

MEMO

TO:

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FROM	EMAIL	REF
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DATE	PHONE	CC
26 April 2024	720-258-0163	

SUBJECT
Toll Rate Adjustment Analysis

1. Introduction

AtkinsRéalis and the Colorado Transportation Investment Office (CTIO) developed this Toll Rate Adjustment Analysis memorandum to document the methodology used to evaluate the need for toll rate increases on I-25 north segment 2 express lanes, I-25 north segment 3 express lanes, C-470 express lanes, I-25 south GAP express lanes, and C-70 express lanes. **Table 1** shows the current operations policies for the CTIO Express Lanes. C-70 express lanes, I-70 mountain express lane in the westbound direction, and I-25 south GAP express lanes operate under the dynamic pricing regime, whereas, C-470 express lanes, I-25 north segment 2 and 3 express lanes, and I-70 mountain express lane in the eastbound direction operate under a time-of-day pricing regime.

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Table 1: Current Operations Policies for CTIO Express Lanes

	C-70 Express Lanes	C-470 Express Lanes	I-25 North Express Lanes (Segments 2&3)	I-70 Mountain Express Lane (WB)	I-70 Mountain Express Lane (EB)	I-25 S GAP Express Lanes
Open 24/7	Yes	Yes	Yes	No	No	Yes
Tolling Regime	Dynamic	Time-of-day (TOD)	Time-of-day (TOD)	Dynamic	Time-of-day (TOD)	Dynamic
HOV Discount	HOV3+ free	No discount	HOV3+ free	No discount	No discount	HOV3+ free
Motorcycle Policy	Free	Free	Free	No discount	No discount	Free
Trucks / Trailers	\$25 surcharge for 4+ axles	\$25 surcharge per zone for 4+ axles	\$25 surcharge for 4+ axles (for each Segment 2 and 3)	Not allowed	Not allowed	\$25 surcharge for 4+ axles (2 zones per direction, per zone)
Transit Buses	Allowed	Allowed, but no transit routes exist currently	Allowed	Not Allowed	Not allowed	Allowed

2. Methodology

A flowchart outlining the steps to be followed to determine the need for a toll rate increase for express lanes with time-of-day pricing regime is provided in **Appendix 1**. A flowchart outlining the steps to be followed to determine the need for adjusting pricing for express lanes with a dynamic pricing regime is provided in **Appendix 2**. A three-step process was undertaken to analyze the need for toll rates increases. The analysis was done separately by direction for each of the express lanes.

First, average speeds in the express lanes were examined to determine if the express lanes met the criterion of travel going at least 45 miles per hour (mph) for 90 percent of the time for a period of 180 consecutive days. In addition, the traffic Level of Service (LOS) for express lanes was evaluated for all express lanes.

Second, a traffic demand management analysis was performed to check whether the LOS criterion—meeting LOS C or better—would be met in the future for the period May 2025 to April 2026. The express lane traffic volumes were projected from the period May 2025 to April 2026 based on growth rates for individual express lanes obtained from the Colorado Department of Transportation (CDOT) Online Transportation Information System (I-25 south GAP at +1.4%, Central-70 at +1%, I-25 segment 2 at +1.52%, I-25 segment 3 at +1.69%, and C-470 at +1.06%). These projected volumes were then used to determine the future LOS in 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 express lanes as identified in the corridor's Event Audit Report. Nominal occurrences of adverse weather or crashes in the general-purpose lanes were taken as part of normal operations and included in the data. However, major events (those lasting more than two hours per the *Manual on Uniform Traffic Control Devices* [MUTCD, 2009]) whose impact was identified as severe in the corridor's Event Audit Report were excluded from the data.
- Growth rate calculated from CDOT's OTIS traffic volume projections.

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Third, the Operations and Maintenance (O&M) cost, inflation, and toll transaction processing cost increases were evaluated to consider increases in toll rates based on costs and inflation.

3. Summary of Findings

3.1 Traffic Management

Step 1: The express lanes average speeds satisfy the criterion of operating at higher than 45 miles per hour at least 90 percent of the time. As shown and highlighted in Table 2, while all average speeds on express lanes meet the required criterion, and in anticipation of the expected traffic growth in all express lanes, for time-of-day priced express lanes, toll rates adjustment is recommended on I-25 segment 2 southbound from 6:00 AM-8:00 AM. For dynamically priced express lanes, the maximum toll rate criterion will be adjusted on C-70 express lanes.

