



**MEMORANDUM**

**TO:** HPTE BOARD OF DIRECTORS  
**FROM:** KELLY BROWN, TOLLING OPERATIONS MANAGER  
**DATE:** MAY 17, 2018  
**SUBJECT:** PROPOSED 2018/2019 TOLL RATE ADJUSTMENTS FROM HPTE AND PLENARY ROADS DENVER

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**Purpose and Requested Action**

This memorandum presents proposed 2018/2019 toll rate adjustments for the Express Lanes operated by HPTE and Plenary Roads Denver. HPTE Staff and Plenary Roads Denver request that the High Performance Transportation Enterprise (HPTE) Board of Directors review the proposed 2018/2019 toll rate adjustments for AVI and LPT transactions and provide comments. HPTE and Plenary Roads Denver each have separate toll rate adjustment presentations and supporting documentation



## MEMORANDUM

**TO:** HPTE BOARD OF DIRECTORS  
**FROM:** KELLY BROWN, TOLLING OPERATIONS MANAGER  
**DATE:** MAY 17, 2018  
**SUBJECT:** PROPOSED 2018/2019 TOLL RATE ADJUSTMENT FOR I-25 NORTH (US 36 to 120<sup>th</sup> Ave.)

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### Purpose and Requested Action

This memorandum presents a proposed 2018/2019 toll rate adjustment for I-25 North (US 36 to 120<sup>th</sup> Ave.) (“Segment 2”). Staff requests that the High Performance Transportation Enterprise (HPTE) Board of Directors review the proposed adjusted toll rates for AVI and LPT transactions and provide comments.

### Policy Implications:

The purpose of this memo is informational only and no action this month is requested. A review of the recommended toll rate adjustment and proposed new toll rates for AVI and LPT transactions this month ensures:

- HPTE is in alignment with its internal annual toll rate adjustment timeline.
- The analysis performed can support the recommended toll rate adjustment percentage.
- The recommended AVI and LPT toll rates for the 2018-2019 fiscal year are supported by the analysis used to determine a proposed new toll rate.

### Background and Details

Segment 2 originates from the southern boundary at US 36 and terminates at 120<sup>th</sup> Ave. This segment of the I-25 Express Lanes opened for tolling in July, 2016. Rates have not been adjusted since opening.

HPTE has an annual toll rate adjustment process every summer, where Express Lane rate adjustments are considered. At the annual toll rate adjustment process in 2017, HPTE staff recommended *no* toll rate adjustments for Segment 2. This is the first proposed toll rate adjustment for Segment 2. If approved by the Board at the June 2018 meeting, the adjusted rates would go into effect on July 1, 2018, and this would be the first adjustment to rates in two years.

### Methodology

A three-fold analysis (traffic demand management, costs of operations/maintenance, and inflation) was undertaken to analyse the potential need for toll rate adjustments. First, for traffic demand management, average speeds in the Express Lanes were examined to determine if the Express Lanes meet the criterion of at least 45 miles per hour at least 95% of the time (or 5% of speeds lower than 45mph at most). In addition, the traffic Level of Service (LOS) for this segment of I-25 was analysed to assess the performance of the Express Lanes. The data used for this analysis included:

- Average speed in the general purpose and Express Lanes
- Traffic volumes in the general purpose and Express Lanes
- Information on events (lane closures, maintenance etc.) that occurred along the segment of I-25 as identified in the corridor’s Event Audit Report
- Historic weather data

Second, for inflation, Staff evaluated the changes in the Denver-Aurora-Lakewood Consumer Price Index (CPI) from July 2016 to April, 2018, the most recently available data.

Third, Staff analysed the costs of operations/maintenance and toll collections on Segment 2.

### Summary of Findings

Based on the below analysis, Staff recommends an adjustment to AVI and LPT toll rates of approximately 5.97%.

- **Traffic Management**  
Appendix-A- shows the percentage of speeds below 45mph at different times of day. The Express Lanes average speeds meet the criterion of at most 5% of speeds below 45mph. Attachment B shows average level of service (LOS) in the Express Lanes at different times of day. During any given 24 hour period, the LOS in the Express Lanes is A for 75%, or 18 hours, of the day, B for 17%, or 4 hours, of the day and only C for only 8%, or 2 hours, of the day. Based on the traffic parameters above, the Express Lanes are performing as intended in providing reliable travel times.

