

## Colorado Transportation Investment Office Memorandum

**To:** CTIO Board of Directors

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

**Date:** September 23, 2024

**Subject:** Westbound I-70 Mountain 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 Westbound I-70 Mountain Express Lanes. The Eastbound direction of the I-70 Mountain Express Lane will continue using a flat rate until the legacy tolling equipment on that Express Lane is converted to the Next Generation Lane Toll System (NGLTS) equipment.

### **Requested Action:**

Informational only. The CTIO Board is being asked to consider the recommended dynamic pricing criterion for the Westbound I-70 Mountain 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 Westbound I-70 Mountain 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 Westbound I-70 Mountain Express Lanes (refer to Attachment A: The Westbound I-70 Mountain Express Lanes Dynamic Pricing Parameters Setting - Westbound I-70 Mountain 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 Westbound I-70 Mountain Express Lane.

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

**Minimum Toll Rate:** The minimum Automated Vehicle Identification (AVI) toll rate of \$6.00 is set to cover the AVI toll systems and operation costs.

**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 Westbound I-70 Mountain Express Lanes. Based

on current traffic conditions, the current time-of-day toll rates of \$8.00 and \$9.00 are effectively managing traffic demand and conditions on the WB Mountain Express Lanes. A maximum toll rate of \$9.00 is recommended.

### **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 Westbound I-70 Mountain traffic patterns and speed of traffic volume ramp-ups.

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

**Maximum Increment:** The maximum increment is set to manage abrupt increases in Westbound I-70 Mountain traffic demand. Based on Staff analysis, a maximum increment of \$3.00 is recommended.

**Maximum Decrement:** The maximum decrement is set to attract vehicles to the Westbound I-70 Mountain Express Lanes once the desired level of service is reached. A maximum decrement rate of \$3.00 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 Detriment 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. The Westbound I-70 Mountain Express Lanes has three toll points. Staff recommends that the LPT surcharge be set at 150% of the Westbound I-70 Mountain 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 Westbound I-70 Mountain Express Lanes Recommended Dynamic Pricing Algorithm Criterion:**

<b>Criterion</b>	<b>Value</b>
Minimum toll rate:	\$6.00
Maximum toll rate:	\$9.00
Rate change interval range:	5-15 minutes
Maximum Increment:	\$3.00
Maximum decrement:	\$3.00

### **Westbound I-70 Mountain Express Lanes Operational Policies:**

The following operations policies still apply the Westbound I-70 Mountain Express Lanes:

- Hours of operation: varies based on congestion levels in the WB MEXL corridor for a maximum of 965 hours/125 days per year

- **No discount** for high occupancy vehicles with three or more passengers (HOV3+)
- **No discount** for motorcycles
- Vehicles with four or more axles are not permitted to use the WB MEXL

The Westbound I-70 Mountain Express Lane dynamic pricing algorithm criteria presented above will be analyzed on an annual basis, and any proposed adjustments to the current Westbound I-70 Mountain 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 Westbound I-70 Mountain Express Lane 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 Westbound I-70 Mountain 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 Westbound I-70 Mountain dynamic pricing algorithm criterion.

### **Attachments:**

**Attachment A:** The Westbound I-70 Mountain Express Lanes Dynamic Pricing Parameters Setting - Westbound I-70 Mountain Technical Memo.