

*ANALYSIS OF THE MERCATOR POLICY OPTIONS*

***I-77 EXPRESS  
LANES***

*Local Advisory Group Meeting #2*

*February 14, 2018*

# Welcome and Introductions

- **James H. Trogdon - NCDOT Secretary**
  - **Louis Mitchell, Western Deputy Chief Engineer**
- **Beau Memory - NCTA Executive Director**
- **Carly Olexik, Rodger Rochelle, David Roy - NCTA and NCDOT Staff**
- **Jim Taylor - Mercator Advisors**
- **Adam Gosselin, Phil Schwab, Radha Swayampakala - RS&H Project Team**
- **Group Members**
- **Peg Carlson and John Stephens - UNC School of Government Facilitators**

# Getting started

- **Review Group Purpose**
- **Ground Rules (Revised, Per Meeting #1) + Role**
- **Mercator Options – Brief Review**
- **Status Update on Information Requested in Meeting #1**
  - a) Items provided prior to meeting #2
  - b) Items to be provided
- **Overview – Topics for Meetings #2 and #3**

# Group Purpose

## ***Advise and Provide Input for the NCDOT Secretary***

- a) Analyze Mercator Report 'Options to Consider'*
- b) Assess potential changes for the I-77 Express Lanes Project's Scope and P3 Contract*



# Purpose and Approach: Ground Rules

- **“Share the air”**
- **Listen to others’ perspectives**
- **Focus on interests before taking positions**
- **Seek common ground and action**
- **When speaking to press and public, share your own view; avoid attributions about what others said**
- **Report back to your respective appointing organizations**



# Purpose and Approach: Roles

- **Local Advisory Group**

Provides input; analyzes pros and cons of various options

- **NCTA Staff**

Liaison with NCDOT; point of contact for LAG information requests

- **Mercator / RS&H Team**

Researches and presents options; brings expertise with projects of this size and scope

- **Facilitators**

Helps group have productive discussion and use its time effectively

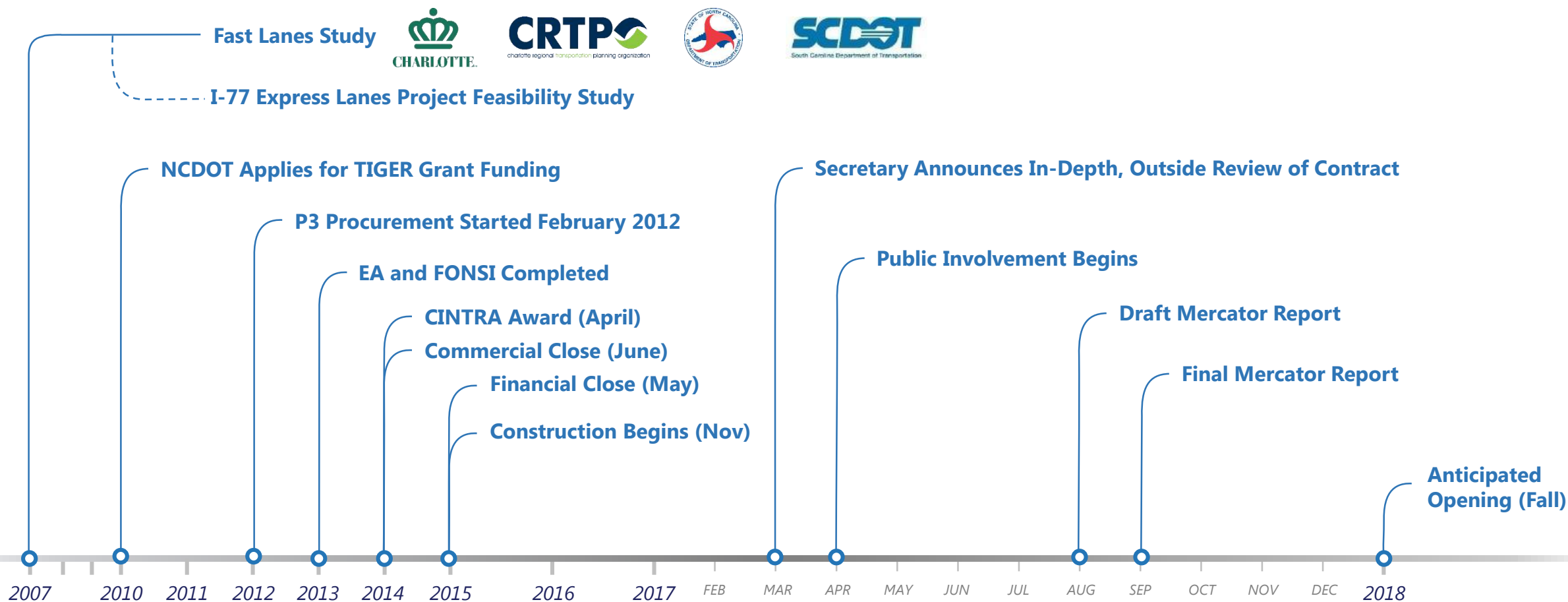


# Agenda

- **Recap of Project Timeline and Scope**
- **Mercator Options Overview**
- **Informational Item Requests**
- **Analysis Items-Detailed Discussion**
  - Costs
  - Approvals (scope and funding changes)
- **Next Steps/Actions for Meeting #3**



