

**Alaskan Way Viaduct Program Construction Traffic Mitigation  
Enhanced Transit, Transit Travel Time and Demand Management  
Performance Report**

*Prepared for:*  
WSDOT

*Prepared by:*  
King County Department of Transportation  
Metro Service Development Section

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# Projects Overview

## SUMMARY

To keep people and goods moving during construction of the Alaskan Way Viaduct Program projects, the Washington State Department of Transportation (WSDOT) invested \$31.9 million between 2008 and June 2014 and contracted with King County Metro (Metro) to enhance transit and water taxi service, improve bus monitoring equipment, and provide transportation demand management (TDM) services.

WSDOT is now continuing to mitigate traffic impacts associated with construction of the Alaskan Way Viaduct Program projects by investing \$24,067,000 for enhanced transit services (contract GCB 1883) from July 1, 2014 to June 30, 2017 and \$400,000 in TDM (contract GCB 1906) from July 1, 2014 to June 30, 2015. Performance reports are a requirement of each of these contracts, and this combined report (#17) has been developed to address these contractual requirements.

This report is broken down into three sections:

- **Enhanced Transit Services:** This section compares the Spring 2015 service change data to the baseline 2009 data. This section will track the performance of WSDOT supported transit services that were operated during that period to mitigate construction impacts.
- **Transit Travel Time:** This section describes the changes in transit travel times in key corridors that feed into the Seattle Central Business District (CBD) and changes in travel time that occur within the CBD during the Spring 2015 service change.
- **Transportation Demand Management Report.** This section provides the status and impacts of education and outreach programs and marketing of travel options.

These transit and demand management performance reports will be published three times per year during the life of the construction project. The reports will be available approximately two months after each transit service change, which traditionally occur in February, June and September.

In the following chapters you will find baseline data, performance measurement methods and measured performance for state-sponsored transit and demand management services:

- Transit capacity and ridership
- Transit travel times
- Transportation demand management trip reduction
- Budget and expenditures

## **SERVICES AND ACTIVITIES: FEBRUARY 2015 TO JUNE 2015**

### **Enhanced Transit Service summary**

- During this period, ETS trip adds were maintained on Routes 18X, 21X, 56X, 120, 121 and RapidRide E Line (formerly Route 358). No new trips were added during this period.
- No new schedule adjustments were implemented during this period.
- No flexible hours were used during this period.

### **Ridership summary**

- Peak period ridership increased in each of the four ETS pathways, and overall increased by 51% relative to the Spring 2009 baseline.
- Leading the growth in ridership at the corridor level was Pathway J (West Seattle), where WSDOT funded ETS trips on Routes 21X, 56X and 120 during the Spring 2015 service change.
- Among routes that received ETS improvements, RapidRide E Line (formerly Route 358) had the greatest increase in ridership in absolute terms, attracting over 3,740 additional rides during the peak and shoulder periods

### **Travel Time Summary**

- The WSDOT North Access and SDOT Mercer Project continue to impact pathways on Aurora Ave N, however improvements realized from Spring and Fall 2014 continue to be realized due to near completion of the Two-way Mercer project and improved traffic control and signal timing along the Mercer East corridor. Pathways using Aurora Ave N continue to be delayed by 2 – 3 minutes compared to baseline conditions, while other South Lake Union pathways have returned to baseline conditions or better.
- Travel times on pathways using the Alaskan Way Viaduct and surface streets in SODO continue to be impacted by the Wosca Detour, especially in the inbound direction during the AM peak. AM inbound travel times on SR-99 have increased by about 3 – 5 minutes compared to baseline conditions, slightly worse than Fall 2014 conditions.
- Pathways to SLU have seen degraded travel times in the PM peak compared with the Fall 2014 reporting period, likely due to lane closures on Aurora as part of a bus stop removal project.
- Bus travel times are now calculated based on OBS data collected on-board Metro coaches. The new OBS data provides better accuracy and reliability compared to the AVI and AVL systems which have reached the end of their useful lives. The new OBS data has been calibrated with the old data set to ensure consistent results.

### **Transportation Demand Management Summary**

- Transit Promotions has reduced 1269 trips. Conducted campaign outreach for an In Motion campaign targeting 13,872 households in West Seattle, South Park and White Center. This campaign achieved a participation rate of 7.5% and engaged Spanish speakers with multi-lingual events at community gathering places. The Green Lake In Motion campaign targeted 6,000 households and achieved a 19.4% participation rate.
- Employer Outreach has reduced 103 trips. Employer outreach continued via a marketing campaign mailing to employers and via staff sales outreach in downtown Seattle, West Seattle, First Hill, Burien, Ballard and Fremont. 547 new Passports were sold during this period.

## **EXPENDITURES: SEPTEMBER 2009 – 2<sup>ND</sup> QUARTER 2015**

As of the end of June 2014, Metro had invoiced WSDOT \$30,843,360 (\$544,456 under GCA 5864, \$28,617,421 under GCA 5820 and \$1,681,483 under **GCA 5865**) of the state's \$31.9 million investment in enhanced transit and demand management services. Between June of 2014 and June of 2015, Metro has invoiced WSDOT \$7,324,217 (\$6,924,217 under GCB 1883 and \$400,000 under **GCB 1906**) for the state's investment in enhanced transit and demand management services.

*Combined Enhanced Transit Service, Transit Travel Time, and Transportation Demand Management Performance Report  
Volume 17*

*Provided King County Metro – Service Development*

## PERFORMANCE REPORT SCHEDULE

Performance Reports will be produced three times a year, approximately two months after the service change. This reporting schedule is provided in more detail in the chart below.

### Performance Report Release Dates

																		CURRENT REPORT
Performance Measure Updates Submittal Date	Draft 12-14-09	Volume 1 4-05-10	Volume 2 8-09-10	Volume 3 12-13-10	Volume 4 4-04-11	Volume 5 8-22-11	Volume 6 12-12-11	Volume 7 4-16-12	Volume 8 08-20-12	Volume 9 12-10-12	Volume 10 4-22-13	Volume 11 8-19-13	Volume 12 12-9-13	Volume 13 3-31-14	Volume 14 7-9-15	Volume 15 10-23-15	Volume 16 11-20-15	Volume 17 11-30-15
<b>Reporting Period of Volume Data</b>																		
Ridership/ Capacity/ Utilization Baseline		Feb 09 Jun 09 Sep 09																
Travel Time Baseline		Sep 2009*																
Service Plan		As of April 2010	As of Aug 2010	As of Dec 2010	As of April 2011	As of Aug 2011	As of Dec 2011	As of April 2012	As of Aug 2012	As of Dec 2012	As of April 2013	As of Aug 2013	As of Dec 2013	As of April 2014	As of Aug 2014	As of Dec 2014	As of April 2014	As of Aug 2015
Travel Time Monitoring, Ridership/ Capacity/ Utilization Data, TDM Measures			Feb 10- Jun 10	Jun 10- Sept 10	Sep 10 - Feb 11	Feb 11 - Jun 11	Jun 11 - Sep 11	Oct 11 - Feb 12	Feb 12 - Jun 12	Jun 12 - Sep 12	Sep 12 - Feb 13	Feb 13 - Jun 13	Jun 13 - Sep 13	Sep 13 - Feb 14	Feb 14 - Jun 14	Jun 14 - Sep 14	Sep 14 - Feb 15	Feb 15 - Jun 15

\*The September 2009 travel time data will serve as the travel time baseline, against which, all travel time monitoring activities will be compared

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# Enhanced Transit Service Report

## INTRODUCTION

The Nisqually earthquake highlighted the structural vulnerability of the State's Alaskan Way Viaduct portion of SR 99 and the region began immediately planning for its reinforcement or replacement. SR 99 serves as a major transportation facility carrying approximately 110,000 vehicles a day to and through downtown Seattle. As the region planned for its replacement it became apparent that a facility of this size could not be planned for and replaced without considering the impacts that the construction phase and final design would have on virtually all major north/south arterials and I-5. Inevitable construction impacts and potential for reduced capacity in the final SR 99 design increased interest in utilization of transit as a more compact travel alternative. In March of 2007, as planning continued on the central waterfront portion of SR 99 and the Viaduct (King St. to Battery Street), Governor Gregoire identified several projects for the Early Safety and Mobility projects, i.e. "Moving Forward Projects". Enhanced transit services were one of the major components of the Moving Forward Projects.

One of the major objectives of the enhanced transit services agreement is to "reduce vehicle travel demand in order to help mitigate construction related mobility impacts on the general public." Metro identified 33 candidate routes that, with additional service could help reduce vehicle travel demand. Greater transit utilization can help maintain public mobility while roadway capacity is constrained. The purpose of this report is to understand and document the usefulness of WSDOT's resources that will be used to maintain and enhance transit service in the SR 99 corridor.

In the Spring of 2009, the baseline against which service in this report will be compared, Metro transit service on these pathways provided an estimated 80,780 unlinked passenger trips daily. A conservative estimate would value these trips to equal approximately 39,000 vehicle trips a day in the SR 99 corridor. This transit service provided mobility to thousands of people per day and removed nearly 39,000 vehicle trips a day reducing delay for all other vehicular traffic in the corridor.

## ENHANCED TRANSIT SERVICE REPORT PURPOSE

The Enhanced Transit Service Report provides various data that are useful in understanding the impact of the 30 additional trips funded by WSDOT. The trips funded by WSDOT as part of the February service change were scheduled on routes 21 Express (X), 56X, 120 (part of Pathway J), 121 (part of Pathway I), 18X (part of pathway A) and RapidRide E Line (formerly Route 358, part of pathway B). This report compares Spring 2009 baseline performance measures with Spring of 2015 performance measures. As with previous volumes, these transit performance measures are presented in daily totals and by peak, shoulder and midday periods. Ridership data for the past three years, 2013, 2014 and 2015 is also included to show short term trends.

Time of Day and Pathway Group designations are described below:

- **Time of Day Designations:** Time of day designations measure changes in transit supply and use by peak period (6-9am, 3-6pm), shoulder periods (9-10am, 2-3pm, 6-7pm) and midday periods (10am-2pm).
- **Pathway Groups:** The four pathway groups defined below are the transit corridors of emphasis for this contract. A more complete description is available in Travel Time Table 1. System-wide ridership numbers are also shown to give perspective on the relative performance of the four pathway groups when compared to the system as a whole.
- **Pathway Groups:** The four pathway groups defined below are the transit corridors of emphasis for this contract. A more complete description is available in Travel Time Table 1, page 24. System-wide

ridership numbers are also shown to give perspective on the relative performance of the four pathway groups when compared to the system as a whole.

Pathway A - Ballard/Magnolia: 15th Avenue and Elliot Avenue W between NW 85th Street and 1st Avenue and Denny Way, Including routes 15X, 17EX, 18EX, 19, 24, 32, 33 and RapidRide D Line.

Pathway B – Aurora/Fremont: Aurora Avenue, Nickerson Street, Dexter Avenue and Westlake Avenue between NW 85th Street, Ballard Bridge, Fremont and 3rd Avenue/Denny Way, including routes 5, 5X, 16, 26, 26X, 28, 28X, 40, 62 and RapidRide E Line.

Pathway I: - SODO: 1st Avenue S, East Marginal Way, and 4th Avenue S between S Michigan and S Jackson Streets, including routes 113, 121, 123, 124, 131 and 132.

Pathway J: - West Seattle: Admiral Way, Fauntleroy Way, 35th Avenue SW, Delridge Way and SR 99 between California Avenue, SW Morgan Street, Andover Street and Columbia/Seneca Streets, including routes 21, 21X, 37, 50, 55, 56X, 57, 116, 118X, 119X, 120, 125 and RapidRide C Line.

## RIDERSHIP TRENDS

Transit ridership is influenced by many factors, including amount of service provided, seasonal travel patterns, the cost of driving (fuel/vehicle expenses and time), employment, route design, and construction impacts. The purpose of looking at ridership trend data is to measure and understand these influences. This section includes a brief overview of ridership trends over the last three years.

