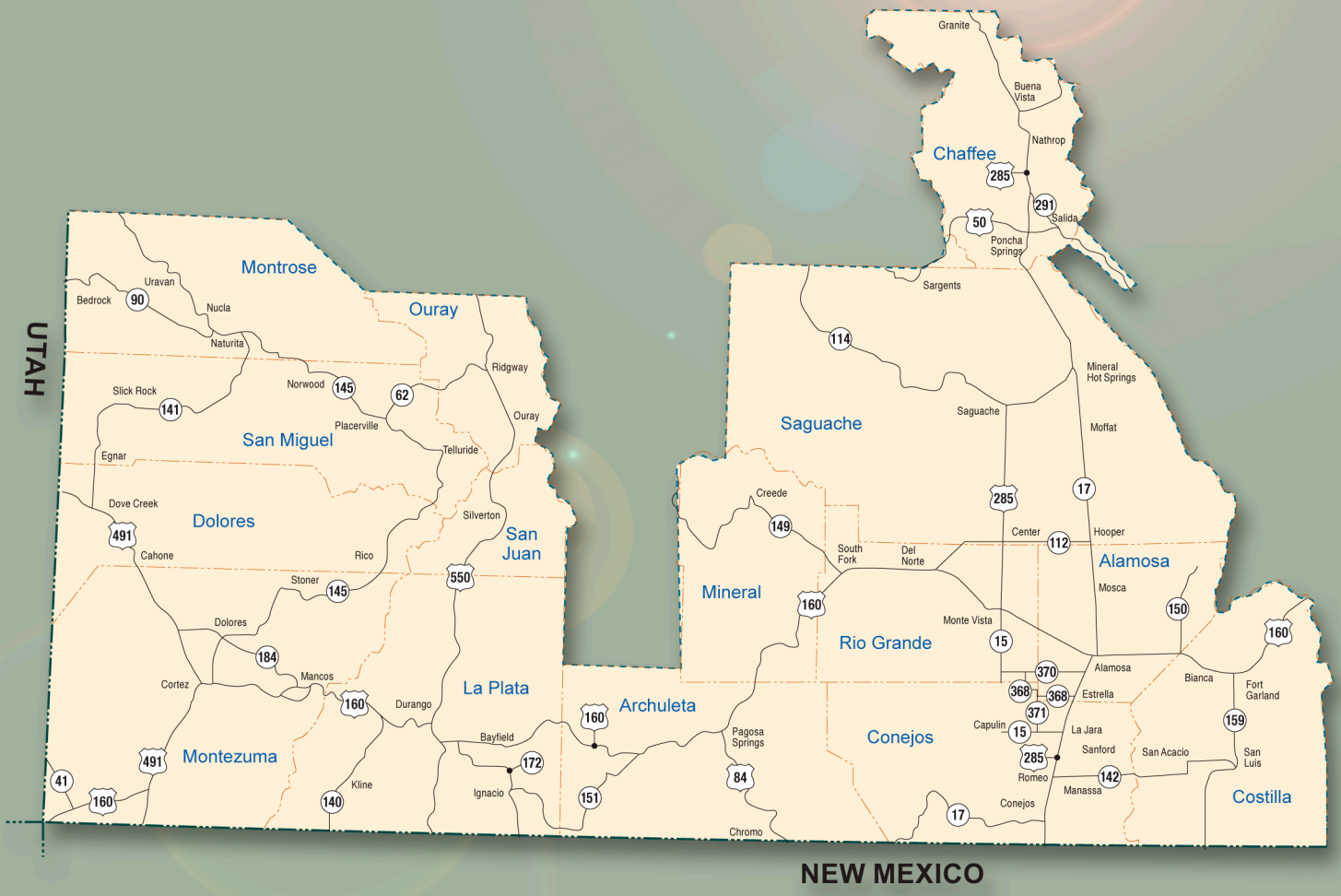
Colorado Department of Transportation Region 5

Lane Closure Strategy

Lane Closure Schedules and Technical Report



DEPARTMENT OF TRANSPORTATION

FELSBURG HOLT & ULLEVIG

Year 2008

COLORADO DEPARTMENT OF TRANSPORTATION REGION 5 LANE CLOSURE STRATEGY

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I. INTRODUCTION

A. Purpose and Use

The intent of this Strategy is to establish uniform criteria and authoritative guidance for scheduling lane closures in Region 5. The Region 5 engineering and maintenances areas covered by this Strategy are shown on **Figure 1**. The Strategy was formulated in order to strike an appropriate balance between delays to the traveling public in the work zone and the cost of construction and maintenance. It is applicable to single lane closures (and multi-lane closures on six-lane roadways) related to construction and maintenance activities on roads controlled by the Colorado Department of Transportation. It is based on extensive data analysis and estimates of delays expected during lane closures. The Strategy addresses weekday and weekend traffic demand and considers temporal variations in traffic volume occurring over a typical 24-hour period. The Strategy also accounts for seasonal variations in traffic volumes.

In the past, lane closure decisions were made primarily on the basis of field observations, previous experience, and engineering judgment. Use of the information presented in this Strategy is expected to clarify the most appropriate time for lane closure decisions, simplify the decision process, and reduce the uncertainty associated with handling traffic during construction. This is the first edition of the Strategy, and it is expected that during its initial use some site-specific questions will arise.

This Strategy is not meant to be a stand-alone document but is intended to be used in concert with all of the relevant information available to the decision maker. For instance, a highway segment may be within the recommended delay threshold to allow a lane closure, but the fact that the route is used for a special event or holiday traffic may influence the final selection of a lane closure schedule. At some locations a noise ordinance in effect may be in conflict with lane closure schedules recommended in this Strategy. If a potential to generate noise levels in excess of the limit allowed by the ordinance exists, the decision maker can reschedule noise generating activities to ensure compliance with the ordinance.

The Region 5 Traffic Section plans to recalibrate the lane closure schedules presented herein every 5 years to reflect changes in traffic volumes and available capacity.

The general lane closure information is shown graphically on color-coded maps with detailed schedules tabulated in the lane closure tables in **Appendix B**.

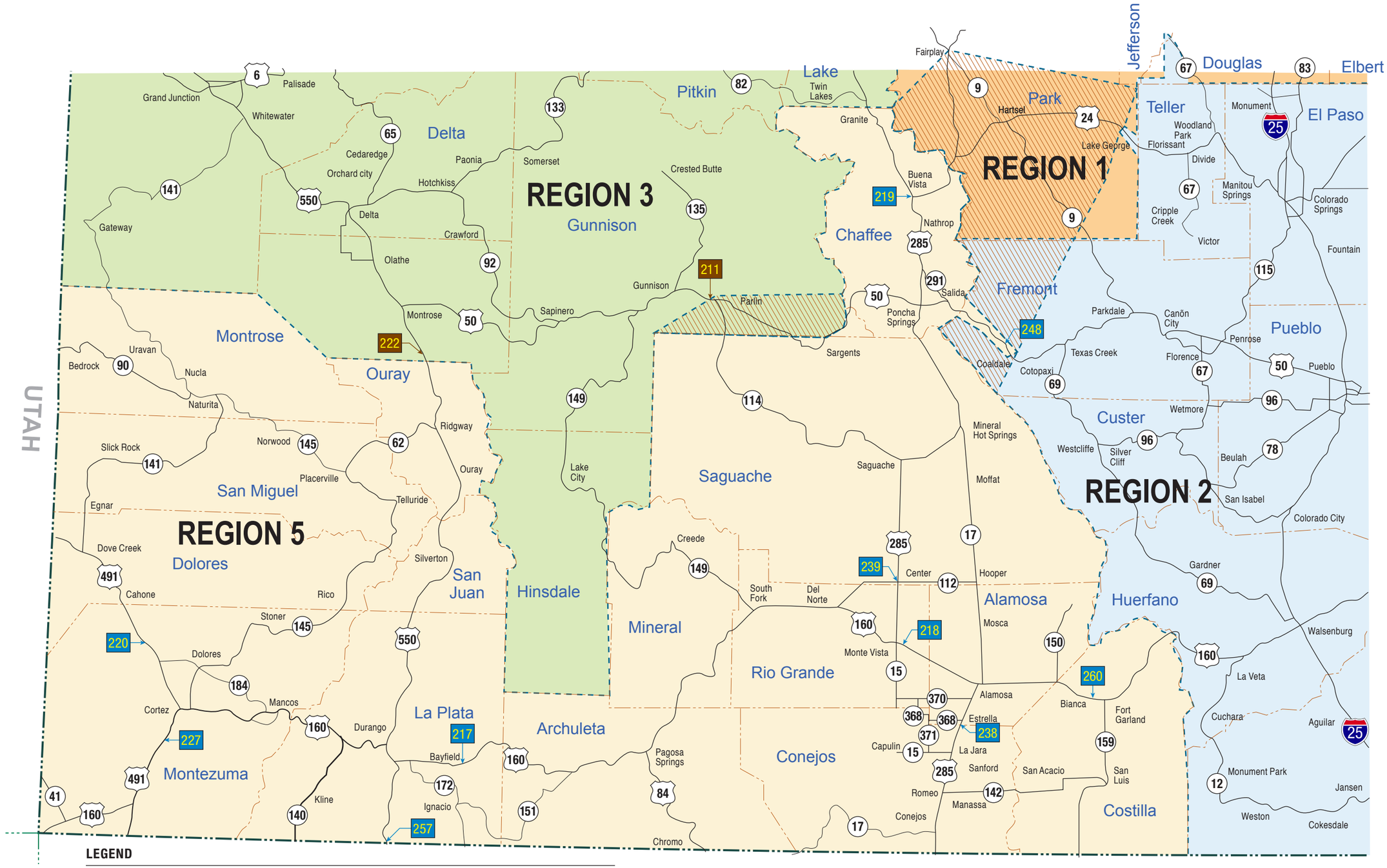

Figure 1
CDOT Region 5 Map and ATR Locations

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B. Strategy Parameters

The following parameters are guidelines for the scope and application of this Strategy. The Strategy specifications are detailed in **Appendix A**.

- This Strategy is to be used in conjunction with State of Colorado statutes 42-04-106 and 24-33.5-226 in the implementation of lane closures.
- The lane closure schedules outlined in this Strategy are intended for application during typical "non-event" traffic conditions. Closures during special events will be governed by the specification outlined in **Appendix A**.
- Closure notification procedures are outlined in **Appendix A**.
- Temporary lane closures necessitated by public safety emergencies supersede the schedules outlined in this Strategy.
- The lane closure schedules along 2-lane roadways were developed to account specifically for the presence of trucks in the traffic flow. Schedules along multilane roadways account for the presence of trucks in a generalized fashion.
- Traffic volumes were increased where roadway grades exceed 5 percent. Particular 5 percent plus locations include US 550 over Red Mountain Pass and Molas Divide, US 160 over Wolf Creek Pass, US 285 over Poncha Pass and US 24 over Trout Creek Pass, among other locations.
- The Strategy covers weekday and weekend traffic conditions and accounts for the temporal variations in traffic volumes that occur during a typical 24-hour time period.
- Local noise ordinances must be considered before implementing lane closures through municipalities.
- Lane closure schedules were developed separately for two different seasonal categories: Summer and Off-Season. **Table 1** depicts the months included in each scheduling category.

Table 1. Seasons and Months

Season	Months included
Summer	May, June, July, August, September, October[1]
Off-Season	October[1], November, December, January, February, March, April

[1]October is included in the Summer season for particular state highway segments to account for harvest and hunting peaks. These include sections of: US 491, US 550, US 160 and US 285.

C. Technical Report

This report summarizes the underlying methodology and assumptions used to develop the Region 5 Lane Closure Strategy. It also establishes guidelines for application of the Strategy to situations across the Region. Lane closure schedules for every state highway in the Region are included in the report.

D. Basic Analysis Approach

Traffic Information

Region 5 is geographically diverse and covers state highways in various mountainous areas (San Juans, La Garita, Sangre De Christo, Sawatch, La Plata), the San Luis Valley, and the desert-like Four Corners area. Population centers within Region 5 include Durango, Alamosa, Pagosa Springs and Monte Vista. Traffic data were compiled to provide information specific to the diverse areas within Region 5.

Through CDOT's CORIS database, Annual Average Daily Traffic (AADT) (365-day average) volume information is available for every state highway segment in the Region. In addition, hourly traffic volume information is available for at least one location on most state highways in Region 5. This information is primarily weekday counts taken during summer months (May through September). CDOT also maintains a system of 10 Automatic Traffic Recorders (ATR) throughout Region 5 to monitor traffic continuously (shown on **Figure 1**). Hourly volumes are available by direction for every day of the year. Data covering the calendar year 2007 were gathered from the ATR's for the purposes of this Strategy. Data for calendar years 2006 and 2008 were spot-checked at three ATR locations to ensure there were no anomalies in the 2007 data. It was found that AADT volumes, monthly traffic volume variations and daily traffic patterns were consistent among all three calendar years.

Data from each of the 10 ATR locations were analyzed to evaluate variation in daily traffic levels over the course of the calendar year. The data indicated that the months of May through September demonstrated a generally uniform variance relative to the other months of the year for most of the ATR locations. In cooperation with Region 5 Traffic Section, it was determined that these months would be categorized as the Summer Lane Closure season and the remaining months as the Off-Season. Day of week variations were evaluated within these seasonal categories in a similar fashion, and it was determined that the days of Monday through Thursday would represent the weekday condition. Fridays were not included in the weekday data compilation because hourly patterns differ from other weekdays, particularly after noon. The higher of Saturday or Sunday daily traffic would represent the weekend.

Based on these categorizations, a series of four factors were developed for each ATR location. The factors can be multiplied by the Annual Average Daily Traffic (AADT) volume to calculate the Average Daily Traffic (ADT) volume for a specific season and day of week. For example, the AADT along US Highway 160 (US 160) east of Monte Vista (ATR # 218) could be multiplied by 1.19 to calculate the Summer weekday ADT. The factor of 1.19 indicates that Summer weekdays carry 19 percent more traffic than the 365-day average. **Table 2** summarizes the AADT-to-ADT factors for each ATR location. The ATR locations are shown on **Figure 1**.

