

# Regular Meeting of the Board of Directors



CENTRAL TEXAS REGIONAL  
**MOBILITY AUTHORITY**

November 20, 2019

# Welcome and opportunity for public comment



# 1

**Bobby Jenkins**  
Chairman



# Consent Agenda

2. Approve the minutes from the October 30, 2019 Regular Board Meeting
3. Accept the financial statements for October 2019
4. Add 45SW to the Mobility Authority Turnpike System
5. Approve settlement agreements with property owners related to the MoPac Improvement Project
6. Approve the annual compliance report for submittal to the Texas Department of Transportation as required by 43 Texas Administrative Code §26.65
7. Authorize Great Pacific Securities to provide investment services and engage in investment transactions with the Mobility Authority



# 2-7



**Authorize the Issuance, Sale, and Delivery  
of Central Texas Regional Mobility Authority  
Senior Lien Revenue Bonds, Series 2020A,  
Senior Lien Revenue Refunding Bonds,  
Taxable Series 2020B, and Revenue Notes,  
Series 2020 in accordance with Specified  
Parameters**

**# 8**

**Bill Chapman**

Chief Financial Officer





- » The aggregate principal amount of the 2020A Senior Lien Bonds to be issued shall not exceed \$70,000,000; and
- » The aggregate principal amount of the 2020B Taxable Senior Lien Bonds to be issued shall not exceed \$140,000,000; and
- » The 2020 Obligations shall not bear interest at an initial true interest rate greater than 5%; and
- » The 2020 Obligations shall mature not later than January 1, 2049; and
- » The refunding of the 2013A Refunded Bonds shall result in a net present value savings of not less than 5% of the principal amount of the 2013A Refunded Bonds being refunded;



# Approve a toll rate for the 290E Phase III Project

# 9

**Bill Chapman**  
Chief Financial Officer



**Approve a stipend for and authorize issuance of a Request for Detailed Proposals to deliver the 183 North Mobility Project under a Design-Build Agreement**

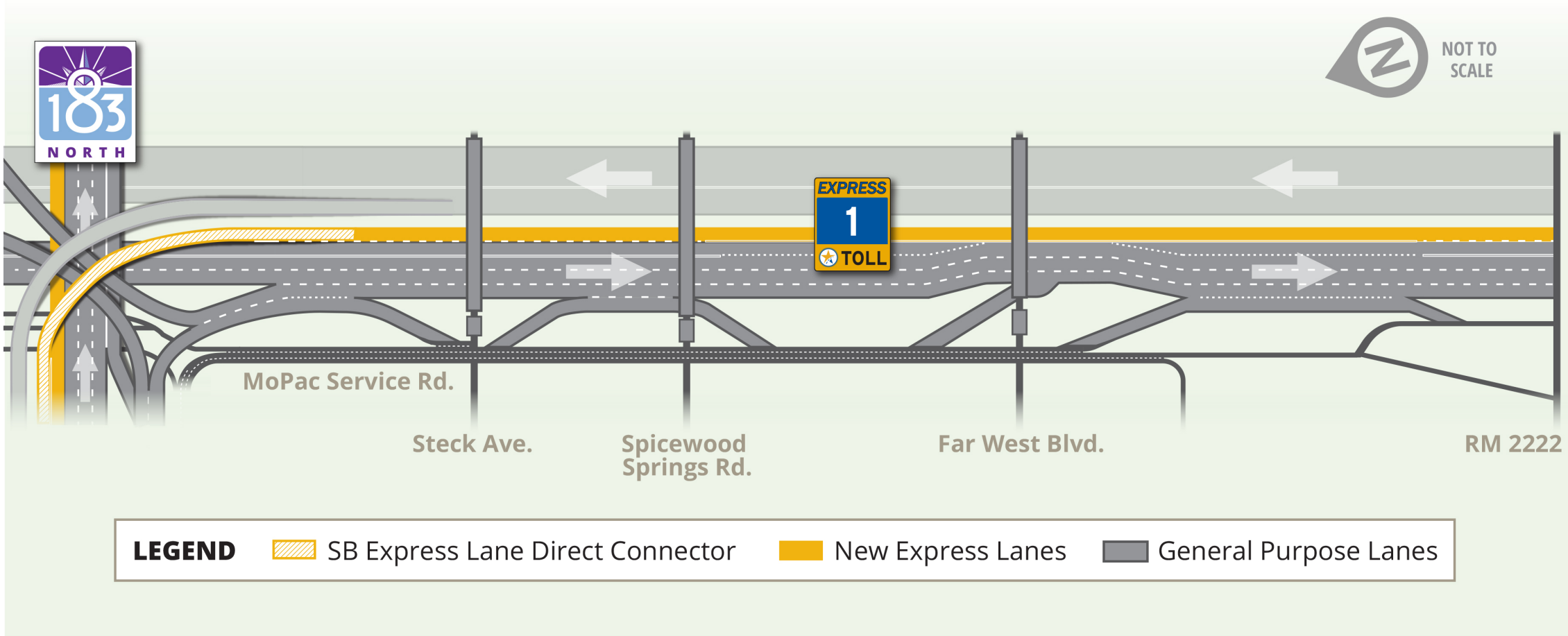
**# 10**

**Justin Word, P.E.**  
Director of Engineering





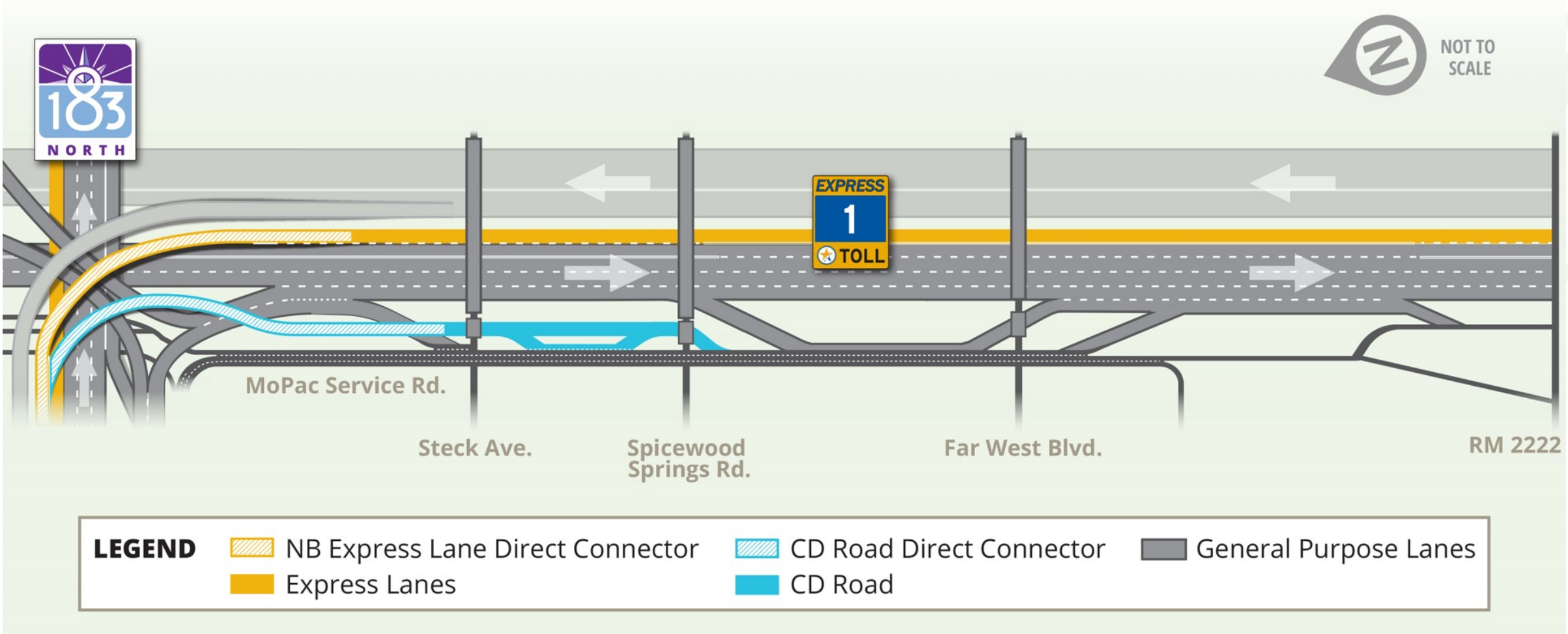
# 183 North: Original Connection to MoPac





# 183 North: New Collector-Distributor (CD)

Revised Project Cost (including CD Alternative) = \$580 Million

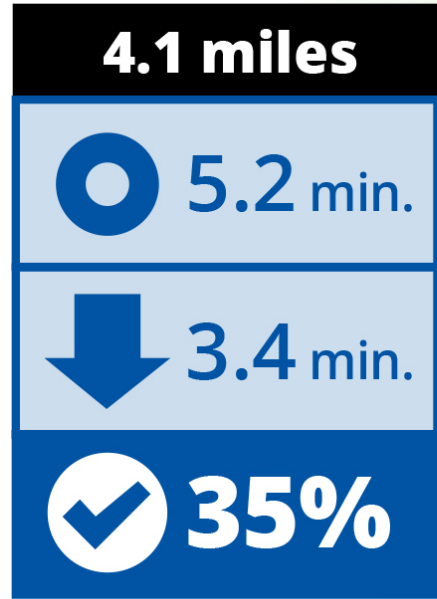
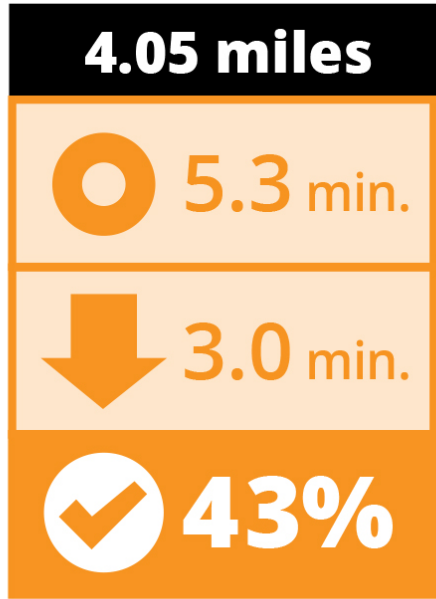




