



Minnesota Division Office

Upper Section of Gooseberry Falls

# Superstreets

**“A Tool for Safely and Efficiently Managing Traffic”**

**Innovative Intersections – on High Volume Arterials**

**James P McCarthy, PE PTOE**  
**Minnesota Division**  
**651-291-6112**



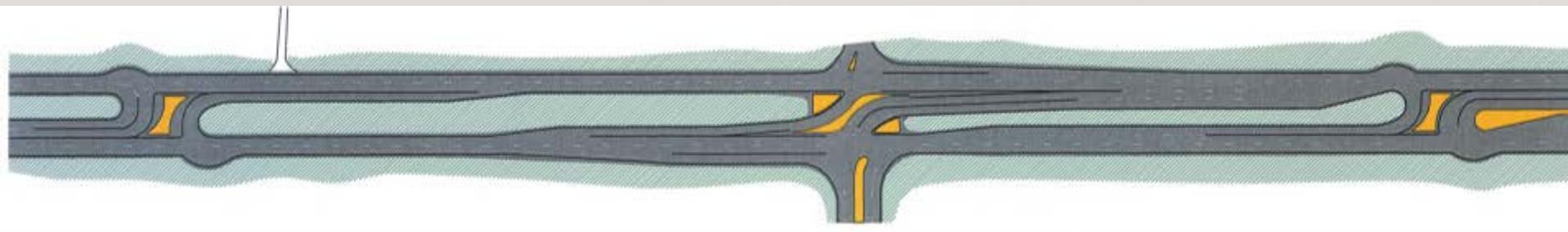
U.S. Department of Transportation  
Federal Highway Administration



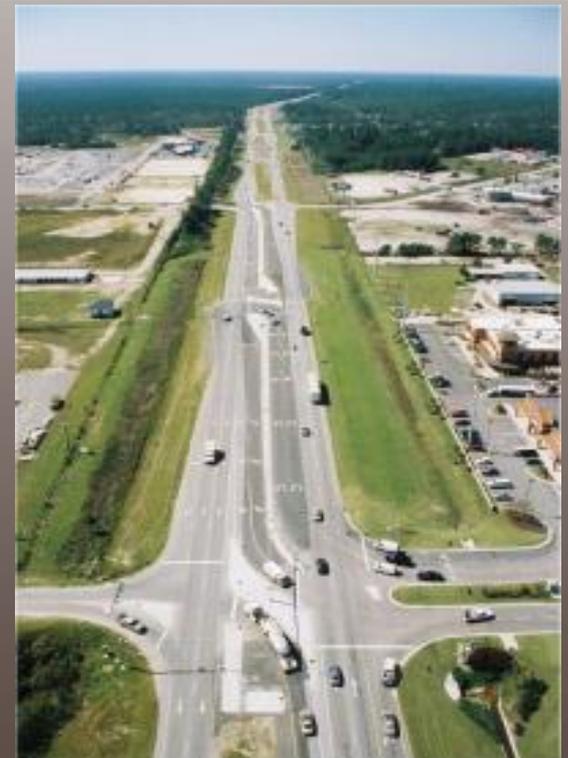
# The Superstreet

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# Median U-Turn

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- Corridor Capacity increases 20-50%
- 2 phase signal creates better progression—large “green bands” without very long cycles
- Network Delay decrease 15-30%



# Signalized RCI

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- **Mainline Traffic Benefits**
- **Sidestreet Benefits?**
- + 25-50% capacity**





# Median U-Turn Intersection MI Safety Experience Grand River Ave.

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## Replaced conventional signalized intersections

- 60% reduction in total crash frequencies
- 75% reduction in total injuries
- Reduction by type
  - (17%) rear-end crashes
  - (96%) angle crashes
  - (61%) side-swipe crashes





