



North Carolina Turnpike Authority Board of Directors Meeting

May 2, 2019

Operations & Customer Service

Andy Lelewski, P.E. Director of Toll Operations

Transaction Statistics



	FY17 - Q4	FY18 - Q1	FY18 - Q2	FY18 - Q3	FY18 - Q4	FY19 - Q1	FY19 - Q2	FY19 - Q3
Actual Transactions	12,675,376	12,566,202	12,657,190	12,232,513	13,780,931	13,394,771	13,712,458	13,787,834
2009 Certified Traffic and Revenue ¹	10,748,373	11,300,881	10,762,744	11,486,687	11,486,688	12,025,101	11,834,226	12,204,910
Delta	1,927,003	1,265,321	1,894,446	745,826	2,294,243	1,369,670	1,878,232	1,582,924
Percent of Actual vs. 2009 Base Case	118%	111%	118%	106%	120%	111%	116%	113%

¹Target monthly transaction data based on annualized numbers contained in the 2009 Certified Traffic and Revenue Report developed by CDM Smith

Toll Transactions by Type *Triangle Expressway*

100% 6 M 90% 5 M 80% 70% 4 M 60% 3 M 50% 40% 2 M 30% 20% 1 M 10% Μ 0% Jun-17 Aug-18 Jan-19 Mar-19 May-17 Aug-17 Sep-17 Jan-18 Feb-18 Mar-18 May-18 Jun-18 Feb-19 Nov-17 Dec-17 Jul-18 Sep-18 Nov-18 Dec-18 Apr-17 Jul-17 Oct-17 Apr-18 Oct-18 FY 2017 FY 2019 FY 2018 **ETC** Transactions Video Transactions ETC %

Transaction Statistics

Monroe Expressway



Monthly Transponders Sold



New NC Quick Pass Accounts March 2017



New NC Quick Pass Accounts March 2018



New NC Quick Pass Accounts March 2019



Bill by Mail Invoices Sent March 2017



Bill by Mail Invoices Sent March 2018



Bill by Mail Invoices Sent March 2019



Customer Outreach



NC Quick Pass

Spring is here and we are kicking it off at Spring Daze with @TownolCary this Saturday. We hope to see you there! Learn more about the event here: bit.ly/2ITsvH #CarySpringDaze

215 PM APR/PD Same Social

SAVE 35% ON TOLLS

ON THE WAY TO THE GAME

BUSINESS SHOWCASE APRIL 10, 2019 THE PARK EXPO & CONFERENCE CENTER

JOIN OVER 100 VENDORS AND SHARE YOUR BUSINESS WITH OVER 1,000 PEOPLE ATTENDANCE FOR THE PUBLIC IS ALWAYS FREE





When quality time isn't worth the slow down.



Use NC Quick Pass on the Triangle Expressway and save 35% on your way to the game.

"Take the Triangle Expressway with a free N-C Quick Pass and catch tonight's first pitch at 5:40 p.m. Play ball!"



I-77 Express Lanes

Operations & Customer Service

-77EXPRESS

The I-77 Express Lanes are tolled dedicated travel lanes along I-77 between I-277 (Exit 11) in Charlotte and N.C. 150 (Exit 36), in Mooresville. The northern section of the I-77 Express Lanes from Hambright Road near I-485 to N.C. 150 will be opening spring 2019. The southern section from I-277 to Hambright Road is planned to open in late 2019.

The I-77 Express Lanes run adjacent to the free general-purpose lanes. Drivers can choose to pay a toll for a reliable travel time and can utilize the express lanes for free if there are more than three people in the car.

How to Pay for Tolls

NC Quick Pass is the easiest and most cost-effective way to pay for tolls on the I-77 Express Lanes. Drivers with an NC Quick Pass transponder save up to 35 percent on tolls. Sign up for an NC Quick Pass transponder online or learn more about NC Quick Pass

Toll Rates & Facilities
Toll Rates
Triangle Expressway
Monroe Expressway
1-77 Express Lanes
Future N.C. Turnpike Projects

Finance & Budget

David Roy Director of Finance

Revenue Statistics *Triangle Expressway*



	FY17 - Q4		FY18 - Q1		FY18 - Q2		FY18 - Q3		FY18 - Q4		FY19 - Q1		FY19 - Q2		FY19 - Q3	
Actual Revenue ¹	\$	11,625,254	\$	11,938,800	\$	11,810,005	\$	12,206,584	\$	12,982,210	\$	12,378,736	\$	12,925,510	\$	13,064,297
2009 Certified Traffic and Revenue ²	\$	8,336,160	\$	8,735,177	\$	8,319,217	\$	9,332,303	\$	9,332,303	\$	9,711,294	\$	9,557,146	\$	10,136,534
Delta (\$)	\$	3,289,094	\$	3,203,623	\$	3,490,788	\$	2,874,281	\$	3,649,907	\$	2,667,442	\$	3,368,364	\$	2,927,763
Percent of Actual vs. 2009 Base Case		139%		137%		142%		131%		139%		127%		135%		129%