Table 2: Percent of Average Speeds below 45 mph

	Time-of-Day Pricing										Dynamic Pricing					
	C470 EB Zone 1	C470 EB Zone 2	C470 WB Zone 1	C470 WB Zone 2	C470 WB Zone 3	I-25 Seg 2 NB	I-25 Seg 2 SB	I-25 Seg 3 NB	I-25 Seg 3 SB	I-25 GAP Z1 NB	I-25 GAP Z1 SB	I-25 GAP Z2 NB	I-25 GAP Z2 SB	C-70 WB	C-70 EB	
6:00 AM	4.12%	2.31%	0.58%	2.31%	1.17%	0.00%	6.74%	0.00%	2.07%	0.85%	0.42%	0.42%	0.42%	0.42%	0.00%	
7:00 AM	2.34%	1.73%	0.00%	1.52%	0.58%	0.00%	7.73%	0.00%	1.03%	0.85%	0.84%	0.42%	0.42%	1.27%	0.00%	
8:00 AM	1.16%	2.89%	0.00%	0.00%	0.58%	0.00%	5.13%	0.00%	1.03%	0.42%	0.84%	0.84%	0.42%	0.42%	0.00%	
9:00 AM	0.00%	0.58%	0.00%	0.00%	0.00%	0.00%	1.54%	0.00%	0.51%	0.84%	0.84%	0.00%	0.84%	0.00%	0.00%	
10:00 AM	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.84%	0.84%	0.84%	0.84%	0.00%	0.00%	
11:00 AM	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%	0.51%	0.51%	0.51%	0.00%	0.42%	0.42%	1.26%	0.00%	0.00%	
12:00 PM	0.00%	0.00%	0.00%	0.78%	0.00%	0.00%	0.51%	0.00%	0.00%	0.00%	0.42%	0.42%	0.42%	0.00%	0.00%	
1:00 PM	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%	0.00%	0.00%	0.00%	0.00%	0.42%	0.42%	0.00%	0.00%	
2:00 PM	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.42%	0.00%	0.00%	0.00%	
3:00 PM	0.00%	0.00%	0.00%	0.00%	0.00%	0.51%	1.02%	0.51%	1.02%	0.00%	0.42%	0.00%	0.00%	0.00%	0.00%	
4:00 PM	0.00%	0.00%	0.00%	0.77%	0.00%	1.02%	0.00%	1.02%	0.00%	0.84%	0.42%	0.00%	0.00%	2.09%	0.84%	
5:00 PM	0.00%	1.16%	0.00%	0.75%	0.58%	1.02%	1.02%	1.02%	0.00%	0.84%	1.67%	0.42%	1.67%	5.02%	0.00%	
6:00 PM	0.58%	1.73%	0.58%	0.74%	0.00%	0.51%	1.53%	0.51%	1.02%	0.84%	2.93%	0.84%	1.68%	0.42%	0.42%	
7:00 PM	2.91%	1.73%	0.58%	0.74%	2.89%	0.00%	0.51%	0.00%	0.51%	1.26%	1.26%	0.84%	1.67%	0.00%	0.84%	

Step 2: The average LOS for the express lanes at different weekday times between July 2024 and April 2025. The LOS in the express lanes, based on average density of vehicles, was at LOS C or better for each hour of the day for all express lanes. Based on the traffic parameters above, the express lanes as of April 2025 are performing as intended in providing acceptable LOS. The traffic volumes were projected one year into the future to determine if the LOS criterion (LOS C or better) would be met.

3.2 Inflation and Operations and Maintenance Costs

Step 3: Inflation was evaluated between March 2024 to March 2025 using the latest data available for the Denver-Aurora-Lakewood Consumer Price Index (CPI). The inflation adjustment was estimated at 2.3% based on data from the U.S. Bureau of Labor Statistics. Operations and Maintenance Costs increases require a 3% increase in all toll rates.

4. Recommendation for New Rates

4.1 I-25 Segment 2 Express Lanes

Based on the results noted in the previous section, for I-25 north segment 2 express lanes, CTIO recommends revising the AVI and LPT toll rates per the toll schedule shown below in Table 3. There is no change to the multi-axle (4+) surcharge; it remains at \$25.

