



The Benefits of utilizing a public private partnership  
project delivery method  
April 25, 2019

[www.I77Express.com](http://www.I77Express.com)

# Agenda



## PUBLIC PRIVATE PARTNERSHIP (P3) OVERVIEW

- Definition
- P3 vs. Design Build
- Reasons
- Benefits
- Alternative Technical Concepts: ATCs
- Examples

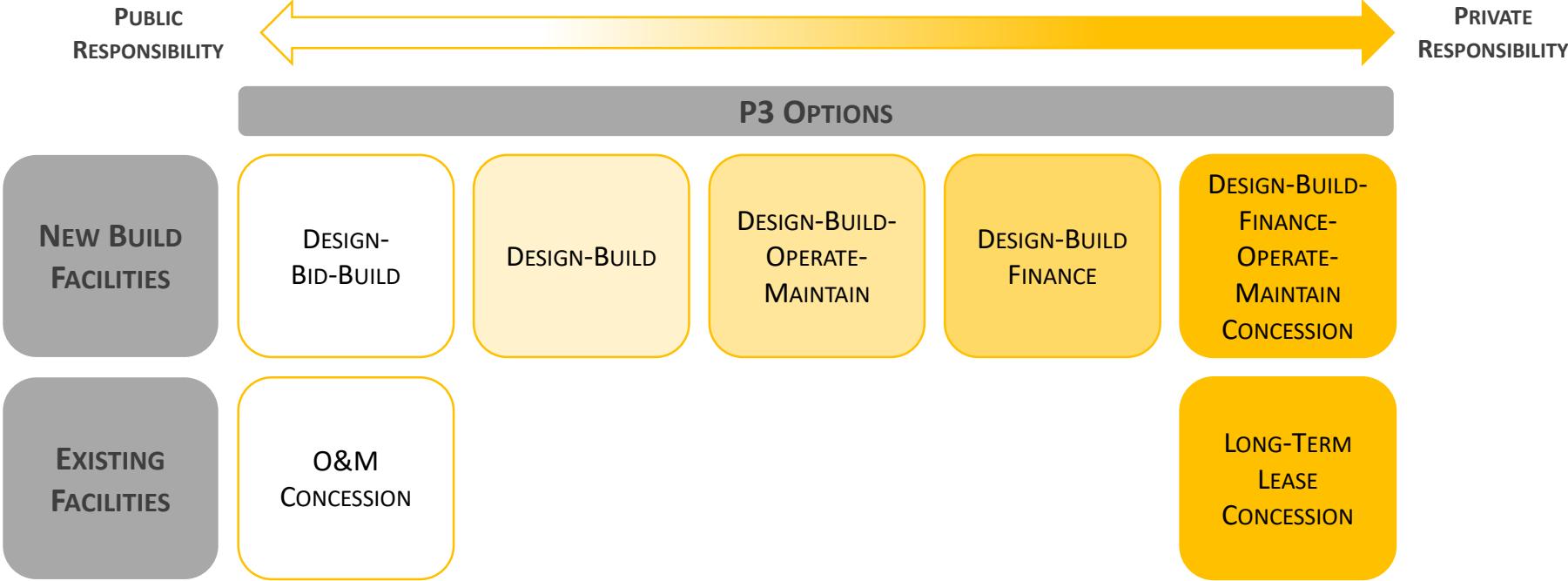
## I77 EXPRESS LANES

- Project Overview
- Project Improvements

# PUBLIC-PRIVATE PARTNERSHIP



“Public-private partnerships (P3s) are contractual agreements formed between a public agency and a private sector entity that allow for greater private sector participation in the delivery and financing of transportation projects.”



# PUBLIC-PRIVATE PARTNERSHIP



Why might an agency go with P3 Project Delivery?

- **FINANCIAL REASONS**

- Financial Support
- Financial Risk
- Operations
- Maintenance



- **OTHER REASONS**

- Innovation
- Aligning project goals/objectives with private incentives
- Cost Savings
- Improved project

# PUBLIC-PRIVATE PARTNERSHIP



## Benefits of using P3 Project Delivery

- Project viability
- Operations and Maintenance Risk Transfer
- Lower public investment
- Expedited delivery
- Optional revenue risk transfer
- ATCs



# PUBLIC-PRIVATE PARTNERSHIP



## Alternative Technical Concepts (ATCs)

### Benefits:

- Pre-bid contract deviations
- Accepted by DOT
- Decrease project costs
- Increase project revenue



### Risks:

- NEPA
  - Re-Evaluation
  - Supplemental Environmental Document
- Timing
- Financial Implications

# PUBLIC-PRIVATE PARTNERSHIP



## Example: LBJ Expressway, Dallas TX

### Overview:

- 17 mile project
- \$2.6 Billion total project cost
- \$490 Million public contribution
- Reconstruction of 8 general purpose lanes
- Construction of 4-6 express lanes
- 52 year concession period
- Developer at risk for toll collections



# PUBLIC-PRIVATE PARTNERSHIP



## Example: LBJ Expressway, Dallas TX





# PUBLIC-PRIVATE PARTNERSHIP

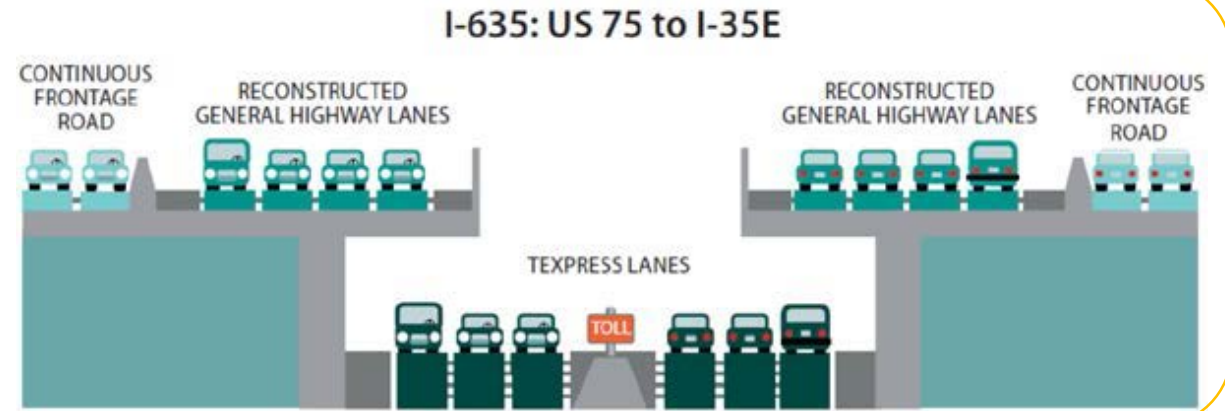


Example: LBJ Expressway, Dallas TX

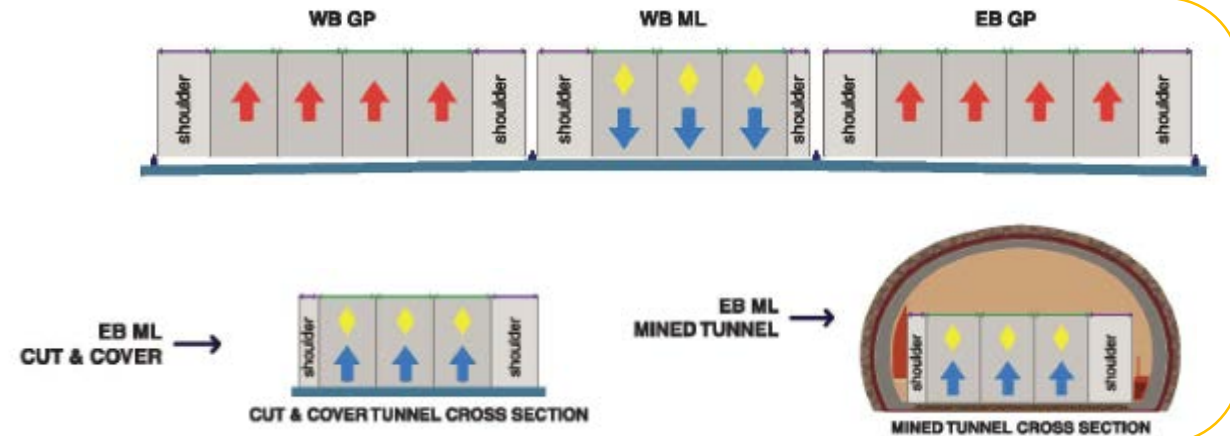
P3 Innovation = \$1.3 Billion Savings

Innovation:

Final Solution:



Alternative Solution:



# PUBLIC-PRIVATE PARTNERSHIP



## Example: LBJ Expressway, Dallas TX

### Innovation:

TxDOT Proposal



P3 Innovation



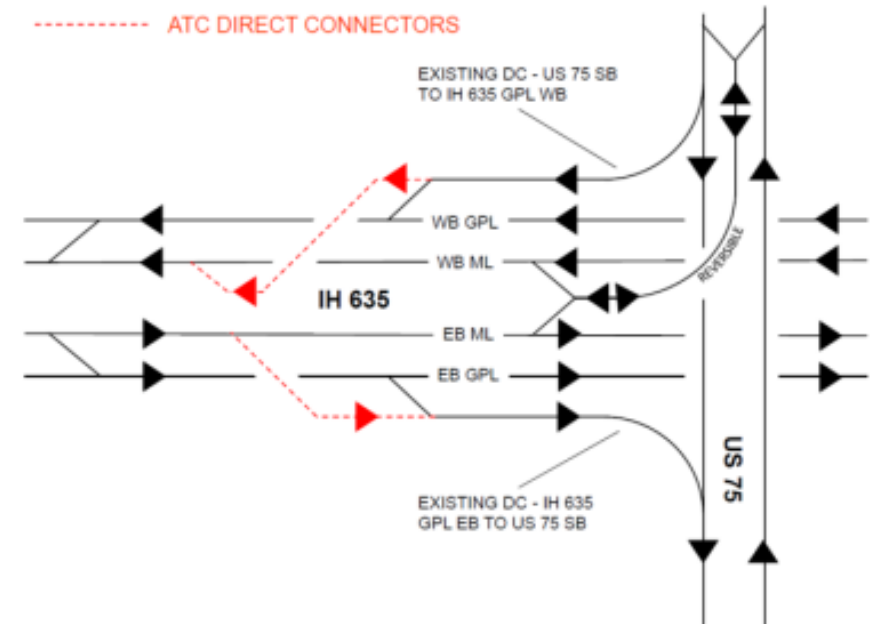
# PUBLIC-PRIVATE PARTNERSHIP



## Example: LBJ Expressway, Dallas TX

### Innovation Risks:

- NEPA Risk
- Additional costs



# PUBLIC-PRIVATE PARTNERSHIP



## Example: NTE 35 W, Dallas-Fort Worth TX

### Overview:

- 6.5 mile project
- \$1.4 Billion total project cost
- Reconstruction of general purpose lanes
- Construction of 4-6 express lanes
- Improved frontage roads
- 52 year concession period
- Developer at risk for toll collections

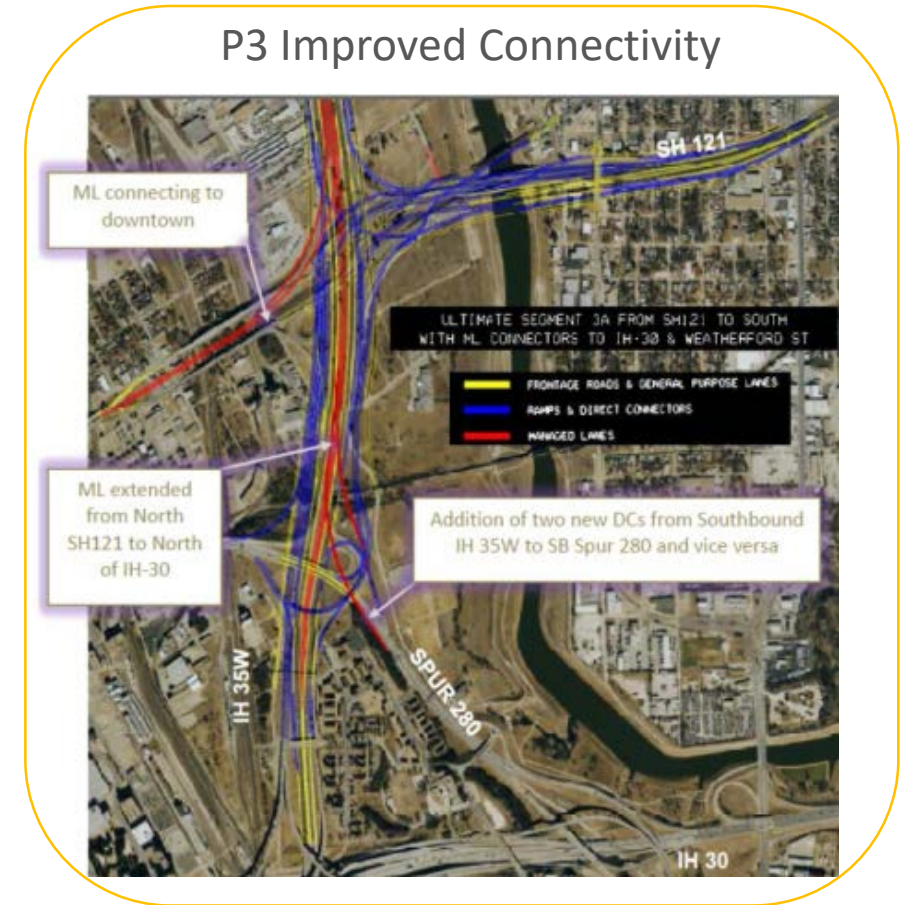
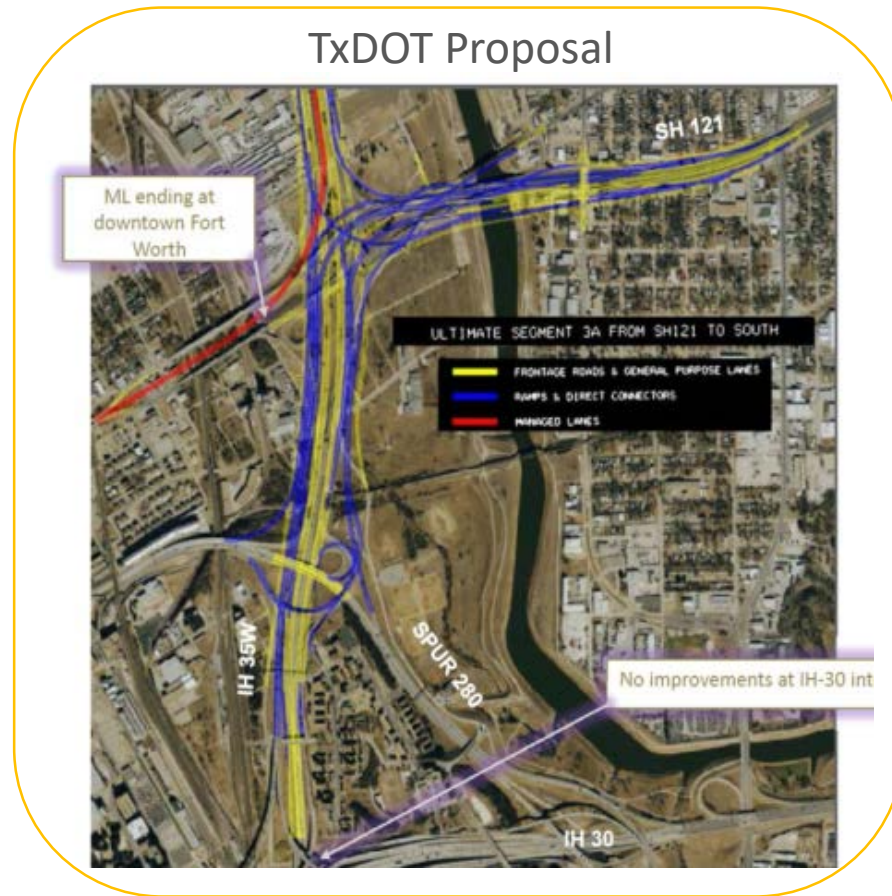


# PUBLIC-PRIVATE PARTNERSHIP



Example: NTE 35 W, Dallas–Fort Worth TX

Innovation:



# PUBLIC-PRIVATE PARTNERSHIP



I-77 Express is the first-ever toll lane public-private partnership with NCDOT



I-77 Mobility Partners is financing, developing, designing, constructing, operating, and maintaining I-77 Express.

NCDOT remains the owner of the roadway.  
NCDOT provides oversight of I-77 Express to ensure all requirements of the contract for the project are met.

North Carolina Turnpike Authority is responsible for managing NC Quick Pass accounts, transponder distribution and customer service through the NC Quick Pass program.

NC Quick Pass Customer Service Center located at 8015 W. WT Harris Blvd. Charlotte, NC 28216.

# I-77 EXPRESS PROJECT INVESTMENT



- I-77 Express is delivered as a design-build project, which allows for real-time changes to construction plans and scope to deliver the best-possible project.
- I-77 Mobility Partners and its investors directly invested more than \$250 million.
- Project financing also includes \$289 million of project debt.
- The private investment is instrumental for the construction of I-77 Express and other infrastructure improvements along the existing portion of I-77, including the ability to deliver the project sooner for the State of North Carolina and motorists.
- Tolls paid to use I-77 Express go toward paying operations and maintenance costs and debt service of the roadway before investors start seeing a return on their investment.

