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I-40 Transit Priority Facility Pre-Feasibility Study

Regional Transportation Alliance

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AECOM Local and National Project Team

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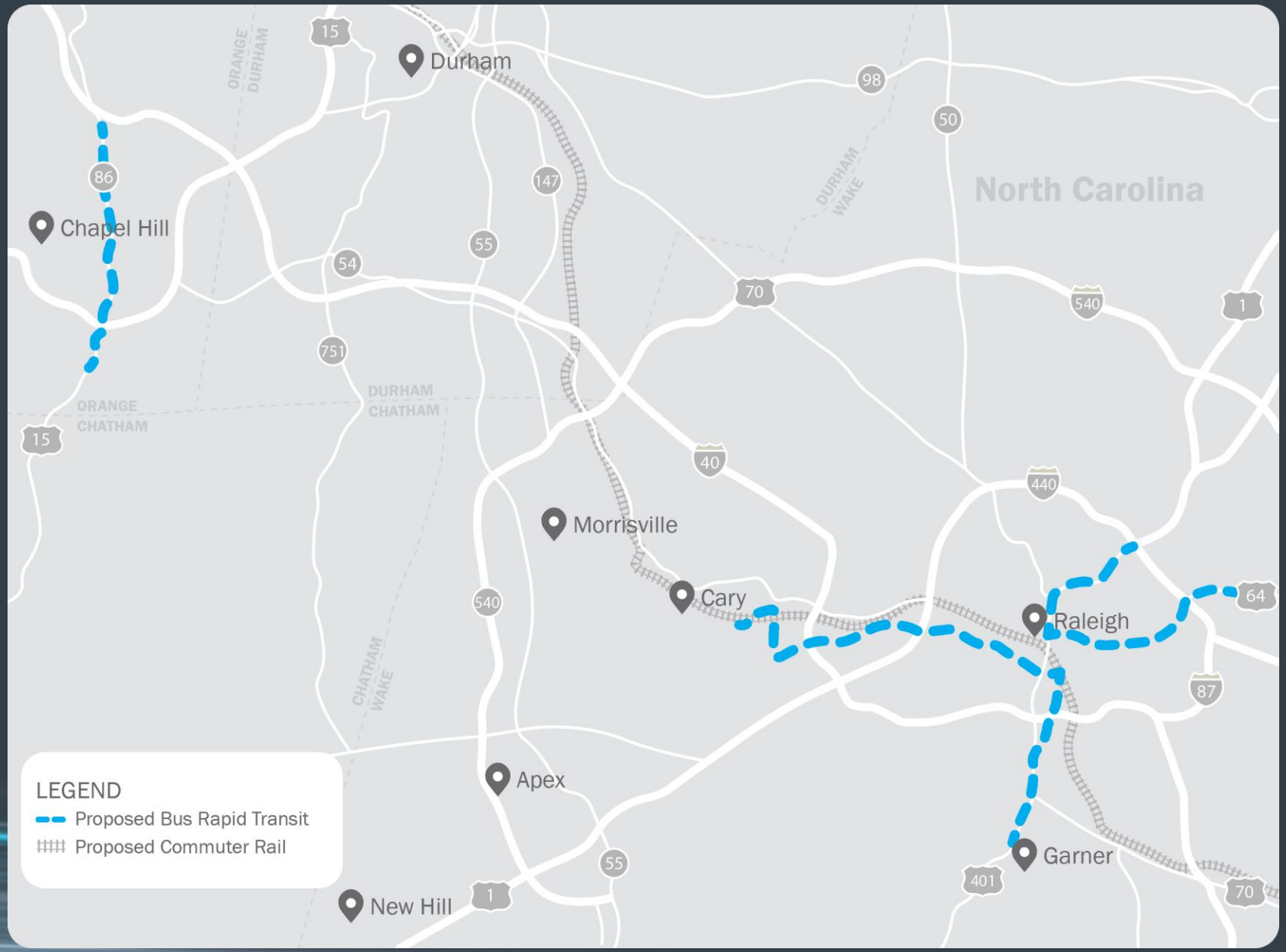
Planned BRT Projects