Table 3: Proposed New Toll Rates for I-25 North Segment 2 Express Lanes

			NORTHBOUND			
			2025 Current AVI	2025 Current LPT	Proposed New AVI	Proposed New LPT
5:00 AM	-	6:00 AM	\$1.45	\$4.85	\$1.50	\$5.00
6:00 AM	-	6:45 AM	\$1.45	\$4.85	\$1.50	\$5.00
6:45 AM	-	7:15 AM	\$1.45	\$4.85	\$1.50	\$5.00
7:15 AM	-	8:15 AM	\$1.45	\$4.85	\$1.50	\$5.00
8:15 AM	-	8:45 AM	\$1.45	\$4.85	\$1.50	\$5.00
8:45 AM	-	10:00 AM	\$1.45	\$4.85	\$1.50	\$5.00
10:00 AM	-	12:00 PM	\$1.45	\$4.85	\$1.50	\$5.00
12:00 PM	-	3:00 PM	\$1.45	\$4.85	\$1.50	\$5.00
3:00 PM	-	3:30 PM	\$1.80	\$5.30	\$1.90	\$5.50
3:30 PM	-	4:30 PM	\$2.05	\$5.80	\$2.15	\$6.00
4:30 PM	-	6:00 PM	\$4.00	\$8.85	\$4.15	\$9.15
6:00 PM	-	8:00 PM	\$1.80	\$5.30	\$1.90	\$5.50
8:00 PM	-	5:00 AM	\$1.45	\$4.85	\$1.50	\$5.00
Weekend			\$1.80	\$5.30	\$1.90	\$5.50

			SOUTHBOUND			
			2025 Current AVI	2025 Current LPT	Proposed New AVI	Proposed New LPT
5:00 AM	-	6:00 AM	\$1.45	\$4.85	\$1.90	\$5.50
6:00 AM	-	6:45 AM	\$1.45	\$4.85	\$1.90	\$5.50
6:45 AM	-	7:15 AM	\$1.80	\$5.30	\$1.90	\$5.50
7:15 AM	-	8:15 AM	\$3.15	\$7.40	\$3.25	\$7.65
8:15 AM	-	8:45 AM	\$2.05	\$5.80	\$2.15	\$6.00
8:45 AM	-	10:00 AM	\$1.80	\$5.30	\$1.90	\$5.50
10:00 AM	-	12:00 PM	\$1.45	\$4.85	\$1.50	\$5.00
12:00 PM	-	3:00 PM	\$1.45	\$4.85	\$1.50	\$5.00
3:00 PM	-	3:30 PM	\$1.45	\$4.85	\$1.50	\$5.00
3:30 PM	-	4:30 PM	\$1.45	\$4.85	\$1.50	\$5.00
4:30 PM	-	6:00 PM	\$1.45	\$4.85	\$1.50	\$5.00
6:00 PM	-	8:00 PM	\$1.45	\$4.85	\$1.50	\$5.00
8:00 PM	-	5:00 AM	\$1.45	\$4.85	\$1.50	\$5.00
Weekend			\$1.80	\$5.30	\$1.90	\$5.50

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4.2 I-25 Segment 3 Express Lanes

Based on the results noted in the previous section, for I-25 north segment 3 express lanes, CTIO recommends revising the AVI and LPT toll rates per the toll schedule shown below in Table 4. There is no change to the multi-axle (4+) surcharge; it remains at \$25.

