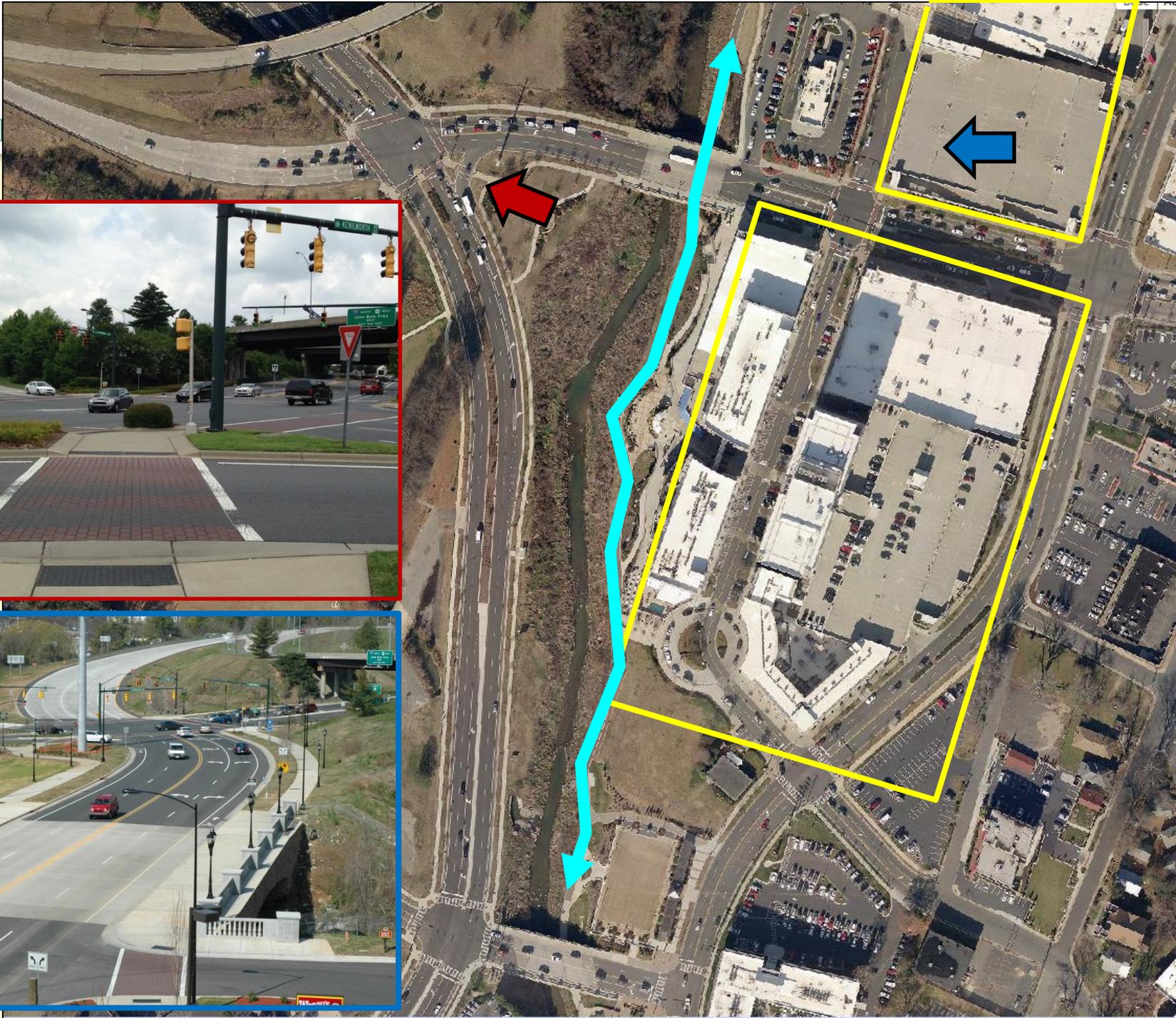
Benefits of South/Caldwell Interchange Reconstruction

- Complement construction of NASCAR Hall of Fame
- Freed up ~10 ac. of land for development
- Removed weaving from inbound Caldwell St. and I-277 collector/distributor lanes
- Become a gateway entrance into Center City





I-277 /
Kenilworth Ave.



I-277/Kenilworth



- Need to have a clear vision for area
- In retrofit situations, the project doesn't have to be perfect
 - Focus on accommodating all users
 - Build what is feasible given the existing constraints
- Leverage nearby public and private projects

Why Complete Interchanges?



**If even oil company employees
can ride their bikes to work...**



CHARLOTTE.

Questions?

Matt Magnasco

mmagnasco@charlottenc.gov