

# Moore County Elected Officials Presentation

[www.ncdot.gov/projects/moorechoices](http://www.ncdot.gov/projects/moorechoices)  
(all information should be online within a week)

# Welcome / Call To Order

**Debra Ensminger**

Moore County Planning and Community  
Development Director  
910-947-5010

# History and Growth Data

Anthony Tata

Secretary of Transportation, NCDOT

# History and Growth Data

**Matt Day, AICP CTP**

Principal Planner

Triangle Area Rural Planning Organization

919-558-9397

[www.tarpo.org](http://www.tarpo.org)

[mday@tjcog.org](mailto:mday@tjcog.org)

# Topics to Cover

- What is a CTP?
- Brief History of Process
- Charrette Findings
- Request for Strategic Highway Corridor (SHC) Facility Type Designation Change
- Resulting Commitments From NCDOT
- New Strategic Transportation Corridor (STC) Policy
- Locally-approved growth forecasts

# What is a CTP?

## A Comprehensive Transportation Plan...

- Is a Long-range, multimodal transportation plan
- Is developed cooperatively with NCDOT, the RPO, County and Municipal stakeholders
- Emphasizes the local land development plan as well as both local community goals and statewide goals (such as protection of strategic corridors)
- Is only a **Concept Plan**
- Is not fiscally constrained

# What is a CTP?

**Highway Map**

LEE COUNTY  
NORTH CAROLINA

**LEE COUNTY**  
Comprehensive  
Transportation Plan

**Bicycle Map**

LEE COUNTY  
NORTH CAROLINA

**LEE COUNTY**  
Comprehensive  
Transportation Plan

Plan date: October 8, 2007

Bicycle Routes

On-road

- Existing
- Needs Improvement
- Recommended

Off-road

- Existing
- Needs Improvement
- Recommended

Existing Grade Separation

Proposed Grade Separation

0 0.5 1 2 3 Miles

Sheet 4 of 5

Base map date: January 2006

Refer to CTP document for more details

**Comprehensive Transportation Plan**

NEDOT-TPB

LEE COUNTY  
NORTH CAROLINA

**Lee County**

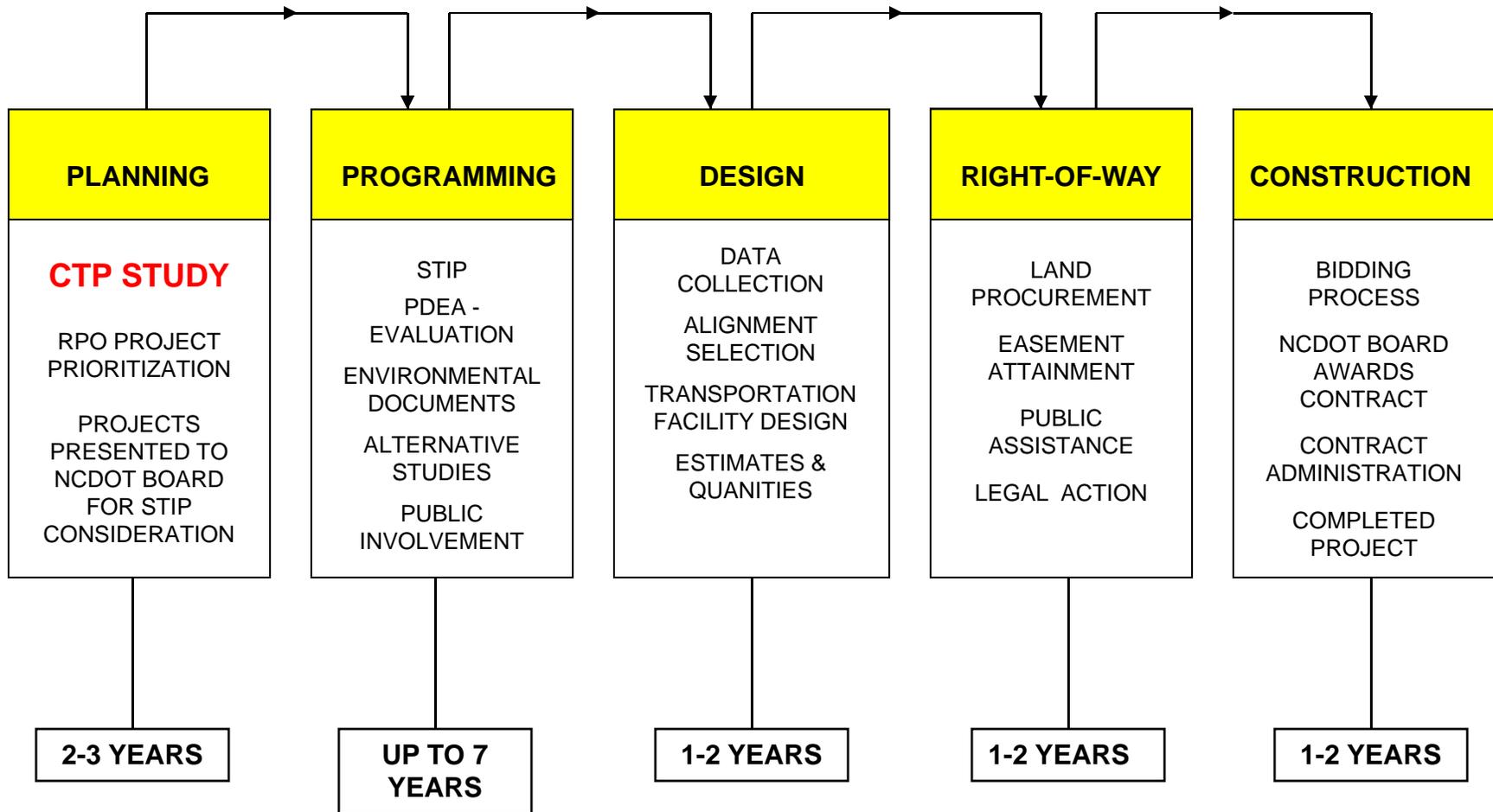
December 2011

# Goal of the CTP

- Mutually-adopted recommendations
- Meet both local and statewide goals
  - Public Safety
  - Congestion/Mobility
  - Resource Preservation
  - Others?
- Achieve a balance that everyone can agree to support



# Typical Stages of NCDOT Project Development



The CTP is the FIRST step in a long process

# The CTP can be used as a tool for local land use planning:



Benjamin Parkway (Greensboro) protected corridor in 1981



Benjamin Parkway after construction in 1990

- Protecting of RIGHT-OF-WAY for future facilities.
- Reducing the number of impacts to the human environment.

# From Past to Present - History

- Both state and federal transportation law calls for the development of a long-range transportation plan.
- Between 2001 and 2008, several attempts to develop a long-range transportation plan were made, but planning partners could not agree on how to solve identified future issues.
- Late in 2010, NCDOT, Triangle Area Rural Planning Organization, Moore County and municipal planning agencies came together once more to develop a Comprehensive Transportation Plan, or CTP.
- In order to get past the hurdles of previous planning efforts, the decision was made to identify and address the issues at several key locations prior to the start of a full CTP study. The key locations included the US 1 corridor, the NC 24-27 corridor, and the “Western Connector” concept.
- Together, these planning partners held a series of public meetings as part of an extensive public engagement process to introduce the CTP to residents and better understand how needed transportation improvements would best serve Moore County communities.

# From Past to Present – Charrette Findings

## Community Priorities

- Preservation of natural areas, Agricultural lands, cultural resources, Walthour-Moss Foundation and Horse Country;
- Improvements on existing corridors;
- Economic development;
- Additional modes of transportation: pedestrian, bicycle, and public transportation;
- Protection of homes, neighborhoods, and churches.

## Preferred Alternatives

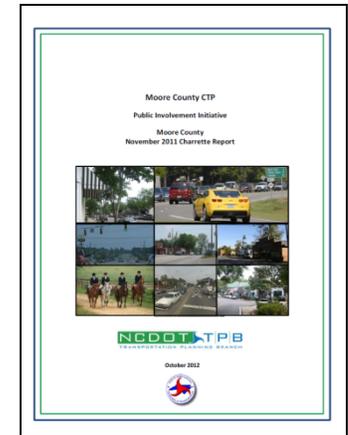
- **US 1:** 70% for improvements on the existing corridor
- **NC 24/27: Carthage:** 83% for improvements on new location north of Carthage.
- **NC 24/27: Cameron:** 82% for improvements on new location south of Cameron.
- **Western Connector:** 58% showed solutions remaining on existing Hoffman and Roseland Roads.

***Public Involvement is continuous throughout a planning process and public comment and input will be sought at all CTP milestones.***



# Charrette Results & Public Involvement

- Despite excellent turnout and input, the results of the charrettes do not necessarily reflect a countywide consensus;
- The charrettes did provide excellent data representative of the populations identified in attendance;
- This input has been a guideline in developing possible solutions for study and consideration.
- Additional efforts to improve community participation have been made through homeowner's associations and special interest groups.
- ***If your community is interested in supporting an outreach event, please contact the Moore County CTP team members.***



# Request for Change in Strategic Highway Corridor (SHC) Designation

- Growing concern over future US 1 improvements prompted the County and many of the local municipalities to pass resolutions:
  1. To oppose any project that would encroach upon the Walthour Moss Foundation or lands east of US 1 recognized as “Horse Country.”
  2. To seek the re-classification of the Strategic Highway Corridor “Freeway” designation for the US 1 corridor
  
- A formal request for re-classification of the SHC corridor was received from the Triangle Area Rural Planning Organization, which specified the locally preferred cross-sections to remain as existing.

**TRIANGLE AREA RURAL PLANNING ORGANIZATION  
RESOLUTION IN SUPPORT OF RECLASSIFICATION OF US 1 IN MOORE COUNTY  
ON THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION STRATEGIC  
HIGHWAY CORRIDOR VISION PLAN**

**WHEREAS**, the citizens and elected officials of Moore County have stated their opposition to a freeway being constructed on the US 1 corridor in Moore County, as is currently shown in NCDOT's Strategic Highway Corridor Vision Plan; and

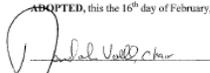
**WHEREAS**, the Moore County Board of Commissioners, Town of Aberdeen Board of Commissioners, Town of Pinebluff Board of Commissioners, Village of Pinehurst Village Council, and Town of Southern Pines Town Council have all passed resolutions requesting that the facility type classification on US 1 in the Strategic Highway Corridor Vision Plan be changed to reflect the facility types that are currently on the ground in Moore County; and

**WHEREAS**, the construction of a freeway on the current alignment of US 1 through Southern Pines, Aberdeen, and Pinebluff would divide these communities, create a physical and visual barrier between neighborhoods, and limit access to businesses in and near the corridor; and

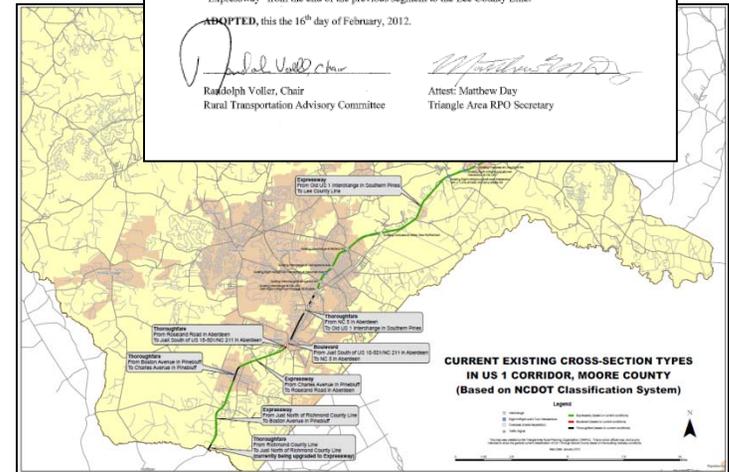
**WHEREAS**, the construction of a freeway on a new alignment passing through the area defined as “Horse Country” is deemed unacceptable by the local governments in Moore County, which position is supported by public input received at a series of charrettes held in November 2011,

**THEREFORE, BE IT RESOLVED** that the Rural Transportation Advisory Committee of the Triangle Area Rural Planning Organization requests that the North Carolina Department of Transportation re-designate the facility types shown on the Strategic Highway Corridor Vision Plan for US 1 as follows, reflecting the current on-ground conditions: “Thoroughfare” from the Richmond County Line to the beginning of the current four-lane section north of the county line; “Expressway” from the end of the previous segment to Boston Avenue in Pinebluff; “Thoroughfare” from the end of the previous segment to Charles Avenue in Pinebluff; “Expressway” from the end of the previous segment to Rosland Road in Aberdeen; “Thoroughfare” from the end of the previous segment to just south of US 15-501 in Aberdeen (southern intersection); “Boulevard” from the end of the previous segment to NC 5 in Aberdeen; “Thoroughfare” from the end of the previous segment to Old US 1 in Southern Pines; and “Expressway” from the end of the previous segment to the Lee County Line.