Table 4: Proposed New Toll Rates for I-25 North Segment 3 Express Lanes

			NORTHBOUND			
			2025 Current AVI	2025 Current LPT	Proposed New AVI	Proposed New LPT
5:00 AM	-	6:00 AM	\$1.35	\$4.05	\$1.40	\$4.20
6:00 AM	-	6:45 AM	\$1.35	\$4.05	\$1.40	\$4.20
6:45 AM	-	7:15 AM	\$1.35	\$4.05	\$1.40	\$4.20
7:15 AM	-	8:15 AM	\$1.35	\$4.05	\$1.40	\$4.20
8:15 AM	-	8:45 AM	\$1.35	\$4.05	\$1.40	\$4.20
8:45 AM	-	10:00 AM	\$1.35	\$4.05	\$1.40	\$4.20
10:00 AM	-	12:00 PM	\$1.35	\$4.05	\$1.40	\$4.20
12:00 PM	-	3:00 PM	\$1.35	\$4.05	\$1.40	\$4.20
3:00 PM	-	3:30 PM	\$2.20	\$5.40	\$2.30	\$5.60
3:30 PM	-	4:30 PM	\$2.85	\$6.40	\$2.95	\$6.60
4:30 PM	-	6:00 PM	\$2.85	\$6.40	\$2.95	\$6.60
6:00 PM	-	8:00 PM	\$2.20	\$5.40	\$2.30	\$5.60
8:00 PM	-	5:00 AM	\$1.35	\$4.05	\$1.40	\$4.20
Weekend			\$1.35	\$4.05	\$1.40	\$4.20

			SOUTHBOUND			
			2025 Current AVI	2025 Current LPT	Proposed New AVI	Proposed New LPT
5:00 AM	-	6:00 AM	\$1.35	\$4.05	\$1.40	\$4.20
6:00 AM	-	6:45 AM	\$1.35	\$4.05	\$1.40	\$4.20
6:45 AM	-	7:15 AM	\$2.60	\$5.95	\$2.70	\$6.15
7:15 AM	-	8:15 AM	\$2.85	\$6.40	\$2.95	\$6.60
8:15 AM	-	8:45 AM	\$2.85	\$6.40	\$2.95	\$6.60
8:45 AM	-	10:00 AM	\$1.75	\$4.55	\$1.85	\$4.70
10:00 AM	-	12:00 PM	\$1.35	\$4.05	\$1.40	\$4.20
12:00 PM	-	3:00 PM	\$1.35	\$4.05	\$1.40	\$4.20
3:00 PM	-	3:30 PM	\$1.35	\$4.05	\$1.40	\$4.20
3:30 PM	-	4:30 PM	\$1.35	\$4.05	\$1.40	\$4.20
4:30 PM	-	6:00 PM	\$1.35	\$4.05	\$1.40	\$4.20
6:00 PM	-	8:00 PM	\$1.35	\$4.05	\$1.40	\$4.20
8:00 PM	-	5:00 AM	\$1.35	\$4.05	\$1.40	\$4.20
Weekend			\$1.35	\$4.05	\$1.40	\$4.20

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4.3 C-470 Express Lanes

Based on the results noted in the previous section, for C-470 express lanes, CTIO recommends revising the AVI and LPT toll rates per the toll schedule shown below in Tables 5 and 6. There is no change to the multi-axle (4+) surcharge; it remains at \$25 per zone.

Table 5: Current Toll Rates for C-470 express lanes

Monday through Sunday Time-of-Day Toll Rate Schedule		EASTBOUND				WESTBOUND					
		ZONE1 PLATTECANYONEAST		ZONE2 UNIVERSITYEAST QUEBECEAST		ZONE1 QUEBECWEST		ZONE2 UNIVERSITYWEST LUCENTWEST		ZONE3 SANTAFEWEST	
		2025 AVI	2025 LPT	2025 AVI	2025 LPT	2025 AVI	2025 LPT	2025 AVI	2025 LPT	2025 AVI	2025 LPT
12:00 AM	6:00 AM	\$0.85	\$2.45	\$0.85	\$3.45	\$0.85	\$2.45	\$0.85	\$3.45	\$0.85	\$2.45
6:00 AM	7:00 AM	\$0.85	\$2.45	\$2.50	\$6.05	\$1.15	\$2.80	\$1.15	\$3.90	\$1.15	\$2.80
7:00 AM	9:00 AM	\$1.35	\$3.25	\$3.95	\$8.40	\$2.00	\$4.25	\$2.00	\$5.25	\$2.00	\$4.25
9:00 AM	2:00 PM	\$0.85	\$2.45	\$2.00	\$5.25	\$0.85	\$2.45	\$0.85	\$3.45	\$0.85	\$2.45
2:00 PM	3:00 PM	\$0.85	\$2.45	\$2.60	\$6.25	\$1.25	\$3.05	\$1.25	\$4.05	\$1.25	\$3.05
3:00 PM	6:00 PM	\$1.15	\$2.80	\$3.65	\$7.90	\$2.40	\$4.90	\$2.40	\$6.00	\$2.40	\$4.90
6:00 PM	7:00 PM	\$1.15	\$2.80	\$3.15	\$7.05	\$1.85	\$3.95	\$1.85	\$5.00	\$1.85	\$3.95
7:00 PM	12:00 AM	\$0.85	\$2.45	\$0.85	\$3.45	\$0.85	\$2.45	\$0.85	\$3.45	\$0.85	\$2.45

