



Board of Directors

Operations Committee

March 21, 2019

Complete 540 Design-Build Procurement Update

Rodger Rochelle, P.E.

Chief Engineer

Complete 540

R-2721A

- 4.3 mile new location
- ~190 parcels

R-2721B

- 4.9 mile new location
- ~210 parcels

R-2828

- 8.6 mile new location
- ~250 parcels



Current Project Schedule

Record of Decision	June 6, 2018
Submit Corridor Permit Application	September 2018
Advertisement for ROW Acquisition Firm(s) (R-2721A & R-2721B)	September 2018
Right of Way Plans for R-2721A & R-2721B	Fall 2018
401 Permit	February 15, 2019
404 Permit anticipated (phased for R-2828 & construction for R-2721A and R-2721B)	Early 2019
Design-Build Contract Letting	
R-2828	November 2018
R-2721B	February 2019
R-2721A	April 2019
R-2829	Future (2027)
Complete Project Finance	Early 2019

Status & Next Steps

	R-2828	R-2721B	R-2721A
Advertisement	✓ April 16, 2018	✓ July 2, 2018	✓ September 4, 2018
SOQ Due Date	✓ May 11, 2018	✓ July 31, 2018	✓ October 2, 2018
Shortlist Date	✓ May 24, 2018	✓ August 14, 2018	✓ October 18, 2018
Issue 1 st Draft RFP	✓ May 24, 2018	✓ August 14, 2018	✓ October 18, 2018
Debrief Teams	✓ Week of June 4, 2018	✓ Week of August 27, 2018	✓ Week of October 29, 2018
1 st Meeting with Teams	✓ June 7, 2018	✓ August 28, 2018	✓ November 1, 2018
Issue 2 nd Draft RFP	✓ June 19, 2018	✓ August 31, 2018	✓ November 20, 2018
2 nd Meeting with Teams	✓ July 10, 2018	✓ September 25, 2018	✓ December 6, 2018
Issue 3 rd Draft RFP	✓ July 19, 2018	✓ October 9, 2018	✓ December 14, 2018
3 rd Meeting with Teams	✓ August 7, 2018	✓ October 23, 2018	✓ January 8, 2019

Status & Next Steps

	R-2828	R-2721B	R-2721A
Issue Final RFP	✓ August 14, 2018	✓ November 6, 2018	✓ January 22, 2019
Technical Proposals Due	✓ October 30, 2018	✓ January 29, 2019	March 27, 2019
Price Proposals Due	✓ November 14, 2018	✓ February 8, 2019	April 8, 2019
Open Price Proposals	✓ November 20, 2018	✓ February 19, 2019	April 16, 2019
Award Contract	✓ November 30, 2018	✓ February 26, 2019	
Execute Contract	✓ December 17, 2018	✓ March 15, 2019	
Limited Notice to Proceed	✓ December 19, 2018		

Design-Build Contractors

R-2828

- The Lane Construction Corporation / Blythe Construction, Inc. JV

R-2721B

- Flatiron Constructors, Inc. / Branch Civil, Inc. JV

R-2721A – Short-listed Teams

- Granite Construction Company / Fred Smith Company JV
- Flatiron Constructors, Inc. / Branch Civil, Inc. JV
- The Lane Construction Corporation / Blythe Construction, Inc. JV
- Archer Western Construction, LLC

R-2828 Design-Build Contract

Price Proposal from Lane-Blythe JV	\$403.20M
Plan of Finance Assumed Price	\$426.60M
Notice of Award and Limited Notice to Proceed	December 2018
Project Financial Closing	Summer 2019
Unlimited Notice to Proceed	Summer 2019
Substantial Completion Date	September 1, 2023
Final Completion Date	January 1, 2024
DBT Proposed Substantial Completion Date	October 24, 2022
DBT Proposed Project Completion Date	November 24, 2022

R-2721B Design-Build Contract

Price Proposal from Flatiron-Branch JV	\$159.98M
Plan of Finance Assumed Price	\$165.72M
Notice of Award and Limited Notice to Proceed	March 2019
Project Financial Closing	Summer 2019
Unlimited Notice to Proceed	Summer 2019
Substantial Completion Date	September 1, 2023
Final Completion Date	January 1, 2024
DBT Proposed Substantial Completion Date	August 29, 2022
DBT Proposed Project Completion Date	October 19, 2022

Toll Suspension Policy Update

Andy Lelewski, P.E.

Director of Toll Operations

Toll Suspension Policy

“The Board recognizes the need to suspend or waive the collection of tolls during certain situations. However, this responsibility must be balanced with its obligations to creditors who financed the toll roads and its duty as a State agency not to jeopardize the financial integrity of the State by failing to comply with financial covenants in its trust agreements.”

- All actions to be authorized by NCTA Executive Director

Suspension of Tolls

Declaration of a State of Emergency by Governor or a Federal State of Emergency for North Carolina

AND

- Turnpike facility is designated as an emergency evacuation route by the Department

OR

- The primary non-tolled alternate routes, in the immediate vicinity of the turnpike facility, are deemed impassable or inaccessible, and/or traffic is diverted onto the turnpike facility by emergency responders

Suspension of Tolls

Toll collection will be reinstated as soon as the immediate need for use of the turnpike facility for evacuation, disaster response, or other approved non-emergency situation ends

- Reinstatement is at the discretion of NCTA Executive Director, after consultation with appropriate parties, including the State Emergency Operations Center (SEOC) and other emergency management agencies
- Considerations include: the extent of damage, availability of Department and NCTA staff, initiation of recovery efforts, accessibility of non-tolled alternate routes, and requests from governmental agencies

Waiver of Tolls

If traffic is directed onto the Turnpike facility by emergency responder personnel with no choice to take a non-tolled facility, tolls are waived:

- Automatically when the situation is observed via the cameras or when NCTA is notified of a situation

OR

- Within 30 days of the invoice date at the request of the customer (when not observed)

Toll Project Handbook Development Update

Gene Conti
The Conti Group

Alpesh Patel
Cambridge Systematics

Briefing Topics

- NC Toll Policy
- Handbook Development
- Next Steps for Policy Implementation

Policy Development

Tasked by Secretary Trogdon, NCDOT committed to NCGA to develop a comprehensive policy regarding structured use of tolling.

Stakeholder Engagement

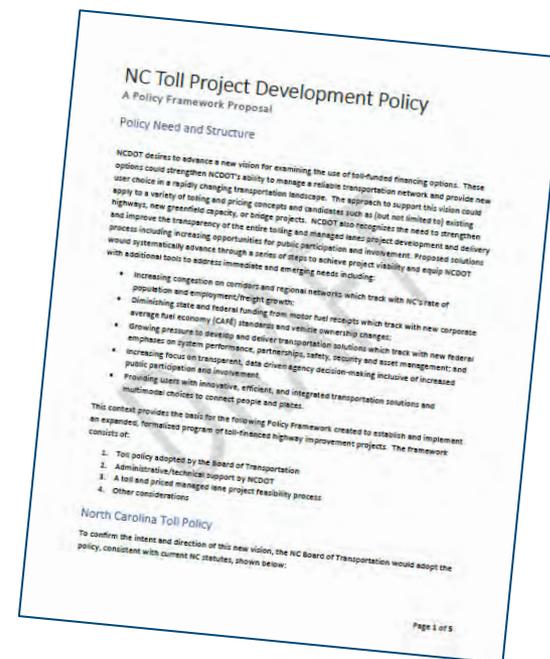
Study team actively engaged external stakeholders:

- MPOs
- RPOs
- League of Municipalities
- Metro Mayors
- State Chamber
- NC Trucking Association
- Major freight movers

Policy Framework

Responding to that directive, NCDOT with NCTA defined a Tolls Project Development framework that

- Defines a policy implementation process
- Proposes toll project development policy
- Directs NCDOT to develop an enhanced financial feasibility process
- Proposes 4-Step project identification process



Toll Project Development Policy

Tolling policy adopted by Board of Transportation in February 2018

- Defines eligible project types
- Directs close coordination with MPOs and RPOs
- Directs development of a defined tolled and priced managed lanes feasibility process

The policy **does not**:

