



## **Project-specific Roadway and Lane Closure Strategy**

### **Purpose**

These report documents analyses of the periods when I-70 traffic can be disrupted for construction activities and preparatory efforts related to widening the eastbound Twin Tunnel. I-70 traffic is highly variable depending on season, month, day of the week, and direction. These factors have been considered in developing strategies for closing I-70 to all traffic or for closing only one lane. It is intended to provide initial guidance based on historic traffic patterns. It is anticipated that modification will be made as necessary to respond to actual traffic conditions or the nature of the specific work efforts. Two primary types of disruptions have been considered:

- Full road closures where all I-70 traffic is stopped in one or both directions for up to 30 minutes.
- Lane closures where one lane may be closed for an extended period of time.

Blasting activities will be conducted in the spring and summer of 2013 and will require full roadway closures in both directions of durations lasting between 15 (eastbound) and 30 minutes (westbound). Blasts may occur four to six times a day with no schedule that can be determined many days in advance. Rockfall exploration, mitigation, and protection activities will occur above and beside the tunnel portals and could require full roadway closures in one or both directions of durations lasting approximately 20 minutes. These activities must occur during daylight hours and will be limited to weekdays (Monday through Thursday) only.

Tunnel construction-related activities that will begin in 2012 would involve single lane closures for extended periods of time could include geotechnical investigations and pillar stabilization in both tunnels. In addition, single lane closures may be necessary for tunnel repairs in the westbound direction. Roadway widening and shoulder work in the eastbound direction (outside the tunnel) during 2012 and 2013 will also require closures of one lane that could be in place for multiple weekdays.

In general, the lane closure windows have been increased in coordination with CDOT Region 1 Traffic staff when compared to those found in the *CDOT Region 1 Lane Closure Strategy – Second Edition*, 2008. This modified schedule recognizes the critical nature and time constraints of the Twin Tunnels Widening project.

It is anticipated that traffic volumes will be monitored continuously through the construction period. This will allow CDOT Region 1 construction managers and the contractor (Kraemer/Obayashi) to react quickly to actual traffic patterns and modify closure activities to minimize traffic disruptions while maximizing the time available for construction.

## **General Methodology and Assumptions**

The analyses that were conducted for this strategy are based on the following methodology and assumptions:

- Traffic Volumes – CDOT maintains an automatic traffic recorder (ATR) station on I-70 at the west end of the Twin Tunnels. The ATR records hourly volumes for every day of the year. This analysis is based on the time period from November 1, 2010 through October 31, 2011. A review of monthly volumes since October 2011 has shown very little growth (or lower volumes) in the most recent eight months on I-70. Only June 2012 had an increase worth noting (7.7%). For each month, days were grouped into four categories and averaged: weekdays (Monday through Thursday), Friday, Saturday, and Sunday. Each category has a distinct average hourly pattern of volumes in each direction.
- Capacities – Based on previous analysis efforts for the Twin Tunnels Environmental Assessment, the I-70 Reversible Lane project, and recent field experience, the following assumptions were made about roadway and lane capacities:
  - EB and WB Roadway (outside of the tunnels) - 4,000 vehicles per hour (vph)
  - EB and WB Tunnels – 3,200 vph
  - EB Detour (using game check road and CR 314) – 2,700 vph (based on VISSIM model results)
  - One lane closure (outside of tunnels) – 1,600 vph
  - One lane closure (in either tunnel) – 1,100 vph (based on recent field experience)
  - One lane closure on the EB Detour – 1,200 vph
- Road Closure Capacity – The capacity reduction for a road closure is proportional to the time involved. Thus, a 30-minute closure in the eastbound direction results in a capacity of 1,600 vph during that hour to clear two lanes of traffic through the tunnel.
- Queue Clearance – The performance measure that is the basis for this strategy is that it will be acceptable for traffic queues resulting from a road closure to clear within one hour of the road reopening. The maximum delay for any vehicle in the queue will not exceed 15, 20, or 30 minutes – depending on the closure activity. Thus, if traffic is expected to take longer than one hour to return to normal speeds, no construction activity will be allowed until volumes decrease in subsequent hours such that there is compliance with the one hour standard. This is particularly important on Fridays, Saturdays, and Sundays when in one or both directions are experiencing their peaks.

## **Lane Closure Strategies for Various Construction Activities**

Allowable times (and by inference prohibited times) for the various activities have been summarized for each month (see **Appendix A**). These tables were developed to aid Kraemer-Obayashi (the CM/GC contractor) in developing work schedules and cost estimates for the various construction efforts. **Appendix A** provides a summary of the findings from the various analyses discussed in the following sections.

There are a number of construction activities that could require one lane to be closed, potentially involving mainline I-70, either tunnel, or the eastbound detour. These closures could be independently scheduled since activities in one direction would not normally affect traffic in the opposite direction.

### **Lane Closures Outside of the Tunnels**

One of the two eastbound lanes can be closed for extended periods of time according to a schedule established by Region 1 Traffic staff in an email dated April 18, 2012. This email stated that closures will be allowed from 11:00 pm Sunday through 10:00 am Friday (see **Table 1**). This determination is focused on weekdays.

The schedule for closing one of the two westbound lanes for extended periods of time was developed based on the schedule established by Region 1 Traffic staff for the eastbound direction. The weekday closures were modified slightly in recognition of the different nature of weekend traffic in the westbound direction. Closures are allowed from 6:00 pm Sunday through 7:00 am Friday (see **Table 1**).

Due to the capacity restrictions observed when a lane is closed in either of the tunnels, **Table 1** assumes that these periods apply to lane closures outside of the tunnels. These closures would be related to construction activities such as retaining wall construction and adding the third lane.

Region 1 Traffic staff's general directive was further refined by determining periods that might experience congestion during weekdays and also analyzing weekend (Friday, Saturday, and Sunday) periods where lane closures could be allowed, if necessary. Average hourly volumes for each month were tabulated by direction from the ATR data and are shown in **Appendix B**. Yellow highlights have been added to shown when average hourly volumes exceed the 1,600 vph capacity level established for lane closures outside the tunnels. These tabulations show that some months have weekday volumes higher than 1,600 vph and could experience congestion for several hours in the morning (westbound) and in the afternoon (eastbound). July has the highest average hourly volumes and has the most potential for congestion. Fridays, Saturdays, and Sundays have higher volumes so there are more restrictive hours. The tabulations in **Appendix A** identify these periods when lane closures must be avoided, if at all possible.

### **Lane Closures Through the Tunnels**

There are a number of activities in each of the tunnels that must be accomplished before blasting can begin. These efforts include a variety of geotechnical investigations, pillar stabilization,

filling voids in the westbound tunnel, etc. Based on the observed one-lane capacity of 1,100 vph through the tunnels when equipment is parked or active in the tunnel, these activities would generally not be allowed during daytime hours. Specific hours when work is not allowed for each direction during each month are provided in **Appendix A**. The hourly tabulations shown in **Appendix C** provide volumes with yellow highlights identifying those that are more than 1,100 vph. In general, closures can generally be allowed between 9:00 pm and 8:00 am in the eastbound direction and between 9:00 pm and 6:00 am in the westbound direction.

## **Road Closure Strategies for Various Construction Activities**

Blasting is the principal activity that will require closing I-70 to all traffic at the Twin Tunnels. As described in the following discussion, these closures will stop westbound traffic for longer periods (up to 30 minutes). Although eastbound traffic will be on a detour to bypass the tunnel, it will be stopped for up to 15 minutes as a safety precaution for each blast. These blasts and resulting closures will generally occur four to six times a day. Each direction of traffic was analyzed separately utilizing five-minute periods to more precisely determine the queue dissipation characteristics of individual average day.

### **Eastbound Road Closures for Blasting**

Both eastbound lanes will need to be closed when there is blasting in the eastbound tunnel. Once the widening activities have proceeded sufficient distance inside the west portal, it may be possible that full road closures are no longer necessary. However, the 15-minute closure schedule shown in **Table 2** (and also provided in **Appendix A**) assumes that eastbound traffic will be disrupted throughout the widening process (March 2013 through October 2013). The restrictions take into account the capacity of the detour (2,700 vph). In general, the periods when no closures would be allowed represent times when traffic is rising or already at such a high level that queues cannot be dissipated within an hour. In addition, **Table 2** identifies the combined restrictions based on both directions.

### **Westbound Road Closures for Blasting**

Both westbound lanes will need to be closed throughout the blasting/widening process for the eastbound tunnel. Westbound traffic must be kept out of the tunnel when a blast is set off and for a sufficient period afterward (up to 30 minutes total) so that the integrity of the tunnel can be evaluated. **Table 2** provides the times that no closures would be allowed from March through October by day of the week. The restrictions are based on the capacity of the tunnel (3,200 vph). In general, the periods when no closures would be allowed represent times when traffic is rising or already at such a high level that queues cannot be dissipated within an hour.

