



**NORTH CAROLINA**  
Department of Transportation



# US 74 Widening Project

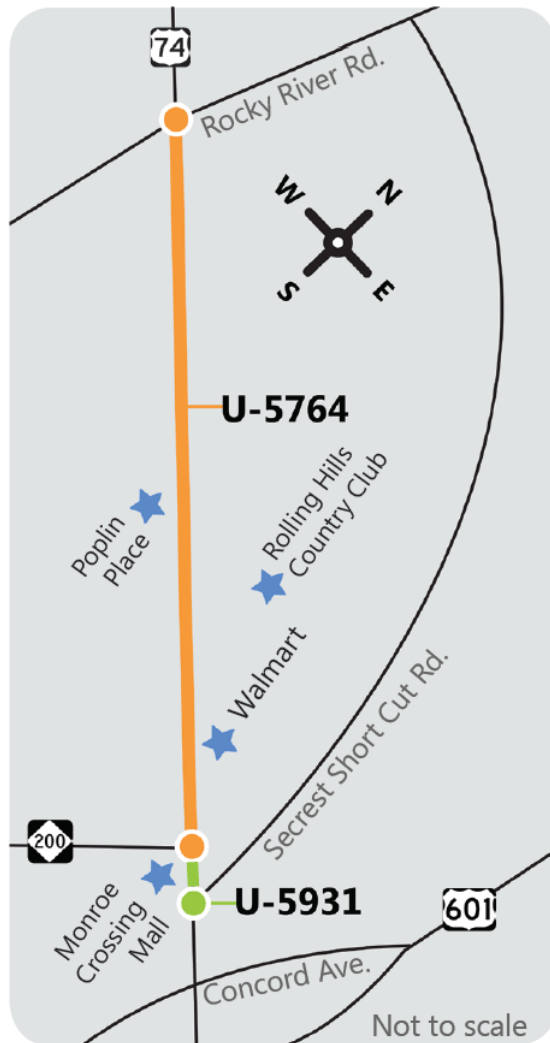
## Rocky River Road to Secrest Shortcut Road

June 25, 2018

# Agenda

- Introductions
- Project Overview and Background
- Project Resources
- Traffic Conditions and Alternatives
- Synchronized Streets
- Traffic Analysis
- Next Steps
- Questions

# Overview



- NCDOT State Transportation Improvement Program (STIP) Project U-5764
  - Widen US 74 from Rocky River Road to Dickerson Boulevard from a 4-lane, median-divided facility to a multi-lane, median-divided facility.
- NCDOT STIP Project U-5931
  - Improve the intersection of US 74 and Secrest Shortcut Road

# Overview

- Heavily traveled corridor
- Commercial, social, and recreational uses
- Major commuter route
- Pedestrian accommodation issues



# Project Background

- The Union County 2025 Comprehensive Plan (2010) noted the need to revitalize this portion of US 74.
- The Union County Multimodal Transportation Plan (2014) listed among its priorities the need to increase densities along the US 74 corridor and provide streetscapes to promote a more active, mixed-use environment and to provide intersection improvements along the corridor.
- The Charlotte Regional Transportation Planning Organization (CRTPO) 2040 Metropolitan Transportation Plan (MTP) (2014) includes the project.
- The project is included in the current (2018) North Carolina STIP.