¹Actual revenue is reported on a cash basis

²Target monthly revenue data based on annualized numbers contained in the 2009 Certified Traffic and Revenue Report developed by CDM Smith

Revenue Statistics

Triangle Expressway



- Revenue figures are inclusive of all toll revenue and fees

- Actual revenues reported on a cash basis

Operating Expenditures *Triangle Expressway*



- Actual operating expenditures reported on a cash basis

Revenue Statistics

Monroe Expressway



- Revenue figures are inclusive of all toll revenue and fees

- Actual revenues reported on a cash basis

Roadway Operations

Dennis Jernigan, P.E. Director of Highway Operations

Mainline Traffic Statistics



Roadway Maintenance Statistics

Triangle Expressway

	FY 2018 Q4	FY 2019 Q1	FY 2019 Q2	FY 2019 Q3	Rolling Rating
Road Surface	99.2	99.2	99.2	96.0	98.3
Unpaved Shoulders and Ditches	96.8	97.1	99.0	97.4	98.1
Drainage Structures	97.3	96.1	92.8	91.3	94.4
Roadside	91.3	94.9	97.1	92.8	94.2
Traffic Control Devices	91.1*	94.6*	95.1	92.1	93.4
Overall	94.8*	96.4*	96.6	93.7	95.5

* Excludes Pavement Striping/Marking, Characters and Symbols, and Pavement Markers characteristics.

Roadway Operations

ncdot.gov/turnpike

Mainline Traffic Statistics

Monroe Expressway



Triangle Expressway ArcGIS and Collector

Alan Shapiro, P.E. Roadway Manager

Triangle Expressway Maintenance

Introduction

- 18.8 miles of Roadway divided into 767 Linear Segments
- 1109 Signs
- 604 Pavement Symbols
- 1084 Drainage Inlets
- 400 Highway Lights
- 282 Decorative Support Columns
- 266 Plant Beds

Objectives and Vision

- Real-Time Data
- Total Asset Inventory
- Cost Tracking
- Identify and Report Problems Quickly and Precisely

Historical Maintenance Tracking Methods Monthly Ride-Through Notes

	NC 540 South		Issue	Date	Status	Priority
	69.0	Mainline				
			Exit 69 sign leaning	8/17/2017	Sign has been replaced	Medium
			MM 69.0 sign leaning	12/14/2017	Sign has been repaired	Medium
	NC-54	Y-line				
	•		 NC-54 sign is leaning and damaged 	8/3/2018		Medium
	NC-54	On-Loop	Joints to be sprayed for weeds	8/3/2018	Spraying operation was completed in October	Medium
	68.8	Mainline				
			 Route sign leaning 	9/22/2017		Medium
	68.6	Mainline				
			Loose marker on lane 3	6/5/2018	No longer loose on 12/5/18	High
			 Cable rail posts are damaged through MM 6.6 	6/5/2018	Posts have been repaired	High
	68.4	Mainline	 MM 68.4 sign is leaning 	8/3/2018		Medium
			 Heavy vegetation around guardrail 	8/3/2018		Medium
	NC-147	Off-ramp				
			 Exit 67 sign damaged 	3/16/2018		High
	68.2	Mainline				
			 Damaged guardrail (leaning post) 	9/22/2017	Post has been repaired	High
1						
540	68.0	Mainline				
540			 Leaning Authorized Vehicle sign 	9/22/2017		Low
SB			 Loose tension cable at guardrail 	12/14/2017	Tension cable has been repaired	High
	67.8	Mainline				
			Rock on MVD pole (42-0050A)	10/21/2016	Rock has been removed	Low
	67.6	Mainline				
	67.4	Mainline		10/21/2010		h fa allours
			Lignt nit by mower	10/21/2016	Light post has been repaired	Nedium
			Cantilever sign column cracked	10/21/2016	Crack has been sealed	Nedium
			Vive growing on column	8/1//2017	Vine has been removed	low
			Marga sign is twisted	12/14/2017	vine has been removed	LOW
	NC 147	On ramp	• Weige sign is twisted	12/ 3/ 2018		Wedrum
	NC-147	On-rump				
	67.2	Mainline				
	07.2	Marinie	Median guardrail missing delineators	8/17/2017	Dilineators were replaced	Medium
			Sweeping on gore	6/5/2018		inculuit
	67.0	Mainline		0, 5, 2010		
			Rotated guardrail post	5/18/2016	Post has been repaired	Medium
			MM 67.0 sign scratched	8/17/2017		Medium
			3			
	66.8	Mainline				