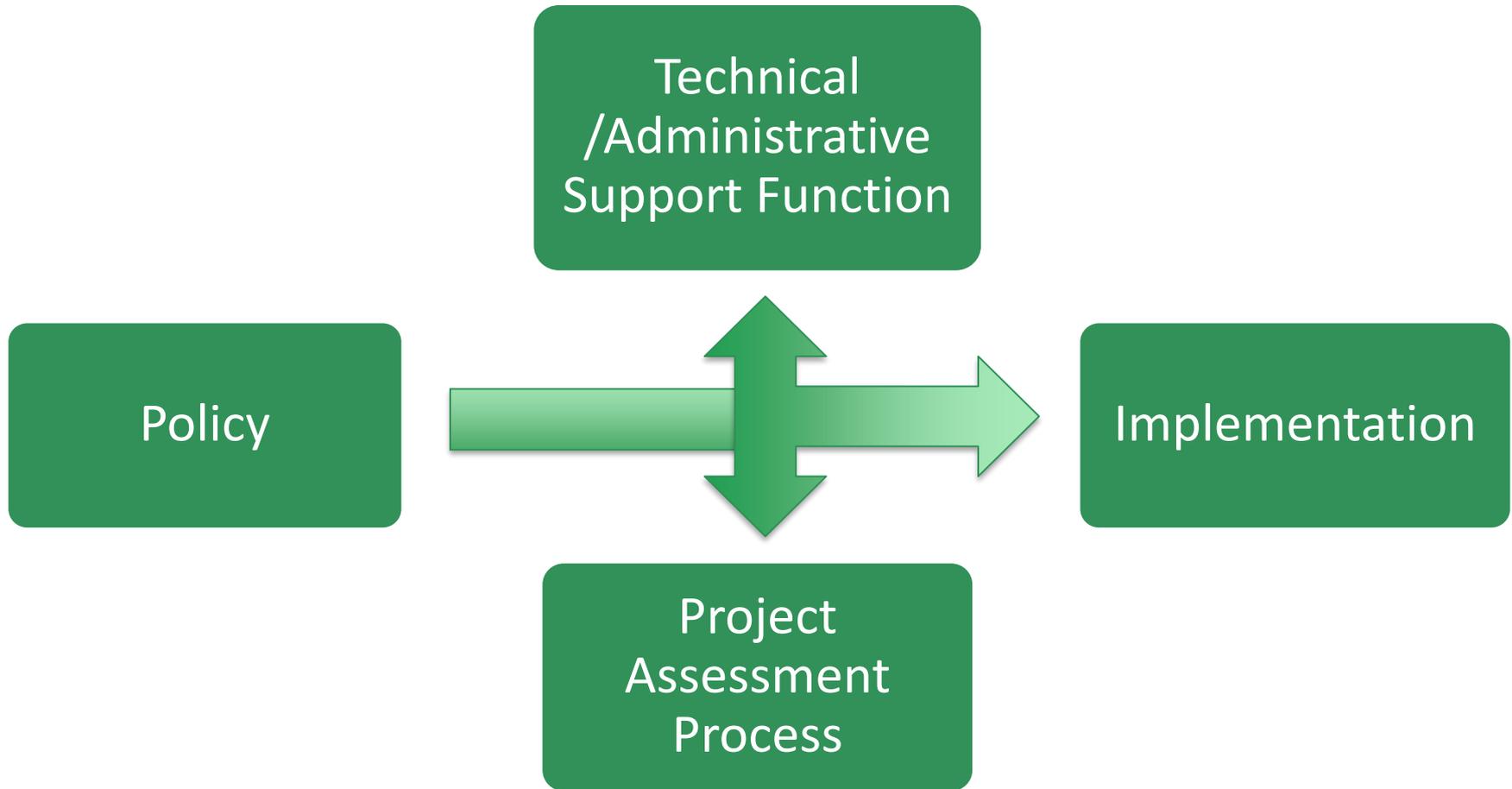
- Require or mandate increased tolling
- Allow NCDOT to identify specific projects to evaluate

Eligible Project Types

- Greenfield expressways or freeways
- Priced managed lanes (express lanes)
- Upgrades of existing partial-control roadways to full access control facilities
- New bridges or major bridge replacements



Toll Policy Implementation Framework



Policy Implementation

- Through ***Handbook*** development and application, policy directives are being defined and procedures for toll project screening will be provided.
- Assessment structure, steps, timetable
- Financial feasibility and performance reporting
- Communication and documentation of results



Handbook Objectives

- **Create a defined process** to support local decision making when considering tolling and evaluation steps considerate of current STIP programming requirements.
- **Increase accountability** through more openness and transparency, particularly as NCDOT faces funding challenges posed by diminishing reliability of traditional funding sources for NC Highway Trust Fund.
- **Engage partners, develop protocols/procedures** to guide early identification and tolling potential.

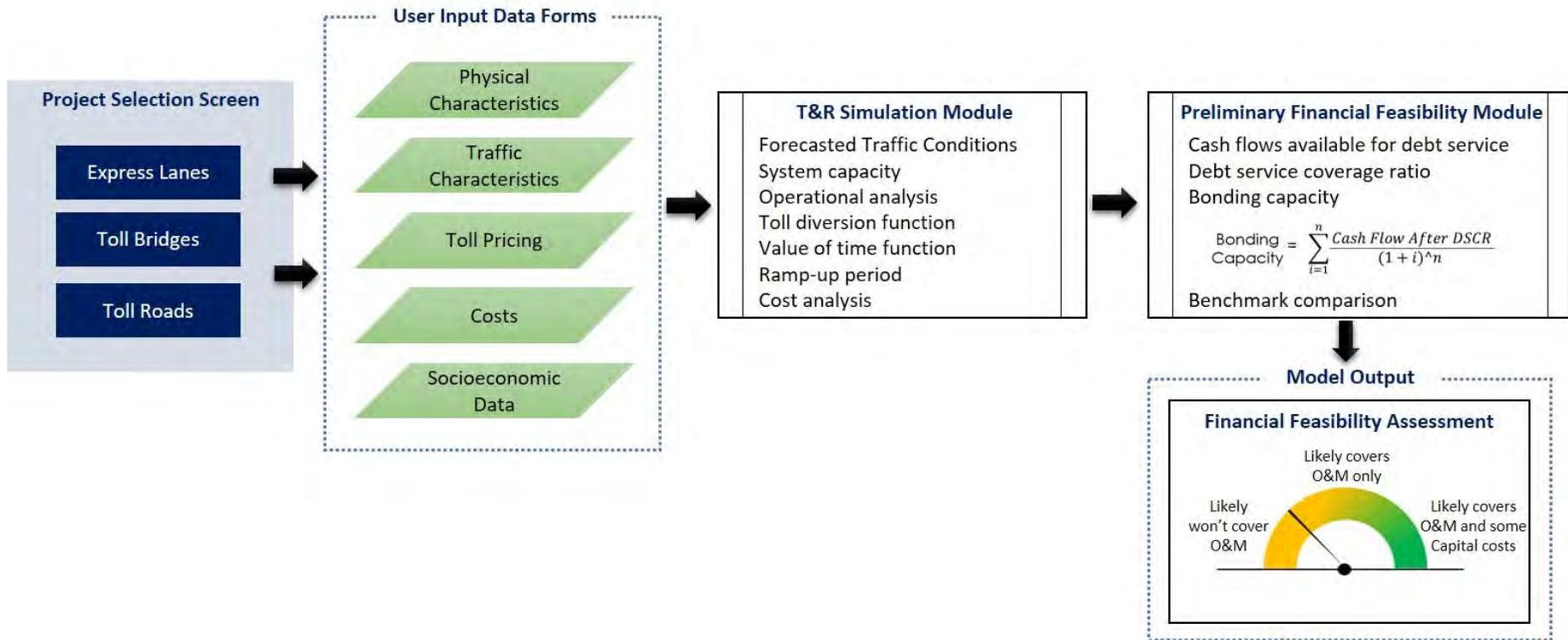
Handbook Development

- Internal NCDOT team (PMT)
- Work Group (advisory)
 - *MPOs/RPOs, League of Municipalities, Metro Mayors, Assoc. of County Commissioners, FHWA, Agency staff*
- Multi-disciplinary consultant team developing Handbook content

Key Handbook Elements

1. Financial Feasibility Screening Tool
2. Pre-Submittal Assessment
3. Intra-Departmental Project Evaluation Team

Financial Feasibility Screening Tool Model Framework



Express Lanes

Clear Entries

Physical Characteristics

Project #	<input type="text" value="12345"/>
Corridor Name	<input type="text" value="Express Lanes Project 1"/>
Corridor Length (miles)	<input type="text" value="10"/>
No. of GP lanes in both directions	<input type="text" value="3"/>
No. of proposed express lanes in both directions	<input type="text" value="2"/>