# I-77 EXPRESS OVERVIEW



- I-77 Express consists of 26 miles of dedicated tolled express lanes that will operate adjacent to the existing general purpose lanes.
- I-77 Express is separated from the existing general purpose lanes and have an interior shoulder for enhanced safety.
- Two express lanes per direction will run from I-277 in Charlotte to just south of Exit 28 in Cornelius.
- One express lane will run in each direction from Cornelius to just past Exit 36 in Mooresville.
- The same number of existing free lanes will remain along the entire highway in both directions.
- Drivers will have a choice whether to use I-77 Express, the general purpose lanes, or a combination of each.
- Dynamic pricing will be used to maintain a minimum average speed on I-77 Express.
- Express lanes will assist with traffic flow in all lanes.



# PROJECT IMPROVEMENTS



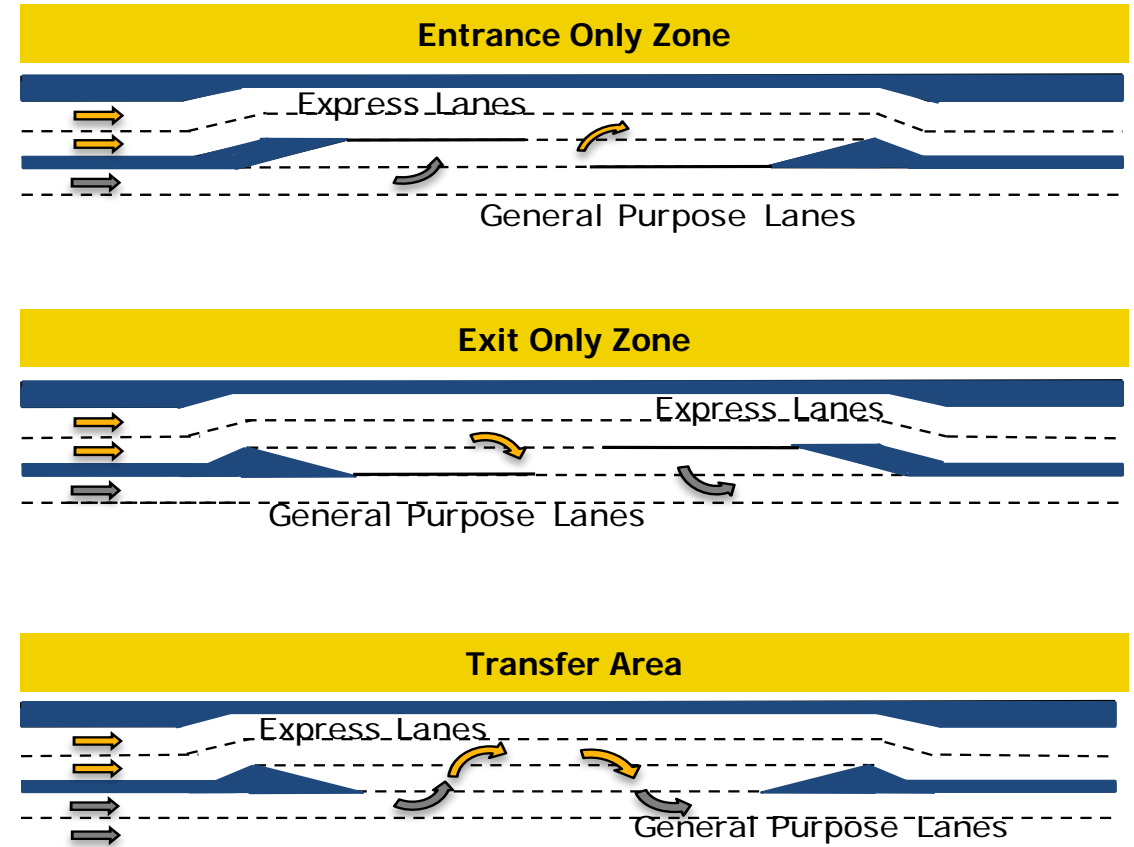
## Improving the I-77 Corridor

- All along the corridor, existing infrastructure is being greatly improved in both the general purpose lanes and the express lanes.
- Since signing the original contract, additional work was added to the project scope to improve the roadway for drivers.
- We have worked closely with NCDOT in determining these project improvements and adjusting timelines to accommodate the broader scope of work.

# ACCESSING I-77 EXPRESS



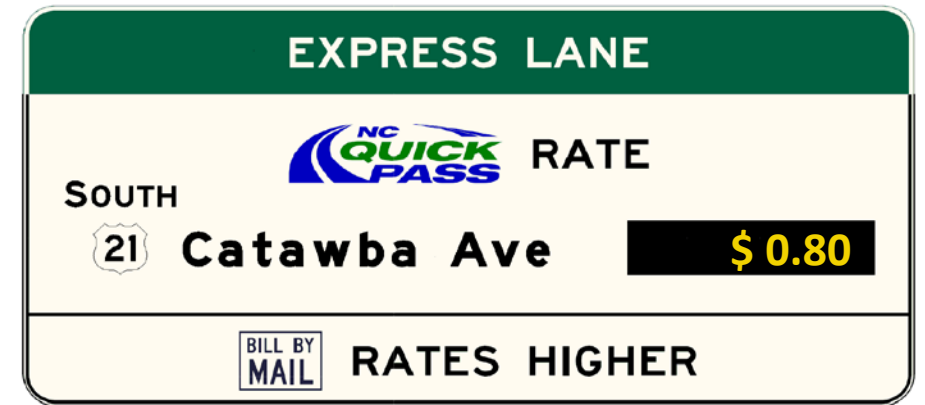
- I-77 Express will have 11 access points in each direction.
- All of the entrances and exits have been placed to allow safe movement to or from the closest general purpose ramp.
- All merge lanes will exceed the minimum standards of 500 feet per lane change.
- One additional merge lane has been added to the transfer areas to improve safety.
- Merge lanes will be 1,500 – 2,000 feet long in most locations.



# I-77 EXPRESS WAYFINDING



- Signs will be strategically placed along the corridor to allow motorists ample time to decide if I-77 Express is the best option for their trip.
- Rates will be displayed ¼ mile ahead of each segment entry.
- The toll rate displayed when entering I-77 Express is the price motorists will be charged for that segment.
- Toll rates posted on the I-77 Express signs will display the transponder rate.
- Additional digital message signs will alert drivers to any traffic conditions ahead.



# I-77 OPERATIONS AND MAINTENANCE



- I-77 Mobility Partners assumed maintenance and operations for the entire 26-mile corridor in October 2017.
- Motorists have a team available 24/7 that is fully dedicated to monitor the corridor and maintain both the general purpose lanes and I-77 Express to the same level of quality.
- Crews conduct roadway maintenance such as debris cleanup, vegetation control and road repairs.
- They also assist law enforcement and emergency responders in incident response with traffic control, roadway cleanup and coordinating vehicle removal.
- The team has provided roadside assistance such as changing tires, providing signaling, fuel or water to more than 1,300 motorists in need since beginning of operations.