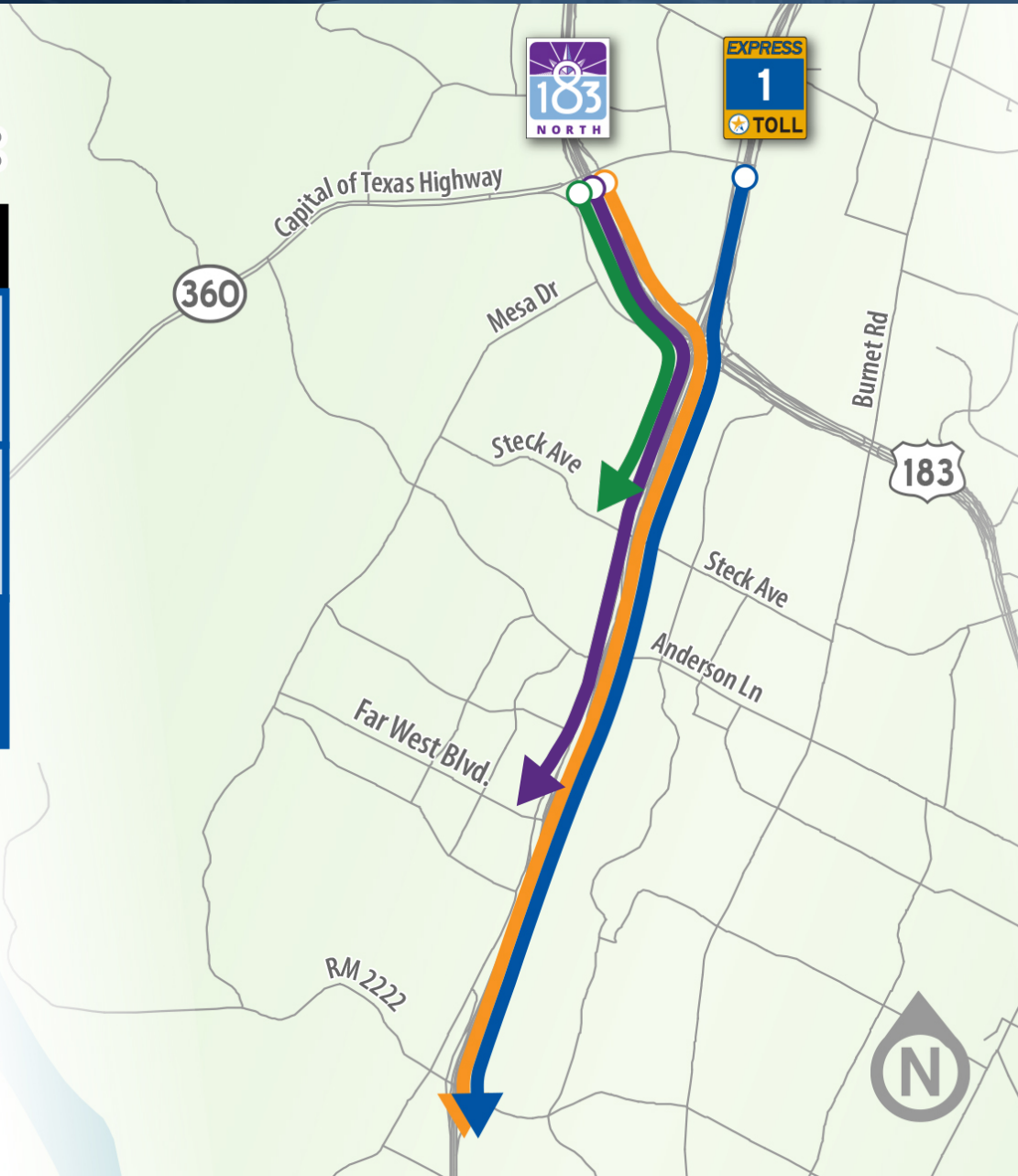


# Expected Travel Time Savings

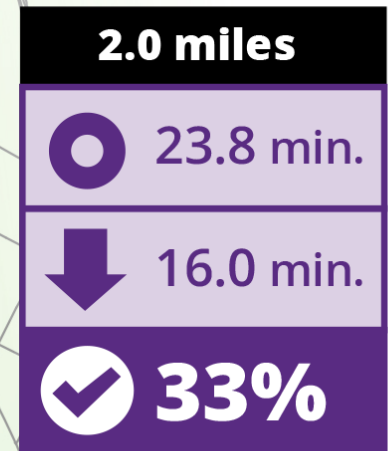
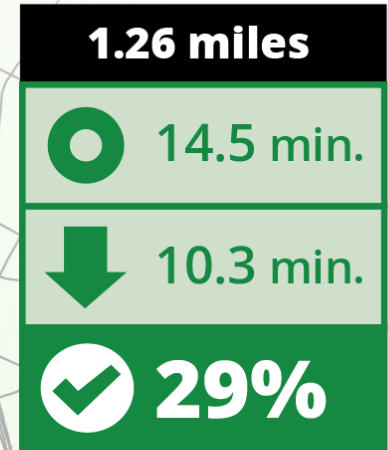
## Express Lane Time Savings:



- Original Connection Travel Time
- ↓ CD Direct Connector Alternative Travel Time
- ✓ Travel Time Improvement



## General Purpose Lane Time Savings:





# 183 North Mobility Project Key Steps

## Accomplishments

- Federal Highway Administration Cost Estimate Review
- One-on-One Meetings (2 of 4 rounds)
- Industry reviewed RFDP drafts
- Future and existing traffic models
- Project Development Agreement with TxDOT
- TxDOT & FHWA Approval

## Next Steps

- Issue Final RFDP
- One-on-one Meetings (3<sup>rd</sup> & 4<sup>th</sup> round)
- Evaluate Alternative Technical Concepts
- Receive Final Detailed Proposals
- Select Design-Build Contractor**
- Negotiate and execute the contract

★ *Today:*

- Collector Distributor Road Overview**
- Seek *authorization to issue* the Final RFDP to shortlisted Proposers**



**Amend the Mobility Authority Policy Code, Chapter 3, Article 9, Subchapter A, Section 301.005 to implement new incentive programs and promotion efforts**

**# 11**

**Jeff Dailey, P.E.**

Deputy Executive Director



- » Update Policy Code section 301.005 regarding Incentive Programs and Promotional Efforts:
  - » The Executive Director may offer a promotional toll period up to 90 days following the opening of a new toll road
  - » The Board may authorize introductory toll rates or a one-time account credit to drivers who open a pre-registered transponder (tag) or license plate based toll account
  - » The Board may authorize joint marketing efforts with private sector providers of transponder or license plate-based toll accounts



# Approve an Amended and Restated Toll Collection System Maintenance Services Contract with Kapsch TrafficCom USA, Inc.



# 12

**Tracie Brown**  
Director of Operations



- » **Contract Term:** Expires on fifth anniversary of the 183 South toll system acceptance date
- » **Limitation of Liability:** Capped at total value of contract, ~ \$30.8M
- » **Performance Guaranty:** Updated to include direct and partial indirect damages
- » **Indemnification:** Revised to reflect CTRMA's current standards
- » **Insurance:** Modernized minimum limits and added new cybersecurity coverage requirements
- » **KPIs:** Enhanced with 27 performance metrics to ensure consistent performance and provide revenue assurance in the event of a loss