Traffic Characteristics

Existing AADT	<input type="text" value="125,000"/>	Suggested:
Year of Existing Traffic (AADT)	<input type="text" value="2018"/>	
Opening Year AADT	<input type="text" value="150,000"/>	
Opening Year	<input type="text" value="2025"/>	
Design Year AADT	<input type="text" value="175,000"/>	
Design Year	<input type="text" value="2045"/>	
Average Annual Growth Rate (AADT)	<input type="text" value=""/>	<input type="text" value="0.8%"/>
Truck Percentage	<input type="text" value="5%"/>	
Select Peak Period Characteristics	<input type="text" value="6 hrs or more (3+ hrs in both AM & PM)"/>	
Intermediate Access Point?	<input type="text" value="Yes"/>	
Trip Length Percent (i.e., % thru trips)	<input type="text" value="Medium - 75%"/>	

Toll Pricing

Base ETC Toll Rate	<input type="text" value=""/>	Suggested:
Car toll (\$/mile)	<input type="text" value=""/>	<input type="text" value="\$0.09"/>
Bill By Mail (BBM) Toll Rates		
Car toll (\$/mile)	<input type="text" value=""/>	<input type="text" value="\$0.14"/>
Annual Toll Rate Increase (%)	<input type="text" value="2.5%"/>	
Indexation Base Year	<input type="text" value="2018"/>	

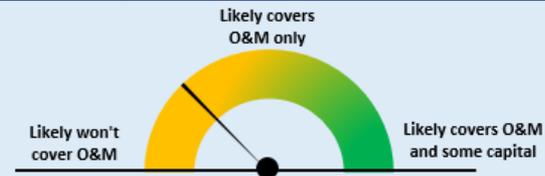
Costs

Capital Cost Inputs		Suggested:
Construction Duration (in years)	<input type="text" value="3"/>	
Capital Improvement Cost (\$)	<input type="text" value="\$25,000,000"/>	
Indexation Base Year of Capital Improvement Costs	<input type="text" value="2016"/>	
Toll System Implementation Cost (\$/lane-mile)	<input type="text" value=""/>	<input type="text" value="\$585,000"/>
Indexation Base Year of Toll System Capital Cost	<input type="text" value=""/>	<input type="text" value="2018"/>
Operating Cost Inputs		
Roadway Maintenance (\$/lane-mile)	<input type="text" value=""/>	<input type="text" value="\$20,000"/>
Indexation Base Year Roadway Maintenance Cost	<input type="text" value=""/>	<input type="text" value="2018"/>
Annual Inflation rate for Costs (%)	<input type="text" value=""/>	<input type="text" value="2.5%"/>

Socioeconomic Data

County	<input type="text" value=""/>	Suggested:
Value of Time (\$/hr)	<input type="text" value=""/>	<input type="text" value="\$12.50"/>

Preliminary Financial Feasibility Assessment



Financial Feasibility Module

- **Dynamic Financial Assessment spectrum**
 - Likely covers O&M and portion of Capital (i.e., presents positive financial flexibility)
 - Likely covers O&M only (i.e., potential financial flexibility)
 - Likely won't cover O&M (i.e., additional funding sources would likely be needed)

Flow of Funds

Gross Potential Toll Revenues (GPTR)

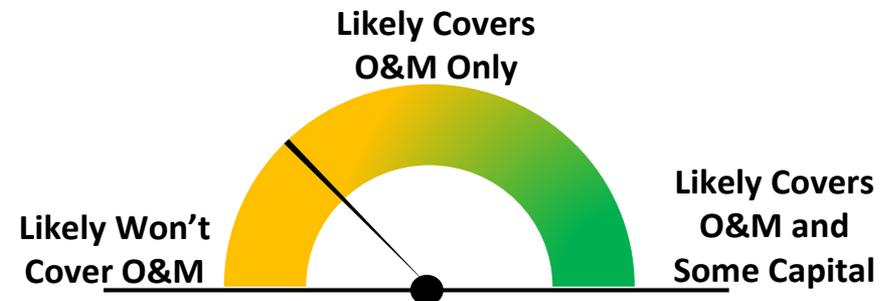
Less: O&M and R&R estimates

= Cash flow available for debt service (CFADS)

Multiply: % Revenue Cut

= Cash flow available after DSCR

$$\text{Bonding Capacity} = \sum_{i=1}^n \frac{\text{Cash Flow After DSCR}}{(1+i)^n}$$



Pre-Submittal Assessment (PSA)

Assessment Objectives

- Define performance based criteria tied to NCDOT Strategic Prioritization
- Incorporate into NC planning practice, specifically Comprehensive and Metropolitan Plan development
- Define PSA structure, steps, and schedule
- Identify NC Tolls Policy changes to operationalize Handbook

Pre-Submittal Assessment (PSA)

Performance Based Criteria tied to Strategic Prioritization

– Example: Congestion Relief

Volume-to-Capacity Ratio

- Calculated from Statewide Model or Congestion Management Team
- Compare V/C ratio with and without project

Transit Utilization

- Requested from Regional Transit Authorities
- Quantify expected number reduced single-occupancy vehicle trips

Travel Time Savings

- Calculated from Statewide Model or Congestion Management Team
- Requires value-of-time assumption

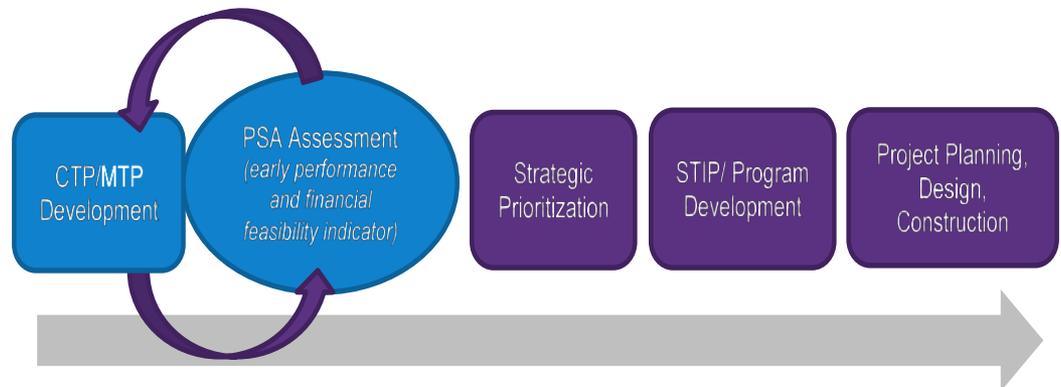
Travel Time Reliability

- Calculated from Statewide Model or Congestion Management Team
- Requires financial decision-making modeling

Pre-Submittal Assessment (PSA)

- Additional step in Comprehensive and Metropolitan Plan Development
- Include in early scoping and Plan “Set Up” meetings