# PRE-BID PROJECT IMPROVEMENTS



## I-85 ATC - COMPARISON

NEPA  
Design



Bid  
Design

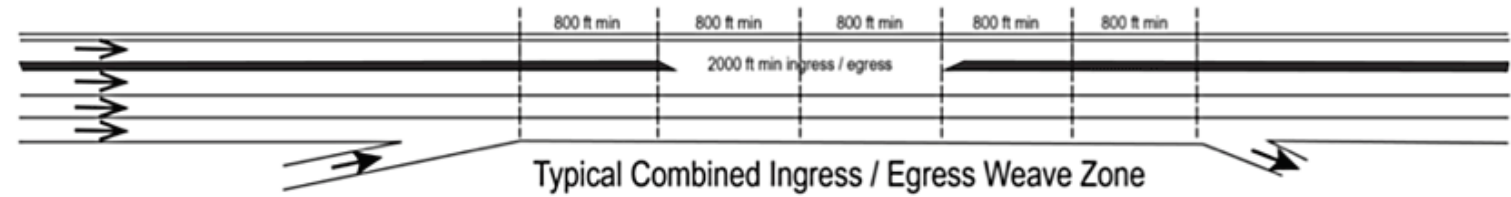


# PRE-BID PROJECT IMPROVEMENTS

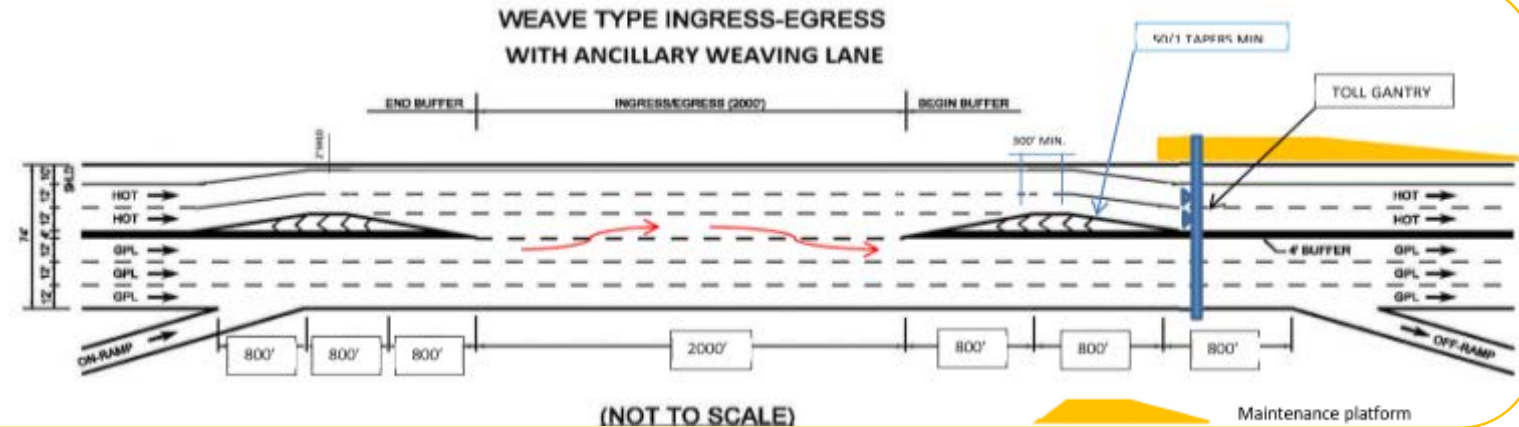


## ENTRIES/EXITS

RFP  
Design



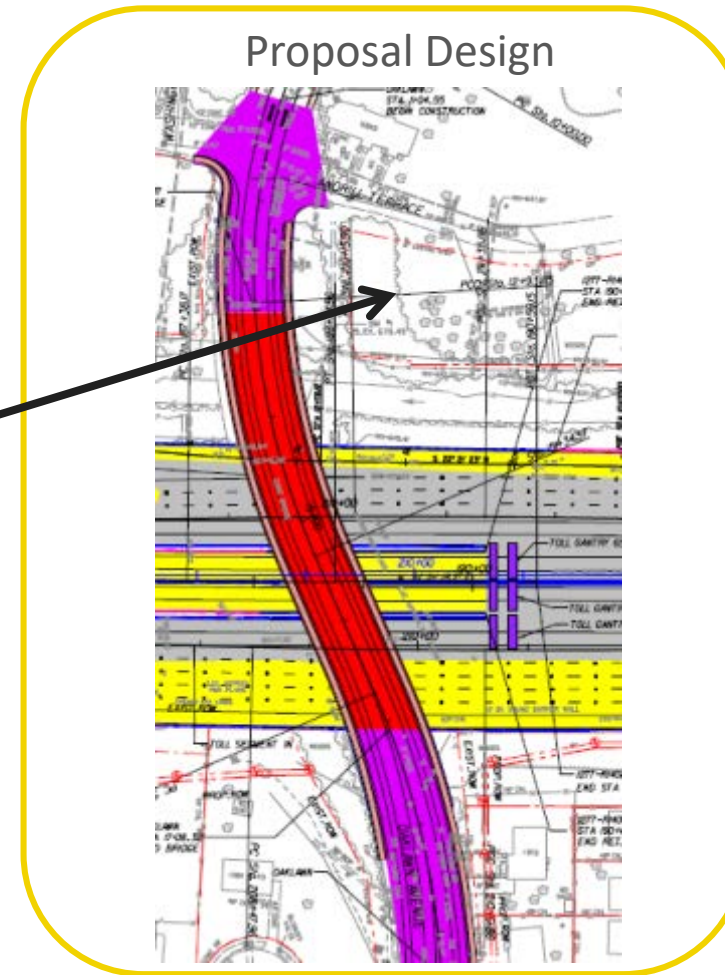
Proposal  
Design



# PRE-BID PROJECT IMPROVEMENTS



## ROW REDUCTION



FEMA Parcel: not needed with Proposal Design

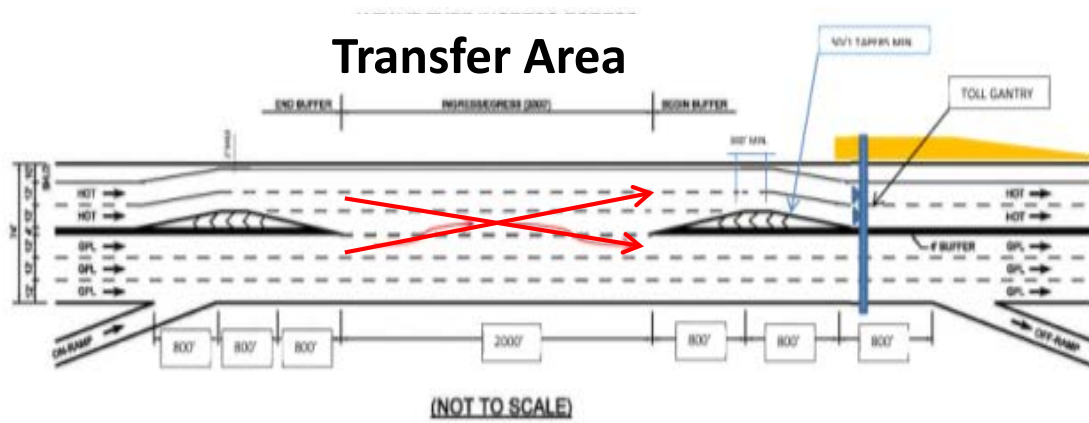
# CONTINUING PROJECT IMPROVEMENTS



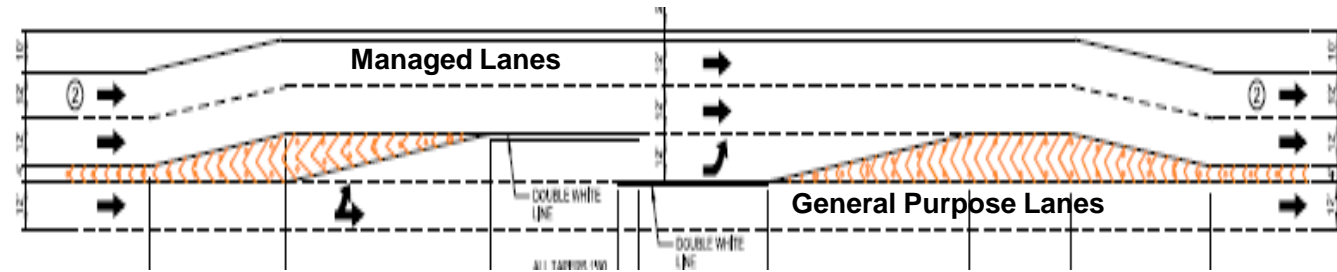
## Split Transfer Area

into two separate movements

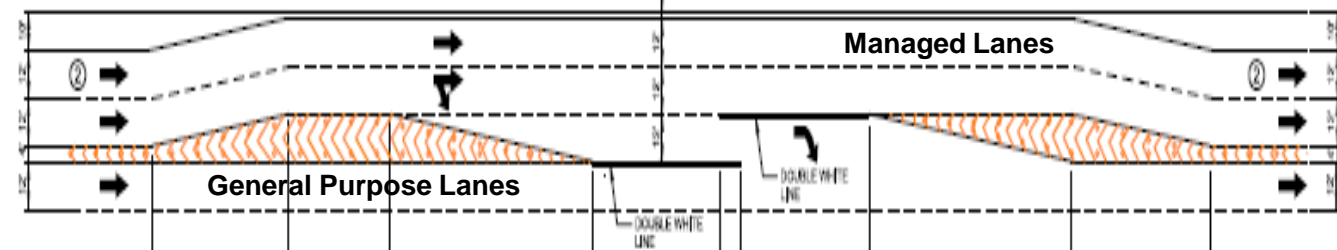
- Reduces weaving
- Dedicated ramp effect
- Allows placement of access closer to GP ramps