Historical Maintenance Tracking Methods Quarterly Maintenance Rating Program Report

Appendix A: Triangle Expressway 2018 Fourth Quarter Asset Assessment Locations



#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
1	Curb and Gutter	CG_97	Obstruction		A31

#	Material Type	Object ID	Failure Type	Photo	GIS Reference Page
5	Turf	TF_813	Bare Ground		A31

ArcGIS and Collector for Maintenance

- Geographic Information System (GIS) is a framework for collecting, managing and analyzing geographic data in real-time
- ArcGIS is a GIS software platform developed by ESRI and utilized by NCDOT
- Collector is a mobile GIS applications that integrates with ArcGIS to collect and manage web map data



ArcGIS and Collector for Maintenance







ArcGIS and Collector for Maintenance Identifying Repairs



ArcGIS and Collector for Maintenance Identifying Repairs



ArcGIS and Collector

ArcGIS and Collector for Maintenance Tracking Repair Information



ArcGIS and Collector for Maintenance Attaching Pictures to Asset





ArcGIS and Collector

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ArcGIS and Collector for Maintenance Data Collection and Reporting

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Abo Contents

- Information Includes:
 - Asset ID
 - Asset Type
 - Last Assessment Date
 - Status
 - Good Condition •
 - Low Priority Repair ۲
 - **High Priority Repair**
 - Comments
 - Date of Repair
 - Value of Repair
 - Task Number of Repair
 - **Attached Documents**
 - **Photos**
 - Invoices

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Paved D	Ditches			DI_VVII	ASMT_DATE	STATUS	COMMENTS		Location	A SN_TY	PE Date_Repair1	Value_Repair1	TN_Repair1	0
Walls			- 1	SN_243	1/18/2019	Low Priority Repair	Text: TOLL SC 540. Sign is le	OUTH eaning		NC Route				i
D Fences			- 1	SN_368	2/6/2019	Low Priority Repair	Q1 2019 - No due to Overgr Vegetation	t Visible	Ramp Mile Post (540 SB Off Ram) Green Level	INC Exit				
🗷 Drainag	ge Pipes			SN_475	4/1/2019	Good Condition			Hopson to Davis	drive Wrong W	ay 4/1/2019	694.00	35684	
Roadwa	ву		- 1	SN_572	2/7/2019	Good Condition	Exit 69, sign o usable conditi	down in	540 East	Exit	2/7/2019	1,400.00	1394067	
Plant Be	eds			SN_604		Low Priority Repair	NORTH 540 M	tile 68.		Mile Post				1
🗷 Milepos	st Signs			SN_699	1/18/2019	Low Priority Repair	mp 58.6 NB s	ign is	NC-540 MM 58.6	NB Mile Post				
Tol/Cab	inets					Low Palacity Bounds	ing Sh sing	lenelse.		Mile Deat				

Compliance Policies & **Procedures**

David Roy NCTA Director of Finance

NCTA Compliance

Annual, semi-annual and quarterly filings

- Bond Holders (MSRB/EMMA)
- Assured Guaranty
- Build America Bureau (TIFIA)
- Wells Fargo (Trustee)

Event Notices

Digital Assurance Certification (DAC)

NCTA retained DAC in September 2018

Provide post-issuance compliance services

Industry leading compliance technology

- Filing templates
- Reminders of filing deadlines
- Rating change alerts
- Model policies and procedures

Policies & Procedures

Establish guidelines for presenting related financial reports and events to interested third parties

Guidelines for:

- Annual Reporting Requirements
- Event Notice Requirements
- Voluntary Disclosure Requirements
- Third Party/Quarterly Disclosure Requirements
- Website Disclosure
- Training

Triangle Strategic Tolling Study Results

Kenneth Withrow, AICP Senior Transportation Planner, NCAMPO

Study Background

The Triangle Region is growing rapidly and to stay competitive with other regions, a study was conducted to:

Evaluate the regional transportation network

Determine if express toll lanes may be beneficial to the Triangle Region

Use study findings in project development process for MTP updates

TRIANGLE STRATEGIC TOLLING STUDY

Study Overview

- ► The study began in June 2017
- Stakeholder engagement has included:



- NCTA staff were members of the Core Technical Team
- Secretary Trogdon and Beau Memory were interviewed in January 2018

TRIANGLE STRATEGIC TOLLING STUDY



Study Sponsors

This study was a collaborative effort of:

Capital Area MPO Durham-Chapel Hill-Carrboro MPO

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NCDOT

TRIANGLE STRATEGIC TOLLING STUDY

Toll Road vs. Express Toll Lanes



- Everyone pays a toll to use the facility
- Route-based Choice: option to use the Toll Road or use a different non-toll facility



- Only Express Toll Lane users pay a toll
- Lane-based Choice: option to use the Express Toll Lanes or use the tollfree general purpose lanes

TRIANGLE STRATEGIC TOLLING STUDY

Benefits of Tolling & Express Lanes

Toll Roads and **Express Toll Lanes** provide higher travel speeds, lower and consistent travel times, and a higher quality of trip than toll-free general purpose lanes ...