- **Inflation**

To estimate inflation adjustment, Staff evaluated Operations and Maintenance cost increases, toll collection cost increases, and CPI increases:

According to the Bureau of Labor Statistics, the Consumer Price Index increased by 3.386% in 2017 compared to 2016. For the past 12 months ending March 2018, the rate of inflation rose 2.4% with a compounded increase for years 2017 and 2018 of 5.886% (5.89%).

- **Operations/Maintenance costs**

CDOT O&M costs are expected to increase by 2.85% for the period 7/1/2018-6/30/2019 based on projected inflation rates for the Denver-Aurora-Lakewood Consumer Price Index.

Toll collection costs increase by 5% yearly per the Tolling Services Agreement with E-470

**Recommended New Rates**

Staff recommends the proposed new AVI and LPT toll rates shown below for FY2018/2019. The recommended proposed toll rate for AVI was made by multiplying the current AVI toll rate by 5.886% then taking that figure and rounding down to the nearest multiple of \$0.05. For example, in the table below, the NEW AVI toll rate of \$1.05 was rounded down from \$1.06. The new recommended proposed LPT toll rate was made by multiplying the current LPT toll rate by 5.886% and has not been rounded.

				Northbound			
				CURRENT AVI	PROPOSED NEW AVI	CURRENT LPT	PROPOSED NEW LPT
5:00	AM	-	6:00 AM	\$1.00	\$1.05	\$3.58	\$3.79
6:00	AM	-	6:45 AM	\$1.00	\$1.05	\$3.58	\$3.79
6.45	AM	-	7:15 AM	\$1.00	\$1.05	\$3.58	\$3.79
7:15	AM	-	8:15 AM	\$1.00	\$1.05	\$3.58	\$3.79
8:15	AM	-	8:45 AM	\$1.00	\$1.05	\$3.58	\$3.79
8:45	AM	-	10:00 AM	\$1.00	\$1.05	\$3.58	\$3.79
10:00	AM	-	12:00 PM	\$1.00	\$1.05	\$3.58	\$3.79
12:00	PM	-	3:00 PM	\$1.00	\$1.05	\$3.58	\$3.79
3:00	PM	-	3:30 PM	\$1.25	\$1.30	\$3.98	\$4.22
3:30	PM	-	4:30 PM	\$1.50	\$1.55	\$4.38	\$4.64
4:30	PM	-	6:00 PM	\$3.00	\$3.15	\$6.75	\$7.15
6:00	PM	-	8:00 PM	\$1.25	\$1.30	\$3.98	\$4.21
8:00	PM	-	5:00 AM	\$1.00	\$1.05	\$3.58	\$3.79
Weekend				\$1.25	\$1.30	\$3.98	\$4.21

				Southbound			
				CURRENT AVI	PROPOSED NEW AVI	CURRENT LPT	PROPOSED NEW LPT
5:00	AM	-	6:00 AM	\$1.00	\$1.05	\$3.58	\$3.79
6:00	AM	-	6:45 AM	\$1.00	\$1.05	\$3.58	\$3.79
6.45	AM	-	7:15 AM	\$1.25	\$1.30	\$5.56	\$5.89
7:15	AM	-	8:15 AM	\$2.25	\$2.35	\$4.38	\$4.64
8:15	AM	-	8:45 AM	\$1.50	\$1.55	\$3.98	\$4.21
8:45	AM	-	10:00 AM	\$1.25	\$1.30	\$3.58	\$3.79
10:00	AM	-	12:00 PM	\$1.00	\$1.05	\$3.58	\$3.79
12:00	PM	-	3:00 PM	\$1.00	\$1.05	\$3.58	\$3.79
3:00	PM	-	3:30 PM	\$1.00	\$1.05	\$3.58	\$3.79
3:30	PM	-	4:30 PM	\$1.00	\$1.05	\$3.58	\$3.79
4:30	PM	-	6:00 PM	\$1.00	\$1.05	\$3.58	\$3.79
6:00	PM	-	8:00 PM	\$1.00	\$1.05	\$3.58	\$3.79
8:00	PM	-	5:00 AM	\$1.00	\$1.05	\$3.58	\$3.79
Weekend				\$1.25	\$1.30	\$3.98	\$4.22

**Next Steps**

- The Board is being asked to review the recommended proposed AVI and LPT toll rates and provide feedback.
- HPTE staff will integrate any requested changes to the recommended proposed AVI and LPT toll rates for I-25 North Segment 2 and will return to the Board in June for final adoption of FY 2018-19 AVI and LPT toll rates for I-25 North Segment 2.