## Entry-only zone (new)



## Exit-only zone (new)



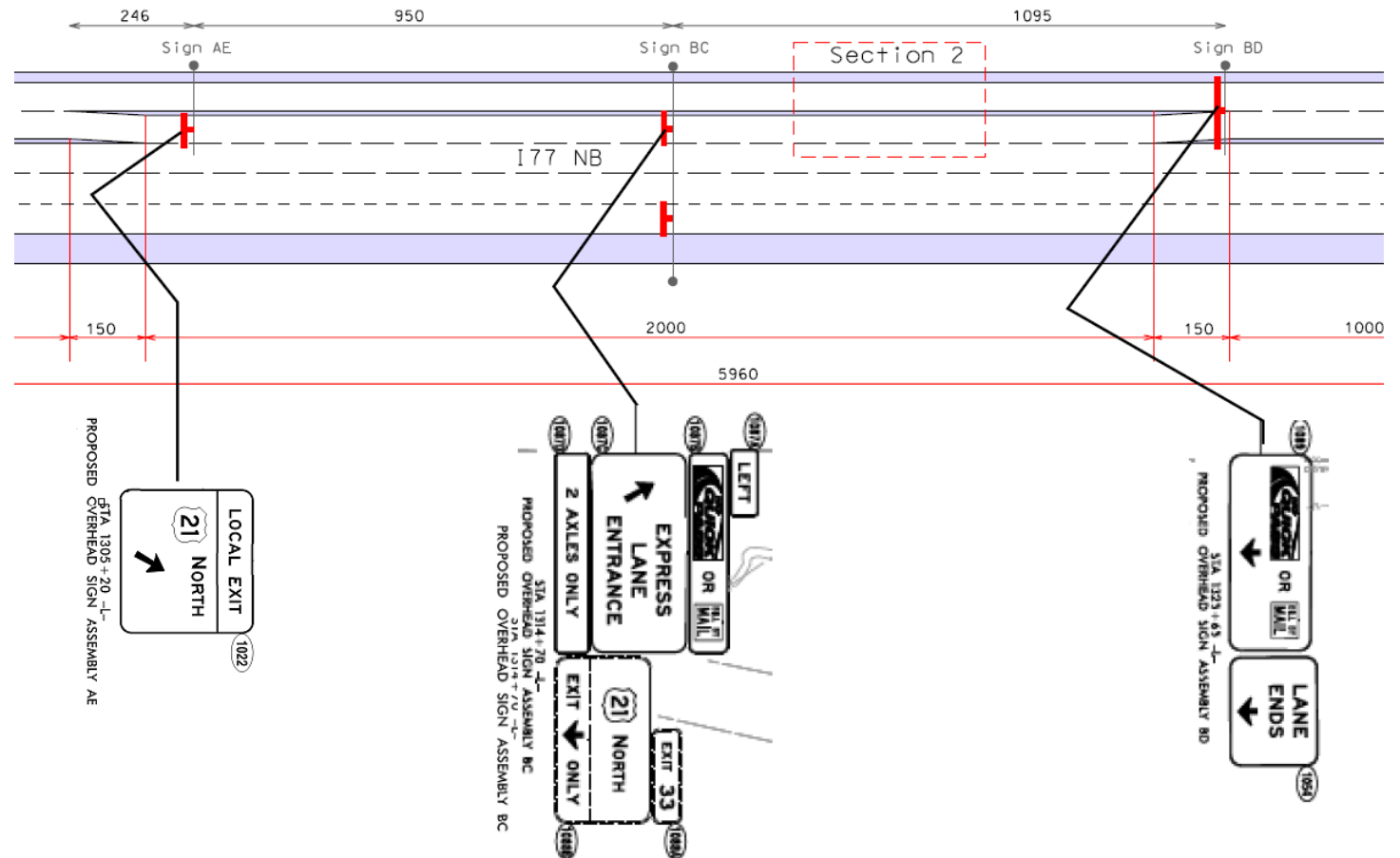


# CONTINUING PROJECT IMPROVEMENTS



## Split Transfer Area

- Introduce buffer between weave lane and HOT lane at transfer area. Reduces conflict points and improves efficiency at transfer areas.
- Identified as a potential improvement after seeing in use at the MoPAC in Austin.

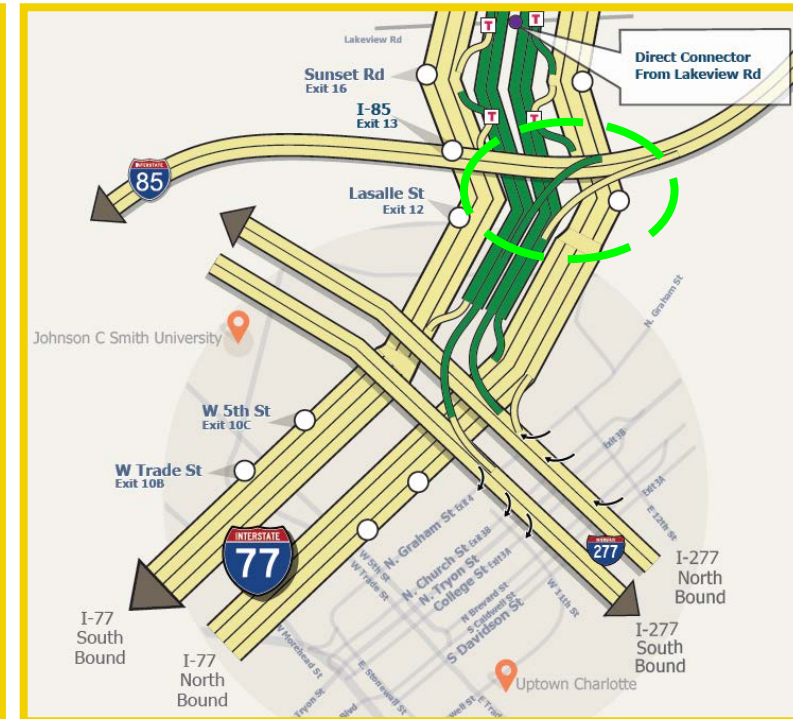
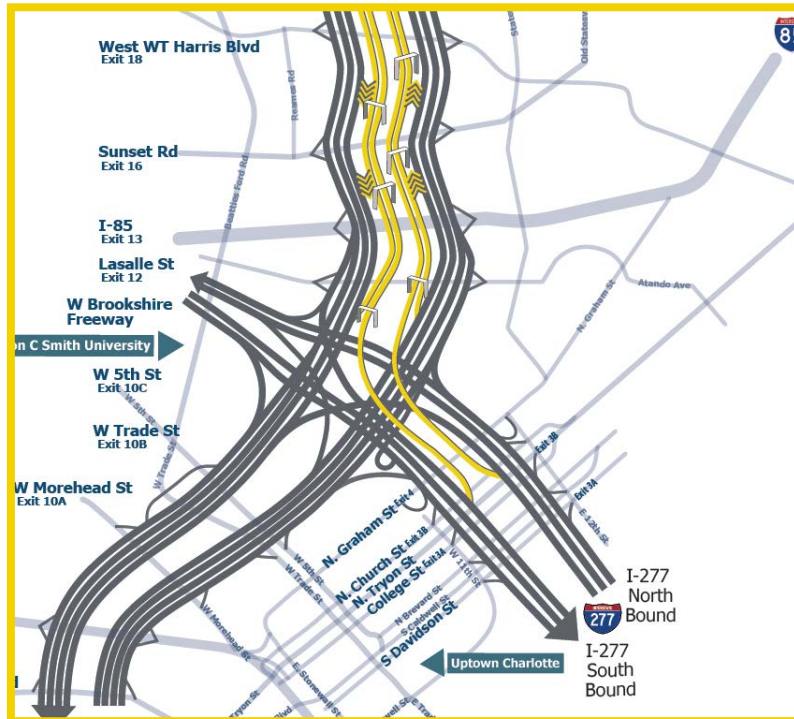


# CONTINUING PROJECT IMPROVEMENTS

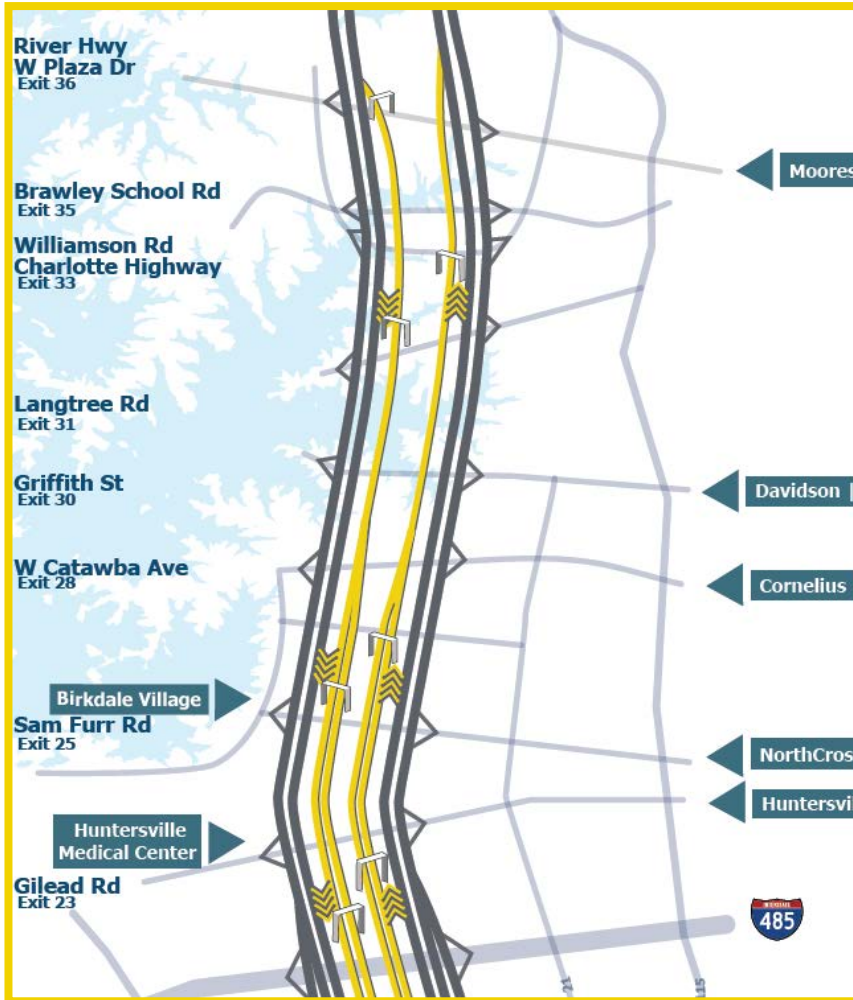


## Direct Connections for I-85

- I-77 Mobility Partners has added connections between I-77 Express and I-85 which will improve capacity in the interchange and better serve drivers.
- These connections are funded by additional developer equity.