### **Roadway and Lane Closures related to Holiday Periods**

During the tunnel widening period in 2013, there will be three holiday periods that will have high traffic volumes: Memorial Day (May 27<sup>th</sup>), Fourth of July (Thursday), and Labor Day (September 2<sup>nd</sup>). **Table 3** provides schedules for these three holidays. Since July 4<sup>th</sup> is a Thursday, traffic volumes from 2007 (when July 4<sup>th</sup> was on a Wednesday) were utilized since this is the most recent year that the holiday didn't involve a Friday through Monday.

### **Road Closures for Other Construction Activities**

During the summer and fall of 2012, there will be occasions when both tunnels are closed for up to 20 minutes for rockfall mitigation activities at the portals of the tunnels. During the last week of July, an investigation was conducted to identify rocks that have potential to fall due to blasts. Traffic was stopped at 6:00am, 8:00am and 10:00am. Field observations during these four days showed that the disruptions during these times were minor and were within the anticipated parameters. These closures also provided a test of the proposed method of handling traffic (MOT) for the later blasting closures. More details of these activities are contained in a separate report: *Summary of Traffic Operations during July 2012 Rockfall Investigation at the Twin Tunnels*.

Geotechnical investigations inside the eastbound tunnel were conducted in late August 2012 during night time hours. This procedure was unique in that traffic was stopped for 30 minute periods, and then the one equipment remained in the tunnel while only one lane was available to clear traffic through the tunnel. This work began at 11:00 pm and was completed by 4:00 am. There one 1½ hour separations between the start times of the closures. There were no reported traffic problems during this work.

There will be rock scaling at the tunnel portals during the fall of 2012 to remove all of the loose material found during July. The 20 minute closure schedules for these early activities during September through December are provided in **Appendix A**. Periods utilizing one hour separations of the start of closures and also 1½ hour separations are shown. If a high volume of rock is dislodged at one time, it is possible that clean up cannot be completed within the 20 minutes allotted for the closure. For this case, 30-minute closures are also included in the tabulation.

### **Potential Queues during Road Closures**

Maximum queue lengths have been calculated for both directions of traffic and are shown on in **Table 2**. A secondary objective in analyzing allowable hours for closures is to keep the lengths of queues stopped for blasting to a reasonable length. Procedures for stopping traffic were tested during the rock fall investigations in late July 2012. The primary stopping point for eastbound traffic will be west of the west Idaho Springs interchange (Exit 239). This will minimize the potential for disruptions to local traffic on Miner Street and Colorado Avenue in Idaho Springs. Westbound traffic will be stopped at the Hyland Hills interchange (Exit 246). The approach to this location has three lanes and is on an uphill grade, so this is felt to be the safest location to stop traffic. Secondary closure points will be established approximately 1,000 feet outside each tunnel. **Table 4** shows the distances upstream of the Twin Tunnels and also upstream of the anticipated closure points. With the possible exception of Sundays in September, a comparison of **Tables 2 and 4** shows that eastbound queues will generally be contained east of Empire Junction where US 40 enters I-70. Queues of westbound traffic will generally be west of the Evergreen interchange (Exit 251). Saturday morning's in July and August have the potential for longer queues but the option of leading the queue down Floyd Hill to the Hidden Valley interchange (Exit 243) at low speeds to provide more distance for queues will be explored.

### **Considerations for Modifying Road Closures Schedules**

It should be remembered that the closure schedules provided in **Appendix A, Table 2**, and **Table 3** were primarily developed for construction planning purposes. They are based on average monthly hourly volumes for each category of day. Thus, any day or hour in 2012 or 2013 is likely to deviate from this average.

To compensate for this uncertainty of actual conditions in the future, it is anticipated that traffic volumes will be monitored continuously through the construction period. This will allow CDOT Region 1 construction managers and the contractor (Kraemer-Obayashi) to react quickly to actual traffic patterns and modify closure activities to minimize traffic disruptions while maximizing the time available for construction activities. Recent past historical counts (hourly by direction) will be available for review on a week-by-week (or even day-by-day) basis so that volumes can be anticipated.

The following potential scenario describes how historic and contemporary data can be utilized in on-going blasting operations. At 8:00am on a Saturday in June, a blast is ready to be fired. Table 1 shows that westbound traffic is the only consideration since eastbound traffic is too low to be of concern. Historic and current westbound traffic volumes for the last four hours would be compared to see whether current volumes are rising at a lower or higher rate than in the past. If traffic is lower, CDOT and the contractor may decide that the blast can be set off because past experience has shown that traffic will be able to clear in sufficient time so that there is not a queue throughout the rest of the morning and early afternoon.

**Table 1**  
**I-70 Twin Tunnels Construction**

<b>Lane Closure Strategy for 1 Lane Closures</b>	
<b>Times that 1 Lane Can be Closed</b>	
<b>Eastbound</b>	
Basic Schedule	Sunday 11pm through Friday 10am
	Fri-Sat: 9pm to 8am
	Sat-Sun: 9pm to 8am
<b>Westbound</b>	
Basic Schedule	Sunday 6pm through Friday 7am
	Fri-Sat: 9pm to 5am
	Sat-Sun: 9pm to 5am

Print Date: 5/14/2012

**Table 2**  
**Periods I-70 Can't be Closed for Blasting**

Print Date: 8/29/2012

Eastbound (15 min. closure)			Westbound (30 min. closure) Max Queue		Combined		
No Blasting		Max Queue	No Blasting		No Blasting		
<b>March</b>			<b>March</b>		<b>March</b>		
Mon-Thurs	none		Mon-Thurs	none	Mon-Thurs	none	
Friday	1:00pm - 6pm	4.2 mi	Friday	6:30am - 10am	3.7 mi/2.5 mi	Friday	6:30am-10am / 1:00pm - 6pm
Saturday	12pm - 6pm	5.8 mi	Saturday	5am - 10am	0.8 mi/0.5 mi	Saturday	5am - 6pm
Sunday	9:30am - 6pm	3.1 mi	Sunday	none		Sunday	9:30am - 6pm
<b>April</b>			<b>April</b>		<b>April</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none
Friday	none		Friday	none		Friday	none
Saturday	2:30pm - 4pm	5.8 mi	Saturday	none		Saturday	2:30pm - 4pm
Sunday	none		Sunday	none		Sunday	none
<b>May</b>			<b>May</b>		<b>May</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none
Friday	none		Friday	none		Friday	none
Saturday	none		Saturday	none		Saturday	none
Sunday	none		Sunday	none		Sunday	none
<b>June</b>			<b>June</b>		<b>June</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none
Friday	none		Friday	12:30pm - 7pm	6.0 mi/4.6 mi	Friday	12:30pm - 7pm
Saturday	1pm - 4pm	4.4 mi	Saturday	8:00am - 12 pm	6.8 mi/4.5 mi	Saturday	8:00am - 4 pm
Sunday	9:30am - 7pm	2.1 mi	Sunday	none		Sunday	9:30am - 7pm
<b>July</b>			<b>July</b>		<b>July</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none
Friday	none		Friday	8:30am - 7pm	6.1 mi/4.6 mi	Friday	8:30am - 7pm
Saturday	12:30pm - 6pm	6.3 mi	Saturday	7am - 3pm	7.0 mi/5.4 mi	Saturday	7am - 6pm
Sunday	8:30am - 8pm	1.3 mi	Sunday	8:30am - 4pm	5.8 mi/4.6 mi	Sunday	8:30am - 8pm
<b>August</b>			<b>August</b>		<b>August</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none
Friday	1pm - 5pm	4.2 mi	Friday	9am - 8pm	6.8 mi/5.4 mi	Friday	9am - 8pm
Saturday	12pm - 7pm	6.9 mi	Saturday	7am - 2pm	6.0 mi/4.6 mi	Saturday	7am - 7pm
Sunday	8:30am - 8pm	1.6 mi	Sunday	8:30am - 3pm	5.4 mi/4.1 mi	Sunday	8:30am - 8pm
<b>September</b>			<b>September</b>		<b>September</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none
Friday	none		Friday	10am - 7pm	6.5 mi/4.7 mi	Friday	10am - 7pm
Saturday	2pm - 6pm	5.8 mi	Saturday	8am - 2pm	6.1 mi/4.7 mi	Saturday	8am - 6pm
Sunday	10am - 7pm	7.4 mi	Sunday	none		Sunday	10am - 7pm
<b>October</b>			<b>October</b>		<b>October</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none
Friday	none		Friday	none		Friday	none
Saturday	none		Saturday	none		Saturday	none
Sunday	12pm - 4pm	5.7 mi	Sunday	none		Sunday	12pm - 4pm