**Three-Year Ridership Trends** – System-wide ridership grew each year between 2013 and 2015 and increased by 2% over the three-year period. Higher fuel prices, a somewhat stabilized economy and a major restructuring of service are likely contributing factors to this ridership growth.

The Enhanced Transit Service Table 1 below shows that ridership growth rates were considerably in excess of the system growth rate in all four Enhanced Transit Service (ETS) pathways. Ridership increased in each corridor in each of the past three years.

**Enhanced Transit Service Table 1**

<b>3 YEAR TRANSIT CORRIDOR WEEKDAY RIDERSHIP TREND FOR SUMMER SERVICE CHANGE</b>				
<b>Ridership Group</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>% Change 2013-2015</b>
System-wide Ridership	395,000	401,000	403,850	2%
Total of Pathways	113,390	118,500	125,510	11%
Pathway A – Ballard/Magnolia	22,370	24,380	25,480	14%
Pathway B – Aurora Fremont	44,060	45,420	49,210	12%
Pathway I – SODO/Georgetown	14,380	14,400	15,130	5%
Pathway J – West Seattle	32,580	34,300	35,690	10%

## RIDERSHIP CHANGE IN SPRING 2015 COMPARED TO 2009 BASELINE

The Enhanced Transit Service Table 2 below compares the Spring 2015 system-wide and Enhanced Transit Service pathway ridership with the Spring 2009 baseline for average weekday ridership by time of day.

**Ridership Changes Vary by Time of Day** – Evaluating aggregate ridership numbers alone can sometimes hide shifts in ridership that have important planning implications. Ridership analysis by time of day allows you to see which time period has the greatest demand for resources. Employment driven transit service tends to be oriented toward the peak period (6-9 am) and (3-6 pm) while general purpose mobility occurs during all periods of the day. As shown in Table 2, at a system-wide level peak period ridership accounts for about half of daily ridership. This is also true for the total of all pathways. Ridership has increased in every pathway and every time period relative to the baseline.

The system-wide and pathway trends shown in Table 2 provide more context for which we will evaluate the effectiveness of the WSDOT funded construction mitigation.

**Enhanced Transit Service Table 2**

COMPARISON OF SPRING 2009 BASELINE WEEKDAY RIDERSHIP BY TIME OF DAY AND PATHWAY WITH SPRING 2015 SERVICE CHANGE RIDERSHIP								
Ridership Group	Avg. Weekday		Peak Period*		Shoulder Periods		Midday Period	
	2009	2015 (% Change)	2009	2015 (% Change)	2009	2015 (% Change)	2009	2015 (% Change)
System-wide Ridership	375,000	403,850 (8%)	184,000	199,000 (8%)	68,000	73,000 (7%)	79,000	79,000 (0%)
Total of Pathways†	80,090	121,090 [125,510] (51%)	39,930	61,510 [63,520] (54%)	14,260	20,870 [21,630] (46%)	15,580	22,100 [22,940] (42%)
Pathway A – Ballard/Magnolia	16,920	25,480 (51%)	8,930	13,580 (52%)	2,950	4,300 (46%)	3,080	4,090 (33%)
Pathway B – Aurora Fremont	31,970	49,210 (54%)	14,880	23,500 (58%)	5,860	9,010 (54%)	6,690	9,630 (44%)
Pathway I – SODO/Georgetown†	8,260	10,710 [15,130] (30%)	4,440	5,880 [7,890] (32%)	1,370	1,700 [2,460] (24%)	1,400	1,820 [2,660] (30%)
Pathway J – West Seattle†	22,940	35,690 (56%)	11,680	18,550 (59%)	4,080	5,860 (44%)	4,410	6,560 (49%)

\*Peak Period is 6-9 am and 3-6 pm; Shoulder Period is 9-10 am, 2-3 pm, and 6-7 pm; Midday is 10 am - 2 pm.  
†The increase in ridership reported in the brackets is due to the addition of route 124 to Pathway I. Route 124 began operating in Pathway I in September 2009.

## PERFORMANCE OF ENHANCED TRANSIT SERVICE ADDITIONS

Ridership increased during the peak period on all six routes that received Enhanced Transit Service (ETS) funding during the Spring 2015 service change. With the exception of Route 121, ridership also increased during the shoulder periods on routes that received ETS funding. The largest absolute change in peak and shoulder period ridership occurred on RapidRide E Line relative to Route 358, which it replaced. Peak direction frequencies (southbound in the AM; northbound in the PM) were upgraded from every 15 minutes to every 7-10 minutes on Route 358 in Fall 2011. Frequencies in the reverse peak direction (northbound in the AM; southbound in the PM) were improved when the route was converted to the E Line in Spring 2014.

In total, ridership performance of ETS routes outperformed the system-wide trend by 36 percentage points.

**Enhanced Transit Service Table 3**

COMPARISON OF RIDERSHIP PERFORMANCE OF SERVICES THAT RECEIVED WSDOT FUNDED ENHANCEMENTS WITH SPRING 2009 BASELINE								
Route/Pathway	Avg. Weekday		Peak Period*		Shoulder Periods		Midday Period	
	2009	2015 (% Change)	2009	2015 (% Change)	2009	2015 (% Change)	2009	2015 (% Change)
18X / Pathway A	760	940 (24%)	760	800 (5%)	No Service	140 (N/A)	No Service	No Service
21X / Pathway J	770	980 (27%)	740	910 (23%)	30	80 (167%)	No Service	No Service
56X / Pathway J	590	780 (32%)	510	630 (24%)	70	120 (71%)	No Service	No Service
120 / Pathway J	6,850	9,240 (35%)	2,900	4,040 (39%)	1,370	1,700 (24%)	1,600	2,040 (28%)
121 / Pathway I	1,090	1,100 (1%)	730	900 (23%)	210	130 (-38%)	90	No Service
RapidRide E Line / Pathway B	9,900	15,770 (59%)	4,260	6,920 (62%)	1,880	2,960 (57%)	2,240	3,200 (43%)
Enhanced Transit Service Route Total	19,960	28,810 (44%)	9,900	14,200 (43%)	3,560	5,130 (44%)	3,930	5,240 (33%)

\*Peak Period is 6-9 am and 3-6 pm; Shoulder Period is 9-10 am, 2-3 pm, and 6-7 pm; Midday is 10 am - 2 pm.  
New ETS Routes relative to 2009 baseline: 18X, 120 and RapidRide E Line (formerly Route 358)

## TRANSIT CAPACITY

The primary way transit services will mitigate construction impacts is by providing an alternative travel option to driving alone. In order to attract people to transit service, that service must be reliable. In addition, sufficient transit capacity is a prerequisite to establishing transit as a desirable alternative travel option.

**Spring 2015 Transit Capacity Compared to Spring 2009 Baseline** – The baseline is the scheduled number of seats that are supplied each weekday within a pathway group for Spring 2009. Enhanced Transit Service Table 4 shows the number of seats by time of day for Spring 2015 for the four different pathways compared to the baseline. The pathway trends shown Table 4 are provided for context to help evaluate the effectiveness of WSDOT investments.

Overall, peak period capacity increased between 2009 and 2015. The Spring 2015 service change continued the additional transit capacity added on Route 18X (Pathway A route), RapidRide E Line (formerly Route 358; Pathway B route), Route 121 (Pathway I route) and Routes 21X, 56X, and 120 (Pathway J routes). However, other significant changes were implemented in all four pathways as part of the Fall 2012 service restructure. In addition, Route 358 was converted to the RapidRide E Line in Spring 2014. These changes affected both the number of trips and the number of seats per trip, the two factors that together determine seating capacity in each corridor. Consequently, capacity increases on individual WSDOT-funded routes may not directly correlate to changes in the pathways containing those routes.

### Enhanced Transit Service Table 4

<b>SPRING 2015 SERVICE CHANGE COMPARISON OF WEEKDAY TRANSIT SEATING CAPACITY BY CORRIDOR AND TIME OF DAY WITH SPRING 2009 BASELINE</b>						
<b>Pathway</b>	<b>Peak Period</b>		<b>Shoulder Periods</b>		<b>Midday Period</b>	
	<b>2009</b>	<b>2015 (% Change)</b>	<b>2009</b>	<b>2015 (% Change)</b>	<b>2009</b>	<b>2015 (% Change)</b>
Pathway A – Ballard/Magnolia	9,160	10,150 (11%)	2,940	3,830 (30%)	3,600	4,320 (20%)
Pathway B – Aurora Fremont	15,530	16,340 (5%)	5,810	6,540 (13%)	7,640	8,030 (5%)
Pathway I – SODO/Georgetown*	6,190	6,230 [8,410] (1%)	1,890	2,080 [2,920] (10%)	1,940	1,980 [2,950] (2%)
Pathway J – West Seattle	15,920	16,290 (2%)	5,610	5,450 (-3%)	7,220	6,290 (-13%)
<b>Total of all Pathways</b>	<b>46,800</b>	<b>49,010</b> <b>[51,190]</b> <b>(5%)</b>	<b>16,250</b>	<b>17,900</b> <b>[18,740]</b> <b>(10%)</b>	<b>20,400</b>	<b>20,620</b> <b>[21,590]</b> <b>(1%)</b>

\*The increase in seats reported in the brackets is due to the addition of route 124 to the pathway. Route 124 began operating in pathway "I" in September 2009.

Enhanced Transit Service Table 5 compares the actual transit capacity delivered during the Spring 2015 service change to the Spring 2015 enhanced transit service proposal. The number of seats specified in the ETS proposal assumed an average seating capacity of 58 on each ETS route, whereas the number of seats provided is based on the specific coach types assigned during the service change. Because RapidRide coaches have fewer seats

than other low-floor articulated coaches, the actual number of seats provided on RapidRide E Line was slightly lower than proposed.

During the Spring 2015 service change WSDOT funds provided 17 percent more peak period transit capacity on routes 18X, 21X, 56X, 120, 121 and RapidRide E Line. As will be shown in the next section, this additional capacity helped to mitigate the impact on transit capacity level of service caused by a 43 percent increase in peak period ridership relative to the Spring 2009 baseline.

### Enhanced Transit Service Table 5

<b>COMPARISON OF WSDOT FUNDED TRANSIT CAPACITY WITH METRO FUNDED PEAK PERIOD TRANSIT CAPACITY</b>				
<b>Spring 2015</b>				
<b>Route / Pathway</b>	<b>Metro Funded Peak Period*</b>	<b>Actual WSDOT Funded*</b>	<b>Spring 2015 ETS Proposal†</b>	<b>% Increase in Seating Capacity Compared to Metro Peak Period</b>
18X	580	120	120	21%
21X	670	330	350	49%
56X	520	230	230	44%
120	3,140	460	460	15%
121	1,230	230	230	19%
E Line	3,450	290	350	8%
Total	9,590	1,660	1,740	17%

\*Actual average seats/trip for Summer 2014 was as follows: 18X:58, 21X:56, 56X:52, 120:58, 121:58 and 358:48  
†ETS Proposal was based on 58 seats/trip

### TRANSIT CAPACITY LEVEL OF SERVICE

Transit capacity level of service (LOS) measures how riders perceive crowding and comfort on transit services. The second edition of the Transit Cooperative Research Program’s Transit Capacity and Quality of Service Manual describes the importance of transit capacity LOS in the following statement:

**From the passenger’s perspective, passenger loads reflect the comfort level of the on-board vehicle portion of a transit trip—both in terms of being able to find a seat and in overall crowding levels within the vehicle. From a transit operator’s perspective, a poor LOS may indicate the need to increase service frequency or vehicle size in order to reduce crowding and provide a more comfortable ride for passengers. A poor passenger load LOS indicates that dwell times will be longer for a given passenger boarding and alighting demand at a transit stop and, as a result, travel times and service reliability will be negatively affected.**

The Transit Capacity and Quality of Service Manual provides suggested capacity LOS guidelines. This report uses the ratio of passengers to seats, or Load Factor to evaluate the transit capacity LOS on routes in the identified pathways. The level of service thresholds are described in the table below.