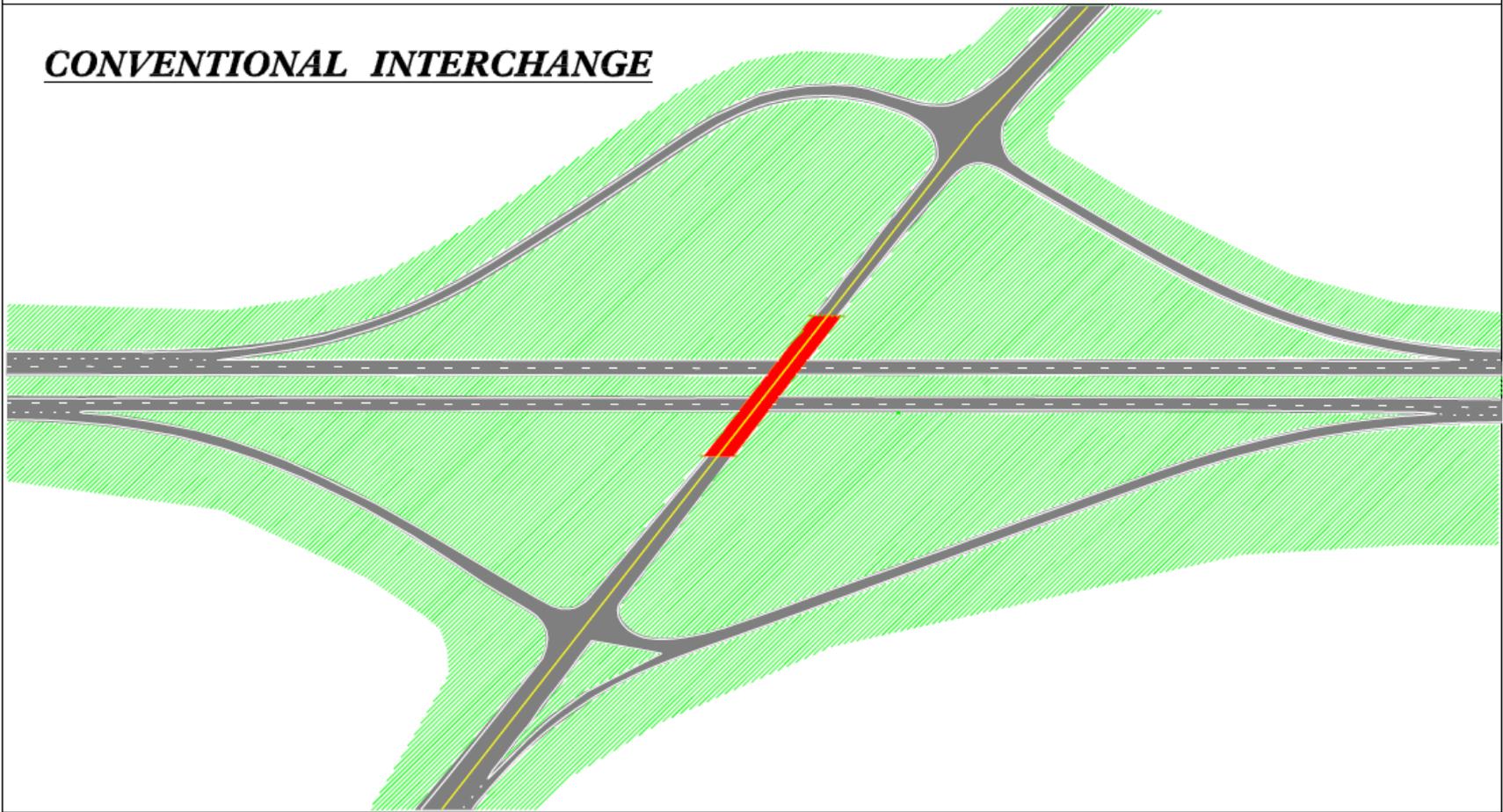
**\$5-10 Million Right of Way  
Cost**

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# ***INTERCHANGE FOOTPRINT***

