

Measure 3: Transit Ridership and Bus Volumes

Monitoring Objectives

The purpose of monitoring transit passenger and bus volumes is as follows:

- Provide data on bus volumes by street segment in downtown Seattle
- Measure the average weekday PM peak hour and weekday passenger loads crossing the Seattle CBD north-south screen line
- Provide data as available from Community Transit and Pierce Transit on average ridership crossing the north-south screen line during average PM peak hours and weekdays
- Identify and analyze any substantive changes in ridership or bus volumes for before and after tunnel closure conditions

Methodology

Baseline bus volumes used for this analysis were extracted from HASTUS - the King County Metro scheduling system using the February 2005 service change. These counts include in service as well as out of service coaches. A projection of bus volumes on downtown streets for after tunnel closure was issued with Volume 1, the Baseline Report. These projected bus volumes have subsequently been compared with actual bus volumes for service changes that occurred after tunnel closure. Volume 1 provided a comparison with bus volumes derived from the September 2005 service change. Volume 2 provided a comparison with bus volumes as of December 2005 that reflected routing adjustments made to address operating impacts on Stewart Street. Volume 4 provides a comparison with bus volumes as of the June 2006 service change.

For passenger loads, the Automated Passenger Count (APC) system is the primary source for passenger data for Metro coaches. APC data is collected in a random sample during each signup, downloaded and processed monthly. This data is summarized in a final form at the end of each signup. Preliminary data, based on smaller samples, is available monthly. Metro driver count data is collected on an ad hoc basis when preliminary APC results indicate that observations of trips on a particular route will fall below an adequate sample. Ridership data on Community Transit and Pierce Transit service is generated by the monitor reports supplied by each of these agencies. The ridership data from Community Transit and Pierce Transit is available by signup at the aggregate level.

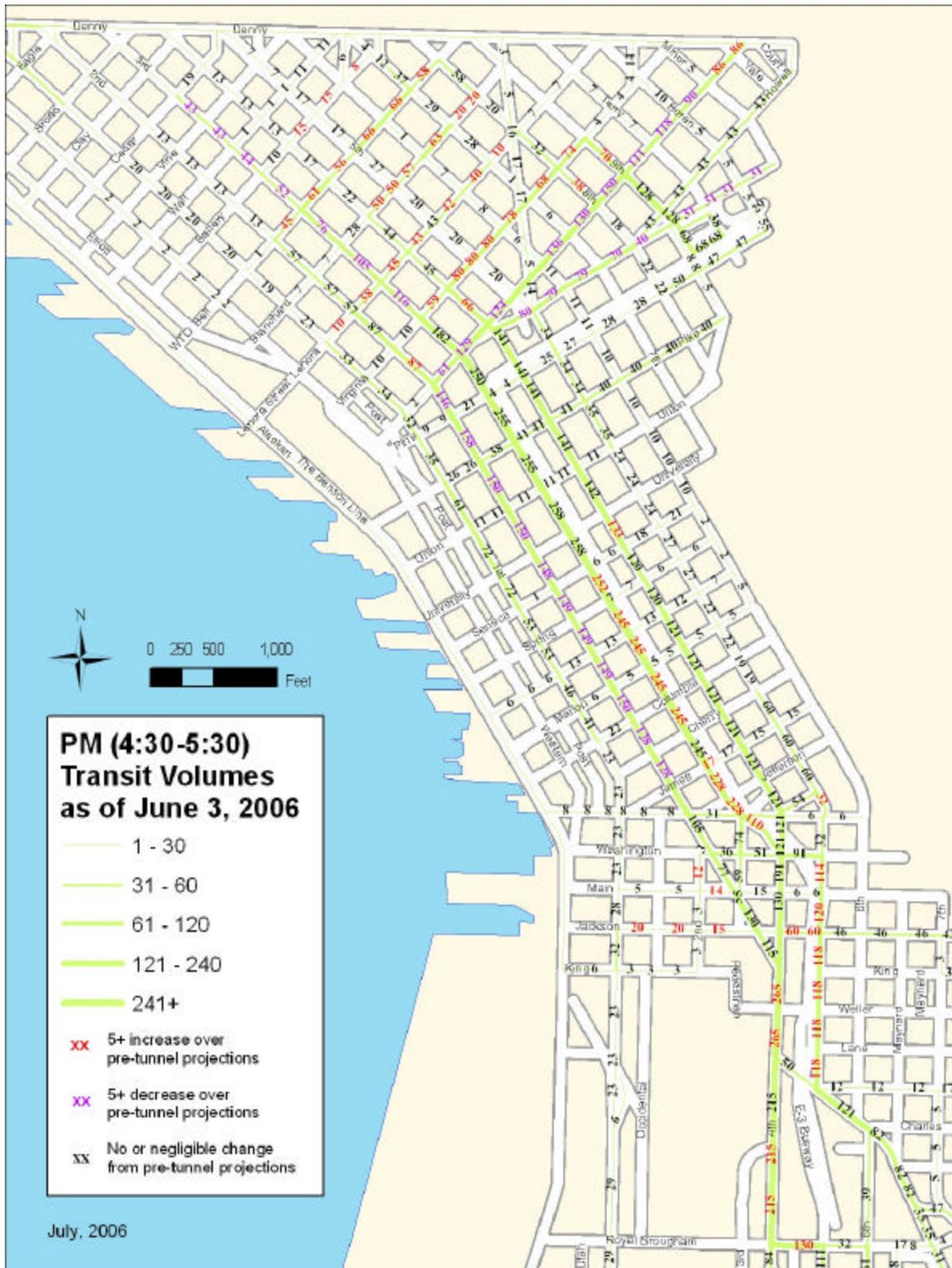
APC data, supplemented by driver counts and estimates for any non-APC observed trips, was used to estimate Metro ridership volumes crossing the screen line just south of University Street, by trip, for the spring 2004 and fall 2005 signups during the PM peak hour and the average weekday. The results have been summarized by street and by direction to compare ridership volumes and loads before and after tunnel closure.