Five planned BRT projects will begin operating in the next few years



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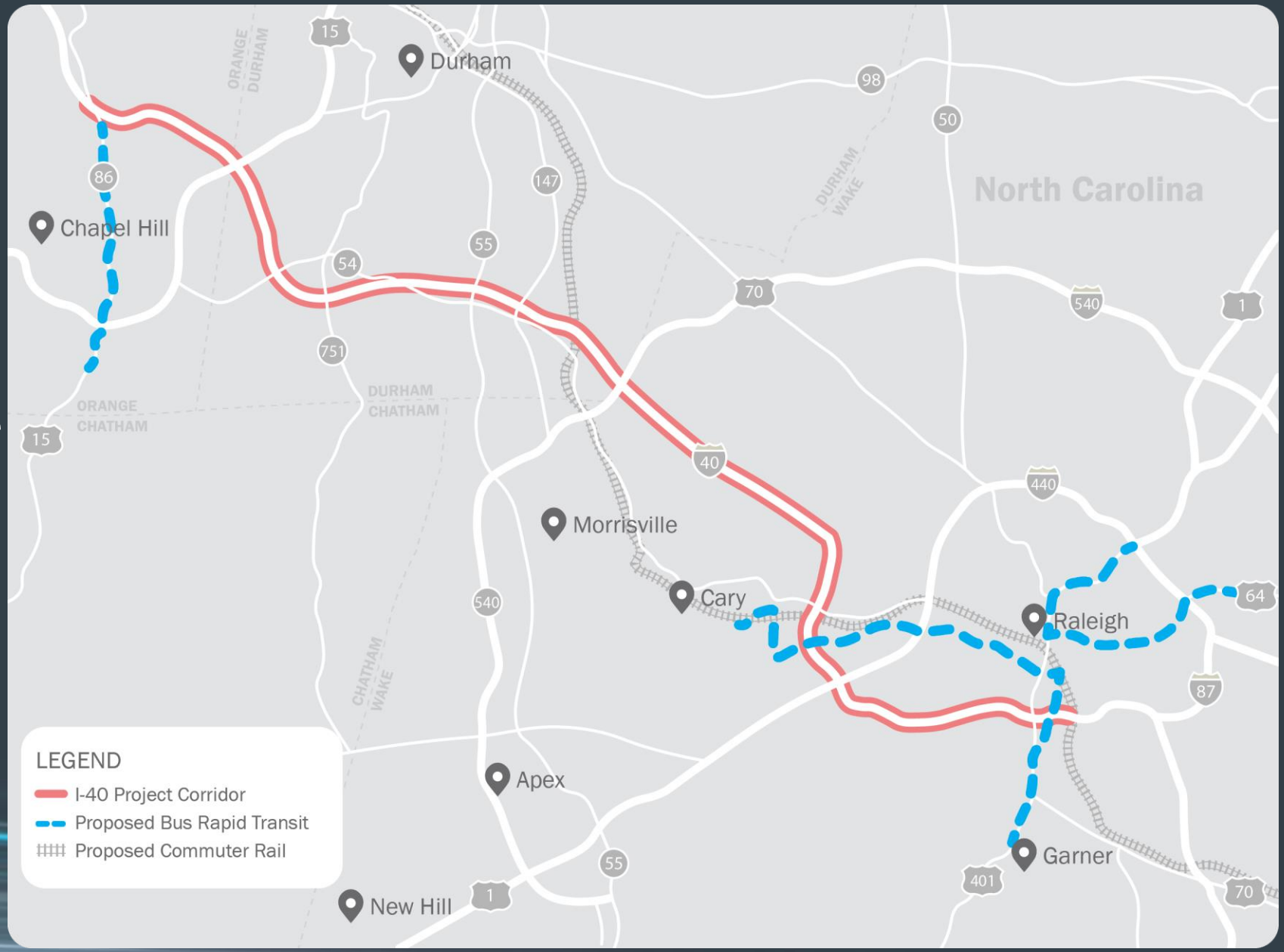
I-40 – the “missing link”

The I-40 Corridor presents an opportunity to improve regional transit connections

I-40 has also been identified as a potential focus corridor during the regional FAST network study