**ADOPTED**, this the 16<sup>th</sup> day of February, 2012.

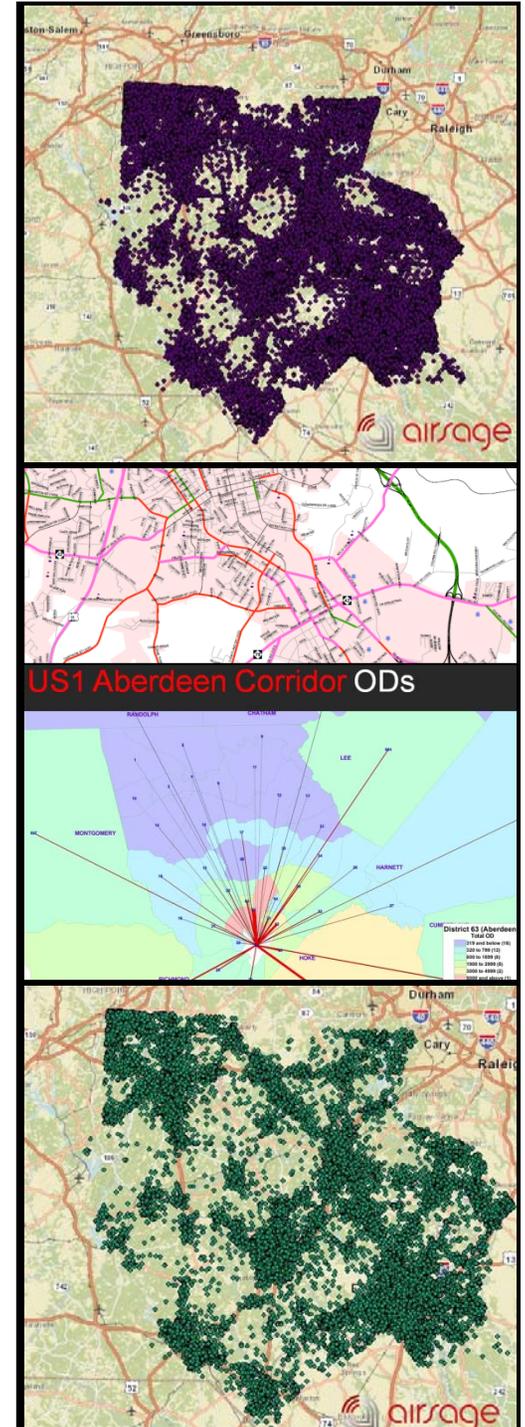
  
 Randolph Voller, Chair  
 Rural Transportation Advisory Committee

  
 Attest: Matthew Day  
 Triangle Area RPO Secretary



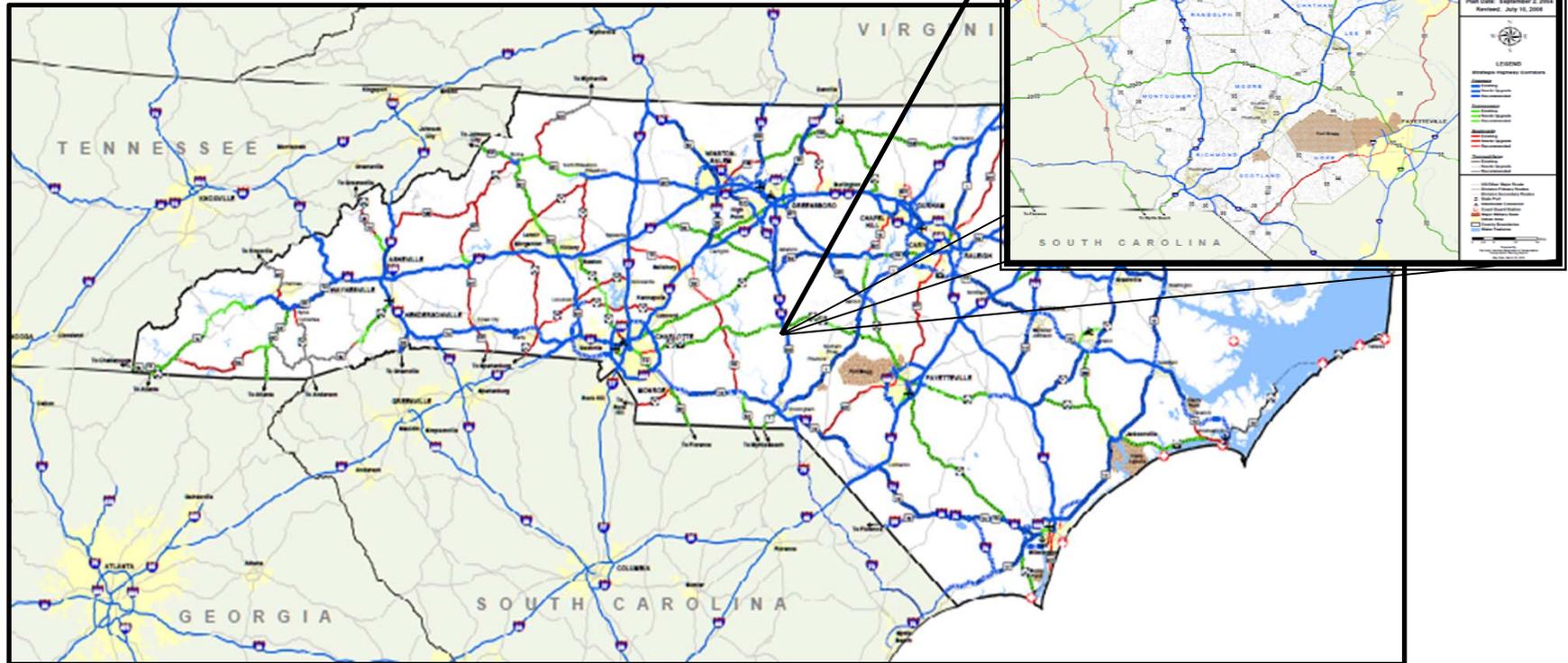
# NCDOT's Response to Reclassification Request

1. Acknowledged receipt of the request, resolutions passed by Moore County municipalities, and resolutions passed by neighboring regional planning organizations and municipalities opposing re-classification.
2. Recommended a full operational analysis of the corridor to determine impacts of reclassification.
3. Develop an Origin and Destination Study, Development of a Travel Demand Model, a Traffic Impact Analysis, and Simulation for specific sections of the US 1 Corridor.
4. Deferred any changes to the Strategic Highway Corridor Plan until the State Transportation Plan and Policy update was completed.
5. Deferred development of the CTP until the Moore County travel demand model and statewide model were completed and could be utilized to analyze the roadway network.



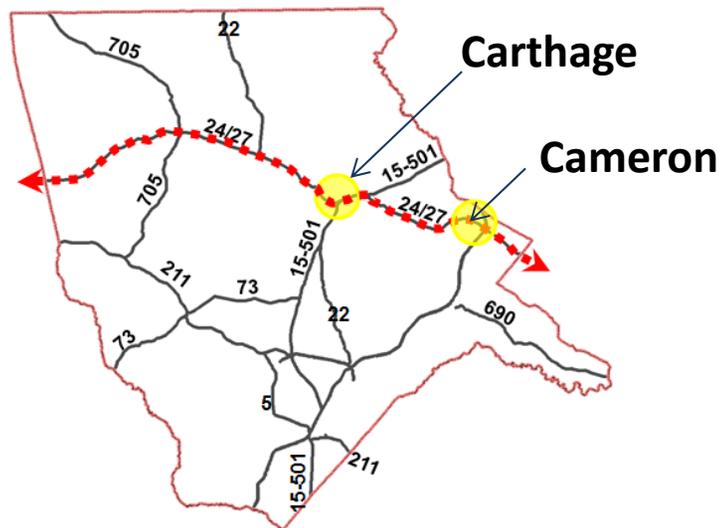
# Strategic Highway Corridor Vision Plan (2004)

## 2004 - 2015 Strategic Highway Corridor Vision Plan



- Identified 55 corridors that carried approximately 45% of the state's traffic;
- Function had statewide significance;
- Focused on connectivity to activity centers and other major routes;
- Were part of Major Highway Systems;
- Promoted safety on the state's primary routes;
- Characteristics included high speed, median divided, interchanges, and limited breaks in access.

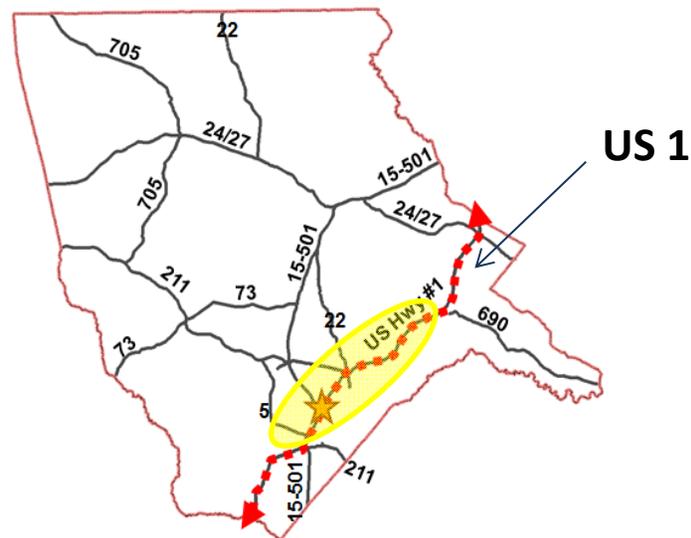
## 2004 - 2015 Strategic Highway Corridor Vision Plan



### NC 24/27 Through Carthage and Cameron

#### Expressway

- 45 to 60 mph
- Minimum 4-lanes Median Divided
- Interchanges at Major Cross Streets
- At grade Intersections Minor Cross Streets
- Limited drive ways
- No Traffic Signals



### US 1 Through Aberdeen and Southern Pines

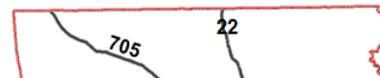
#### Freeway

- 55 or Greater
- Minimum 4-lanes Median Divided
- Interchanges at Major Cross Streets
- Above grade Intersections Minor Cross Streets
- No drive ways
- No Traffic Signals

## 2004 - 2015 Strategic Highway Corridor Vision Plan



Carthage



But as of March 4, 2015 this is no longer NCDOT's policy!

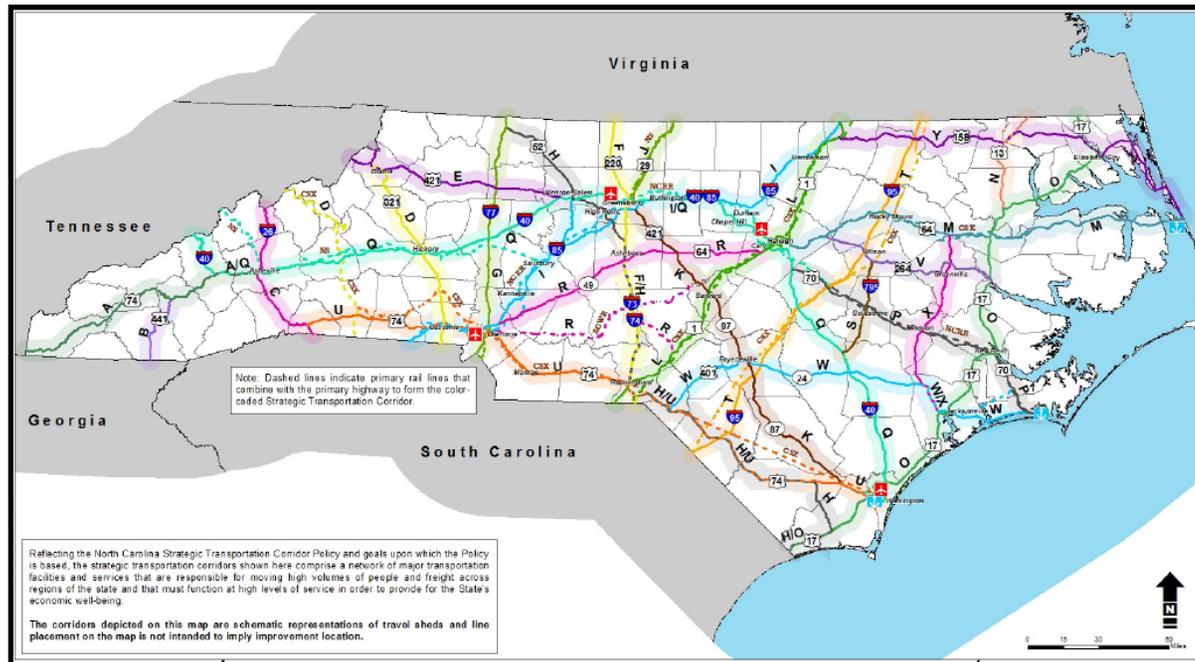
The new policy, Strategic Transportation Corridors, allows us more flexibility in determining appropriate improvements on each corridor.

- 45
  - Mi
  - Int
  - At
- Streets
- Limited drive ways
  - No Traffic Signals

- Cross Streets
- No drive ways
  - No Traffic Signals

# Strategic Transportation Corridor Policy (2015)

March of 2015: Strategic Transportation Corridor Policy Adopted



- Identified 25 corridors considered to form the core of the state's transportation system.
- These corridors are dynamic and intended to support the highest level of transportation needs.
- Policy is not intended to restrict transportation improvements and investments needed to address local or regional needs.
- Policy is intended to recognize the importance of these corridors and the need for their protection.
- Policy focuses on System connectivity, Mobility, and Economic Prosperity.

# What Does The 2015 Strategic Transportation Corridor (STC) Policy Change Mean for the Moore County CTP?

## Summary of Applicable Guidance:

- The SHC facility type directives (Freeway, Expressway, Boulevard) have been set aside, allowing flexibility to meet local and regional needs while maintaining the operational integrity of the roadway facility.
- Corridor vision plan must reflect consistent, corridor-long performance standards taking into account mobility, multimodal opportunities, operational performance, safety, and condition.
- For identified STCs within a CTP, preservation of inter-regional, long-distance travel needs into and through the region should take priority over direct land access and local travel patterns.
- Must apply the highest practicable access management provisions to promote operational efficiencies, safety, and enhancement of the movement of people and freight on primary corridor facilities.

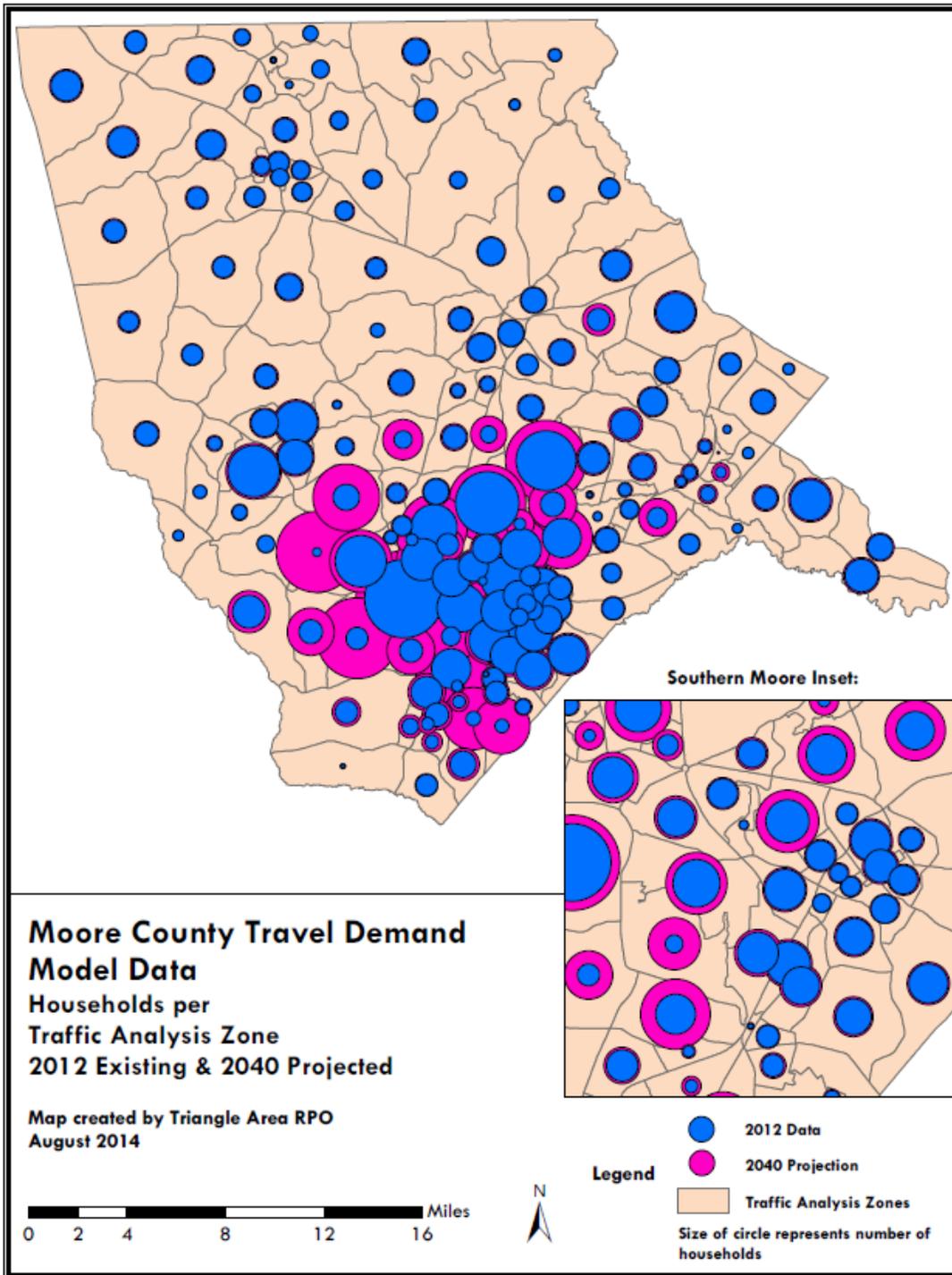
# What Does The 2015 Strategic Transportation Corridor (STC) Policy Change Mean for the Moore County CTP?