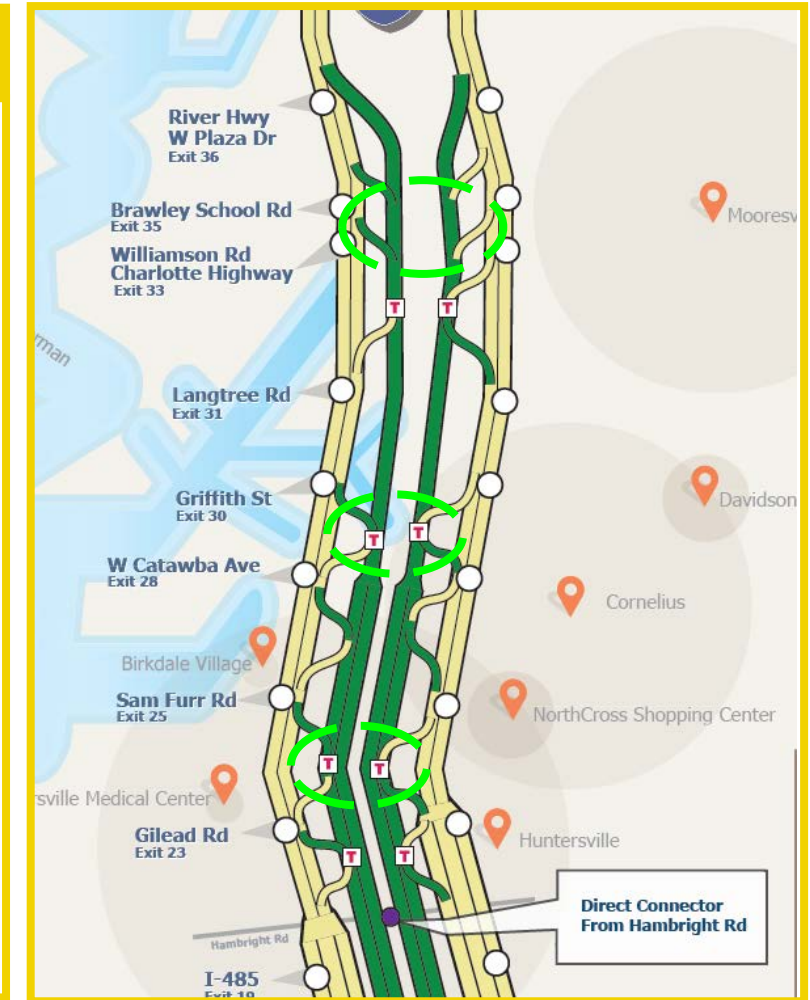


# CONTINUING PROJECT IMPROVEMENTS



## Additional Entry & Exit Points

- I-77 Mobility Partners has added additional entry and exit points for I-77 Express in the Lake Norman area to improve the connectivity between the existing crossing streets and the express lanes.
- I-77 Express, in this area, will now be accessible from/to Exits 23, 25, 28 and 30.
- These connections are funded by additional developer equity.

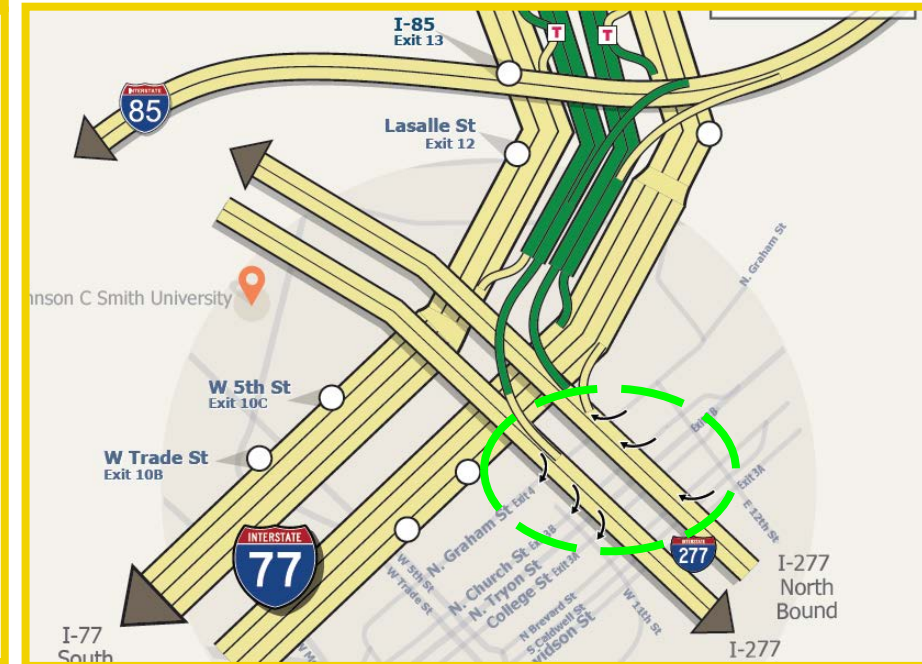
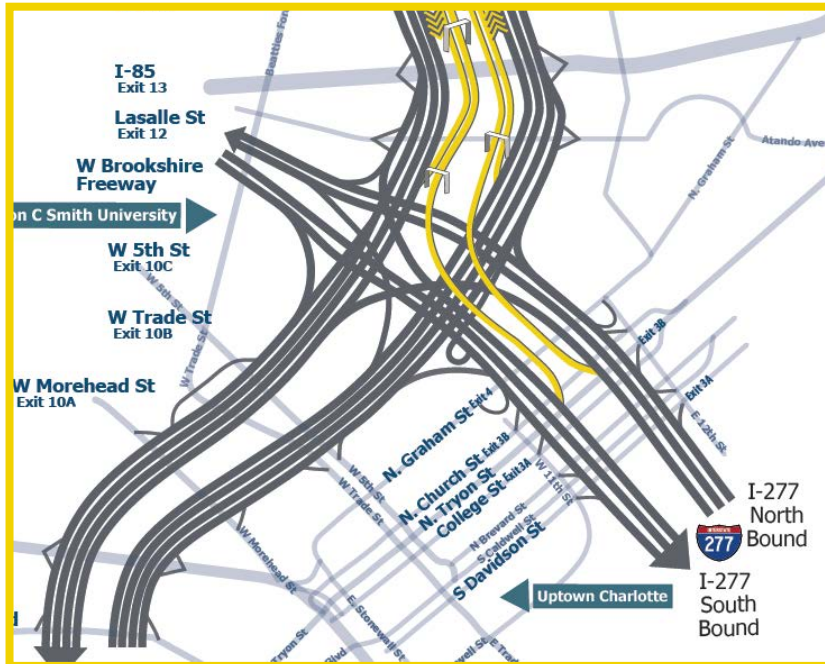


# CONTINUING PROJECT IMPROVEMENTS



## Improved I-77 & I-277 Connections

- Redesigned connection with I-277 will allow the use of the main streets accessing uptown Charlotte from/to I-77 Express.
- This change will increase merging distances and improves access to uptown Charlotte from I-77 Express.
- The redesign minimized impacts to adjacent neighborhoods.



# CONTINUING PROJECT IMPROVEMENTS



## Lakeview & Hambright Direct Connectors

- The regional planning organization added the new Lakeview and Hambright Road direct connectors for improved access to I-77.
- The change order for these direct connectors was signed in July 2017.
- When the direct connectors are completed in 2019, drivers will have direct access to I-77 Express in both directions.



# CONTINUING PROJECT IMPROVEMENTS



## Rehabilitating the Roadway

- I-77 Mobility Partners is expediting the improvements to the condition of the general purpose lanes on behalf of NCDOT.
- In addition to the original requirement to resurface the existing road, the general purpose lanes in the 26-mile corridor are being rehabilitated to provide better driving conditions through a process called “mill and fill.”
- The northern half of the rehabilitation is almost complete.
- The southern portion of the rehabilitation will begin in 2019 when temperatures allow.
- This work will occur overnight when traffic is lighter.
- If traffic needs to be diverted into the express lanes during lane closures, drivers will not be charged a toll.
- Paving of the entire corridor is scheduled to occur in 2019.