# Project Resources



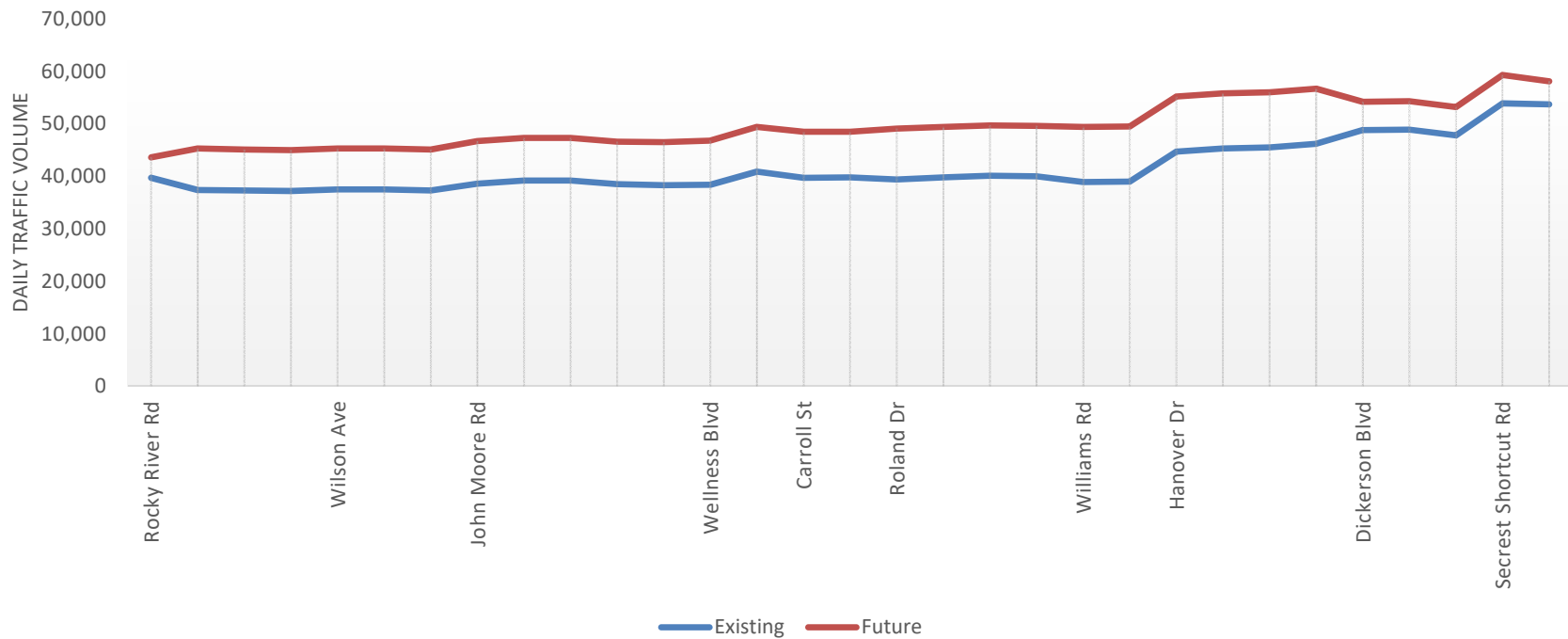
# Project Resources



# Traffic Conditions

- Existing Daily Volumes = 40,000 to 54,000
- Future (2040) Daily Volumes = 44,000 to 59,000