**Attachments**

Attachment A: Time Periods in which the Express Lane Speed falls below 45 MPH

Attachment B: Level of Service in the Express Lane

**Attachment A: Time Periods in which the Express Lane Speed falls below 45 MPH**

Time	I-25 at 84th Ave.		Time	I-25 at Thornton Pkwy.	
	NB	SB		NB	SB
12:00 AM	0.0%	0.0%	12:00 AM	0.0%	0.0%
1:00 AM	0.0%	0.0%	1:00 AM	0.0%	0.0%
2:00 AM	0.0%	0.0%	2:00 AM	0.0%	0.0%
3:00 AM	0.0%	0.0%	3:00 AM	0.0%	0.0%
4:00 AM	0.0%	0.0%	4:00 AM	0.0%	0.0%
5:00 AM	0.0%	0.0%	5:00 AM	0.0%	0.0%
6:00 AM	0.0%	1.3%	6:00 AM	0.0%	1.7%
7:00 AM	0.0%	0.3%	7:00 AM	0.0%	0.0%
8:00 AM	0.0%	0.0%	8:00 AM	0.0%	0.0%
9:00 AM	0.0%	0.0%	9:00 AM	0.0%	0.0%
10:00 AM	0.0%	0.0%	10:00 AM	0.0%	0.0%
11:00 AM	0.2%	0.0%	11:00 AM	0.0%	0.0%
12:00 PM	1.1%	0.0%	12:00 PM	0.0%	0.0%
1:00 PM	1.4%	0.0%	1:00 PM	0.0%	2.5%
2:00 PM	0.0%	0.5%	2:00 PM	0.0%	0.0%
3:00 PM	0.0%	0.0%	3:00 PM	0.0%	0.0%
4:00 PM	0.0%	0.0%	4:00 PM	3.1%	0.0%
5:00 PM	0.2%	0.0%	5:00 PM	1.2%	0.2%
6:00 PM	1.3%	0.0%	6:00 PM	0.0%	0.0%
7:00 PM	1.4%	0.0%	7:00 PM	0.0%	0.0%
8:00 PM	0.0%	0.0%	8:00 PM	0.0%	2.4%
9:00 PM	0.0%	0.0%	9:00 PM	0.0%	0.0%
10:00 PM	0.0%	0.2%	10:00 PM	0.0%	0.0%
11:00 PM	0.0%	0.0%	11:00 PM	0.0%	0.0%

**Attachment B: Level of Service in the Express Lane**

Time	I-25 at 84th Ave.		Time	I-25 at Thornton Pkwy.	
	NB	SB		NB	SB
12:00 AM	A	A	12:00 AM	A	A
1:00 AM	A	A	1:00 AM	A	A
2:00 AM	A	A	2:00 AM	A	A
3:00 AM	A	A	3:00 AM	A	A
4:00 AM	A	A	4:00 AM	A	A
5:00 AM	A	A	5:00 AM	A	A
6:00 AM	A	C	6:00 AM	A	C
7:00 AM	A	C	7:00 AM	A	C
8:00 AM	A	B	8:00 AM	A	B
9:00 AM	A	A	9:00 AM	A	A
10:00 AM	A	A	10:00 AM	A	A
11:00 AM	A	A	11:00 AM	A	A
12:00 PM	A	A	12:00 PM	A	A
1:00 PM	A	A	1:00 PM	A	A
2:00 PM	A	A	2:00 PM	A	A
3:00 PM	B	A	3:00 PM	A	A
4:00 PM	B	A	4:00 PM	B	A
5:00 PM	B	A	5:00 PM	B	A
6:00 PM	A	A	6:00 PM	A	A
7:00 PM	A	A	7:00 PM	A	A
8:00 PM	A	A	8:00 PM	A	A
9:00 PM	A	A	9:00 PM	A	A
10:00 PM	A	A	10:00 PM	A	A
11:00 PM	A	A	11:00 PM	A	A

# Memo

<b>To:</b>	Kelly Brown, HPTE		
<b>From:</b>	Rami Harb	<b>Email:</b>	rami.harb@atkinsglobal.com
<b>Phone:</b>	(720)-475-7075	<b>Date:</b>	8 May 2018
<b>Ref:</b>	Toll Rate Adjustment Analysis	<b>cc:</b>	

## 1. Introduction

Atkins and HPTE developed this “Toll Rate Adjustment Analysis” memorandum to document the methodology used to evaluate toll rates on I-25 Segment 2 Express Lanes (US 36 to 120<sup>th</sup> Ave.) The current toll rates were set in 2016 when the segment 2 express lanes were first opened.