## Enhanced Transit Service Table 6

### TRANSIT CAPACITY AND QUALITY OF SERVICE MANUAL LOAD FACTOR GUIDELINES

LOS	Load Factor (passengers/seat)	Comments
<b>A</b>	0.00-0.50	No passenger need sit next to another
<b>B</b>	0.51-0.75	Passengers can choose where to sit
<b>C</b>	0.76-1.00	All passengers can sit
<b>D</b>	1.01-1.25*	Comfortable standee load for design
<b>E</b>	1.26-1.50*	Maximum schedule load
<b>F</b>	>1.50*	Crush load

\*Approximate value for comparison, for vehicles designed to have most passengers seated.

**Spring 2015 Transit Capacity Compared to Spring 2009 Baseline** – Enhanced Transit Service tables 7, and 8 display the number and percent of riders experiencing a transit capacity LOS of C or worse when traveling in the peak direction during the peak period as compared to the Spring 2009 baseline.

Crowding happens when demand pushes the limits of capacity. Changes in crowding reflect a change in the capacity, the demand or both. The 43 percent increase in peak period ridership among routes with WSDOT-funded trips has resulted in a greater number of riders experiencing transit capacity level of service C or worse, **despite WSDOT's** investment. Overall, there were 2,560 more AM and 2,020 more PM peak period riders experiencing transit capacity level of service C or worse than there were in Spring 2009. The increase in riders experiencing transit capacity level of service C or worse on routes with WSDOT funded trips was comparable to the increase in riders experiencing transit capacity level of service C or worse for the pathways overall, as shown in Tables 9 and 10.

## Enhanced Transit Service Table 7

### COMPARISON OF SPRING 2015 TRANSIT CAPACITY LOS WITH SPRING 2009 BASELINE

AM 6:00-9:00 Inbound								
Route/ Pathway	Average Load Factor		# of trips providing a transit capacity LOS of C or worse		% of riders at a transit capacity LOS of C or worse		Est. Number of daily riders at a transit capacity LOS of C or worse	
	2009	2015	2009	2015	2009	2015	2009	2015
18X	0.87	1.11	4	5	77%	109%	270	360
21X	0.83	0.84	5	6	87%	81%	340	400
56X	0.7	0.82	3	4	76%	77%	200	270
120	0.76	0.95	6	16	46%	96%	400	1,170
121	0.47	0.73	0	2	0%	36%	0	120
E Line	0.73	1.32	9	23	57%	104%	730	2,180
<b>Total</b>							<b>1,940</b>	<b>4,500</b>

**Enhanced Transit Service Table 8**

**COMPARISON OF SPRING 2015 TRANSIT CAPACITY LOS WITH SPRING 2009 BASELINE**

<b>PM 3:00-6:00 Outbound</b>								
Route/ Pathway	Average Load Factor		# of trips providing a transit capacity LOS of C or worse		% of riders at a transit capacity LOS of C or worse		Est. Number of daily riders at a transit capacity LOS of C or worse	
	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>
18X	0.78	0.89	4	4	63%	76%	260	340
21X	0.78	0.74	2	5	47%	84%	160	350
56X	0.68	0.72	2	1	53%	26%	130	70
120	0.77	0.81	9	15	60%	71%	610	1130
121	0.68	0.53	2	0	29%	0%	90	0
E Line	0.80	1.27	15	26	74%	98%	1,140	2,520
<b>Total</b>							<b>2,390</b>	<b>4,410</b>

Enhanced Transit Service tables 9, and 10 display similar information as tables 7 and 8 for all the ETS pathways. In addition they give the number and percent of riders that experience a transit capacity LOS of C or worse for those traveling in off peak periods. The off peak information is included to show that crowding occurs at times outside the peak period. The table also provides the total daily trips and estimated number of riders that experience LOS C or worse. These tables are provided for context to evaluate the effectiveness of WSDOT funded construction mitigation services.

**Enhanced Transit Service Table 9**

**SPRING 2015 SERVICE CHANGE COMPARISON OF INBOUND WEEKDAY PASSENGER LOADS BY CORRIDOR PEAK PERIOD SUMMARY WITH SPRING 2009 BASELINE**

<b>AM 6:00-9:00 Inbound</b>						
<b>Pathway</b>	% of riders at a transit capacity LOS of C or worse		# of trips in period providing a transit capacity LOS of C or worse		Est. Number of daily riders at a transit capacity LOS of C or worse	
	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>
Pathway A – Ballard/Magnolia	58%	95%	24	41	1,480	3,510
Pathway B – Aurora Fremont	53%	93%	37	75	2,500	6,270
Pathway I – SODO/Georgetown	16%	28%	6	10	270	550
Pathway J – West Seattle	52%	96%	38	77	2,170	5,450
All Pathways	49%	87%	105	203	6,420	15,780
<b>Inbound Trips All Other Times of Day</b>						
	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>
Pathway A – Ballard/Magnolia	27%	65%	27	51	1,360	4,350
Pathway B – Aurora Fremont	26%	40%	46	85	2,870	6,220
Pathway I – SODO/Georgetown	8%	8%	5	6	210	330
Pathway J – West Seattle	16%	24%	22	34	1,150	2,250
All Pathways	22%	37%	100	176	5,590	13,150
<b>Total Inbound Trips</b>			<b>205</b>	<b>379</b>	<b>12,010</b>	<b>28,930</b>

**Enhanced Transit Service Table 10**

<b>SPRING 2015 SERVICE CHANGE COMPARISON OF OUTBOUND WEEKDAY PASSENGER LOADS BY CORRIDOR PEAK PERIOD SUMMARY WITH SPRING 2009 BASELINE</b>						
<b>PM 3:00 – 6:00 Outbound</b>						
<b>Corridor</b>	% of riders at a transit capacity LOS of C or worse		# of trips in period providing a transit capacity LOS of C or worse		Est. Number of daily riders at a transit capacity LOS of C or worse	
	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>
Pathway A – Ballard/Magnolia	45%	71%	22	41	1,320	3,510
Pathway B – Aurora Fremont	59%	74%	48	75	3,000	6,270
Pathway I – SODO/Georgetown	40%	23%	12	10	560	550
Pathway J – West Seattle	51%	67%	34	77	2,090	5,450
All Pathways	52%	66%	116	203	6,970	15,780
<b>Outbound Trips All Other Times of Day</b>						
	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>	<b>2009</b>	<b>2015</b>
Pathway A – Ballard/Magnolia	22%	65%	24	51	1,280	4,350
Pathway B – Aurora Fremont	23%	40%	38	85	2,550	6,220
Pathway I – SODO/Georgetown	6%	8%	3	6	140	330
Pathway J – West Seattle	11%	24%	14	34	840	2,250
All Pathways	18%	37%	79	176	4,810	13,150
<b>Total Outbound Trips</b>			<b>195</b>	<b>379</b>	<b>11,780</b>	<b>28,930</b>

## **FLEXIBLE TRANSIT SERVICE**

The Enhanced Transit Service contract provides for the use of flexible hours to meet the day to day variations in construction related traffic disruptions. These hours are important for Metro to be able to respond immediately to conditions on the street. In the Spring 2015 ETS proposal, Metro budgeted 3,400 hours of flexible services to meet these needs. However, no flexible hours were deployed during the course of the Spring 2015 service change.

# Transit Travel Time Report

## TRAVEL TIME REPORT PURPOSE

As part of the AWW Moving Forward contract, Metro received funding to improve the equipment that monitors bus travel time through the construction corridors. The Transit Travel Time report uses data from this equipment provided by WSDOT and other sources throughout the network. This report summarizes data collected to monitor transit travel times along pathways that are expected to be most heavily impacted by the Moving Forward project of the AWW program.

This report compares the Spring 2015 service change condition to the previous travel time report (Fall 2014) and the baseline condition (Fall 2009). The list below show the dates of when travel time observations were collected for those conditions:

- Fall 2009 service change (baseline condition): September 21, 2009 through October 16, 2009
- Fall 2014 service change condition: January 5, 2015 through January 30, 2015
- Spring 2015 service change condition: May 18, 2015 through June 5, 2015

Travel time data was collected and processed as discussed below:

- Transit travel time was measured on key transit corridors feeding into and within the Seattle Central Business District (CBD). The data for this was collected through:
  - o Automatic Vehicle Identification (AVI) readers installed at endpoints of key transit corridors (Baseline data only)
  - o **Data from Metro's signpost-based Automatic Vehicle Location (AVL) system (Baseline data only)**
  - o **Logs from Metro's On-Board System (OBS)**
- Pathways were defined by the roadway segments on which one or more transit routes operate.
- Pathways **were grouped by geographic market area, as shown in the "Pathways and Pathway Groups" map on the next page. Each group consists of several distinct pathways described in the "Description of Pathways and Associated Transit Routes" (Travel Time Table 1).**
- Because pathway lengths vary, and travel times will not be comparable across pathways, travel *speeds* are used to assess pathway group performance and travel *times* are used to assess individual pathway performance.

## Spring 2015 Service Changes and Impacts to Travel Time Reporting

No significant service changes were implemented in February 2015 affecting any of the pathways covered in this travel time report.

# Pathways and Pathway Groups

Transit Routes Affected by AWW Project



**Travel Time Table 1**

Description of Pathways and Associated Transit Routes					
Pathway Group	Pathway	Market Coverage	From	To	Current Transit Routes*
<b>A</b>	A.1	Ballard, Uptown	15 <sup>th</sup> NW/NW 85 <sup>th</sup>	1 <sup>st</sup> Ave/Denny	D-Line
	A.2	Ballard	15 <sup>th</sup> NW/NW 85 <sup>th</sup>	1 <sup>st</sup> Ave/Denny	15X, [17X, 18X]
	A.3	Magnolia	Elliot Ave/Magnolia Br.	1 <sup>st</sup> Ave/Denny	19, 24, 33
<b>B</b>	B.1	North Seattle	Aurora Ave NW/NE 85 <sup>th</sup>	3 <sup>rd</sup> Ave/Battery	E-Line
	B.2	North Seattle	Bridge Way/N 38 <sup>th</sup>	3 <sup>rd</sup> Ave/Battery	5, [5X, 26X, 28X]
	B.3	Fremont	Dexter/Westlake/Fremont	Dexter/Denny	26, 28
	B.5	South Lake Union	15 <sup>th</sup> NW/Leary Way	Denny/Westlake	40
<b>I</b>	I.1	South Seattle/Burien	1 <sup>st</sup> Ave S/E. Marginal (OB) S Alaska/E Marginal (IB)	1 <sup>st</sup> Ave/Columbia (OB) 1 <sup>st</sup> Ave/Seneca (IB)	121, 122, 123
	I.2	South Seattle/Burien	4 <sup>th</sup> Ave S/S Michigan	4 <sup>th</sup> Ave/Jackson	131, 132
<b>J</b>	J.1	West Seattle	Alaska Jct	3 <sup>rd</sup> Ave/Seneca	none
	J.2	West Seattle	35 <sup>th</sup> Ave SW/SW Morgan	3 <sup>rd</sup> Ave/Seneca	21
	J.3	West Seattle	Alaska Jct.	1 <sup>st</sup> Ave/Columbia (OB) 1 <sup>st</sup> Ave/Seneca (IB)	C-Line, [21X]
	J.4	West Seattle	California Ave/SW Fautleroy Way	3 <sup>rd</sup> Ave/Yesler	116, 118, 119
	J.5	West Seattle/Burien	Delridge Way/Andover	1 <sup>st</sup> Ave/Columbia (OB) 1 <sup>st</sup> Ave/Seneca (IB)	120, 125
	J.7	West Seattle	Admiral Way/California Ave	1 <sup>st</sup> Ave/Columbia (OB) 1 <sup>st</sup> Ave/Seneca (IB)	56X, 57
<b>CBD</b>	CBD2A	2 <sup>nd</sup> Ave	2nd Ave/Pike **	5th Ave/Weller **	Many
	CBD3	3 <sup>rd</sup> Ave	3 <sup>rd</sup> Ave/Stewart	3 <sup>rd</sup> Ave/Yesler	Many
	CBD4	4 <sup>th</sup> Ave	4 <sup>th</sup> Ave/Jackson	4 <sup>th</sup> Ave/Stewart	Many
	CBD5	5 <sup>th</sup> Ave	5 <sup>th</sup> Ave/Pine	5 <sup>th</sup> Ave/Weller	Many
	Columbia	Columbia St	3rd Ave/Seneca	1st Ave/Columbia	Many

\*Routes identified with an **X** are express routes. Routes in [BRACKETS] are routes that parallel a significant portion of the pathway, but are not included in the data for that pathway. Because so many routes operate on the CBD pathways they are not all listed here.