... as evidenced by 43 variably priced facilities in operation and 13 under construction in 11 states.

TRIANGLE STRATEGIC TOLLING STUDY



TRIANGLE STRATEGIC

Corridor Screening

- Estimated 2045 peak-period congestion levels and speeds using Triangle Regional Model
- Examined current PM peak hour congestion using Google
- Used Triangle Regional Model to generate demand volumes for projected express toll lane network (assuming 2045 Metropolitan Transportation Plan build-out)
- Applied ECONorthwest's Toll Optimization Model[®] using regional model outputs to test future performance of express toll lane facilities

TRIANGLE STRATEGIC TOLLING STUDY

Initial Corridors



TRIANGLE STRATEGIC TOLLING STUDY

Corridors for Detailed Evaluation



TRIANGLE STRATEGIC TOLLING STUDY

Detailed Corridor Evaluation

- Evaluated seven corridors & divided I-40 into 3 segments
- Analyzed express lane performance using seven factors:
 - Projected revenue collection
 - Travel time savings
 - Trip dependability
 - Transit supportive
 - Impacts on low income residents
 - Access to jobs
 - Construction costs

TRIANGLE STRATEGIC TOLLING STUDY

Projected Revenue Collection

Forecasted by ECONorthwest's Toll Optimization Model[®]

- Has been in use for over 20 years
- Reflect prices at various times & under different circumstances
- Supplied with TRM demand forecasts to test future performance of toll facilities
- Revenue assumptions are:
 - Future year of 2045
 - All express lane users pay
 - Buses & vanpools use the express lane for free

TRIANGLE STRATEGIC TOLLING STUDY



TRIANGLE STRATEGIC TOLLING STUDY

Projected Travel Time Savings

- Difference between travel times in the general purpose & express lanes along the same corridor
- Estimated by Toll Optimization Model[®] using Triangle Regional Model inputs
- Projected travel time savings of half-minute per mile along longer corridors for express lanes

TRIANGLE STRATEGIC TOLLING STUDY

Trip Dependability

- Used FHWA's Buffer Time measure
- Buffer time is extra time allowed to ensure on-time arrival during times of high traffic.
 - Trip to work when being late could mean job loss
 - Trip to airport when being late means a missed flight
 - Trip to daycare when being late incurs a penalty
- Express lanes have lower buffer times than general purpose lanes (more travel time certainty)

TRIANGLE STRATEGIC TOLLING STUDY

Cost Estimate Assumptions

- "Constrained" Typical Section (lower cost)
 - Fit within existing typical section
 - May include Design Exceptions for lane and shoulder width and sight distance
 - Minimal buffer area
 - Shoulder use (if applicable)
- "Full Feature" Typical Section (higher cost)
 - Preferred dimensions with minimal Design Exceptions
 - Increases footprint of roadway
 - Higher likelihood of bridge and interchange reconstruction
- Estimates exclude Direct Connects





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TRIANGLE STRATEGIC TOLLING STUDY



- > Used Triangle Regional Model 2045 transit routes
- > Identified transit routes using a significant portion of the corridor
- Identified peak and off-peak hours of operation and frequency
- Calculated number of buses in peak, off-peak, and daily

TRIANGLE STRATEGIC TOLLING STUDY

Estimating Low Income Populations and Access to Jobs



- ► Identified interchange locations for each corridor
- Buffered interchange locations with 2 mile buffer
- ► Used model employment data to capture "jobs" within the buffered area
- ► Used US Census data to identify households below the poverty level within the buffered area

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TRIANGLE STRATEGIC TOLLING STUDY

Fact Sheets



Developed for each corridor summarizing performance versus the evaluation criteria

TRIANGLE STRATEGIC TOLLING STUDY

Updating Partners & Stakeholder Groups

- Closing the Loop on Study Outcomes (May & June)
- Presentations to:
 - MPO Boards Joint CAMPO & DCHC MPO Meeting
 - NCDOT NCTA Staff Leadership
 - NCTA Board of Directors
 - NCDOT Board of Transportation (Local Members)
 - NCDOT Local Divisions Staff & Others
 - FHWA
 - WakeUP Wake County
 - Regional Transportation Alliance

TRIANGLE STRATEGIC TOLLING STUDY

More Information?



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> TRIANGLE STRATEGIC TOLLING STUDY

Thank You!