## 2. Methodology

A two-fold analysis (traffic demand management and inflation) was undertaken to analyse the need for toll rates increases. **First**, for traffic demand management, average speeds in the Express Lanes were examined to determine if the Express Lanes meet the criterion of at least 45 miles per hour at least 95% of the time (or 5% of speeds lower than 45mph at most). In addition, the traffic Level of Service (LOS) for this segment of I-25 was analyzed to assess the performance of the express lanes. The data used for this analysis included:

- Average speed in the general purpose and express lanes
- Traffic volumes in the general purpose and express lanes
- Information on events (crashes, lane closures, maintenance etc) that occurred along the segment of I-25 as identified in the corridor’s Event Audit Report
- Historic weather data

**Second**, for inflation adjustment, we evaluate Operations and Maintenance (O&M) and toll collection cost increases since July 2016 as well as the Denver-Aurora-Lakewood Consumer Price Index (CPI).

## 3. Summary of Findings

### 3.1. Traffic Management

APPENDIX-1-

# Memo

Table 1 in the Appendix-1- shows the percentage of speeds below 45mph at different times of day. The Express Lanes average speeds meet the criterion of at most 5% of speeds below 45mph. **Table 2** shows average level of service (LOS) in the Express Lanes at different times of day. The LOS in the Express Lanes was at C or better for all time periods. Based on the traffic parameters above, the Express Lanes are performing as intended in providing reliable travel times. Hence, the current toll rates are managing traffic demand in the Express Lanes as intended.

## 3.2. Inflation

To estimate inflation adjustment, we evaluate Operations and maintenance cost increases, toll collection cost increases, and CPI increases:

- **Inflation**

To estimate inflation adjustment, Staff evaluated Operations and Maintenance cost increases, toll collection cost increases, and CPI increases:

According to the Bureau of Labor Statistics, the Consumer Price Index increased by 3.386% in 2017 compared to 2016. For the past 12 months ending March 2018, the rate of inflation rose 2.4% with a compounded increase for years 2017 and 2018 of 5.886% (5.89%).

- **Operations/Maintenance costs**

CDOT O&M costs are expected to increase by 2.85% for the period 7/1/2018-6/30/2019 based on projected inflation rates for the Denver-Aurora-Lakewood Consumer Price Index.

Toll collection costs increase by 5% yearly per the Tolling Services Agreement with E-470

Based on the above numbers, we recommend a 5.97% inflation adjustment to toll rates.



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## 4. Recommendation for New Rates

	Northbound				Southbound			
	AVI	NEW AVI	LPT	NEW LPT	AVI	NEW AVI	LPT	NEW LPT
5:00 AM - 6:00 AM	\$1.00	\$1.06	\$3.58	\$3.79	\$1.00	\$1.06	\$3.58	\$3.79
6:00 AM - 6:45 AM	\$1.00	\$1.06	\$3.58	\$3.79	\$1.00	\$1.06	\$3.58	\$3.79
6.45 AM - 7:15 AM	\$1.00	\$1.06	\$3.58	\$3.79	\$1.25	\$1.32	\$5.56	\$5.89
7:15 AM - 8:15 AM	\$1.00	\$1.06	\$3.58	\$3.79	\$2.25	\$2.38	\$4.38	\$4.64
8:15 AM - 8:45 AM	\$1.00	\$1.06	\$3.58	\$3.79	\$1.50	\$1.59	\$3.98	\$4.21
8:45 AM - 10:00 AM	\$1.00	\$1.06	\$3.58	\$3.79	\$1.25	\$1.32	\$3.58	\$3.79
10:00 AM - 12:00 PM	\$1.00	\$1.06	\$3.58	\$3.79	\$1.00	\$1.06	\$3.58	\$3.79
12:00 PM - 3:00 PM	\$1.00	\$1.06	\$3.58	\$3.79	\$1.00	\$1.06	\$3.58	\$3.79
3:00 PM - 3:30 PM	\$1.25	\$1.32	\$3.98	\$4.21	\$1.00	\$1.06	\$3.58	\$3.79
3:30 PM - 4:30 PM	\$1.50	\$1.59	\$4.38	\$4.64	\$1.00	\$1.06	\$3.58	\$3.79
4:30 PM - 6:00 PM	\$3.00	\$3.18	\$6.75	\$7.15	\$1.00	\$1.06	\$3.58	\$3.79
6:00 PM - 8:00 PM	\$1.25	\$1.32	\$3.98	\$4.21	\$1.00	\$1.06	\$3.58	\$3.79
8:00 PM - 5:00 AM	\$1.00	\$1.06	\$3.58	\$3.79	\$1.00	\$1.06	\$3.58	\$3.79
Weekend	\$1.25	\$1.32	\$3.98	\$4.21	\$1.25	\$1.32	\$3.98	\$4.21