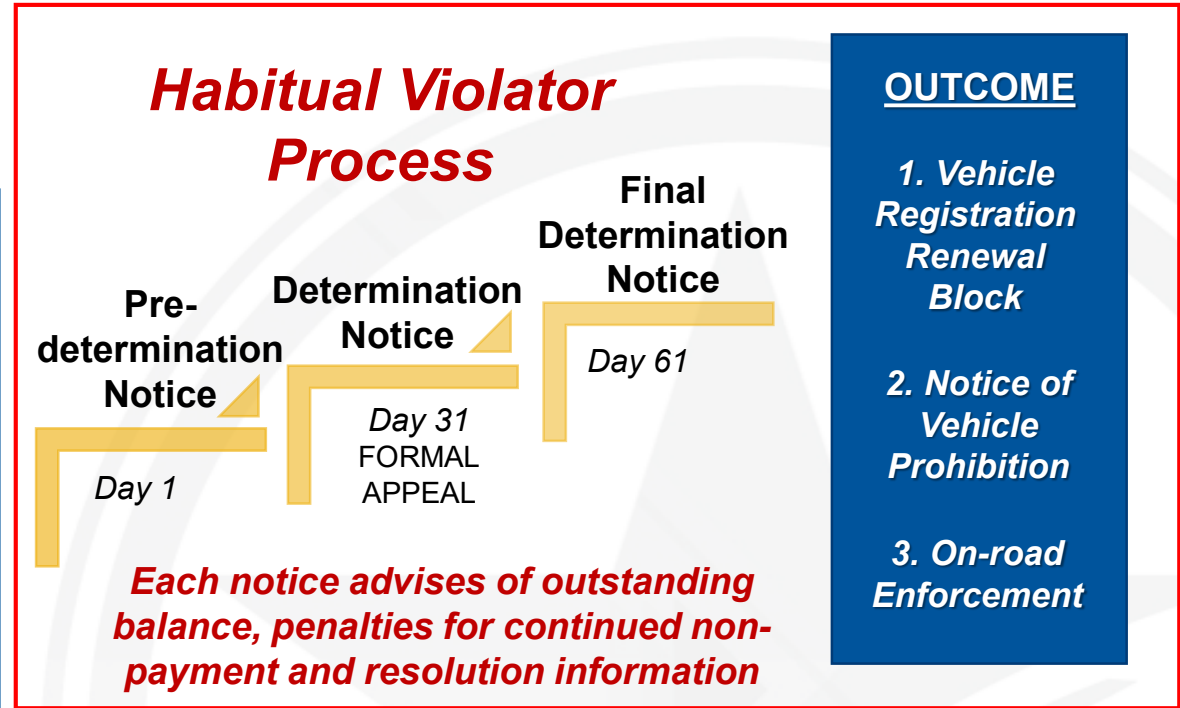
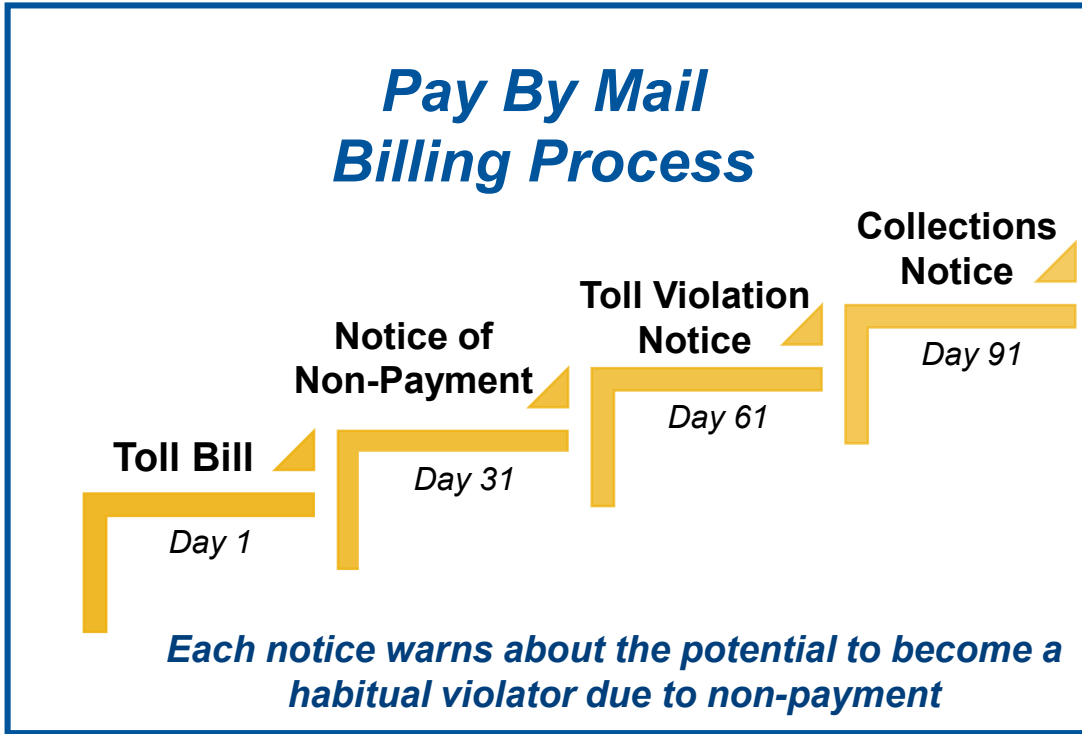
# Prohibit the operation of certain vehicles on Mobility Authority toll facilities

# 13

**Tracie Brown**  
Director of Operations



# Notification Process



- OUTCOME**
1. Vehicle Registration Renewal Block
  2. Notice of Vehicle Prohibition
  3. On-road Enforcement

At least 6 different notices mailed prior to Habitual Violator Determination

Most habitual violators have numerous unpaid bills and have been mailed dozens of notices





## » Approval of a *Vehicle Prohibition Order* for the identified habitual violator customers

- » Number of prohibited vehicles: 271
- » Median number of outstanding tolls per vehicle: 1,245
- » Median unpaid toll balance: \$1,812
- » Median unpaid admin fee balance: \$273
- » Median outstanding balance: \$ 2,088

## » Next Steps

- » Customers will receive *Prohibition Order* by first class mail
- » Road enforcement begins Dec 1<sup>st</sup>; customers found to be in violation are subject to \$500 fine and vehicle impoundment

# Procurement for financial advisory services



# 14

**Bill Chapman**  
Chief Financial Officer



# Wrong Way Driver Update

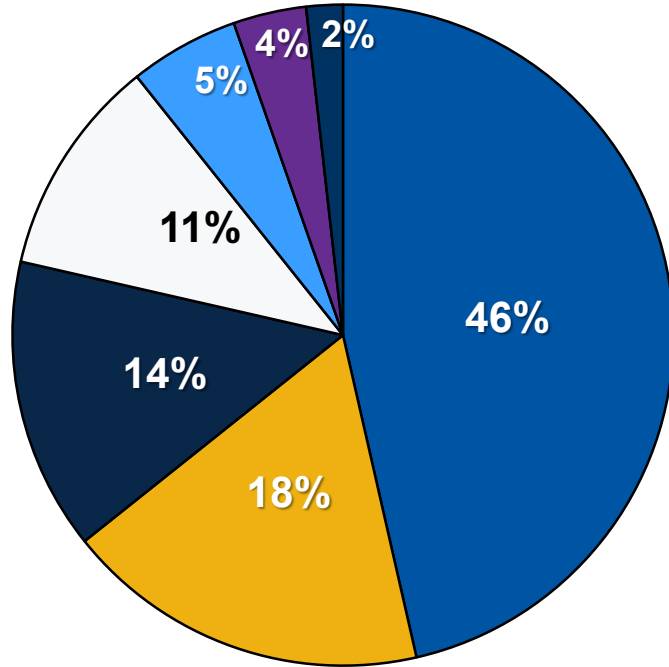
# 15

**Greg Mack**

Assistant Director of IT and Toll Systems



# 45SW Wrong Way Driver System



» Since June 1, 2019 there have been 56 wrong-way events

» 10 confirmed wrong way movements

» All self-corrected

- Vehicle Backed Up
- Maintenance Vehicle
- Emergency Response Vehicle
- Vehicle Made a Median Crossing
- Wrong Way Vehicle
- False Positive
- Pedestrian Detection





# MoPac and 183 South Operational and Technology Enhancements Project

# 16

**Justin Word, P.E.**  
Director of Engineering



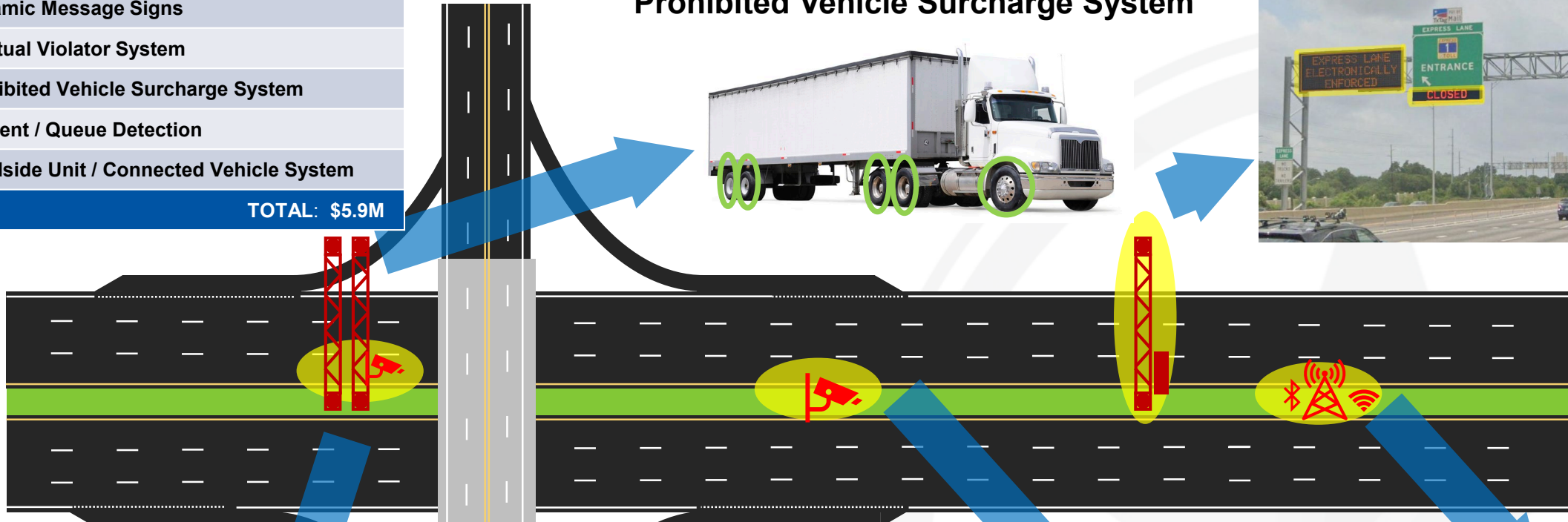
# Mobility Tech & Express Lane Enforcement