**Table 3**  
**Periods I-70 Can't be Closed for Blasting During Holidays**

Print Date: 8/30/2012

<b>Eastbound (30 min. closure)</b>			<b>Westbound (30 min. closure)</b>			<b>Combined</b>		
No Blasting		Max Queue	No Blasting		Max Queue (2 lanes / 3 lanes)	No Blasting		
<b>Memorial Day</b>			<b>Memorial Day</b>			<b>Memorial Day</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none	
Friday	none		Friday	12:30pm to 6pm	6.3 mi/5.0 mi	Friday	12:30pm to 6pm	
Saturday	none		Saturday	8:30am to 2pm	5.4 mi/4.1 mi	Saturday	8:30am to 2pm	
Sunday	2:30pm to 4pm	6.3 mi	Sunday	none		Sunday	2:30pm to 4pm	
Monday	9:30am to 5pm	2.1 mi	Monday	none		Monday	9:30am to 5pm	
<b>Fourth of July</b>			<b>Fourth of July</b>			<b>Fourth of July</b>		
Wednesday	none		Wednesday	none		Wednesday	none	
Thursday (7/4)	none		Thursday (7/4)	none		Thursday (7/4)	none	
Friday	12:30am to 6pm	2.7 mi	Friday	12:30pm to 6pm	5.6 mi/4.1 mi	Friday	12:30pm to 6pm	
Saturday	11am to 9pm	6.1 mi	Saturday	11am to 8pm	6.4 mi/5.0 mi	Saturday	11am to 9pm	
Sunday	9am to 9pm	4.2 mi	Sunday	8:30am to 8pm	3.7 mi/2.4 mi	Sunday	8:30am to 9pm	
<b>Labor Day</b>			<b>May</b>			<b>May</b>		
Mon-Thurs	none		Mon-Thurs	none		Mon-Thurs	none	
Friday	none		Friday	8:30am to 8pm	6.0 mi/4.6 mi	Friday	8:30am to 8pm	
Saturday	nonr		Saturday	6:30am to 4pm	3.7 mi/2.5 mi	Saturday	6:30am to 4pm	
Sunday	10:30am to 8pm	4.8 mi	Sunday	8am to 2pm	5.6 mi/4.2 mi	Sunday	8am to 8pm	
Monday	8am to 9pm	3.1 mi	Monday	none		Monday	8am to 9pm	
Tuesday	none		Tuesday	none		Tuesday	none	

**Table 4**  
**Distances along I-70**

Mile Points		Distance west of Twin Tunnels	Eastbound Distance Upstream of Exit 239	Distance east of Twin Tunnels	Westbound Distance Upstream of Exit 246
231.9	Empire Junction	10.23	7.00		
235.0	Dumont	7.13	3.90		
237.7	Fall River	4.43	1.20		
238.9	West Idaho Springs (Exit 239)	3.23			
239.7	SH 103	2.43			
241.1	East Idaho Spring	1.03			
242.13	West Portals of Twin Tunnels				
242.3	East Portals of Twin Tunnels				
243.0	Hidden Valley			0.7	
244.3	US 6			2.0	
246.5	Hyland Hills (Exit 246)			4.2	
247.6	Beaver Brook			5.3	1.1
249.0	Soda Creek			6.7	2.5
250.0	West of El Rancho			7.7	3.5
251.3	Evergreen (El Rancho)			9.0	4.8

## **Appendix A – Monthly Disruption Summaries**

Month: **September**

## Summary of Traffic Disruptions - Prohibited Times

### Twin Tunnels Construction

Based on monthly averages (November 2010 through October 2011)

### Prohibited Times for Road or Lane Closures

<b>Single Lane Inside Tunnel</b>		(1,100 vph)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	9am - 7pm	10am - 8pm	9am - 8pm	9am - 9pm	
WB	8am - 5pm	8am - 9pm	7am - 6pm	8am - 6pm	

<b>Single Lane Outside of Tunnel</b>		(1,600 vph)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	3pm - 4pm	1pm - 6pm	12pm - 7pm	10am - 7pm	
WB	no restrictions	9am - 8pm	8am - 4pm	9am - 2pm	

<b>Two-Way Traffic in Eastbound Bore</b>		(1,100 vph - each direction)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
	8am - 7pm	8am - 9pm	7am - 8pm	8am - 9pm	

<b>Full Road Closure for Blasting (September 2013)</b>				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>
Times	no restrictions	10am - 7pm	8am - 6pm	10am - 7 pm
EB max queue		2.6 mi	5.8 mi	7.4 mi
WB max queue		6.5 mi / 4.7 mi	6.1 mi / 5.0 mi	6.2 mi / 5.0 mi

<b>Times Allowed for Full Road Closure for Rock Scaling</b>		
	<u>Weekdays (Mon-Thurs)</u>	
		<u>1 hour separation</u> <u>1.5 hour separation</u>
<u>20 min closure</u>		7am - 1pm      1pm - 5pm 5pm - 6pm
<u>30 min closure</u>		5pm - 6pm      8am - 5pm

**Month:           October**

**Summary of Traffic Disruptions - Prohibited Times**

**Twin Tunnels Construction**

Based on monthly averages (November 2010 through October 2011)

**Prohibited Times for Road or Lane Closures**

<b>Single Lane Inside Tunnel</b>		<b>(1,100 vph)</b>			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	12pm - 5pm	11am - 7pm	10am - 7pm	10am - 6pm	
WB	9am - 12pm	8am - 8pm	9am - 5pm	10am - 7pm	

<b>Single Lane Outside of Tunnel</b>		<b>(1,600 vph)</b>			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	no restrictions	1pm - 6pm	2pm - 5pm	11am - 6pm	
WB	no restrictions	9am - 7pm	none	no restrictions	

<b>Two-Way Traffic in Eastbound Bore</b>		<b>(1,100 vph - each direction)</b>			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
	9am - 5pm	8am - 8pm	9am - 7pm	10am - 7pm	

<b>Full Road Closure for Blasting (October 2013)</b>				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>
Times	no restriction	no restrictions	no restrictions	12pm - 4pm
EB max queue				5.7 mi
WB max queue				

<b>Times Allowed for Full Road Closure for Rock Scaling</b>		
	<u>Weekdays (Mon-Thurs)</u>	
	<u>1 hour separation</u>	<u>1.5 hour separation</u>
<u>20 min closure</u>	7:30 - 3pm 5pm - 6pm	3pm - 5pm
<u>30 min closure</u>	7:30am - 9am	9am - 6pm

**Month: November**

**Summary of Traffic Disruptions - Prohibited Times**

**Twin Tunnels Construction**

Based on monthly averages (November 2010 through October 2011)

**Prohibited Times for Road or Lane Closures**

<b>Single Lane Inside Tunnel</b>		<b>(1,100 vph)</b>			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	1pm - 6pm	11am - 7pm	10am - 8pm	10am - 7pm	
WB	8am - 11am	7am - 8pm	7am - 6pm	7am - 4pm	

<b>Single Lane Outside of Tunnel</b>		<b>(1,600 vph)</b>			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	no restrictions	1pm - 6pm	11am - 7pm	10am - 6pm	
WB	no restrictions	7am - 5pm	7am - 12pm	8am - 9am	

<b>Two-Way Traffic in Eastbound Bore</b>		<b>(1,100 vph - each direction)</b>			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
	8am - 6pm	7am - 6pm	7am - 7pm	8am - 6pm	

<b>Full Road Closure for Blasting</b>				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>
Times	No blasting yet	No blasting yet	No blasting yet	No blasting yet
EB max queue				
WB max queue				

<b>Times Allowed for Full Road Closure for Rock Scaling</b>		
	<u>Weekdays (Mon-Thurs)</u>	
		<u>1 hour separation</u>
<u>20 min closure</u>		7am - 3pm
		<u>1.5 hour separation</u>
		3pm - 4pm
<u>30 min closure</u>		8am - 4pm

**Month: December**

**Summary of Traffic Disruptions - Prohibited Times**

**Twin Tunnels Construction**

Based on monthly averages (November 2010 through October 2011)

**Prohibited Times for Road or Lane Closures**

<b>Single Lane Inside Tunnel</b>		(1,100 vph)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	11am - 6pm	12pm - 7pm	11am - 8pm	10am - 9pm	
WB	7am - 12pm	7am - 9pm	6am - 4pm	6am - 4pm	

<b>Single Lane Outside of Tunnel</b>		(1,600 vph)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	2pm - 5pm	2pm - 6pm	1pm - 7pm	11am - 8pm	
WB	7am - 10am	7am - 6pm	6am - 2pm	7am - 12pm	

<b>Two-Way Traffic in Eastbound Bore</b>		(1,100 vph - each direction)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
	7am - 6pm	7am - 9pm	6am - 8pm	6am - 9pm	

<b>Full Road Closure for Blasting</b>				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>
Times	No blasting yet	No blasting yet	No blasting yet	No blasting yet
EB max queue				
WB max queue				

<b>Times Allowed for Full Road Closure for Rock Scaling</b>		
	<u>1 hour separation</u>	<u>1.5 hour separation</u>
<u>20 min closure</u>		8am - 3pm
<u>30 min closure</u>		10am - 3pm