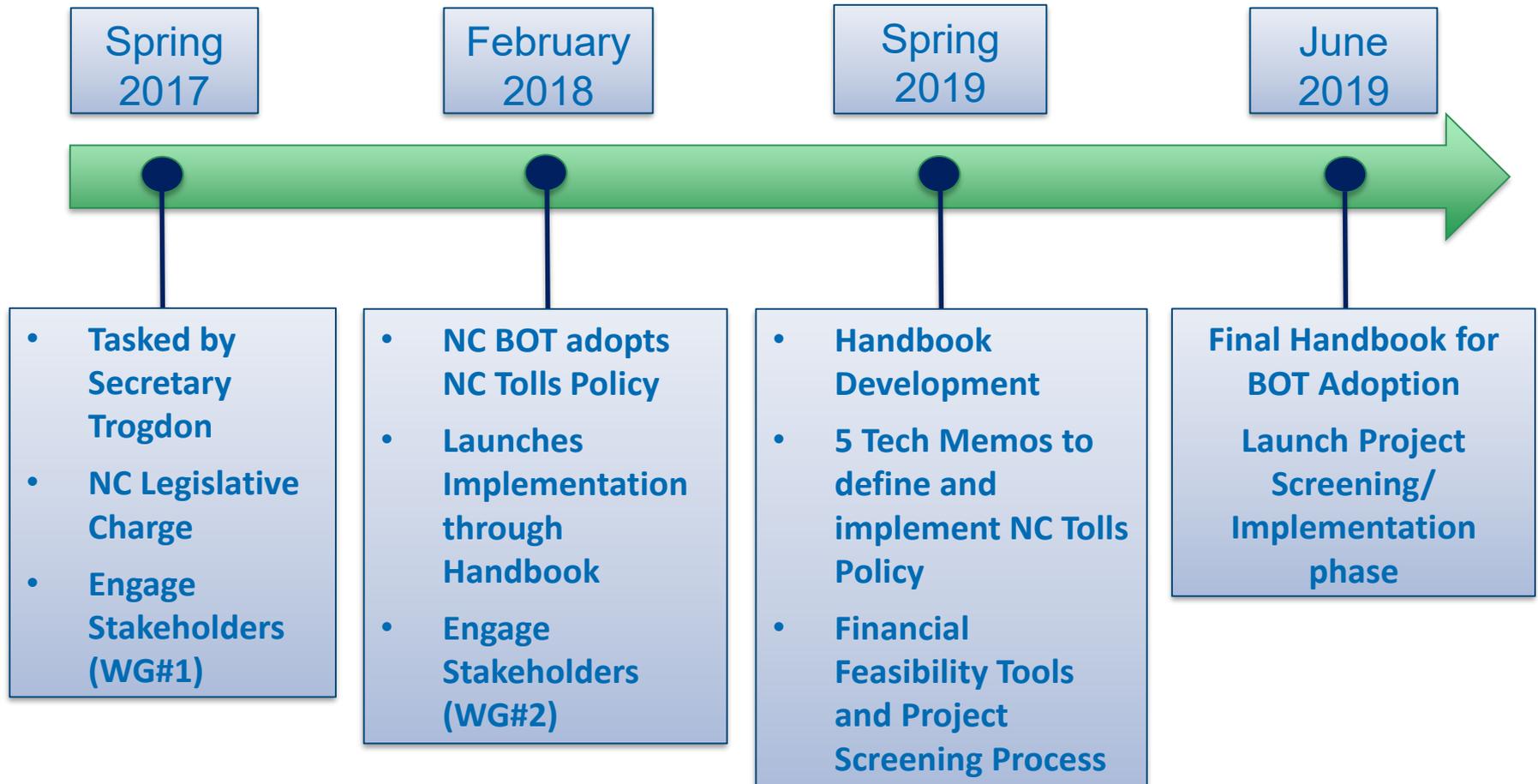
- Scoping meeting checklist
- Sets expectations with local communities
- Supports “fiscal realism” for RPO area plans
- Prior to project submission for Strategic Prioritization



Intra-Departmental Project Evaluation Team

- NCTA, SPOT, TPD, STIP, Technical Services
 - NCTA leads evaluation team
 - NCDOT Division Engineers support role
- Other Considerations
 - Coordination, Engagement, Scope, Timing
- Next Steps –Implementation Framework

Policy Development & Implementation Timeline



Next Steps

March

- ✓ Expanded technical discussion & tool demonstration
- ✓ Finance Tool Application

April/May

- Complete Handbook content
- Consider needed Tolls Policy amendments or clarifications
- Refine Implementation Framework

June/July

- Present Draft Handbook to NC Board of Transportation (June)
- Finalize Handbook (July)

147 Slope Update



Dennis Jernigan

Director of Highway Operations

I-77 Toll Operations & System Testing Overview

Andy Lelewski, P.E.

Director of Toll Operations

I-77 Express Lanes Project Corridor

- **Roadway Construction Began:** Nov. 15, 2015
- **Estimated Completion Date:** Late 2019
- **Length:** 26 Miles
- **First Section (north of Hambright Road) Opening:** Spring 2019
- System Integration Testing (SIT)
 - Scheduled March 2019
- System End-to-End testing
 - Scheduled for March-April 2019
 - Live transactions from test vehicles to be sent from I77 Mobility Partners BOS to NCTA BOS
 - Processed against live production base accounts



I-77 Mobility Partners (I77MP) Responsibilities

Transaction Building

- Detect vehicles
- Classify vehicles per the User Classification
- Record time of passage under gantry
- Read transponder and capture image of license plate
- Accurately calculate and assign the toll (both NC Quick Pass and Bill by Mail)
- Identify HOV declared vehicles
- Transmit accurate transaction data to the I77MP Back Office



Transaction Transmission

I-77MP Back Office will create and submit transaction files to NCTA Back Office

- **Low Occupancy Vehicle Transactions:**
 - NC Quick Pass / Interoperable (E-ZPass, SunPass, Peach Pass)
 - Bill by Mail Transactions
- **Exempt Vehicle Transactions**
 - HOV, Motorcycles, Transit, First Responders
- **Files will not include:**
 - Irregular transactions (no identifiable information to track ownership, i.e. missing or obscured license plate)



Bill by Mail Transaction Accuracy

Accuracy Importance

- Inaccurate license plate data negatively affects NCTA's ability to collect video transaction tolls (wrong vehicle owner identified)
- Inaccurate billing frustrates customers

NCTA Audit

- I77MP is required to have an image accuracy rate of 98.5% in the first six months and 99% thereafter
- NCTA is authorized to perform a monthly audit of video transaction images
- Failure can result in toll revenue rebate to NCTA

Bill by Mail Transaction Timeliness

Timeliness Importance

- There is a customer expectation that NC Quick Pass will quickly post transponder transactions to accounts
- By law, Bill by Mail transactions must be invoiced in 90 days

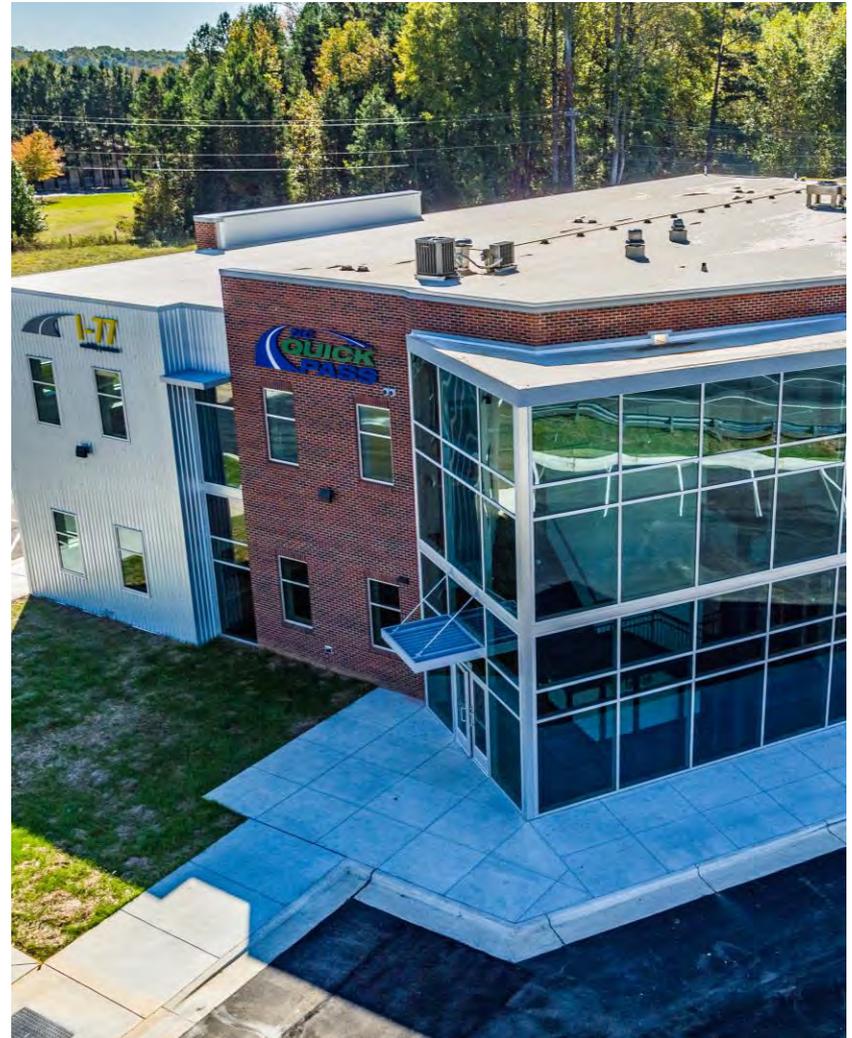
Performance Requirements

- I77 Mobility Partners is required to transmit 100% of transponder transactions in 3 days
- I77 Mobility Partners is required to transmit 99% of Bill by Mail transactions in 7 days and 100% in 45 days