## Summary of Specifics:

- NC 24/27 is not identified in the Strategic Transportation Corridor Network and is not subject to operating standards associated with high performance facility types.
- US 1 is identified in the Strategic Transportation Corridor Network and is subject to operating standards associated with high performance facility types.
- The Strategic Transportation Corridor Policy allowed flexibility in facility type along the US 1 corridor with the condition of maintaining safe, effective, high-volume, inter-regional movement of people and goods, system connectivity, and support of economic prosperity.

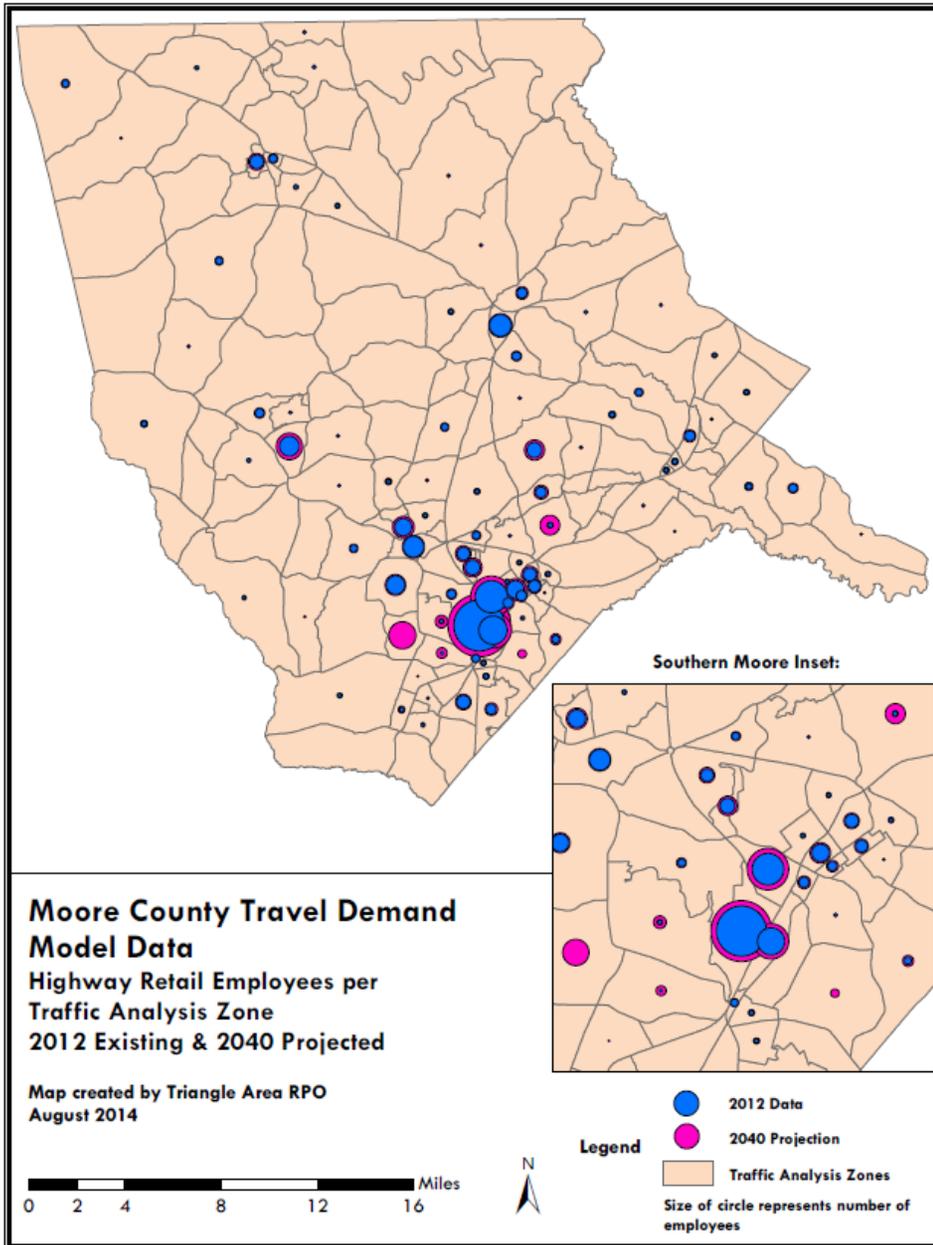
# Development of Land Use Data

- Staff from local jurisdictions worked with NCDOT & TARPO to verify and correct data on existing households and employment locations
- Next, local staff identified areas for future housing & employment growth in two ways:
  - Number of proposed housing units in already-permitted subdivisions and other known development proposals
  - Rating of each area for additional growth potential (high, medium, low, none)
- A control total for growth was based on the work done for the Moore County Land Use Plan, and was projected out to the year 2040
- Employment categories are Office, Service, General Retail, Highway-oriented Retail, Industrial, Hotel, Recreation, and Hospital

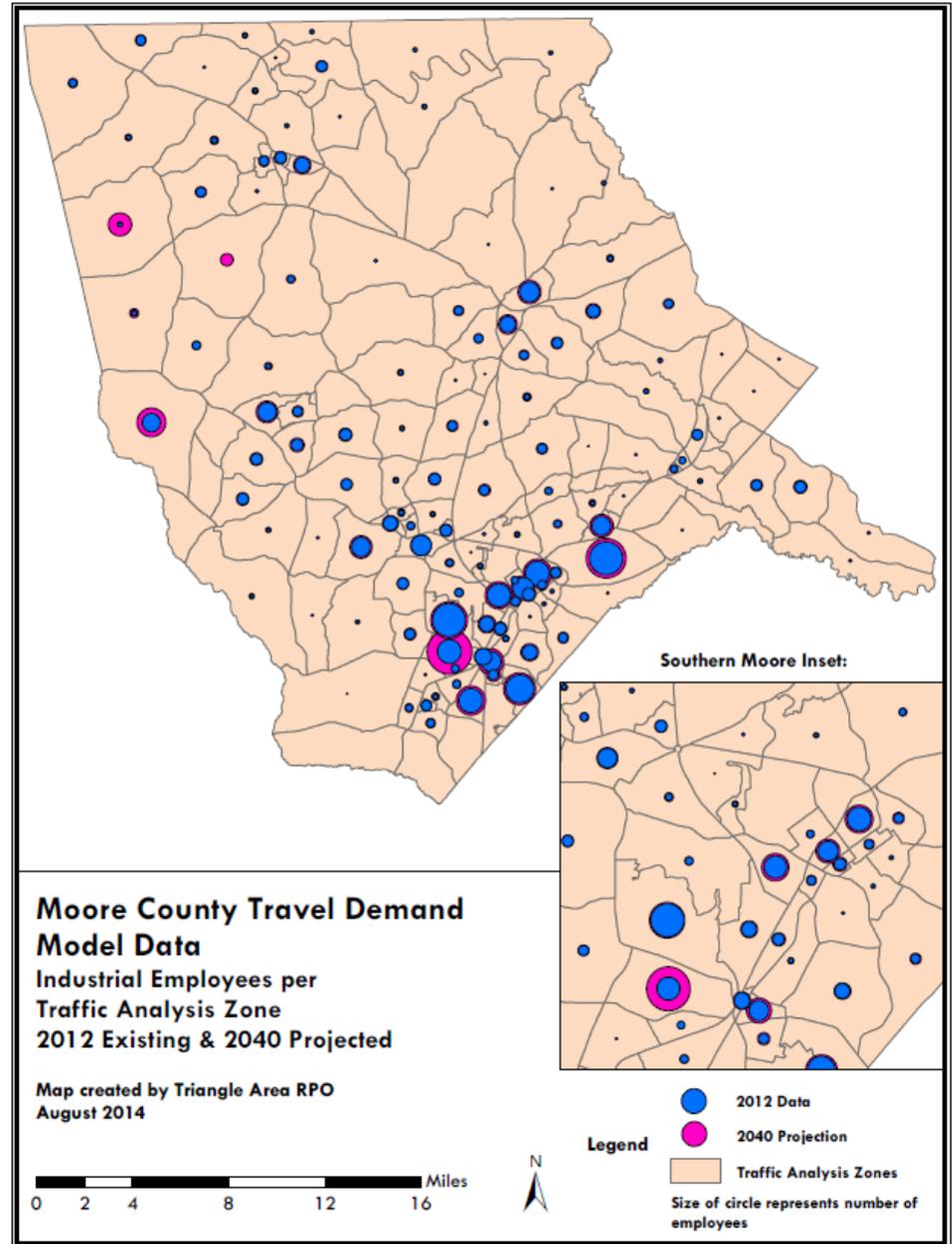


Some background growth occurs in most TAZs.

The majority of housing growth is projected in areas in Southern Moore County, particularly to the south and west of the current developed area.



Highway-oriented Retail Example



Industrial Example

# Approval of Land Use Projections

- The projections developed based on staff input were presented to the MCTC in July 2013
- The projections were also presented to the boards of each jurisdiction within the county over the following months, and revisions were made based on feedback from these boards
- The MCTC approved use of these final projections at its April 9, 2014 meeting, and the model team proceeded to use these in developing the travel demand model

# Travel Demand Model

Rhett Fussell, PE

Senior Supervising Engineer

Parsons Brinckerhoff

919-836-4075

[fussell@pbworld.com](mailto:fussell@pbworld.com)

# What is a Travel Demand Model?

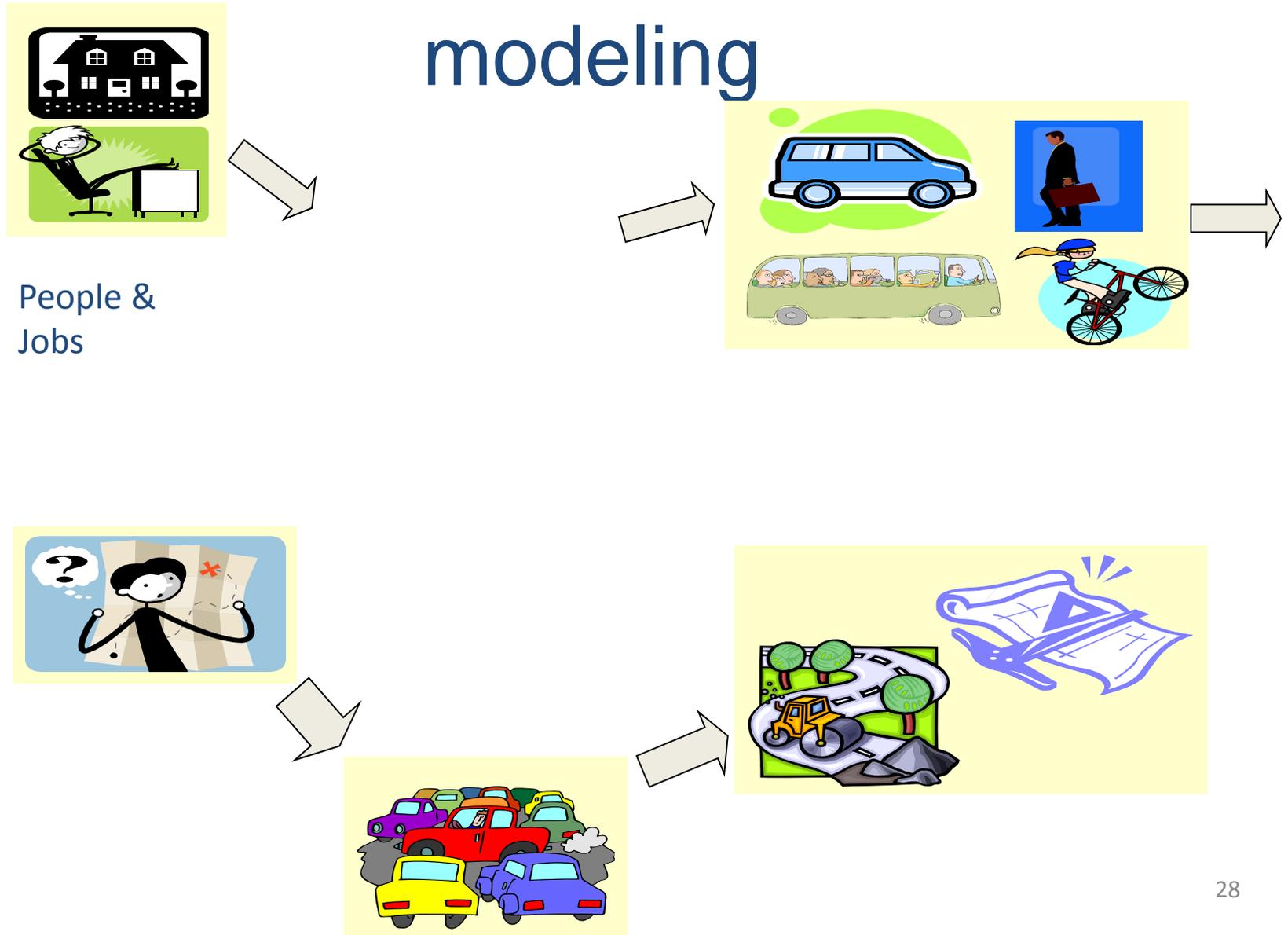


It is a mathematical approach to understanding how changes in land use, population, and area employment will impact the transportation system.

- It is ***a computer simulation model*** developed using LOCAL data to replicate existing conditions and forecast future conditions



# The completely over-simplified flow chart of travel demand modeling



- People & Jobs



# Purpose of a Travel Demand Model is ....

to assist decision makers in making informed transportation planning decisions.

- decisions are NOT BASED ON THIS TOOL ALONE!

the ability to ask critical “what if” questions about proposed plans and policies.

- it understands travel behavior instead of speculating

**...To Help Decision Makers See What the Future May Hold**

Is it absolute? *Nope!*

***NOT a provider of the “answers”***

***IT IS A TOOL that requires professional judgment!!***

**BUT IT IS A GOOD WAY TO ESTIMATE PROBABLE OUTCOMES.**

# What Does Model Do Well?

## Non-Technical Speak....the “Cans”

- Provides you LOCAL travel data
- It can show the impacts of road widenings and new road additions
- It can analyze the impacts of transportation plans
- It can show the impacts of new interchanges
- It can forecast changes in corridor volumes
- It can be used as a basis for microsimulation
- It can test alternative land use plans
- Provides visual (live/accurate) information and pretty maps to decision makers

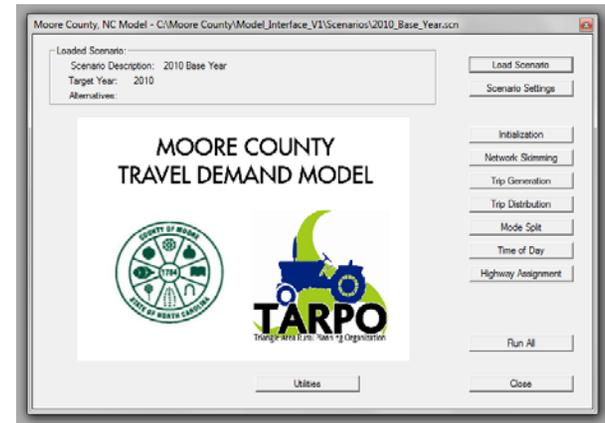
# What Does Model Not Do Well?