# I-77 Express Project Timeline

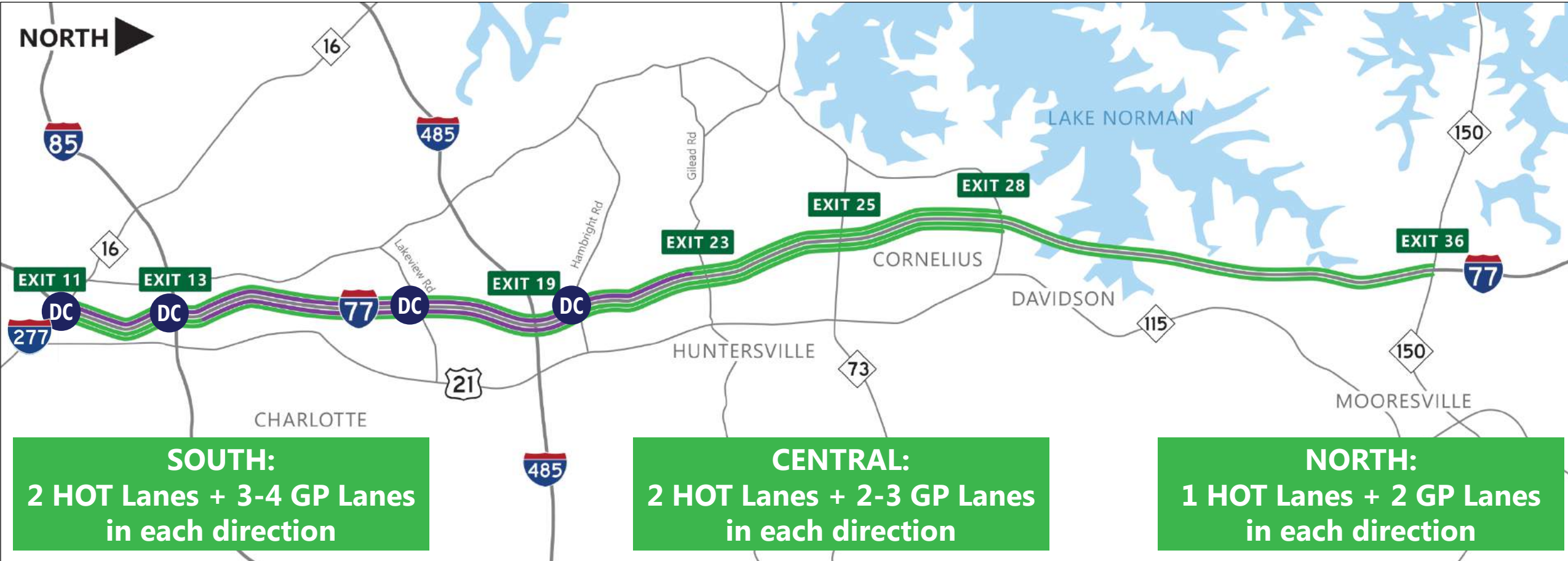




# I-77 Express Project Scope

**LEGEND**

- Existing High Occupancy Vehicle (HOV) Lanes
- High Occupancy Toll (HOT) Lanes
- DC Direct Connector (DC)



# Mercator Policy Options

**Option A: Termination of Contract and Complete the Express Lanes Project with Current Scope**

**Option B: Termination of Contract and the Express Lanes Project**

**Option C: Negotiate Modifications to the Project Scope and/or Terms of the Contract**

**Option C-1: Elimination of Certain Lanes**

Option C-2: Frequent User Discounts

Option C-3: Allow Certain Trucks to Use the Express Lanes

Option C-4: Allow HOV2 for some Extended Period of Time

Option C-5: Modify the Contract to Allow for Unplanned Revenue Impacting Facilities

**Option D: Work with CRTPO to Identify and Advance Other Projects**

**Option E: Complete the Project with Current Scope and then Terminate the Contract and NCDOT Take Over Operations**

**Option F: Complete the Project as a Non-Tolled Facility and Terminate the Contract**

# Follow up Items from Meeting #1

## Informational Items

### ☐ Info Provided in Advance

- Provide information on Fitch Report
- Provide information on HB110
- Construction drawings
- Quality status of the I-77 project
- Status of lights being out in the area

### ☐ Info to be Presented Today

- Provide throughput comparisons of interstates in other states as well as NC to I-77
- Explain Contract language for implementing future projects

## Analysis Items for Today

### ✓ What are the Cost Impacts?

### ✓ What Approvals are Required?

# 2016 Congestion Levels in Metropolitan Areas

- **Urban Congestion Report (UCR)**

- Published quarterly by FHWA using vehicle probe-based travel data for 52 urban areas
- Includes national and city data for congestion and reliability trends