NCDOT / NCTA Responsibilities

Customer Service

- NC Quick Pass provides toll transaction processing, account management, invoicing, transponder distribution, and customer service for the project.
- Charlotte Customer Service Center is co-located with I-77 Mobility Partners Administration and Maintenance Building and serves the public by offering walk-in customer service for:
 - Opening/managing NC Quick Pass accounts
 - Accepting payments for Bill by Mail invoices
 - Providing in-person customer service



Transaction Processing

Toll Payment

- For revenue transactions I77MP submits files and invoices NCTA
- Transactions for exempt vehicles are processed as zero dollar toll transactions
- NCTA remits revenue to I77MP based on invoice

Financial Reconciliation

- Monthly, NCTA will determine which transactions may require an adjusted toll payment. Reasons could include:
 - Inaccurate transaction
 - Duplicate transaction
 - Transaction older than 45 days

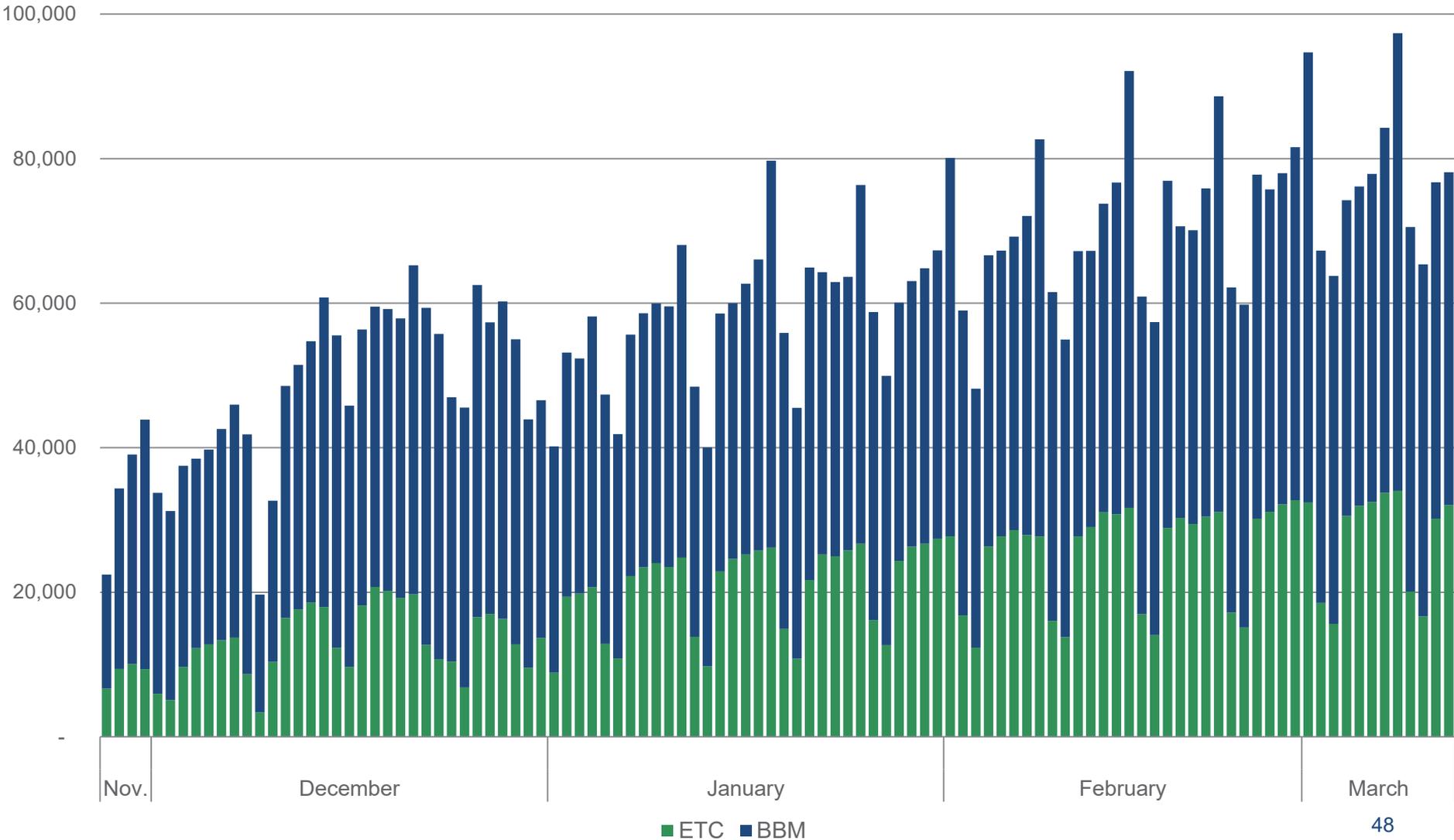
Monroe Expressway Update



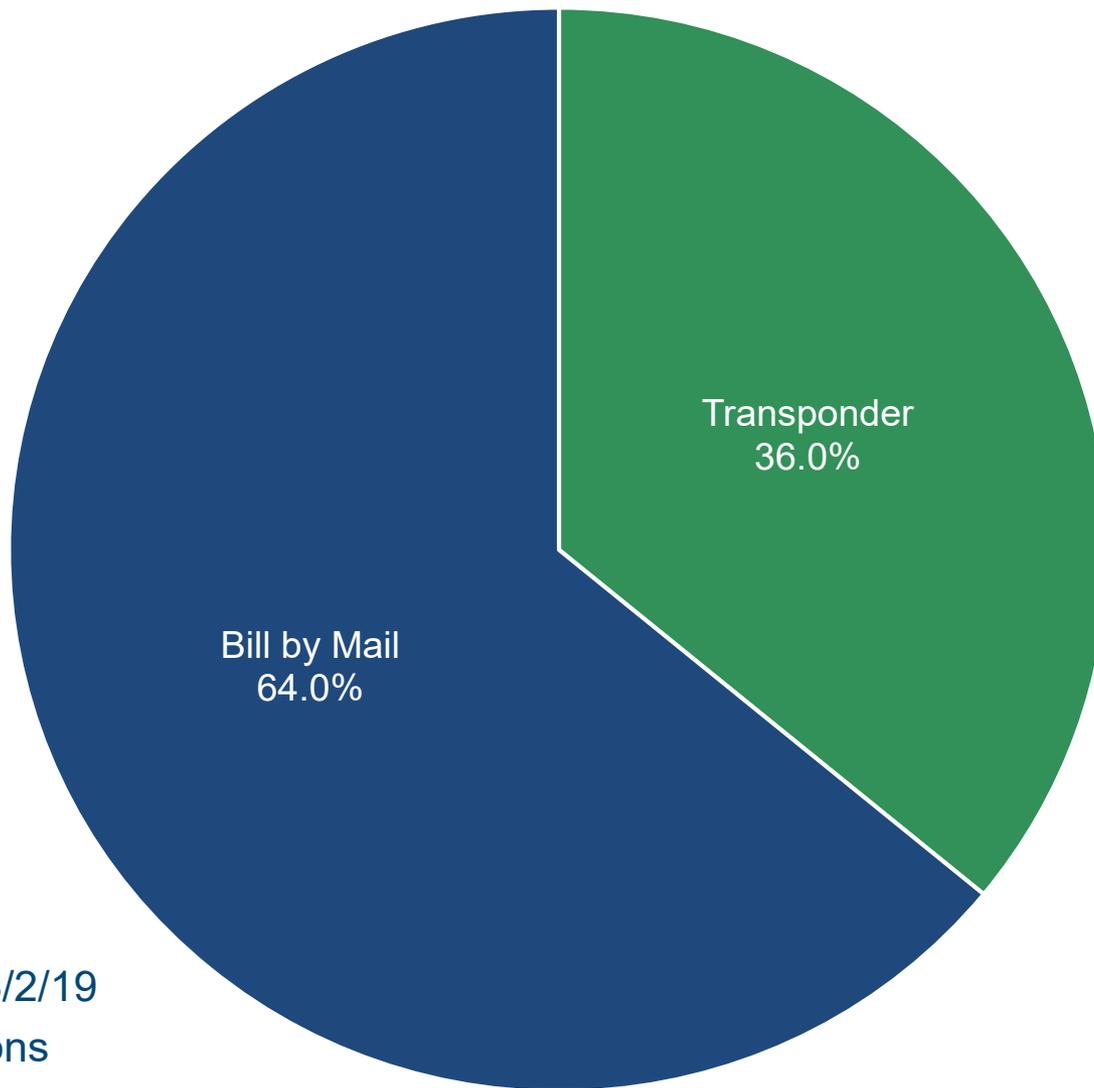
Andy Lelewski, P.E.