Table 2. AADT-to-ADT factors by ATR Location

State Highway and Location	ATR #	Summer		Off-Season	
		Weekday	Weekend	Weekday	Weekend
US 50 east of Gunnison (Region 3)	211	1.25	1.52	0.81	0.90
US 160 near Bayfield	217	1.21	0.96	1.04	0.78
US 160 east of Monte Vista	218	1.19	1.09	1.03	0.83
US 285 at SH 24	219	1.28	1.51	0.86	0.89
US 491 north of Cortez	220	1.11	1.04	1.01	0.98
US 550 south of Montrose (Region 3)	222	1.29	1.18	0.97	0.78
US 491 south of Cortez	227	1.10	1.09	0.98	0.92
US 285 south of Estrella	238	1.09	0.96	1.05	0.84
US 285 north of Monte Vista	239	1.20	1.27	0.92	0.92
US 50 west of Coaldale	248	1.20	1.56	0.84	0.96
US 550 at NM State Line	257	1.13	1.02	1.00	0.87
US 160 west of Fort Garland	260	1.15	1.30	0.94	0.94

Analytical Procedure

Two analytical procedures were developed to evaluate traffic characteristics throughout the system and develop appropriate lane closure schedules. Multi-lane arterials have one set of capacity and operational characteristics since both directions can operate simultaneously with one lane closed. Work zones on two-lane roads must have alternating traffic through the one-lane section that remains open. Both the multi-lane and two-lane methodologies compare traffic volumes to capacity with a lane closed. Closures are not allowed when and where traffic volumes will result in average vehicle delay exceeding 20 minutes in rural areas and 10 minutes in urban areas.

Lane closures implemented in accordance with the allowed hours included in this strategy are anticipated to cause delay for drivers. The effects of this delay, however, would be softened by the availability of alternate routes and detours to get around the closed portion of roadway. By including delay tolerances in these calculations, the allowed hours in the lane closure strategy account for the presence of alternate routes and detours.

Closure Schedules

In order to depict the lane closure schedules graphically in this report, the lane closure schedules resulting from the methodology described above present the following 5 general options for weekday lane closures:

1. Night Only Closure
2. Midday and Night Closure
3. AM peak, Midday and Night Closure
4. PM peak, Midday and Night Closure
5. Closure Anytime

There are three general options for weekend closures:

1. Night Only Closure
2. Night plus Partial Day Closure
3. Closure Anytime

The general lane closure schedules for the Off-Season are not presented graphically in this report. The specific closure times for both seasons are summarized in a Microsoft Excel spreadsheet file. The closure schedules are tabulated in **Appendix B**.

The schedules have been developed for each section of state highway. Sections are designated between intersecting State highway facilities. Sections were also divided at locations where the roadway narrows or widens, the grade of the roadway changes significantly, or traffic volumes change appreciably.

II. LANE CLOSURE SCHEDULING AND VARIANCE PROCEDURES

Lane closures may require variances for a variety of reasons. Some of these typical reasons for variance requests are:

- Chip Seals – Due to the short time frame for implementation, the need for higher daytime temperatures, and the need for higher daytime traffic volumes to compact the product.
- Construction/Maintenance Activities – Particular techniques and/or projects may require more continuous hours of lane closure than the allowed hours provide.
- Tribal – Due to sovereign restrictions on nighttime work.
- Alternate Routes – Due to the availability of multiple alternate routes and/or detours that can potentially lower traffic volumes and allow for expanded lane closure schedules.
- Night-work Restrictions – Due to municipal noise ordinances that restrict night work and/or the operation of material plants at night.

A. Lane Closures for Maintenance Work

Maintenance work efforts along state highways often require lane closures. For such efforts, **Figure 2** outlines the procedure for implementing a lane closure.

B. Lane Closures for Design Projects

Lane closure schedules are typically outlined in the specifications for CDOT design projects. The procedure for using the Lane Closure Strategy to identify these schedules is outlined in **Figure 3**. The procedure also includes steps for modifying the closure hours if needed.

Unique circumstances may warrant modification(s) to the basic closure schedule. These unique circumstances might include, but are not limited to, the following:

- Night time temperatures, noise restrictions (based on adjacent land use or town ordinances), materials supply limitations, etc.
- Nature of construction required. For example, blasting may only be done during daylight hours.
- Special events (see following discussion)
- Seasonal events (such as harvests)
- Potential restrictions for oversize vehicles.
- Work week is typically considered from 9 PM Sunday to Friday at noon.

C. Lane Closure Variances – During Construction

Upon implementing closure hours, it may be determined that an adjustment in the lane closure schedule is needed during construction. **Figure 4** outlines the procedure for changing the closure hours during construction.

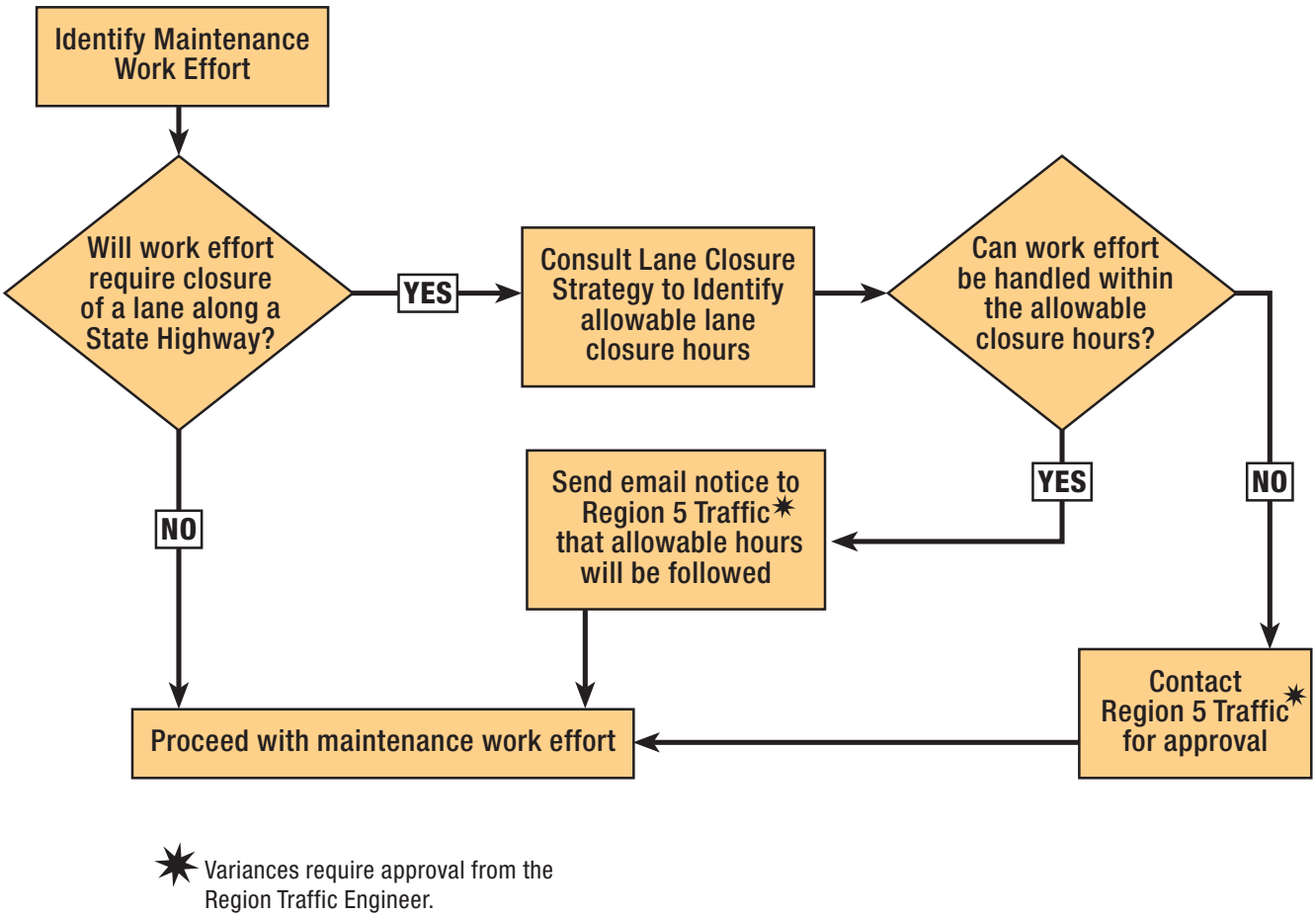


Figure 2

CDOT Maintenance Work Lane Closure Procedure
(Not applicable to emergency roadway maintenance situations)