\*\* Adjusted start/end point due to transition to new OBS data source

## TRAVEL TIME DATA

A summary of performance results are reported on the “Performance by Pathway Group” and “Performance of Pathways with Service Additions” tables below, while detailed travel time charts of the individual pathways are included in Appendix A.

Travel Time Table 2 below shows daily median travel speeds and range of speeds experienced by each pathway group during the am and pm peaks, including a comparison with the baseline condition. The “Median Speed” is the speed where 50 percent of the observed transit speeds are faster and 50 percent of the observed transit speeds are slower than the median speed. The median speed includes all transit trips operating along all of the pathways in each group, in both directions, on weekdays between 5 am and 8 pm. Median speed is reported rather than average speed because the median is less sensitive to unusual events such as bus breakdowns or accidents that could skew the average. This measure gives an overall performance metric for the pathway group, and is a useful aggregate measure to assess whether the speeds of individual pathways in a given group are trending up or down. **It is not, however, appropriate to use the pathway group median speed as an assessment of travel speed for any individual pathway.** In Appendix A, observed travel times are aggregated by hour of day for both directions of each pathway.

The strongest influence in travel time variability is time of day and direction of travel. The “PM Peak Period Hourly Median Range” and “AM Peak Hourly Median Range” are aggregate performance measures for the times of day that traditionally have the most congestion. The PM Peak Range is the range between the median speed for the slowest hour of the slowest pathway and the fastest hour of the fastest pathway between 3 pm and 6 pm; the AM Peak Range is a similar comparison of speeds between 6 am and 9 am. These ranges can be used to understand pathway group performance and assess whether, as a group, speeds are trending up or down during periods when daily travel demand is the greatest.

**Travel Time Table 2: Spring 2015, Fall 2014, and Baseline Travel Speeds**

Performance by Pathway Group: Spring 2015, Fall 2014, & Baseline Comparison					
Pathway Group	Area	Service Change Period	Median Speed [MPH]	AM Peak Period Hourly Median Range [MPH]	PM Peak Period Hourly Median Range [MPH]
A	Ballard, Interbay	Spring 15'	13.6	13.1 - 15.3	12.3 - 15.6
		Fall 14'	14.2	13.1 - 15.3	12.9 - 16.8
		Baseline	14.9	12.1 - 23.6	11.4 - 19.0
B	Aurora, Fremont	Spring 15'	15.4	14.3 - 22.5	11.9 - 20.1
		Fall 14'	14.6	13.8 - 22.3	11.5 - 19.7
		Baseline	18.6	11.0 - 22.7	11.0 - 20.3
I	SODO, Georgetown	Spring 15'	16.0	17.1 - 24.4	14.8 - 28.3
		Fall 14'	16.2	16.6 - 27.7	14.8 - 30.0
		Baseline	17.7	16.4 - 48.4	12.7 - 21.7
J (1st)	West Seattle (1st)	Spring 15'	14.2	13.8 - 15.2	13.0 - 17.8
		Fall 14'	14.1	13.9 - 14.9	13.0 - 17.6
		Baseline	15.9	11.9 - 20.7	12.4 - 21.0
J (AWV)	West Seattle (AWV)	Spring 15'	25.0	17.8 - 31.0	23.3 - 39.0
		Fall 14'	25.6	17.2 - 33.3	23.4 - 38.5
		Baseline	30.1	20.1 - 36.6	22.1 - 33.8
CBD	2nd-5th Aves	Spring 15'	7.0	6.5 - 8.2	3.6 - 11.2
		Fall 14'	6.9	6.9 - 7.2	6.3 - 7.4
		Baseline	7.2	5.9 - 9.9	5.4 - 9.6

\* AM peak includes 6 – 9 am and inbound trips only, pm peak includes 3 – 6 pm and outbound trips only, except CBD group includes both directions for am and pm peak ranges.

## **Spring 2015 Highlights**

During the Spring 2015 reporting period, construction impacts in the South Lake Union and Uptown areas subsided somewhat due to near-completion of the Two-way Mercer project and improved traffic control and signal timing along the Mercer East corridor. With the exception of southbound PM routes in the A & B pathways, improvements in travel time seen in Fall 2014 have continued to be realized. PM routes traveling southbound have seen an increase in travel time of 2-4 minutes compared to Fall 2014.

In the South Portal area, construction activities and use of the Wosca Detour continued to impact transit pathways on the AWW and parallel local streets. Pathways via 1<sup>st</sup> Ave S continued to experience degraded travel times due to stadium events and construction impacts.

A handful of private development construction projects with short and long term lane closures occurred during this reporting period, particularly in the South Lake Union and north CBD area.

## **J Pathways**

Overall, J Pathways on 1<sup>st</sup> & 4<sup>th</sup> Avenue S have shown travel times consistent with Fall 2014. Travel times on the AWW have shown some increase this period, particularly in the inbound direction during the AM peak. AM travel times on both AWW and 1<sup>st</sup> & 4<sup>th</sup> are about 3 – 5 minutes longer in the AM peak flow direction compared to baseline conditions.

## **B pathways**

Pathways B.1 and B.2 continue to be impacted by ongoing construction in the vicinity of SR-99 and Mercer area, however improvements seen have continued from observations made in the last period. Pathways B.1 and B.2 travel times are about 3 minutes longer than baseline during the PM peak hour, erasing improvements seen in the previous report. The increase in travel time is likely due to lane closures on Aurora Ave in the southbound direction to move a bus stop. Pathways on Dexter and Mercer (B.3 and B.5) continue to show the improvement seen in the previous reporting period, likely due to improved traffic control around the Dexter/Mercer intersection, and improved signal timing on Mercer East that has reduced the amount of congestion spilling onto these north-south arterials.

Additional highlights of changes in travel time and travel speeds observed in Spring 2015 compared to Fall 2014 and baseline conditions are noted below. See Appendix A for details.

- The A.3 Pathway southbound shows travel time increases of 1-2 minutes and increased variability compared to Fall 2014. Equipment mobilization and lane closures on Alaskan Way and Columbia Street due to the Seawall Construction Project may be causing spillback onto Western Ave and causing these delays.
- Pathway J.5 experienced increases in northbound travel time and variability for the entire day.
- Pathway CBD5 travel times show an increase in travel time compared to the Fall 2014 reporting period. The Transit Corridor Improvement Project on 3<sup>rd</sup> Ave, involving curb lane narrowing and closures may be diverting CBD traffic to 5<sup>th</sup> Ave.

## SERVICE ADDITIONS TRAVEL TIME

The following is a summary of travel time performance of transit pathways that have received WSDOT funding during this period.

**Route 21X [Pathway J.3]** – Pathway J.3 travel times remain relatively unchanged in Spring 2015 compared to Fall 2014. Pathway J.3 had shown increases in travel time after the beginning of the Wosca Detour, but then showed improvement after implementation of RapidRide improvements. Route 21X benefits from a few of the Rapid Ride improvements, such as the AM peak period bus lane on Avalon Way, but does not receive the full complement of C Line RapidRide improvements. Based on previous and current travel time results, route 21X is likely experiencing travel times about 2 minutes longer than the baseline condition during the AM peak flow.

**Route 56X [Pathway J.7]** – Pathway J.7 is a peak-only pathway using the AWW. This pathway shows slight improvement in travel time in the AM peak compared to Fall 2014, while other AWW pathways show an increase in AM travel times. AM inbound travel times on this pathway are highly variable due to continued use of the Wosca Detour.

**Route 121 [Pathway I.1]** – Pathway I.1 is a peak-only pathway with limited reverse-peak trips. Travel times have remained about the same compared to Fall 2014, with the exception of PM inbound trips where travel times have increased by one minute. AM inbound travel times are still 3 – 4 minutes greater than baseline conditions.

**Route 120 [Pathway J.5]** – Pathway J.5 shows about one minute of increased travel time in the AM peak compared to Fall 2014, consistent with other AWW pathways and a continuation of travel time added in Fall 2014 as well. AM travel times are about 2 minutes longer than baseline conditions.

**Route 18X [Pathway A.2]** – Pathway A.2, a peak-only pathway using 15<sup>th</sup> Ave and Elliott Ave, remains consistent with travel times from Fall 2014 during both AM and PM peaks. Travel times on this pathway during AM and PM peaks are about 1 – 4 minutes longer than baseline conditions.

**RapidRide E Line [Pathway B.1]** – Pathway B.1 continues to experience improvement on travel times compared to both the baseline and Fall 2014 conditions as construction activities for the North Access Project come closer to completion. Pathway B.1 has previously shown improvement due to RapidRide improvements and BAT lanes north of the Aurora Bridge, therefore Pathway B.2 provides a better picture of the effect that construction activities in the South Lake Union area have on Pathway B.1 compared to baseline. PM Peak travel times in the outbound direction on Pathway B.2 are one minute worse than baseline travel times.

# Transportation Demand Management Report

## TDM REPORT PURPOSE

Transportation Demand Management (TDM) projects are designed to improve system efficiency by reducing traffic congestion on SR 99 during the construction of the AWW program. WSDOT is investing \$400,000 July 1, 2014 to June 30, 2015 in strategic trip reduction projects to complement the Enhanced Transit Service project with employer outreach and promotions of the enhanced transit service. These projects encourage people to ride the bus, helping to fill seats on the added bus service. The TDM projects also help show people their travel options which include carpooling, vanpooling, teleworking, or flexing their work schedules.

The goal of the overall TDM project is to reduce *400 peak round trips each weekday*. A description of the TDM projects follows in TDM Table 1 below:

**TDM Table 1**

TDM Project Definitions	
Program	Description
<b>Employer Outreach \$150,000 WSDOT</b>	Conduct outreach in areas where transit service has been enhanced including SODO, Burien, West Seattle, Queen Anne, South Lake Union, and Ballard/Interbay manufacturing centers and the First Hill Urban centers. Distribute 200 transit passes and incentives.
<b>Transit Promotions \$235,000 WSDOT</b>	Promote transit services to 18,500 households served by enhanced transit service.
<b>Strategic Plan and Measurement \$15,000 WSDOT</b>	Analyze and report on overall results of transportation demand management efforts

## TDM PROGRAM TIMELINE

The program schedule is below:

**TDM Table 2**

	2014				2015			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>TDM Program Timeline</b>								
Employer Outreach	◆————◆				◆————◆			
Transit Promotions					◆————◆			
Strategic Plan and Measurement	◆————◆				◆————◆			

# TDM Program Update and Performance

Listed below in TDM Table 3 are the TDM program updates for February 14, 2015 to June 30, 2015.

At the beginning of the contract, Metro worked with WSDOT staff to develop the methodology to measure performance. The factors used to measure progress in the AWV TDM program used past performance and other factors to estimate performance. All the TDM elements are implemented in an environment where many different actions interact including but not limited to other promotions, changes in bus service, and construction activities. Broader factors like the price of gas, seasonal effects, unemployment, and other economic factors, can also influence a traveler's choice.

**TDM Table 3**

<b>TDM Program Update – (February 14, 2015 – June 30, 2015)</b>	
<b>Employer Outreach</b>	<p><b>Performance:</b> This program has reduced 103 trips.</p> <p><b>Activities:</b> Employer outreach continued via a marketing campaign mailing to employers and via staff sales outreach in downtown Seattle, West Seattle, First Hill, Burien, Ballard and Fremont. 547 new Passports were sold during this period.</p>
<b>Transit Promotions</b>	<p><b>Performance:</b> This program has reduced 1,269 trips.</p> <p><b>Activities:</b> Conducted campaign outreach for an In Motion campaign targeting 13,872 households in West Seattle, South Park and White Center. This campaign achieved a participation rate of 7.5% and engaged Spanish speakers with multi-lingual events at community gathering places. The Green Lake In Motion campaign targeted 6,000 households and achieved a 19.4% participation rate.</p>

As of this reporting period, 1,372 trips have been reduced, which exceeds the 400 trips targeted for reduction.