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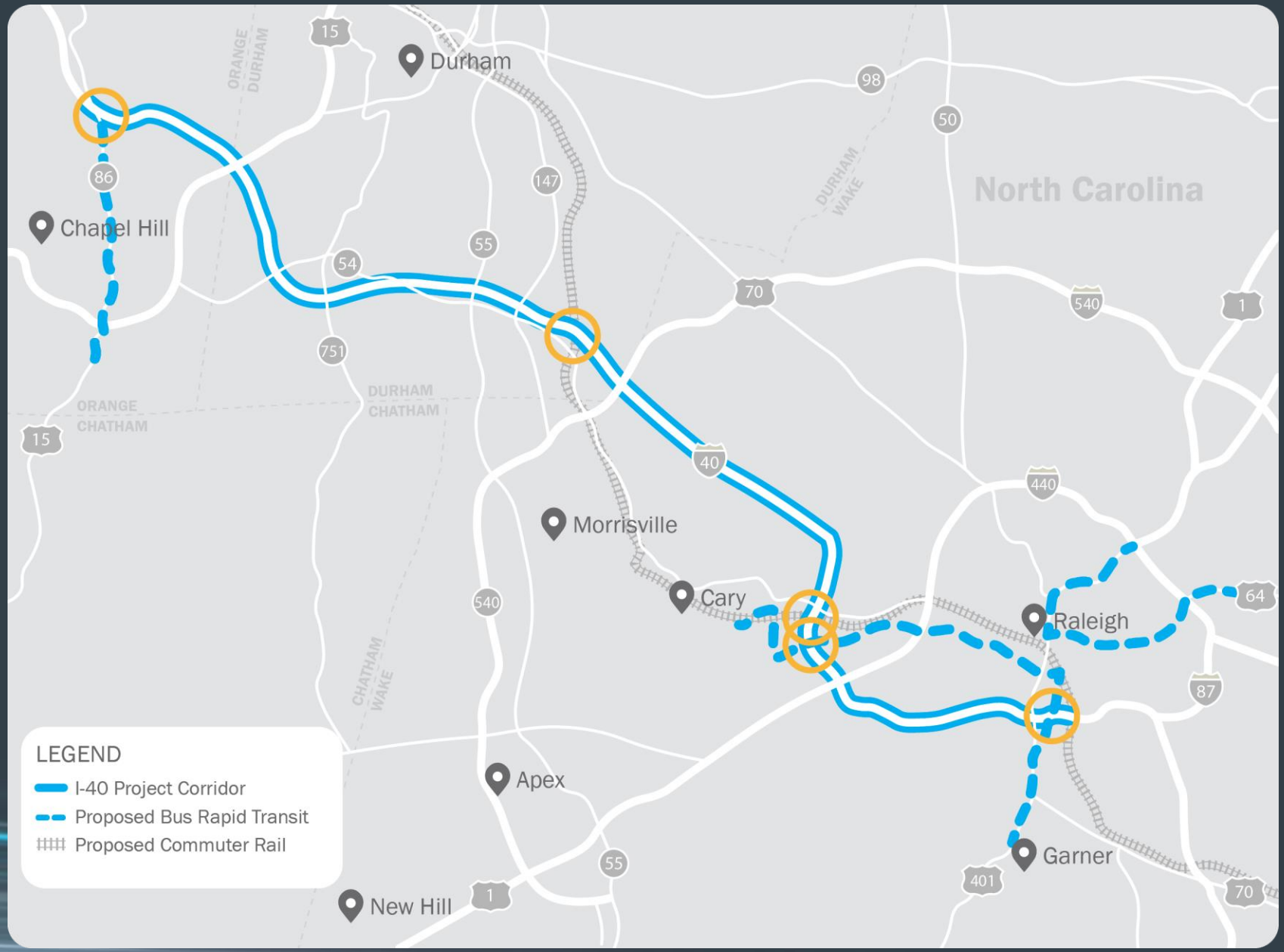
Project Goals

- Provide connections to (5) future BRT routes and proposed commuter rail line
- Develop a low-cost, near-term option for a transit priority lane or shoulder
- Maintain a transit speed of 45 mph, regardless of travel conditions in adjacent mainline lanes on I-40