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## APPENDIX-1-

**Table 1: Time Periods in which the Express Lane Speed falls below 45 MPH**

Time	I-25 at 84th Ave.		Time	I-25 at Thornton Pkwy.	
	NB	SB		NB	SB
12:00 AM	0.0%	0.0%	12:00 AM	0.0%	0.0%
1:00 AM	0.0%	0.0%	1:00 AM	0.0%	0.0%
2:00 AM	0.0%	0.0%	2:00 AM	0.0%	0.0%
3:00 AM	0.0%	0.0%	3:00 AM	0.0%	0.0%
4:00 AM	0.0%	0.0%	4:00 AM	0.0%	0.0%
5:00 AM	0.0%	0.0%	5:00 AM	0.0%	0.0%
6:00 AM	0.0%	1.3%	6:00 AM	0.0%	1.7%
7:00 AM	0.0%	0.3%	7:00 AM	0.0%	0.0%

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8:00 AM	0.0%	0.0%	8:00 AM	0.0%	0.0%
9:00 AM	0.0%	0.0%	9:00 AM	0.0%	0.0%
10:00 AM	0.0%	0.0%	10:00 AM	0.0%	0.0%
11:00 AM	0.2%	0.0%	11:00 AM	0.0%	0.0%
12:00 PM	1.1%	0.0%	12:00 PM	0.0%	0.0%
1:00 PM	1.4%	0.0%	1:00 PM	0.0%	2.5%
2:00 PM	0.0%	0.5%	2:00 PM	0.0%	0.0%
3:00 PM	0.0%	0.0%	3:00 PM	0.0%	0.0%
4:00 PM	0.0%	0.0%	4:00 PM	3.1%	0.0%
5:00 PM	0.2%	0.0%	5:00 PM	1.2%	0.2%
6:00 PM	1.3%	0.0%	6:00 PM	0.0%	0.0%
7:00 PM	1.4%	0.0%	7:00 PM	0.0%	0.0%
8:00 PM	0.0%	0.0%	8:00 PM	0.0%	2.4%
9:00 PM	0.0%	0.0%	9:00 PM	0.0%	0.0%
10:00 PM	0.0%	0.2%	10:00 PM	0.0%	0.0%
11:00 PM	0.0%	0.0%	11:00 PM	0.0%	0.0%

**Table 2: Level of Service in the Express Lane**

Time	I-25 at 84th Ave.		Time	I-25 at Thornton Pkwy.	
	NB	SB		NB	SB
12:00 AM	A	A	12:00 AM	A	A
1:00 AM	A	A	1:00 AM	A	A
2:00 AM	A	A	2:00 AM	A	A
3:00 AM	A	A	3:00 AM	A	A
4:00 AM	A	A	4:00 AM	A	A
5:00 AM	A	A	5:00 AM	A	A
6:00 AM	A	C	6:00 AM	A	C
7:00 AM	A	C	7:00 AM	A	C

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8:00 AM	A	B	8:00 AM	A	B
9:00 AM	A	A	9:00 AM	A	A
10:00 AM	A	A	10:00 AM	A	A
11:00 AM	A	A	11:00 AM	A	A
12:00 PM	A	A	12:00 PM	A	A
1:00 PM	A	A	1:00 PM	A	A
2:00 PM	A	A	2:00 PM	A	A
3:00 PM	B	A	3:00 PM	A	A
4:00 PM	B	A	4:00 PM	B	A
5:00 PM	B	A	5:00 PM	B	A
6:00 PM	A	A	6:00 PM	A	A
7:00 PM	A	A	7:00 PM	A	A
8:00 PM	A	A	8:00 PM	A	A
9:00 PM	A	A	9:00 PM	A	A
10:00 PM	A	A	10:00 PM	A	A
11:00 PM	A	A	11:00 PM	A	A