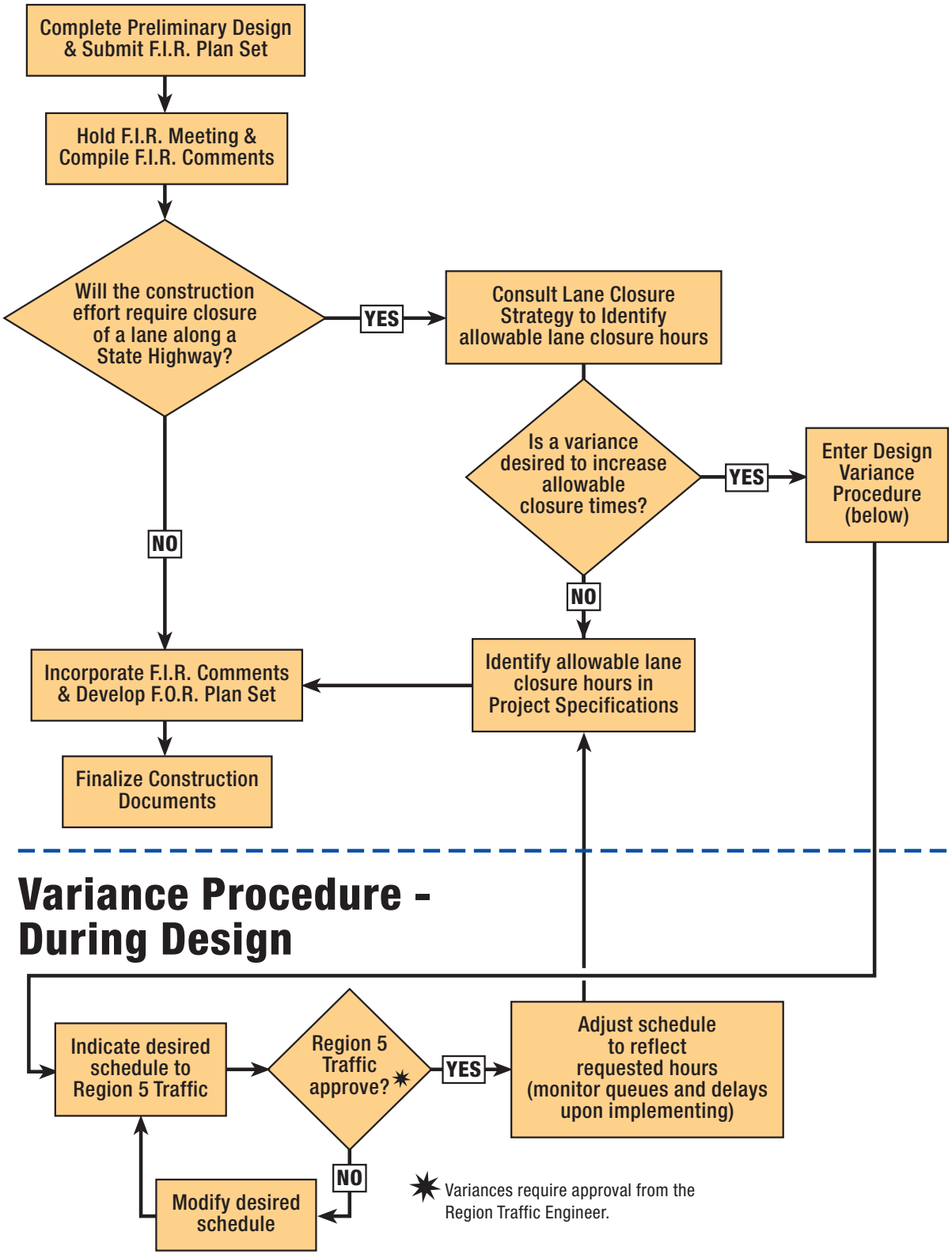


Figure 3

CDOT Projects During Design
Lane Closure Procedure

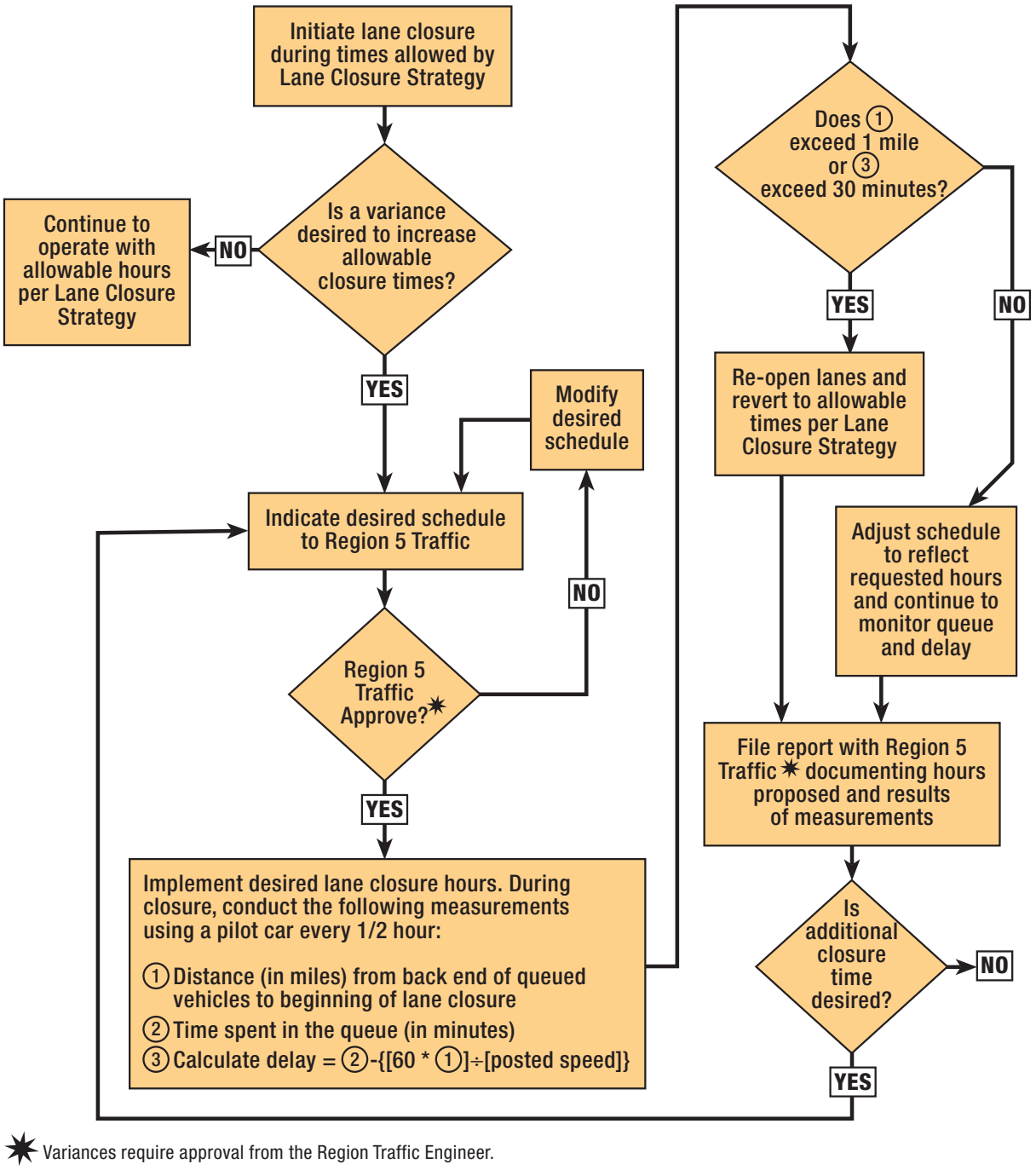


Figure 4

Variance Procedure - During Construction

III. TWO-LANE ANALYSIS

A. Data Collection

CDOT gathers daily and hourly traffic count data on state highways on an annual basis. CDOT uses this information and continuous traffic counts to calculate annual average daily traffic (AADT) for all state highways. Each state highway is divided into segments, and daily volumes were compiled for each section for the Year 2007 based on the CDOT website. In addition, the hourly traffic volumes that were counted in the field are also available for download from the CDOT website. Most of these counts were taken during summer months (May through September) of 2007. In this manner, daily and hourly traffic data were available for the Summer weekday analyses on all state highways in Region 5.

The hourly traffic volume information that CDOT collects for short durations is almost exclusively counted during Summer weekdays. Because this data only provides weekday hourly patterns, Summer weekend traffic patterns were developed based on information from the nearest and most comparable ATR location. In a similar manner, Off-Season hourly patterns for weekdays were developed based on short duration count patterns and weekends were developed based on ATR counts. The relationship between weekend daily traffic for each season and AADT volumes was determined at each selected ATR location. A summary of the weekday/weekend daily factors by season is provided in **Table 2**.

B. Capacity Analysis

Patterns of Operations

Lane closures on two lane facilities are unique in that only one lane is available to handle traffic. This generally means flaggers must be utilized at each end of the closure to alternate the direction of traffic. The capacity of the detour is related to the length of the closure. A longer detour will have less capacity since traffic in each direction takes longer to clear the work zone. Based on discussions with Region 5 Traffic staff, it was agreed that three typical work zone lengths would be analyzed: less than 1 Mile, 1-2 Miles, and greater than 2 Miles.

Capacity Values

The two-lane analysis is based on capacities for various closure lengths outlined in the *Workzone Traffic Analysis Guide* (Oregon Department of Transportation, February 2005). This document identifies hourly sum capacities of one-lane, two-way, both directional sections with flagger control. Capacities are provided for closure lengths exceeding 2 Miles, ranging between 1 Mile and 2 Miles, and less than 1 Mile. Capacity values adapted from the ODOT information for use in the CDOT Region 5 Lane Closure Strategy are summarized in **Table 3**.

Table 3. Closure Capacity Values for 2-lane Highways

Closure Length	Hourly Sum Capacity (Passenger-Car-Equivalents per Hour)
Greater than 2 Miles[1]	400
Between 1 and 2 Miles	750
Less than 1 Mile	1050

[1] Value not provided by ODOT information, but extraplolated based on a linear extrapolation from provided capacities

Provision of the capacity values in Passenger Car Equivalents (PCE) allowed for the specific inclusion of truck percentages in lane closure schedule calculations. The ODOT capacity values were developed based on a series of technical calculations supported by field observations conducted at construction sites. These values have a significant basis in actual field experience in combination with technical calculations.

Oregon DOT guidance states that higher PCE values are appropriate for roadways carrying higher truck percentages and/or roadways on hilly terrain. The *Highway Capacity Manual* (HCM) (Transportation Research Board, 2000) provides guidelines for converting average daily traffic volumes into PCEs by accounting for heavy vehicle traffic and grades. Truck adjustment factors ranging from 1.5 to 2.5, based on peak hour volumes and terrain type, were applied to each segment. Additionally, grade adjustment factors ranging from 0.38 to 1.0, based on grade severity, length of grade, and peak hour volumes, were applied to segments with a known grade greater than 5%. The resulting PCE volumes were used in the analyses instead of AADT volumes.

Lane closures implemented in accordance with the allowed hours included in this strategy are anticipated to cause up to 20 minutes of average delay for drivers. Stop times of this level typically occur on longer closures, particularly those in excess of 1 mile. It is expected that the shorter closures addressed in this document (less than 1 mile) can be implemented without causing delays approaching 20 minutes. The effects of delay would be softened by the potential availability of alternate routes and detours to get around the closed portion of roadway.

C. Analysis Approach

To identify the allowable closure hours along 2-lane highways, a calculation was made based on the hourly distribution of traffic (measured in the field during Summer weekdays or from the ATR for other seasons and weekends). A spreadsheet implementation of the three different closure capacities was formulated to automate the calculation of hourly capacities. The spreadsheet enables the user to input an hourly distribution of traffic and compare the resulting hourly volumes to the allowable capacity. Each hour is then evaluated (yes or no) whether it is appropriate for closure. This procedure was followed for both the Summer and Off-Season and for weekday and weekend traffic volumes. The result of the calculations can also be that a closure is appropriate at any time.

D. Results of Two-Lane Analysis

The two-lane Summer closure schedules resulting from the methodology just outlined are depicted graphically on **Figures 5** through **10**.

- **Figure 5** shows Summer weekday closures for a work zone length less than 1 mile,
- **Figure 6** shows Summer weekday closures for a work zone length between 1-2 miles,
- **Figure 7** shows Summer weekday closures for a work zone length greater than 2 miles,
- **Figure 8** shows Summer weekend closures for a work zone length less than 1 mile,
- **Figure 9** shows Summer weekend closures for a work zone length between 1-2 miles,
- **Figure 10** shows Summer weekend closures for a work zone length greater than 2 miles.

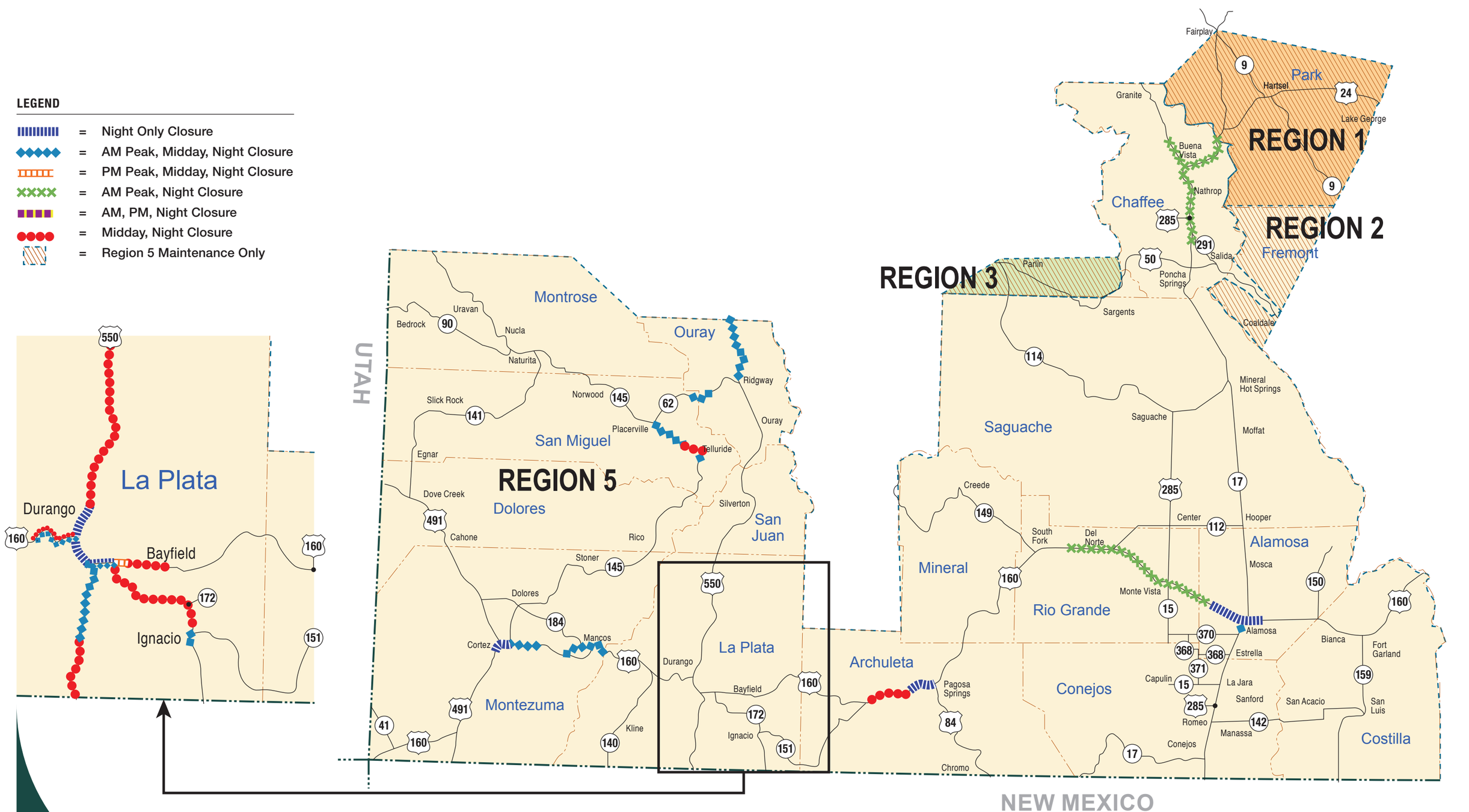
Differing lane closure schedules are depicted in varying colors and line types. For the weekday analyses, there are six possible general lane closure restriction options which are depicted with different color and line type combinations. Roadway segments with no restrictions shown may have lane closures at any time. Because weekend traffic tends to exhibit a single peak rather than the AM and PM peak of a typical weekday, there are four possible weekend closure schedules.

The general scheduling information shown graphically on **Figures 5** through **10** is presented in greater detail in the lane closure schedule tables in **Appendix B**. The tables provide specific times at which closures will be allowed for each highway section. The appendix tables should be consulted for all projects as many shorter segments could not be included on the figures. For example, the section of SH 160 between South Fork and Del Norte could be closed overnight on Summer weekdays for a 3.0 mile work zone from 7 PM to 7 AM.

Off-Season closure schedule tables are also provided in **Appendix B**. Additional guidance specifically related to potential weekend closures is provided in **Appendix A**. **Appendix A** also has information about special events and emergency situations.

LEGEND

- = Night Only Closure
- = AM Peak, Midday, Night Closure
- = PM Peak, Midday, Night Closure
- = AM Peak, Night Closure
- = AM, PM, Night Closure
- = Midday, Night Closure
- = Region 5 Maintenance Only



NOTES: See Appendix B for tabulated closure schedules and specific locations
Roadway segments with no shape or color may have lane closures at any time

NOT TO SCALE

Figure 5
Summer Weekday Lane Closure Schedules (<1 Mile Closure Length)

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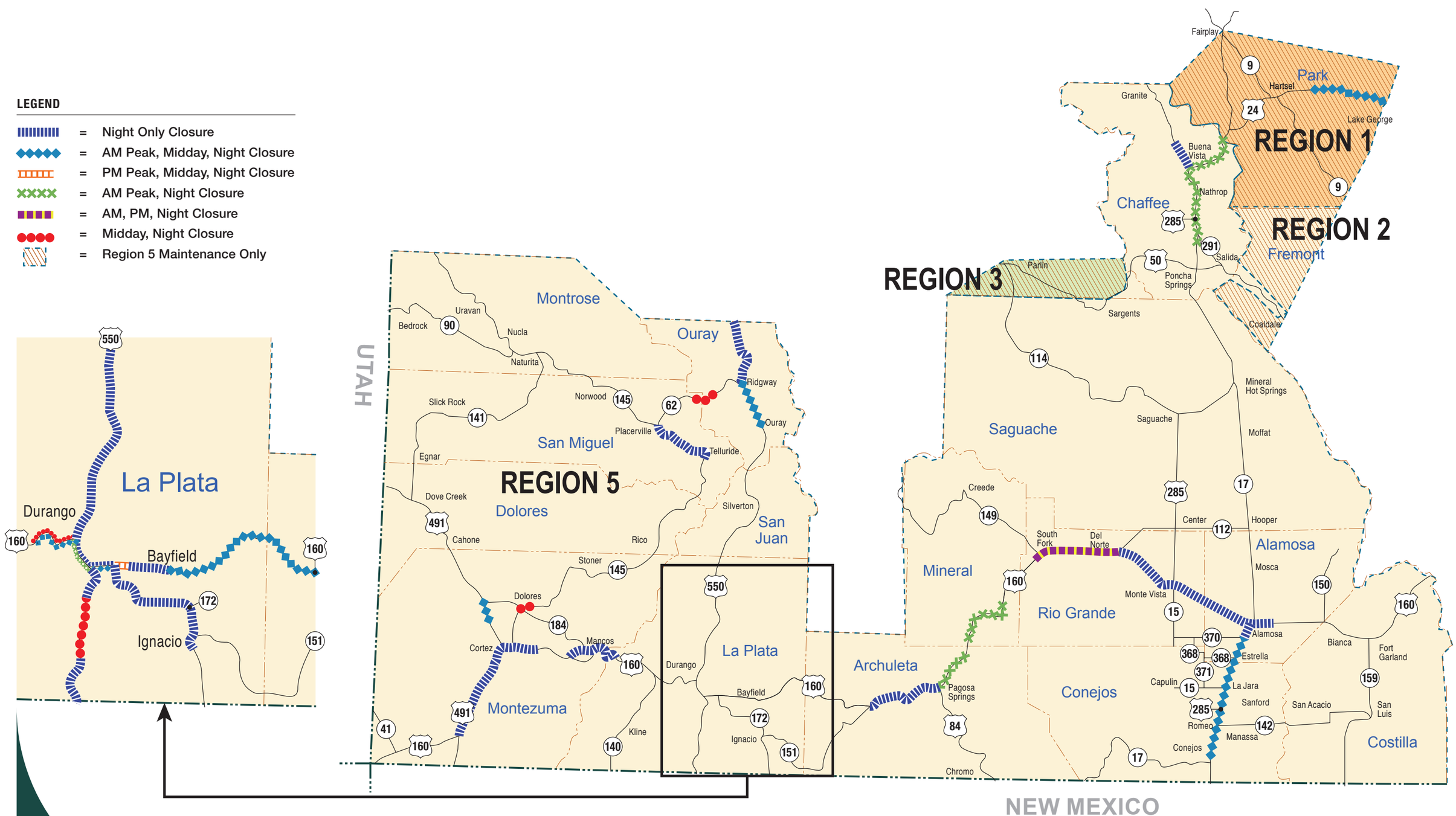
NORTH