**TDM Table 4**

Activity	Trip Reduction (round trips reduced daily)		Individual Metrics		
	Target for entire program period	Current performance	Description	Target for entire program period	Current performance
Employer Outreach	200	103	Transit Passes Distributed	200	1,533
Transit Promotions	200	1,269	Households / Employees	18,500	19,872
<b>TOTAL</b>	<b>400</b>	<b>1,372</b>			

**TDM BUDGET AND EXPENDITURE – JUNE 2015**

The estimated cash flow as of June by quarter is listed in the table below.

**TDM Table 5**

Activity	Expenses this period	Total Expenses to date	% of total
Employer Outreach	\$26,476.50	\$76,822.82	51.2%
Transit Promotions	\$5,951.88	\$10,181.62	4.3%
Measurement	\$8,609.54	\$13,114.62	87.4%
Total	\$41,037.92	\$100,119.06	25.0%

1Q2015 – Jan-Mar 2015

Activity	Expenses this period	Total Expenses to date	% of total
Employer Outreach	\$73,177.18	\$150,000.00	100.0%
Transit Promotions	\$224,818.38	\$235,000.00	100.0%
Measurement	\$1,885.38	\$15,000.00	100.0%
Total	\$299,880.94	\$400,000.00	100.0%

2Q2015 – Apr-Jun 2015

**Task:** Employer Outreach  
**Task Lead:** Sunny Knott

Calc Sheet Version 1.4

**Total Average Daily Round Trips Reduced Through Distribution of New Passports**

$$= \left( \left( \begin{array}{l} \text{Alt. Mode Share} \\ \text{for Passport Sites} \\ \text{During Program} \end{array} \right) - \left( \begin{array}{l} \text{Alt. Mode Share} \\ \text{for non-Passport Sites} \\ \text{During Program} \end{array} \right) \right) * \left( \begin{array}{l} \text{Average \# of Passports} \\ \text{In Use During Program} \end{array} \right)$$

$$= ((44.0\%) - (33.0\%)) * (938) = \mathbf{103}$$

<b>ORCA Passport</b>	
During Program Implementation	
Alternate Mode Share (transit and vanpool) for Passport Sites	44.0%
Alternate Mode Share for Non-Passport Sites	33.0%
Retention of Newly Distributed Passports	90.0%

	Service Period	New Passports Issued	Passports Expiring	Passports Retained	Passports In Use	Average Passports In Use
Program Period	SUM 2014	277			277	938
	FALL 2014	709			986	
	SPR 2015	547			1,533	
Post Program Period	SUM 2015		277	249	1,505	1,430
	FALL 2015		709	638	1,434	
	SPR 2016		547	492	1,380	
	Total	1,533				

Task: Transit Promotions  
 Task Lead: Sunny Knott

Calc Sheet Version 1.2

Weekday Ridership, SPR 2013 through SPR 2015										WSDOT Analysis						
Pathway / Route	Baseline			Targeted Promotions by Pathway or Route and Service Period						Annualized Trip Reductions					Total Round Trips Reduced	
	SPR 2013	SUM 2013	FALL 2013	SUM 2014	FALL 2014	SPR 2015				SUM 2014	FALL 2014	SPR 2015				SUM 2014 through SPR 2015
Pathway I - SODO / Georgetown	14,380	15,040	14,320													0
Pathway J - West Seattle	32,580	32,780	33,310			35,690						478				478
Pathway A - Ballard / Magnolia	22,370	22,320	23,540													0
Pathway B - Aurora / Fremont	44,060	43,530	43,500			49,210						791				791
																0
																0
																0
															<b>1,269</b>	

\*Performance of the transit promotions is measured at the transit pathway level which includes routes with enhanced transit services funded by WSDOT. We are unable to distinguish between the effects of the promotion versus the enhanced transit service so their performance is measured jointly. However, not all performance of the enhanced transit service is represented here since measurements are only shown for periods when promotions were implemented.

**1,269**

$$\text{Annualized Trips Reduced} = \frac{(\text{Average Daily Ridership in Service Period} - \text{Baseline Daily Ridership}) \times \text{Number of days in Service Period}}{2 \text{ trips per day}} * \frac{\text{Number of days in Service Period}}{254 \text{ Weekdays Per Year}}$$

	SUM 2014	FALL 2014	SPR 2015				Total
Households / Employees Reached	0	0	19,872				19,872

# Interpreting the Hourly Pathway Summaries

**Pathway**  
Each page is a report of one pathway, defined in the title.

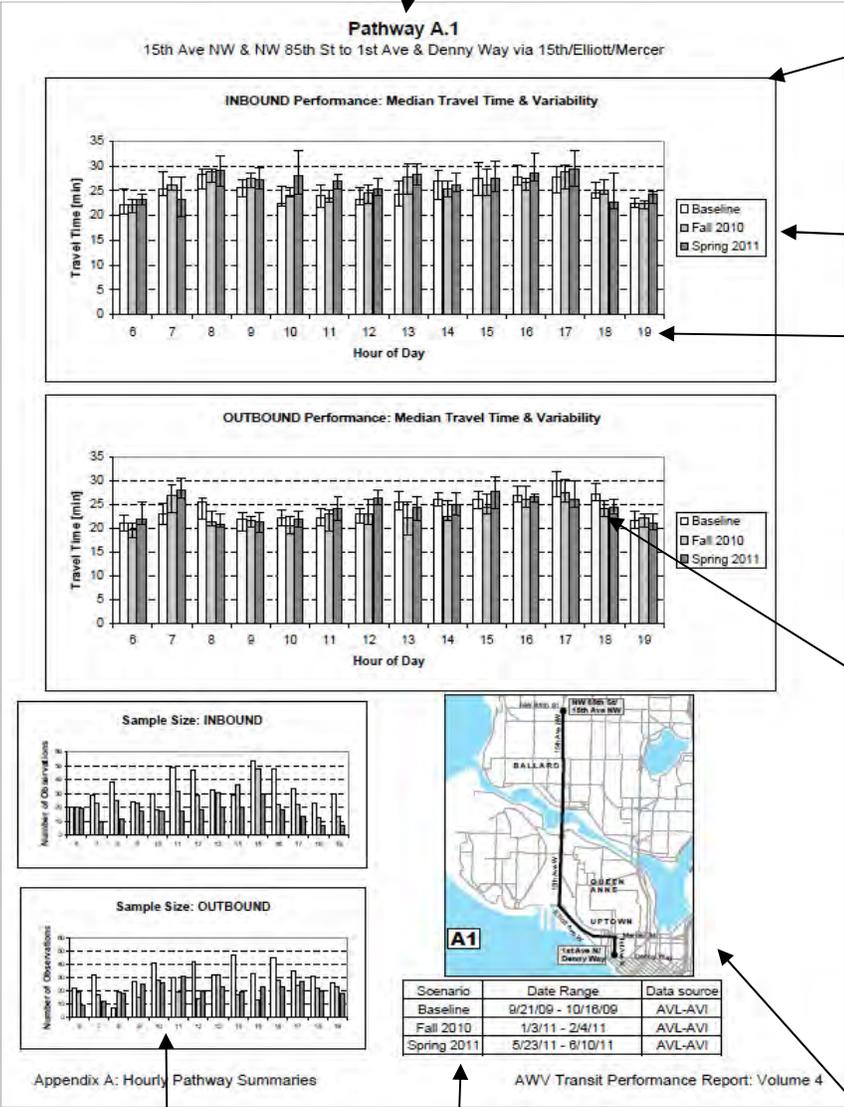
**Direction**  
Most pathways have two directions, either inbound/outbound or northbound/southbound. Inbound trips generally head into the Seattle CBD, and outbound trips generally originate in the CBD. Separate charts are provided for the two directions.

**Scenario**  
Long-term changes in transit performance are illustrated by selecting various scenarios for side-by-side comparison.

**Time-of-Day**  
Travel time data is sliced into hour-interval segments for each pathway and direction, and the median travel time is calculated for each hour interval between 5:00 and 19:59 (5:00am - 7:59pm). The hour interval for each trip is determined by the hour of day when the trip passes the end point of the pathway.

**Variability Factors**  
In addition to the median travel time shown in the bar charts, a variability indicator is shown with whiskers extending above and below each bar. The upper whisker shows the 75th percentile travel time measured for the hour interval, and the lower whisker shows the 25th percentile travel time. A larger spread between the 25th and 75th percentile indicates a larger variation in travel times. In other words, 50% of the observed trips fit within this range.

**Pathway Map**  
The map shows the detailed route of the pathway being reported, as well as the start and end points. In some cases, the start and end points are different for inbound/outbound directions, for example for trips using the Seneca and Columbia AWW ramps.



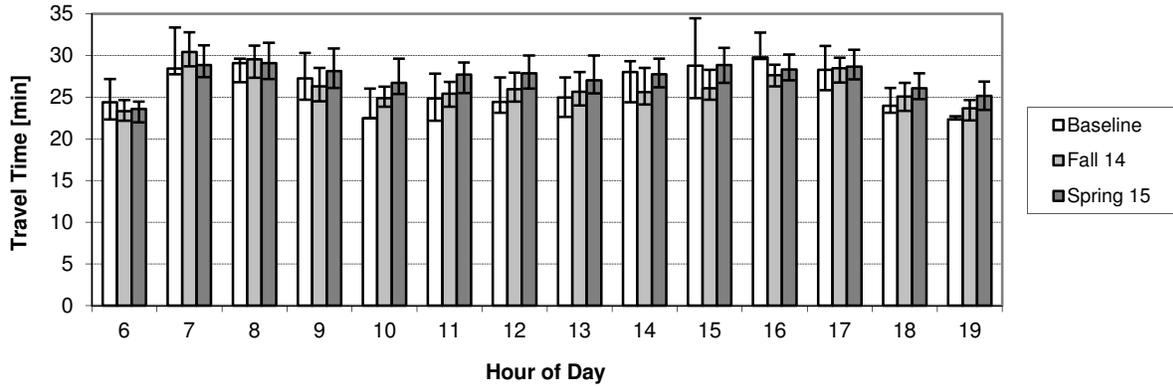
**Sample Size Charts**  
These charts show the number of observations used within each slice of travel time data. These charts provide an indication of the quality and relevancy of the data that is presented in the larger charts.

**Scenario Descriptions**  
Details about the scenarios being reported are shown in the table, including the date ranges and data source used (AVL or AVI).