## Non-Technical Speak....the “Cant’s”

- It can’t be used to time traffic signals
- It can’t design interchanges – lanes, configurations, etc.  
(although it can provide insight)
- It can’t show impacts of new turn lanes at intersection  
(or most other intersection level improvements)
- It can’t identify induced growth or shifts in land use because of new road  
(the whole “chicken and the egg” thing)
- Does not represent true speed/Congestion on each link
  - Does not understand intersection queues
  - Does not limit capacity so over assignment can occur
- Does not give accurate turning movements at all intersections
- Will not give you true peak hour volumes
- Does not get local streets correct(neighborhood flows)

# Moore County Model “Fast Facts”

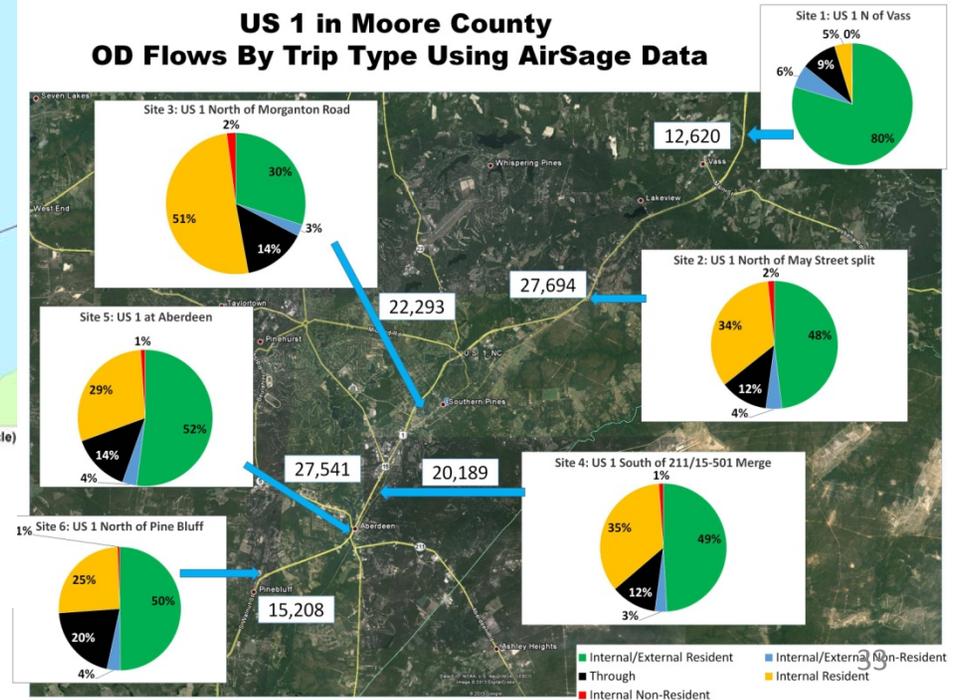
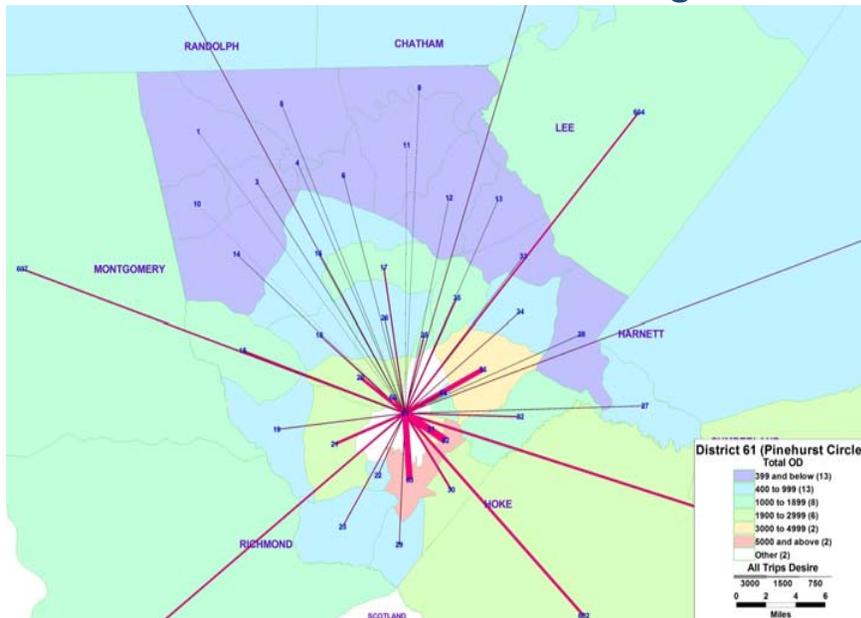
- 2012 Base Year
- 2030 & 2040 Future Year Data Also
- 174 TAZs
- Employment Classified into 8 Categories(cleaned by MCTC and staff)
  - Industry
  - Retail
  - HwyRetail
  - Office
  - Recreational
  - Hotel
  - Hospital
  - Shopping(Big Box/shopping centers)
- Peak Periods (AM & PM)
  - Also midday and night
- Includes trucks & commercial vehicles
- Uses mobile phone data to verify the flows
  - Average trip lengths match
- Validates to acceptable national criteria
  - Volumes to counts



# Moore County Model Results...

## How Well Does it Perform?

- We Used Mobile Phone Data
  - Recall it allows us to look at travel patterns in Moore County
  - Develop External Flows (through trips)
  - Try to match that data the best possible
    - Trip distance, locations, # of trips
  - Unbiased Data and good sample size



\*Flows are assigned OD's not official AADT's & may not match exact 2013 counts

# Moore County Model Results...How Well Does it Perform?

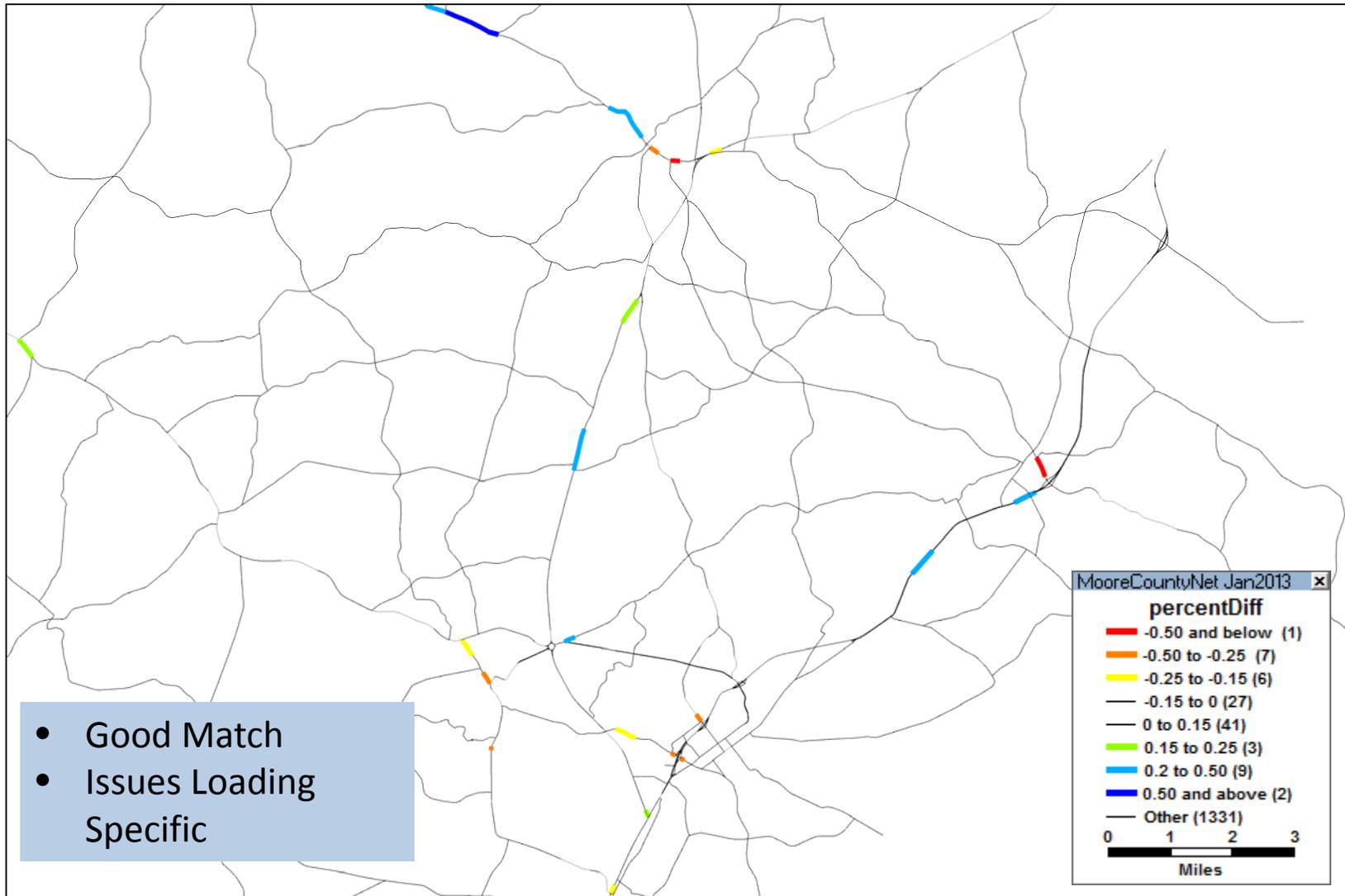
Comparison of Daily Traffic Volumes by Facility Type

Facility Type	Modeled	Target (+/-)
Freeway	4%	7%
Major Arterial	2%	10%
Minor Arterial	-6%	15%
Collector	-5%	25%

Percent Difference for Assigned Volumes by Assignment Group

Volume Group	Modeled	Target (+/-)
< 4999	18%	60%
5,000 – 9,999	-4%	47%
10,000– 19,999	-1%	36%
20,000–39,999	4%	25%
40,000–59,999	-8%	20%
> 60,000	-7%	10%
All Volume Groups	-3%	5%

# Percent Difference Map (Vol. vs. Count)



# Focus Area Findings and Concepts

Scott Walston, PE

Triangle Group Supervisor

Transportation Planning Branch

919-707-0941

[swalston@ncdot.gov](mailto:swalston@ncdot.gov)

# Purpose Of Today's Meeting

- Present the results of the roadway analysis for Moore County
- Work concentrated on five Focus Areas
  - Cameron
  - Carthage
  - West End
  - Western Connector
  - US 1

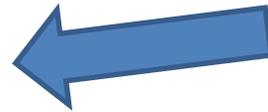
# We're talking about 2040 concepts!

- These concepts / options are for consideration by the Moore County Transportation Committee (MCTC)
- They are not final detailed plans
- They are subject to change
- Final recommendations by the MCTC will need to be:
  - Locally approved
  - Funded
  - Evaluated under a federal process to determine final design and location

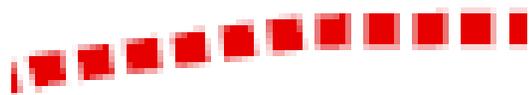
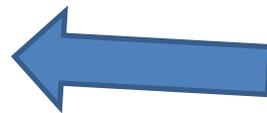
# What the symbols mean



2040 Projected  
Traffic



2012 Average  
Annual Daily  
Traffic



New Location Concept

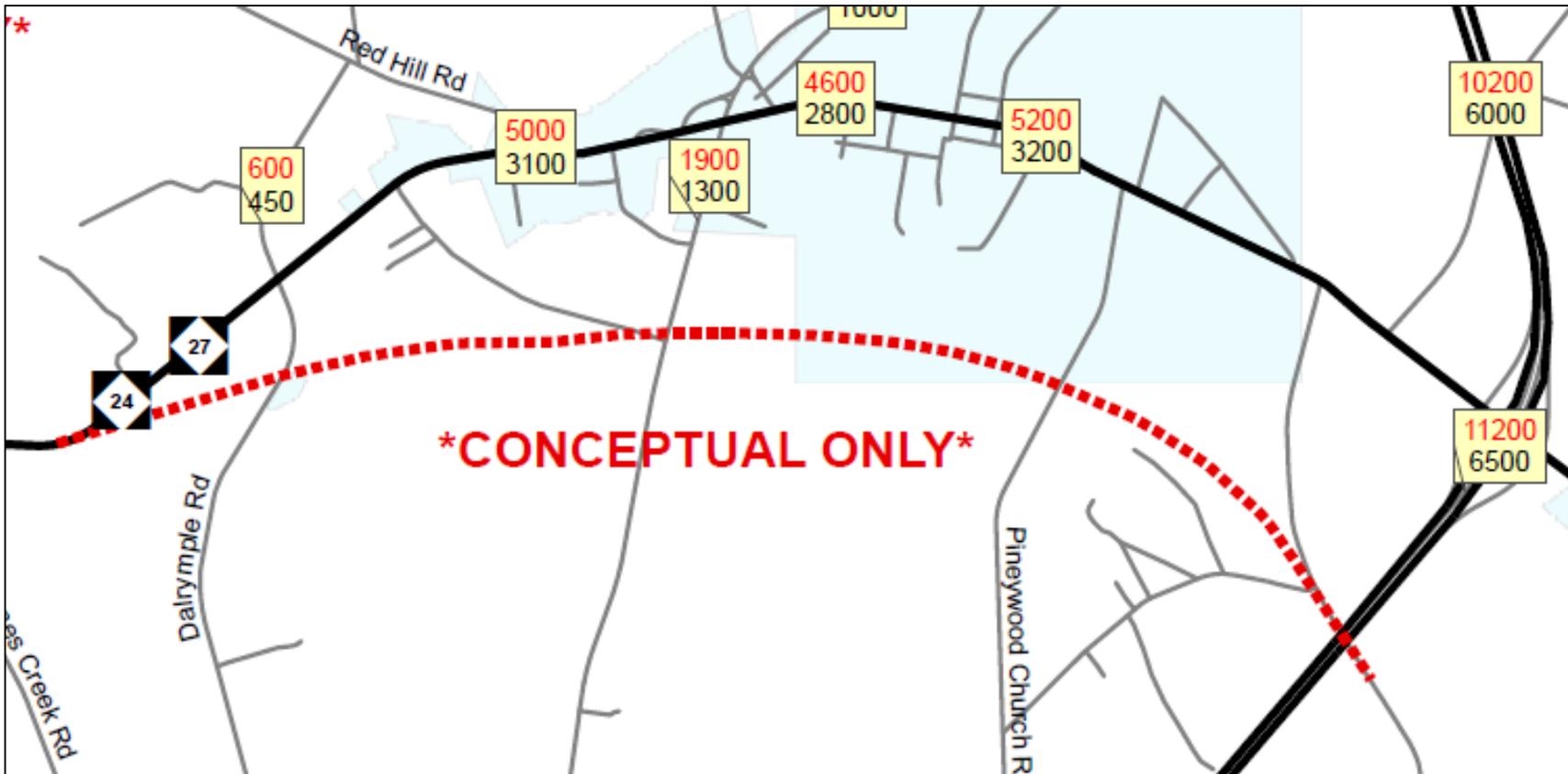
# Cameron

Problem: NC 24/27 is a key corridor in the county for economic development. Any improvements of NC 24/27 through Cameron will encounter historic properties.