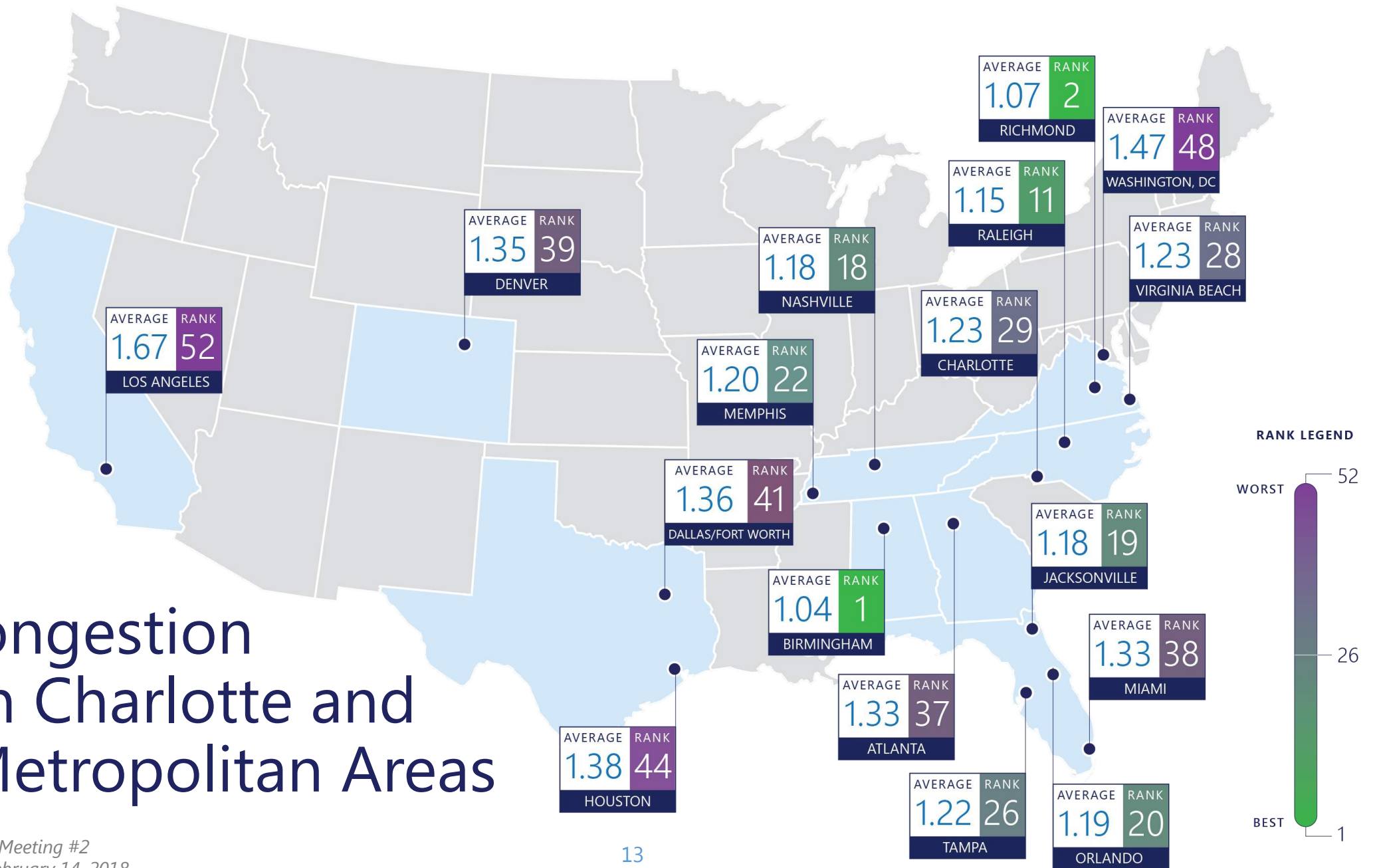
- **Typical Congestion Measures**

- Congested Hours
- Travel Time Index
- Planning Time Index

- **Travel Time Index**

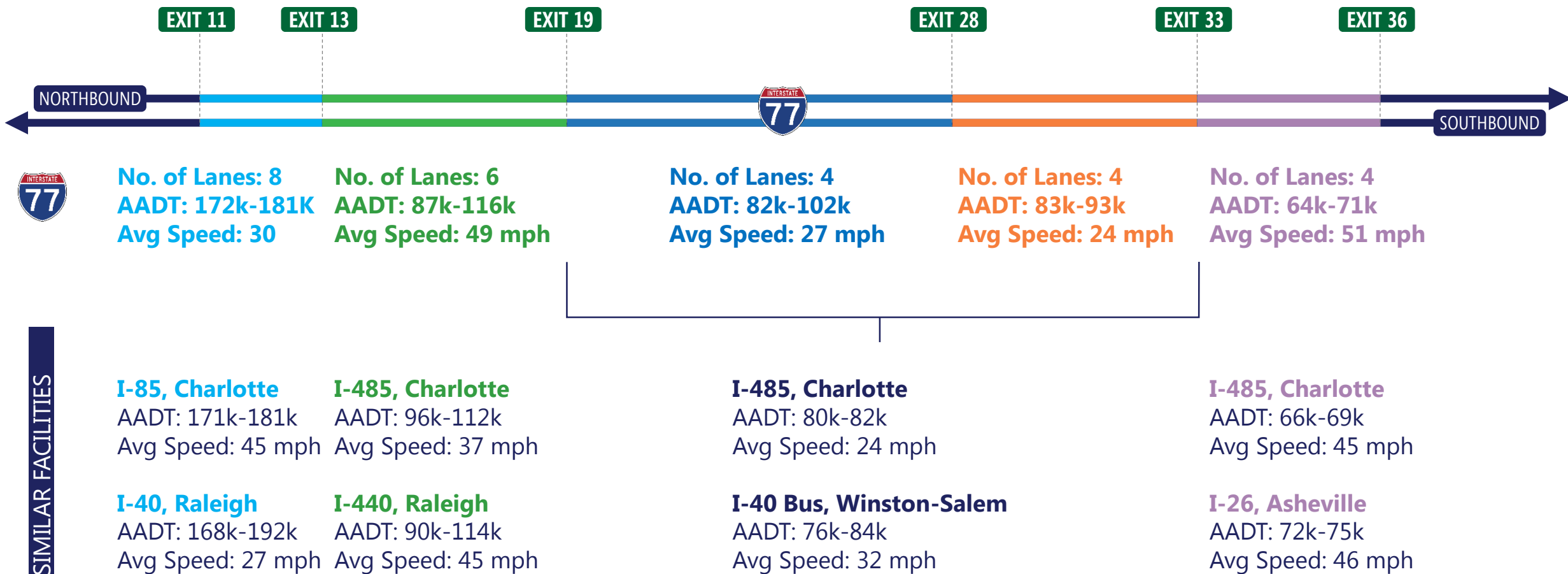
- Ratio of the travel time in the peak period to the travel time required to make the same trip during the off-peak period
- A value of 1.5, for example, indicates a 20-minute off-peak period trip requires 30 minutes during the peak periods