# PROJECT IMPROVEMENTS



## Improving the I-77 Corridor

- The expanded scope of the project and the unusual amount of extreme weather experienced by the region means that I-77 Express will open in 2019 to allow for construction to be completed.
- The section of I-77 Express from north of Hambright Road in Huntersville to Exit 36 in Mooresville is currently scheduled to open in the first quarter of 2019.
- The entire 26 miles of I-77 Express is slated to open in summer 2019.
- The contract deadline for final acceptance of the project by NCDOT is October 31, 2019.
- We will apply a discount to the toll rates described in this presentation until all sections of I-77 Express are complete, with the exception of the direct connectors.

# Appendix



**I-77 EXPRESS TOLL SEGMENTS**

**VARIABLE PRICING**

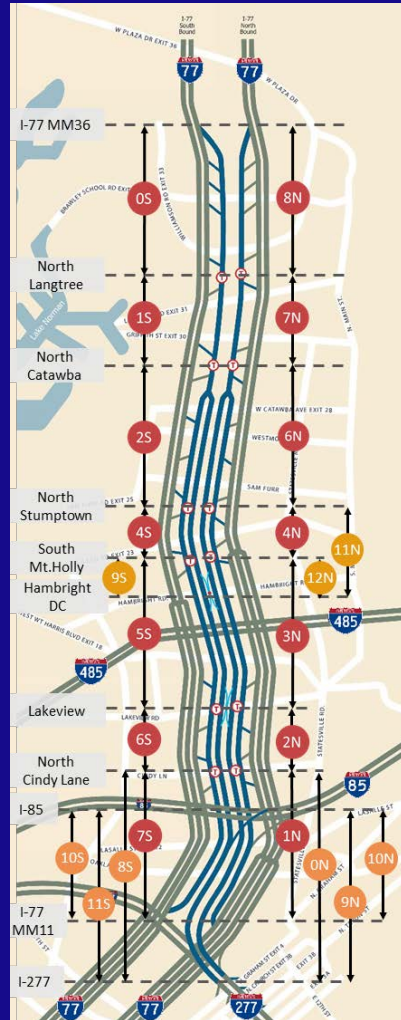
**DYNAMIC PRICING**



# I-77 EXPRESS TOLL SEGMENTS



- I-77 Express will be divided into segments.
- Each segment represents the portion of I-77 Express between an entry and exit point.
- Each segment will have its own toll rate and will always be displayed ahead of each segment.



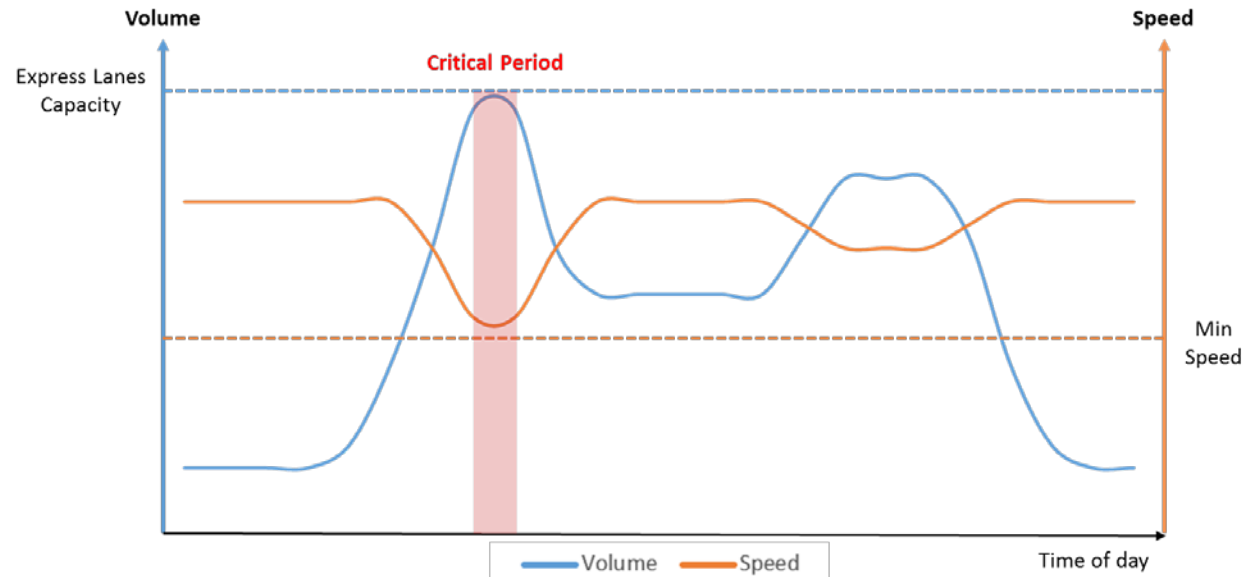
		Segment	Description
Main Lane	1N	7S	Between I-77 MM11 and Cindy Lane
	2N	6S	Between north of Cindy Lane and Lakeview Road
	3N	5S	Between Lakeview Road and south of Mt. Holly
	4N	4S	Between south of Mt. Holly and north of Stumptown Road
	6N	2S	Between north of Stumptown Road and north of Catawba Avenue
	7N	1S	Between north of Catawba Avenue and north of Langtree Road
	8N	0S	Between north of Langtree Road and I-77 MM36
	Direct Connectors	0N	8S
9N		11S	Between I-277 and I-85
10N		10S	Between I-77 MM11 and I-85
12N		9S	Between Hambright DC and south of Mt. Holly
11N			Between Hambright DC and north of Stumptown Road

# UNDERSTANDING VARIABLE PRICING



- Our two basic principles regarding pricing are:
  1. Prices should always be aligned, to the extent possible, with the demand for using I-77 Express.
  2. Prices should be adequate to keep traffic on I-77 Express at average speeds above a minimum speed that ranges from 48 to 56 mph depending on the segment, as specified in our contractual requirements and federal law.
- Toll segments vary in length and have different traffic patterns throughout the day, so rates will vary by segment, direction and time-period based on those factors.
- Having multiple segments and multiple entry and exit points allows more flexibility for I-77 Express users to plan their trips and pay only for those portions of I-77 Express they use.

# DYNAMIC ADJUSTMENT of RATES



- On a road, the number of cars (volume) and the speed of those cars are related. As volume increases, speed normally decreases as roads become congested.
- The dynamic adjustment of toll rates allow I-77 Express to manage, in real time, varying traffic and demand conditions in order to maintain a minimum average speed.
- As an example, if volume on I-77 Express increases and speeds decrease, prices will rise in order to ease demand for I-77 Express, bringing the system back into balance.

# SCHEDULE vs. DYNAMIC MODES



As specified in our contract with NCDOT, there are two different modes of adjusting the toll rates:

- 1. Schedule Mode:** will apply during the first 180 days from the opening of traffic on I-77 Express.

During Schedule Mode, toll rates are defined for every 30-minute period of every day of the week and won't change in real-time. This allows I-77 Express drivers to get used to the facility, knowing the applicable rate for their trip beforehand.

The full schedule of rates for this period can be found in our web page [www.I77express.com](http://www.I77express.com)

- 2. Dynamic Mode:** will apply after the first 180 days from the opening of traffic on I-77 Express until the end of the term.

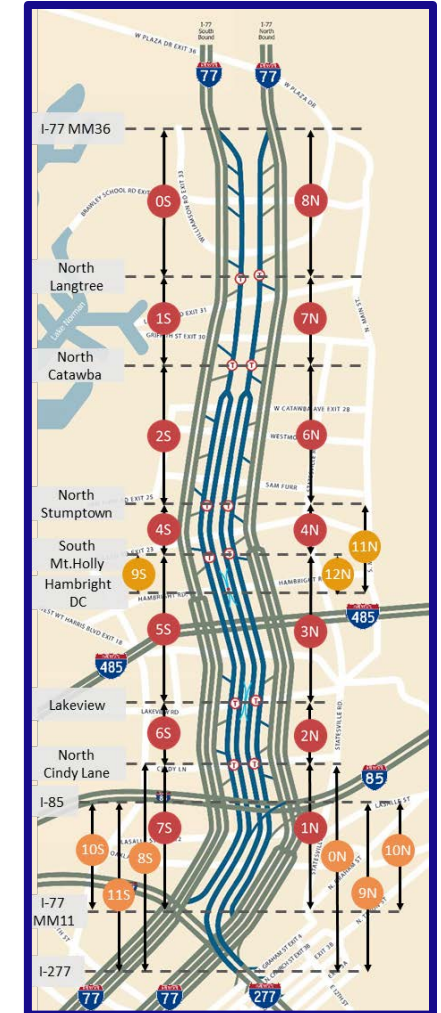
During Dynamic Mode, toll rates may change as often as every five minutes to accommodate changes in demand for I-77 Express.

