



EXPRESS LANES: *THE GOOD, THE BAD & THE UGLY*



BILL CRAMER

Communications Director

IBTTA

Upcoming Meetings

Exhibit and Sponsorship Opportunities Available Now!
Contact Terri Lankford, tlankford@ibtta.org.

Transportation Policy & Finance Summit

March 13-15 | Washington, DC

www.ibtta.org/DC

Registration Open

Summit on All-Electronic Tolling, Managed Lanes & Interoperability

July 24-26 | Boston, MA

www.ibtta.org/BOSTON

Meeting Planning Group working. Agenda to be posted soon.

Maintenance & Roadway Operations Workshop

May 15-17 | Newport, RI

www.ibtta.org/NEWPORT

Registration Open. Agenda Posted.

*IBTTA's Annual Service Project

IBTTA 84th Annual Meeting & Exhibition

September 11-14 | Denver, CO

www.ibtta.org/DENVER

Call for Presentations currently underway. Deadline: March 13

Global Summit of Mexico

October 16-18 | Mexico City, Mexico

www.ibtta.org/MEXICOCITY

Call for Presentations currently underway.

Professional Development Hours & Logistics for Today

- Professional Development certificate: email kdavis@ibtta.org
- Submit Questions via the Q&A Pod
- Files can be downloaded from the Files Pod
- The Webinar will last one hour
- Slides and recorded audio will be on the website within a day. www.ibtta.org/webinars

MODERATOR

DOUG CHASTAIN

Vice President, Sales and Operations, Western U.S., Xerox

PANELISTS

Nic Barr, Vice President, Operations, Transurban

Julià Monsó, Vice President, Toll Operations, Cintra

John O'Neill, Acting Chief of Operations, Maryland
Transportation Authority



DOUG CHASTAIN





NIC BARR
transurban



495 & 95 Express Lanes

Nicholas Barr, VP Operations



March 2016

495 AND 95 EXPRESS LANES



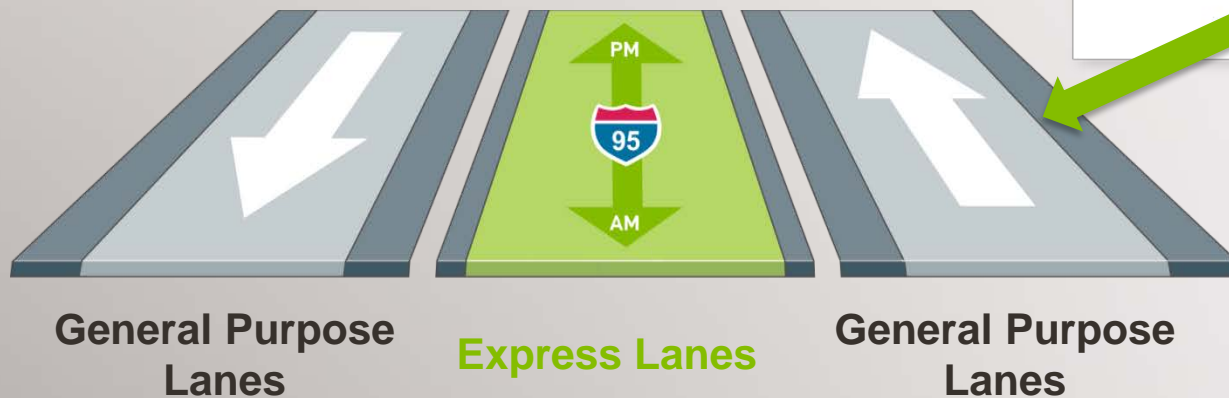
495 & 95 EXPRESS LANES

KEY DIFFERENCES

	 ExpressLanes	 ExpressLanes
OPERATION		
Length	10 miles	28 miles
Separation	Posts only	Full separation from GP lanes
Directionality	Dual direction	Reversible
Jurisdictional boundaries	Single county	Three counties
Terminus	GP lane transition	Transition to HOV3+
Shoulder width	Up to 30'	Up to 12'
HOV penetration	8-10% of traffic	30-40% of traffic