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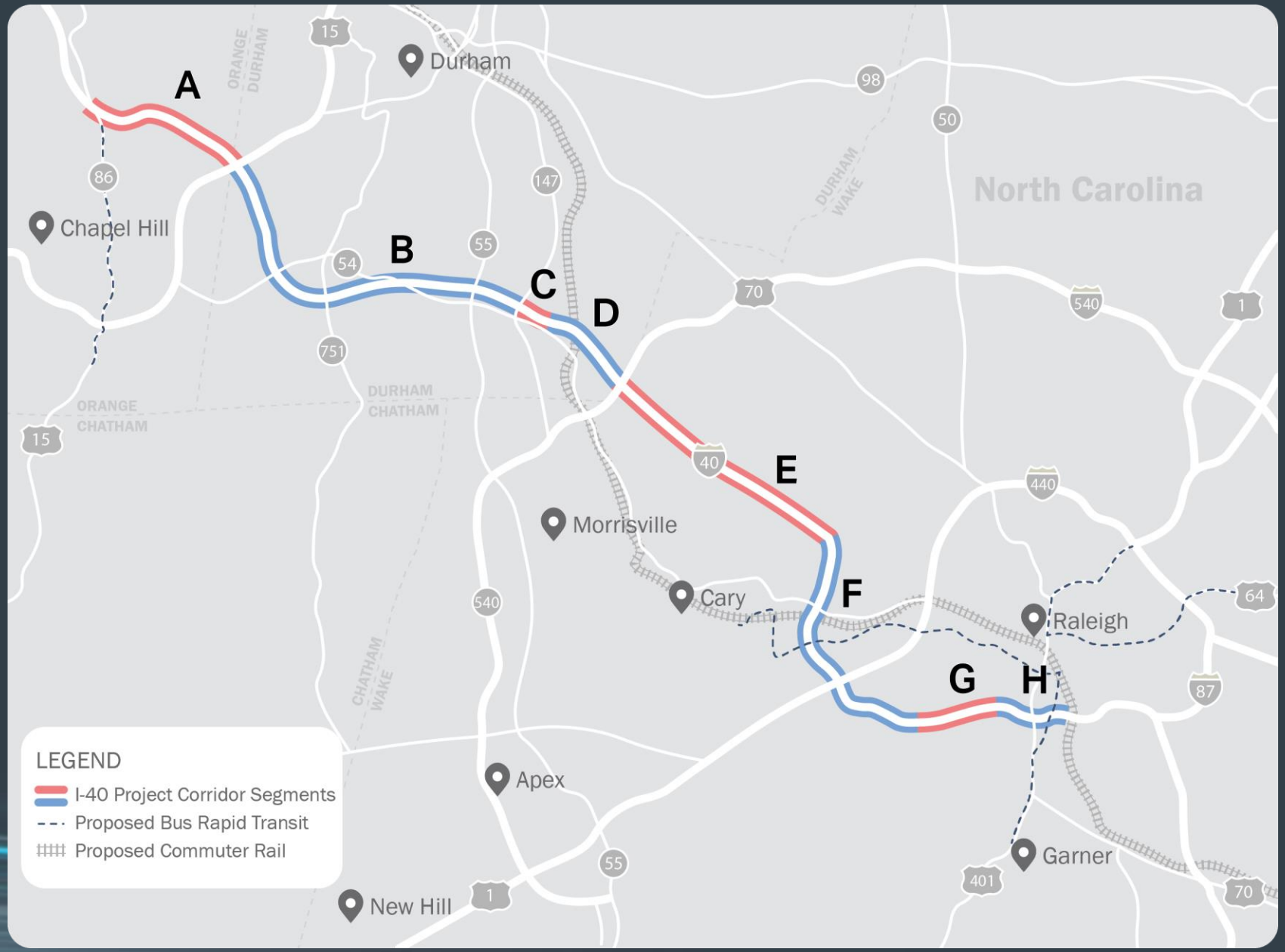
Existing Conditions Review

- Roadway conditions:
  - Number of lanes
  - Lane width
  - Shoulder width
  - Right-of-way (ROW) width
  - Daily traffic volume
- Nearby planned projects
- GoTriangle routes, ridership