#	MoPac
1	Dynamic Message Signs
2	Habitual Violator System
3	Prohibited Vehicle Surcharge System
4	Incident / Queue Detection
5	Roadside Unit / Connected Vehicle System
<b>TOTAL: \$5.9M</b>	

## Prohibited Vehicle Surcharge System



## Dynamic Signage



Habitual Violator System

#	183 South
1	Wrong Way Detection
2	Roadside Unit / Connected Vehicle System
3	Incident / Queue Detection
4	Pedestrian Counters
5	Roadway Weather Information System
<b>TOTAL: \$2.6M</b>	



Incident Detection



Connected Vehicle System





# Safety, Operations and Aesthetic Enhancements

#	Project Description
1	Delineator Improvements
2	Express Lane (EL) Enforcement Areas (APD)
3	Speed Limit and Toll Violator Signs
4	Safety & Operational Striping Improvements
5	Landscaping/Aesthetics at Lake Austin Intersection Area
<b>TOTAL: \$4.1M</b>	

## Express Lane Enforcement Areas (APD)



## Delineator Improvements



Speed limit and Toll Violator Signs



Landscaping and Aesthetics

# Barton Skyway Ramp Enhancement Project

# 17

**Justin Word, P.E.**  
Director of Engineering





# Barton Skyway Enhancements Overview

Add auxiliary and merge lanes between Barton Skyway and Loop 360 to relieve congestion at the southbound Winsted/Enfield on-ramp merge

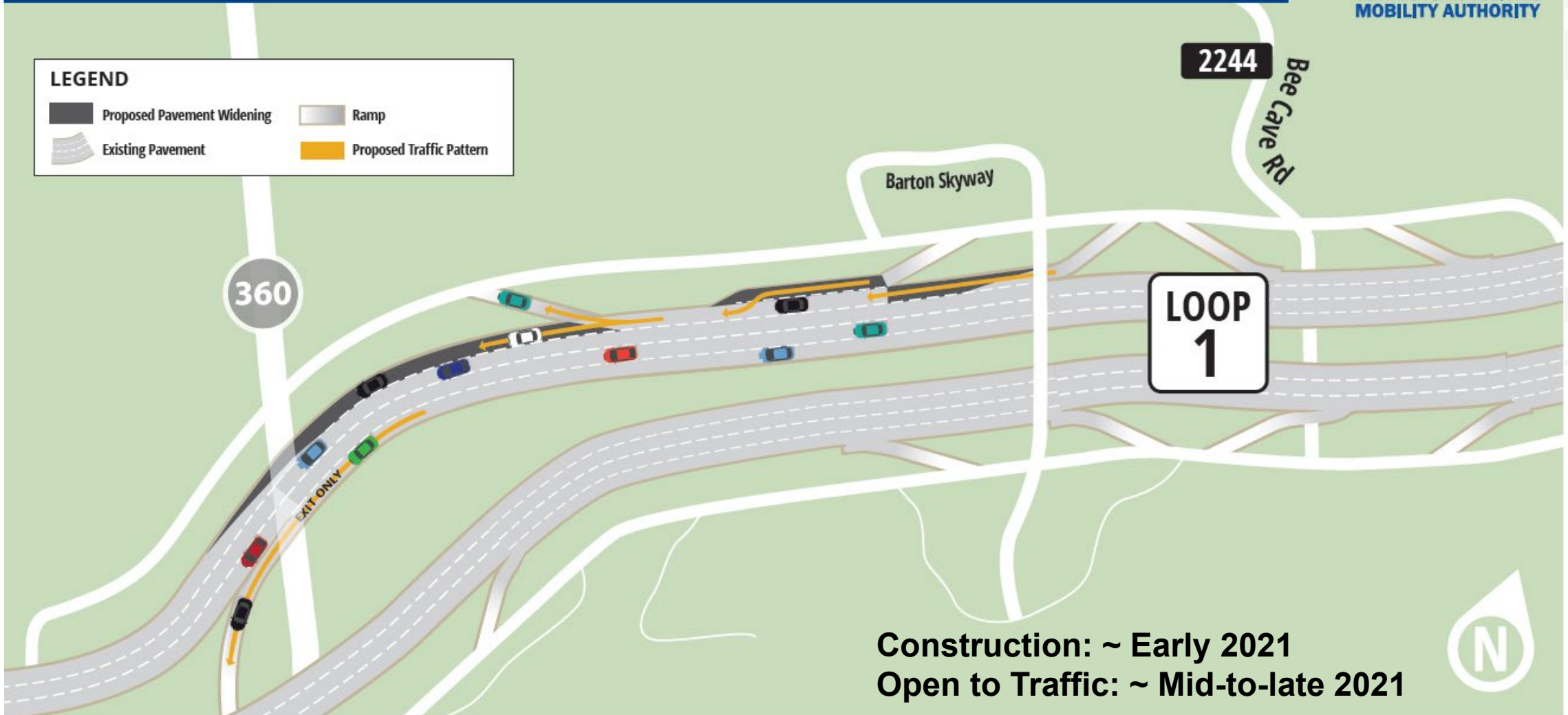
Cost Estimate = \$15 million



CENTRAL TEXAS REGIONAL  
MOBILITY AUTHORITY

**LEGEND**

 Proposed Pavement Widening	 Ramp
 Existing Pavement	 Proposed Traffic Pattern



Construction: ~ Early 2021  
Open to Traffic: ~ Mid-to-late 2021

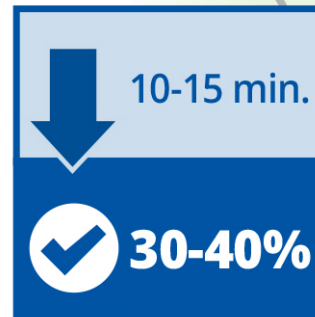
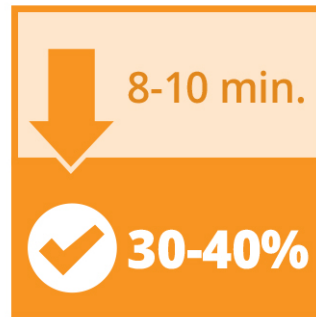


# Barton Skyway Project Benefits

## Travel Time Improvement for Various Trips

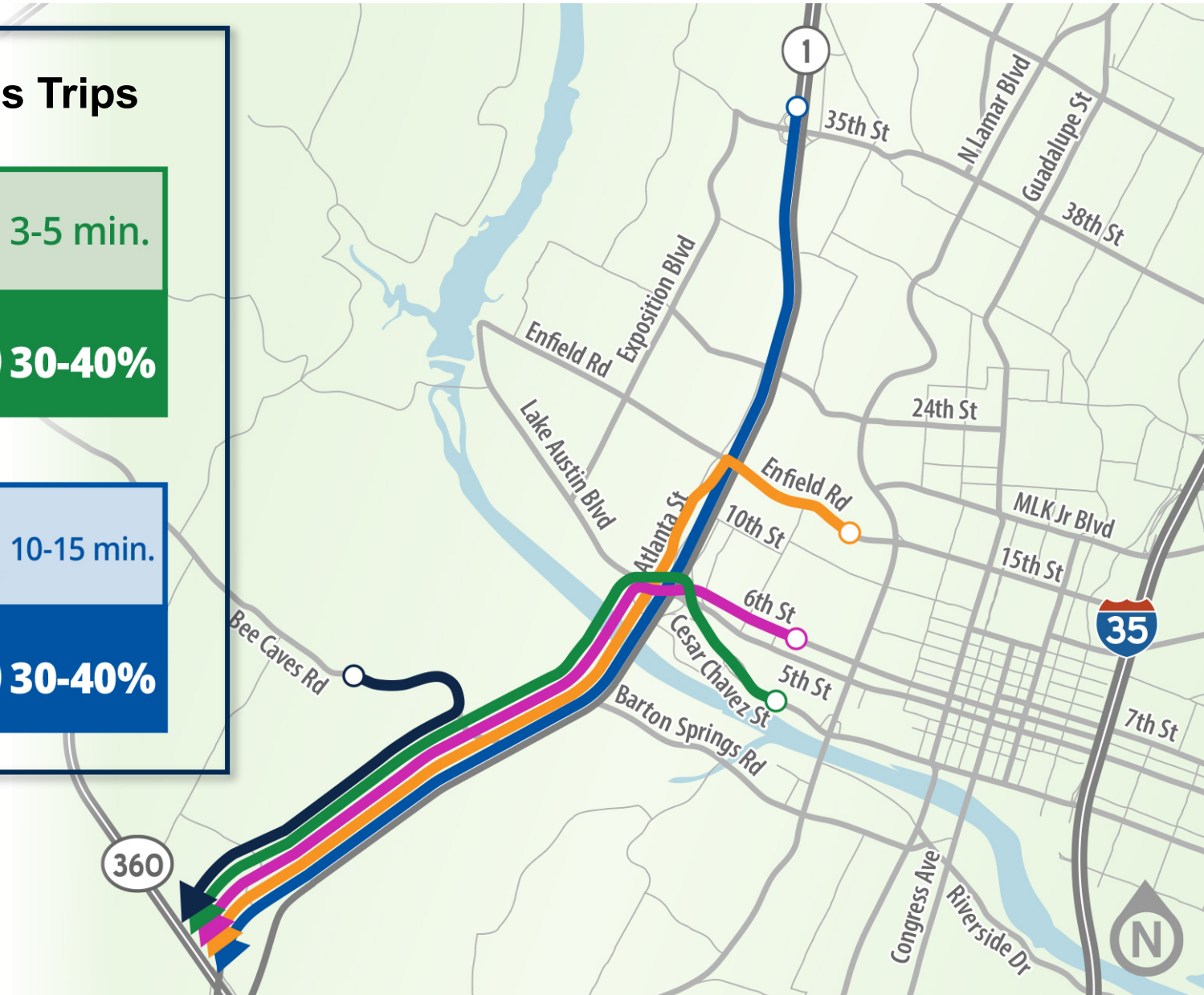
↓ Potential Travel Time Savings (GP lanes)