Month: January

**Summary of Traffic Disruptions - Prohibited Times**

**Twin Tunnels Construction**

Based on monthly averages (November 2010 through October 2011)

**Prohibited Times for Road or Lane Closures**

<b>Single Lane Inside Tunnel</b>		(1,100 vph)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	11am - 6pm	10am - 7pm	9am - 8pm	9am - 10pm	
WB	7am - 11am	7am - 10pm	6am - 6pm	6am - 3pm	

<b>Single Lane Outside of Tunnel</b>		(1,600 vph)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
EB	3pm - 5pm	1pm - 6pm	11am - 8pm	10am - 8pm	
WB	8am - 10am	7am - 9pm	6am - 2pm	6am - 10am	

<b>Two-Way Traffic in Eastbound Bore</b>		(1,100 vph - each direction)			
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>	
	7am - 6pm	7am - 9pm	6am - 8pm	6am - 8pm	

<b>Full Road Closure for Blasting</b>				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	<u>Weekdays (Mon-Thurs)</u>	<u>Friday</u>	<u>Saturday</u>	<u>Sunday</u>
Times	No blasting yet	No blasting yet	No blasting yet	No blasting yet
EB max queue				
WB max queue				

<b>Times Allowed for Full Road Closure for Rock Scaling</b>		
	<u>Weekdays (Mon-Thurs)</u>	
<u>20 min closure</u>		<u>1 hour separation</u> <u>1.5 hour separation</u>
	<b>Should be completed</b>	
<u>30 min closure</u>		



Month: February

### Summary of Traffic Disruptions - Prohibited Times

#### Twin Tunnels Construction

Based on monthly averages (November 2010 through October 2011)

#### Prohibited Times for Road or Lane Closures

Single Lane Inside Tunnel		(1,100 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	10am - 6pm	11am - 8pm	9am - 8pm	9am - 9pm	
WB	7am - 10am	7am - 9pm	6am - 6pm	6am - 4pm	

Single Lane Outside of Tunnel		(1,600 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	3pm - 5pm	1pm - 7pm	12pm - 7pm	9am - 8pm	
WB	no restrictions	7am - 9pm	6am - 2pm	6am - 9am	

Two-Way Traffic in Eastbound Bore		(1,100 vph - each direction)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
	7am - 6pm	7am - 9pm	6am - 8pm	6am - 9pm	

Full Road Closure for Blasting				
	Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday
Times	No blasting yet	No blasting yet	No blasting yet	No blasting yet
EB max queue				
WB max queue				

#### Times Allowed for Full Road Closure for Rock Scaling

	Weekdays (Mon-Thurs)	Friday	Saturday
<u>20 min closure</u>		<u>1 hour separation</u>	<u>1.5 hour separation</u>
	<b>Should be completed</b>		
<u>30 min closure</u>			

Month: March

### Summary of Traffic Disruptions - Prohibited Times

#### Twin Tunnels Construction

Based on monthly averages (November 2010 through October 2011)

#### Prohibited Times for Road or Lane Closures

Single Lane Inside Tunnel		(1,100 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	10am - 6pm	9am - 7pm	9am - 8pm	9am - 9pm	
WB	7am - 12pm	7am - 9pm	6am - 7pm	6am - 6pm	

Single Lane Outside of Tunnel		(1,600 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	2pm - 5pm	12pm - 6pm	10am - 6pm	10am - 6pm	
WB	8am - 10am	7am - 8pm	6am - 5pm	7am - 12pm	

Two-Way Traffic in Eastbound Bore		(1,100 vph - each direction)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
	7am - 6pm	7am - 9pm	6am - 8pm	6am - 9pm	

Full Road Closure for Blasting				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday
Times	no restrictions	6:30am-10am / 1:00pm - 6pm	5 am - 6pm	9:30am - 6pm
EB max queue		4.2 mi	5.8 mi	3.1 mi
WB max queue		3.7 mi / 2.5 mi	0.8 mi / 0.5 mi	5.4 mi / 4.2 mi

#### Times Allowed for Full Road Closure for Rock Scaling

Weekdays (Mon-Thurs)

1 hour separation

1.5 hour separation

20 min closure

**Should be completed**

30 min closure

Month: April

## Summary of Traffic Disruptions - Prohibited Times

### Twin Tunnels Construction

Based on monthly averages (November 2010 through October 2011)

### Prohibited Times for Road or Lane Closures

Single Lane Inside Tunnel		(1,100 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	1pm - 6pm	10am - 7pm	10am - 7pm	10am - 8pm	
WB	8am - 10am	7am - 8pm	7am - 6pm	7am - 12pm	

Single Lane Outside of Tunnel		(1,600 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	no restrictions	1pm - 6pm	12pm - 6pm	11am - 6pm	
WB	no restrictions	8am - 6pm	7am - 12pm	no restrictions	

Two-Way Traffic in Eastbound Bore		(1,100 vph - each direction)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
	8am - 6pm	7am - 8pm	7am - 7pm	7am - 8pm	

Full Road Closure for Blasting				
	Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday
Times	no restrictions	no restrictions	2:30pm - 4pm	no restrictions
EB max queue			5.8 mi	
WB max queue				

### Times Allowed for Full Road Closure for Rock Scaling

	Weekdays (Mon-Thurs)	1 hour separation	1.5 hour separation
<u>20 min closure</u>	<b>Should be completed</b>		
<u>30 min closure</u>			

Month: May

**Summary of Traffic Disruptions - Prohibited Times**

**Twin Tunnels Construction**

Based on monthly averages (November 2010 through October 2011)

**Prohibited Times for Road or Lane Closures**

Single Lane Inside Tunnel		(1,100 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	12pm - 6pm	11am - 7pm	10am - 6pm	10am - 7pm	
WB	none	8am - 7pm	8am - 5pm	9am - 6pm	

Single Lane Outside of Tunnel		(1,600 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	no restriction	3pm - 5pm	2pm - 4pm	12pm - 6pm	
WB	no restriction	3pm - 6pm	10am - 12pm	no restrictions	

Two-Way Traffic in Eastbound Bore		(1,100 vph - each direction)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
	12pm - 6pm	8am - 7pm	8am - 6pm	9am - 7pm	

Full Road Closure for Blasting				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday
Times	no restriction	no restrictions	no restrictions	no restrictions
EB max queue				
WB max queue				

**Times Allowed for Full Road Closure for Rock Scaling**

	Weekdays (Mon-Thurs)	1 hour separation	1.5 hour separation
<u>20 min closure</u>			
	<b>Should be completed</b>		
<u>30 min closure</u>			

Month: June

## Summary of Traffic Disruptions - Prohibited Times

### Twin Tunnels Construction

Based on monthly averages (November 2010 through October 2011)

### Prohibited Times for Road or Lane Closures

Single Lane Inside Tunnel		(1,100 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	10am - 7pm	9am - 7pm	9am - 8pm	9am - 9pm	
WB	8am - 7pm	7am - 8pm	7am - 6pm	8am - 6pm	

Single Lane Outside of Tunnel		(1,600 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	no restrictions	12pm - 6pm	11am - 7pm	10am - 8pm	
WB	no restrictions	9am - 6pm	8am - 4pm	9am - 3pm	

Two-Way Traffic in Eastbound Bore		(1,100 vph - each direction)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
	8am - 7pm	7am - 8pm	7am - 8pm	8am - 8pm	

Full Road Closure for Blasting				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday
Times	no restriction	12:30pm - 7pm	8am - 4pm	9:30am - 7pm
EB max queue			4.4 mi	2.1 mi
WB max queue		6.0 mi / 4.6 mi	6.1 mi / 4.5 mi	5.8 mi / 4.6 mi

### Times Allowed for Full Road Closure for Rock Scaling

	Weekdays (Mon-Thurs)	1 hour separation	1.5 hour separation
<u>20 min closure</u>	<b>Should be completed</b>		
<u>30 min closure</u>			

Month: July

## Summary of Traffic Disruptions - Prohibited Times

### Twin Tunnels Construction

Based on monthly averages (November 2010 through October 2011)

### Prohibited Times for Road or Lane Closures

Single Lane Inside Tunnel		(1,100 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	8am - 7pm	9am - 8pm	9am - 9pm	8am - 9pm	
WB	7am - 6pm	7am - 9pm	6am - 7pm	7am - 6pm	

Single Lane Outside of Tunnel		(1,600 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	11am - 6pm	11am - 7pm	10am - 7pm	9am - 9pm	
WB	9am - 12pm	8am - 8pm	7am - 5pm	8am - 6pm	

Two-Way Traffic in Eastbound Bore		(1,100 vph - each direction)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
	7am - 6pm	7am - 9pm	6am - 9pm	7am - 9pm	

Full Road Closure for Blasting				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday
Times	no restrictions	9am - 8pm	7am - 6pm	8:30am - 8pm
EB max queue			6.3 mi	1.6 mi
WB max queue		6.1 mi / 4.6 mi	7.0 mi / 5.4 mi	5.4 mi / 4.1 mi