FACILITY CHARACTERISTICS

LENGTH AND CUTOVERS



FACILITY CHARACTERISTICS

GP & EXPRESS LANE SEPARATION



FACILITY CHARACTERISTICS

GP & EXPRESS LANE SEPARATION

495 Accidents Originating on GP Lanes



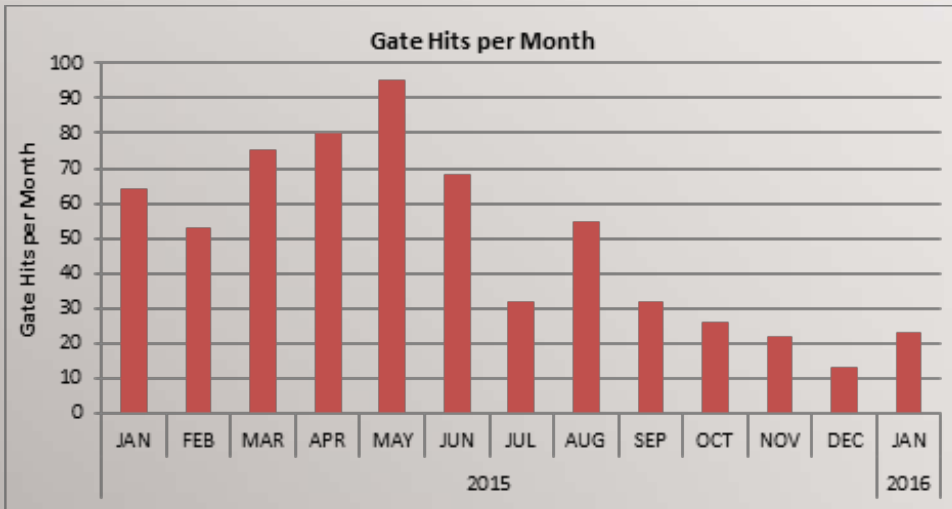
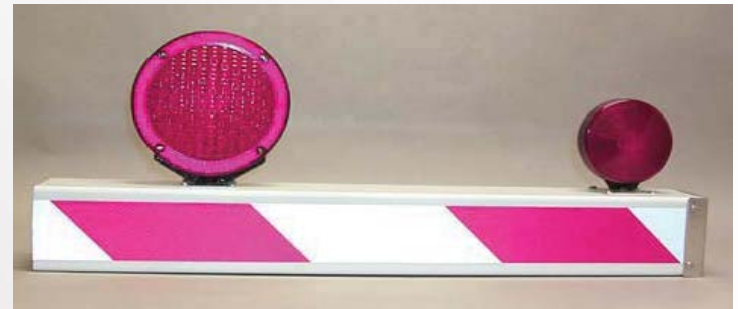
FACILITY CHARACTERISTICS