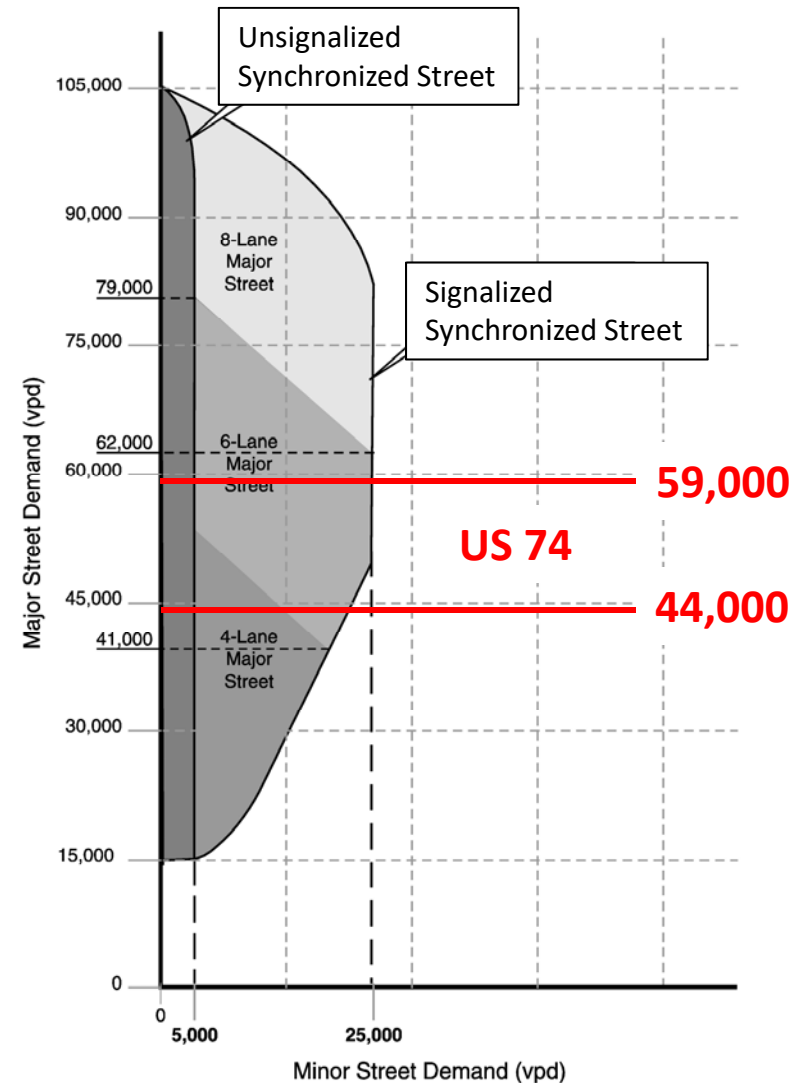
US 74 Daily Traffic Volumes





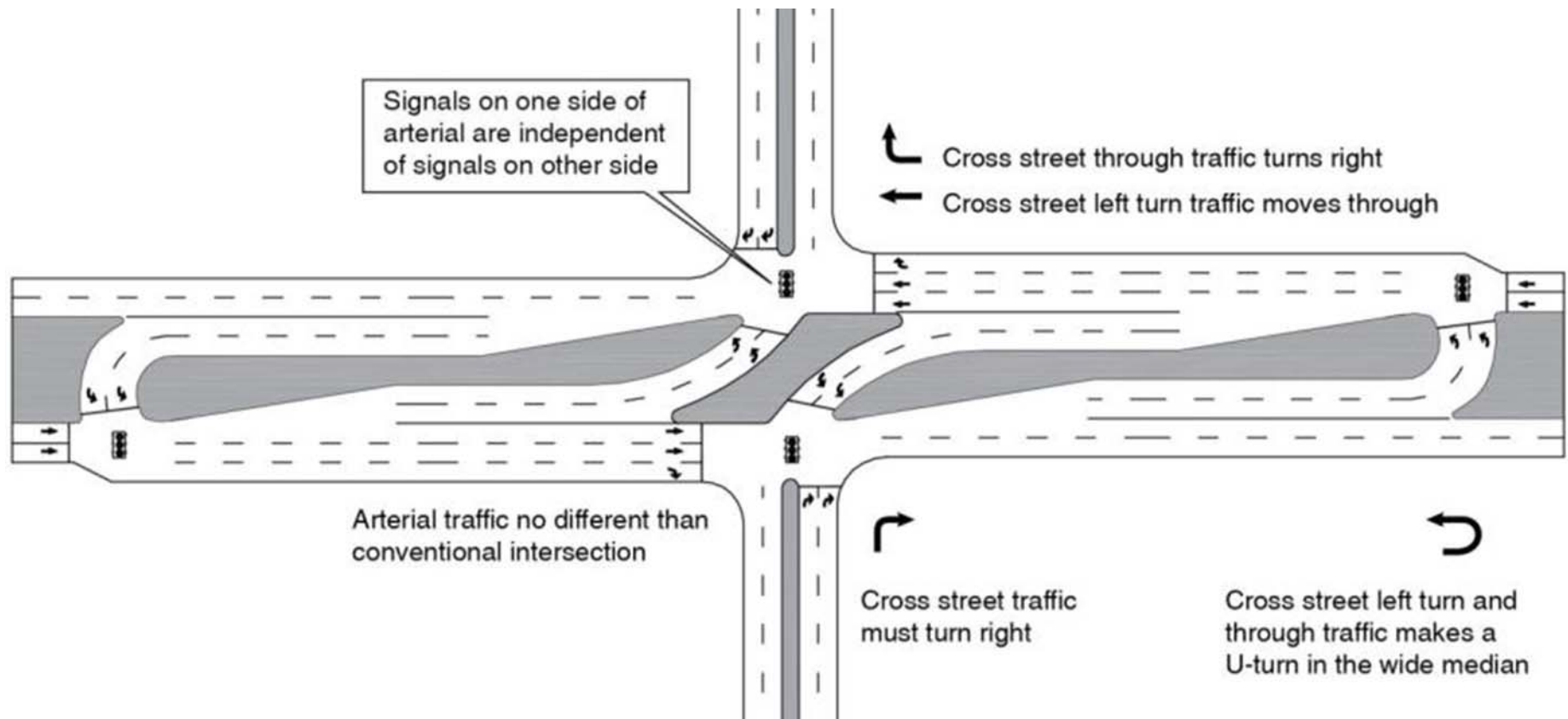
# Alternatives Studied

- Alt 1: Six-Lane Conventional
- Alt 2: Four-Lane Synchronized Street  
– Dismissed based on forecasted volumes
- Alt 3: Six-Lane Synchronized Street



Source: Federal Highway Administration (FHWA)

# Synchronized Street Concept



FHWA uses the term RCUT (Restricted Crossing U-Turn).  