Plenary Roads Denver LLC  
1700 Lincoln Street, Suite 3000  
Denver, CO 80203  
Telephone: 303.803.9452  
Facsimile: 303.803.9453  
www.plenarygroup.com

May 9, 2018

HPTE  
4201 East Arkansas Avenue  
Denver, CO 80222

Attention: Mr. Nicholas Farber

**RE: US-36 Managed Lanes Project – Proposed Toll and Penalty Schedule**

Dear Mr. Farber,

Pursuant to Schedule 16, Section 2.1 of the Amended and Restated Concession Agreement, Plenary Roads Denver is providing the Proposed Toll and Penalty Schedule.

Plenary Roads Denver is currently in the process of a transition to Dynamic Tolling as prescribed by the Amended and Restated Concession Agreement, and requires a testing and implementation period prior to full execution of Dynamic Tolling. In order to deliver a Dynamic Tolling solution in 2020, hardware and software must be installed and tested on the corridor and within the Electronic Toll Collection System.

Plenary Roads Denver is requesting the Maximum Toll, as described in Schedule 16, Section 6.0, which is currently \$15.76, to be approved by HPTE.

Attached is the Proposed Toll and Penalty Schedule, and an FAQ sheet for Dynamic Tolling (Dynamic Express Lane Pricing).

The information provided in the following is in accordance with the Concession Agreement Schedule 16, Section 1.2, 2.1, 2.2 and 2.3. We request HPTE respond in accordance with Concession Agreement Schedule 16, Section 2.4(b).

Respectfully,  
**PLENARY ROADS DENVER, LLC**

A handwritten signature in black ink, appearing to read "Guevara", written over a white background.

Christian Guevara  
Vice President of Operations

cc: David Spector, HPTE  
Brian Clark, Plenary Group  
Terry Ostrom, Plenary Group  
Simon Stachnik, Plenary Group



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Facsimile: 604.638.3906  
www.plenarygroup.com

May 9, 2018

HPTE  
4201 East Arkansas Ave.  
Denver, CO 80222

Attention: Nicholas Farber

**RE: U.S. 36 Managed Lanes Project –U.S. 36 and I-25 Managed Lanes Proposed Toll and Penalty Schedule**

Dear Mr. Farber,

In the following, please find PRD's Proposed Toll and Penalty Schedule for your review in accordance with the Concession Agreement Schedule 16, Section 1.2 and 2.1. We request to implement these changes starting on July 1, 2018.

The following is in alignment with required information from Schedule 16, Section 2.0 of the Concession Agreement:

**2. Establishment of and Changes to Established Toll and Penalty Schedule**

**2.1. Every Proposed Toll and Penalty Schedule that proposes to establish or modify Tolls shall include:**

*(a) All data necessary for HPTE to consider the Proposed Toll and Penalty Schedule for adoption as the Established Toll and Penalty Schedule. Each Proposed Toll and Penalty Schedule shall include:*

***(i) The Proposed Algorithm***

Toll rates will initially be charged based on variable time of day tolling which is consistent with the current methodology, and does not require a tolling algorithm. When the testing and commissioning of the Dynamic Tolling system begins, toll pricing will be charged based on travel demand usage. The current schedule plans to begin testing in 2018 through 2019, with implementation in 2020, PRD will continue to provide update to the status of the dynamic tolling system testing and integration to the HPTE Board through the process.

***(ii) Tolls to be charged to Tolloed Vehicles using the Managed Lanes, or any portion thereof, while using an electronic, automated system enabling the ETCS to recognize the Motor Vehicle by means other than imagery, including Transponders (in each case a using a Vehicle Recognition System (VRS)), which in all cases must be Dynamic Tolling***

ExpressTolls: Passenger Vehicle Tolls

We are requesting authorization to implement ETCS Automated Vehicle Identification (AVI) (a.k.a, ExpressToll) rates up to the Maximum Toll prescribed by the Amended and Restated Concession Agreement, which is currently \$15.76 for a one-way trip between Denver – Boulder utilizing the I-25 Central Express Lanes and US 36 Express Lanes.