REVERSIBILITY AND GATE MANAGEMENT

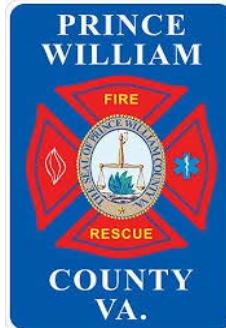


FACILITY CHARACTERISTICS

REVERSIBILITY AND GATE MANAGEMENT



JURISDICTIONAL COMPLEXITIES



ENFORCEMENT COMPLEXITIES



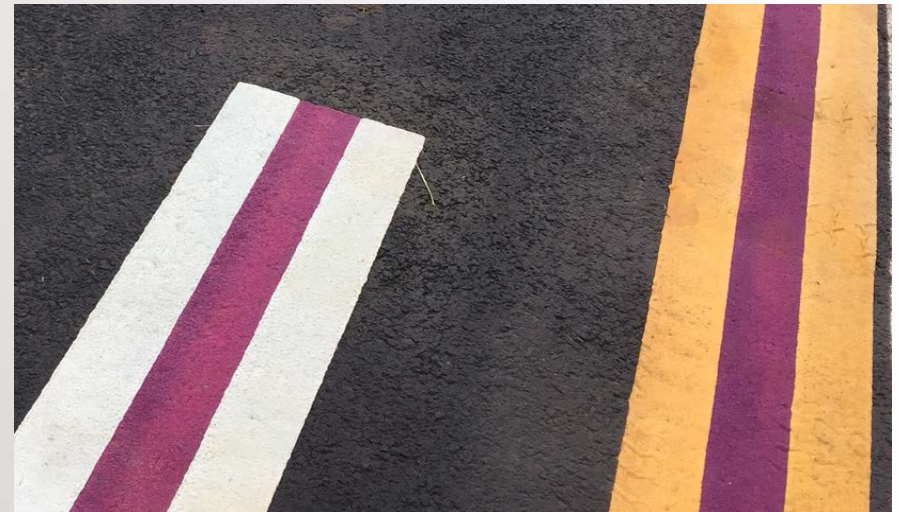
TERMINUS COMPLEXITIES

495 NORTHBOUND



TERMINUS COMPLEXITIES

495 NORTHBOUND



transurban





JULIÀ MONSÓ





EXPRESS LANES IMPLEMENTATIONS:
THE GOOD, THE BAD AND THE UGLY
LEARNING FROM A TRIPLE PERSPECTIVE

IBTTA Webinar
V1.2
March 10, 2016

AGENDA

- I. What Makes These Projects Different?
- II. The Public Interest Perspective
- III. The Engineering Perspective
- IV. The Operational Perspective

Cintra is sponsoring 4 Express Lanes Projects:

- LBJ Dallas (Texas)
- NTE Fort Worth (Texas)
- NTE35W Fort Worth (Texas)
- I-77 Charlotte (North Carolina)

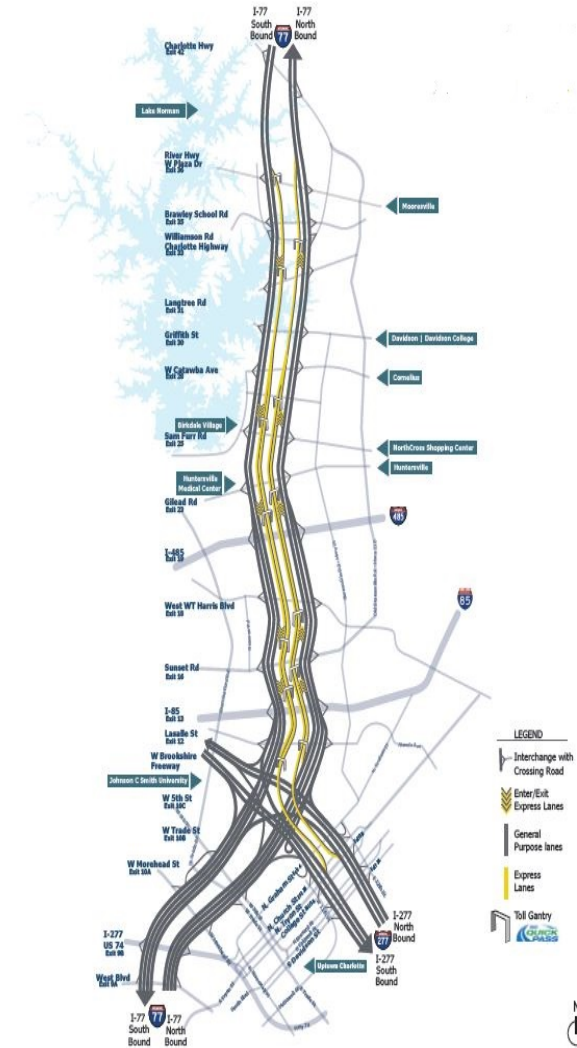


NTE PROJECT Opens Late 2014 <i>Pay by shape and size</i>	DFW CONNECTOR Opens 2014 <i>Pay by axes</i>	LBJ PROJECT Phase 1 Open Phase 2 Opens Summer 2014 Phase 3 Opens December 2015 <i>Pay by shape and size</i>
NTE 35W PROJECT 3A Opens 2018 3B Opens 2017 <i>Pay by shape and size</i>	I-30 PROJECT Opens 2015 <i>Pay by axes</i>	I-35E PROJECT Opens 2018 <i>Pay by axes</i>

North Texas TEXpress Lanes System



- Barrier/Grade separated
- 17-13.5-10.5 Miles per corridor
- 2-3 lanes per direction
- Variable/Congestion Pricing
- 2-3 Segments based tolling (entrance ramp gantries)
- 50% HOV discount



- Candle stick separated
- 27 Miles corridor
- 1-2 lanes per direction
- Variable/Congestion Pricing
- Trip based tolling (mainline gantries)
- 100% HOV discount

What Makes These Projects Different?