**CONVENTIONAL INTERCHANGE**





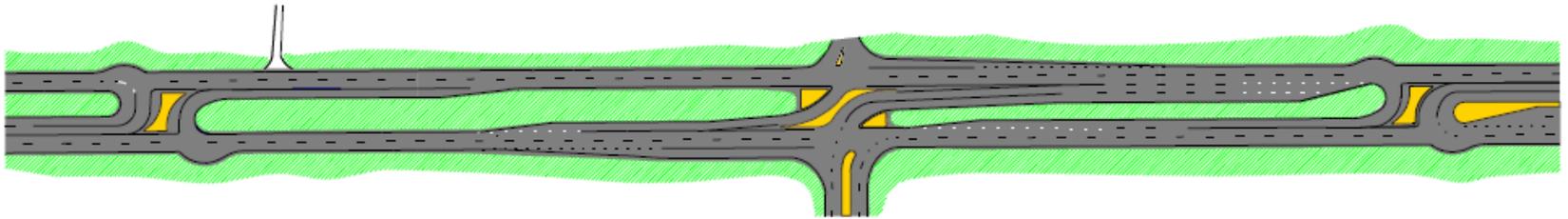
# \$0 Right of Way

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## ***SUPERSTREET FOOTPRINT***

**SUPER STREET**



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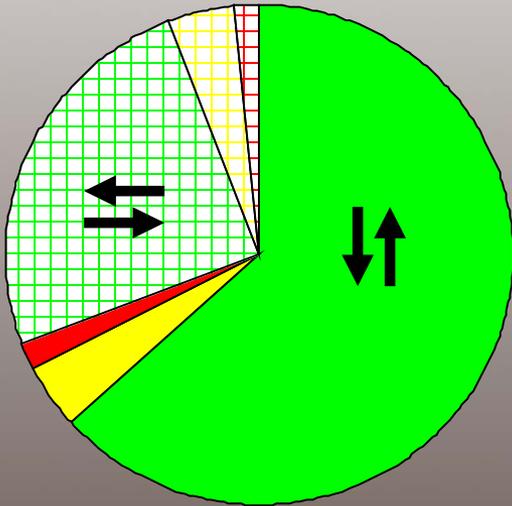


# Main Street Green Time

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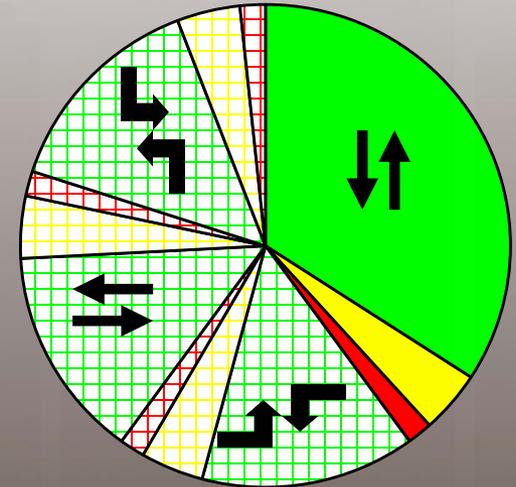
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### Signal Timing - Two Phase