### Times Allowed for Full Road Closure for Rock Scaling

	Weekdays (Mon-Thurs)	1 hour separation	1.5 hour separation
<u>20 min closure</u>			
	<b>Should be completed</b>		
<u>30 min closure</u>			

Month: August

**Summary of Traffic Disruptions - Prohibited Times**

**Twin Tunnels Construction**

Based on monthly averages (November 2010 through October 2011)

**Prohibited Times for Road or Lane Closures**

Single Lane Inside Tunnel		(1,100 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	9am - 7pm	9am - 8pm	8am - 9pm	8am - 9pm	
WB	8am - 6pm	7am - 9pm	6am - 6pm	8am - 6pm	

Single Lane Outside of Tunnel		(1,600 vph)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
EB	1pm - 4pm	11am - 6pm	10am - 7pm	9am - 9pm	
WB	10am - 11am	8am - 8pm	7am - 4pm	9am - 3pm	

Two-Way Traffic in Eastbound Bore		(1,100 vph - each direction)			
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday	
	8am - 7pm	7am - 9pm	6am - 9pm	8am - 9pm	

Full Road Closure for Blasting				
Notes: Clearance within 1 hour of reopening time. Closures: 15 min EB / 30 min WB				
	Weekdays (Mon-Thurs)	Friday	Saturday	Sunday
Times	no restrictions	9am - 8pm	7am - 7pm	8:30 am - 8pm
EB max queue		4.2 mi	6.9 mi	7.4 mi
WB max queue		6.8 mi / 5.4 mi	6.0 mi / 4.6 mi	6.1 mi / 5.0 mi

**Times Allowed for Full Road Closure for Rock Scaling**

	Weekdays (Mon-Thurs)	1 hour separation	1.5 hour separation
<u>20 min closure</u>	<b>Should be completed</b>		
<u>30 min closure</u>			

## **Appendix B – Volumes Exceeding 1,600 vph**



**Eastbound Monthly Average Weekday Volumes at the I-70 Twin Tunnels**

vph > 1,600

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th
0	90	81	97	80	100	96	93	120	150	115	117	99
1	62	63	55	55	70	67	67	78	90	86	81	74
2	55	50	51	48	57	55	54	72	77	79	64	57
3	56	62	66	64	74	68	80	91	102	101	76	65
4	81	97	101	97	108	101	98	127	142	152	106	91
5	173	206	209	227	235	231	234	285	345	339	204	182
6	374	424	449	491	497	481	449	526	660	648	465	414
7	566	612	682	765	754	723	649	727	897	882	721	648
8	636	781	802	830	872	795	721	876	1112	1022	882	697
9	727	932	930	975	1019	862	850	1043	1361	1215	1100	832
10	843	1057	1082	1113	1208	931	991	1132	1561	1354	1225	913
11	964	1137	1170	1163	1194	963	1062	1229	1672	1420	1290	1032
12	1065	1271	1220	1209	1272	1035	1125	1314	1696	1479	1348	1106
13	1188	1504	1391	1381	1531	1181	1181	1459	1824	1650	1461	1232
14	1329	1828	1570	1550	1775	1305	1260	1513	1850	1770	1576	1333
15	1480	2023	1908	1697	1915	1381	1298	1571	1913	1830	1684	1486
16	1504	2038	2036	1799	2109	1429	1286	1574	1850	1750	1669	1487
17	1195	1528	1514	1441	1572	1170	1101	1447	1679	1557	1559	1341
18	789	985	1005	866	1055	781	800	1112	1298	1183	1266	1019
19	507	649	589	556	660	522	576	864	954	853	874	679
20	363	501	423	406	464	362	429	635	731	637	647	446
21	270	340	325	280	353	260	314	452	593	460	430	333
22	201	208	251	177	223	196	213	284	407	284	271	232
23	125	128	148	120	148	135	142	185	223	178	164	143
<b>Total</b>	14641	18506	18076	17386	19264	15131	15070	18715	23187	21045	19281	15940

**Eastbound Monthly Average Fridays Volumes at the I-70 Twin Tunnels**

vph > 1,600

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri
0	82	96	93	93	120	100	100	133	131	134	120	109
1	56	56	65	70	86	62	80	93	99	95	81	71
2	55	52	57	56	69	50	50	73	79	81	74	60
3	63	71	71	67	83	77	76	101	107	106	79	73
4	94	100	99	102	123	102	107	122	150	158	125	101
5	170	183	208	215	246	243	215	272	305	319	208	180
6	353	379	372	421	501	430	435	489	566	562	442	403
7	529	575	618	627	762	639	659	729	820	827	685	614
8	676	701	759	715	900	822	781	918	1072	1056	837	717
9	826	889	948	884	1201	1009	959	1103	1279	1275	988	895
10	1040	1019	1139	1027	1463	1216	1076	1281	1459	1503	1154	1069
11	1258	1066	1218	1135	1474	1340	1175	1463	1658	1648	1323	1244
12	1410	1286	1228	1275	1617	1461	1329	1669	1805	1763	1494	1360
13	1767	1564	1737	1763	1934	1739	1541	1870	2097	1955	1767	1635
14	2093	1873	2100	2057	2378	1963	1584	2054	2149	2310	1986	1721
15	2381	2284	2638	2342	2725	2145	1704	2151	2250	2320	2171	1766
16	2362	2192	2874	2514	2802	2063	1618	1903	1991	2114	2042	1743
17	2143	1689	2186	2156	2021	1691	1389	1747	1833	1890	1854	1809
18	1329	1126	1257	1695	1437	1262	1134	1360	1637	1513	1570	1445
19	872	801	930	1128	813	857	836	1022	1240	1134	1160	956
20	578	385	618	611	687	587	616	851	936	915	851	689
21	378	315	343	405	543	442	435	696	709	628	640	525
22	247	267	214	249	288	268	277	410	448	388	398	323
23	160	148	153	154	199	174	173	239	257	234	220	177
<b>Total</b>	20919	19117	21923	21754	24469	20741	18343	22748	25077	24926	22269	19682

**Eastbound Monthly Average Saturdays Volumes at the I-70 Twin Tunnels**

vph > 1,600

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat
0	101	125	101	114	130	121	99	136	140	147	130	106
1	74	94	70	67	83	85	70	90	107	116	94	83
2	53	57	56	66	73	62	56	71	94	93	73	58
3	60	56	58	69	83	68	59	77	93	87	69	61
4	78	68	86	83	120	92	79	110	145	134	98	74
5	123	120	146	145	193	162	140	167	247	231	134	112
6	226	216	267	274	379	288	272	374	428	442	274	202
7	403	369	511	571	724	546	477	599	723	747	543	347
8	656	568	755	791	1058	788	796	903	1059	1106	819	600
9	1025	866	1126	1171	1436	1079	1064	1204	1398	1466	1151	869
10	1365	1065	1436	1424	1829	1430	1258	1507	1740	1975	1378	1221
11	1639	1325	1659	1596	1959	1552	1356	1723	1884	2045	1570	1386
12	1830	1578	1699	1760	2052	1603	1427	1896	2028	2134	1642	1487
13	2185	2015	2238	2120	2458	1789	1530	2005	2210	2378	1889	1539
14	2382	2716	2724	2717	2976	2088	1624	2285	2645	2677	2074	1738
15	2638	2905	3076	3014	3338	2236	1619	2292	2806	2959	2240	1845
16	2656	2796	2856	2826	3134	2216	1500	2198	2652	2757	2353	1697
17	2344	2512	2738	2388	2561	1756	1177	1927	2394	2682	2119	1436
18	1730	1824	2352	1676	1523	1162	866	1623	1864	2252	1708	1107
19	1310	1186	1706	1117	1121	810	603	1261	1597	1593	1328	820
20	675	810	1056	922	829	562	569	945	1249	1284	1023	586
21	494	478	617	635	584	405	442	710	932	923	696	426
22	299	306	361	281	353	281	255	444	576	544	437	295
23	169	169	153	168	233	167	173	258	318	306	235	152
<b>Total</b>	24512	24224	27845	25992	29228	21344	17508	24802	29328	31074	24074	18245