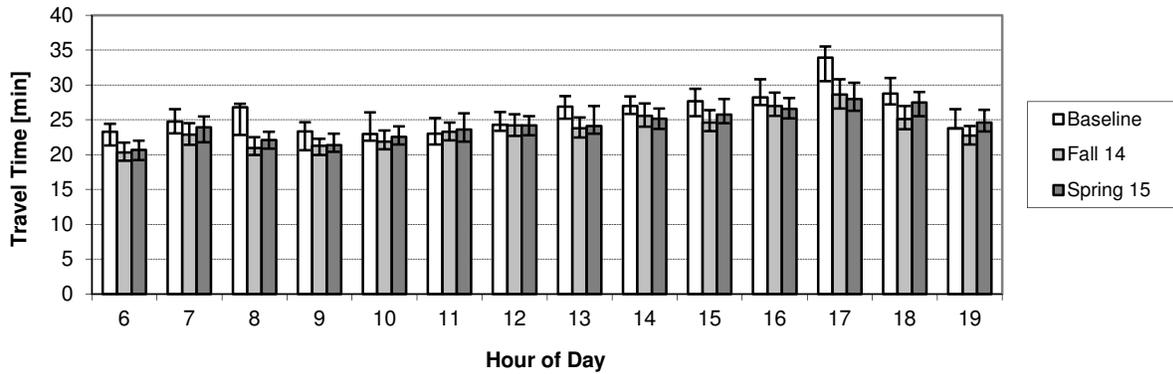
# Pathway A.1

15th Ave NW & NW 85th St to 1st Ave & Denny Way via 15th/Elliott/Mercer

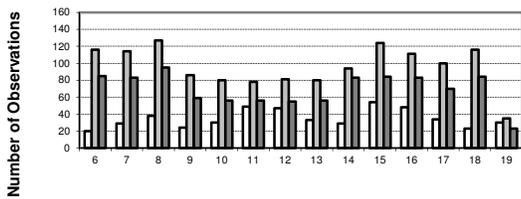
**INBOUND Performance: Median Travel Time & Variability**



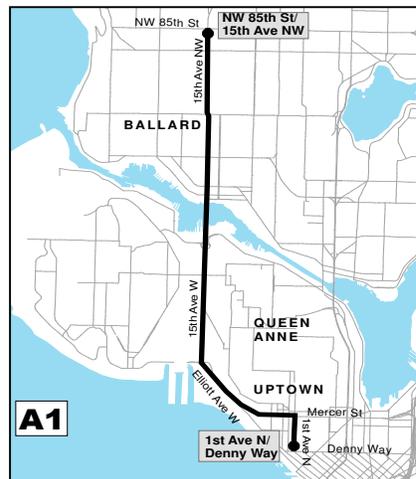
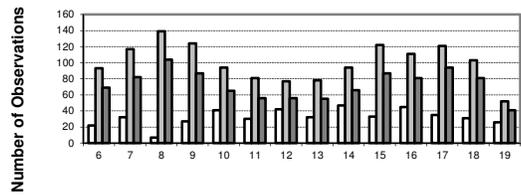
**OUTBOUND Performance: Median Travel Time & Variability**



**Sample Size: INBOUND**



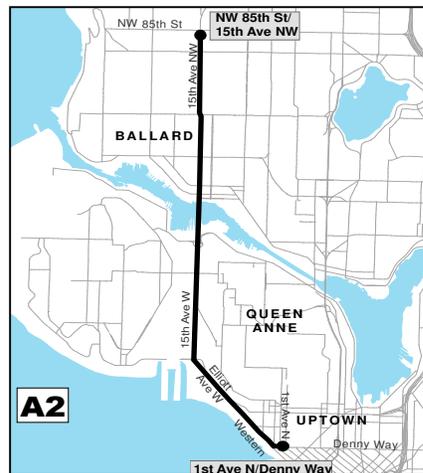
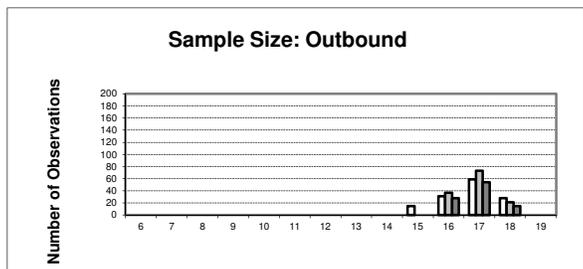
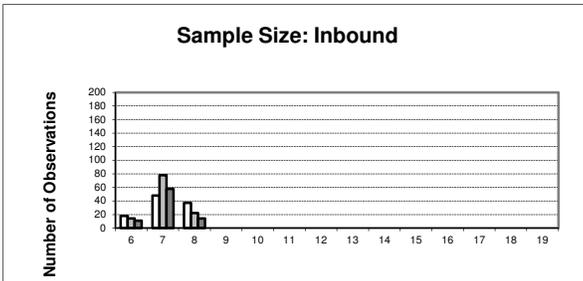
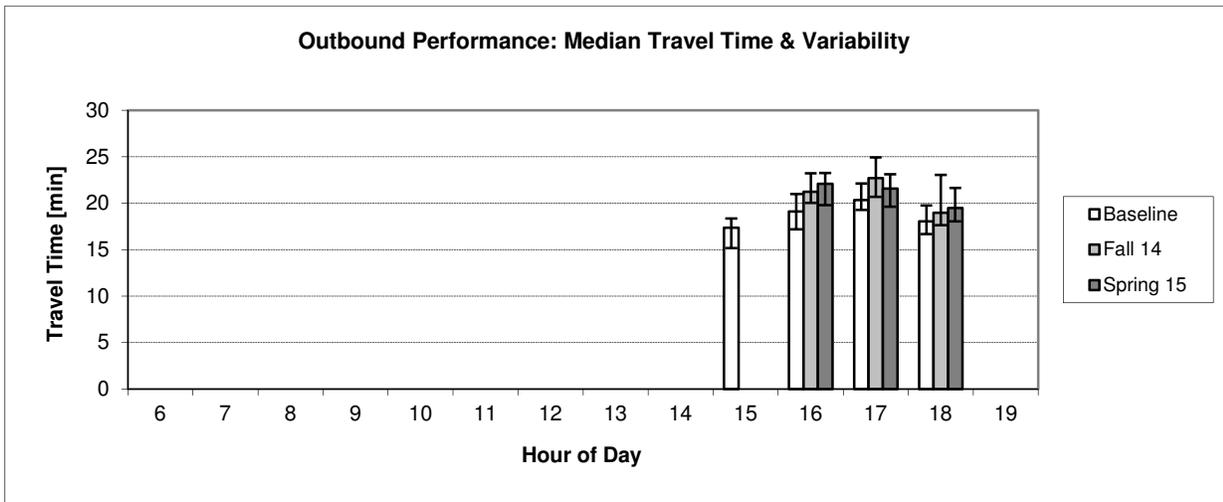
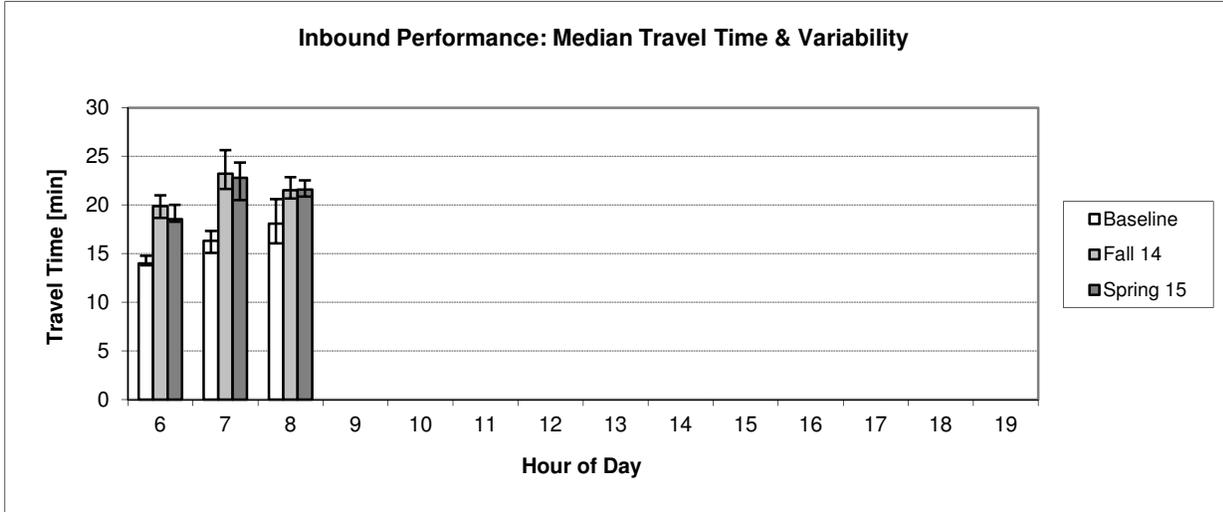
**Sample Size: OUTBOUND**



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	TSP
Spring 15	5/18/15 - 6/05/15	TSP

## Pathway A.2

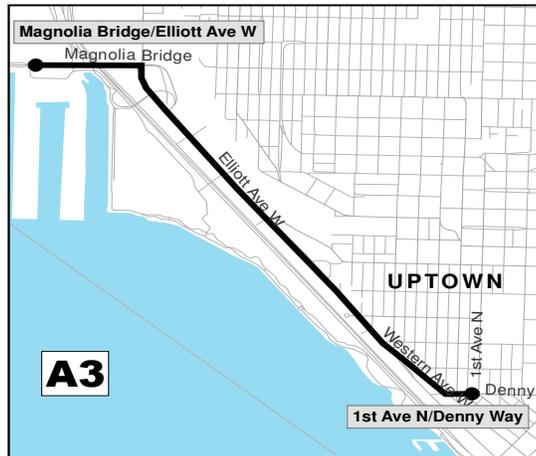
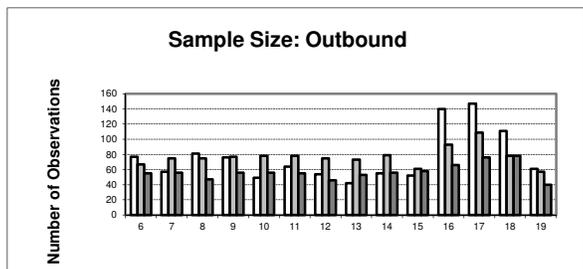
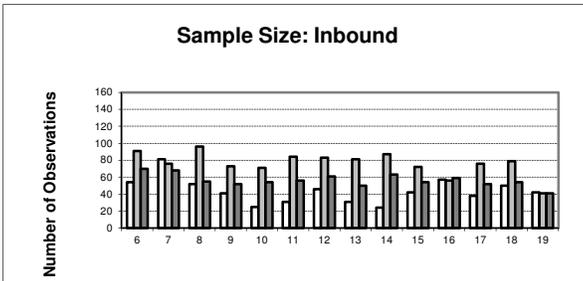
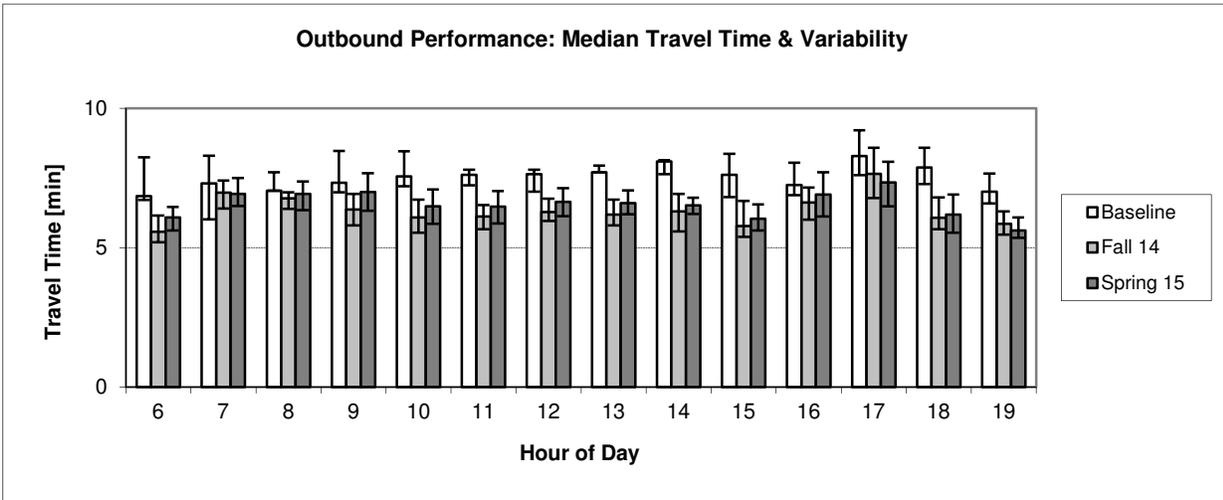
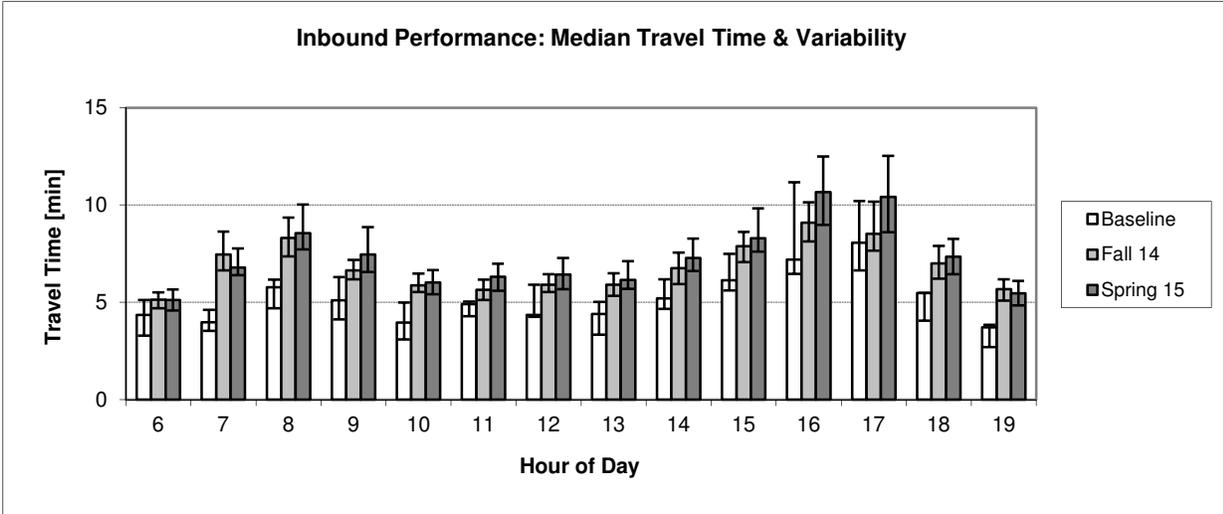
15th Ave NW & NW 85th St to 1st Ave & Denny Way via 15th/Elliott/Western (Peak Only)