# SCHEDULE MODE RATES



The toll rates per segment and time of day for **NC Quick Pass** users\* will be the following during the first 180 days of operation of the project \*\*:

Segment		Weekdays					Weekends				
		AM Peak 6:30 AM 9:00 AM		Mid Day 10:00 AM 2:00 PM	PM Peak 3:00 PM 7:00 PM		Day 10:00 AM 8:00 PM	Night 8:00 PM 10:00 AM			
		NB	SB		NB	SB					
Main Lane	1N-7S	I-77 MM11- Cindy		\$0.90	\$0.60	\$0.90	\$0.35	\$0.60	\$0.35		
	2N-6S	Cindy - Lakeview		\$0.60	\$0.50	\$0.60	\$0.35	\$0.50	\$0.35		
	3N-5S	Lakeview – Mt. Holly		\$0.65	\$0.50	\$0.65	\$0.35	\$0.50	\$0.35		
	4N-4S	Mt. Holly – Stumptown		\$1.00	\$1.10	\$0.60	\$1.10	\$1.00	\$0.35	\$0.60	\$0.35
	6N-2S	Stumptown – Catawba		\$1.65	\$1.75	\$0.80	\$1.75	\$1.65	\$0.35	\$0.80	\$0.35
	7N-1S	Catawba – Langtree		\$0.85	\$0.75	\$0.60	\$0.75	\$0.85	\$0.35	\$0.60	\$0.35
	8N-0S	Langtree – I-77 MM36		\$0.90	\$0.80	\$0.60	\$0.80	\$0.90	\$0.35	\$0.60	\$0.35
	Direct Connectors	0N-8S	I-277 – Cindy		\$1.30	\$0.90	\$1.30	\$0.65	\$0.90	\$0.65	
9N-11S		I-277 – I-85		\$1.70	\$1.20	\$1.70	\$0.95	\$1.20	\$0.95		
10N-10S		I-77 MM11 – I-85		\$1.30	\$0.90	\$1.30	\$0.65	\$0.90	\$0.65		
12N-9S		Hambricht DC		\$0.40	\$0.30	\$0.40	\$0.30	\$0.40	\$0.30		
11N		Hambricht DC - Stumptown		\$1.40	\$0.90	\$1.50	\$0.65	\$1.00	\$0.65		



\* Bill By Mail Rates are higher

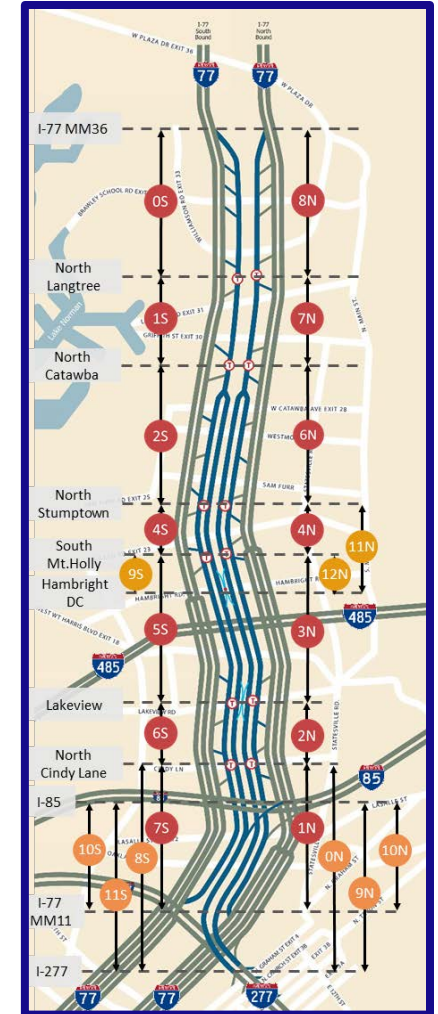
\*\*The full schedule of rates for every 30 minute period is available at [www.I77express.com](http://www.I77express.com)

# SCHEDULE MODE TRIP EXAMPLES



Trip	Rush Hour (Highest)	Midday or Weekends
From I-85 to Catawba Avenue	\$4.10*	\$2.40*
From Uptown to I-485	\$2.55*	\$1.60*
From I-485 to Catawba Avenue	\$2.85*	\$1.40*
From Sam Furr Road to I-77 Exit 36	\$3.40*	\$2.00*
From I-77 Exit 11 to I-77 Exit 36	\$6.55*	\$4.20*

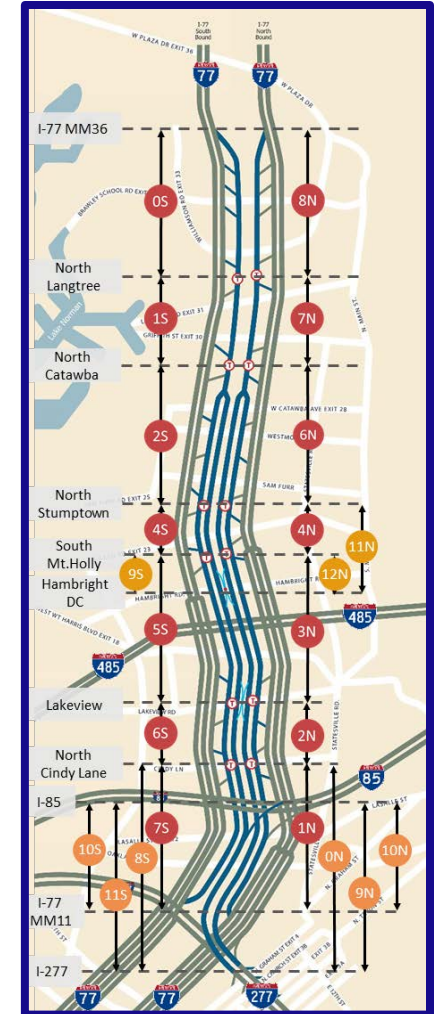
\*Toll rate examples of a NC Quick Pass user. Bill by Mail rates are higher.



# DYNAMIC MODE RATES



- The toll rates per segment after the initial 180 days of operation will be set between the minimum and maximum values shown in the following table.
- In peak periods, the toll rates are expected to be closer to the upper limit.
- In off-peak periods, toll rates will be in the middle area of the range.
- At night time, toll rates will be in the lower end of the range.
- All toll rates will be reevaluated and adjusted dynamically as often as every five minutes.
- The minimum and maximum toll rates per segment will be adjusted periodically in accordance with the contract and North Carolina law.



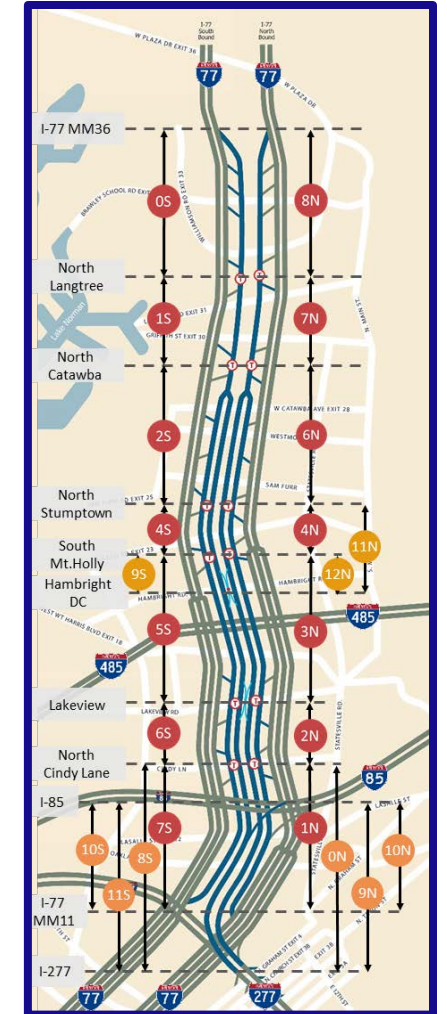
# DYNAMIC MODE RATE RANGE



	Segment	Minimum Rate (*)	Maximum Rate (*)	
Main Lane	1N-7S	I-77 MM11- Cindy	\$0.35	\$1.20
	2N-6S	Cindy - Lakeview	\$0.35	\$0.85
	3N-5S	Lakeview – Mt. Holly	\$0.35	\$0.85
	4N-4S	Mt. Holly – Stumptown	\$0.35	\$1.75
	6N-2S	Stumptown – Catawba	\$0.35	\$2.35
	7N-1S	Catawba – Langtree	\$0.35	\$1.20
	8N-0S	Langtree – I-77 MM36	\$0.35	\$1.20
Direct Connectors	0N-8S	I-277 – Cindy	\$0.35	\$1.75
	9N-11S	I-277 – I-85	\$0.35	\$2.35
	10N-10S	I-77 MM11 – I-85	\$0.35	\$1.75
	12N-9S	Hambright DC - Mt. Holly	\$0.30	\$0.60
	11N	Hambright DC - Stumptown	\$0.35	\$2.35

\*Toll rates for a NC Quick Pass user. Bill By Mail rates are higher.

The minimum and maximum toll rates per segment will be adjusted periodically in accordance with the contract and North Carolina law.





# MORE INFORMATION ONLINE



- Visit [www.I77Express.com](http://www.I77Express.com) at any time to see more information about toll rates to help you plan your trip.
- Take a virtual ride on I-77 Express now when you visit our website.