***(iii) Tolls to be charged to Tolloed Vehicles using the Managed Lanes, or any portion thereof, without using a Vehicle Recognition System (VRS)***

Vehicles without VRS: License Plate Tolls (LPT) Passenger Vehicle Tolls

The maximum toll amount that could be charged to LPT customers will be up to 1.5 times the Maximum Toll for a one-way trip between Denver and Boulder utilizing the I-25 Central Express Lanes and US 36 Express Lanes.

***(iv) Tolls to be charged to Motor Vehicles that are not Passenger Vehicles***

**U.S. 36 & I-25**

Non-Passenger Vehicles (defined as vehicles with four or more axles) will continue to be charged a \$25.00 premium per gantry on the applicable gantry Passenger Vehicle Toll.

- (b) *A statement (if it is the case) that the Proposed Toll and Penalty Schedule is a remedial adjustment to the Established Toll and Penalty Schedule which the Concessionaire considers to be necessary to correct a Bus Delay Event, an error, or some other unintended consequence of that Established Toll and Penalty Schedule;*

**U.S. 36 & I-25**

This proposed Toll and Penalty Schedule is not a remedial adjustment to correct a Bus Delay Event, an error, or some other unintended consequence.

- (c) *A statement providing the highest and lowest Tolls that are proposed to be charged for each of the Tolls described in paragraphs 2.1(a)(i), 2.1(a)(ii), 2.1(a)(iii), and 2.1(a)(iv);*

For paragraph 2.1(a)(i), 2.1(a)(ii), 2.1 (a) (iii) please refer to the tables below for applicable maximum and minimum toll rates.

Transaction Type	Maximum Toll Rate – one way between Denver and Boulder	Minimum Toll Rate – one way between Denver and Boulder
2.1(a)(i) - Algorithm	See below	See below
2.1(a)(ii) – AVI	\$15.76*	\$3.40
2.1(a)(iii) - LPT	\$23.64	\$12.55

For paragraph 2.1(a)(iv), the Non-Passenger Vehicle premium is proposed as previously established at \$25 per gantry.

\*Rate is the current Maximum Toll in FY2018

- (d) *If any of the Tolls described in paragraphs 2.1(a)(i), 2.1(a)(ii), 2.1(a)(iii), or 2.1(a)(iv) contain the right for the Concessionaire to manually override the Proposed Algorithm, a schedule of what specific Tolls will be if manually overridden, a description of when and on what terms the Tolls may be overridden, and a range of what the manually overridden Tolls will be:*

As we are not currently utilizing an algorithm, there is no algorithm for to override. The manual changes that will occur will be to test the dynamic tolling system or to waive toll revenues during time periods requested by emergency services.



- (e) *An explanation of the changes between the Proposed Toll and Penalty Schedule and the current Established Toll and Penalty Schedule, including why the changes are being proposed;*

The proposed changes to ETCS AVI (ExpressToll) rates and LPT are being made in continuing efforts to balance traffic and lane flow to ensure we meet our commitments to the Managed Lanes Goals, RTD, to account for inflation and an increase in Value of Time. The Managed Lanes Goals are defined in the Concession Agreement Schedule 16; Section 1.3 and are as follows:

*Concessionaire acknowledges and agrees that all Established Toll and Penalty Schedules must be designed to ensure that Motor Vehicle speeds (a) For the portion of the US 36 Managed Lanes from Table Mesa to the Broomfield Park-n-Ride are an average of 55 miles per hour; (b) For the portion of the US 36 Managed Lanes from the Broomfield Park-n-Ride to Pecos Street are an average of 50 miles per hour; and (c) For the portion of the Managed Lanes from Pecos Street to Denver Union Station, that they maintain a travel time of no more than 8.75 minutes. In all cases during Peak Periods only (collectively, the “Managed Lanes Goals”).*

Given the current traffic volume and growth rate, it is anticipated that a more reactive methodology to control traffic volume will be necessary to maintain the Managed Lane Goals. The industry standard which optimizes and best manages traffic demand is through dynamic tolling. By 2020, dynamic tolling is modeled to be in place in order to best manage PRD’s commitments while allowing for an efficient use of the US 36 Express Lanes corridor. This request is being completed in an effort to develop dynamic tolling and allow time for testing and implementation of the system prior to full execution in 2020. Dynamic tolling will allow PRD to effectively manage the traffic, and continue to satisfy the Managed Lane Goals.