LEGEND

- = Night Only Closure
- = AM Peak, Midday, Night Closure
- = PM Peak, Midday, Night Closure
- = AM Peak, Night Closure
- = AM, PM, Night Closure
- = Midday, Night Closure
- = Region 5 Maintenance Only



NOTES: See Appendix B for tabulated closure schedules and specific locations
Roadway segments with no shape or color may have lane closures at any time

NOT TO SCALE

Figure 6
Summer Weekday Lane Closure Schedules (1-2 Mile Closure Length)

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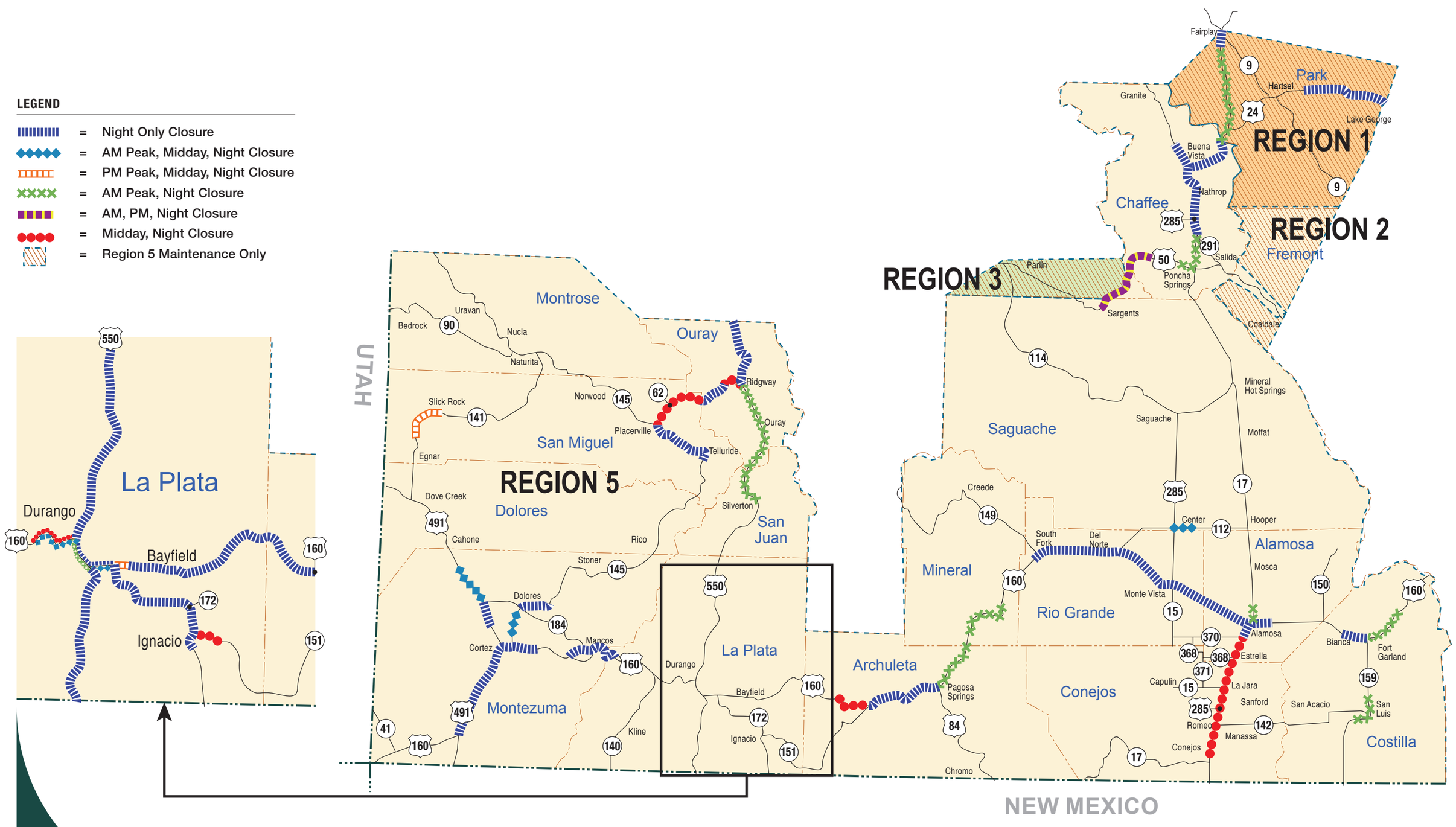
LEGEND

- = Night Only Closure
- = AM Peak, Midday, Night Closure
- = PM Peak, Midday, Night Closure
- = AM Peak, Night Closure
- = AM, PM, Night Closure
- = Midday, Night Closure
- = Region 5 Maintenance Only



NOTES: See Appendix B for tabulated closure schedules and specific locations
Roadway segments with no shape or color may have lane closures at any time

NOT TO SCALE

Figure 7
Summer Weekday Lane Closure Schedules (>2 Mile Closure Length)

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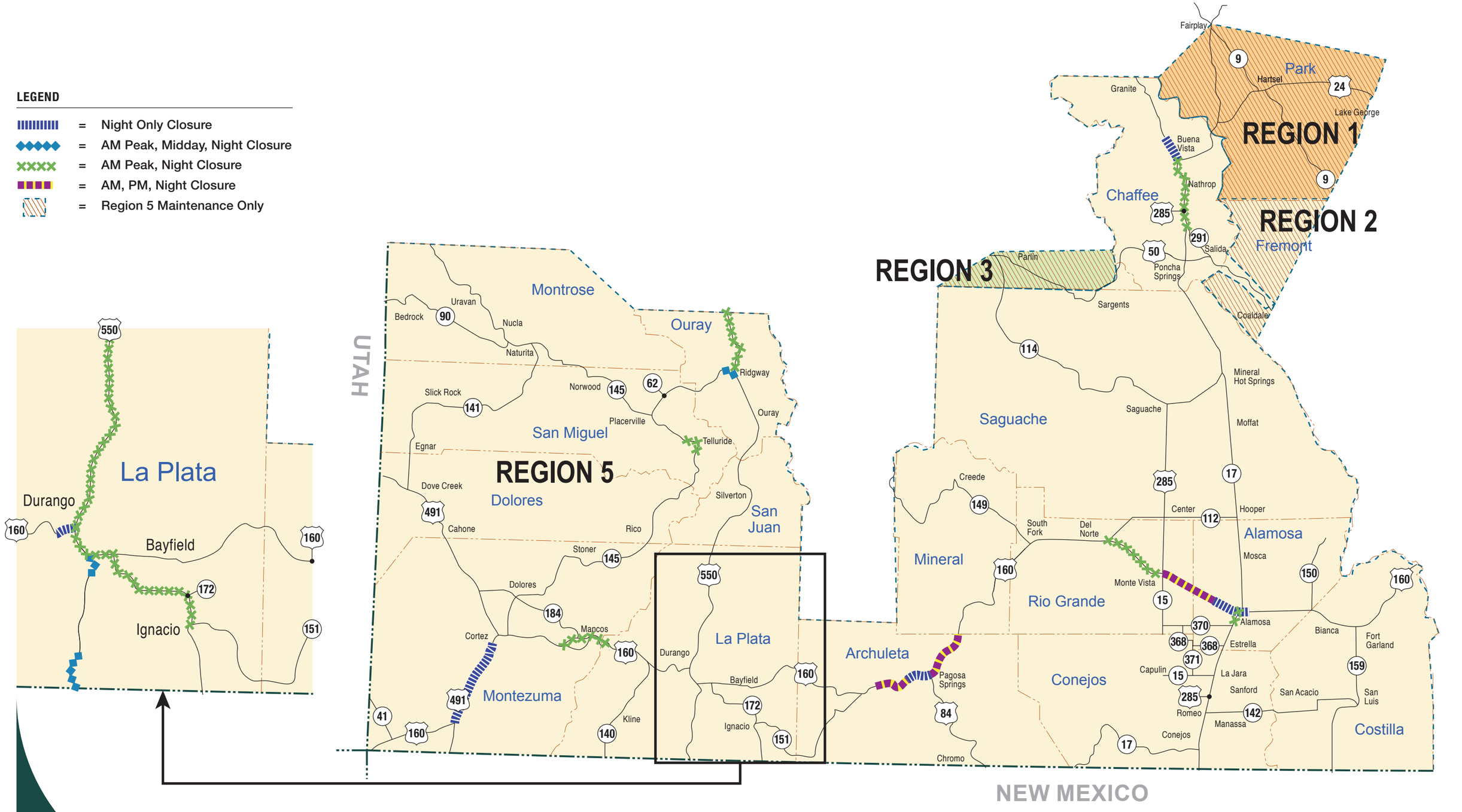
NORTH

LEGEND

- = Night Only Closure
- = AM Peak, Midday, Night Closure
- = AM Peak, Night Closure
- = AM, PM, Night Closure
- = Region 5 Maintenance Only



NOTES: See Appendix B for tabulated closure schedules and specific locations
Roadway segments with no shape or color may have lane closures at any time

NOT TO SCALE

Figure 8
Summer Weekend Lane Closure Schedules (<1 Mile Closure Length)

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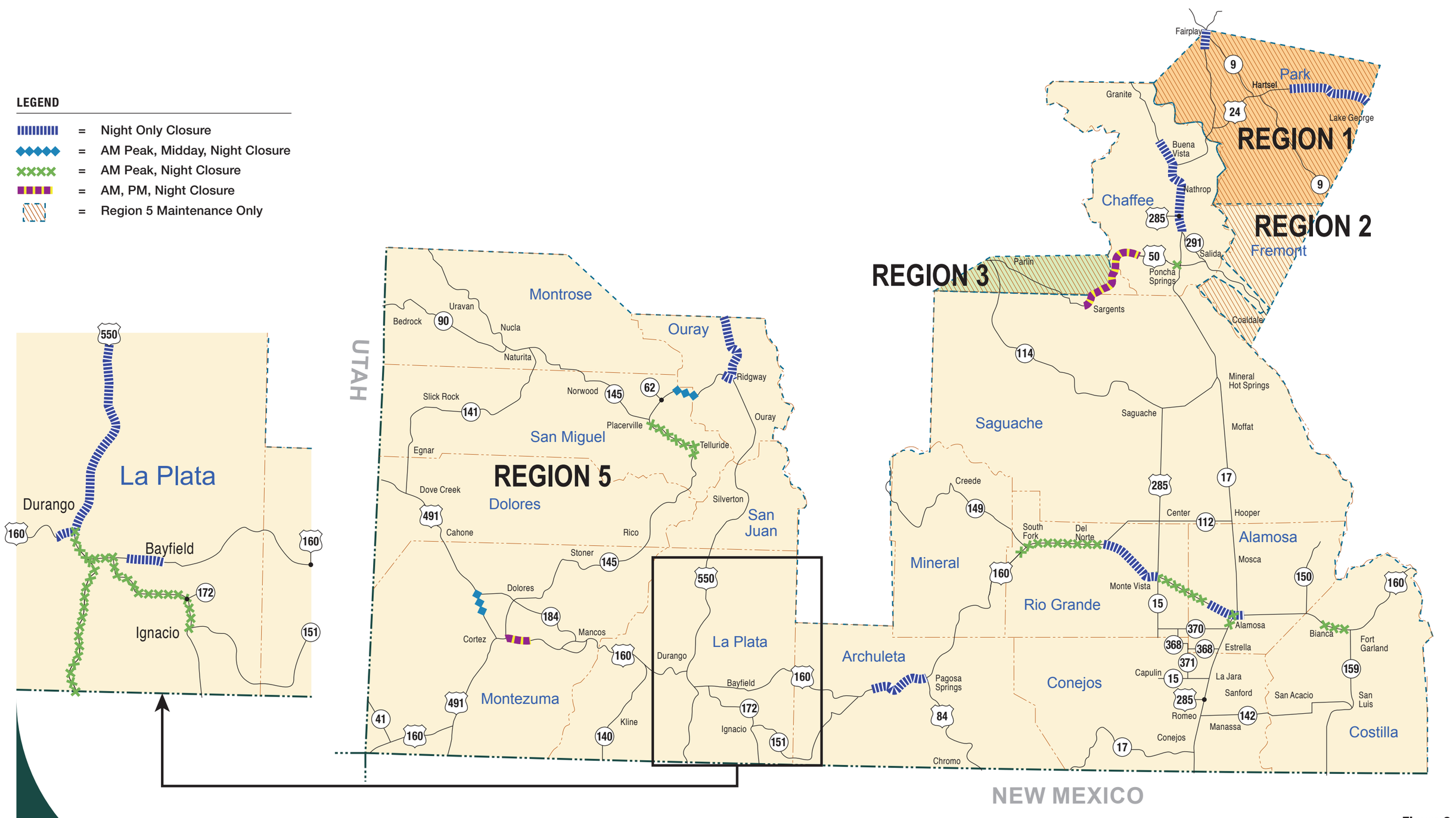
NORTH