- ❑ Controversial topic
 - ❑ Express Lanes have been a controversial topic for a long time. Noteworthy milestone in 2001 when the Washington Post in supporting the Governor of Maryland's decision to cancel a project to deploy HOV lanes in US 50, went on to mock the proposal, implying that a HOT lane system would create a two-tiered transportation system favoring the rich. "Will it be 'Lexus Lanes' or 'Lumina Lanes'?"
- ❑ Constructing in a highly congested corridor: The promise of a better commute once the construction terminates may not be enough to compensate the inconvenience of the construction. Pressing need to reduce the impact during construction.
 - ❑ Utilities
 - ❑ Maintenance of Traffic
 - ❑ Maintenance of existing ITS
- ❑ Operating Variable/Congestion Pricing
 - ❑ Having fees changing every 5 minutes.
 - ❑ There is a high number of critical ITS roadside components.
 - ❑ Integration between ITS & Tolling is real not a pure theoretical assumption.

The Public Interest Perspective

The good track record of the Express Lanes since the first segment of LBJ was open in December 2013, have validated the concept

1. Economic growth within the corridor

- ❑ “Meg Jakubik, assistant to the city manager, said Bedford is making a strong recovery from the recession with sales tax revenue 5.23 percent higher than last year. The sales taxes went up during North Tarrant Express construction, and Jakubik said she is pleased with the results.”

2. Usage

- ❑ Since the project’s completion nine months ahead of its original schedule, NTE has seen significant increases in a variety of categories. In one year, the corridor is moving 23 percent more traffic than before construction began, and as of Aug. 31, 2.1 million different vehicles have used the new NTE TEXpress-managed lanes with 4% growth Q4 over Q3.

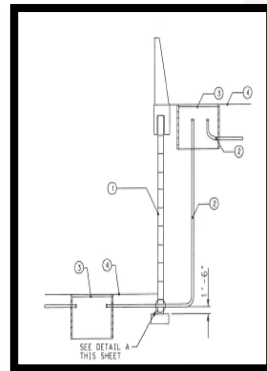
3. Perception of equity and fairness associated to a general congestion decrement

- ❑ For drivers who choose not to use the project-s managed lanes, the general-purpose lanes alone are moving 5 percent more traffic than pre-construction levels, with an 80 percent reduction in congestion on general-purpose lanes.

The Engineering Perspective

Coordination between the CJV and the Toll System Integrator becomes a significant challenge

- ❑ DB contractor provides all civil works
 - ❑ Conduits, ground boxes, foundations, etc...
 - ❑ Power to closest ground box