# 2016 Congestion Levels in Charlotte and Other Metropolitan Areas





# 2017 Congestion Levels on Similar NC Corridors



SIMILAR FACILITIES

- Source: 2017 HERE peak hour travel time data (typically, 6 AM - 10 AM or 4 PM - 7 PM)
- AADT: Annual Average Daily Traffic volumes – number of vehicles per day
- See next slide for limits of each corridor presented on this slide.

# 2017 Congestion Levels on Similar NC Corridors

Corridor Segment	No. of Lanes	AADT Range (vehicles per day)	Peak Hour Speed (miles per hour)
<b>I-77 Segments</b>			
I-77 from I-277 (Exit 11) to I-85 (Exit 13)	8	172k - 181k	30
I-77 from I-85 (Exit 13) to I-485 (Exit 19)	6	87k - 116k	49
I-77 from I-485 (Exit 19) to Catawba Ave (Exit 28)	4	82k - 102k	27
I-77 from Catawba Ave (Exit 28) to US 21 (Exit 33)	4	83k - 93k	24
I-77 from US 21 (Exit 33) to NC 150 (Exit 36)	4	64k - 71k	51
<b>Similar Corridors</b>			
I-85 from I-77 (Exit 38) to US 29 / NC 49 (Exit 42) - Charlotte	8	171k - 181k	45
I-40 from NC 147 (Exit 279) to I-540 (Exit 283) - Raleigh	8	168k - 192k	27
I-485 from I-77 (Exit 67) to I-85 (Exit 10) – Charlotte	6	96k - 112k	37
I-440 from US 1 (Exit 11) to I-40 (Exit 16) - Raleigh	6	90k - 114k	45
I-485 from NC 16 (Exit 57) to US 74 (Exit 51) – Charlotte	4	80k - 82k	24
I-40 Business from NC 150 (Exit 5A) to US 158 (Exit 8) – Winston-Salem	4	76k - 84k	32
I-485 from US 74 (Exit 51) to Albemarle Road (Exit 41) – Charlotte	4	66k - 69k	45
I-26 from NC 280 (Exit 40) to I-40 (Exit 31) – Asheville	4	72k - 75k	46

- Source: 2017 HERE travel time data for peak hour of the weekday (typically, 6 AM - 10 AM or 4 PM - 7 PM)
- AADT: Annual Average Daily Traffic volumes – number of vehicles per day

# Definition of Unplanned Revenue Impacting Facilities

**Unplanned Revenue Impacting Facilities means any limited access main lane of a highway that did not exist prior to the Effective Date**, which NCDOT, or an entity pursuant to a contract with NCDOT and on NCDOT's behalf, **builds within the Airspace** and opens to traffic during the Term, **excluding, however, the following:**

(A-H): Work covered by the Contract, safety improvement projects (excluding main lanes), transit projects, traffic management strategies, and interchange at I-77/Westmoreland Rd