Bus Volumes

As reported in Volume 3, the bus volumes that were projected for downtown street segments during tunnel closure, as shown in the Volume 1 Baseline report, are summarized in Figure 4A. The actual post tunnel bus volumes for downtown streets for the June 2006 service change are shown in Figure 4B.

Bus volumes in the CBD during the PM Peak continue to be essentially the same for most links as projected. The PM Peak period used for determining transit volumes is 4:30 to 5:30pm. Slight variations in volumes are due to schedule adjustments that change a trip from being within or included or excluded from the measured peak hour. The substantive changes for the baseline projection continue to be changes in bus volumes due to the relocation of a 4 trips from 2nd Avenue to Third Avenue, and the service adjustments on Stewart Street.

Figure 6B. PM Peak Hour Transit Volumes as of 6/3/06



Transit Ridership Volumes

Approximately 95,000 north-south riders crossed the downtown screenline at University Street on weekdays in Fall 2004. As part of a general increase in ridership, this number increased to almost 106,700 weekday riders in spring 2005. By comparison, in spring 2006 downtown loads crossing University Street had fallen from the previous years' level, to 103,000.

Table 7 compares spring 2006 ridership at University Street with the baseline Spring 2005 loads. Average weekday loads decreased by approximately 3.4 percent. However, the total load crossing the screenline during the peak hour from 4:30 to 5:30 pm actually increased by about 0.8 percent.

Table 7. Passenger Loads at University Street, before and after Tunnel Closure

		Weekday Riders		Change	1-Hr PM Peak Riders		Change
Avenue	Dir	Spring 2005	Spring 2006		Spring 2005	Spring 2006	
First	N	9,861	9,703	-1.6%	757	721	-4.8%
	S	6,002	5,633	-6.1%	469	634	+35.2%
Second	S	16,423	14,642	-10.8%	2,465	2,340	-5.1%
Third	N	17,849	27,763	+55.5%	1,478	2,870	+94.2%
	S	17,239	25,074	+45.4%	1,883	3,306	+75.6%
Fourth	N	10,375	15,223	+46.7%	825	1,118	+35.5%
Fifth	S	3,046	4,934	+62.0%	155	277	+78.7%
Tunnel	N	12,991	N.A.		1,188	N.A.	
	S	14,495	N.A.		1,959	N.A.	
Total		106,651	102,972	-3.4%	11,179	11,266	+0.8%

Table 8 compares spring 2006 data for standing loads at University Street with the baseline Spring 2005 standing loads. The overall incidence of standing loads has fallen below pre-tunnel closure levels, both on average during the weekday and during the peak 1-hr. Average weekday loads greater than seating capacity have increased in incidence on Second Avenue and Third Avenue northbound, and First Avenue northbound saw a small increase in the incidence of loads over 20 percent of seating capacity. All of these increases were well below the level of concern. The incidence of standing loads during the peak hour in spring 2006 was similar to or less than the incidence in spring 2005.

Table 8. Loads over Seating Capacity at University Street, before and after Tunnel Closure

		Average Loads Greater than Seat Capacity				Average Loads 20% over Seating Capacity			
		% of Weekday Trips		% of Peak 1-Hr Trips		% of Weekday Trips		% of Peak 1-Hr Trips	
Avenue	Dir	Spring 05	Spr 06	Spring 05	Spr 06	Spring 05	Spr 06	Spring 05	Spr 06
First	N	1.8%	1.1%	7.5%	5.4%	0.0%	0.2%	0.0%	0.0%
	S	1.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Second	S	0.3%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Third	N	1.2%	1.4%	1.5%	0.8%	0.2%	0.1%	0.0%	0.0%
	S	5.0%	2.2%	4.7%	3.6%	1.3%	0.4%	1.6%	0.0%
Fourth	N	0.5%	0.3%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%
Fifth	S	0.8%	0.0%	0.0%	0.0%	0.8%	0.0%	0.0%	0.0%
Tunnel	N	0.4%	N.A.	0.0%	N.A.	0.0%	N.A.	0.0%	N.A.
	S	0.2%	N.A.	0.0%	N.A.	0.0%	N.A.	0.0%	N.A.
Total		1.3%	1.1%	1.4%	1.4%	0.3%	0.1%	0.2%	0.0%

Spring 2006 data indicates that loads leaving the CBD have dropped since spring 2005, from 90,800 to 87,600 riders each weekday. However, standing loads have increased, although, again, they are still a small fraction of outbound trips. Table 9 compares the percent of trips with standing loads leaving downtown at various times of the day. The largest increase, not surprisingly, is in the PM peak, when 4.5 percent of trips leaving the Seattle CBD had standing loads, as compared to 3.4 percent of trips in spring 2005. This increase was spread across a number of routes, including ones not likely to be directly affected by tunnel closure.

Table 9. Percent of Trips Leaving CBD Averaging Standing Loads, before and after Tunnel Closure.

		AM Peak	Midday	PM Peak	Evening	Total
		6-9 AM	9AM-3 PM	3-7 PM	7-11 PM	
Standing Loads	Spring 2005	2.4%	2.7%	3.4%	0.3%	2.4%
	Spring 2006	2.1%	3.4%	4.5%	2.0%	3.3%
Over 120% Load	Spring 2005	0.0%	0.7%	0.5%	0.0%	0.4%
	Spring 2006	0.4%	1.0%	0.6%	0.3%	0.6%