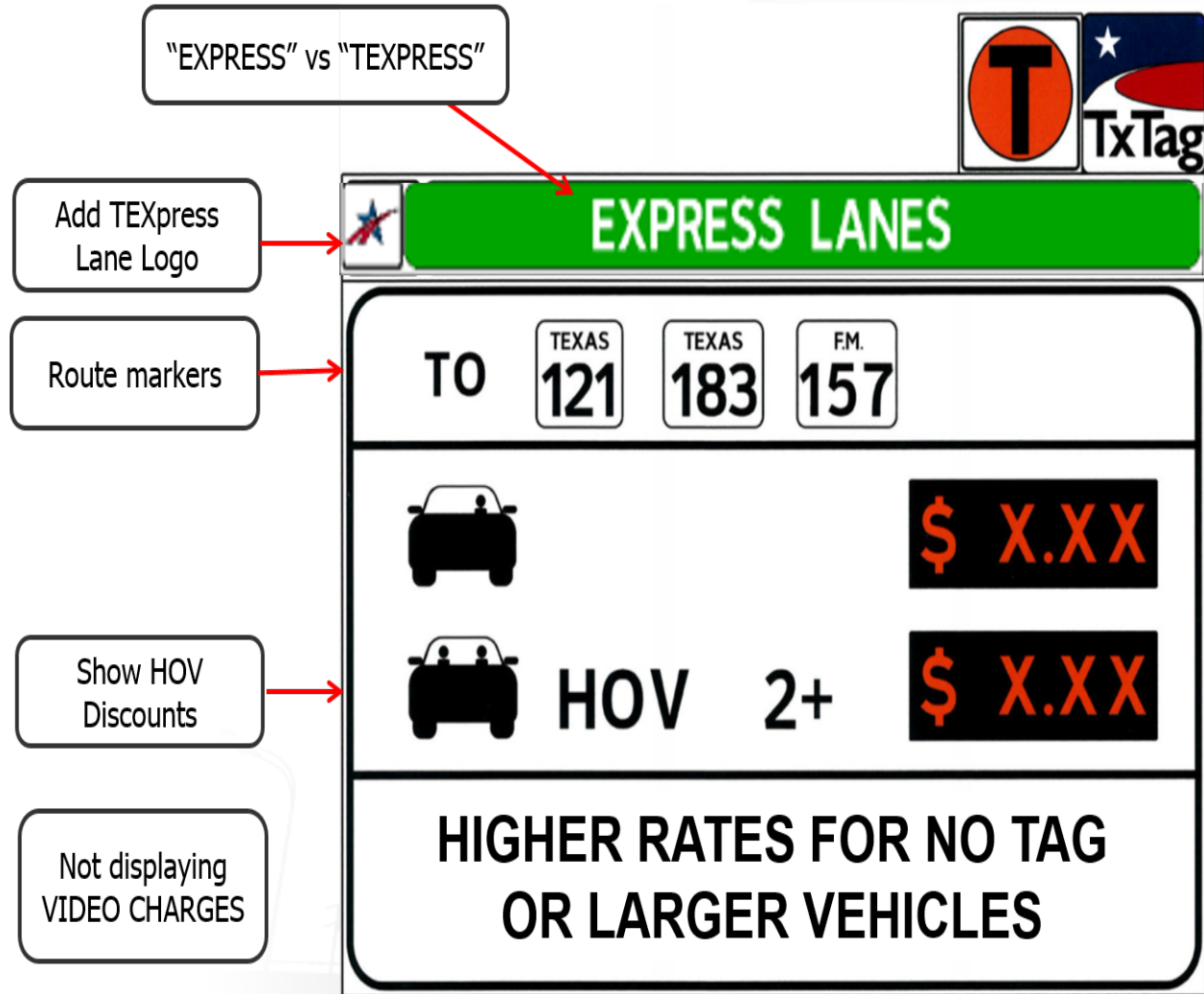
- ❑ Toll systems integrator installs
 - ❑ All equipment, poles, cabinets, fiber optics, etc...



- ❑ The early Design allows to accommodate both the Civil Contractor Schedule and Integrator Schedule
- ❑ Having construction already going on while the ITS/TCS design is finalized creates many problems for the DB contractor and the toll integrator
- ❑ Finally it allows to optimize the Installation

The Engineering Perspective

Signaling and network consistency becomes a key issue



The Operational Perspective

- Customer: Understanding our customer and making them understand our value proposition.
 - Usage Pattern: Even when express lanes have a similar value proposition that a conventional toll facility (trip reliability, time savings and road safety), dynamic toll fees alter the way the driver makes sense of such value, and therefore their usage pattern. Do not expect to have a “one size fits all” scenario, in particular when it comes to:
 - Tag/Video penetration
 - Public reaction to higher toll rates
 - Outreach: Make it simple!
 - Toll Fee structure, discounts, categories
 - Lane configuration and signaling

“It seems backwards to me, if traffic slows down then the price of the toll should go down, why should anybody pay more when they are driving more.” *Wednesday Female*

“That sounds way too complicated.” *Wednesday Female*

“Why would I pay more to sit there longer?” *Wednesday Male*

“This is too complicated for me.” *Thursday Female*

“I like having a choice, but this choice seems too complicated.” *Thursday Female*

The Operational Perspective

○ Usability

- Trust is a precious asset!:
 - Offer a Plan Your Trip and Check Past Rates functionality
 - Accept being challenged