Director of Toll Operations

Total Transactions Processed

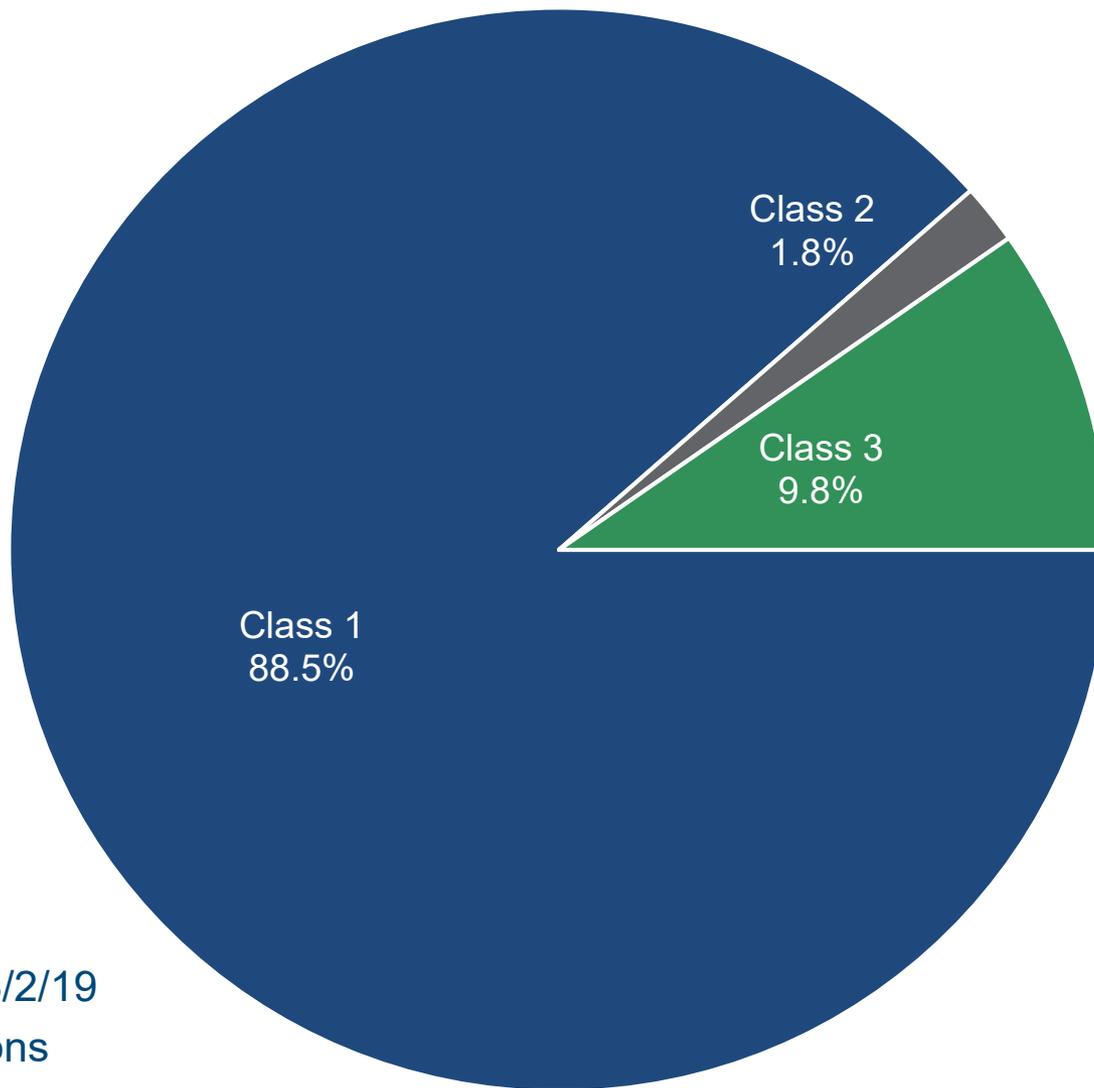


Transaction Type



Dates: 2/24/19 – 3/2/19
534,834 transactions

Transaction Classification



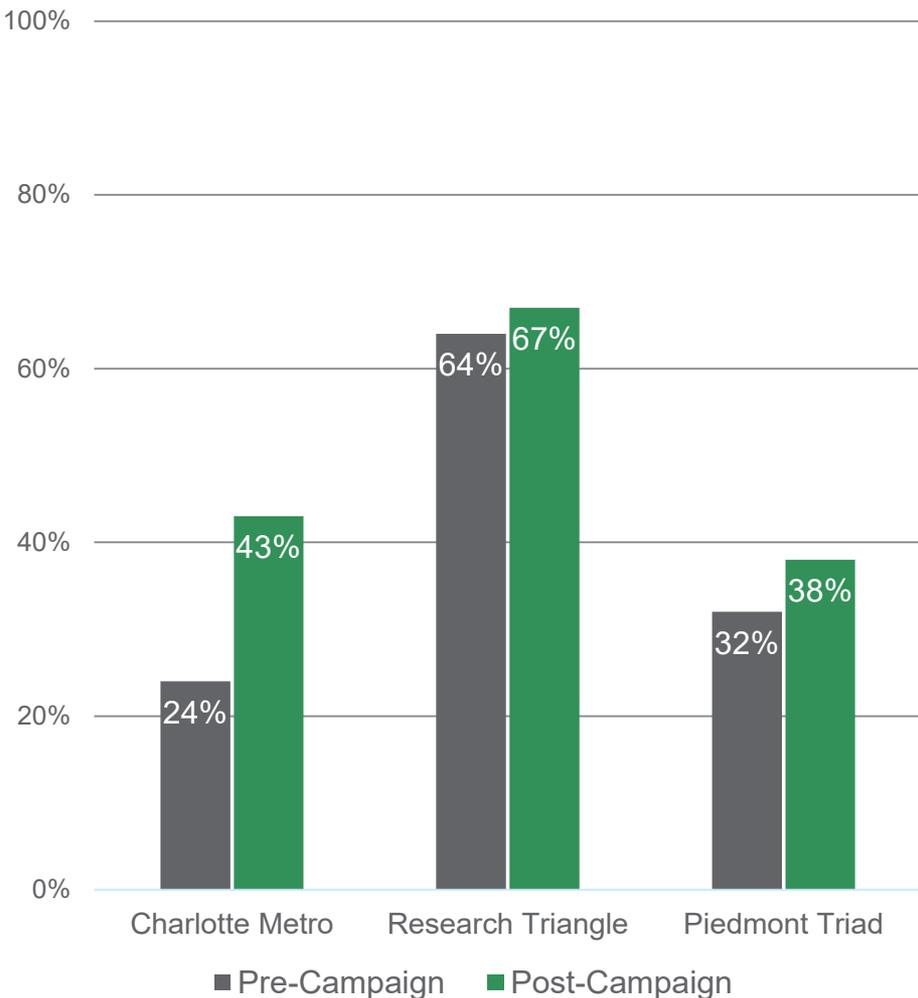
Dates: 2/24/19 – 3/2/19