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	AVL-AVI
Spring 15	5/18/15 - 6/05/15	AVL-AVI

# Pathway A.3

Magnolia Bridge to 1st Ave & Denny Way via Elliott/Western

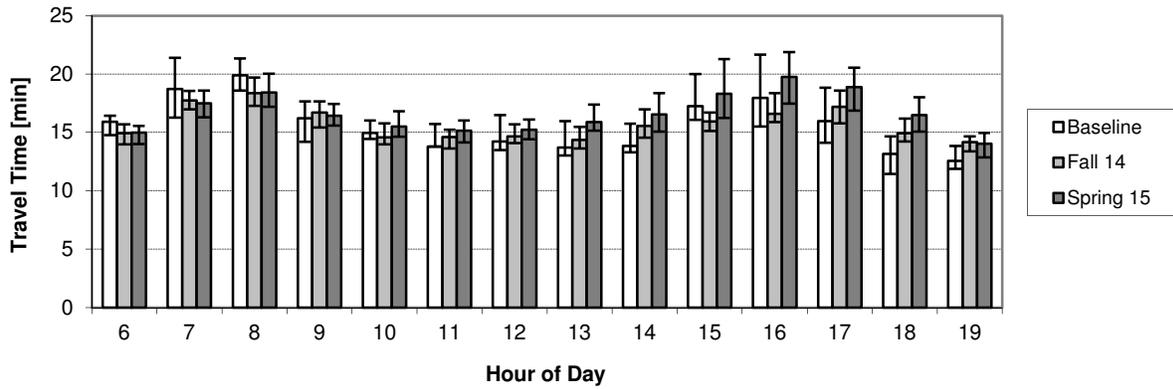


Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	AVL-AVI
Spring 15	5/18/15 - 6/05/15	AVL-AVI

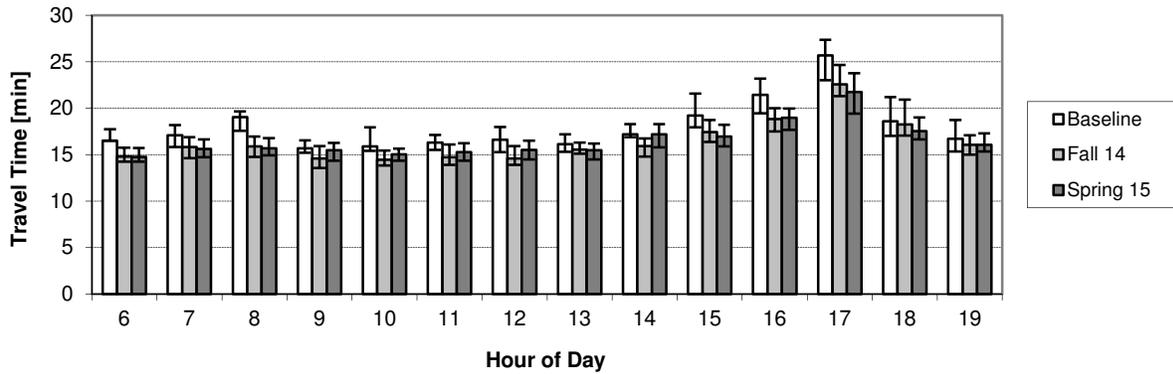
## Pathway B.1

Aurora Ave N & N 85th St to 3rd Ave & Battery St via Aurora Ave

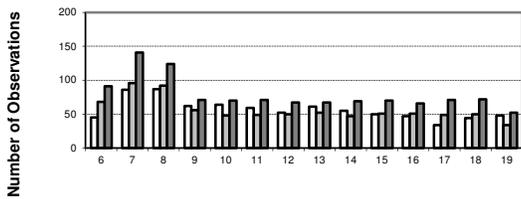
### Inbound Performance: Median Travel Time & Variability



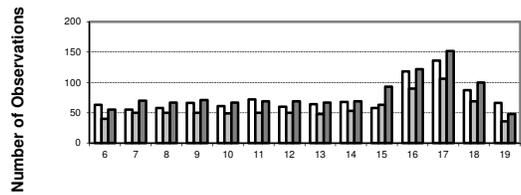
### Outbound Performance: Median Travel Time & Variability



### Sample Size: Inbound



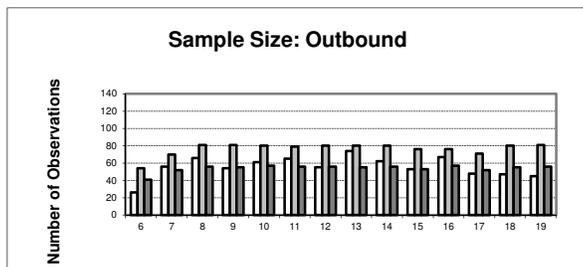
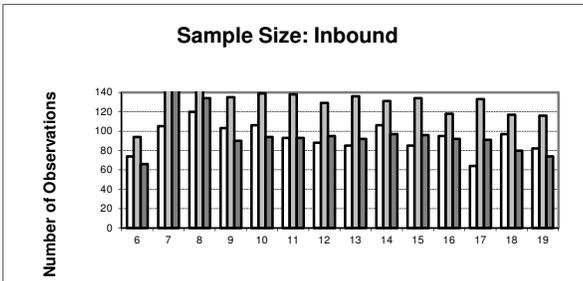
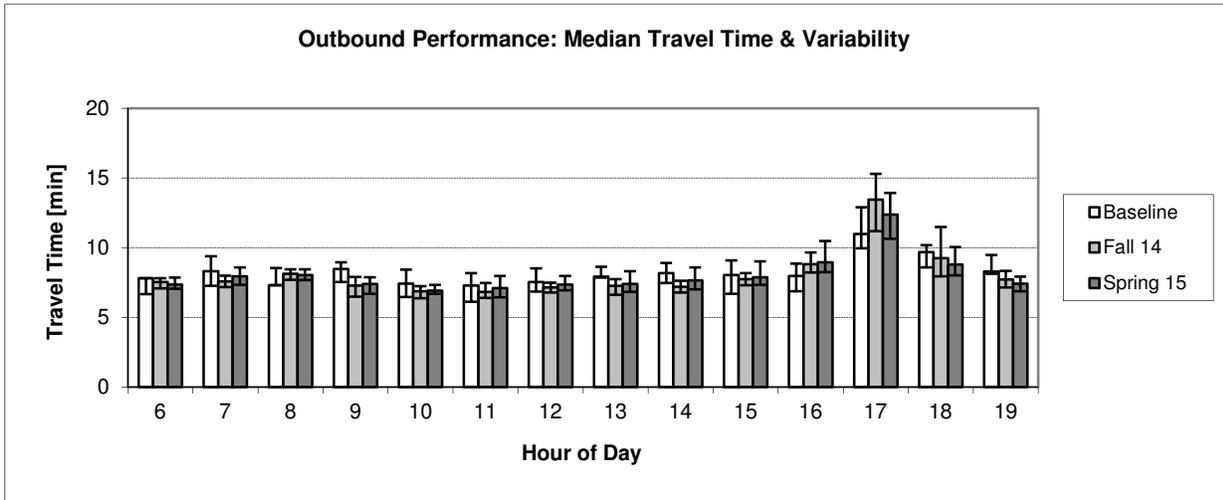
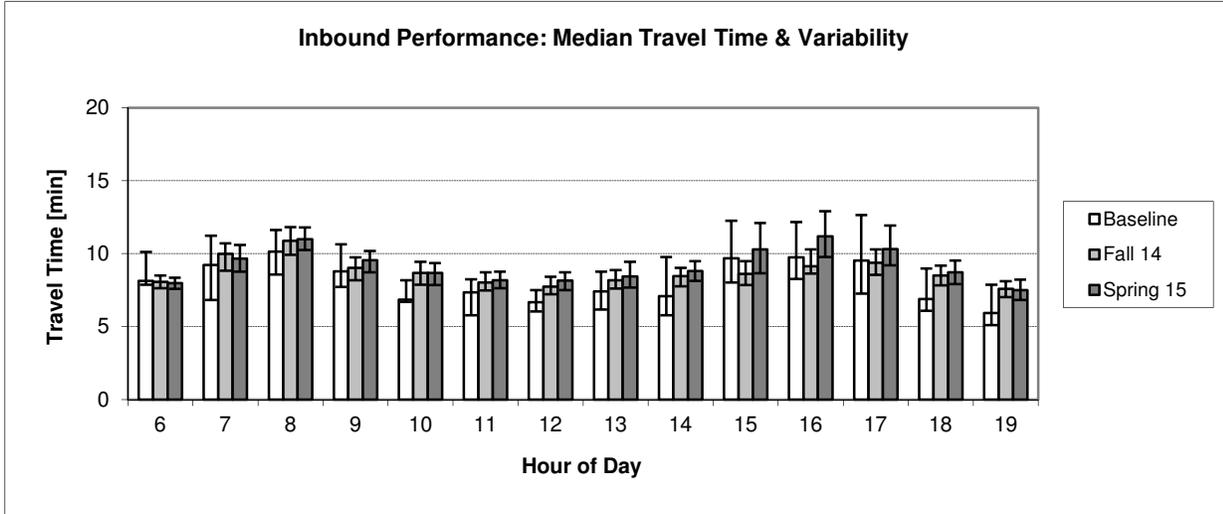
### Sample Size: Outbound



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	AVL
Spring 15	5/18/15 - 6/05/15	AVL