○ Understanding

- Data Gathering and Segmentation
- Open and managing Communication Channels
- Helping a customer used to highways with fixed toll rates become familiar with corridors that offer an option, which is dynamic tolled
- Better understand the media and messages that frame managed lanes as offering higher reliability travel alternatives

□ Toll Service provider

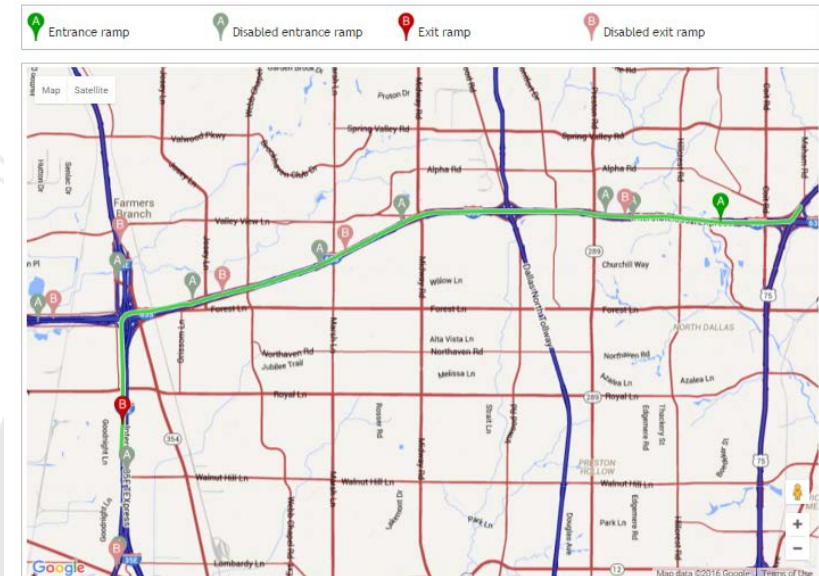
- Spent time setting a clear and transparent relation to the Toll Service Provider, removing uncertain and blurry responsibilities
- Reconciliation of Fees, Pas Through and Incidentals

□ HOV & Collection Enforcement

- Empiric data show that blocking the shoulders results on a capacity reduction of the mainline that ranges from 19% to 23%.
- “HOV enforcement only patrols” may be an option to mitigate this problem.
- A combined automatic + manual (central system) enforcement process is an alternative.

Choose your past trip information

Entry: Exit:
 Date: Time:
 Vehicle Class:





JOHN O'NEILL



Maryland
Transportation
Authority



Maryland
Transportation
Authority

I-95 EXPRESS TOLL LANES PROJECT I-95 SEGMENT 1 GANTRY

May, 2014



* I-95 Express Toll Lanes: Lessons Learned

John J. O'Neill, III
Acting Chief of Operations
Maryland Transportation Authority

March 10, 2016



GEC PARTNERS

Engineering, Construction, and Program Management

* Project Overview

* Background

- * Second All-Electronic Tolling (AET) facility in Maryland
- * Eight (8) miles of managed express toll lanes
 - * From I-95/I-895 split to I-95/MD 43 interchange
- * Opened on December 6, 2014
 - * Revenue collection - 1 week later