✓ Travel Time Improvement



### Next Steps:

- TxDOT Agreements
- Schedule Refinements
- TxDOT Coordination Meetings
- Environmental Surveys





# Federal Highway Administration Cost Estimate Review Process

# 18

**Brett Jackson, P.E.**

Major Projects Engineer – Federal Highway Administration

# FHWA Major Projects Program

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Central Texas Regional Mobility Authority  
Board of Directors Meeting  
November 20, 2019 • Austin, TX

Brett Jackson, P.E.  
sdPOM, Texas Division  
FHWA

FHWA is the source for all  
images in this presentation.



# Major Project Cost Estimate Review (CER) Process and Effectiveness

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- What is a Major Project?
  - Projects requiring Federal assistance that are over \$500 million in cost
  - Project scope is determined by the National Environmental Protection Act (NEPA) decision document
- What are the requirements for Major Projects?

# Requirements : Why Perform CERs?

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23 USC 106

(h) Major Projects.—

(1) In general.—Notwithstanding any other provision of this section, a recipient of Federal financial assistance for a project under this title with an estimated total cost of \$500,000,000 or more, and recipients for such other projects as may be identified by the Secretary, shall submit to the Secretary for each project—

(A) a project management plan; and

(B) an annual financial plan, including a phasing plan when applicable.

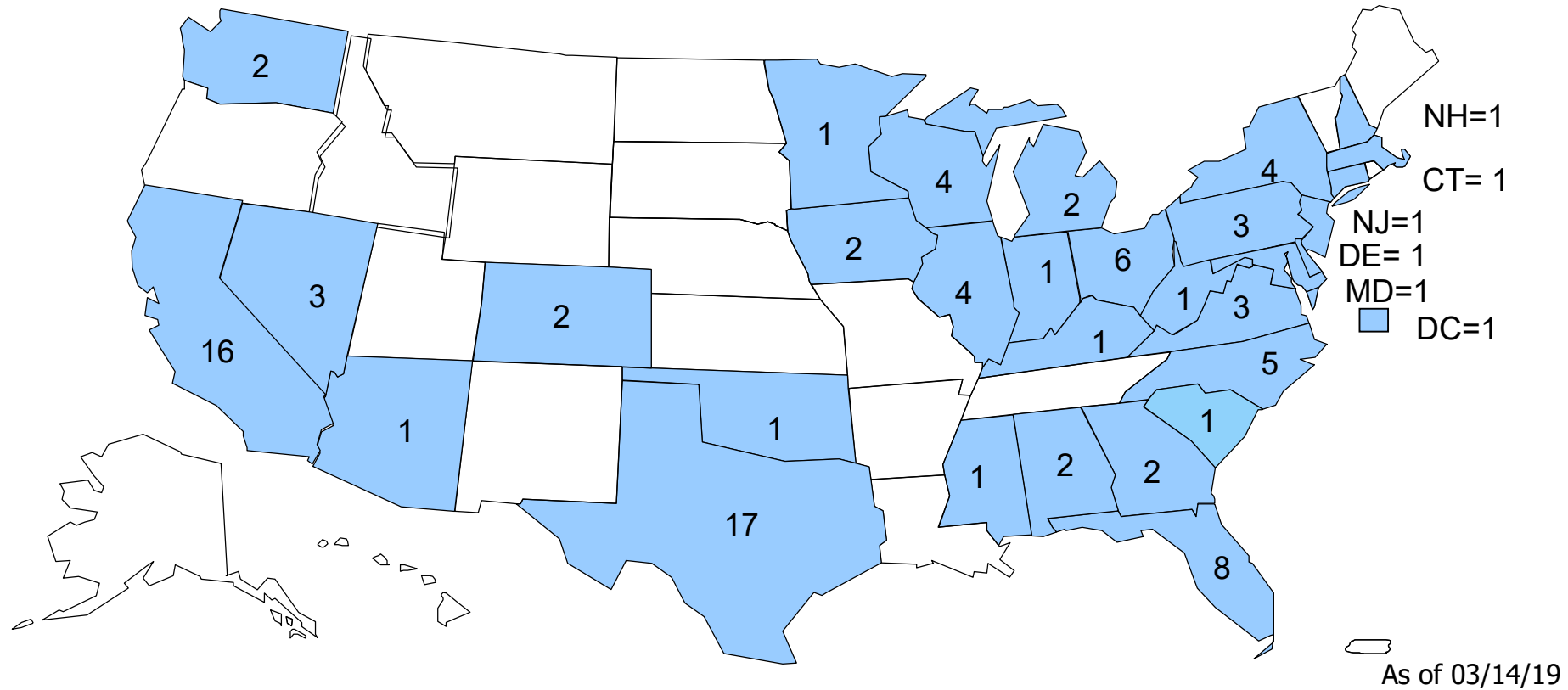
(A) shall be based on detailed estimates of the cost to complete the project;

(B) shall provide for the annual submission of updates to the Secretary that are based on reasonable assumptions, as determined by the Secretary, of future increases in the cost to complete the project.....



# Active Major Projects

99 | Number of Active Major Projects- 31 States



# Cost Estimate Review Objectives

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- Conduct an unbiased risk-based review to **verify the accuracy and reasonableness** of the current total cost estimate and project schedule to complete the Project
- **Develop a probability range** for the cost estimate that represents the project's current stage of design



# Review Methodology

## Verify

- Major cost elements
- Allowances/contingencies
- Adjust estimate as necessary

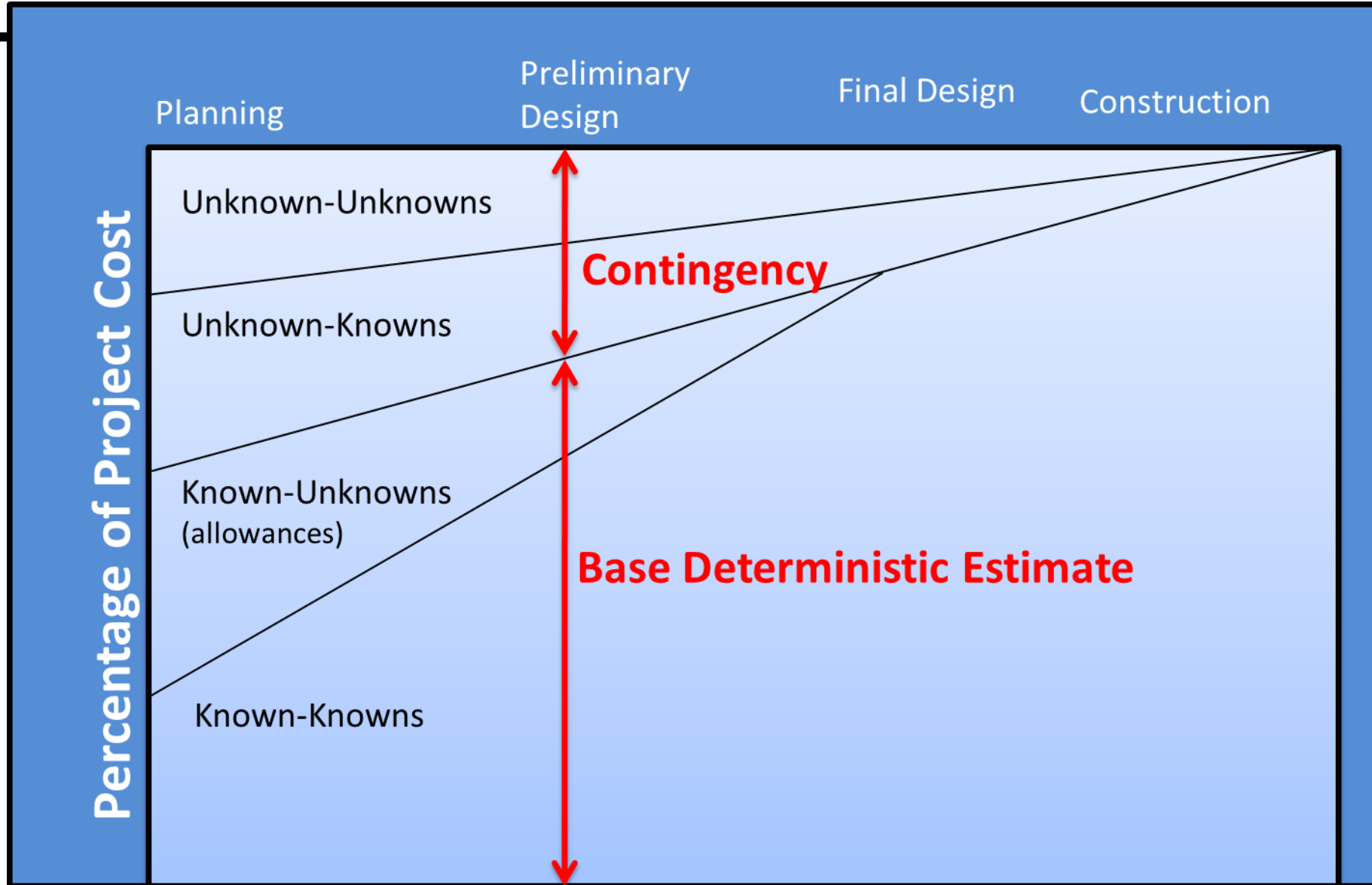
## Model

- Base variability
- Market conditions and inflation
- Risk events (cost, schedule, probability, impact, relationships)
- Monte Carlo simulation