Table 6: Proposed Toll Rates for C-470 express lanes

Monday through Sunday Time-of-Day Toll Rate Schedule		EASTBOUND				WESTBOUND					
		ZONE1 PLATTECANYONEAST		ZONE2 UNIVERSITYEAST QUEBECEAST		ZONE1 QUEBECWEST		ZONE2 UNIVERSITYWEST LUCENTWEST		ZONE3 SANTEFEST	
		ExpressToll	LPT	ExpressToll	LPT	ExpressToll	LPT	ExpressToll	LPT	ExpressToll	LPT
7:00 PM	6:00 AM	\$0.90	\$2.55	\$0.90	\$3.60	\$0.90	\$2.55	\$0.90	\$3.60	\$0.90	\$2.55
6:00 AM	7:00 AM	\$0.90	\$2.55	\$2.60	\$6.25	\$1.20	\$2.90	\$1.20	\$4.05	\$1.20	\$2.90
7:00 AM	9:00 AM	\$1.40	\$3.35	\$4.10	\$8.70	\$2.10	\$4.40	\$2.10	\$5.45	\$2.10	\$4.40
9:00 AM	2:00 PM	\$0.90	\$2.55	\$2.10	\$5.45	\$0.90	\$2.55	\$0.90	\$3.60	\$0.90	\$2.55
2:00 PM	3:00 PM	\$0.90	\$2.55	\$2.70	\$6.45	\$1.30	\$3.12	\$1.30	\$4.20	\$1.30	\$3.12
3:00 PM	6:00 PM	\$1.20	\$2.90	\$3.80	\$8.08	\$2.50	\$5.05	\$2.50	\$6.05	\$2.50	\$5.05
6:00 PM	7:00 PM	\$1.20	\$2.90	\$3.25	\$7.30	\$1.95	\$4.10	\$1.95	\$5.15	\$1.95	\$4.10

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4.4 C-70 Express Lanes

Based on the results noted in the previous section, for C70 express lanes, CTIO recommends increasing the minimum toll rate by 3% and the maximum toll rate from \$5.50 to \$6.00. There is no change to the multi-axle (4+) surcharge; it remains at \$25.