Less Travel Time

### Signal Timing - Four Phase



4 Bad  
2 Good



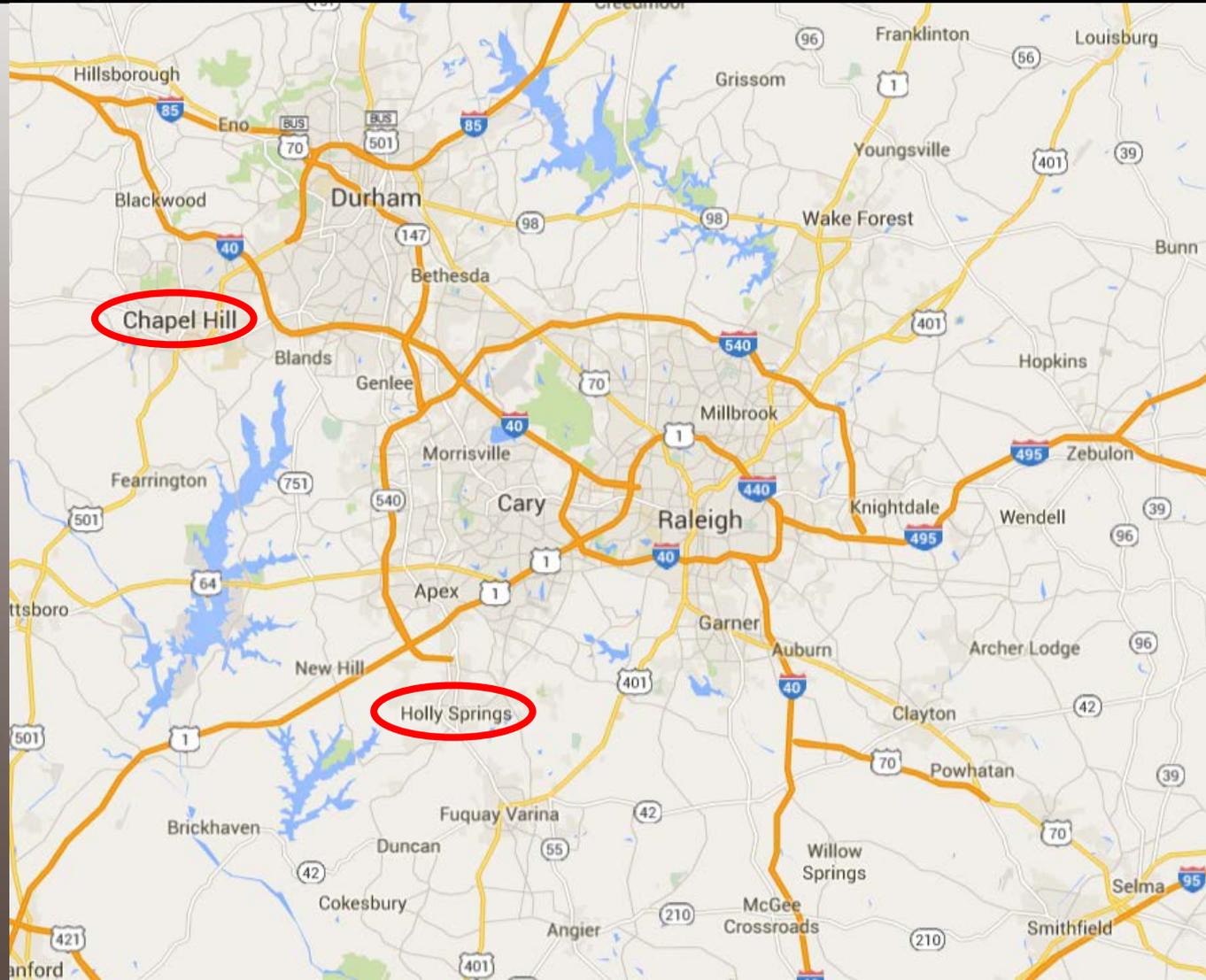
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# NC scan tour/peer exchange

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# Superstreets in North Carolina

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- **NCDOT - - Existing Locations**

- US 15/501 in Chapel Hill, Orange County (Signalized)
- US 17 in Pender & New Hanover Counties (Signalized)
- US 17 in Leland, Brunswick County (Signalized)
- US 23-74 in Haywood County
- US 1 in Moore County, Vass Bypass
- NC 87 in Elizabethtown, Bladen County
- US 601 in Union County
- US 17 By-Pass in Martin and Beaufort Counties