Some states use the term J-Turn, Reduced Conflict Intersection, or Superstreet.

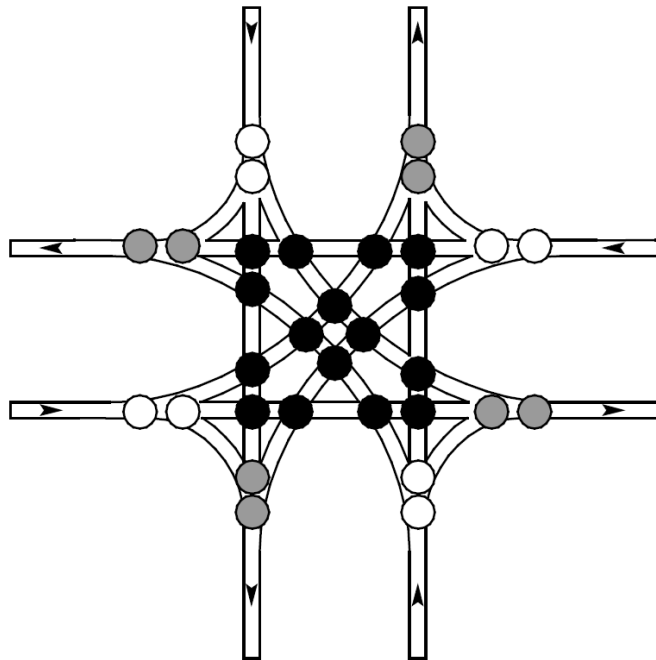
# Synchronized Street Benefits

- Safety!!
  - 15 to 46 percent total crash reduction
  - 22 to 63 percent injury and fatal crash reduction
- Improved Pedestrian Accommodations
  - Shorter crossings
  - Opportunity for more crossings
- Reduced delay
- Improved Signal Coordination
  - Can use signal progression to control speeds