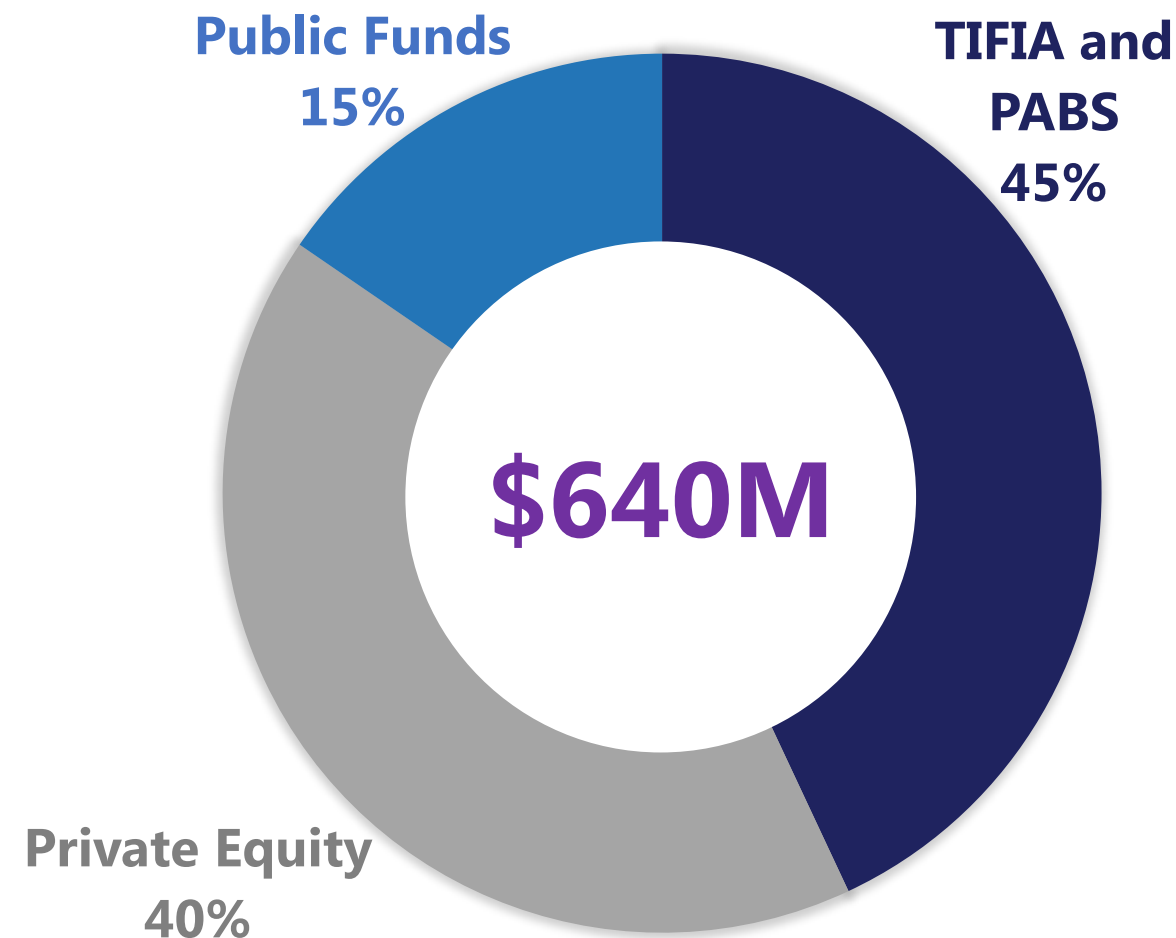
(I): All transportation projects (whether funded or unfunded) included in the approved Long-Range Transportation Plan..... except that this clause (i) shall not apply to a general purpose lane constructed after the Effective Date between Exit 28 and Exit 36 in the North Section.

# Project Funding Sources

TOTAL SOURCE OF FUNDS-ORIGINAL			STATUS	
Item	\$	%	\$	%
Private Equity Contributions*	\$ 253	39.5%	\$ -	0.0%
Federal TIFIA Loan	\$ 189	29.5%	\$ 189	100.0%
Tax-Exempt Private Activity	\$ 100	15.6%	\$ 100	100.0%
Bond Premium and Interest on Bond Proceeds	\$ 4	0.6%	\$ 2	50.0%
Public Funds	\$ 94	14.7%	\$ 49	51.7%
<b>TOTAL</b>	<b>\$ 640</b>	<b>100.0%</b>	<b>\$340</b>	<b>53.1%</b>

\*Note: Adjusted from Mercator Report to Reflect Adjustment to Total

ADDITIONAL WORK SUMMARY			STATUS	
Item	\$	%	\$	%
Bonus Allocation	\$ 84	93.3%	\$ 30	35.7%
Other	\$ 6	6.7%	\$ 2	28.3%
<b>Totals</b>	<b>\$ 90</b>	<b>100.0%</b>	<b>\$ 32</b>	<b>35.2%</b>



# Overview of Budgets and Costs

<b>SUMMARY OF BUDGETS AND APPROXIMATE COSTS TO DATE</b>			
<b>Item</b>	<b>Budgets</b>	<b>Costs</b>	<b>Notes/Assumptions</b>
<b>ORIGINAL ITEMS</b>			
Design Build Contract	\$ 448	\$ 266	Mercator reported \$444M Budget, \$266M per PR 39 through Nov
Tolling System and ITS	\$ 51	\$ 3	assumed +/-5% complete
Other Project Costs	\$ 52	\$ 18	assumed +/- 35% complete
<b>Subtotal Original Construction Costs</b>	<b>\$ 551</b>	<b>\$ 287</b>	+/--\$264M remaining of original
Right of Way	\$ 6	\$ 6	approximate 95% complete
Interest During Construction	\$ 16	\$ 7	assumed +/-45%
Development Fees and Financing Expenses	\$ 40	\$ 40	Complete
Working Capital	\$ 2		
Deposits to Reserve Accounts	\$ 25		
<b>Original Total</b>	<b>\$ 640</b>	<b>\$ 340</b>	