## Super Streets in Minnesota ?





# US 15/501 Chapel Hill

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**Built 2008**

**2013 AADT:  
43K - 48K**

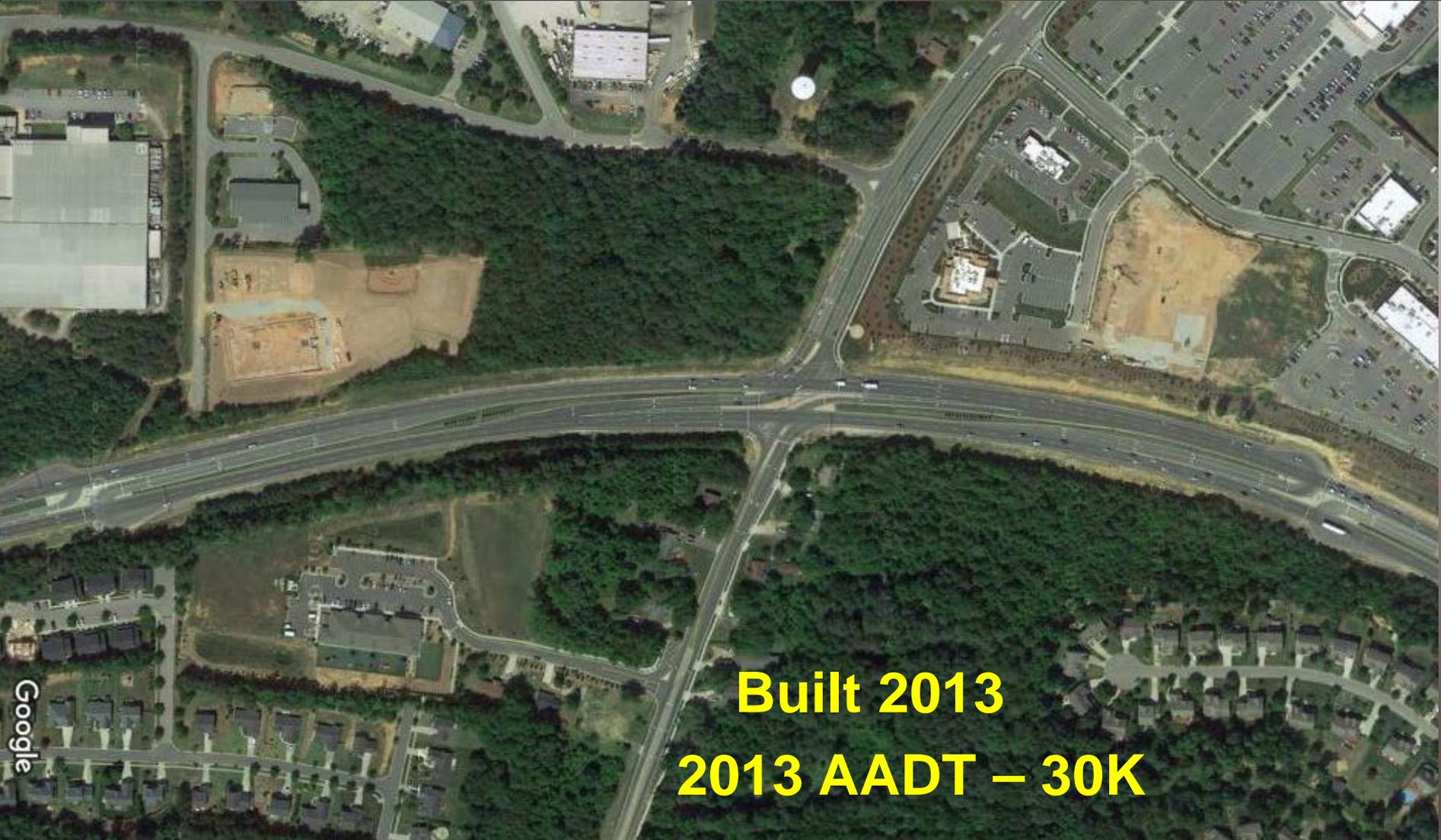




# NC 55 Holly Springs

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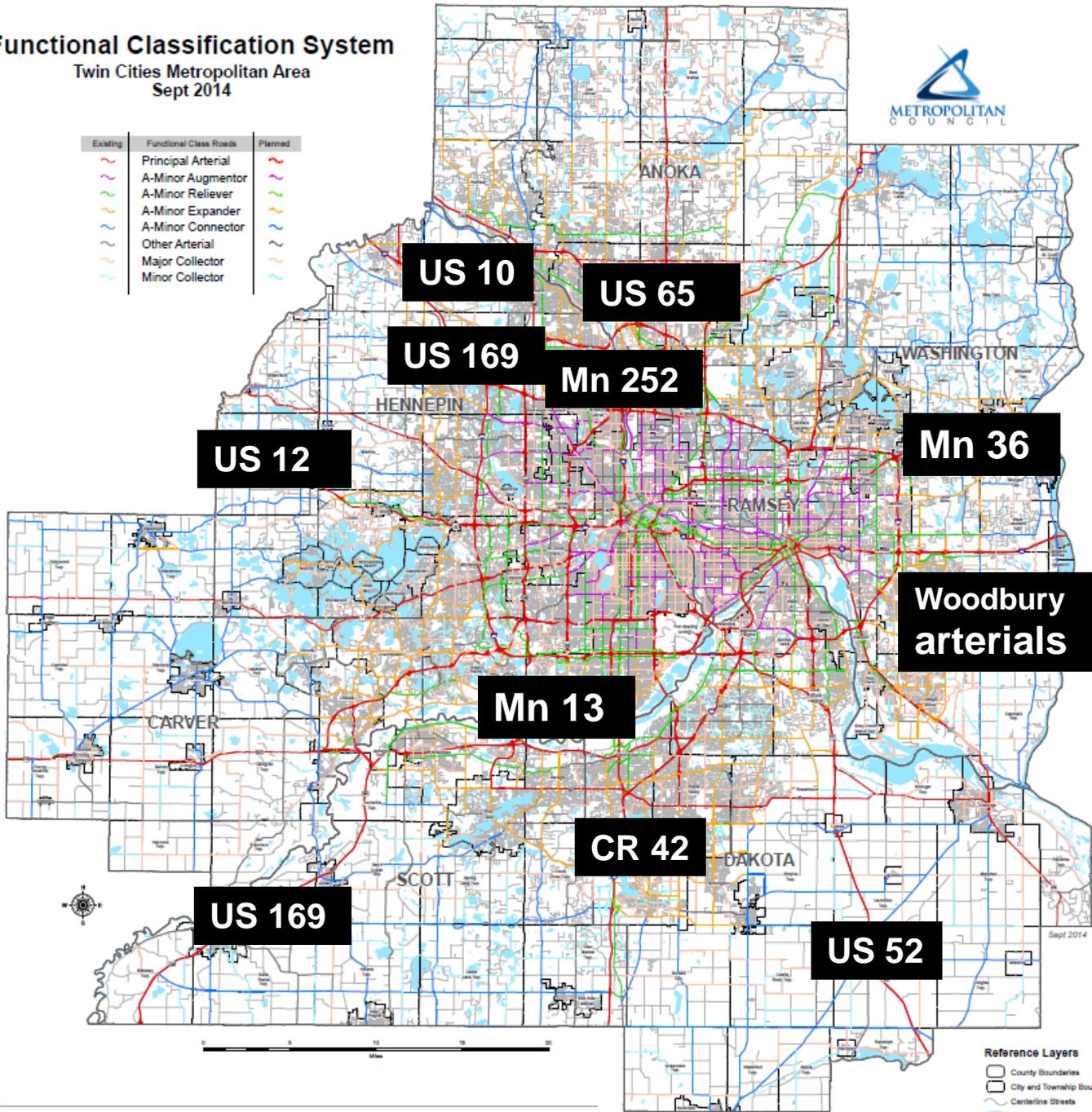
**Built 2013**  
**2013 AADT - 30K**

# Functional Classification System

Twin Cities Metropolitan Area  
Sept 2014



Existing	Functional Class Roads	Planned
	Principal Arterial	
	A-Minor Augmentor	
	A-Minor Reliever	
	A-Minor Expander	
	A-Minor Connector	
	Other Arterial	
	Major Collector	
	Minor Collector	



**Reference Layers**

- County Boundaries
- City and Township Boundaries
- Centerline Streets
- Lakes and Rivers



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# Met Council – MnDOT Metro District

## Principal Arterial Intersection Study, 2016

<http://www.metrocouncil.org/PAICS>



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# Regional Mobility

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- Is the current process delivering investments in a strategic way?
- Corridor Mobility Can
  - Serve - auto, truck, transit, non-motorized
  - Provide for land use accessibility

**Effective Use of Performance Based  
Practical Design**





# Capacity Analysis – Planning

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## What type of investment to provides mobility?