LEGEND

- = Night Only Closure
- = AM Peak, Midday, Night Closure
- = AM Peak, Night Closure
- = AM, PM, Night Closure
- = Region 5 Maintenance Only



NOTES: See Appendix B for tabulated closure schedules and specific locations
Roadway segments with no shape or color may have lane closures at any time

Figure 9
Summer Weekend Lane Closure Schedules (1-2 Mile Closure Length)

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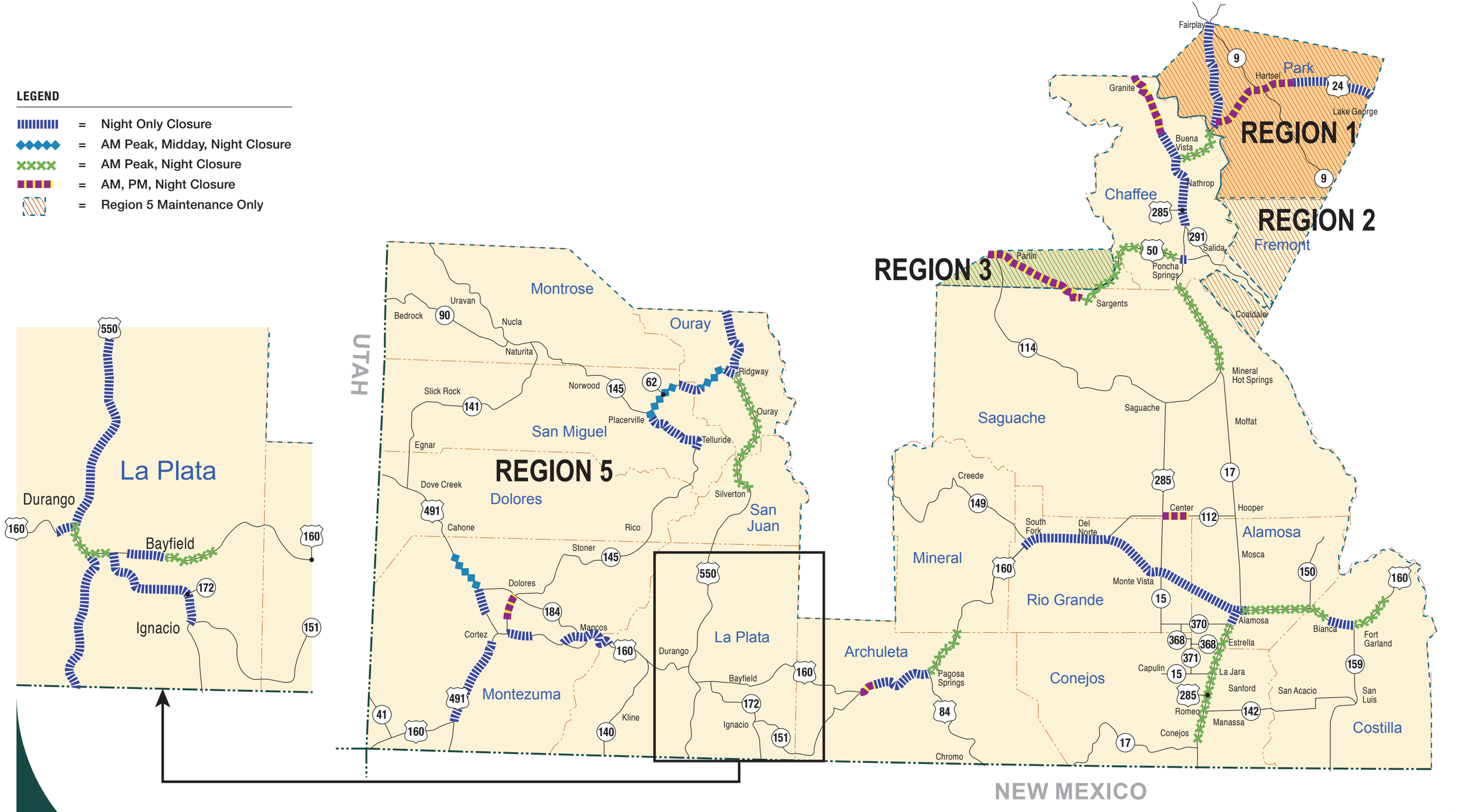
NORTH

LEGEND

- = Night Only Closure
- = AM Peak, Midday, Night Closure
- = AM Peak, Night Closure
- = AM, PM, Night Closure
- = Region 5 Maintenance Only



NOTES: See Appendix B for tabulated closure schedules and specific locations
Roadway segments with no shape or color may have lane closures at any time

Figure 10
Summer Weekend Lane Closure Schedules (>2 Mile Closure Length)

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IV. MULTI-LANE ARTERIAL ANALYSIS

The multi-lane arterial analysis methodology was developed to create lane closure schedules for state highway segments within the Region that consist of 3 or more travel lanes. Roads maintained by CDOT Region 5 include approximately 200 miles of multi-lane arterial segments. US Highways 24, 50, 160, 285, 491, and 550 and State Highways 145, 149, and 172 include multi-lane arterial sections.

A. Data Collection and Synthesis

Data sources

Traffic data for multi-lane arterial facilities throughout the region were gathered from ATR's and CDOT spot traffic counts. As discussed earlier, the CORIS database maintained by CDOT contains annual average daily traffic (AADT) count information for every state highway facility in Region 5. Weekday hourly traffic count information was available for most multi-lane arterial segments within the Region. Weekend hourly traffic count information was only available for segments that included an ATR location. Hourly distributions from the ATR locations shown in **Table 2** were applied to available AADT data where hourly information was lacking. Hourly traffic volumes were then calculated by multiplying the assumed hourly distribution by the daily traffic volume data from the CORIS database.

Seasonal and day-of-week variations

As for the 2-lane highways and freeways, analysis of multi-lane arterial traffic data included an accounting of day-of-week and seasonal variations depending upon the level of data available. For locations without yearlong ATR data, factors and distributions from the nearest representative ATR location were utilized to develop weekend schedules.

B. Multi-lane Arterial Analysis Parameters

Delay Threshold

The lane closure schedules were calculated by examining hourly traffic volumes across a weekday or weekend 24-hour period. Clearly, the closure of a lane represents a potential bottleneck for traffic. Delay and queuing will result if traffic demand exceeds the capacity of the bottleneck. Times during which the implementation of a lane closure induced an average vehicle delay in excess of 10 minutes in urban areas (Cortez, Durango, Alamosa, Monte Vista, Poncha Springs, Salida, and Buena Vista) and over 20 minutes in rural areas for the duration of the bottleneck were eliminated as potential closure times. For these analyses, delay was defined as the increase in travel time encountered during a lane closure compared to the estimated travel time during free flow conditions.

The average delay value of 10 minutes per vehicle was selected as a suitable delay threshold based on a review of prevalent practices around the country and internal discussions within CDOT. The threshold of 10 minutes was considered to provide an appropriate balance between delays to the traveling public and the cost of construction and maintenance. It was determined

that a greater average delay of 20 minutes could be allowed along multilane arterials outside of the urban areas identified.

Lane closures implemented in accordance with the allowed hours included in this strategy are anticipated to cause delay for drivers. The effects of this delay, however, would be softened by the availability of alternate routes and detours to get around the closed portion of roadway. By including delay tolerances in these calculations, the allowed hours in the lane closure strategy account for the presence of alternate routes and detours.

Capacity Values

In order to calculate the delay caused by a closure-induced bottleneck, it was necessary to calculate a capacity value for each arterial section to be analyzed. The per-lane capacity of a arterial facility is influenced by many factors, including the composition of vehicular traffic and the green time allocated to the facility at signalized intersections.

According to the Highway Capacity Manual (HCM), the "ideal saturation flow rate" for an arterial facility is 1900 passenger cars per hour per lane (pcphpl). Research conducted by the DRCOG on saturation flow rates throughout the Denver metropolitan area concludes that 1900 pcphpl is an appropriate value for Denver arterials under typical operating conditions. This ideal flow rate is reduced to account for factors such as the presence of heavy vehicles in the traffic stream and signalized intersections. Accounting for these factors, the HCM estimates that the capacity of a typical arterial facility is 850 vphpl (vehicles per hour per lane). The CORIS database also estimates a per lane capacity of 850 vphpl for the majority of arterial facilities listed in the database.

For the reasons cited above, an estimated capacity of 850 vphpl was used as a baseline capacity assumption for the development of this Strategy. This capacity, however, was adjusted upward in many cases to account for locations where the state highway facility is given a greater than typical allocation of green time. Such a condition is reflected in the traffic count information when the counted traffic volume at a given location exceeds 850 vphpl. At locations where the actual counted traffic volume exceeded 850 vphpl, the capacity was adjusted upward to reflect the counted traffic volume.

C. Multi-lane Arterial Analysis Approach

4-Lane Segments

A spreadsheet implementation of arrival / departure curves was formulated to automate the calculation of average delay induced by a lane closure along each arterial section. The spreadsheet enables the user to input a "test" schedule and estimate the delay caused by a lane closure scheduled at the specified times. An iterative process of testing various schedules is used to arrive at a schedule that maintains an average delay below 10 minutes or below 20 minutes.

The use of arrival and departure curves to calculate vehicle delays and queues is well-documented in Transportation Engineering literature. The methodology is outlined in the book Fundamentals of Traffic Engineering (May, 1990, pp. 346-349). The approach utilizes a plot

depicting cumulative vehicle arrivals at and departures from a given location over the course of a 24-hour period. For this analysis, the 24-hour traffic count information was utilized to plot cumulative arrivals and the roadway vehicle capacities discussed earlier were used to formulate cumulative departure curves.

A sample plot of arrivals and departures is shown on **Figure 11**. This plot corresponds to a particular direction of a state highway between the hours of 7:00 PM and 10:00 PM on a typical weekday. The curves become separated when demand (orange curve) exceeds capacity (over-saturated conditions). The capacity, represented by the green curve, is reduced with the closure at 7:00 PM. The curves reconnect when capacity is sufficient to meet the demand and service the vehicle queue upstream of the lane closure location. This occurs at 10:00 PM according to the plot shown on **Figure 11**.

At any point, the delay of an individual vehicle can be identified graphically as the horizontal distance between the arrival (orange) and departure (green) curves. As shown on **Figure 11**, the number of vehicles in queue is represented by the vertical distance between the curves. The shaded area between the curves is the total delay in vehicle-hours and the average delay can be calculated by dividing this area by the number of vehicles serviced during the period of over-saturation. The delay is averaged for the total time during which over-saturated conditions persist as a result of the lane closure. An average delay is calculated for each over-saturated period. As long as this average delay remains below a specified delay threshold (defined as 10 minutes in urban areas and 20 minutes in rural areas for Region 5), a closure is allowed. As shown on **Figure 11**, the calculated delay resulting from the sample case is 3 minutes per vehicle.

3-Lane Segments

The closure of a lane along a 3-lane roadway segment creates a 2-lane operating condition. A capacity was estimated for each roadway based on 2-lane highway analysis methodology summarized in the HCM. The capacity was established as the traffic volume threshold between Level of Service (LOS) E and LOS F. This capacity was reduced by 30 percent to account for driver rubbernecking passing the work zone. Based on this series of calculations, the capacity of a 3-lane roadway with a lane closed was assumed to be 1750 pcphpl. Similar to the 2-lane highway closure analyses, traffic volumes were increased to account for the presence of trucks and grades exceeding 5 percent, and then compared with the lane-closed capacity of 1750 pcphpl to identify appropriate closure hours.

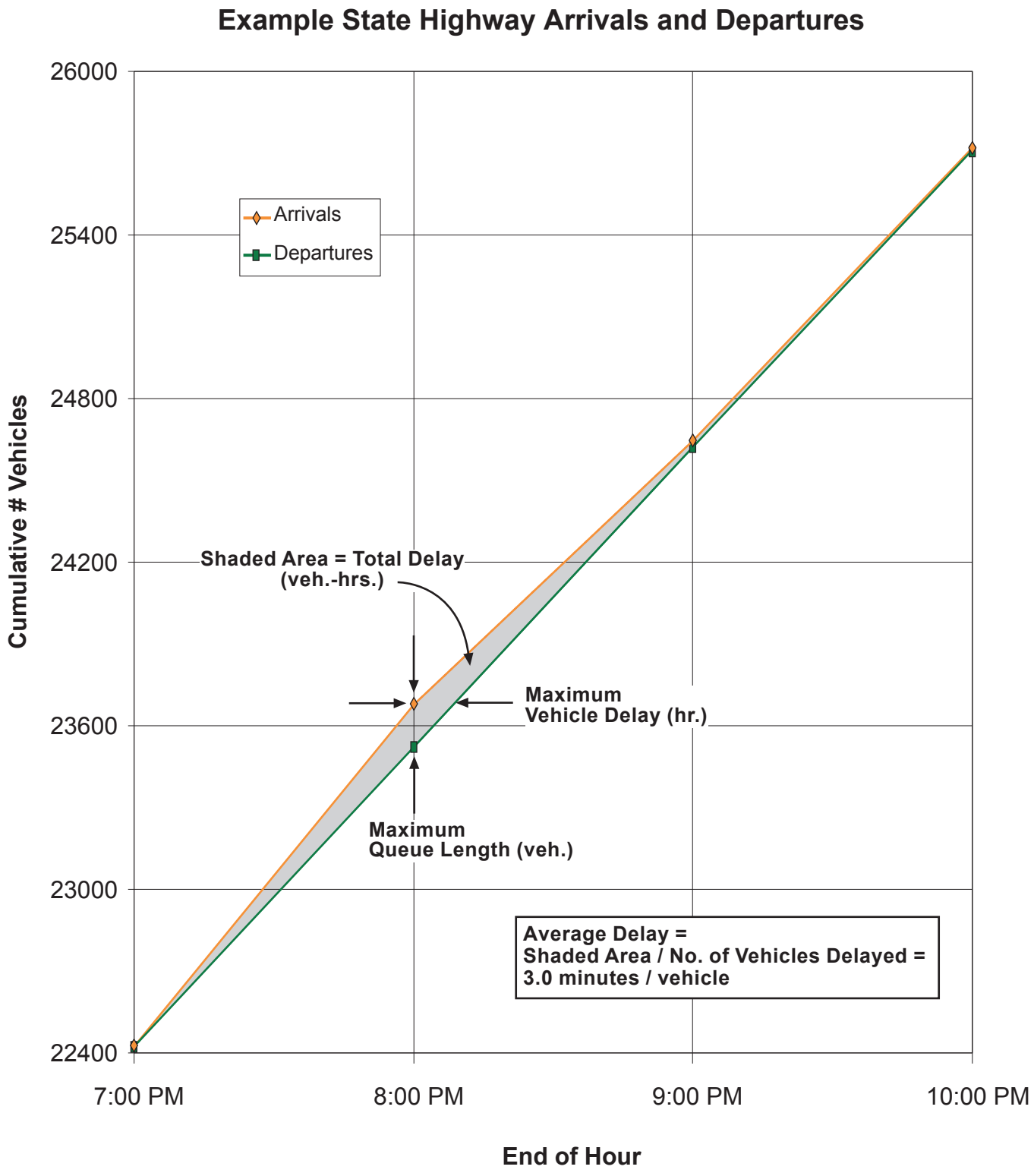

Figure 11

Sample Arrival/Departure Curves

D. Results of Multi-lane Analysis

Schedules

The multi-lane closure schedules resulting from the methodology outlined above are depicted graphically on **Figures 5** through **10**. Differing lane closure schedules are depicted in varying colors.