## Communicate

- Closeout Presentation
- Final report
- Approval of initial financial plan

# Uncertainty/Risk



# Risk

## CER Concepts – Uncertainty

*"We know it is going to happen"*

**Known  
Knowns**

*"We expect it to happen, but do not have enough information to quantify it yet."*

**Known  
Unknowns**  
(ALLOWANCES)

**Unknown  
Knowns**  
(RISK REGISTER/CONTINGENCY)

*"It might happen, but at least we know about it"*

**Unknown  
Unknowns**

*"We didn't see that coming!"*

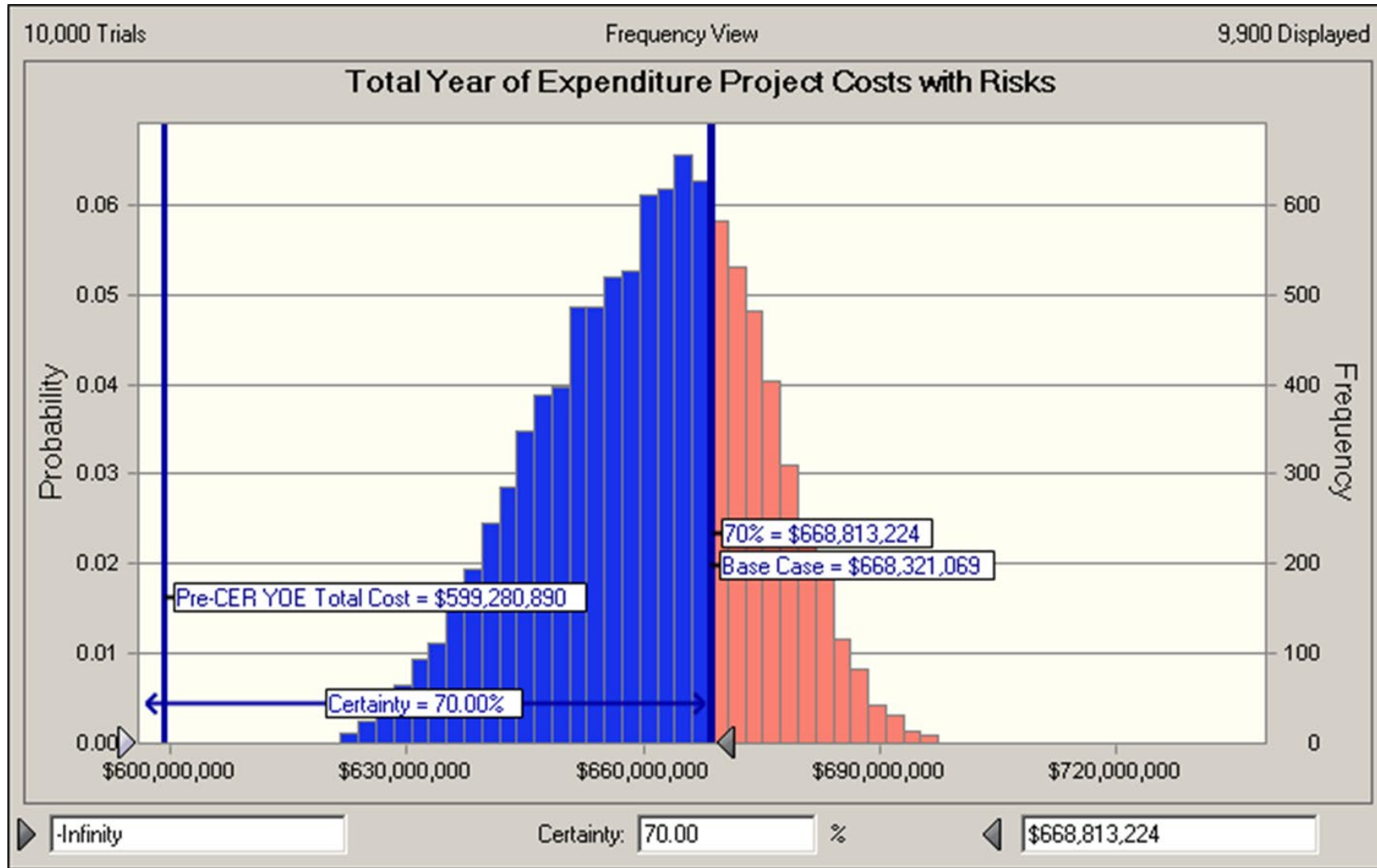


# CER Outputs : Risk Register

Risk #	Risk Status	Risk Dependency	Guidance for Discrete Probability	Project Phase	Risk Location	Event Risk Name	Risk Type	Detailed Description of Risk Event (Specific, Measurable, Attributable, Relevant, Timebound) [SMART]	Risk Trigger	Probability (Bernoulli distribution)	Impact Cost	Correlation Prior Cost Risk	Cost Risk (Threat/ Opportunity)	Probable Cost Impact (\$\$\$)
9				Pre-CN		Undetermined	Cost	Test	Bridge Type	1	\$ 14,000,000	Nil	Threat	\$ -
10	2	Active	Independent	Prob<1	CN+UT	Market	Cost	Market Conditions	Procurement	0.5	\$ -	Nil	Threat	\$ -
11	3	Active	ME	<=0.5	CN+UT	Market	Cost	Market	Procurement	0.5	\$ -	Nil	Opportunity	\$ -
12	3	Active	Independent	Prob<1	CN+UT	MS4 Stormwater	Cost	Storm sewer	Approved	0.2	\$ 750,000	Nil	Threat	\$ 150,000
13	4	Active	Independent	Prob<1	CN+UT	Design speed	Cost	Design and	FHWA	1	\$ 20,000,000	Nil	Threat	\$ 20,000,000
14	5	Active	Independent	Prob<1	CN+UT	Below 75 575 split	Cost	Design and	FHWA	0.4	\$ 55,000,000	Nil	Threat	\$ 22,000,000
15	6	Active	Independent	Prob<1	CN+UT	Geotech Bridge	Cost	Final geotech	Final Geotech	0.1	\$ -	Nil	Opportunity	\$ -
16	7	Active	ME	<=0.9	CN+UT	Geotech Bridge	Cost	Final geotech	Final Geotech	0.25	\$ -	Nil	Threat	\$ -
17	8	Active	Independent	Prob<1	CN+UT	ATC Innovation	Cost	ATC Innovtion in	Developer	1	\$ -	Nil	Opportunity	\$ -
18	9	Active	Independent	Prob<1	CN+UT	Design level	Cost	Currently at 30%	Developer	0.6	\$ -	Nil	Opportunity	\$ -
19	10	Active	ME	<=0.4	CN+UT	Design level	Cost	Currently at 30%	Developer	0.4	\$ -	Nil	Threat	\$ -
20	11	Active	Independent	Prob<1	CN+UT	Limited resources	Cost	Due to high volume	Developer	0.7	\$ -	Nil	Threat	\$ -
21	12	Active	Independent	Prob<1	CN+UT	Roadway Design	Cost	Currently at 30%	Developer	0.6	\$ -	Nil	Threat	\$ -
22	13	Active	ME	<=0.4	CN+UT	Roadway Design	Cost	Currently at 30%	Developer	0.4	\$ -	Nil	Opportunity	\$ -
23	14	Active	Independent	Prob<1	CN+UT	Utility risk	Cost	Underground	Developer	1	\$ 9,379,843	Nil	Threat	\$ 9,379,843
24	15	Active	Independent	Prob<1	Pre-CN	Delays due to	Schedule	Project is not	Lack of	0.5	\$ -	Nil		\$ -
25	16	Active	Independent	Prob<1	Pre-CN	PM 2.5 Air Quality	Schedule	EPA cannot take an	Project not in	0.5	\$ -	Nil		\$ -
26	17	Active	Independent	Prob<1	Pre-CN	Completion of	Schedule	Policy update will	New Policy	0.25	\$ -	Nil		\$ -
27	18	Active	Independent	Prob<1	Pre-CN	Potential	Schedule		Lawsuit			Nil		\$ -
28	18	Active	Independent	Prob<1	CN+UT	Acceleration of	Schedule	Opportunity to	Developer	0.8		Nil		\$ -
29	19													\$ -

**Risk Trigger**  
 Event that indicates the risk is likely to occur. Used to determine when to implement the risk response strategy