**Eastbound Monthly Average Sundays Volumes at the I-70 Twin Tunnels**

vph > 1,600

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun
0	114	102	112	92	156	121	113	158	186	184	159	110
1	87	70	77	68	110	75	69	112	119	132	110	78
2	61	56	55	58	79	67	61	86	95	95	74	60
3	57	58	58	68	84	74	61	88	92	105	68	63
4	79	58	76	83	108	84	68	98	106	128	79	61
5	116	95	128	153	197	142	104	167	186	208	126	94
6	195	191	242	293	383	335	193	303	384	431	233	159
7	305	317	503	523	692	514	315	527	680	801	417	285
8	555	576	763	968	1001	764	586	897	1120	1331	777	507
9	1038	1061	1474	1601	1531	990	937	1446	1736	2134	1361	922
10	1743	1479	2243	2242	2204	1446	1308	2098	2542	2993	2093	1503
11	2289	2024	2565	2739	2573	1787	1497	2579	2755	3233	2520	1991
12	2526	2439	3006	2945	2651	1709	1625	2812	2958	3074	2796	2038
13	2749	2814	3045	3078	2839	2044	1773	2864	3025	3141	3081	2311
14	2814	2996	2842	3125	2810	1911	1875	2968	3158	3143	3099	2330
15	2718	2942	3100	3076	2884	1983	1968	3031	3168	3016	3117	2252
16	2439	2766	3117	2960	2917	1795	1974	2877	3080	2862	3102	2083
17	1838	2447	2655	2692	2296	1760	1621	2582	2943	2646	2910	1790
18	1258	1898	2477	1890	1408	1437	1299	2242	2851	2530	2533	1435
19	863	1604	1866	1717	1290	1123	1017	1850	2455	2301	1829	1051
20	625	1496	1403	1201	1158	894	781	1342	1898	2057	1458	776
21	420	827	1144	804	806	441	536	820	1048	1001	864	501
22	250	347	608	334	366	300	319	443	539	448	491	314
23	148	154	211	159	170	147	183	223	315	262	263	186
<b>Total</b>	25281	28818	33768	32867	30712	21941	20279	32612	37438	38251	33556	22900

**Westbound Monthly Average Weekday Volumes at the I-70 Twin Tunnels**

vph > 1,600

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th
0	118	125	114	116	136	107	120	144	145	150	147	124
1	83	92	81	85	91	77	80	97	100	103	99	83
2	68	77	69	75	82	76	77	90	94	97	80	81
3	88	95	92	87	101	95	102	127	133	146	100	96
4	187	200	197	212	235	230	252	315	337	369	245	224
5	351	344	312	303	335	337	387	519	574	616	455	445
6	616	760	639	636	707	607	641	823	845	872	718	679
7	1021	1675	1360	1233	1482	998	835	1031	1103	1063	914	887
8	1430	2050	1846	1546	1917	1196	998	1220	1374	1382	1122	1030
9	1364	1773	1660	1382	1644	1098	1065	1399	1670	1587	1320	1168
10	1183	1348	1241	1101	1275	940	1032	1458	1774	1652	1361	1177
11	1083	1183	1063	956	1133	851	970	1396	1613	1516	1321	1122
12	963	1080	953	906	1055	787	929	1298	1517	1408	1198	1043
13	928	1071	937	953	1058	797	932	1337	1484	1368	1191	1036
14	963	1110	957	1004	1114	864	936	1322	1449	1366	1170	1027
15	962	1129	987	1079	1168	911	973	1306	1407	1366	1178	1035
16	968	1128	988	1054	1167	951	988	1271	1328	1334	1173	1073
17	855	995	883	950	1078	893	871	1089	1113	1130	1053	948
18	722	828	764	803	886	716	710	932	988	975	896	778
19	548	704	618	658	710	575	540	715	758	735	662	581
20	437	574	479	548	565	455	424	554	582	591	514	448
21	350	452	408	456	480	376	355	450	463	472	411	358
22	265	359	346	369	355	266	240	310	339	326	313	258
23	173	213	201	228	211	169	165	219	224	216	188	166
<b>Total</b>	15724	19364	17195	16741	18984	14370	14620	19423	21414	20842	17831	15863

**Westbound Monthly Average Friday Volumes at the I-70 Twin Tunnels**

vph > 1,600

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri
0	128	175	184	222	193	138	120	136	173	162	159	137
1	88	116	133	138	136	105	92	110	121	111	114	98
2	81	88	104	110	105	81	86	105	106	102	96	84
3	96	107	106	98	124	106	118	142	172	163	132	111
4	177	164	186	199	214	195	232	285	337	367	271	220
5	364	323	313	312	313	296	347	486	557	615	466	408
6	820	652	843	960	849	662	635	830	927	953	743	727
7	1785	1671	2235	2433	2283	1472	917	1147	1239	1270	1059	969
8	2125	2242	2807	2861	2712	1848	1194	1373	1718	1680	1347	1215
9	2030	2082	2540	2546	2262	1771	1365	1767	2280	2091	1800	1415
10	1943	1601	1902	1924	1810	1475	1394	2027	2650	2300	1996	1553
11	1809	1458	1583	1682	1656	1330	1391	2060	2683	2591	2364	1654
12	1588	1346	1484	1595	1585	1259	1379	1998	2567	2330	2195	1599
13	1534	1442	1599	1713	1763	1351	1507	2109	2779	2341	2214	1630
14	1602	1596	1807	1982	1995	1476	1572	2334	2944	2477	2490	1776
15	1619	1874	2264	2286	2244	1637	1698	2278	2958	2826	2499	1907
16	1779	2199	2921	2877	2749	1893	1810	2308	2862	2945	2723	1964
17	1711	2150	2838	2747	2615	1854	1628	2151	2754	2890	2665	1886
18	1469	1667	2937	2713	2420	1706	1344	2037	2746	2783	2455	1646
19	1197	1126	2650	2436	1868	1340	994	1455	1894	2064	2027	1205
20	841	1304	1823	1697	1516	972	673	918	1265	1192	1254	774
21	550	906	1134	1090	1003	704	520	621	842	750	771	521
22	422	705	713	722	646	447	348	448	562	517	497	365
23	243	371	397	394	374	261	234	279	339	299	322	252
<b>Total</b>	25998	27365	35499	35734	33431	24381	21596	29401	37475	35815	32657	24114

**Westbound Monthly Average Saturday Volumes at the I-70 Twin Tunnels**

vph > 1,600

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat
0	173	214	227	264	246	160	170	179	199	192	207	157
1	104	114	137	157	160	110	97	113	136	136	157	105
2	94	89	94	112	112	91	85	112	139	132	120	88
3	95	91	94	104	114	86	90	133	182	179	139	97
4	171	160	184	189	205	160	204	293	385	469	294	164
5	280	352	418	534	503	271	295	639	767	966	525	277
6	929	2295	2915	3276	3071	1086	591	975	1336	1352	888	469
7	2287	3402	3362	3431	3103	1858	1068	1507	1941	1897	1380	781
8	2213	3023	3160	2608	2488	1901	1326	1933	2560	2487	1947	955
9	1995	2502	3047	2090	2223	1827	1551	2250	3032	2950	2438	1273
10	1973	2126	2800	1973	2275	1687	1705	2409	3131	3158	2626	1455
11	1812	2005	2142	1870	2129	1510	1643	2461	3225	3023	2713	1512
12	1559	1699	1703	1673	1896	1330	1415	2146	2896	2579	2492	1476
13	1505	1638	1641	1614	1926	1276	1391	1993	2689	2318	2302	1425
14	1382	1576	1578	1593	1981	1309	1360	1816	2495	1967	2152	1313
15	1312	1524	1513	1565	1975	1263	1253	1633	2205	1779	1916	1237
16	1262	1333	1507	1460	1776	1217	1160	1435	1902	1582	1552	1174
17	1141	1095	1178	1199	1540	1106	1024	1231	1430	1468	1331	1027
18	872	904	978	899	1217	910	824	996	1115	1042	1049	850
19	692	735	768	781	971	729	685	788	873	814	831	677
20	532	586	579	600	790	566	526	611	691	639	623	447
21	424	484	435	454	634	499	399	477	593	530	464	369
22	349	375	317	337	428	333	294	380	410	423	331	309
23	211	238	208	208	271	209	204	274	305	282	217	205
<b>Total</b>	23364	28559	30981	28989	32032	21496	19357	26781	34638	32362	28690	17839

**Westbound Monthly Average Sunday Volumes at the I-70 Twin Tunnels**

vph > 1,600

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun
0	140	144	119	145	145	130	152	182	170	187	150	133
1	88	101	89	93	104	83	97	114	119	122	106	94
2	71	76	73	80	92	80	77	94	111	95	98	80
3	60	60	49	61	90	79	72	103	118	111	94	73
4	91	89	103	103	166	147	138	186	243	249	192	113
5	148	168	221	247	287	208	186	330	441	409	316	183
6	477	1358	1843	2139	1393	754	373	582	683	719	515	281
7	1459	2927	3163	2682	2100	1409	706	932	1134	1048	809	501
8	1663	2176	2209	1795	1929	1479	1005	1344	1673	1521	1254	737
9	1540	1829	1735	1496	1768	1355	1274	1757	2238	1946	1802	995
10	1481	1802	1559	1393	1670	1209	1483	2004	2434	2237	2081	1272
11	1417	1601	1391	1336	1613	1114	1524	2089	2401	2256	2135	1434
12	1301	1419	1178	1245	1528	955	1493	1966	2384	2082	1918	1394
13	1240	1331	1158	1242	1527	785	1471	1813	2431	1955	1710	1443
14	1232	1283	1112	1229	1582	752	1403	1662	1982	1717	1590	1424
15	1135	1222	1013	1129	1506	1002	1304	1530	1700	1585	1425	1339
16	1039	1058	922	986	1332	897	1317	1400	1503	1421	1301	1267
17	970	843	775	838	1101	898	1163	1274	1290	1232	1121	1166
18	885	667	691	644	864	775	929	1070	1043	1043	1086	1169
19	643	558	502	487	636	544	726	804	839	762	817	828
20	460	438	377	393	473	408	529	637	628	630	616	535
21	303	377	283	305	374	299	417	479	496	432	411	370
22	219	268	189	217	268	200	261	317	355	311	314	267
23	151	164	131	148	175	132	175	227	231	216	196	170
<b>Total</b>	18208	21959	20881	20432	22721	15691	18272	22895	26650	24283	22055	17270