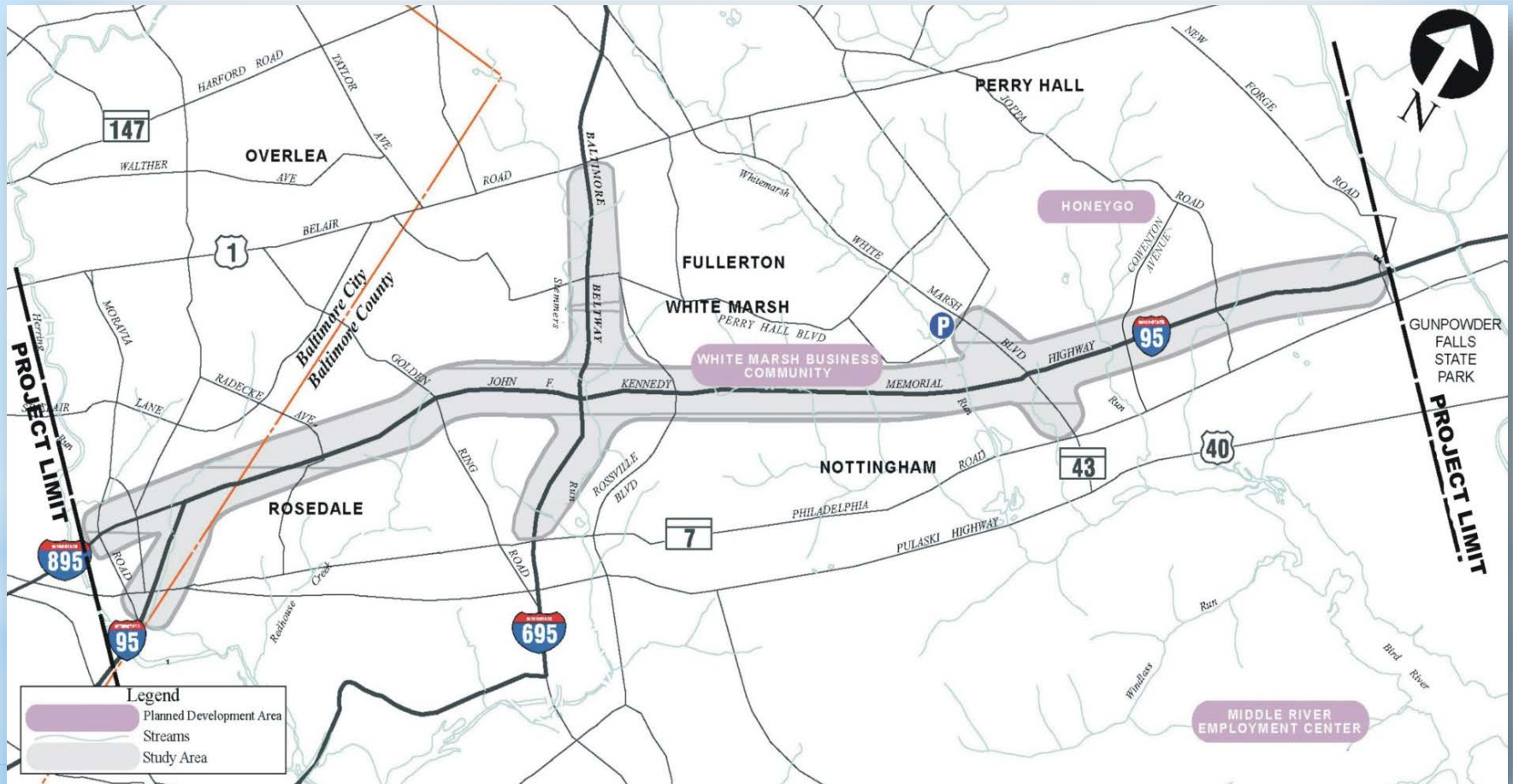
* Construction

- * Design/Build (D/B)
 - * A new barrier separated facility built in median
 - * Two (2) express toll lanes (ETL) in each direction
 - * Six (6) total lanes in each direction
 - * Four (4) General Purpose (GP) - not tolled; 2 ETLs



* Project Area

* I-95: I-895(N) Split to North of MD 43



* Project Details

* Maryland Transportation Authority (MDTA) Project

- * Provided financing & managed construction
- * Owns, operates and maintains the facility

* Toll Integrator (TI) - Xerox

- * Services contract

* All-Electronic Toll (AET) Collection

- * E-ZPass transponder or video toll
 - * Video toll rates are 50% higher than posted E-ZPass toll rates
- * One (1) tolling zone (gantry) in each direction
- * Variable pricing for Time of Day and Day of Week (includes holiday pricing)
 - * Toll Rate Signs (TRS) - communicate variable pricing and travel time to customers
- * Trip construction - not implemented on ETL



* Project Audit

* Independent Audit

* Digital Video Monitoring System (DVMS)

* Independent transaction monitoring

- * Revenue verification

- * Customer service

- * System monitoring & verification

* Real-time operations - video monitoring

- * Cameras are IP accessible

- * Accessed on PCs utilizing Agilence Hawkeye software

* Travel Times

* Measured from transponder reads

- * Entry and exit readers (GP & ETL lanes)

