

## Colorado Transportation Investment Office Memorandum

**To:** CTIO Board of Directors

**From:** Kelly Brown, Chief Toll Operations Officer

**Date:** September 23, 2024

**Subject:** I-25 South Gap Express Lanes Dynamic Pricing Algorithm Criterion Recommendations.

### **Purpose:**

Present to the CTIO Board of Directors (CTIO Board), for their consideration, the recommended dynamic pricing algorithm criterion for the I-25 South Gap Express Lanes.

### **Requested Action:**

Informational only. The CTIO Board is being asked to consider the recommended dynamic pricing criterion for the I-25 South Gap Express Lanes at this month's meeting. The Board will be asked to take action on these recommendations at a future meeting.

### **Recommended Dynamic Pricing Algorithm Criterion for I-25 South Gap Express Lanes:**

Pursuant to the CTIO amended toll rate setting and adjustment policy (November 2023), three primary criteria of the dynamic pricing algorithm were evaluated for the I-25 South Gap Express Lanes (refer to Attachment A: The I-25 South Gap Express Lanes Dynamic Pricing Parameters Setting - I-25 South Gap Technical Memo) and include:

1. Minimum and maximum toll rates
2. Rate change interval
3. Maximum increment and decrement

These three dynamic pricing algorithm criteria function as a framework so that the goals of the CTIO Tolling Policy listed in *Section 4 Express Lanes toll rates setting objectives (revenue versus throughput maximization)* continue to be met for the I-25 South Gap Express Lane.

### **Minimum and Maximum Toll Rates:**

**Minimum Toll Rate:** The minimum Automated Vehicle Identification (AVI) toll rate of \$1.50 is set to cover the AVI toll systems and operation costs (the same minimum AVI rate applies to the current TOD pricing).

**Maximum Toll Rate:** The maximum toll rate is set to manage demand during peak hours to maintain the desired traffic level of service in the I-25 South Gap Express Lanes. With the current time-of-day pricing, the maximum toll rate is set at \$3.75, speeds in the I-25 South Gap Express Lanes are nearing the 45mph threshold required by Federal Highway Administration (FHWA). Based on modelling the highest peaks and given that I-25 South Gap Express Lanes are

still in the ramp-up stage (25 % historical ramp up on Colorado Express Lanes between first and second year of operation), it is recommended to set the maximum allowable toll rate at \$4.75.

### **Rate Change Interval:**

The rate change interval is set to allow the algorithm to respond to rapid demand fluctuations. A range of 5 minutes to 15 minutes is recommended based on current I-25 South Gap traffic patterns and the speed of traffic volume ramp-ups.

### **Maximum Increment and Decrement:**

**Maximum Increment:** The maximum increment is set to manage abrupt increases in I-25 South Gap traffic demand. Based on Staff analysis, a maximum increment of \$3.25 is recommended.

**Maximum Decrement:** The maximum decrement is set to attract vehicles to the I-25 South Gap Express Lanes once the desired level of service is reached. A maximum decrement rate of \$3.25 cents is recommended.

If the algorithm determines that the current toll rate is sufficient and no toll rate change is necessary at the next Rate Change Interval, the Maximum Decrement of \$0.00 is acceptable in order to keep the toll rate unchanged.

### **License Plate Tolling (LPT) Surcharge:**

LPT rates are developed by imposing a surcharge on the AVI toll rates. Both the northbound and southbound directions of the I-25 South Gap Express Lanes has 2 toll points. Staff recommends that the LPT surcharge be set at 150% of the I-25 South Gap Express Lanes AVI toll rates.

The LPT surcharge is calculated based on the following assumptions:

- LPT surcharge covers back-office additional cost and LPT leakage
- LPT leakage is assumed at 40 percent based on historical data
- LPT leakage includes uncollectable and unbillable LPT transactions
- Cost related to image review and other systems

### **Summary of I-25 South Gap Express Lanes Recommended Dynamic Pricing Algorithm Criterion:**

Criterion	Value
Minimum toll rate:	\$1.50
Maximum toll rate:	\$4.75
Rate change interval range:	5-15 minutes
Maximum Increment:	\$3.25
Maximum decrement:	\$3.25

### **I-25 South Gap Express Lanes Operational Policies:**

The following operations policies still apply the I-25 South Gap Express Lanes:

- Hours of operation: 24 hours a day, 7 days a week, 365 days a year
- High occupancy vehicles with three or more passengers (HOV3+) use the Express Lanes for free
- Motorcycles use the Express Lanes for free

- Vehicles with four or more axles pay a surcharge of \$25 in addition to the AVI or LPT toll rate

The I-25 South Gap Express Lane dynamic pricing algorithm criteria presented above will be analyzed on an annual basis, and any proposed adjustments to the current I-25 South Gap Express Lane dynamic pricing algorithm criteria will be brought to the CTIO Board as is the current process for time of day pricing. In the case(s) where one or more of the approved dynamic pricing algorithm criterion are not functioning as expected, Staff will return to the CTIO Board to update the criterion prior to the yearly toll rate adjustment analysis period. This will ensure that the I-25 South Gap Express Lanes corridor will continue to meet the overall tolling policy objectives and cover its Express Lane obligations.

### **Next Steps:**

- The CTIO Board is encouraged to provide feedback on the recommended dynamic pricing algorithm criterion for the I-25 South Gap Express Lanes.
- CTIO staff will integrate any requested changes and will return at a future board meeting with a resolution for CTIO Board approval of the I-25 South Gap dynamic pricing algorithm criterion.

### **Attachments:**

**Attachment A:** The I-25 South Gap Express Lanes Dynamic Pricing Parameters Setting - I-25 South Gap Technical Memo.