**Intersection**

At-Grade Int.

Hybrid

Grade Separation

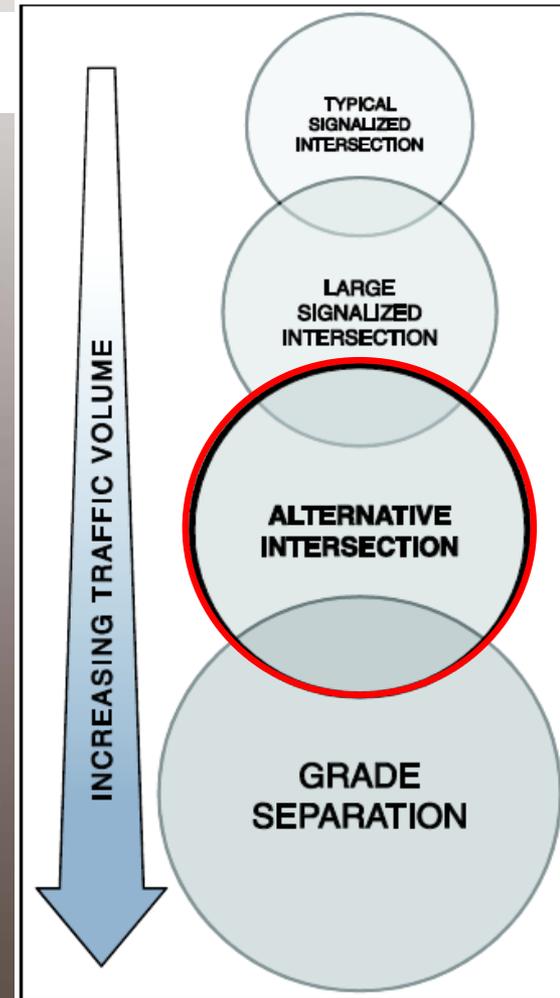
A



B



C

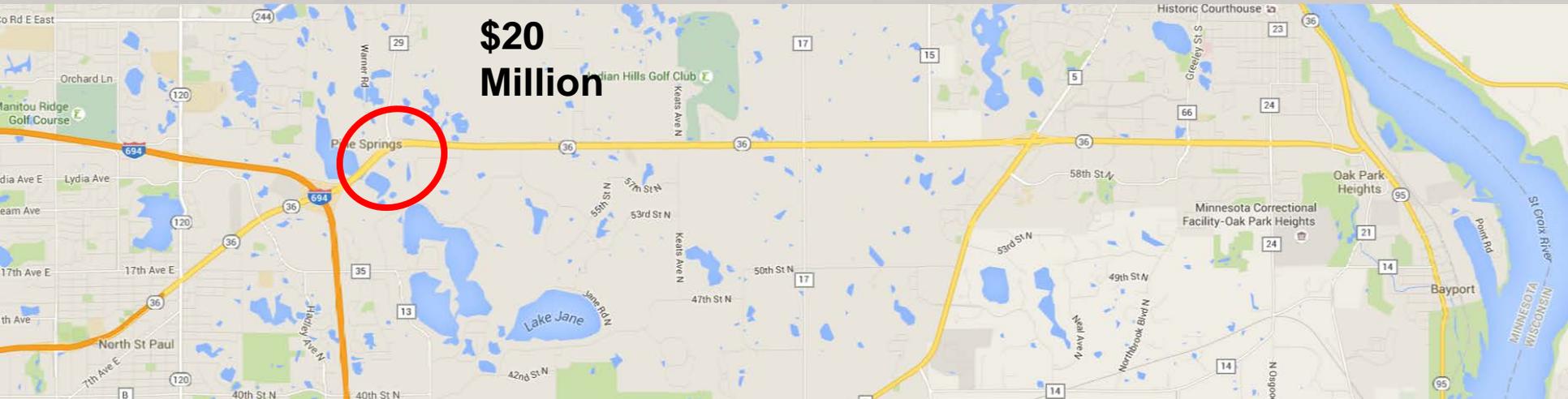




# Highway 36

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**\$20  
Million**

**Treated 1 of 6 Intersections**



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METROPOLITAN  
COUNCIL