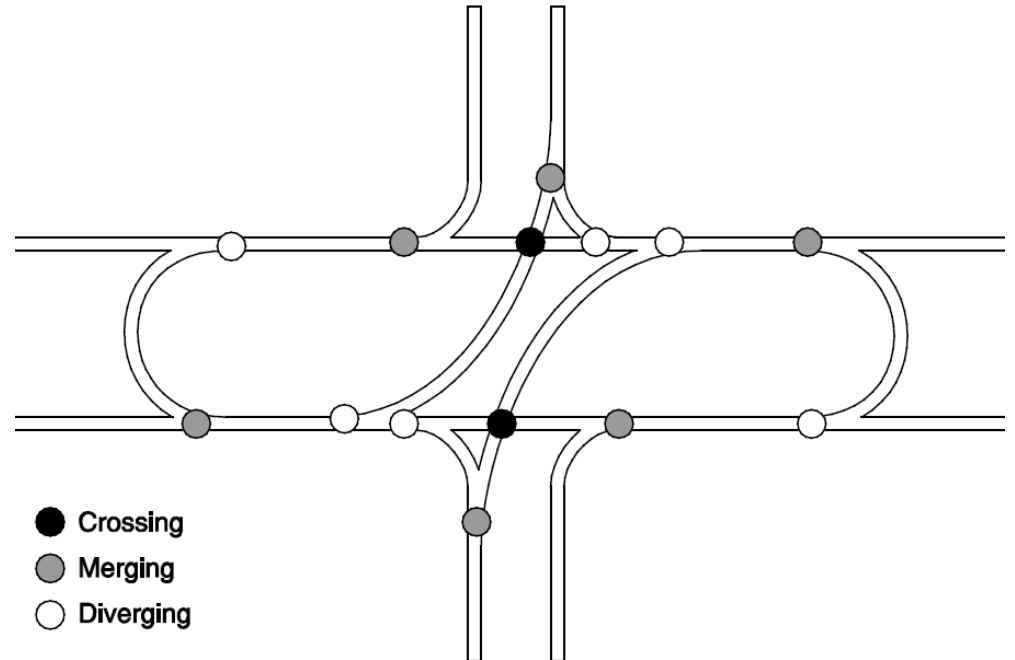
# Synchronized Street Benefits

## Reduction in Conflict Points

Conventional Intersection  
32 points



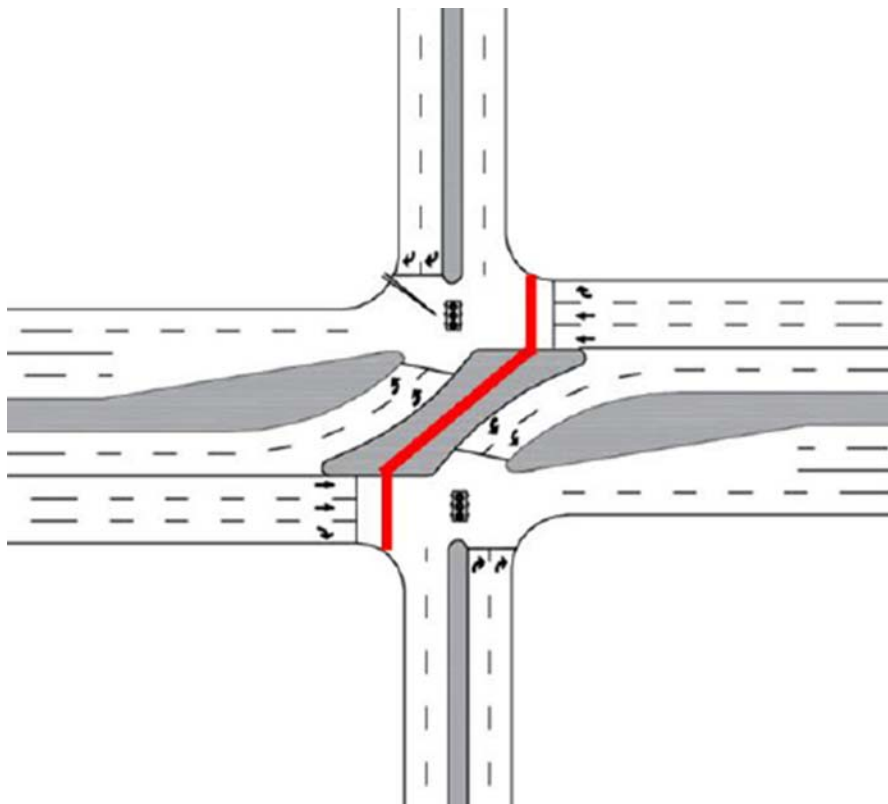
Synchronized Street Intersection  
14 points