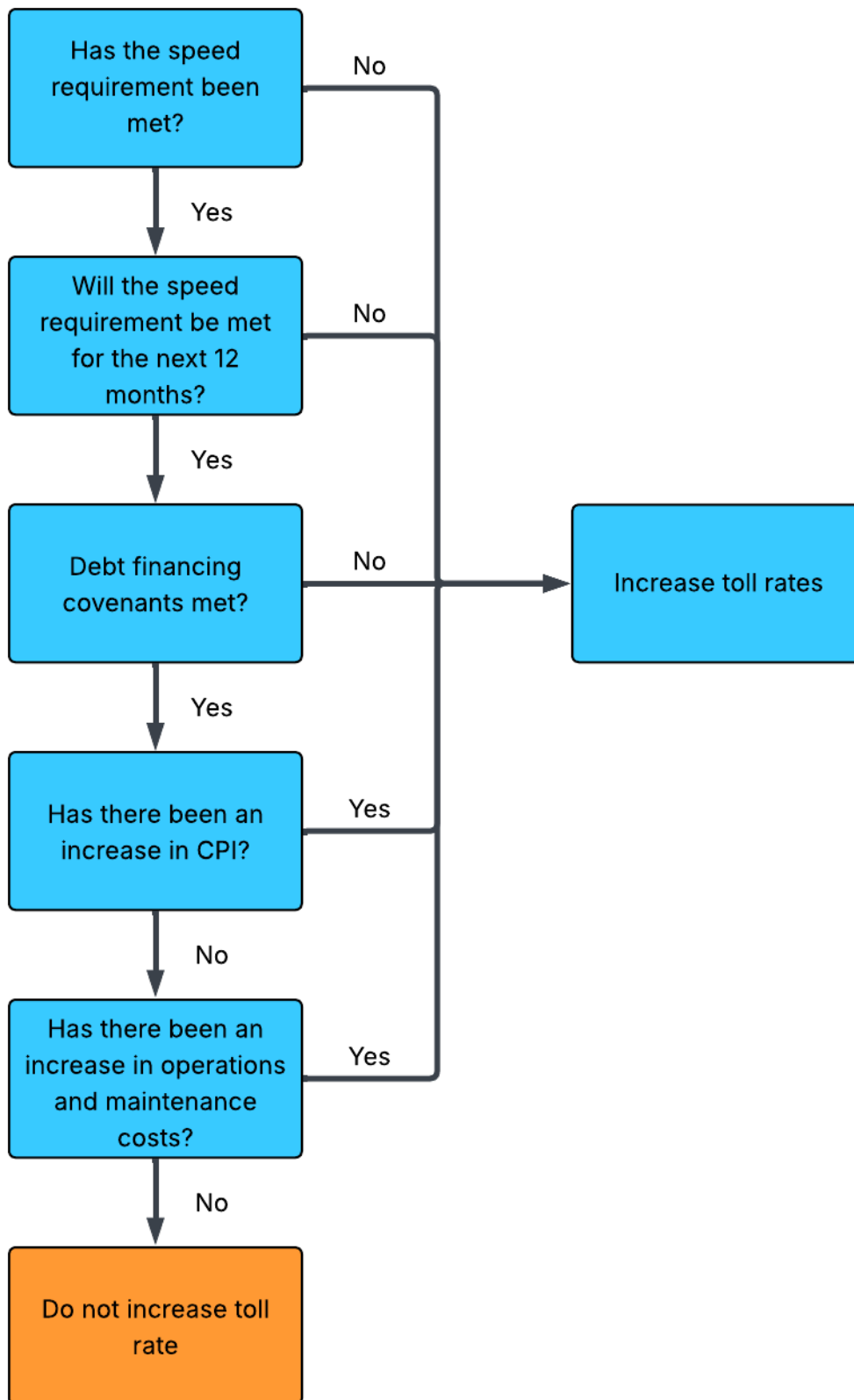
	Eastbound	Westbound
Minimum Current AVI Toll Rates	\$ 1.50	\$ 1.50
Minimum Proposed AVI Toll Rates	\$ 1.55	\$ 1.55
Minimum Current LPT Toll Rates	\$3.75	\$3.75
Minimum Proposed LPT Toll Rates	\$3.90	\$3.90
Maximum Current AVI Toll Rates	\$ 5.50	\$ 5.50
Maximum Proposed AVI Toll Rates	\$ 6.00	\$ 6.00
Maximum Current LPT Toll Rates	\$13.75	\$13.75
Maximum Proposed LPT Toll Rates	\$15.00	\$15.00

4.5 I-25 South GAP Express Lanes

Based on the results noted in the previous section, for I-25 South GAP express lanes, CTIO recommends increasing the minimum toll rate by 3%. There is no change to the multi-axle (4+) surcharge; it remains at \$25 per Zone.

	Northbound	Southbound
Minimum Current AVI Toll Rates Z1	\$ 2.00	\$ 1.75
Minimum Proposed AVI Toll Rates Z1	\$ 2.10	\$ 1.85
Minimum Current LPT Toll Rates Z1	\$ 5.00	\$ 4.38
Minimum Proposed LPT Toll Rates Z1	\$ 5.25	\$ 4.65
Minimum Current AVI Toll Rates Z2	\$ 1.75	\$ 2.00
Minimum Proposed AVI Toll Rates Z2	\$ 1.85	\$ 2.10
Minimum Current LPT Toll Rates Z2	\$ 4.38	\$ 5.00
Minimum Proposed LPT Toll Rates Z2	\$ 4.65	\$ 5.25

APPENDIX 1: Toll Rate Increase Flowchart for Time-of-Day Pricing



APPENDIX 2: Toll Rate Increase Flowchart for Dynamic Pricing