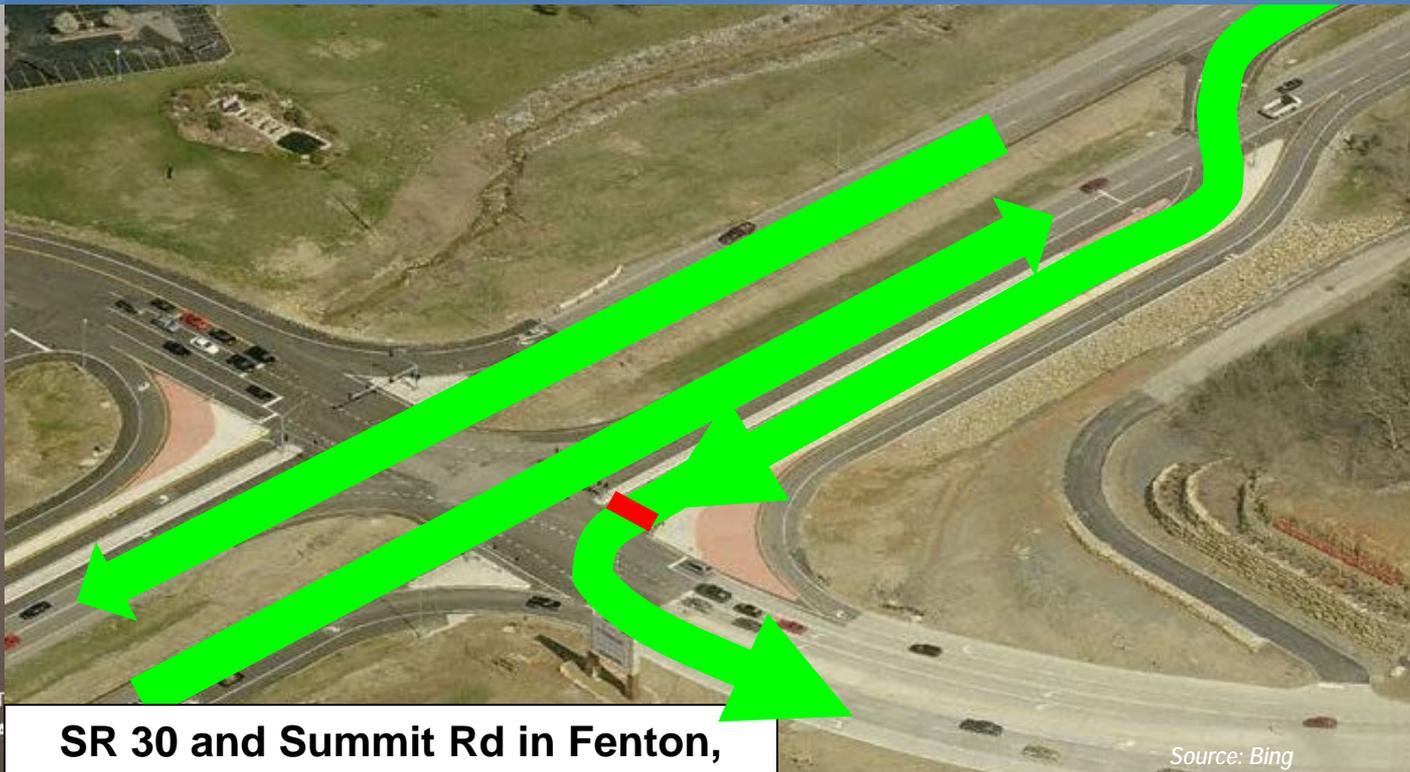
# DLT

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## Distinguishing Feature:

Left-turn movement (on one or more approaches) strategically relocated to the far-side of the opposing roadway via interconnected signaled crossover in advance of the main intersection





# Questions?

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