## **Appendix C – Volumes Exceeding 1,100 vph**

**Eastbound Monthly Average Weekday Volumes at the I-70 Twin Tunnels**

vph > 1,100

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th
0	90	81	97	80	100	96	93	120	150	115	117	99
1	62	63	55	55	70	67	67	78	90	86	81	74
2	55	50	51	48	57	55	54	72	77	79	64	57
3	56	62	66	64	74	68	80	91	102	101	76	65
4	81	97	101	97	108	101	98	127	142	152	106	91
5	173	206	209	227	235	231	234	285	345	339	204	182
6	374	424	449	491	497	481	449	526	660	648	465	414
7	566	612	682	765	754	723	649	727	897	882	721	648
8	636	781	802	830	872	795	721	876	1112	1022	882	697
9	727	932	930	975	1019	862	850	1043	1361	1215	1100	832
10	843	1057	1082	1113	1208	931	991	1132	1561	1354	1225	913
11	964	1137	1170	1163	1194	963	1062	1229	1672	1420	1290	1032
12	1065	1271	1220	1209	1272	1035	1125	1314	1696	1479	1348	1106
13	1188	1504	1391	1381	1531	1181	1181	1459	1824	1650	1461	1232
14	1329	1828	1570	1550	1775	1305	1260	1513	1850	1770	1576	1333
15	1480	2023	1908	1697	1915	1381	1298	1571	1913	1830	1684	1486
16	1504	2038	2036	1799	2109	1429	1286	1574	1850	1750	1669	1487
17	1195	1528	1514	1441	1572	1170	1101	1447	1679	1557	1559	1341
18	789	985	1005	866	1055	781	800	1112	1298	1183	1266	1019
19	507	649	589	556	660	522	576	864	954	853	874	679
20	363	501	423	406	464	362	429	635	731	637	647	446
21	270	340	325	280	353	260	314	452	593	460	430	333
22	201	208	251	177	223	196	213	284	407	284	271	232
23	125	128	148	120	148	135	142	185	223	178	164	143
<b>Total</b>	14641	18506	18076	17386	19264	15131	15070	18715	23187	21045	19281	15940

**Eastbound Monthly Average Fridays Volumes at the I-70 Twin Tunnels**

vph > 1,100

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri
0	82	96	93	93	120	100	100	133	131	134	120	109
1	56	56	65	70	86	62	80	93	99	95	81	71
2	55	52	57	56	69	50	50	73	79	81	74	60
3	63	71	71	67	83	77	76	101	107	106	79	73
4	94	100	99	102	123	102	107	122	150	158	125	101
5	170	183	208	215	246	243	215	272	305	319	208	180
6	353	379	372	421	501	430	435	489	566	562	442	403
7	529	575	618	627	762	639	659	729	820	827	685	614
8	676	701	759	715	900	822	781	918	1072	1056	837	717
9	826	889	948	884	1201	1009	959	1103	1279	1275	988	895
10	1040	1019	1139	1027	1463	1216	1076	1281	1459	1503	1154	1069
11	1258	1066	1218	1135	1474	1340	1175	1463	1658	1648	1323	1244
12	1410	1286	1228	1275	1617	1461	1329	1669	1805	1763	1494	1360
13	1767	1564	1737	1763	1934	1739	1541	1870	2097	1955	1767	1635
14	2093	1873	2100	2057	2378	1963	1584	2054	2149	2310	1986	1721
15	2381	2284	2638	2342	2725	2145	1704	2151	2250	2320	2171	1766
16	2362	2192	2874	2514	2802	2063	1618	1903	1991	2114	2042	1743
17	2143	1689	2186	2156	2021	1691	1389	1747	1833	1890	1854	1809
18	1329	1126	1257	1695	1437	1262	1134	1360	1637	1513	1570	1445
19	872	801	930	1128	813	857	836	1022	1240	1134	1160	956
20	578	385	618	611	687	587	616	851	936	915	851	689
21	378	315	343	405	543	442	435	696	709	628	640	525
22	247	267	214	249	288	268	277	410	448	388	398	323
23	160	148	153	154	199	174	173	239	257	234	220	177
<b>Total</b>	20919	19117	21923	21754	24469	20741	18343	22748	25077	24926	22269	19682

**Eastbound Monthly Average Saturdays Volumes at the I-70 Twin Tunnels**

vph > 1,100

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat
0	101	125	101	114	130	121	99	136	140	147	130	106
1	74	94	70	67	83	85	70	90	107	116	94	83
2	53	57	56	66	73	62	56	71	94	93	73	58
3	60	56	58	69	83	68	59	77	93	87	69	61
4	78	68	86	83	120	92	79	110	145	134	98	74
5	123	120	146	145	193	162	140	167	247	231	134	112
6	226	216	267	274	379	288	272	374	428	442	274	202
7	403	369	511	571	724	546	477	599	723	747	543	347
8	656	568	755	791	1058	788	796	903	1059	1106	819	600
9	1025	866	1126	1171	1436	1079	1064	1204	1398	1466	1151	869
10	1365	1065	1436	1424	1829	1430	1258	1507	1740	1975	1378	1221
11	1639	1325	1659	1596	1959	1552	1356	1723	1884	2045	1570	1386
12	1830	1578	1699	1760	2052	1603	1427	1896	2028	2134	1642	1487
13	2185	2015	2238	2120	2458	1789	1530	2005	2210	2378	1889	1539
14	2382	2716	2724	2717	2976	2088	1624	2285	2645	2677	2074	1738
15	2638	2905	3076	3014	3338	2236	1619	2292	2806	2959	2240	1845
16	2656	2796	2856	2826	3134	2216	1500	2198	2652	2757	2353	1697
17	2344	2512	2738	2388	2561	1756	1177	1927	2394	2682	2119	1436
18	1730	1824	2352	1676	1523	1162	866	1623	1864	2252	1708	1107
19	1310	1186	1706	1117	1121	810	603	1261	1597	1593	1328	820
20	675	810	1056	922	829	562	569	945	1249	1284	1023	586
21	494	478	617	635	584	405	442	710	932	923	696	426
22	299	306	361	281	353	281	255	444	576	544	437	295
23	169	169	153	168	233	167	173	258	318	306	235	152
<b>Total</b>	24512	24224	27845	25992	29228	21344	17508	24802	29328	31074	24074	18245

**Eastbound Monthly Average Sundays Volumes at the I-70 Twin Tunnels**

vph > 1,100

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun
0	114	102	112	92	156	121	113	158	186	184	159	110
1	87	70	77	68	110	75	69	112	119	132	110	78
2	61	56	55	58	79	67	61	86	95	95	74	60
3	57	58	58	68	84	74	61	88	92	105	68	63
4	79	58	76	83	108	84	68	98	106	128	79	61
5	116	95	128	153	197	142	104	167	186	208	126	94
6	195	191	242	293	383	335	193	303	384	431	233	159
7	305	317	503	523	692	514	315	527	680	801	417	285
8	555	576	763	968	1001	764	586	897	1120	1331	777	507
9	1038	1061	1474	1601	1531	990	937	1446	1736	2134	1361	922
10	1743	1479	2243	2242	2204	1446	1308	2098	2542	2993	2093	1503
11	2289	2024	2565	2739	2573	1787	1497	2579	2755	3233	2520	1991
12	2526	2439	3006	2945	2651	1709	1625	2812	2958	3074	2796	2038
13	2749	2814	3045	3078	2839	2044	1773	2864	3025	3141	3081	2311
14	2814	2996	2842	3125	2810	1911	1875	2968	3158	3143	3099	2330
15	2718	2942	3100	3076	2884	1983	1968	3031	3168	3016	3117	2252
16	2439	2766	3117	2960	2917	1795	1974	2877	3080	2862	3102	2083
17	1838	2447	2655	2692	2296	1760	1621	2582	2943	2646	2910	1790
18	1258	1898	2477	1890	1408	1437	1299	2242	2851	2530	2533	1435
19	863	1604	1866	1717	1290	1123	1017	1850	2455	2301	1829	1051
20	625	1496	1403	1201	1158	894	781	1342	1898	2057	1458	776
21	420	827	1144	804	806	441	536	820	1048	1001	864	501
22	250	347	608	334	366	300	319	443	539	448	491	314
23	148	154	211	159	170	147	183	223	315	262	263	186
<b>Total</b>	25281	28818	33768	32867	30712	21941	20279	32612	37438	38251	33556	22900