# CER Outputs: Cost Forecast

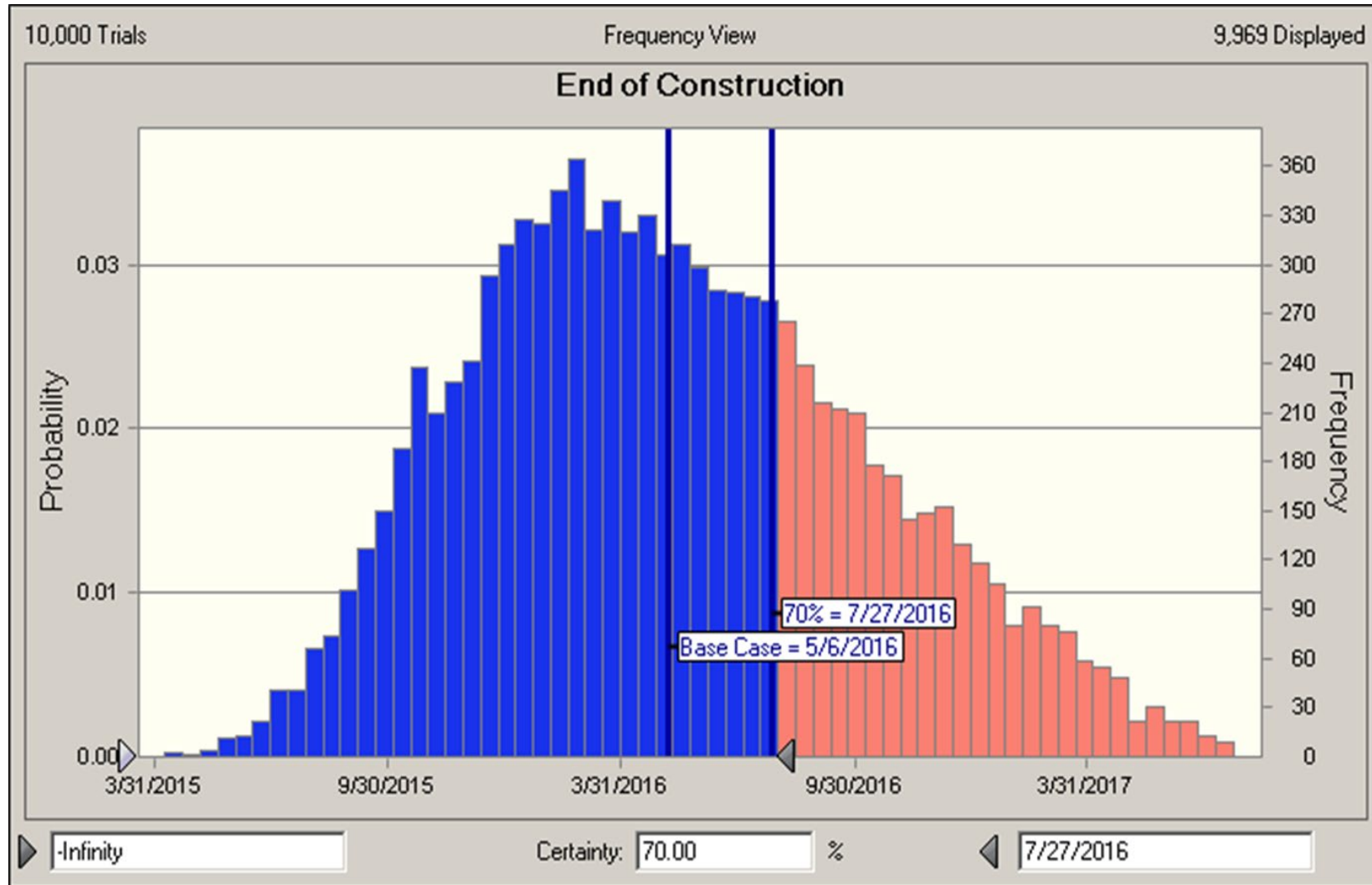


## CER Outputs - Cost Forecast Example

Percentile	Total Project Costs Forecast values
0%	\$622,045,165
10%	\$642,051,331
20%	\$648,556,174
30%	\$653,448,838
40%	\$657,845,556
50%	\$661,753,712
60%	\$665,305,814
70%	\$668,813,224
80%	\$672,868,683
90%	\$678,086,378
100%	\$926,597,262



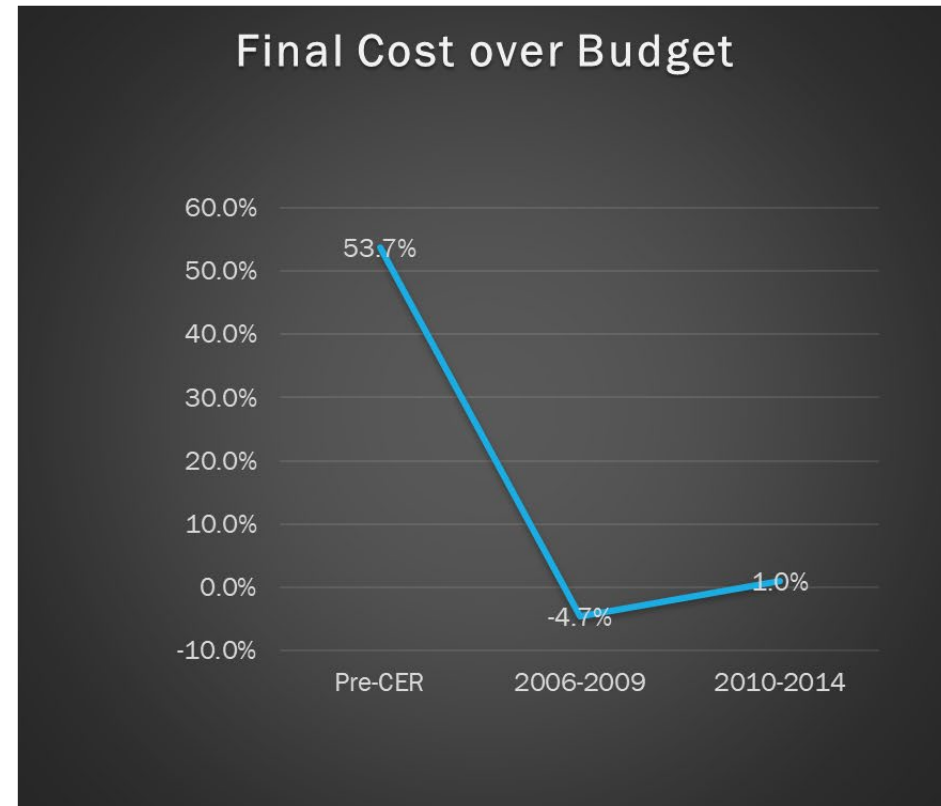
# CER Outputs: Schedule Forecast



- **Question:** How does the CER 70% confidence year of expenditure (YOE) amount compare to the actual completed cost for the applicable major projects?
- **Answer:**
  - Implemented CER Process in 2005.
  - Used the 70% confidence level probabilistic result.
  - 35 Major Projects completed to date.
  - **23 (65.7%) had final costs meeting the 70% confidence amount.**

## Long Term Cost

- Final Cost vs IFP Estimate
  - 21 Projects prior to CER
    - Total Cost 53.7% over budget
  - 21 Projects 2006 – 2009
    - Average 4.7% under budget
  - 14 Projects 2010 – 2014
    - Average 1.0% over budget



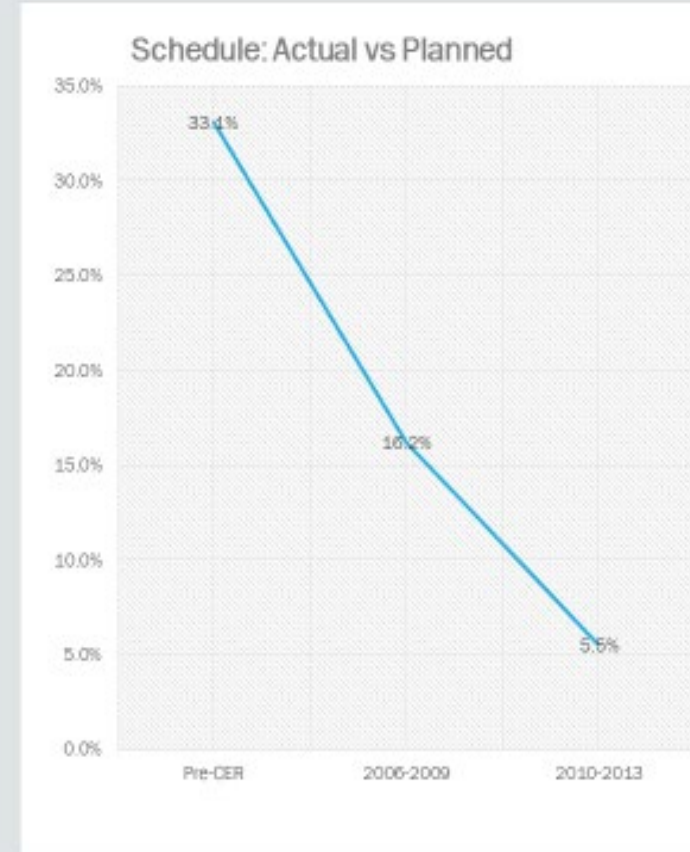


## Effectiveness in Dollars

Time Frame	Number of Projects Completed	IFP Initial Cost Projection (Billions)	Final Dollar Amount (Billions)	Amount Over/Under Initial Estimate
2005 & Before	21	\$30.15	\$46.36	\$16.21 Billion Over
2005 thru 2009	21	\$24.14	\$23.00	\$1.14 Billion Under
2010 and Later	14	\$18.22	\$18.56	\$0.34 Billion Over

## Long Term Measurement: Schedule

- Final Project Duration vs Planned Project Duration
  - *Pre-CER*
    - 33.1% over Schedule
  - *2006 to 2009*
    - 16.2% over Schedule
  - *2010 to 2014*
    - 5.5% over Schedule





Questions?