The general scheduling information shown graphically on **Figures 5** through **10** is presented in greater detail in the lane closure schedule tables in **Appendix B**. The tables provide specific times at which closures will be allowed for each multi-lane section.

APPENDIX A STRATEGY USE SPECIFICATIONS

CLOSURE IMPLEMENTATION PROCESS

The following steps should be followed in order to analyze, communicate, and document a proposed lane closure:

Step 1 – Review closure tabulation (**Appendix B**) to determine basic lane closure restrictions.

Step 2 – Analyze specific closure that is necessary to determine if there are any unique circumstances that will warrant modification(s) to the basic closure schedule. These unique circumstances might include, but are not limited to, the following:

- Night time temperatures, noise restrictions, materials supply limitations, etc;
- Nature of construction required. For example, blasting may only be done during daylight hours;
- Special events (see following discussion);
- Seasonal events (such as harvests);
- Potential restrictions for oversize vehicles;
- Work week is typically considered from 9 PM Sunday to Friday at noon.

Any variances from the basic closure schedule will first require approval from the Resident Engineer or Maintenance Supervisor. Final approval from the Region 5 Traffic Engineer will also be required. Closures over multiple sections within a single project should be reviewed and a uniform closure time should be determined. All modifications to the basic closure schedule must be documented.

Step 3 – Notify the Traffic Operations Engineer of the closure and request a variance if necessary.

Based on the extent and duration of the proposed closure, additional notifications should be considered. Information might be distributed to:

- CDOT Public Relations office
- Statewide Traffic Operations Center (TOC), for possible display on permanent Variable Message Sign (VMS) located upstream from the closure.
- Local Newspapers, radio stations, etc.
- Emergency Response Agencies (State Patrol, Sheriff's Office, Fire, Ambulance)

Step 4 – Place closure documentation in the project file.

SPECIAL EVENTS

The occurrence of special events will affect traffic conditions along state highway facilities. The lane closure schedules outlined in this strategy are not intended to apply to special event traffic control. When the schedule for a special event is known, construction or maintenance related lane closures should not be scheduled from two hours before the event to one hour after the event. This Strategy is also not intended for application during peak holiday travel times, such as the weeks of July 4th, Labor Day and Memorial Day.

VARIANCE REQUESTS

A process is documented in this Strategy to allow users to request a variance from the hours specified in Appendix B. It is described beginning on Page 7.

EMERGENCY SITUATIONS

This Strategy is intended for application to planned lane closures rather than public safety emergencies. Temporary lane closures necessitated by emergency situations, such as avalanche control, are acceptable at all times.

UPDATES TO THE STRATEGY

To account for future changes in traffic volumes and patterns, the Strategy will be updated every five years. The current Strategy is based on 2007 traffic volumes. Therefore, the next update will occur in 2012 or before.

APPENDIX B LANE CLOSURE SCHEDULE TABLES

HOW TO USE THE SCHEDULE TABLES

Example Lane Closure Scheduling Exercises

Scenario: Striping maintenance along State Highway (SH) 24A at Milepoint (MP) 212.0. This project requires the temporary closure of a single lane along the highway, implementing a two-way alternating flow condition with flaggers. The project is scheduled for a Tuesday during the month of June. The spatial length of the closure may vary between less than 1 mile and more than 2 miles.

Solution: Referring to the **Appendix B** tables, look up SH 24A in the leftmost column. Locate MP 212.0 between MP 211.6 and 213.2. The allowed hours show that a closure of less than 1.0 mile could be implemented between 6 PM on Tuesday evening and 11 AM on Wednesday morning. The roadway must be re-opened at 11 AM on Wednesday and should remain open until 6 PM.

If the closure is lengthened to 2 miles long, the closure hours would tighten to a night-only condition stretching between 7 PM and 8 AM. These night-only closure hours would further tighten to 7 PM to 7 AM if the closure is lengthened beyond 2 miles.

In summary, the closure hours may be expanded if the closure length is shortened.

Scenario: Re-paving of a lane is planned for Westbound SH 160A at Milepoint 83.0. The project requires the temporary closure of a single lane along the highway. The project is scheduled for an October Saturday.

Solution: Referring to **Appendix B**, look up SH 160A in the leftmost column. Locate MP 83.0 between MP 82.3 and MP 83.2. The allowed hours show that a closure may be implemented in the westbound direction between 4 PM on Saturday afternoon and 12 PM (Noon) on the following Sunday. The lane must be re-opened between Noon and 4 PM on Sunday.

Scenario: A utility sewer will be replaced along US 285A in November south of Alamosa. This operation will require 2 weeks of continuous closure of a lane for a length of slightly less than1 mile between MP 33 and MP 33.4.

Solution: Referring to **Appendix B**, look up US 285A in the leftmost column. Locate MP 33 between MP 32.4 and MP 33.7. The allowed hours are midday and night hours for a less than 1 mile length closure. Since the roadway would need to be closed continuously, a variance request would need to be filed with Region 5 traffic. This request would need to specify the requested lane closure hours and provide an MHT with alternate route /detour signing to mitigate the delay effects of the continuous closure. In this example, US 285A is supported by a west frontage road that could provide an alternate route and / or detour during the closure. An approval letter from the City or County should be also submitted.

Lane Closure Strategy -
ALLOWED HOURS

Summer: May-Sept, Off-Season: Oct-Apr
Weekday: Mon-Fri, Weekend: Sat-Sun

CDOT
Region 5

Route	Start MP	End MP	# of Lanes	AADT	Direct.	Summer Weekday Allowed Hours			Summer Weekend Allowed Hours			Off-Season Weekday Allowed Hours			Off-Season Weekend Allowed Hours		
						<1 mile lane closure	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*
003A	0.0	2.4	2	9800	both	7 PM to 7 AM	7 PM to 7 AM	8 PM to 6 AM	5 PM to 11 AM	7 PM to 9 AM	8 PM to 8 AM	6 PM to 7 AM 8 AM to 3 PM	7 PM to 7 AM	7 PM to 6 AM	Anytime	6 PM to 10 AM	7 PM to 9 AM
009A	18.2	47.0	2	700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
009B	47.6	63.7	2	1500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
015A	0.0	0.4	2	3500	both	Anytime	Anytime	Anytime	Anytime	Anytime	4 PM to 12 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
015A	0.4	0.8	2	2300	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
015A	0.8	12.4	2	1000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
015B	20.4	30.9	2	1300	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
017A	0.0	17.0	2	1500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
017A	17.0	39.0	2	1500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
017B	69.1	70.1	2	4400	both	Anytime	Anytime	6 PM to 12 PM	Anytime	4 PM to 12 PM	6 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 12 PM
017B	70.1	76.1	2	2700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
017B	76.1	87.9	2	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
017B	87.9	118.8	2	1600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
024A	195.5	205.0	2	3100	both	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
024A	205.0	210.2	2	7900	both	5 PM to 11 AM	6 PM to 8 AM	7 PM to 7 AM	6 PM to 9 AM	7 PM to 9 AM	8 PM to 8 AM	Anytime	5 PM to 3 PM	6 PM to 7 AM	4 PM to 2 PM	6 PM to 10 AM	7 PM to 9 AM
024A	210.2	211.6	4	12600	EB	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
	211.6	210.2			WB	Anytime	Anytime	Anytime	5 PM to 3 PM	5 PM to 3 PM	5 PM to 3 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
024A	211.6	213.2	2	8700	both	6 PM to 11 AM	7 PM to 8 AM	7 PM to 7 AM	7 PM to 9 AM	8 PM to 8 AM	9 PM to 8 AM	Anytime	6 PM to 10 AM	6 PM to 7 AM	5 PM to 12 PM	6 PM to 10 AM	7 PM to 9 AM
024A	213.2	213.7	4	5600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
024A	213.7	224.7	2	2400	both	Anytime	Anytime	Anytime	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
024A	224.7	226.6	2	2400	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
024A	226.6	252.9	2	2800	both	Anytime	Anytime	Anytime	Anytime	Anytime	11 AM to 9 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Noon to 9 AM
024A	252.9	267.2	2	3600	both	Anytime	6 PM to 1 PM	6 PM to 8 AM	Anytime	6 PM to 9 AM	7 PM to 9 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	165.6	190.7	2	2700	both	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	190.7	192.3	2	1800	both	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	192.3	200.1	3	1800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	200.1	201.1	2	1800	both	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	201.1	202.5	3	1800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	202.5	203.4	2	1800	both	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	203.4	204.6	3	1800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	204.6	208.6	2	2200	both	Anytime	Anytime	3 PM to 12 PM	Anytime	4 PM to 12 PM	6 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	208.6	210.6	2	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	4 PM to 12 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	210.6	215.0	2	2700	both	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	215.0	217.4	2	4200	both	Anytime	Anytime	6 PM to 9 AM	Anytime	6 PM to 11 AM	7 PM to 9 AM	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 1 PM
050A	217.4	217.7	3	6500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	217.7	221.3	4	6800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	221.3	222.2	4	12200	EB	Anytime	Anytime	Anytime	5 PM to 3 PM	5 PM to 3 PM	5 PM to 3 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
	222.2	221.3			WB	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
050A	222.2	233.6	4	7000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
062A	0.0	12.7	2	4000	both	Anytime	Anytime	6 PM to 7 AM 9 AM to 3 PM	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
062A	12.7	17.0	2	4000	both	6 PM to 4 PM	6 PM to 7 AM 9 AM to 3 PM	7 PM to 6 AM	Anytime	6 PM to 3 PM	7 PM to 6 AM	Anytime	6 PM to 5 PM	6 PM to 7 AM	Anytime	Anytime	6 PM to 4 PM
062A	17.0	22.6	2	4000	both	Anytime	Anytime	6 PM to 7 AM 9 AM to 3 PM	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
062A	22.6	23.4	2	7500	both	6 PM to 3 PM	7 PM to 6 AM	7 PM to 6 AM	6 PM to 4 PM	7 PM to 7 AM	7 PM to 6 AM	Anytime	6 PM to 3 PM	7 PM to 6 AM	Anytime	6 PM to 4 PM	6 PM to 7 AM
084A	0.0	12.5	2	2000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
084A	12.5	15.2	2	2000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
084A	15.2	25.9	2	2000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
084A	25.9	27.9	2	3700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
090A	0.0	5.2	2	550	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
090A	5.2	9.5	2	550	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime

INTERPRETATION EXAMPLE NOTE: Allowed hours reading '6 PM to 4 PM' mean a lane may be closed from 6 PM one day to 4 PM the following day, but all lanes must be reopened for the two hours from 4 PM to 6 PM.