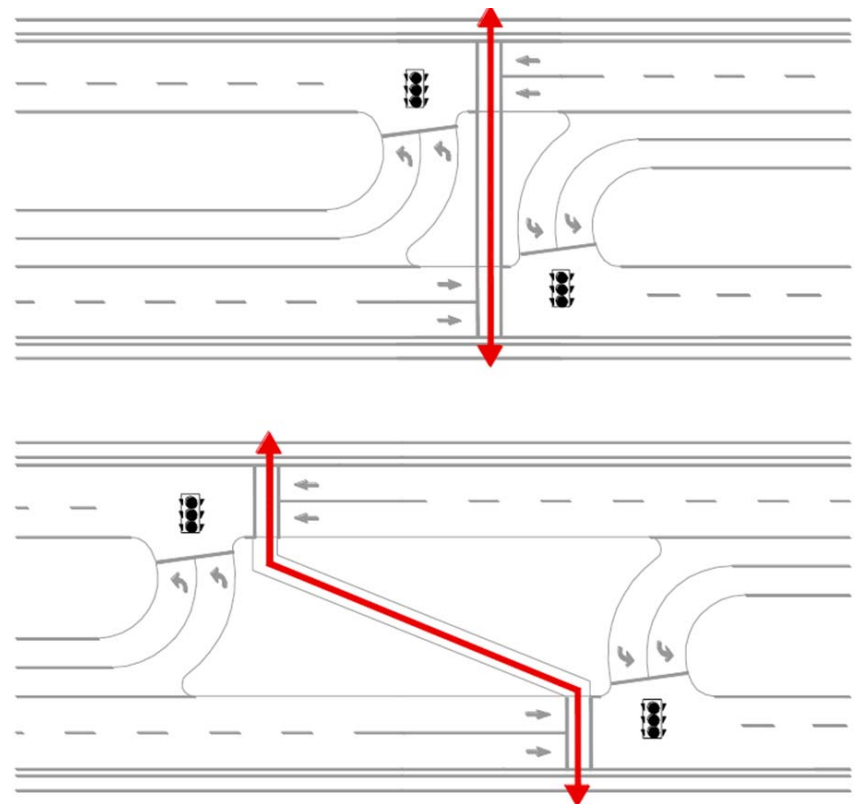
# Synchronized Street Benefits

## Improved Pedestrian Accommodations

Intersection Pedestrian Crossing



Mid-block Pedestrian Crossings



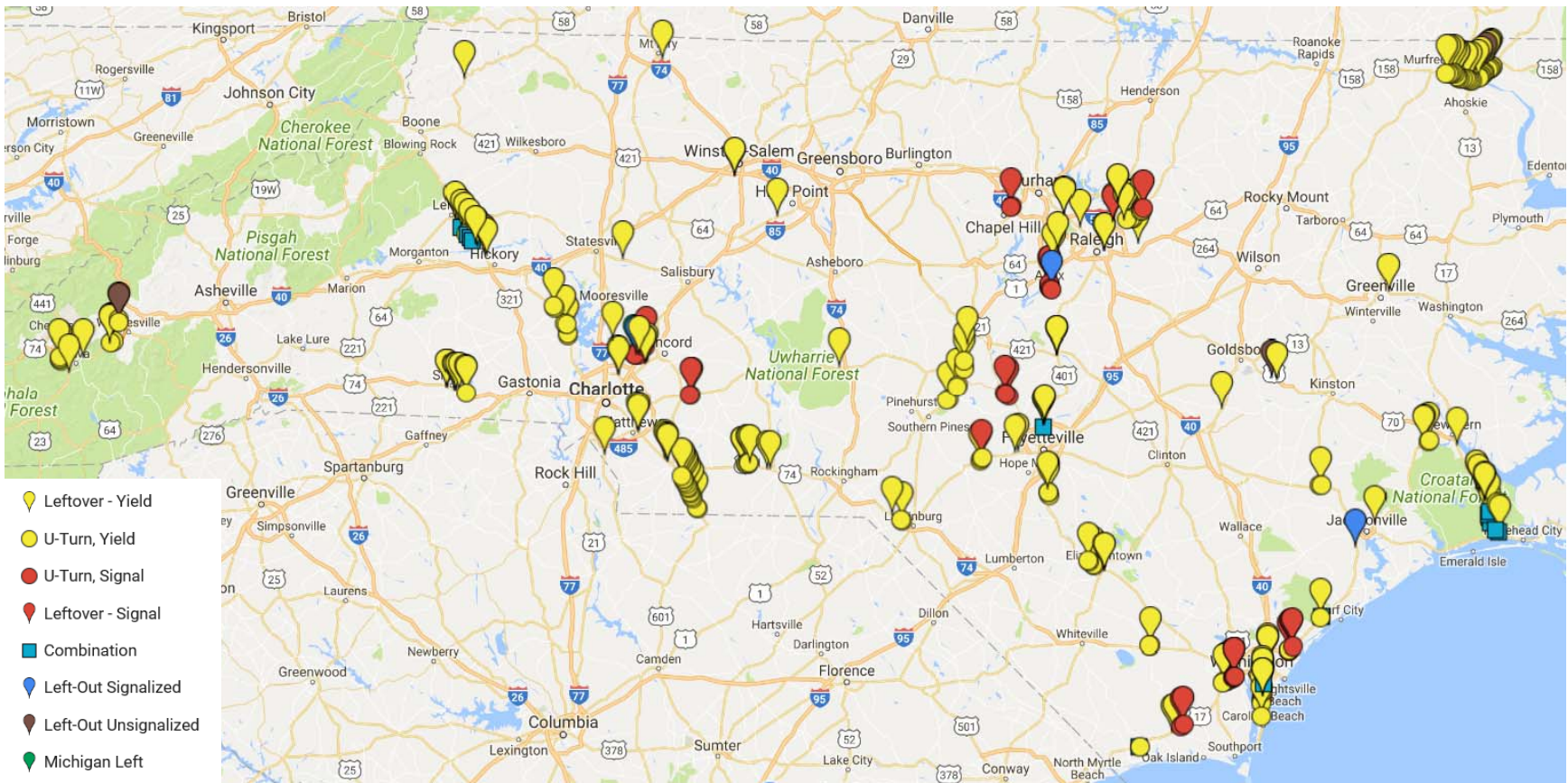
# Synchronized Street Benefits

Overall Improved Traffic Operations

	Synchronized Street	Conventional
Signal Phases	Two	Eight
Speeds	Controlled by signal progression	“Controlled” by posted speed limit
Queues	Moderate	Long

# Synchronized Streets in NC

## Becoming the State's Default Design for Arterials



# Traffic Analysis Results

## Peak Hour Travel Times

	No-Build		6-Lane Conventional		6-Lane Synchronized Street	
	AM	PM	AM	PM	AM	PM
US 74 Eastbound	8:33	8:16	8:52	7:40	6:42	6:14
US 74 Westbound	7:37	8:20	7:26	7:53	6:31	6:29

6-Lane Synchronized Street Design Provides Average Travel Time Savings of

**01:32** or **18%** in the AM Peak Hour and

**01:25** or **19%** in the PM Peak Hour

Compared to 6-Lane Conventional Design.