# Determination of Cost Impacts

## ■ Termination for Convenience (Article 19)

- The Greater of:
  - Fair Market Value (requires independent appraisal)
  - or: Senior Debt (\$100M-PABs+\$189M TIFIA=\$289M)
- plus reimbursement of reasonable costs of the following
  - Expense for finance and legal fees (assume \$2M)
  - Demobilization of DB Contractor (assume 20% of construction expenditures(\$322M)= \$64M)
  - Demobilization of Developer (assume 10% of DB Contractor demobilization = \$6.4M)
  - Other out of pocket costs (i.e. Operations and Maintenance Building)
- Must be paid within 12 months

# Determination of Cost Impacts

## ■ **Design and Construction Modifications**

- Varies based on scope modifications and timing
- Work may include design, additional barriers/attenuators, signing and marking modifications, crown point adjustments, buffer removal/replacement
- Must consider existing overpasses that would be in conflict with general purpose lane widening
- Must consider potential impact to express lane pavement design for vehicle type allowance changes

# Determination of Cost Impacts (Cont'd)

## ■ **Temporary Construction**

- Can vary greatly depending on timing
- Costs may include: temp barriers, erosion control, striping, signing and drainage needed to stabilize the project if stopped or delayed.
- Assume \$4.5M and 3 months to stabilize and no opening of additional lanes

## ■ **Cost to Complete**

- Remaining construction value with an increase of 15% to cover additional costs associated with repackaging project and procuring a new contractor
- Approximately \$322M remaining construction + 15% (\$48M)= \$370M

# Determination of Cost Impacts (Cont'd)

- **Operations and Maintenance**

- NCDOT would be responsible for both operations and maintenance of all project elements