**Westbound Monthly Average Weekday Volumes at the I-70 Twin Tunnels**

vph > 1,100

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th	Mon-Th
0	118	125	114	116	136	107	120	144	145	150	147	124
1	83	92	81	85	91	77	80	97	100	103	99	83
2	68	77	69	75	82	76	77	90	94	97	80	81
3	88	95	92	87	101	95	102	127	133	146	100	96
4	187	200	197	212	235	230	252	315	337	369	245	224
5	351	344	312	303	335	337	387	519	574	616	455	445
6	616	760	639	636	707	607	641	823	845	872	718	679
7	1021	1675	1360	1233	1482	998	835	1031	1103	1063	914	887
8	1430	2050	1846	1546	1917	1196	998	1220	1374	1382	1122	1030
9	1364	1773	1660	1382	1644	1098	1065	1399	1670	1587	1320	1168
10	1183	1348	1241	1101	1275	940	1032	1458	1774	1652	1361	1177
11	1083	1183	1063	956	1133	851	970	1396	1613	1516	1321	1122
12	963	1080	953	906	1055	787	929	1298	1517	1408	1198	1043
13	928	1071	937	953	1058	797	932	1337	1484	1368	1191	1036
14	963	1110	957	1004	1114	864	936	1322	1449	1366	1170	1027
15	962	1129	987	1079	1168	911	973	1306	1407	1366	1178	1035
16	968	1128	988	1054	1167	951	988	1271	1328	1334	1173	1073
17	855	995	883	950	1078	893	871	1089	1113	1130	1053	948
18	722	828	764	803	886	716	710	932	988	975	896	778
19	548	704	618	658	710	575	540	715	758	735	662	581
20	437	574	479	548	565	455	424	554	582	591	514	448
21	350	452	408	456	480	376	355	450	463	472	411	358
22	265	359	346	369	355	266	240	310	339	326	313	258
23	173	213	201	228	211	169	165	219	224	216	188	166
<b>Total</b>	15724	19364	17195	16741	18984	14370	14620	19423	21414	20842	17831	15863

**Westbound Monthly Average Friday Volumes at the I-70 Twin Tunnels**

vph > 1,100

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri	Fri
0	128	175	184	222	193	138	120	136	173	162	159	137
1	88	116	133	138	136	105	92	110	121	111	114	98
2	81	88	104	110	105	81	86	105	106	102	96	84
3	96	107	106	98	124	106	118	142	172	163	132	111
4	177	164	186	199	214	195	232	285	337	367	271	220
5	364	323	313	312	313	296	347	486	557	615	466	408
6	820	652	843	960	849	662	635	830	927	953	743	727
7	1785	1671	2235	2433	2283	1472	917	1147	1239	1270	1059	969
8	2125	2242	2807	2861	2712	1848	1194	1373	1718	1680	1347	1215
9	2030	2082	2540	2546	2262	1771	1365	1767	2280	2091	1800	1415
10	1943	1601	1902	1924	1810	1475	1394	2027	2650	2300	1996	1553
11	1809	1458	1583	1682	1656	1330	1391	2060	2683	2591	2364	1654
12	1588	1346	1484	1595	1585	1259	1379	1998	2567	2330	2195	1599
13	1534	1442	1599	1713	1763	1351	1507	2109	2779	2341	2214	1630
14	1602	1596	1807	1982	1995	1476	1572	2334	2944	2477	2490	1776
15	1619	1874	2264	2286	2244	1637	1698	2278	2958	2826	2499	1907
16	1779	2199	2921	2877	2749	1893	1810	2308	2862	2945	2723	1964
17	1711	2150	2838	2747	2615	1854	1628	2151	2754	2890	2665	1886
18	1469	1667	2937	2713	2420	1706	1344	2037	2746	2783	2455	1646
19	1197	1126	2650	2436	1868	1340	994	1455	1894	2064	2027	1205
20	841	1304	1823	1697	1516	972	673	918	1265	1192	1254	774
21	550	906	1134	1090	1003	704	520	621	842	750	771	521
22	422	705	713	722	646	447	348	448	562	517	497	365
23	243	371	397	394	374	261	234	279	339	299	322	252
<b>Total</b>	25998	27365	35499	35734	33431	24381	21596	29401	37475	35815	32657	24114

**Westbound Monthly Average Saturday Volumes at the I-70 Twin Tunnels**

vph > 1,100

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat	Sat
0	173	214	227	264	246	160	170	179	199	192	207	157
1	104	114	137	157	160	110	97	113	136	136	157	105
2	94	89	94	112	112	91	85	112	139	132	120	88
3	95	91	94	104	114	86	90	133	182	179	139	97
4	171	160	184	189	205	160	204	293	385	469	294	164
5	280	352	418	534	503	271	295	639	767	966	525	277
6	929	2295	2915	3276	3071	1086	591	975	1336	1352	888	469
7	2287	3402	3362	3431	3103	1858	1068	1507	1941	1897	1380	781
8	2213	3023	3160	2608	2488	1901	1326	1933	2560	2487	1947	955
9	1995	2502	3047	2090	2223	1827	1551	2250	3032	2950	2438	1273
10	1973	2126	2800	1973	2275	1687	1705	2409	3131	3158	2626	1455
11	1812	2005	2142	1870	2129	1510	1643	2461	3225	3023	2713	1512
12	1559	1699	1703	1673	1896	1330	1415	2146	2896	2579	2492	1476
13	1505	1638	1641	1614	1926	1276	1391	1993	2689	2318	2302	1425
14	1382	1576	1578	1593	1981	1309	1360	1816	2495	1967	2152	1313
15	1312	1524	1513	1565	1975	1263	1253	1633	2205	1779	1916	1237
16	1262	1333	1507	1460	1776	1217	1160	1435	1902	1582	1552	1174
17	1141	1095	1178	1199	1540	1106	1024	1231	1430	1468	1331	1027
18	872	904	978	899	1217	910	824	996	1115	1042	1049	850
19	692	735	768	781	971	729	685	788	873	814	831	677
20	532	586	579	600	790	566	526	611	691	639	623	447
21	424	484	435	454	634	499	399	477	593	530	464	369
22	349	375	317	337	428	333	294	380	410	423	331	309
23	211	238	208	208	271	209	204	274	305	282	217	205
<b>Total</b>	23364	28559	30981	28989	32032	21496	19357	26781	34638	32362	28690	17839



**Westbound Monthly Average Sunday Volumes at the I-70 Twin Tunnels**

vph > 1,100

Hour	Nov-10	Dec-10	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11
Starting	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun	Sun
0	140	144	119	145	145	130	152	182	170	187	150	133
1	88	101	89	93	104	83	97	114	119	122	106	94
2	71	76	73	80	92	80	77	94	111	95	98	80
3	60	60	49	61	90	79	72	103	118	111	94	73
4	91	89	103	103	166	147	138	186	243	249	192	113
5	148	168	221	247	287	208	186	330	441	409	316	183
6	477	1358	1843	2139	1393	754	373	582	683	719	515	281
7	1459	2927	3163	2682	2100	1409	706	932	1134	1048	809	501
8	1663	2176	2209	1795	1929	1479	1005	1344	1673	1521	1254	737
9	1540	1829	1735	1496	1768	1355	1274	1757	2238	1946	1802	995
10	1481	1802	1559	1393	1670	1209	1483	2004	2434	2237	2081	1272
11	1417	1601	1391	1336	1613	1114	1524	2089	2401	2256	2135	1434
12	1301	1419	1178	1245	1528	955	1493	1966	2384	2082	1918	1394
13	1240	1331	1158	1242	1527	785	1471	1813	2431	1955	1710	1443
14	1232	1283	1112	1229	1582	752	1403	1662	1982	1717	1590	1424
15	1135	1222	1013	1129	1506	1002	1304	1530	1700	1585	1425	1339
16	1039	1058	922	986	1332	897	1317	1400	1503	1421	1301	1267
17	970	843	775	838	1101	898	1163	1274	1290	1232	1121	1166
18	885	667	691	644	864	775	929	1070	1043	1043	1086	1169
19	643	558	502	487	636	544	726	804	839	762	817	828
20	460	438	377	393	473	408	529	637	628	630	616	535
21	303	377	283	305	374	299	417	479	496	432	411	370
22	219	268	189	217	268	200	261	317	355	311	314	267
23	151	164	131	148	175	132	175	227	231	216	196	170
<b>Total</b>	18208	21959	20881	20432	22721	15691	18272	22895	26650	24283	22055	17270