## Facts

- 82% of 2011 charrette participants favored a southern bypass
- Traffic projections indicated no congestion in 2040

# Cameron Concept – shallow bypass



Connect NC 24/27 west of town to Atkins Road

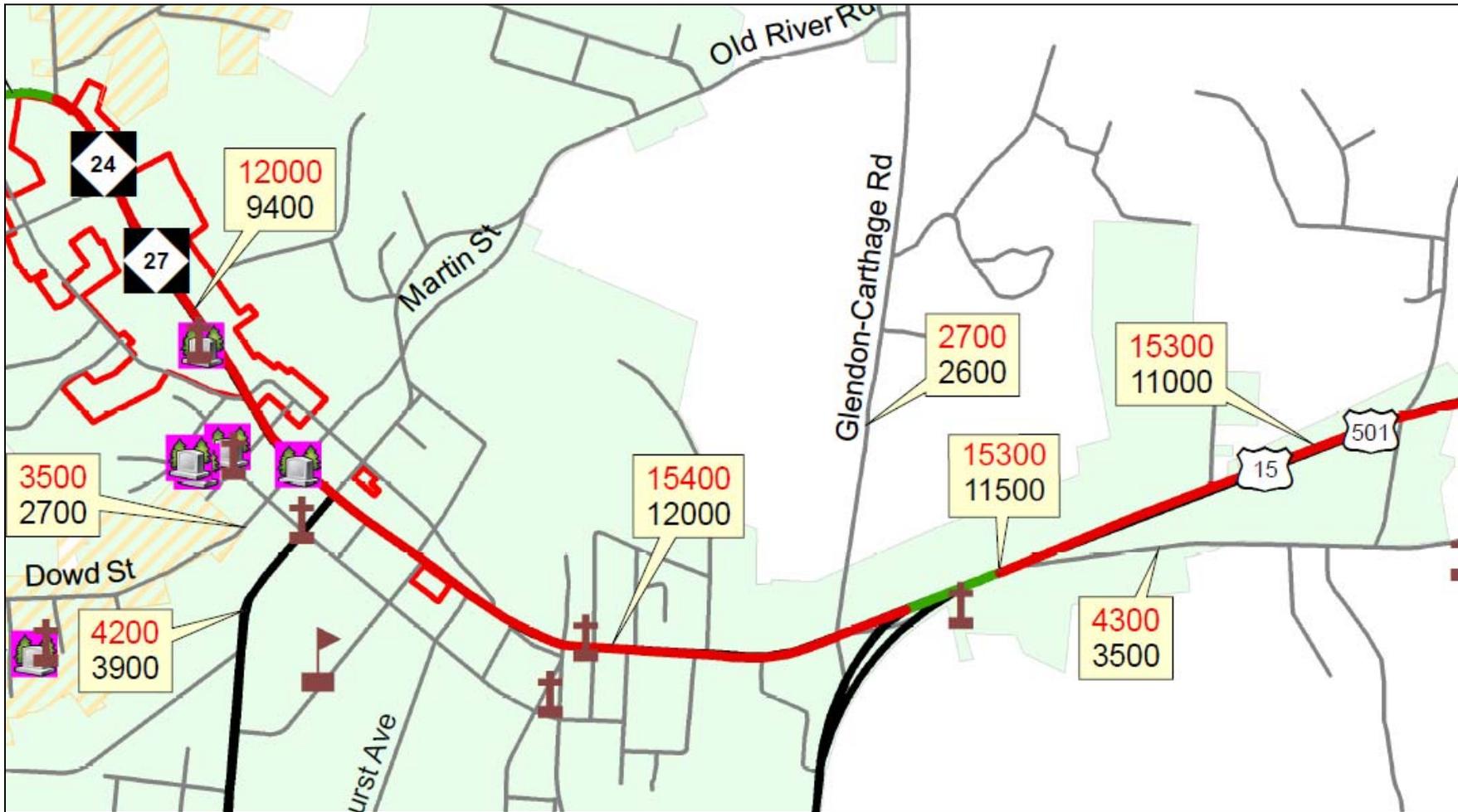
# Carthage

Problem: 2040 projections indicate that NC 24/27 in Carthage will exceed the number of vehicles it is designed to carry.

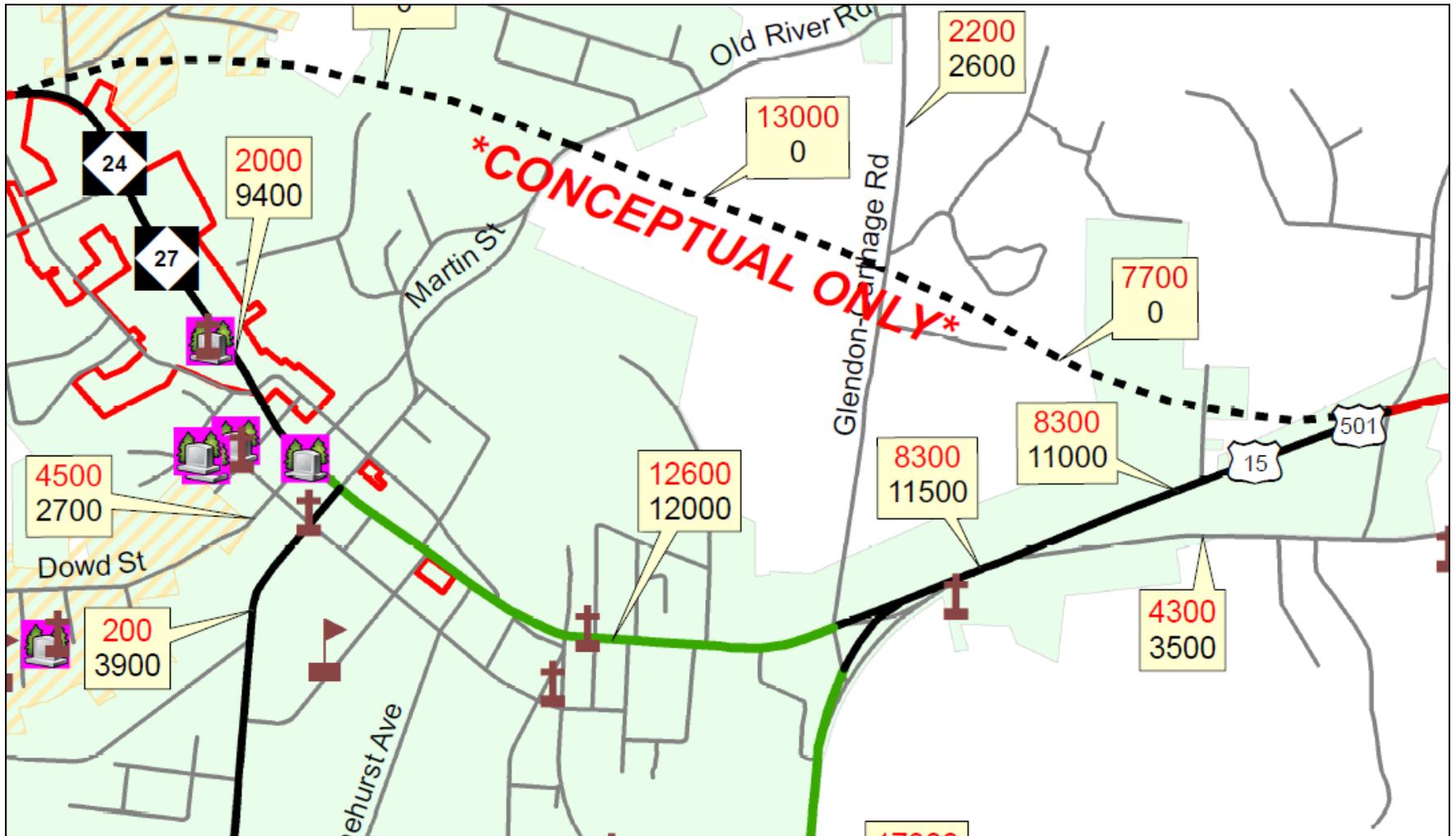
## Facts

- A Northern Bypass was planned years ago and dropped due to controversy (R-2212)
- State policy has changed for NC 24/27, giving an opportunity to reconsider the purpose
- 83% of 2011 Charrette participants favored a northern bypass
- Longer bypasses = lesser traffic benefit to Carthage

# Carthage Traffic



# Carthage Concept – shallow bypass



Connect NC 24/27 near Old Glendon Road to near Priest Hill Road

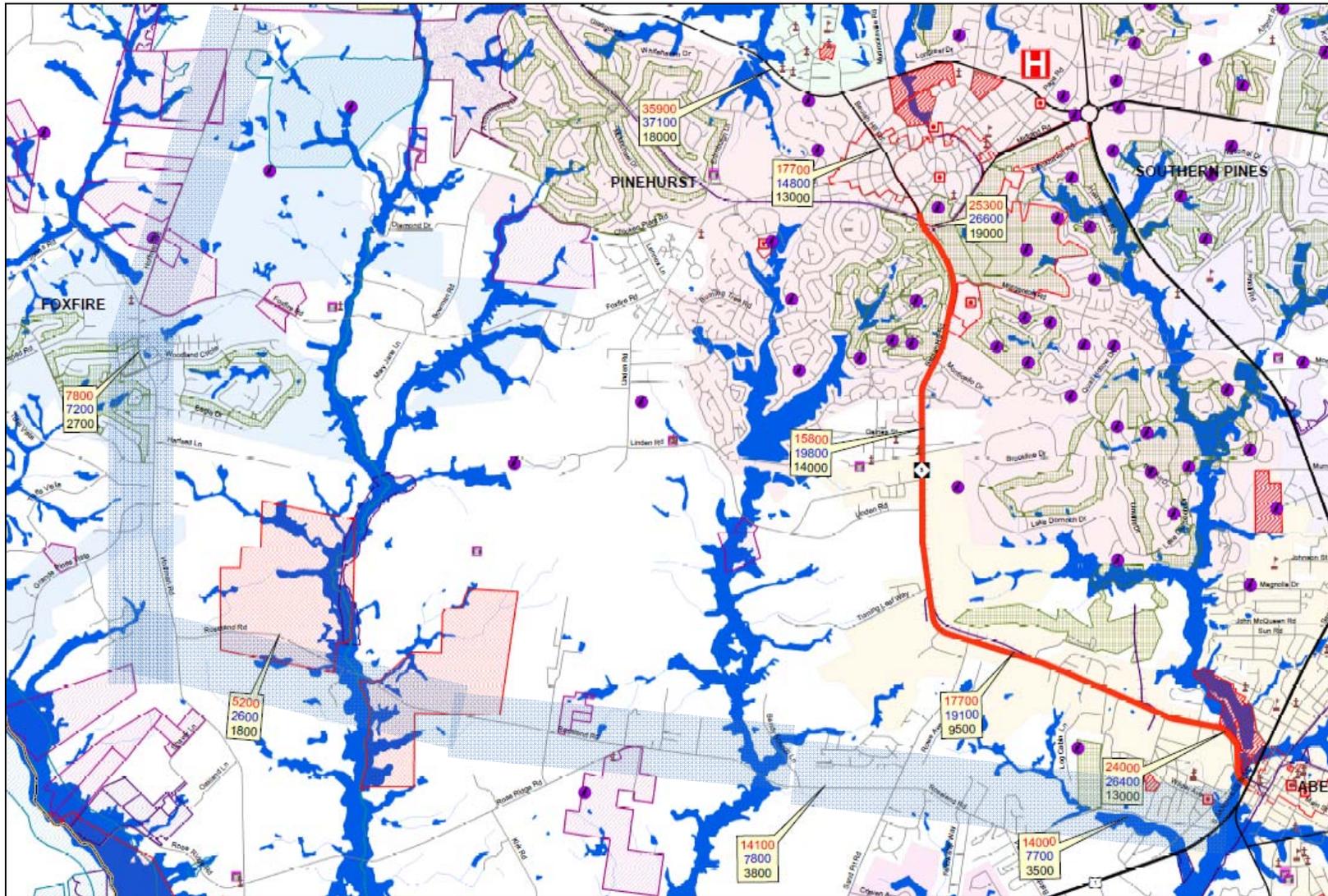
# Western Connector / West End

Problem: Connect the communities in western Moore County with amenities in the east and relieve congestion on existing roads.

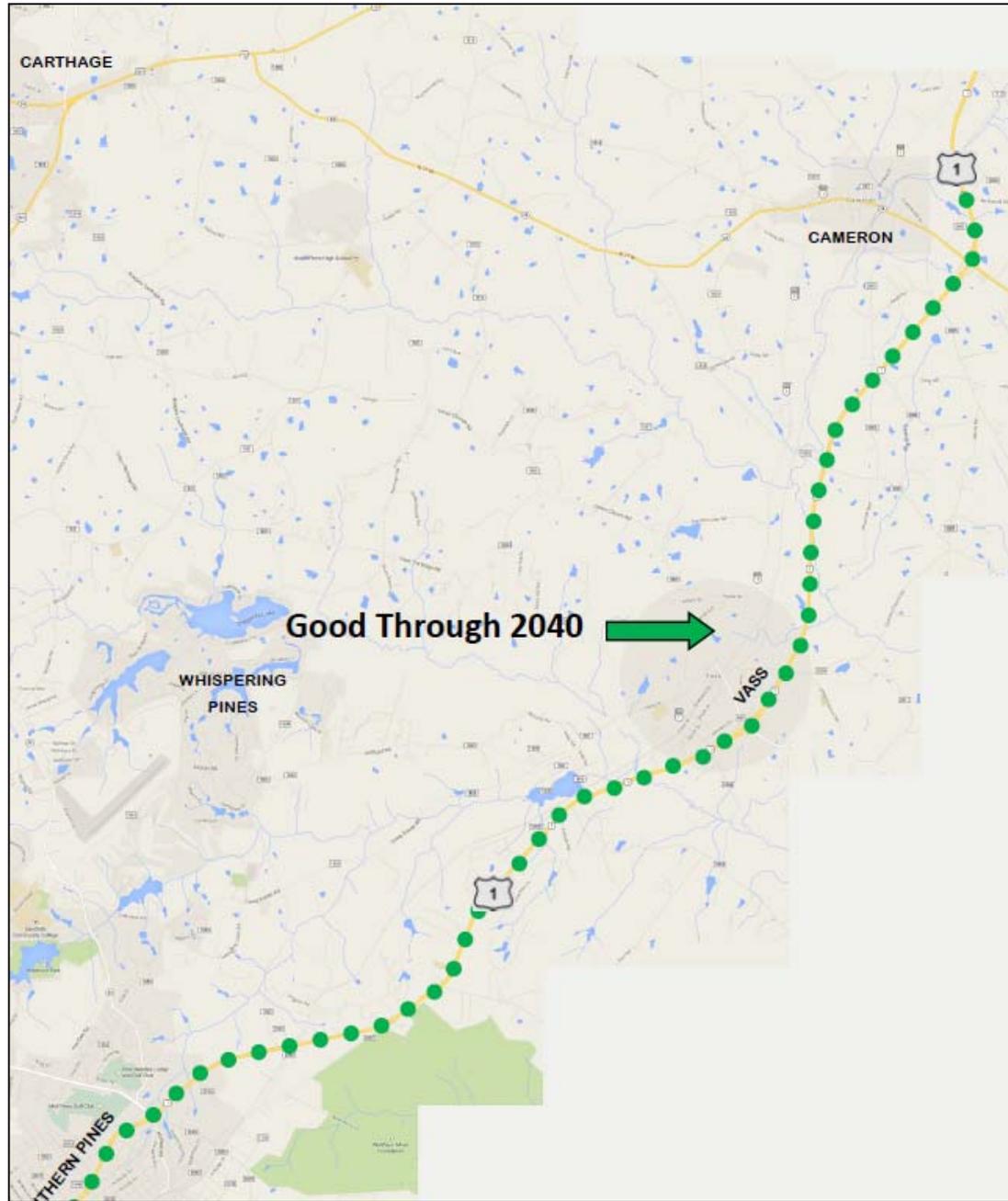
## Facts

- 58% of 2011 Charrette participants preferred widening Hoffman and Roseland Roads instead of the Western Connector.
- Analysis showed that was not an effective solution.
- A call for suggestions in this area (No Concepts)