Brett Jackson, P.E.  
sdPOM, Texas Division



# Executive Director Report

A. Workforce Update

B. Funding Park & Ride facilities as part of Mobility Authority toll projects

# 19

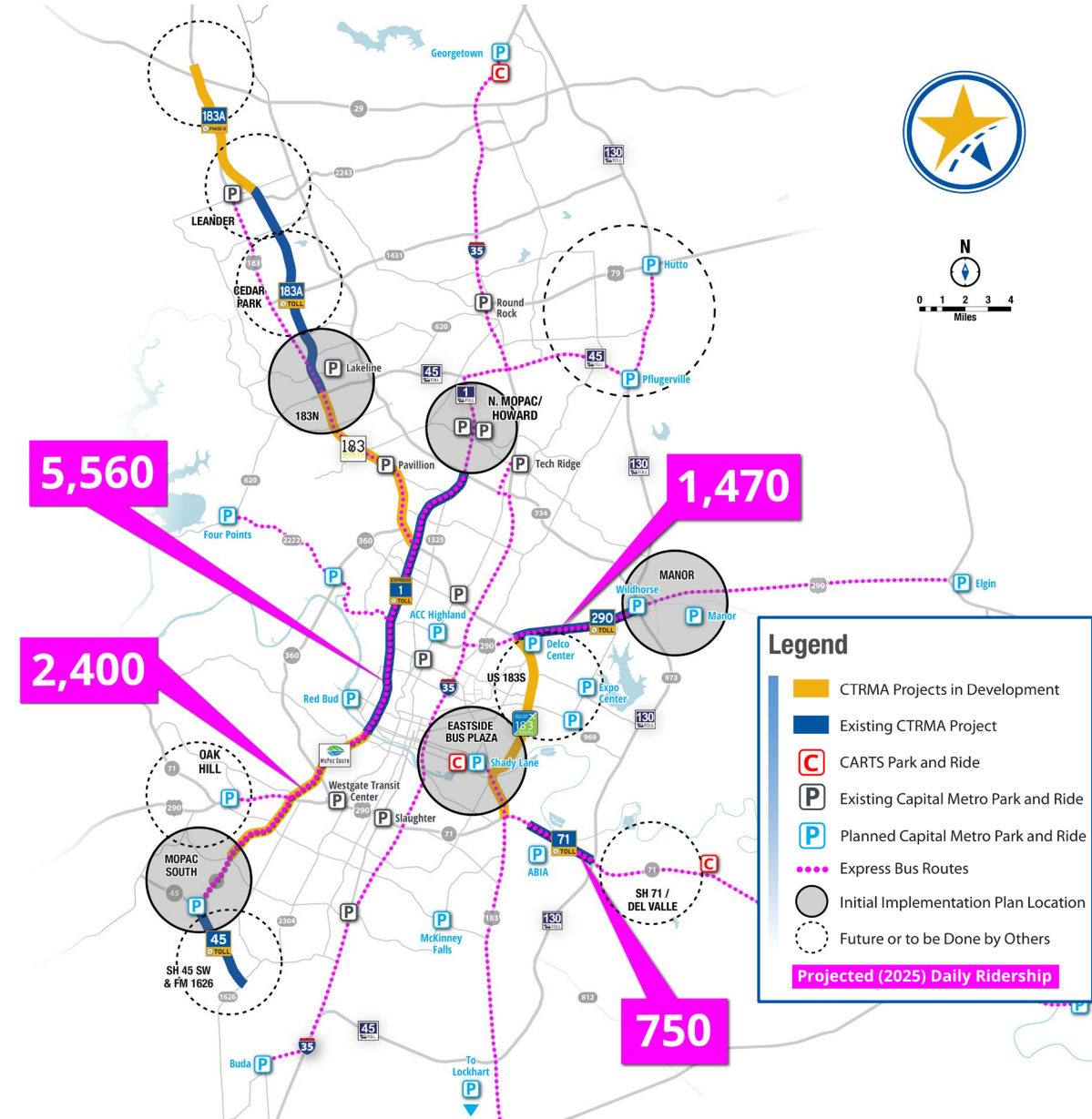
**Mike Heiligenstein**

Executive Director



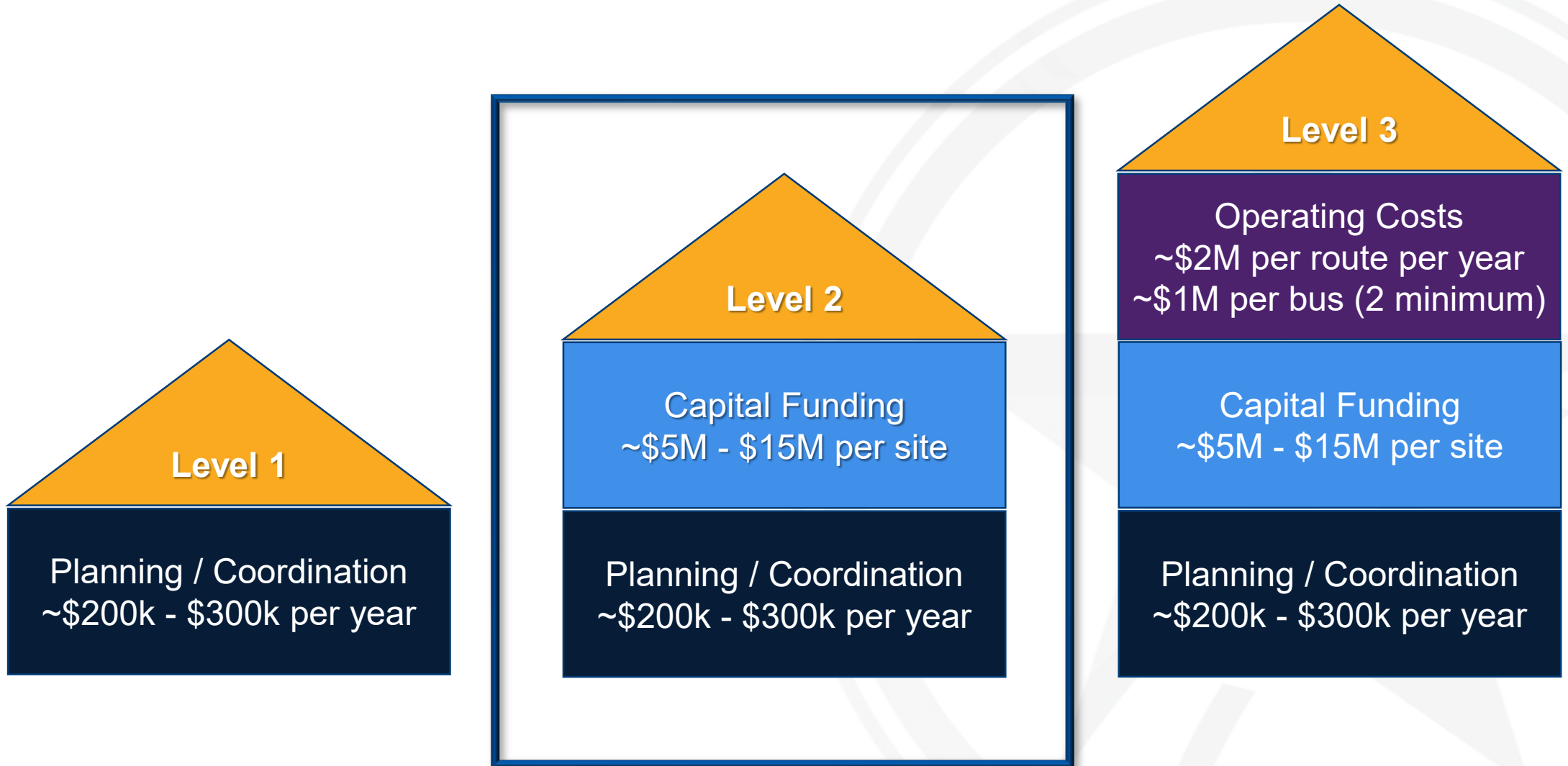
# Park and Ride Overview

- » Memorandum of Agreement (July 2016) – CAMPO, Cap Metro, and Mobility Authority
- » Identify / develop a program of Park and Ride facilities along Mobility Authority corridors
- » Identified new locations and expansion opportunities
- » Near term opportunities identified
  - » Lakeline Station
  - » Eastside Multimodal Center
  - » Howard Station
  - » Wildflower Center





# Level of Support Options





# Executive Session

20. Discuss legal issues related to claims by or against the Mobility Authority; pending or contemplated litigation and any related settlement offers; or other matters as authorized by §551.071 (Consultation with Attorney).
21. Discuss legal issues relating to procurement and financing of Mobility Authority transportation projects, as authorized by §551.071 (Consultation with Attorney).
22. Discuss personnel matters as authorized by §551.074 (Personnel Matters).



# 20-22



# Adjourn Meeting

# 23

**Bobby Jenkins**  
Chairman

# Regular Meeting of the Board of Directors



CENTRAL TEXAS REGIONAL  
**MOBILITY AUTHORITY**

November 20, 2019