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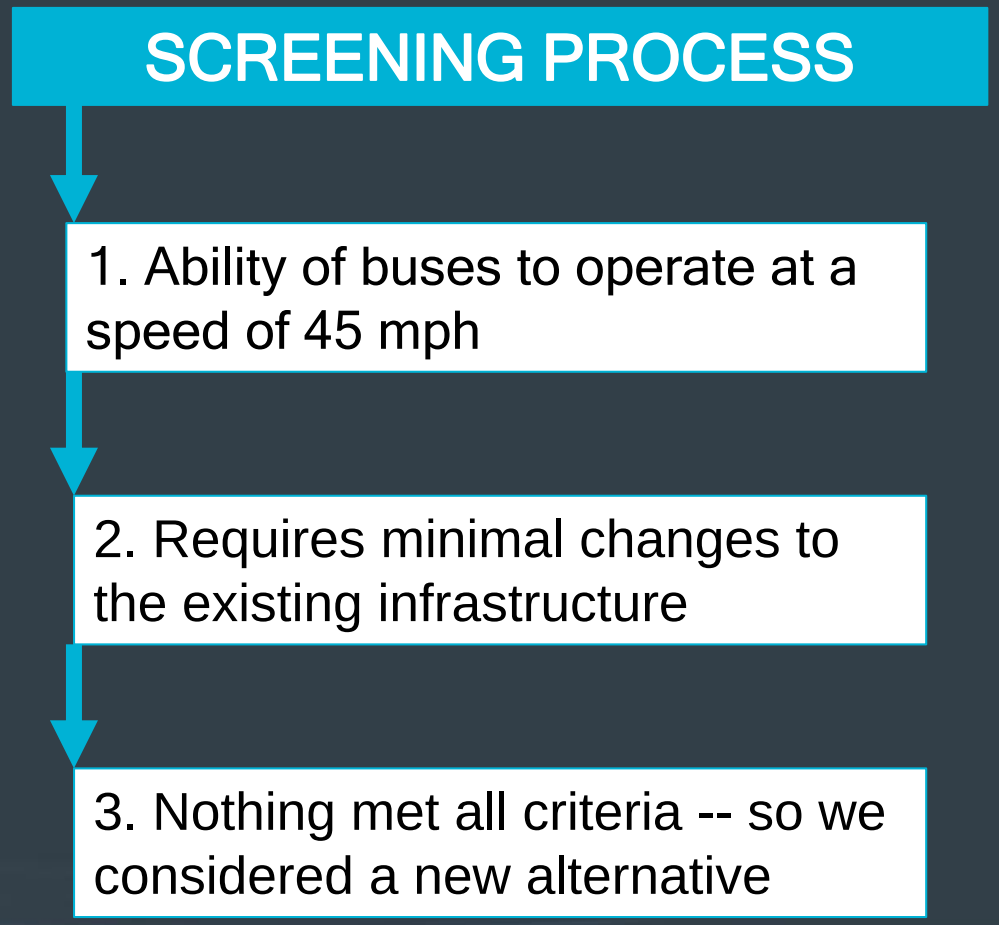
Alternatives Screening Process

Our team identified seven transit priority facility types or concepts to evaluate:

- Separated busways
- Freeway bus lanes
- Freeway HOV lanes
- Freeway HOT lanes
- Reversible Express lanes
- Dynamic Shoulder lanes
- Bus on Shoulder System (BOSS)



Transit Priority Shoulder

- Propose a transit priority facility using inside (left) shoulder near I-40 median
- Modify or expand left shoulder to 14 feet wide
- NCDOT Mobility and Safety approves of a
  45 mph max speed next to slower-moving traffic
- Goal is to strike a balance of
  - Safety
  - Travel speed
  - Cost
  - Speed of implementation
  - "Viability" and opportunity

Credit: Pace Suburban Bus

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Existing Bus On Shoulder System (BOSS)

Existing Bus On Shoulder System

- × Buses can travel no more than 35 mph
- × Maximum 15 mph faster than adjacent traffic
- × On-ramp and off-ramp conflicts and maneuvers at interchanges