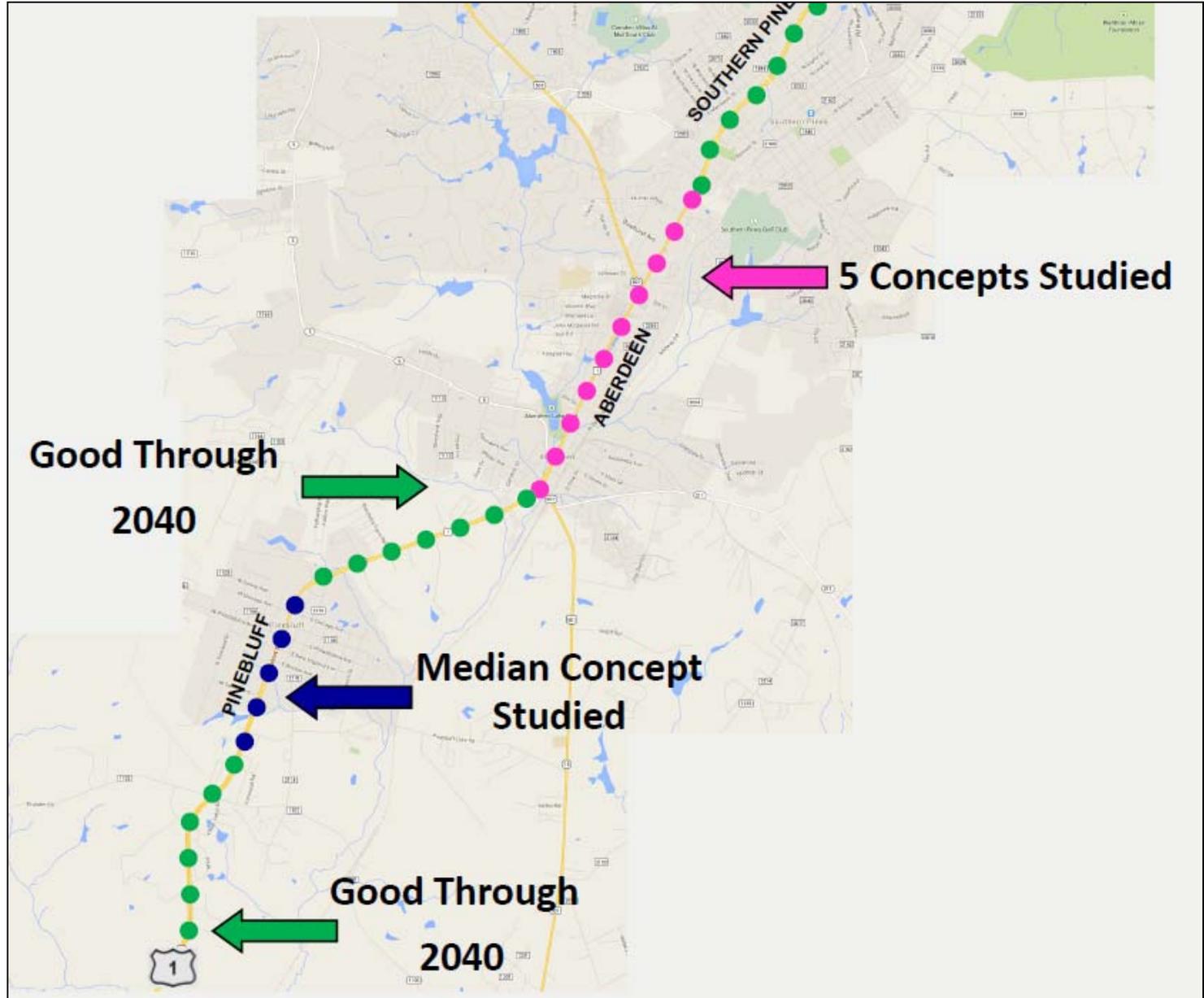
# Western Connector / West End



# US 1



# US 1



# US 1

## Facts

- Some is heavily urbanized with many driveways
- 70% of 2011 Charrette participants preferred improvements on existing US 1.
- Local resolutions prevented consideration of concepts east of US 1.
- US 1 in Moore County is a Strategic Transportation Corridor  
(high priority, promote efficient mobility and connectivity, connect activity centers)

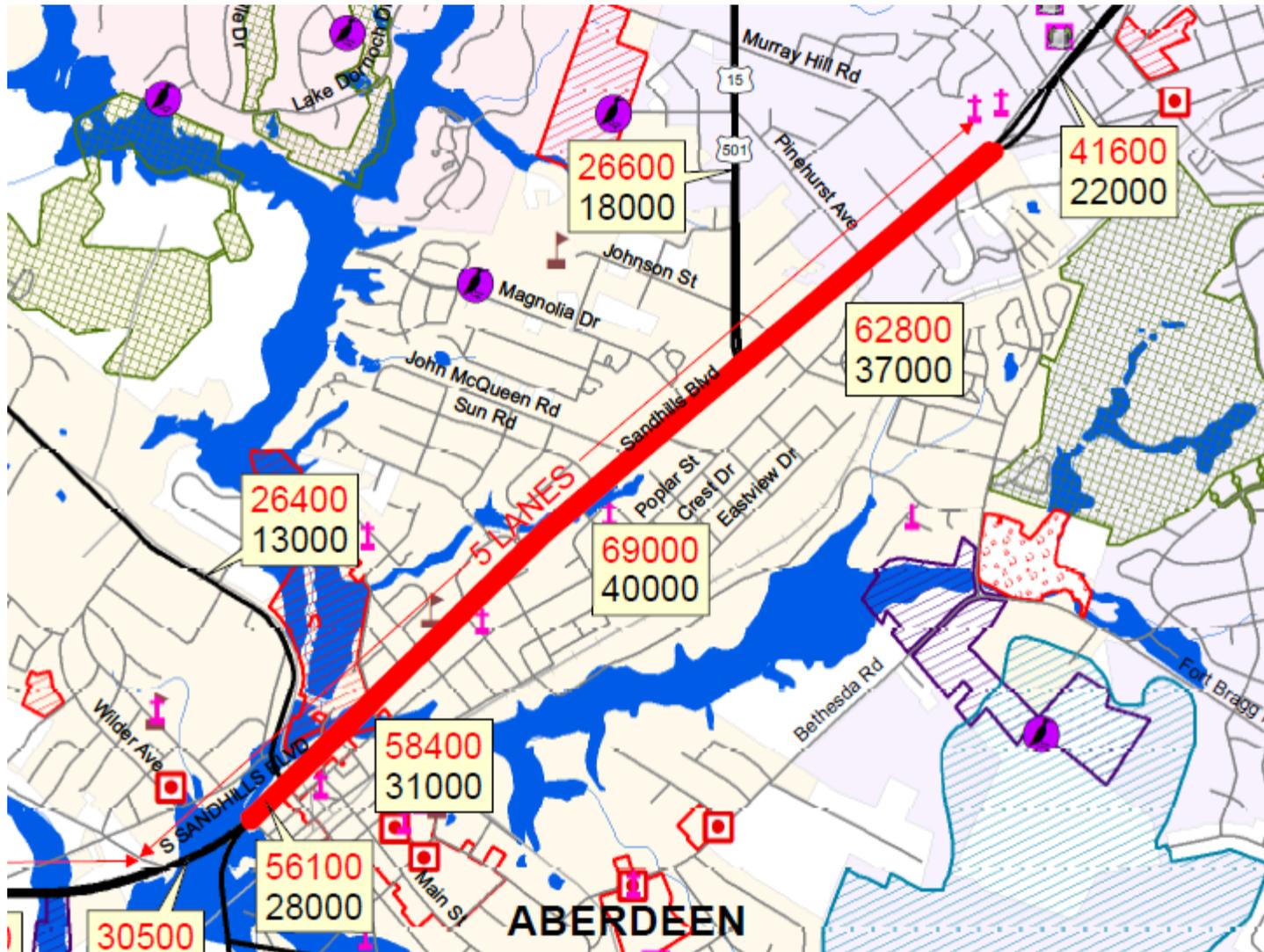
# US 1 (between Old US 1 – Roseland)

First of Two Problems:

The 2040 projections between Old US 1 and Roseland Road indicate this section will exceed the number of vehicles it is designed to carry.

Locally approved data was used in the travel demand model to make the projections

# US 1 future congestion



# US 1 (between Old US 1 – Roseland)

Second Problem:

Currently, the *Crash Rate* for this section exceeds statewide averages

Between October 2009 and 2014

- 924 crashes, with 338 involving injuries
- No fatalities
- Crash rate is 412 (per 100 million vehicle miles)
- 2014 NC crash rate is 237.4 (Moore County rate 261.56)  
(<https://apps.ncdot.gov/dot/dashboard/safer.aspx>)
- Safety needs to be addressed

# US 1

Kimley Horn will cover options for US 1 between Old US 1 and Roseland Road in more detail.

Another concept for consideration is to add a median to the 5 lane section in Pinebluff as the area will be approaching congested conditions by 2040.

Remember, we are talking about concepts or options to consider!