Lane Closure Strategy -
ALLOWED HOURS

Summer: May-Sept, Off-Season: Oct-Apr
Weekday: Mon-Fri, Weekend: Sat-Sun

CDOT
Region 5

Route	Start MP	End MP	# of Lanes	AADT	Direct.	Summer Weekday Allowed Hours			Summer Weekend Allowed Hours			Off-Season Weekday Allowed Hours			Off-Season Weekend Allowed Hours		
						<1 mile lane closure	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*
090A	9.5	33.9	2	550	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
097A	0.0	4.6	2	2000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
110A	0.0	0.1	2	2300	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
112A	0.0	0.4	2	2700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
112A	0.4	15.0	2	1900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
112A	15.0	15.6	2	4300	both	Anytime	Anytime	6 PM to 2 PM	Anytime	Anytime	4 PM to 12 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
112A	15.6	19.3	2	2500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
112A	19.3	27.8	2	750	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
114A	0.0	61.7	2	730	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
136A	0.0	4.5	2	1500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
140A	0.0	23.4	2	2600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
141A	0.0	16.2	2	2500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
141A	16.2	21.0	2	2500	both	Anytime	Anytime	8 AM to 6 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
141A	21.0	51.7	2	2500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
141A	51.7	110.5	2	2500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
142A	0.0	33.8	2	2400	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	0.0	2.3	3	8000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	2.3	7.5	2	4700	both	Anytime	Anytime	7 PM to 4 PM	Anytime	Anytime	4 PM to 1 PM	Anytime	Anytime	7 PM to 4 PM	Anytime	Anytime	4 PM to 2 PM
145A	7.5	8.3	3	6000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	8.3	9.5	2	6000	both	Anytime	6 PM to 7 AM 9 AM to 3 PM	7 PM to 7 AM	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	7 PM to 8 AM	Anytime	Anytime	6 PM to 10 AM
145A	9.5	10.1	2	5300	both	Anytime	Anytime	7 PM to 7 AM	Anytime	Anytime	5 PM to 10 AM	Anytime	Anytime	7 PM to 8 AM	Anytime	Anytime	5 PM to 12 PM
145A	10.1	11.3	3	6000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	11.3	17.1	2	3800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	17.1	47.2	2	1600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	47.2	56.1	4	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	56.1	62.0	4	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	62.0	64.2	4	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	64.2	69.2	2	2500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	69.2	71.5	2	7800	both	6 PM to 4 PM	6 PM to 7 AM	7 PM to 6 AM	Anytime	6 PM to 10 AM	8 PM to 9 AM	6 PM to 4 PM	6 PM to 7 AM	7 PM to 6 AM	Anytime	6 PM to 10 AM	8 PM to 9 AM
145A	71.5	74.1	2	5300	both	6 PM to 6 AM 9 AM to 3 PM	7 PM to 6 AM	7 PM to 6 AM	5 PM to 10 AM	7 PM to 9 AM	8 PM to 8 AM	6 PM to 4 PM	6 PM to 6 AM	7 PM to 6 AM	Anytime	6 PM to 11 AM	7 PM to 10 AM
145A	74.1	84.3	2	5300	both	6 PM to 4 PM	6 PM to 6 AM	7 PM to 6 AM	Anytime	5 PM to 11 AM	7 PM to 9 AM	Anytime	6 PM to 4 PM	6 PM to 6 AM	Anytime	Anytime	5 PM to 11 AM
145A	84.3	96.0	2	1900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	96.0	98.2	2	1900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	98.2	99.5	2	1900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	99.5	101.1	2	2900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	101.1	101.6	4	2700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
145A	101.6	116.9	2	2100	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
149A	0.0	1.2	3	3400	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
149A	1.2	41.5	2	1900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
149A	41.5	45.5	2	720	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
150A	0.0	16.0	2	740	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
151A	0.0	5.0	2	4000	both	Anytime	Anytime	6 PM to 7 AM 9 AM to 3 PM	Anytime	Anytime	Anytime	Anytime	Anytime	8 AM to 7 AM	Anytime	Anytime	Anytime
151A	5.0	34.0	2	1500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
159A	0.0	17.8	2	1000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
159A	17.8	18.2	2	4000	both	Anytime	Anytime	5 PM to 10 AM 12 PM to 3 PM	Anytime	Anytime	Anytime	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	Anytime
159A	18.2	33.7	2	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	0.0	18.3	2	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	18.3	35.2	2	7600	both	Anytime	5 PM to 9 AM	6 PM to 5 AM	Anytime	5 PM to 8 AM	6 PM to 7 AM	Anytime	4 PM to 12 PM	5 PM to 5 AM	Anytime	3 PM to 9 AM	6 PM to 7 AM
160A	35.2	37.4	4	11200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime

INTERPRETATION EXAMPLE NOTE: Allowed hours reading '6 PM to 4 PM' mean a lane may be closed from 6 PM one day to 4 PM the following day, but all lanes must be reopened for the two hours from 4 PM to 6 PM.

Lane Closure Strategy -
ALLOWED HOURS

Summer: May-Sept, Off-Season: Oct-Apr
Weekday: Mon-Fri, Weekend: Sat-Sun

CDOT
Region 5

Route	Start MP	End MP	# of Lanes	AADT	Direct.	Summer Weekday Allowed Hours			Summer Weekend Allowed Hours			Off-Season Weekday Allowed Hours			Off-Season Weekend Allowed Hours		
						<1 mile lane closure	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*
160A	37.4	37.9	4	22000	EB	6 PM to 2 PM	6 PM to 2 PM	6 PM to 2 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	4 PM to 1 PM	4 PM to 1 PM	4 PM to 1 PM
	37.9	37.4			WB	7 PM to 2 PM	7 PM to 2 PM	7 PM to 2 PM	Anytime	Anytime	Anytime	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	1 PM to 9 AM	1 PM to 9 AM	1 PM to 9 AM
160A	37.9	38.2	4	12500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	38.2	38.6	4	18200	EB	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
	38.6	38.2			WB	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	38.6	39.6	4	21100	EB	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	4 PM to 1 PM	4 PM to 1 PM	4 PM to 1 PM
	39.6	38.6			WB	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	Anytime	Anytime	Anytime	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	1 PM to 11 AM	1 PM to 11 AM	1 PM to 11 AM
160A	39.6	40.3	4	16900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	40.3	41.9	4	9500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	41.9	48.6	2	6800	both	6 PM to 4 PM	6 PM to 8 AM	7 PM to 6 AM	Anytime	4 PM to 12 PM	7 PM to 9 AM	Anytime	6 PM to 3 PM	7 PM to 7 AM	Anytime	Anytime	6 PM to 10 AM
160A	48.6	54.8	4	5600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	54.8	60.0	2	7200	both	6 PM to 4 PM	7 PM to 7 AM	7 PM to 6 AM	Anytime	5 PM to 11 AM	7 PM to 9 AM	Anytime	6 PM to 3 PM	7 PM to 7 AM	Anytime	Anytime	6 PM to 10 AM
160A	60.0	62.7	2	7200	both	6 PM to 3 PM	7 PM to 7 AM	7 PM to 6 AM	Anytime	6 PM to 10 AM	7 PM to 9 AM	6 PM to 4 PM	6 PM to 2 PM	7 PM to 6 AM	Anytime	Anytime	6 PM to 9 AM
160A	62.7	65.0	2	7200	both	6 PM to 4 PM	7 PM to 7 AM	7 PM to 6 AM	Anytime	5 PM to 11 AM	7 PM to 9 AM	Anytime	6 PM to 3 PM	7 PM to 7 AM	Anytime	Anytime	6 PM to 10 AM
160A	65.0	72.0	3	7200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	72.0	79.9	3	6500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	79.9	81.2	3	10600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	81.2	82.3	4	16800	EB	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
	82.3	81.2			WB	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	82.3	83.2	4	20600	EB	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	Anytime	Anytime	Anytime	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	1 PM to 11 AM	1 PM to 11 AM	1 PM to 11 AM
	83.2	82.3			WB	6 PM to 7 AM 9 AM to 4 PM	6 PM to 7 AM 9 AM to 4 PM	6 PM to 7 AM 9 AM to 4 PM	Anytime	Anytime	Anytime	9 AM to 7 AM	9 AM to 7 AM	9 AM to 7 AM	4 PM to 12 PM	4 PM to 12 PM	4 PM to 12 PM
160A	83.2	88.3	4	40400	EB	7 PM to 6 AM	7 PM to 6 AM	7 PM to 6 AM	7 PM to 9 AM	7 PM to 9 AM	7 PM to 9 AM	7 PM to 6 AM	7 PM to 6 AM	7 PM to 6 AM	7 PM to 7 AM	7 PM to 7 AM	7 PM to 7 AM
	88.3	83.2			WB	6 PM to 6 AM	6 PM to 6 AM	6 PM to 6 AM	7 PM to 9 AM	7 PM to 9 AM	7 PM to 9 AM	6 PM to 6 AM	6 PM to 6 AM	6 PM to 6 AM	7 PM to 7 AM	7 PM to 7 AM	7 PM to 7 AM
160A	88.3	89.0	3	24700	both	7 PM to 7 AM	7 PM to 7 AM	7 PM to 7 AM	5 PM to 11 AM	5 PM to 11 AM	5 PM to 11 AM	6 PM to 2 PM	6 PM to 2 PM	6 PM to 2 PM	Anytime	Anytime	Anytime
160A	89.0	91.5	4	24700	EB	7 PM to 2 PM	7 PM to 2 PM	7 PM to 2 PM	5 PM to 12 PM	5 PM to 12 PM	5 PM to 12 PM	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	5 PM to 11 AM	5 PM to 11 AM	5 PM to 11 AM
	91.5	89.0			WB	6 PM to 7 AM	6 PM to 7 AM	6 PM to 7 AM	5 PM to 11 AM	5 PM to 11 AM	5 PM to 11 AM	6 PM to 7 AM 10 AM to 4 PM	6 PM to 7 AM 10 AM to 4 PM	6 PM to 7 AM 10 AM to 4 PM	5 PM to 11 AM	5 PM to 11 AM	5 PM to 11 AM
160A	91.5	93.1	4	13000	EB	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
	93.1	91.5			WB	9 AM to 7 AM	9 AM to 7 AM	9 AM to 7 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	93.1	103.2	2	8900	both	7 PM to 7 AM 9 AM to 2 PM	7 PM to 7 AM	8 PM to 6 AM	Anytime	7 PM to 9 AM	8 PM to 8 AM	6 PM to 4 PM	7 PM to 7 AM	8 PM to 6 AM	Anytime	6 PM to 11 AM	7 PM to 9 AM
160A	103.2	103.6	4	9200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	103.6	113.1	2	4700	both	Anytime	6 PM to 4 PM	7 PM to 7 AM	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	6 PM to 7 AM	Anytime	Anytime	Anytime
160A	113.1	118.2	3	4700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	118.2	125.2	2	4000	both	Anytime	Anytime	6 PM to 7 AM 9 AM to 3 PM	Anytime	Anytime	Anytime	Anytime	Anytime	6 PM to 7 AM 9 AM to 4 PM	Anytime	Anytime	Anytime
160A	125.2	126.1	3	4000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	126.1	127.0	2	4000	both	Anytime	Anytime	6 PM to 3 PM	Anytime	Anytime	Anytime	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	Anytime
160A	127.0	129.9	2	4600	both	Anytime	6 PM to 4 PM	6 PM to 7 AM 9 AM to 2 PM	Anytime	Anytime	4 PM to 12 PM	Anytime	Anytime	6 PM to 7 AM 9 AM to 4 PM	Anytime	Anytime	Anytime
160A	129.9	138.2	2	9000	both	6 PM to 7 AM 9 AM to 2 PM	7 PM to 7 AM	8 PM to 6 AM	2 PM to 12 PM	7 PM to 9 AM	8 PM to 8 AM	6 PM to 7 AM 9 AM to 4 PM	7 PM to 7 AM	7 PM to 6 AM	Anytime	6 PM to 11 AM	7 PM to 9 AM
160A	138.2	144.5	2	14700	both	8 PM to 8 AM	9 PM to 7 AM	10 PM to 7 AM	7 PM to 9 AM	9 PM to 8 AM	10 PM to 8 AM	8 PM to 8 AM	9 PM to 8 AM	10 PM to 7 AM	6 PM to 10 AM	8 PM to 9 AM	9 PM to 8 AM
160A	144.5	154.1	2	4900	both	Anytime	4 PM to 10 AM	6 PM to 9 AM	Anytime	3 PM to 12 PM	6 PM to 10 AM	Anytime	Anytime	6 PM to 7 AM 9 AM to 12 PM	Anytime	Anytime	4 PM to 12 PM
160A	154.1	158.1	2	2900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	158.1	172.6	2	2900	both	Anytime	2 PM to 10 AM	6 PM to 9 AM	Anytime	2 PM to 12 PM	6 PM to 10 AM	Anytime	Anytime	6 PM to 7 AM 9 AM to 12 PM	Anytime	Anytime	4 PM to 12 PM
160A	172.6	184.7	2	2900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	184.7	201.6	2	5800	both	Anytime	6 PM to 12 PM	7 PM to 7 AM	Anytime	5 PM to 12 PM	6 PM to 9 AM	Anytime	6 PM to 4 PM	6 PM to 7 AM	Anytime	Anytime	5 PM to 11 AM
160A	201.6	207.1	2	8300	both	6 PM to 1 PM	7 PM to 7 AM	8 PM to 7 AM	5 PM to 12 PM	6 PM to 9 AM	8 PM to 9 AM	6 PM to 4 PM	6 PM to 7 AM 9 AM to 11 AM	7 PM to 7 AM	Anytime	5 PM to 12 PM	7 PM to 9 AM
160A	207.1	215.7	2	9100	both	6 PM to 10 AM	7 PM to 7 AM	8 PM to 7 AM	5 PM to 11 AM	7 PM to 9 AM	9 PM to 8 AM	6 PM to 7 AM 9 AM to 3 PM	7 PM to 7 AM	7 PM to 7 AM	2 PM to 12 PM	6 PM to 11 AM	7 PM to 9 AM

INTERPRETATION EXAMPLE NOTE: Allowed hours reading '6 PM to 4 PM' mean a lane may be closed from 6 PM one day to 4 PM the following day, but all lanes must be reopened for the two hours from 4 PM to 6 PM.