534,834 transactions

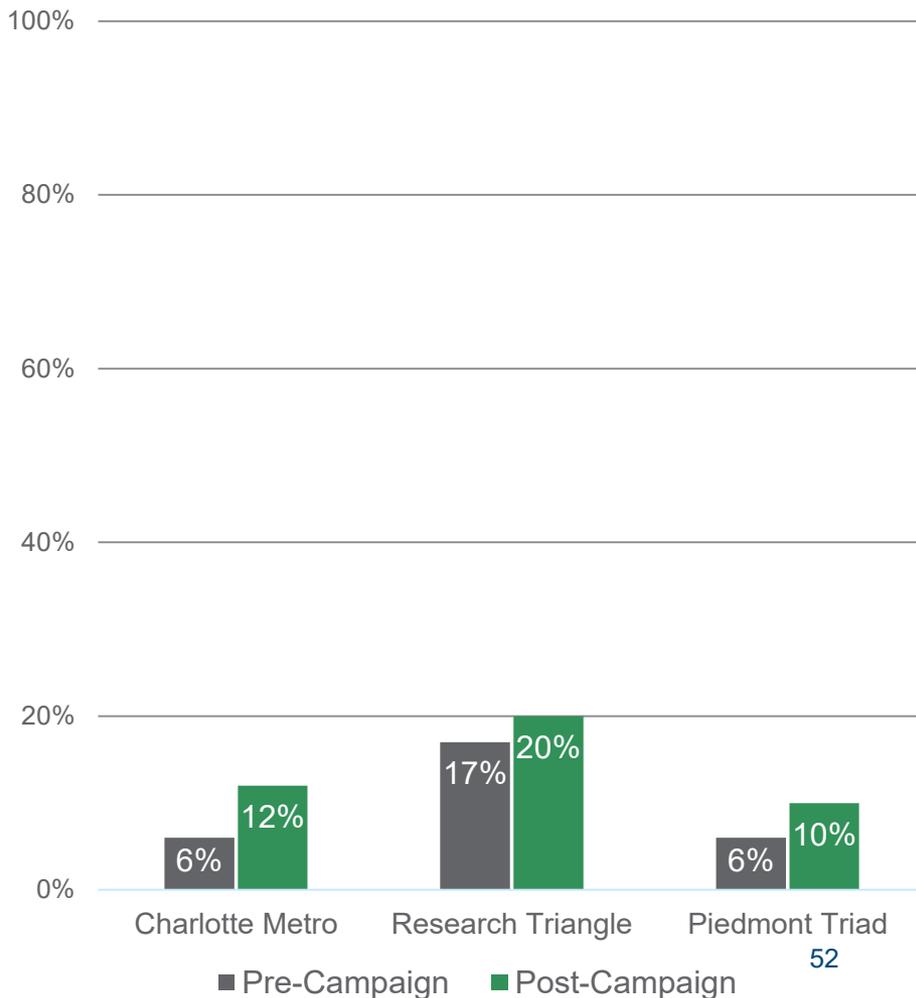


Market Research Results

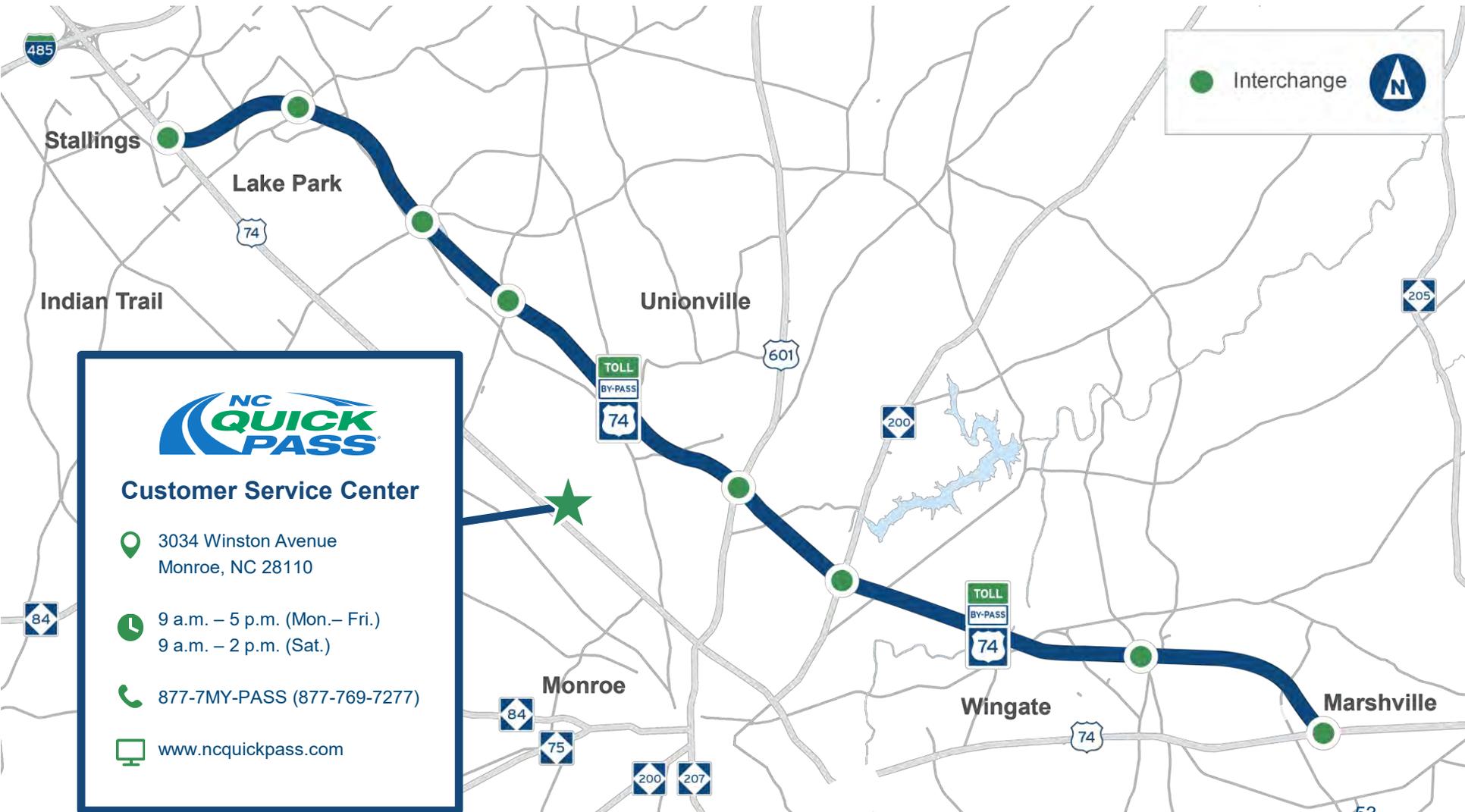
NCQP Transponder Awareness



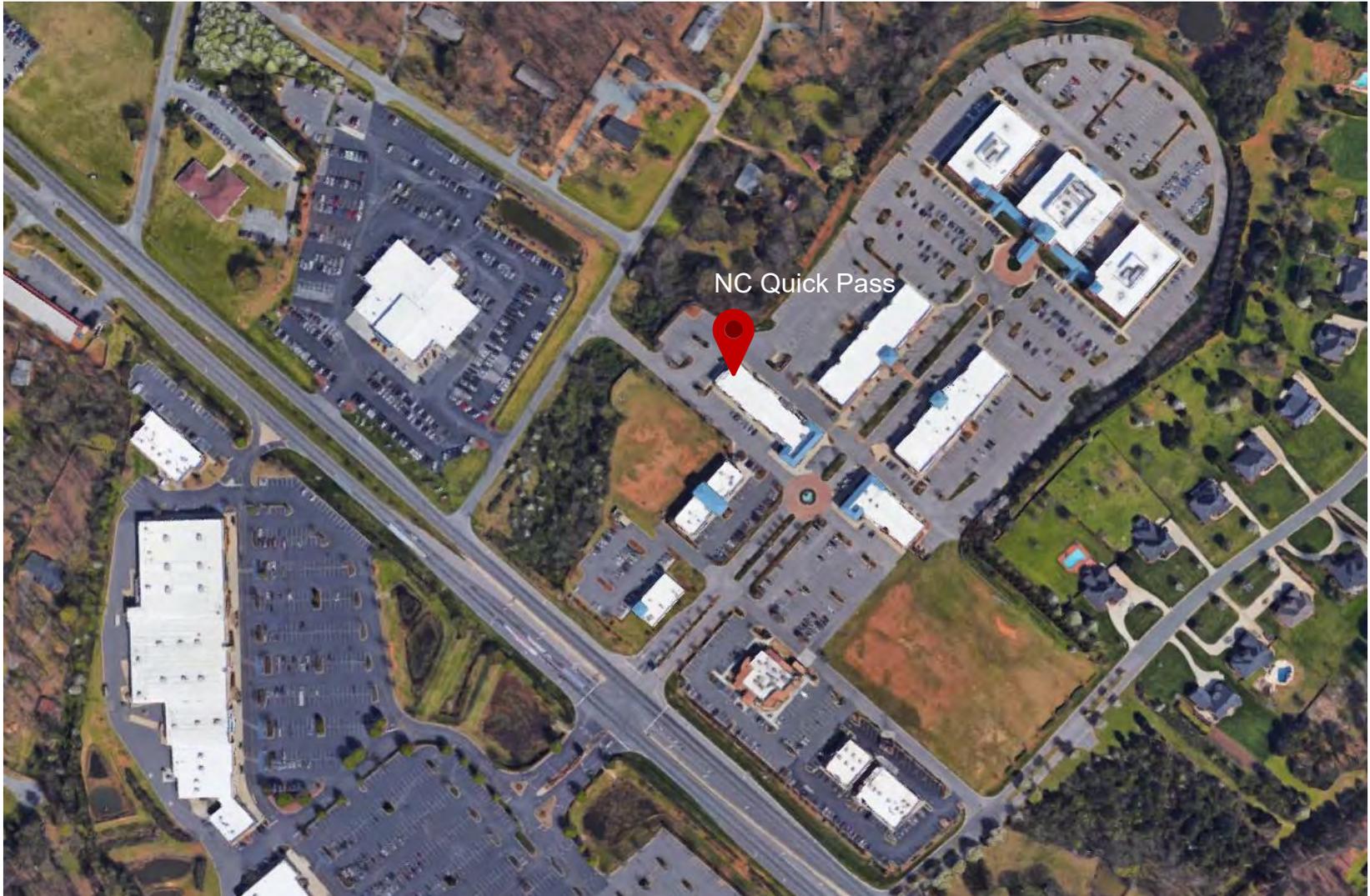
NCQP Transponder Ownership