* Only the match entry and exit times are stored

- * Personally Identifiable Information (PII) is not stored



* Project Performance

* Volumes/Transactions

	I-95 EXPRESS TOLL LANES USAGE*				
	FY 2015 FORECAST	JANUARY 2015		JUNE 2015	
		ACTUAL	% ABOVE FORECAST	ACTUAL	% ABOVE FORECAST
WEEKDAY	8,327	14,904	79%	22,936	175%
WEEKEND	4,635	14,648	216%	26,380	469%
	FY 2016 FORECAST	JULY 2015		DECEMBER 2015	
		ACTUAL	% ABOVE FORECAST	ACTUAL	% ABOVE FORECAST
	WEEKDAY	12,021	24,267	102%	25,012
WEEKEND	6,642	32,248	386%	24,385	267%
* Revenue Collection began December 13, 2014					



	MONTHLY TRANSACTION COMPARISON			
VEHICLES	JANUARY 2015	JANUARY 2016	DIFFERENCE	% CHANGE
2-AXLE	423,132	516,288	93,156	22.0%
COMMERCIAL	16,789	20,825	4,036	24.0%
TOTAL	439,921	537,113	97,192	22.1%

* Benefits

- * Reduced peak period congestion
 - * Including the GP lanes
- * More reliable travel times
- * Highway speed tolling

"More and more motorists are realizing the benefits of using the I-95 ETL. Time is valuable and these express toll lanes deliver a reliable commute motorists can count on."

**Maryland Secretary of Transportation
Pete K. Rahn**

* Lessons Learned

* Construction

- * Establish and give General Engineering Contractor (GEC) Notice to Proceed (NTP) 3 months prior to project start
- * Establish project office by the time design begins
- * Early/Often/Periodic budget review of project must take place
- * Establish roles of MDTA / GEC / Designers / CM before project begins
- * Coordinate pre-Type, Size & Location (TS&L) work as early as possible in design
- * Establish close working relationship with crucial agencies (utility companies, environmental, local municipalities)

* Coordination

- * A challenge to coordinate work hours, lane closure schedules, mobilization and moving equipment while keeping the most congested section of I-95 open to traffic

* Lessons Learned

* Toll System Implementation

- * Utilized Lessons Learned from the ICC
 - * Improved communications between Agency, IT, Design Builder, and Toll Integrator
 - * Better coordination for IT related issues
 - * Placed DVMS cameras pointing downstream to prevent blooming
- * Toll Integrator needs to assign dedicated resources for design reviews
 - * Problems with conduit sizes
 - * Junction boxes needed to be above grade
- * Design Build contractor needs consistent information from Toll Integrator concerning gantry installation
 - * Clearly define bracket for attaching overhead toll equipment
- * Variable pricing (Time of Day) worked very well
 - * Recommend more detailed analysis before committing to Dynamic Pricing
- * Factory Acceptance Testing (FAT)
 - * Complete end-to-end FAT testing is essential to demonstrate functionality of system before going live
 - * Testing was done in pieces

* Lessons Learned

* Maintenance

- * MOT required for Preventative Maintenance & Corrective Maintenance
 - * Need to close the ETL NB or SB to conduct overhead PMs or CMs
- * Would have designed differently
 - * Overhead walk-in enclosures to allow technicians to perform routine maintenance without having to close traffic lanes
 - * Entry/exit gates that can be utilized for closing the ETLs
- * Prepare a Concept of Operations for maintenance
- * 2016 snow storm lessons learned
 - * ETLs close when there is more than eight (8) inches of snow
 - * Need for workable closure option

* Remaining Segments

* I-95 Section 200

- * Planning study completed / preferred alternative selected
- * Not funded for Design or Construction
- * No current schedule



Contact Info:
joneill@mdta.state.md.us
410-537-1098

QUESTIONS?

MODERATOR

DOUG CHASTAIN

Vice President, Sales and Operations, Western U.S., Xerox

PANELISTS

Nic Barr, Vice President, Operations, Transcore

Julià Monsó, Vice President, Toll Operations, Cintra

John O'Neill, is the Acting Chief of Operations, Maryland Transportation Authority



QUESTIONS?

**EXPRESS LANES: *THE GOOD,
THE BAD & THE UGLY***