- (f) *The Concessionaire’s good faith estimate, on a semi-annual basis, for as long as an effect persists, of incremental difference between the Toll Revenues generated under the Established Toll and Penalty Schedule and the Proposed toll and Penalty Schedule once Toll Revenues are being generated in accordance with the Proposed Toll and Penalty Schedule.*

**U.S. 36 and I-25:**

Specific to Dynamic Tolling testing and implementation, PRD is uncertain as to the incremental difference in revenue during the final 6 months of 2018. PRD does project continued year-over-year revenue growth consistent with prior years. Though there is some uncertainty regarding dynamic tolling, PRD believes that this effort will enable itself to effectively manage commitments to CDOT, HPTE, and RTD in order to balance future growth with travel reliability.

Respectfully,

**PLENARY ROADS DENVER, LLC**

Christian Guevara  
Vice President of Operations

cc: David Spector, HPTE  
Brian Clark, Plenary Group  
Terry Ostrom, Plenary Group  
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## **At A Glance:**

### **Dynamic Express Lane Pricing for US 36, I-25 Central**

#### **What is Dynamic Pricing?**

With dynamic pricing, toll rates are continually adjusted according to real-time traffic conditions to maintain free-flowing levels of traffic in the Express Lanes. Under this system, prices increase when the Express Lanes get congested and decrease when the Express Lanes are less full. The current price is displayed on electronic message boards prior to the beginning of the tolled section.

Similar systems are in place along the I-70 Mountain Express Lanes and in Virginia, Florida and Texas.

#### **What are the benefits of Dynamic Pricing?**

This system is more flexible and active than using a fixed-pricing rate, and its real-time monitoring helps to consistently maintain optimal traffic flows in the Express Lanes.

#### **Why is Plenary Roads Denver introducing Dynamic Pricing now?**

Dynamic Express Lane Pricing will integrate the latest mobility technologies available to enable the US 36 and I-25 Central Express Lane corridors to maximize traffic flow, from transit to carpool to toll-paying to the general purpose lanes.

Dynamic Pricing has always been the vision for US 36 and I-25 Central Express Lanes. Plenary Roads Denver (PRD) is working to implement this as traffic, population and the economy grows along this corridor and to meet its public-private partnership requirements.

#### **What can drivers expect to pay?**

Dynamic Price testing will begin in early fall 2018. Drivers can expect toll rates similar to current peak-hour rates, with off-peak rates fluctuating based on traffic congestion.

#### **How are rates set?**

Rates are set by using an algorithm that tracks real-time traffic flow and adjusts them to optimize traffic volume within the Express Lanes. If rates are too high, no one will use the Express Lanes. If they are too low, too many people will use them and speeds will slow down.

#### **How will drivers know when Dynamic Pricing is being tested and where?**

Drivers along the corridor will be notified of Dynamic Pricing testing and current rates on the overhead message signs along the highway, in addition to a communication campaign that will include community groups and media.

#### **Are all CDOT Express Lanes going to Dynamic Pricing?**

Dynamic Pricing will be tested and implemented on US 36 and I-25 Central (from US 36 to Speer Boulevard). High Performance Transportation Enterprise (HPTE) will monitor the Dynamic Pricing technologies and evaluate any future implementation on other Colorado Department of Transportation ((CDOT) Express Lanes.

**What you need to know:**

- **Estimated Timeline** (A more-detailed timeline will be shared prior to testing and roll-out)
  - **Early fall 2018:** Begin Dynamic Pricing testing on US 36 and I-25 Central Express Lanes
  - **2019:** Continued testing along the corridor
  - **2020:** Roll out Dynamic Pricing on US 36 and I-25 Central Express Lanes
- **Pricing Rates:** The current maximum rate for one way from Boulder to Denver, and from Denver to Boulder, with peak congestion will be \$15.76 for those with an ExpressToll account and pass, based on HTPE Board approval. The maximum rate for License Plate Toll (LPT) will be \$23.64.
- PRD continues to see an increase in drivers using ExpressToll transponders: 82% of Express Lane drivers use transponders and are saving money by paying only the toll each time.
- **Express Lane Traffic Numbers:** Express Lane use has grown 19% between Denver and Boulder in the last year.
- **Traffic Flows:** Average trip time between Denver and Boulder in the Express Lanes has dropped by 10 minutes.