# US 1 Alternatives Analysis Findings

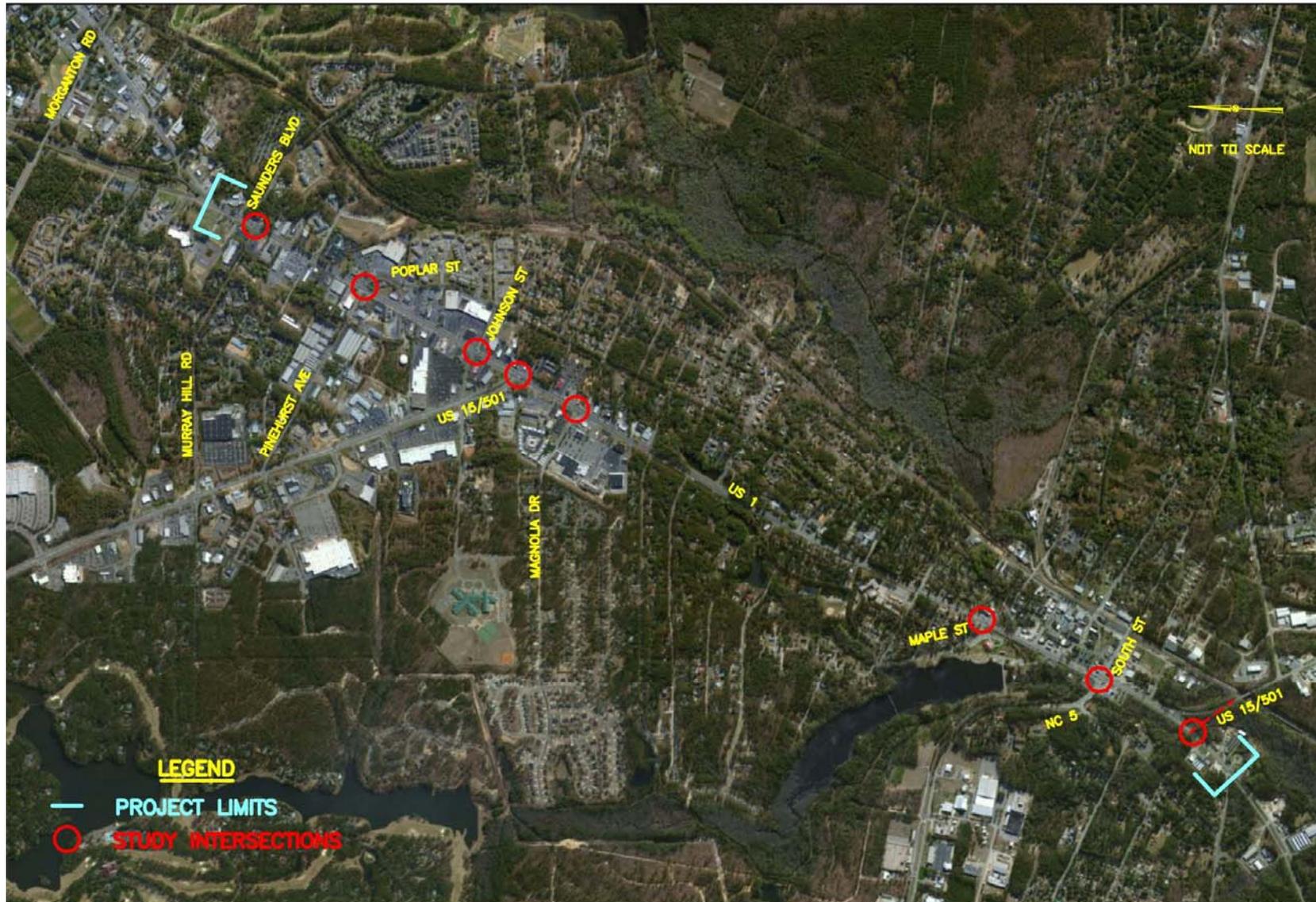
Public Update

March 2015

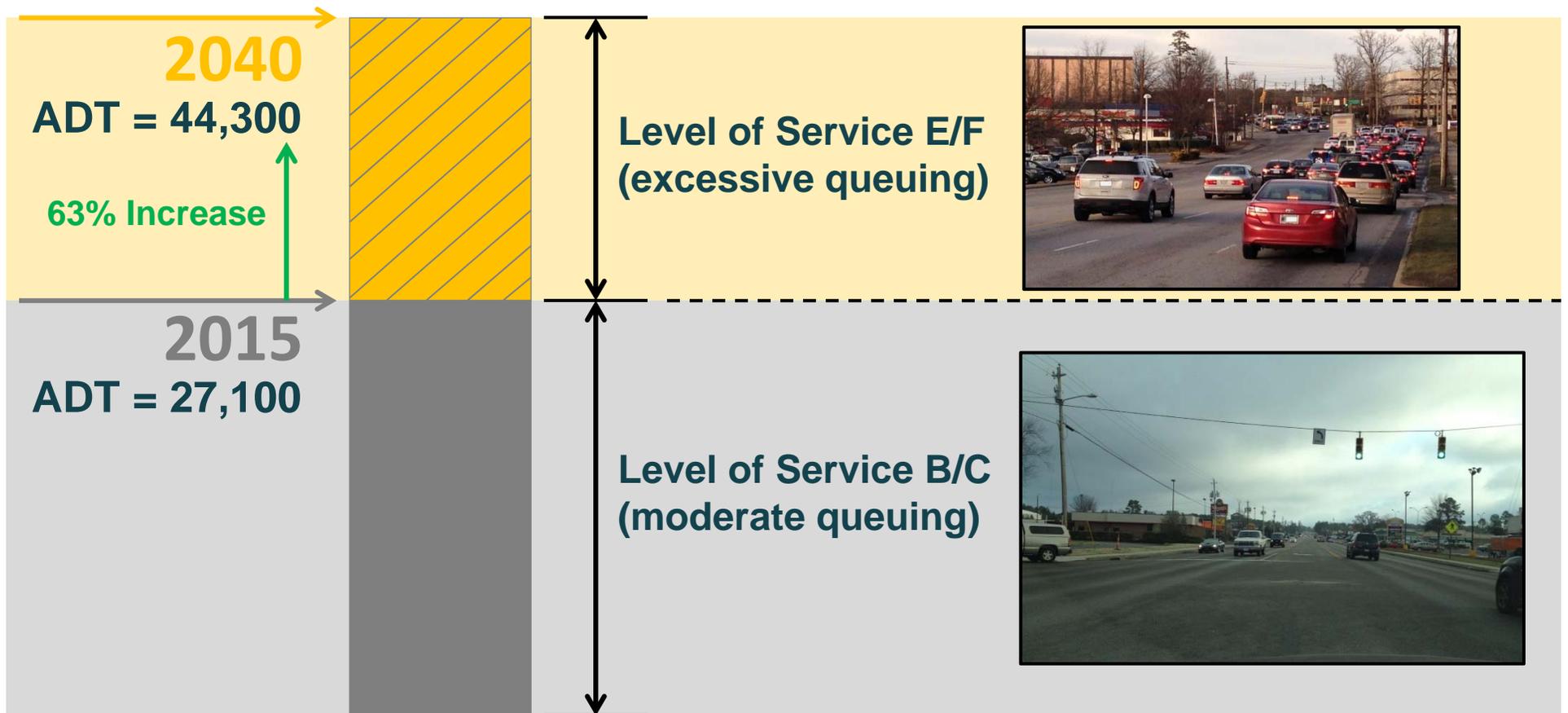
Kimley»»Horn



# Study Area



# Existing Operations and Projected Growth



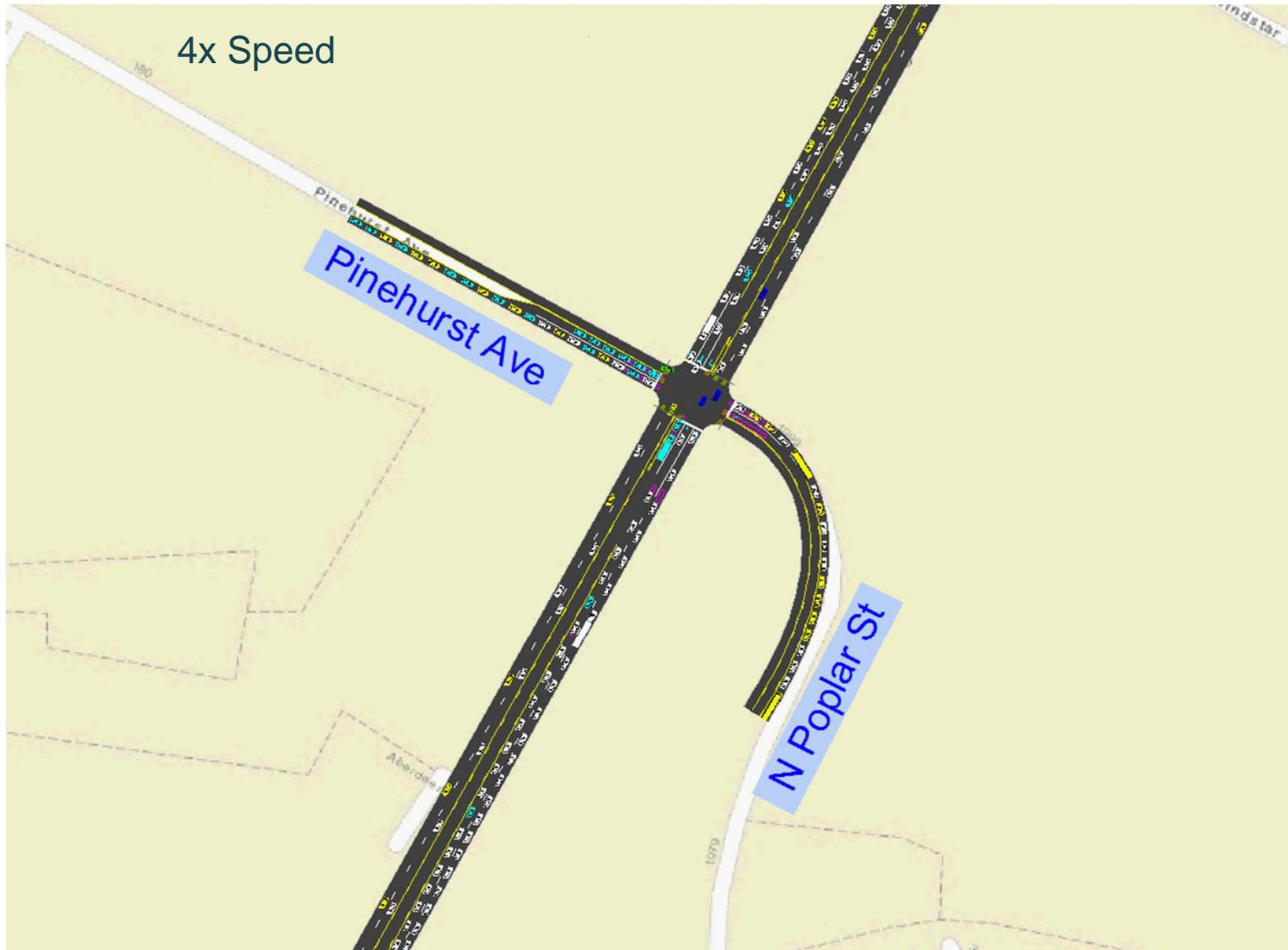
# Capacity Improvement Considerations

- During the analysis, we investigated 5 concepts:
  1. No Improvements to US 1 by 2040 (Baseline)

# Future (No Build) - Results

- Level-of-service:
  - Intersections are expected to operate unacceptably (LOS E/F) in 2040 without any improvements
- Queuing:
  - Excessive queuing is expected, particularly during peak hours

# Future (No Build) Operations – 2040 Simulation



# Capacity Improvement Considerations

- During the analysis, we investigated 5 concepts:
  1. No Improvements to US 1 by 2040 (Baseline)
  2. Converting US 1 to a freeway

# Freeway Concept



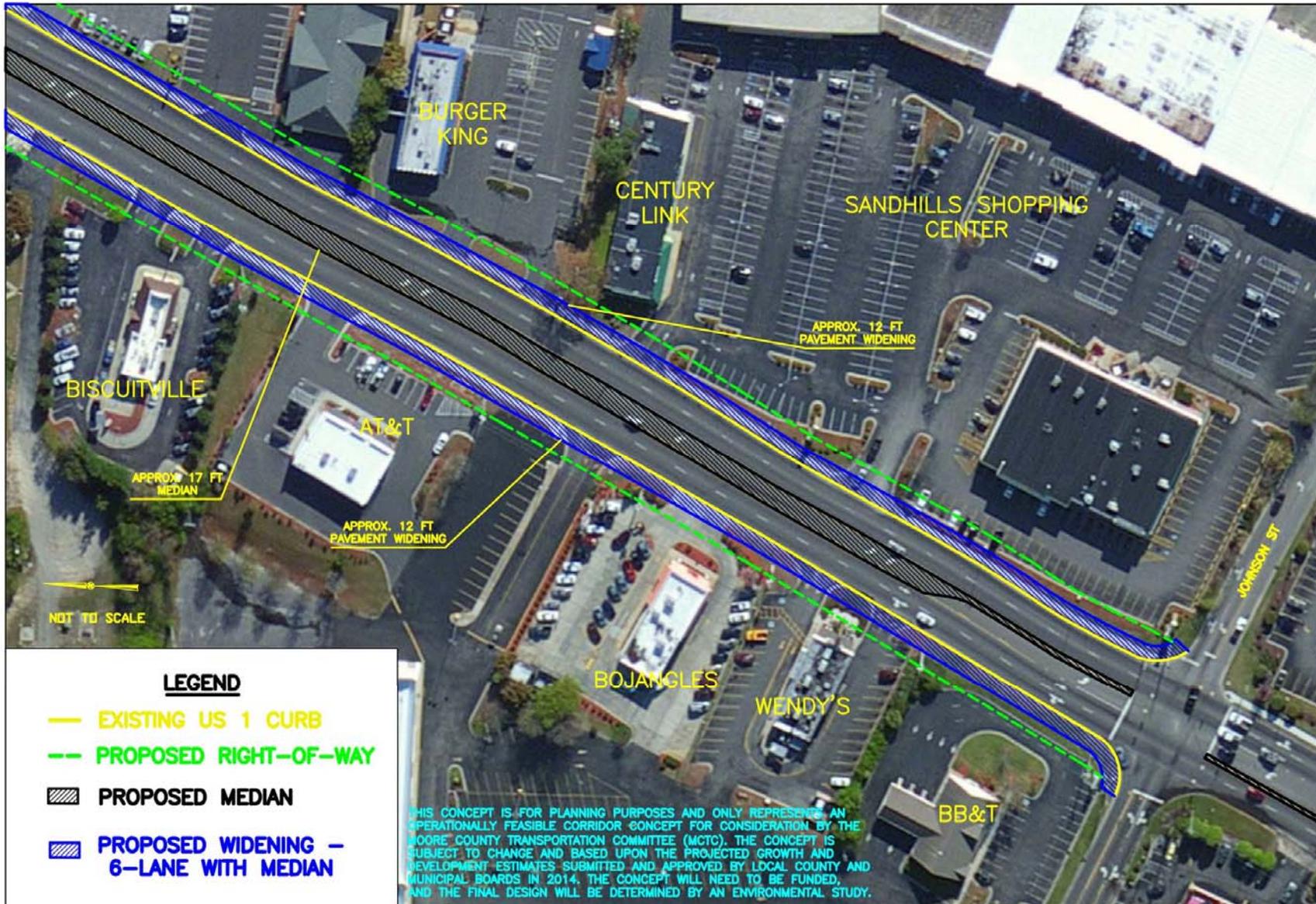
# Freeway - Results

- Level-of-service:
  - Intersections are expected to operate acceptably (LOS B/C) in 2040 with these improvements
- Queuing:
  - Acceptable queuing during peak hours
- Property Impact:
  - No direct access to US 1
  - Severe impacts at interchanges

# Capacity Improvement Considerations

- During the analysis, we investigated 5 concepts:
  1. No Improvements to US 1 by 2040 (Baseline)
  2. Converting US 1 to a freeway
  3. Adding 2 additional lanes and a median

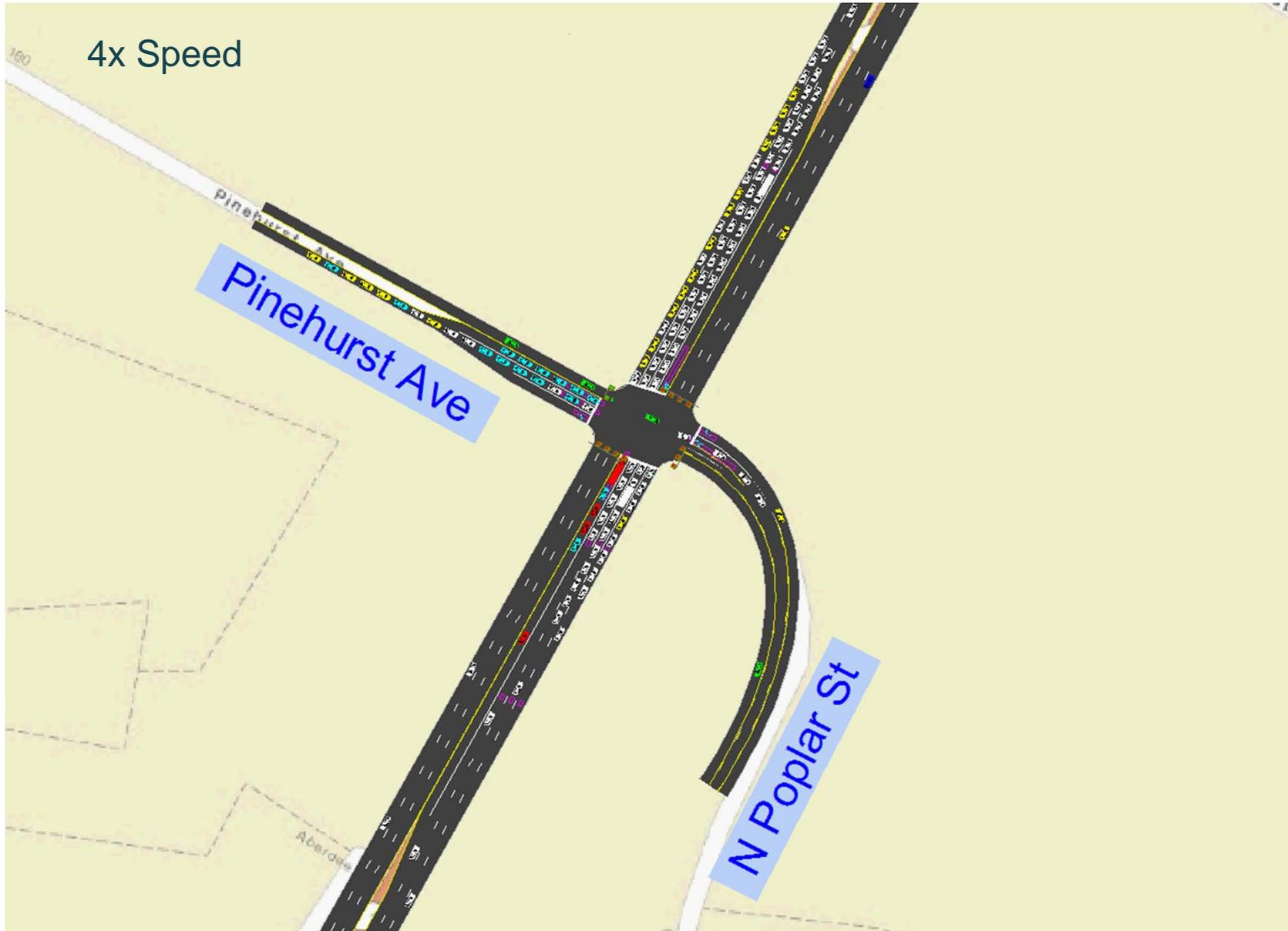
# 6-Lane with Median Option



# 6-Lane with Median - Results

- Level-of-service:
  - Intersections are expected to operate at LOS C/D in 2040 with these improvements
- Queuing:
  - Long queues are expected at times, particularly along side streets