Transit Priority Shoulder concept

- ✓ Buses can travel up to 45 mph
- ✓ No speed differential requirement as long as mainline traffic is moving
- ✓ No ramp conflicts at interchanges

TIME SAVINGS

12

Minutes

when traveling at 45 mph
vs 35 mph

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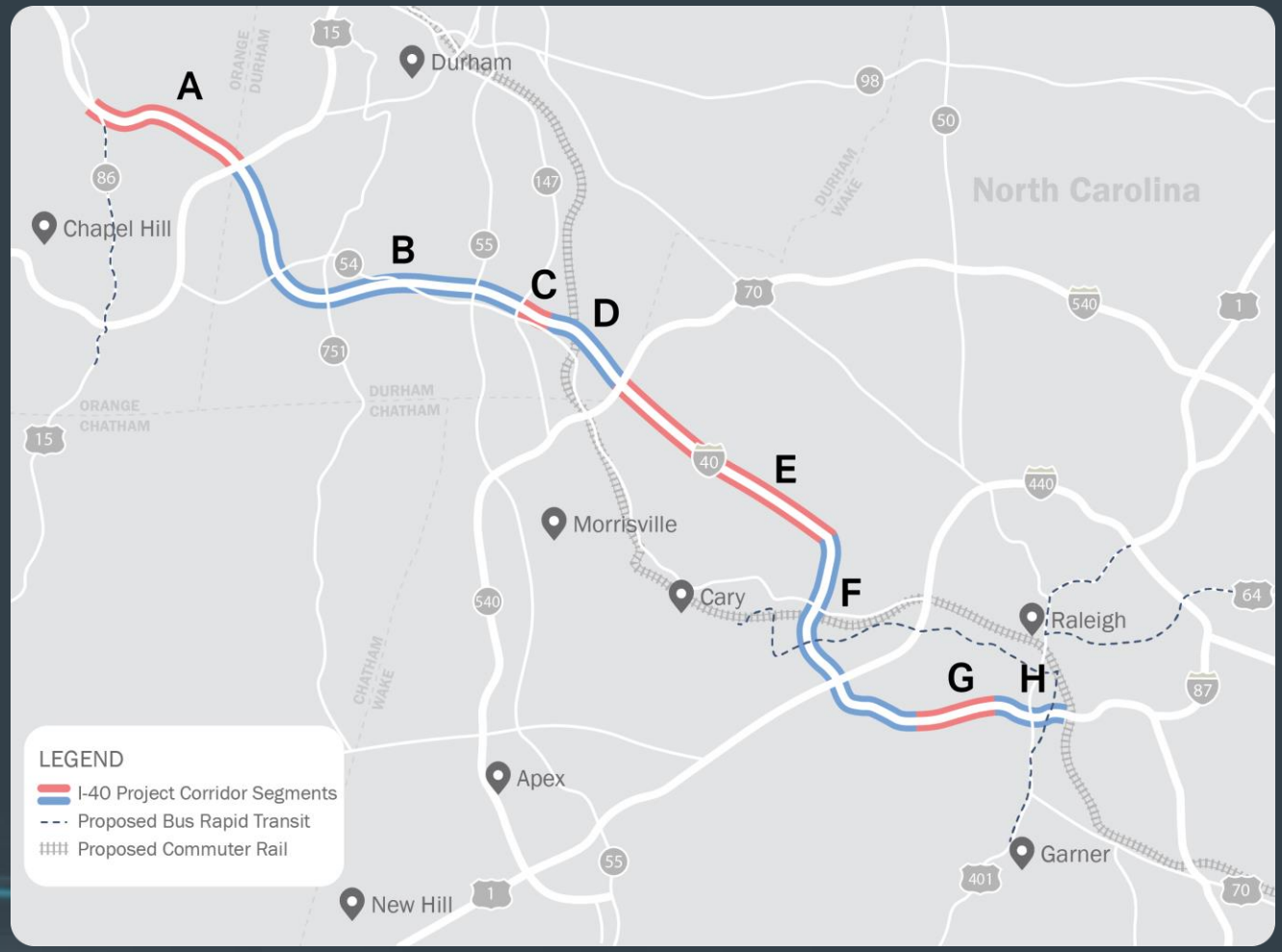
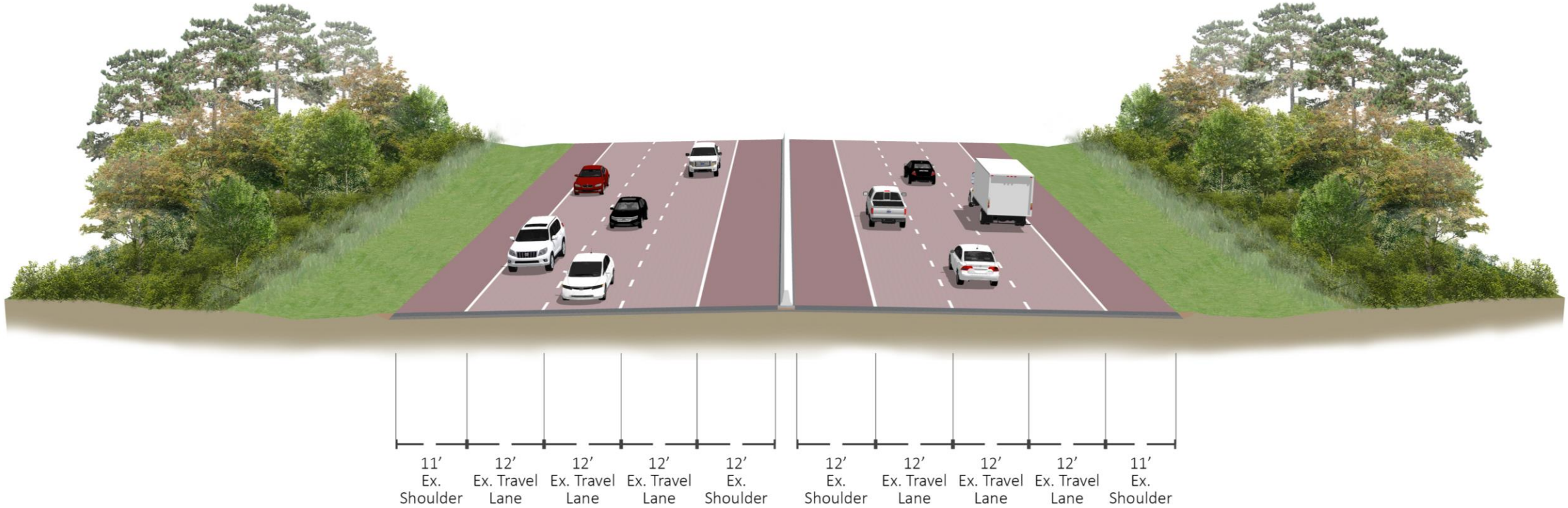
Pre-Feasibility Analysis Methodology