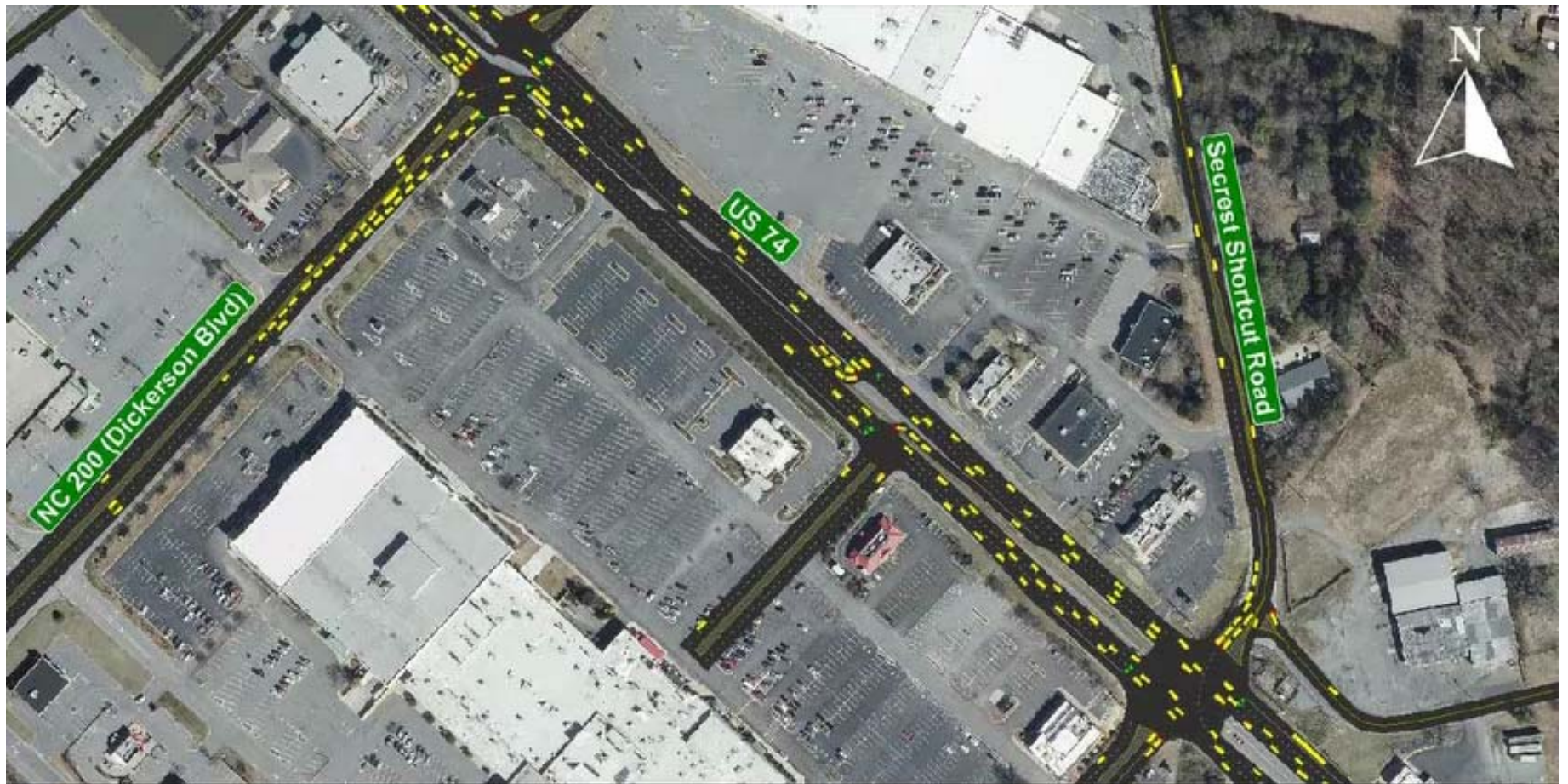
# Traffic Simulation

6-Lane Conventional  
between Dickerson Blvd and Secret Shortcut Rd



# Traffic Simulation

6-Lane Synchronized Street  
between Dickerson Blvd and Secret Shortcut Rd



# Crash Analysis Results

Corridor Crash Statistics Over Previous 5 Years

	Total Crashes	Total Crash Rate	Statewide Crash Rate	Critical Crash Rate*
Total	1,177	<b>425.61</b>	231.78	247.02
Fatal	2	0.72	0.91	2.03
Non-Fatal Injury	364	<b>131.62</b>	67.50	75.81
Night	209	<b>75.68</b>	55.65	63.21
Wet	188	<b>67.98</b>	42.17	48.77

**Red Values Exceed Critical Crash Rates**

\* Critical crash rate is based on other roads with similar characteristics.

# Crash Analysis Results

Intersection Crash Statistics Over Previous 5 Years

Total Crashes at Intersections	No. of Potentially Preventable Crashes	Potential Crash Reduction Percentage
571	115	20%

Potential crash reduction of 20% is in line with 15 to 46 percent total crash reduction found in other synchronized street corridors.

# Next Steps and Schedule

- Small Group Meetings – week of 6/25 followed by two-week comment period
- Right of Way – FY 2019
- Let for Construction – FY 2021

Questions?