# 6-Lane with Median – 2040 Simulation

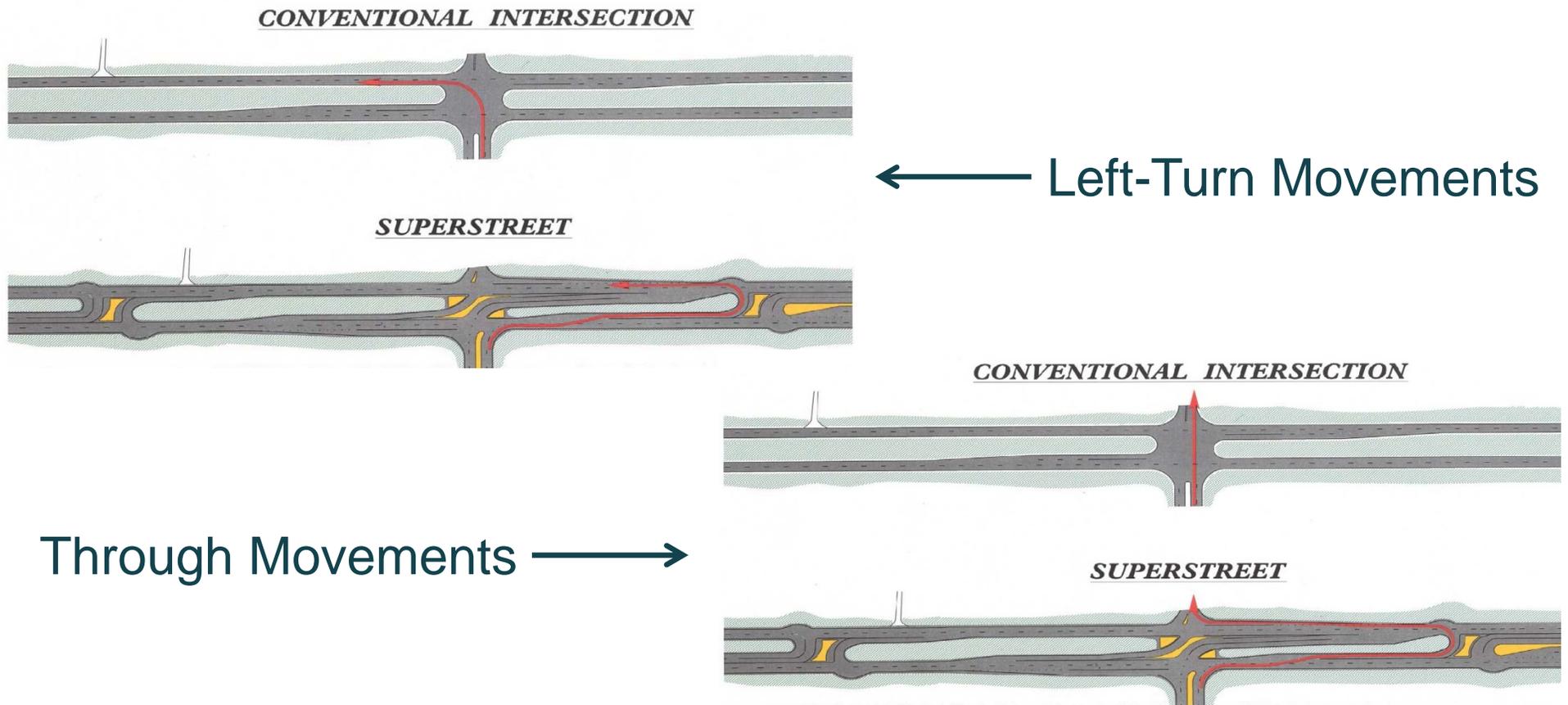


# Capacity Improvement Considerations

- During the analysis, we investigated 5 concepts:
  1. No Improvements to US 1 by 2040 (Baseline)
  2. Converting US 1 to a freeway
  3. Adding 2 additional lanes and a median
  4. Converting US 1 to a 4-Lane Superstreet

# What is a Superstreet?

- A superstreet is a type of intersection in which side-street traffic is redirected for greater efficiency and safety



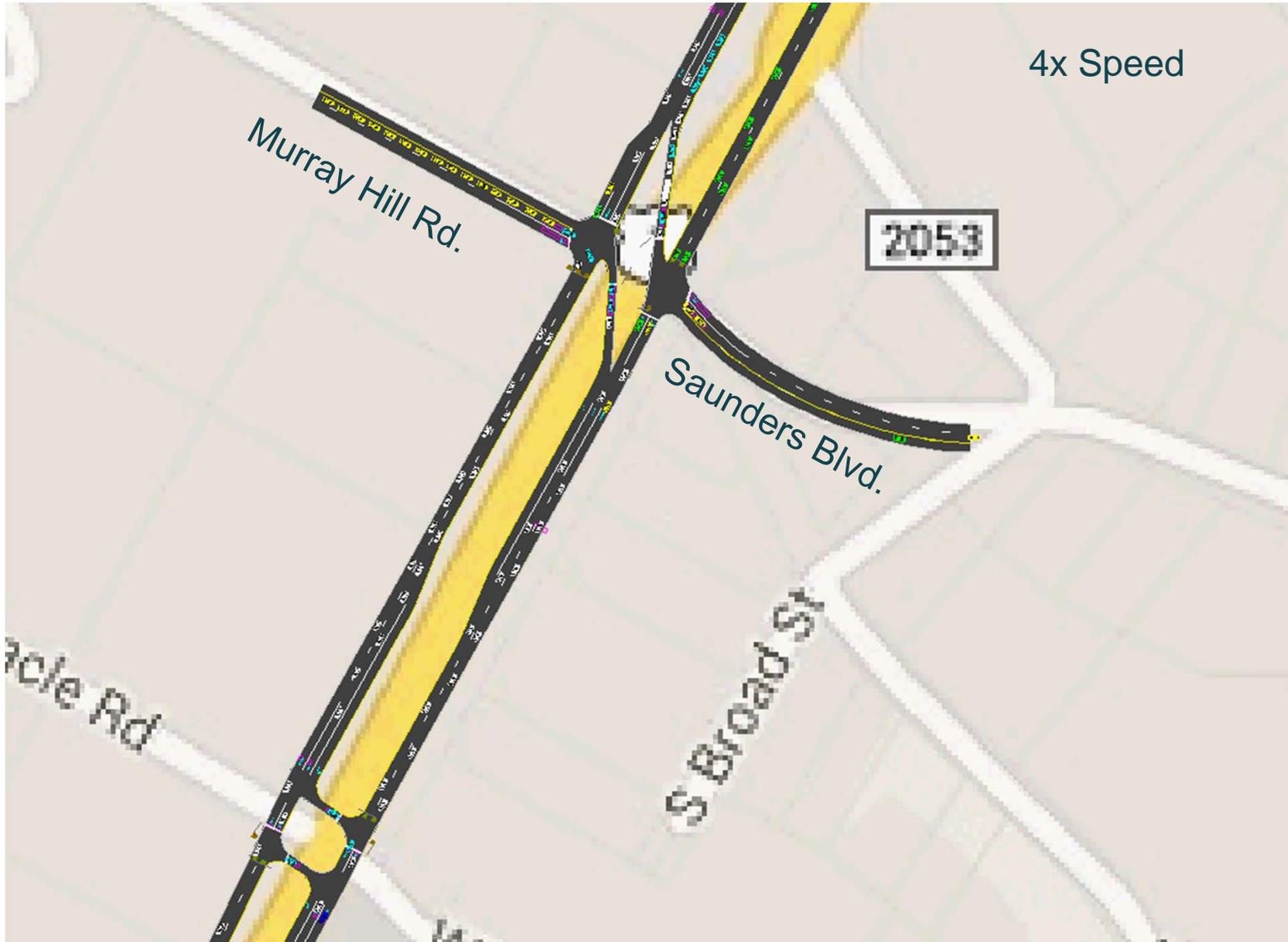
# 4-Lane Superstreet Concept



# 4-Lane Superstreet - Results

- Level-of-service:
  - Intersections are expected to operate at LOS C/D through 2035 with these improvements
  - However, by 2040, delay in some areas will be unacceptable
    - Changes in access management & land use could possibly extend the 2035 “acceptable” date
- Queuing:
  - Long queues are expected at times, particularly along side streets

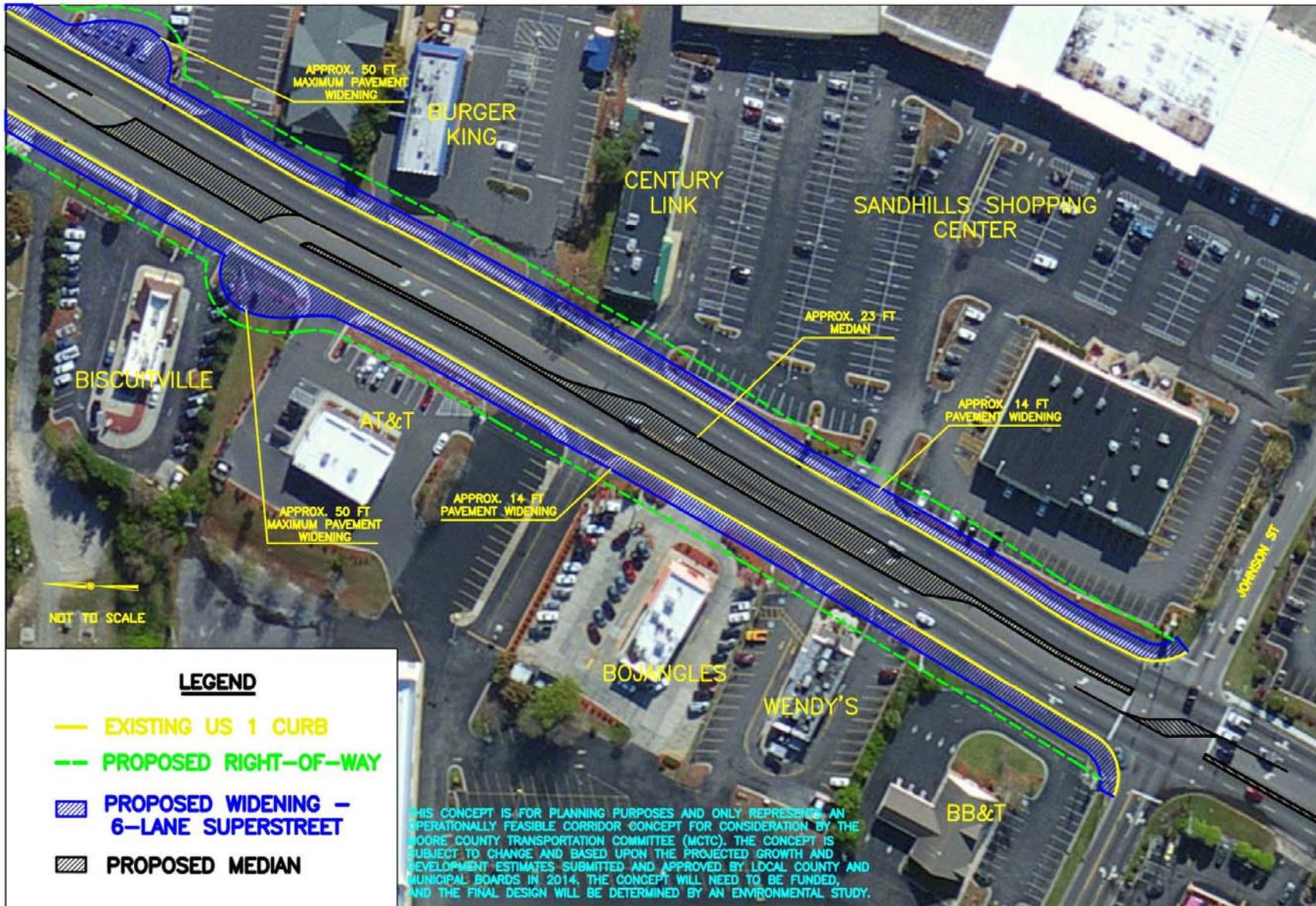
# 4-Lane Superstreet – 2040 Simulation



# Capacity Improvement Considerations

- During the analysis, we investigated 5 concepts:
  1. No Improvements to US 1 by 2040 (Baseline)
  2. Converting US 1 to a freeway
  3. Adding 2 additional lanes and a median
  4. Converting US 1 to a 4-Lane Superstreet
  5. Converting US 1 to a 6-Lane Superstreet

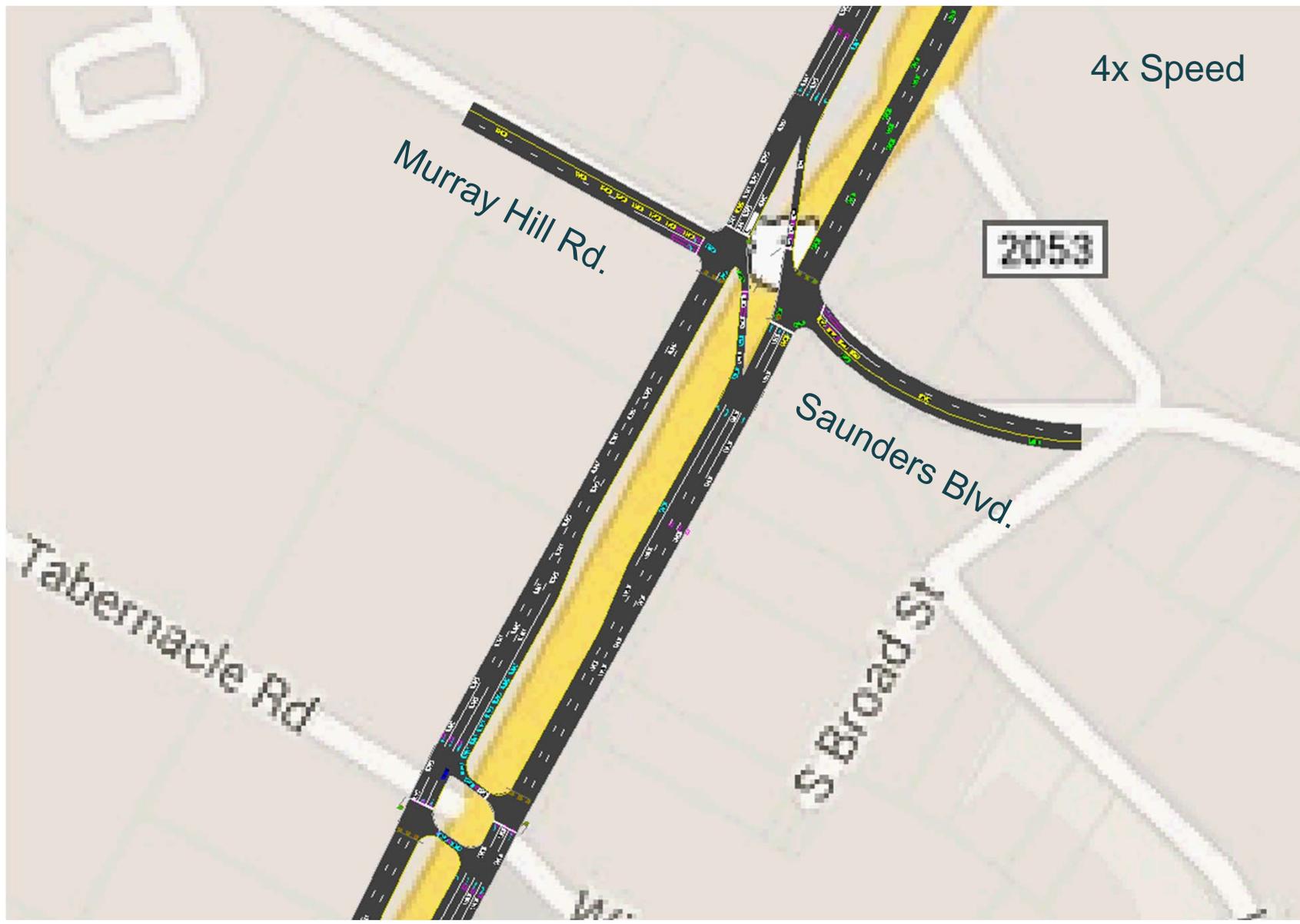
# 6-Lane Superstreet Concept



# 6-Lane Superstreet - Results

- Level-of-service:
  - Intersections are expected to operate at LOS B/C in 2040 with these improvements
- Queuing:
  - Acceptable queuing during peak hours

# 6-Lane Superstreet – 2040 Simulation



# 2040 Findings

- Based on the traffic projections, leaving US 1 without improvements will not meet 2040 travel demand or maintain mobility

<u>Option</u>	<u>Property Impact</u>	<u>Traffic Operations</u>	<u>Notes</u>
Do Nothing	None	Very Poor	Long delays & queues
Freeway	Severe	Very Good	
6-Lane Full-Movement	Moderate	Moderate	Long queues expected
4-Lane Superstreet	Low	Moderate	Acceptable through 2035
6-Lane Superstreet	Moderate	Good	

# Mobility Discussion

Kevin J. Lacy, PE

State Traffic Engineer

919-773-2800

[jklacy@ncdot.gov](mailto:jklacy@ncdot.gov)

# Moore County Elected Officials Presentation

[www.ncdot.gov/projects/moorechoices](http://www.ncdot.gov/projects/moorechoices)  
(all information should be online within a week)