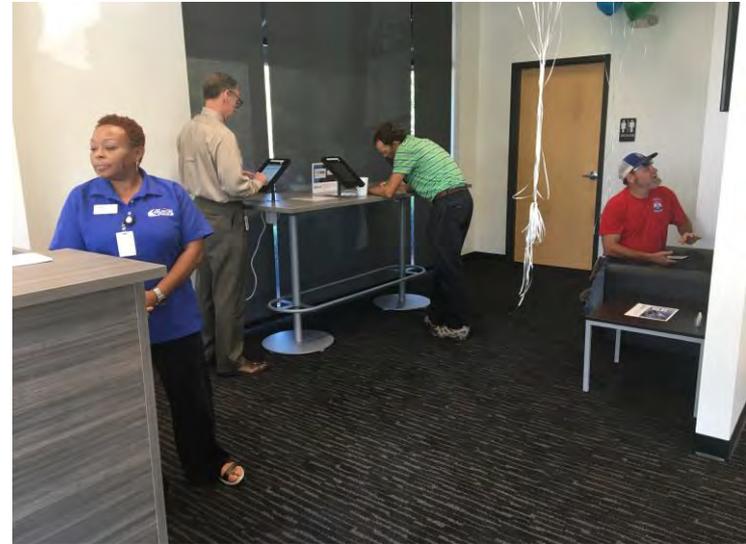
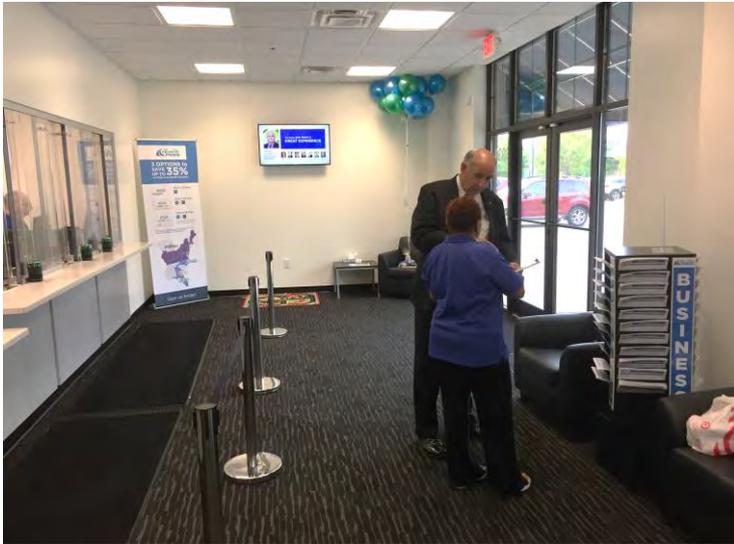
Monroe Customer Service Center



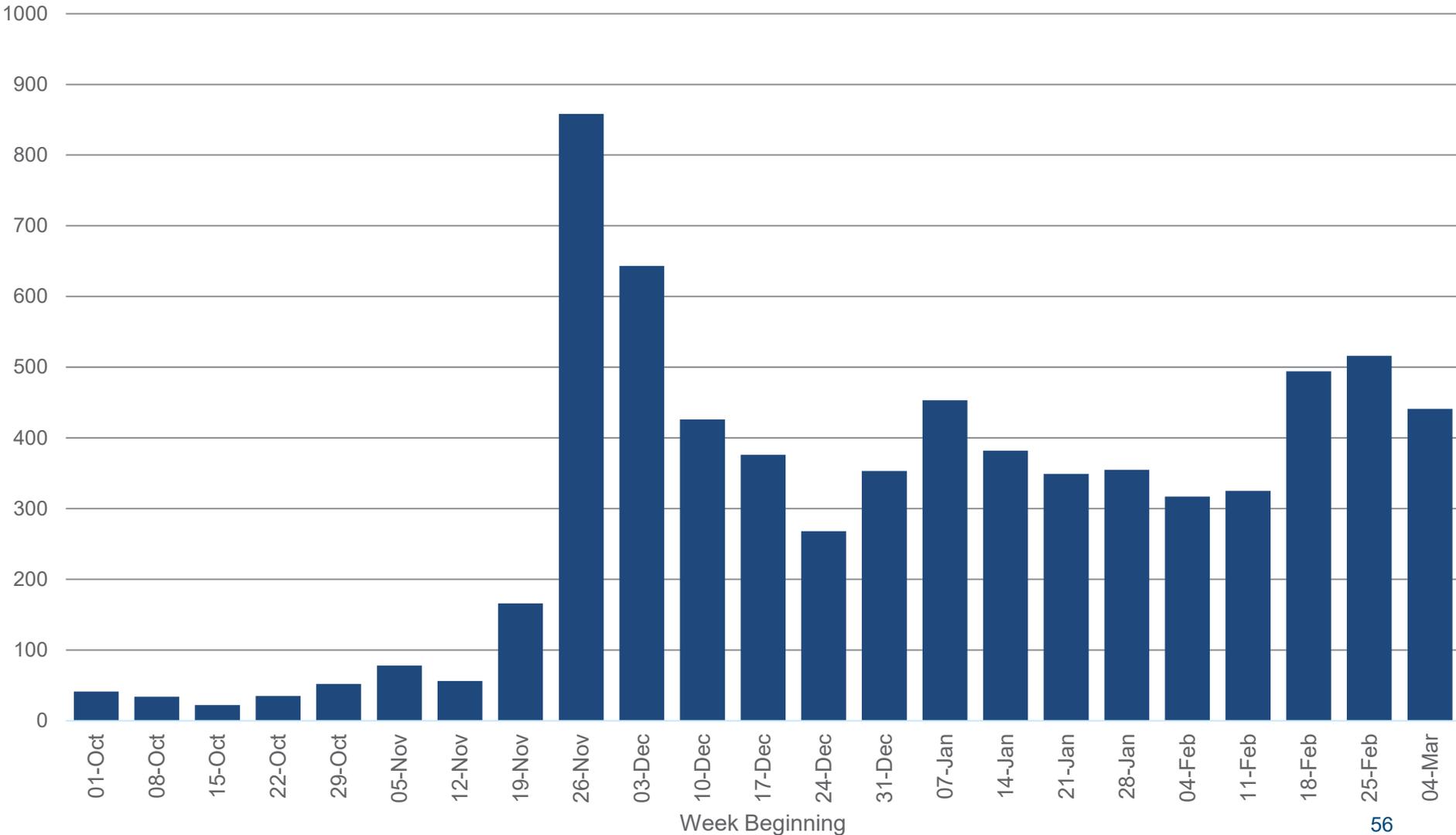
Monroe Customer Service Center



Monroe Customer Service Center



Monroe CSC Visitors



Thank You!