- **Renewal Costs**

- NCDOT would be responsible for future renewal work

# *REQUIRED APPROVALS*

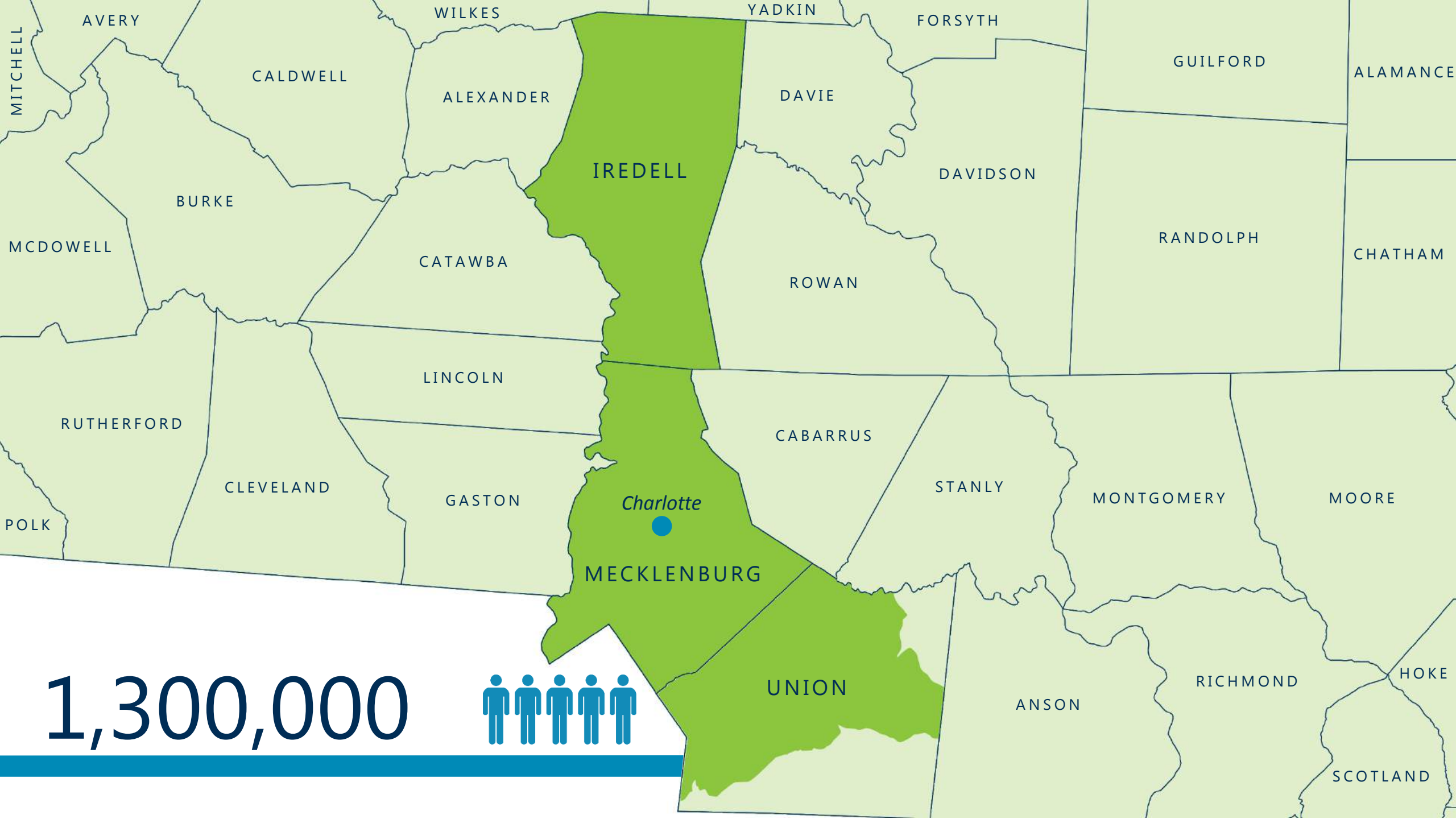


# Approvals Required

- **CRTPO MTP Project List Amendments**
- **Strategic Transportation Investments (STI) Prioritization**
- **Air Quality Conformity Determination**
- **Environmental Documentation**
- **FHWA and Other Agency Reviews**

# CRTPO MTP Project List Amendments





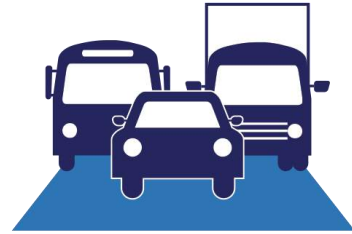
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# Who is CRTPO and What is Their Role?



Federally Designated  
Metropolitan Planning  
Organization (MPO)  
for Charlotte  
Urbanized Area



Conducts Transportation  
Planning Activities in  
Coordination with  
State and Regional  
Agencies



Develops 20-Year  
Priority Project  
List and Metropolitan  
Transportation  
Plan (MTP)



Ensures the MTP is Fiscally  
Constrained and  
Conforms to Air Quality  
Standards

# CRTPO Metropolitan Transportation Plan (MTP)

- **2040 MTP**

- Adopted in April 2014
- Project description: Widen I-77 from I-277 (Brookshire Freeway/Exit 11) in Charlotte to NC 150 (Exit 36) in Mooresville to add high occupancy toll (HOT) lanes.

- **2045 MTP**

- Anticipated adoption in March 2018

# CRTPO MTP Project List Amendments

- **Need for MTP Project List Amendments**

- Changes to project limits
- Changes to project scope
- Changes to project funding

- **Process for MTP Project List Amendments**

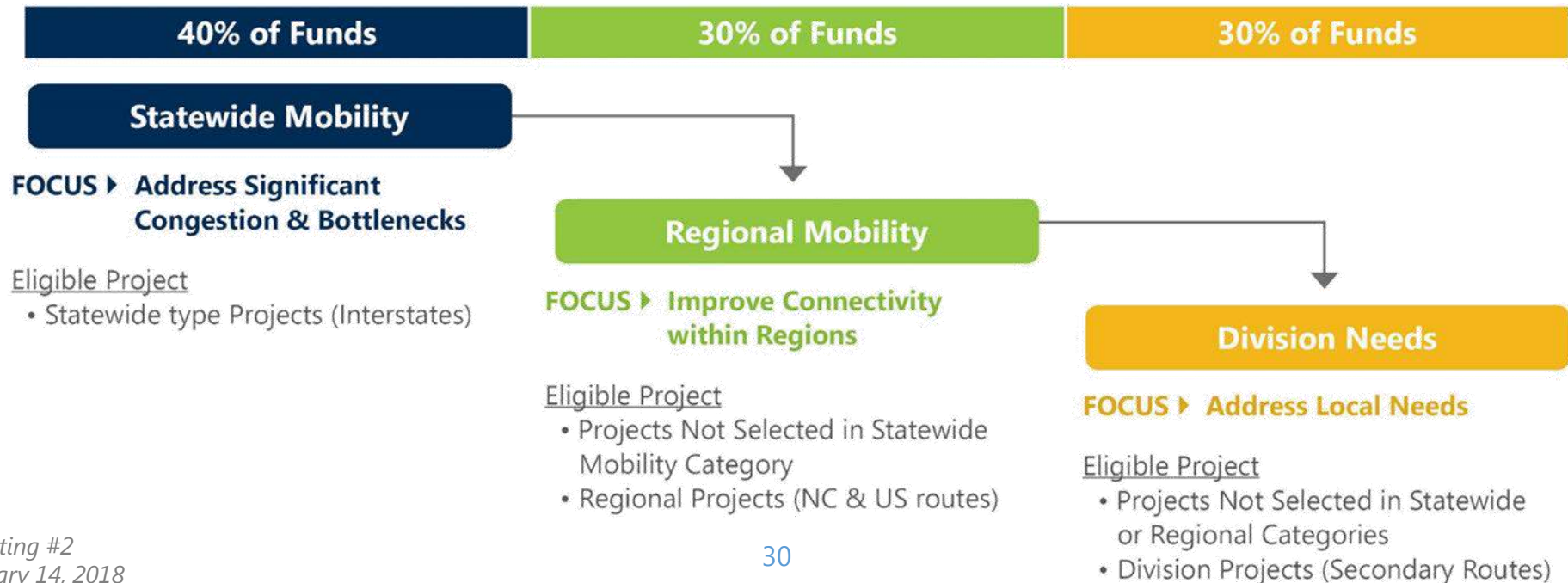
- CRTPO initiates appropriate analysis (depending on the proposed change)
- CRTPO's TCC and MPO Boards review the analysis
- CRTPO seeks feedback from public and regional partnering agencies
- CRTPO and NCDOT confirm fiscal constraint and conduct air quality conformity
- CRTPO's TCC and MPO Boards approve the amendment