Lane Closure Strategy - ALLOWED HOURS

Summer: May-Sept, Off-Season: Oct-Apr
Weekday: Mon-Fri, Weekend: Sat-Sun

CDOT Region 5

Route	Start MP	End MP	# of Lanes	AADT	Direct.	Summer Weekday Allowed Hours			Summer Weekend Allowed Hours			Off-Season Weekday Allowed Hours			Off-Season Weekend Allowed Hours		
						<1 mile lane closure	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*
160A	215.7	216.9	2	10800	both	7 PM to 7 AM	7 PM to 7 AM	9 PM to 6 AM	6 PM to 10 AM	8 PM to 9 AM	9 PM to 8 AM	6 PM to 7 AM 9 AM to 11 AM	7 PM to 7 AM	8 PM to 7 AM	5 PM to 12 PM	7 PM to 10 AM	8 PM to 9 AM
160A	216.9	227.1	2	8100	both	6 PM to 2 PM	7 PM to 7 AM	7 PM to 7 AM	4 PM to 12 PM	6 PM to 10 AM	8 PM to 9 AM	6 PM to 4 PM	6 PM to 7 AM 9 AM to 11 AM	7 PM to 7 AM	Anytime	5 PM to 12 PM	7 PM to 9 AM
160A	227.1	230.3	2	19100	both	8 PM to 7 AM	10 PM to 6 AM	10 PM to 6 AM	9 PM to 8 AM	10 PM to 8 AM	10 PM to 7 AM	7 PM to 7 AM	9 PM to 6 AM	10 PM to 6 AM	8 PM to 9 AM	9 PM to 8 AM	10 PM to 8 AM
160A	230.3	232.4	4	22400	EB	5 PM to 8 AM	5 PM to 8 AM	5 PM to 8 AM	4 PM to 9 AM	4 PM to 9 AM	4 PM to 9 AM	9 AM to 7 AM	9 AM to 7 AM	9 AM to 7 AM	Anytime	Anytime	Anytime
	232.4	230.3			WB	6 PM to 2 PM	6 PM to 2 PM	6 PM to 2 PM	6 PM to 1 PM	6 PM to 1 PM	6 PM to 1 PM	6 PM to 4 PM	6 PM to 4 PM	6 PM to 4 PM	Anytime	Anytime	Anytime
160A	232.4	233.4	2	14900	EB	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
	233.4	232.4	3		WB	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	233.4	234.3	2	13800	both	7 PM to 7 AM	8 PM to 7 AM	9 PM to 6 AM	7 PM to 9 AM	9 PM to 8 AM	10 PM to 8 AM	7 PM to 7 AM	7 PM to 7 AM	9 PM to 6 AM	6 PM to 11 AM	8 PM to 9 AM	9 PM to 8 AM
160A	234.3	236.9	2	7900	both	5 PM to 12 PM	7 PM to 9 AM	8 PM to 7 AM	6 PM to 10 AM	7 PM to 9 AM	9 PM to 8 AM	Anytime	6 PM to 11 AM	7 PM to 7 AM	Anytime	7 PM to 11 AM	8 PM to 9 AM
160A	236.9	253.6	2	3800	both	Anytime	Anytime	Anytime	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	253.6	258.3	2	5100	both	Anytime	Anytime	6 PM to 9 AM	Anytime	6 PM to 10 AM	7 PM to 9 AM	Anytime	Anytime	6 PM to 12 PM	Anytime	Anytime	6 PM to 11 AM
160A	258.3	271.5	2	3800	both	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	271.5	286.5	3	3800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160A	286.5	288.4	2	3600	both	Anytime	Anytime	Anytime	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160D	0.0	2.5	2	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160E	0.0	0.6	2	1900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
160E	0.6	1.6	2	5400	both	Anytime	6 PM to 7 AM 9 AM to 3 PM	7 PM to 7 AM	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	6 PM to 7 AM	Anytime	Anytime	Anytime
160E	1.6	2.4	2	2600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
172A	0.0	2.1	2	440	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
172A	2.1	7.6	2	1600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
172A	7.6	8.8	2	4900	both	Anytime	Anytime	6 PM to 7 AM	Anytime	Anytime	6 PM to 11 AM	Anytime	Anytime	6 PM to 3 PM	Anytime	Anytime	5 PM to 1 PM
172A	8.8	9.2	2	8900	both	6 PM to 3 PM	7 PM to 7 AM	9 PM to 6 AM	6 PM to 12 PM	7 PM to 10 AM	8 PM to 9 AM	5 PM to 3 PM	6 PM to 7 AM	8 PM to 7 AM	Anytime	6 PM to 11 AM	7 PM to 10 AM
172A	9.2	11.6	4	9700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
172A	11.6	23.6	2	7300	both	6 PM to 7 AM 9 AM to 4 PM	6 PM to 7 AM	7 PM to 6 AM	Anytime	6 PM to 11 AM	7 PM to 10 AM	9 AM to 7 AM	6 PM to 7 AM 9 AM to 2 PM	7 PM to 6 AM	Anytime	5 PM to 1 PM	7 PM to 10 AM
172A	23.6	24.5	2	9800	both	6 PM to 7 AM 9 AM to 2 PM	7 PM to 6 AM	8 PM to 6 AM	6 PM to 11 AM	7 PM to 10 AM	8 PM to 9 AM	6 PM to 7 AM 9 AM to 4 PM	7 PM to 6 AM	8 PM to 6 AM	5 PM to 1 PM	7 PM to 10 AM	8 PM to 9 AM
184A	0.0	6.9	2	1200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
184A	6.9	8.0	2	2900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
184B	9.0	26.4	2	2500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
184B	26.4	26.6	2	4100	both	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	Anytime	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	Anytime
285A	0.0	5.2	2	2100	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285A	5.2	31.3	2	5700	both	Anytime	6 PM to 4 PM	7 PM to 7 AM 9 AM to 11 AM	Anytime	Anytime	7 PM to 11 AM	Anytime	6 PM to 7 AM 9 AM to 4 PM	9 AM to 12 PM 7 PM to 7 AM	Anytime	Anytime	6 PM to 12 PM
285A	31.3	32.4	4	6300	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285A	32.4	33.7	2	8900	both	6 PM to 4 PM	7 PM to 7 AM	8 PM to 7 AM	5 PM to 12 PM	7 PM to 11 AM	8 PM to 10 AM	6 PM to 7 AM 9 AM to 4 PM	9 AM to 11 AM 7 PM to 7 AM	7 PM to 7 AM	Anytime	6 PM to 12 PM	7 PM to 10 AM
285A	33.7	34.0	2	14200	both	7 PM to 7 AM	9 PM to 7 AM	10 PM to 6 AM	7 PM to 10 AM	9 PM to 10 AM	10 PM to 9 AM	7 PM to 7 AM	8 PM to 7 AM	9 PM to 6 AM	7 PM to 11 AM	8 PM to 9 AM	9 PM to 9 AM
285B	51.2	53.3	4	8000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285B	53.3	57.9	4	2800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285B	57.9	86.6	2	2600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285B	86.6	100.5	2	1700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285B	100.5	104.9	3	1800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285B	104.9	119.0	2	2800	both	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285B	119.0	121.4	3	2800	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285B	121.4	126.1	3	2200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285B	126.1	126.5	2	3200	both	Anytime	Anytime	4 PM to 2 PM	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285C	127.4	131.0	3	4700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285C	131.0	133.9	2	4600	both	Anytime	Anytime	6 PM to 10 AM	Anytime	6 PM to 11 AM	7 PM to 9 AM	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 12 PM
285C	133.9	135.5	2	7200	both	5 PM to 11 AM	6 PM to 9 AM	7 PM to 7 AM	6 PM to 10 AM	7 PM to 9 AM	8 PM to 9 AM	Anytime	Anytime	6 PM to 10 AM	Anytime	5 PM to 12 PM	6 PM to 10 AM
285C	135.5	137.8	3	7200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime

INTERPRETATION EXAMPLE NOTE: Allowed hours reading '6 PM to 4 PM' mean a lane may be closed from 6 PM one day to 4 PM the following day, but all lanes must be reopened for the two hours from 4 PM to 6 PM.

Lane Closure Strategy - ALLOWED HOURS

Summer: May-Sept, Off-Season: Oct-Apr
Weekday: Mon-Fri, Weekend: Sat-Sun

CDOT Region 5

Route	Start MP	End MP	# of Lanes	AADT	Direct.	Summer Weekday Allowed Hours			Summer Weekend Allowed Hours			Off-Season Weekday Allowed Hours			Off-Season Weekend Allowed Hours		
						<1 mile lane closure	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*	*<1 mile lane closure*	*1-2 mile lane closure*	*>2 mile lane closure*
285C	137.8	140.0	2	7200	both	5 PM to 11 AM	6 PM to 9 AM	7 PM to 7 AM	6 PM to 10 AM	7 PM to 9 AM	8 PM to 9 AM	Anytime	Anytime	6 PM to 10 AM	Anytime	5 PM to 12 PM	6 PM to 10 AM
285C	140.0	140.7	3	7200	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
285C	140.7	148.0	2	7100	both	5 PM to 12 PM	6 PM to 9 AM	7 PM to 7 AM	6 PM to 10 AM	7 PM to 9 AM	8 PM to 9 AM	Anytime	Anytime	6 PM to 10 AM	Anytime	5 PM to 12 PM	6 PM to 10 AM
285D	161.8	182.0	2	4500	both	Anytime	Anytime	6 PM to 11 AM	Anytime	11 AM to 10 AM	7 PM to 8 AM	Anytime	Anytime	Anytime	Anytime	Anytime	4 PM to 8 AM Noon to 2 PM
285D	182.0	183.0	2	6100	both	Anytime	Anytime	8 PM to 8 AM	11 AM to 10 AM	4 PM to 9 AM	9 PM to 8 AM	Anytime	Anytime	6 PM to 9 AM	Anytime	Noon to 9 AM	7 PM to 8 AM
291A	0.0	2.7	2	4800	both	Anytime	6 PM to 4 PM	6 PM to 7 AM 9 AM to 11 AM	Anytime	6 PM to 10 AM	7 PM to 9 AM	Anytime	Anytime	Anytime	Anytime	Anytime	5 PM to 11 AM
291A	2.7	9.0	2	3600	both	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
368A	0.0	12.3	2	570	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
370A	0.0	14.0	2	660	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
371A	0.0	6.0	2	720	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
491A	0.0	6.4	2	3400	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
491B	26.4	26.7	4	6700	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
491B	26.7	28.4	4	12600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
491B	28.4	31.7	4	7900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
491B	31.7	36.7	2	5700	both	Anytime	6 PM to 4 PM	7 PM to 7 AM	Anytime	5 PM to 12 PM	7 PM to 9 AM	Anytime	6 PM to 4 PM	7 PM to 11 AM	Anytime	4 PM to 2 PM	7 PM to 9 AM
491B	36.7	39.8	3	4500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
491B	39.8	46.3	2	4000	both	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	5 PM to 12 PM	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	4 PM to 12 PM
491B	46.3	63.3	4	4600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
491B	63.3	69.6	2	2400	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
491C	0.0	0.2	4	5600	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
550A	0.0	4.5	2	8400	both	6 PM to 6 AM 8 AM to 3 PM	7 PM to 6 AM	7 PM to 6 AM	5 PM to 1 PM	7 PM to 10 AM	8 PM to 9 AM	6 PM to 4 PM	6 PM to 6 AM	7 PM to 6 AM	Anytime	6 PM to 11 AM	7 PM to 10 AM
550A	4.5	5.4	2	6300	both	Anytime	6 PM to 6 AM 8 AM to 3 PM	7 PM to 6 AM	Anytime	6 PM to 12 PM	7 PM to 10 AM	Anytime	6 PM to 6 AM 8 AM to 3 PM	6 PM to 6 AM	Anytime	5 PM to 4 PM	7 PM to 11 AM
550A	5.4	15.6	2	6300	both	Anytime	6 PM to 6 AM 8 AM to 3 PM	7 PM to 6 AM	Anytime	5 PM to 1 PM	7 PM to 10 AM	Anytime	6 PM to 4 PM	6 PM to 6 AM 9 AM to 2 PM	Anytime	Anytime	6 PM to 11 AM
550A	15.6	16.6	2	8200	both	6 PM to 4 PM	7 PM to 6 AM	7 PM to 6 AM	5 PM to 3 PM	7 PM to 10 AM	8 PM to 9 AM	6 PM to 4 PM	6 PM to 6 AM 8 AM to 2 PM	7 PM to 6 AM	Anytime	6 PM to 12 PM	7 PM to 10 AM
550B	21.0	22.4	4	35100	NB	7 PM to 2 PM	7 PM to 2 PM	7 PM to 2 PM	7 PM to 9 AM	7 PM to 9 AM	7 PM to 9 AM	7 PM to 1 PM	7 PM to 1 PM	7 PM to 1 PM	7 PM to 10 AM	7 PM to 10 AM	7 PM to 10 AM
	22.4	21.0			SB	9 AM to 6 AM	9 AM to 6 AM	9 AM to 6 AM	7 PM to 9 AM	7 PM to 9 AM	7 PM to 9 AM	9 AM to 6 AM	9 AM to 6 AM	9 AM to 6 AM	7 PM to 9 AM	7 PM to 9 AM	7 PM to 9 AM
550B	22.4	24.1	4	28000	NB	7 PM to 1 PM	7 PM to 1 PM	7 PM to 1 PM	6 PM to 9 AM	6 PM to 9 AM	6 PM to 9 AM	7 PM to 1 PM	7 PM to 1 PM	7 PM to 1 PM	7 PM to 1 PM	7 PM to 1 PM	7 PM to 1 PM
	24.1	22.4			SB	9 AM to 6 AM	9 AM to 6 AM	9 AM to 6 AM	7 PM to 9 AM	7 PM to 9 AM	7 PM to 9 AM	9 AM to 6 AM	9 AM to 6 AM	9 AM to 6 AM	6 PM to 9 AM	6 PM to 9 AM	6 PM to 9 AM
550B	24.1	27.6	4	11900	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
550B	27.6	30.3	2	9300	both	6 PM to 7 AM	7 PM to 6 AM	8 PM to 6 AM	6 PM to 10 AM	7 PM to 9 AM	8 PM to 8 AM	6 PM to 7 AM 9 AM to 4 PM	6 PM to 7 AM	7 PM to 6 AM	Anytime	6 PM to 11 AM	7 PM to 9 AM
550B	30.3	35.5	2	6900	both	6 PM to 7 AM 9 AM to 4 PM	6 PM to 7 AM	7 PM to 6 AM	4 PM to 11 AM	6 PM to 10 AM	7 PM to 9 AM	Anytime	6 PM to 7 AM 9 AM to 4 PM	6 PM to 7 AM	Anytime	Anytime	6 PM to 10 AM
550B	35.5	39.6	2	6900	both	6 PM to 7 AM 9 AM to 3 PM	6 PM to 7 AM	7 PM to 6 AM	5 PM to 11 AM	6 PM to 9 AM	8 PM to 9 AM	Anytime	6 PM to 7 AM 9 AM to 3 PM	6 PM to 7 AM	Anytime	Anytime	6 PM to 10 AM
550B	39.6	46.2	3	4500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
550B	46.2	49.6	3	4500	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
550B	49.6	51.2	3	2000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
550B	51.2	70.4	3	2000	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
550B	70.4	72.0	2	2400	both	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime	Anytime
550B	72.0	93.3	2	2400	both	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	5 PM to 11 AM	Anytime	Anytime	12 PM to 10 AM	Anytime	Anytime	Anytime
550B	93.3	103.7	2	4600	both	Anytime	6 PM to 4 PM	7 PM to 9 AM	Anytime	Anytime	6 PM to 10 AM	Anytime	Anytime	6 PM to 4 PM	Anytime	Anytime	Anytime
550B	103.7	122.5	2	7400	both	6 PM to 3 PM	7 PM to 7 AM	8 PM to 6 AM	5 PM to 11 AM	7 PM to 9 AM	8 PM to 9 AM	Anytime	6 PM to 3 PM	7 PM to 7 AM	Anytime	4 PM to 2 PM	6 PM to 10 AM

INTERPRETATION EXAMPLE NOTE: Allowed hours reading '6 PM to 4 PM' mean a lane may be closed from 6 PM one day to 4 PM the following day, but all lanes must be reopened for the two hours from 4 PM to 6 PM.

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