- Step 1: Divide each segment into eastbound and westbound lanes
- Step 2: Compare existing pavement widths to proposed pavement widths
- Step 3: Review pavement needs and right-of-way needs



Example Typical Section - Existing



Existing Road Layout

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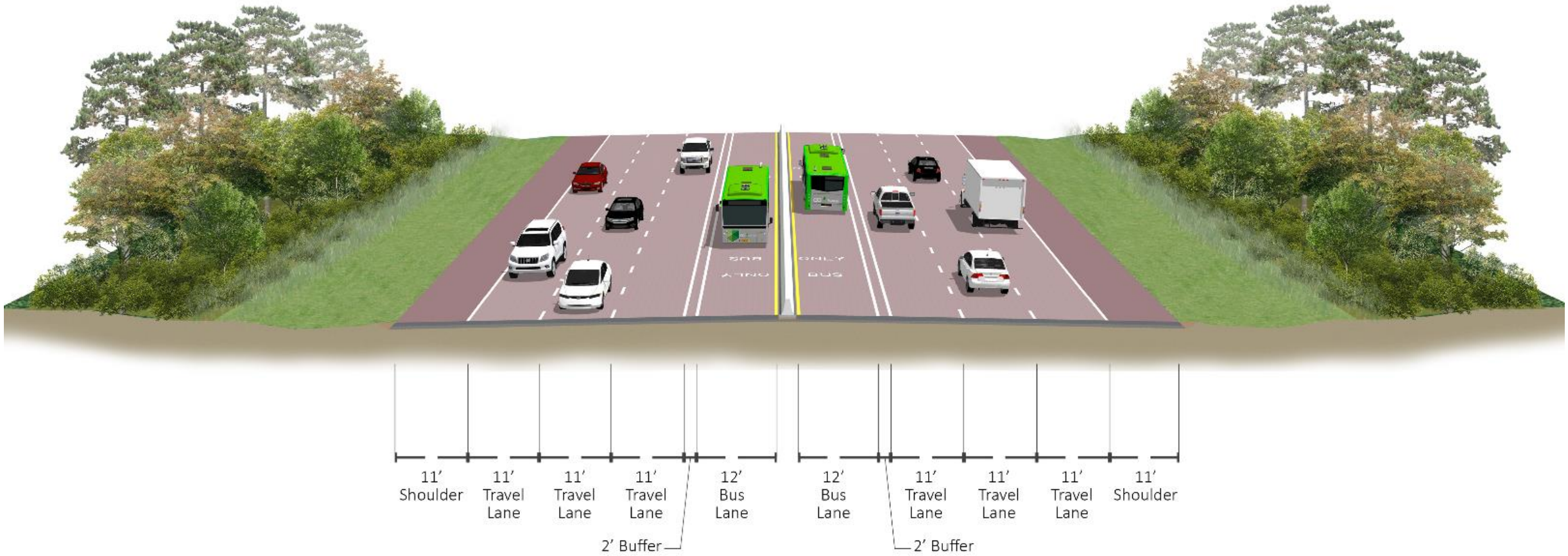
Example Typical Section - Proposed



Transit Priority Shoulder

Wade Avenue to Gorman Street

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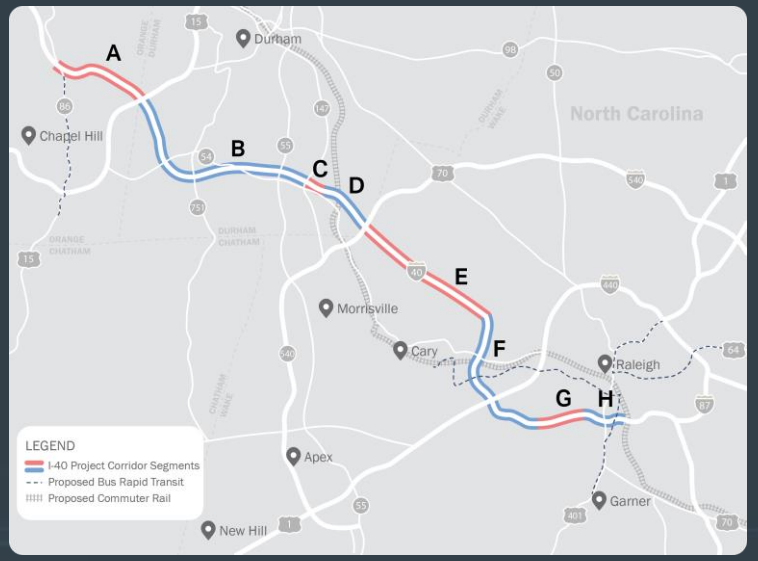
Pre-Feasibility Results

Overall

- No additional right of way needed anywhere along facility
- Existing pavement width may be sufficient along majority of facility – if general purpose lanes reduced to 11 ft

Segment notes

- West of US 15-501 (Segment A) and NC 540 to Wade Ave (Segment E) - additional pavement required; rigid median barrier may be required



Challenges and Opportunities with the Proposed Transit Priority Shoulder Facility

- Potential policy and design exceptions
- Constriction points (intermittent reduced shoulder width)
- Initial operating segment of a few miles
- Comfort level of bus operators

Next Steps

- Complete the pre-feasibility study
  - Identify promising pilot segment(s)

- Recommend that a full feasibility study be accelerated:
  - Assess structures, bridges, overpasses, and utilities for relocations
  - Develop a detailed cost estimate for the Transit Priority Shoulder
  - Identify possible minimum operable segment(s) and/or pilots

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