- **Timeframe for MTP Project List Amendments**

- Analysis and review time + up to four months for CRTPO's TCC and MPO Boards approval and public involvement

# Strategic Transportation Investments (STI)

- **Law Passed in 2013 to Prioritize Projects for Funding**
- **Requires Usage of Quantitative Ranking Methodology**
- **Projects are Funded in Three Categories**





# STI Prioritization

- **Need for STI Prioritization**

- Changes to project scope
- Changes to project funding
- Completion of new environmental document

- **Process for STI Prioritization**

- CRTPO and NCDOT coordinate with local jurisdictions and define the project scope and funding needs
- CRTPO and NCDOT coordinate and submit new/revised project for prioritization
- NCDOT completes quantitative ranking for prioritization

- **Timeframe for STI Prioritization**

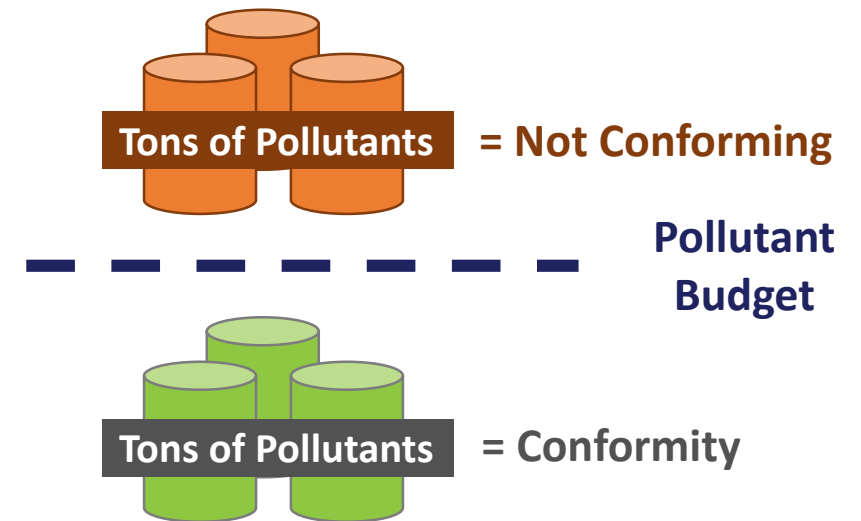
- Process for prioritization takes up to three years

- **Timeframe for Project Funding**

- Depends on project's relative score and scope

# Air Quality Conformity Determination

- **Required by Clean Air Act for MPOs in Non-Attainment/Maintenance Areas**
- **Ensures Federal Funds Allocated to Projects Conform to Established Air Quality Goals in the State Implementation Plan**



# Air Quality Conformity Determination

- **Need for Air Quality Conformity Determination**
  - Changes to project limits
  - Changes to project scope
  - Changes to project funding
- **Process for Air Quality Conformity Determination**
  - CRTPO and NCDOT define the project scope
  - CRTPO, NCDOT, NCDAQ conduct air quality analysis
  - FHWA initiates inter-agency coordination
  - CRTPO seeks feedback from public and regional partnering agencies
  - CRTPO's MPO Board makes conformity determination
- **Timeframe for Air Quality Conformity Determination**
  - Typically, 8-10 months (after project scope is defined)

# Environmental Document

- **Subject to National Environmental Policy Act (NEPA)**
- **Three Levels of Analysis**
  - Categorical Exclusion (CE)
  - Environmental Assessment (EA) & Finding of No Significant Impacts (FONSI)
  - Environmental Impact Statement (EIS) & Record of Decision (ROD)
- **For I-77, EA and FONSI were Approved in 2013**

# Environmental Document

- **Need for New/Revised Environmental Document**
  - Changes to project limits
  - Changes to project scope
  - Changes to project schedule (i.e. project is delayed)
- **Process for New/Revised Environmental Document**
  - NCDOT conducts appropriate analysis (depending on the proposed change)
  - NCDOT seeks feedback from public and regional partnering agencies
  - NCDOT and FHWA approve the new/revised environmental document
- **Timeline for New/Revised Environmental Document**
  - Small changes such as new Direct Connectors would take six to 12 months
  - Larger changes such as number of lanes would take two-plus years

# FHWA and Other Agency Reviews

- **I-77 Express Lanes Project Received Approvals/Permits From:**
  - Federal Highway Administration
  - US Army Corps of Engineers
  - Duke Energy (FERC)
  - NC Department of Environmental Quality
- **Preparation of New/Revised Environmental Document**
  - Additional reviews and public involvement
  - Issuance of new approvals and new permits
- **Timeframe**
  - Depending on the project scope, this could take up to 1 ½ years to four years

# From Today's Presentation:

- **Of What You Have Heard So Far, What is the Most Important/ Significant to You?**



# Closing / Questions / Next Steps

- **List Action Items**
- **Proposed Topics for Meeting #3**
  - Traffic operations analysis
  - Revenue impact analysis
- **Meeting Evaluation**

*THANK YOU!*