## Pathway B.2

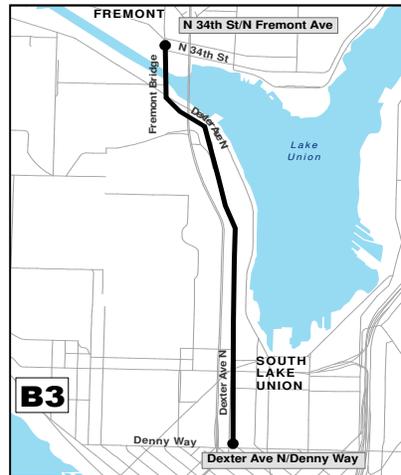
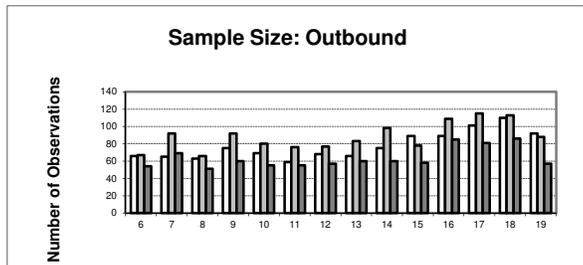
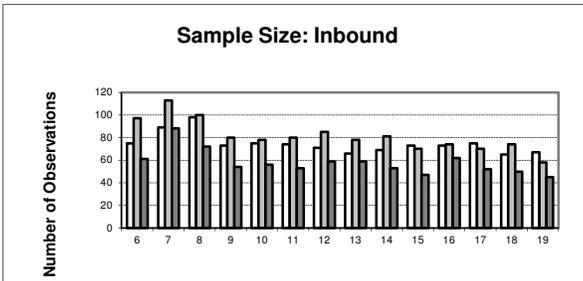
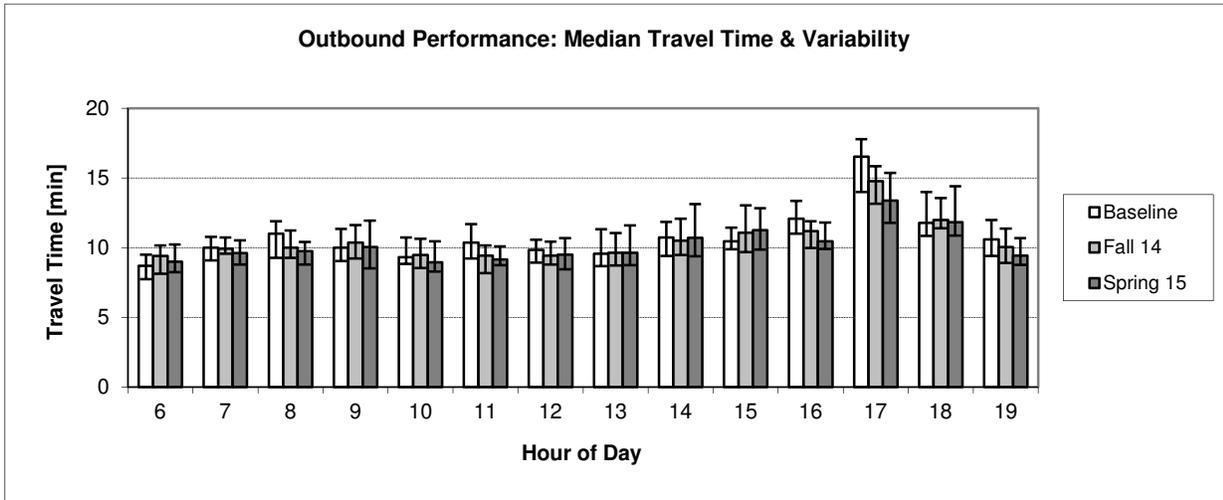
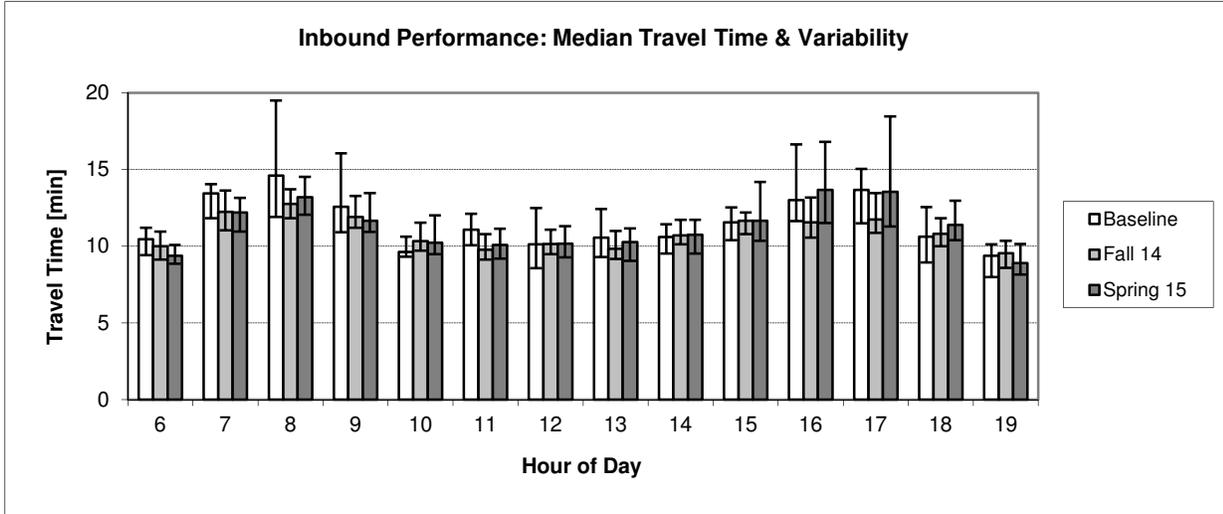
Bridge Way & N 38th St to 3rd Ave & Battery via Aurora Ave



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	AVL
Spring 15	5/18/15 - 6/05/15	AVL

## Pathway B.3

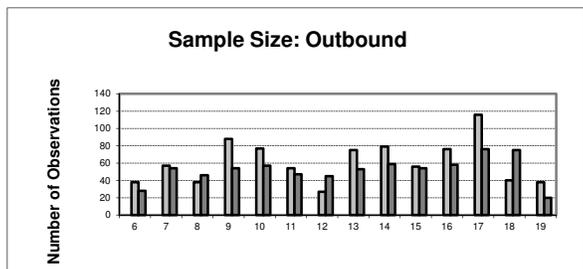
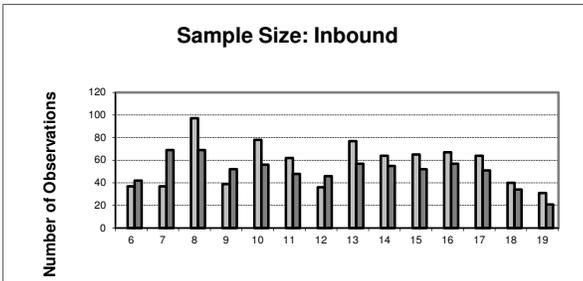
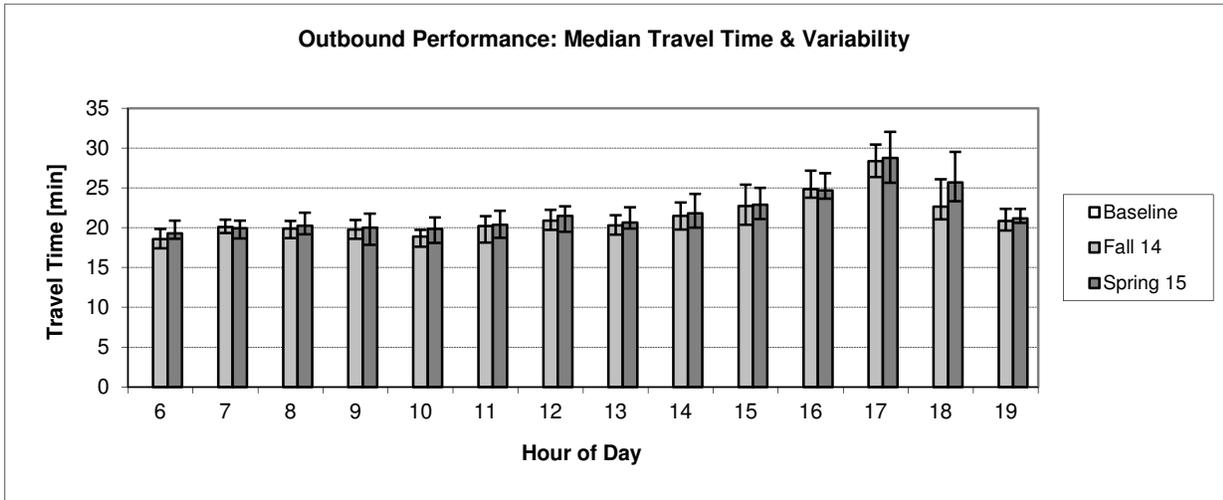
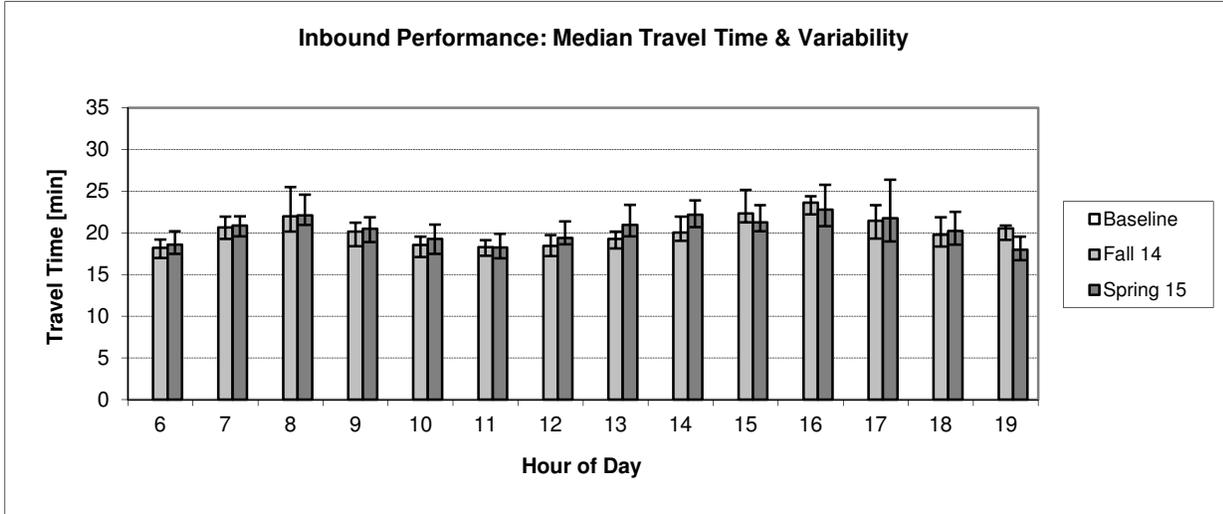
Fremont Ave N & N 34th St to Denny Way & Dexter Ave via Dexter



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL
Fall 14	1/05/15 - 1/30/15	AVL
Spring 15	5/18/15 - 6/05/15	AVL

## Pathway B.5

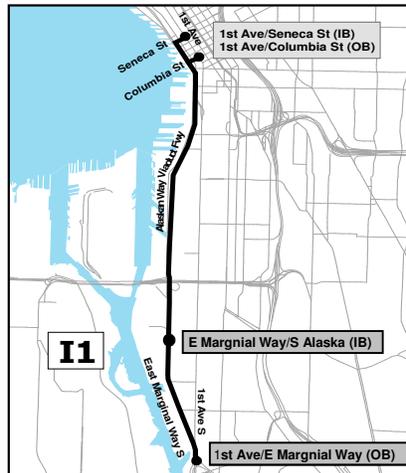
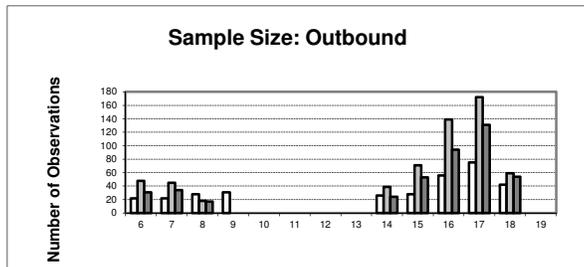
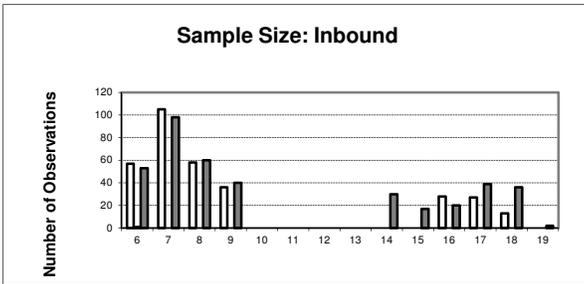
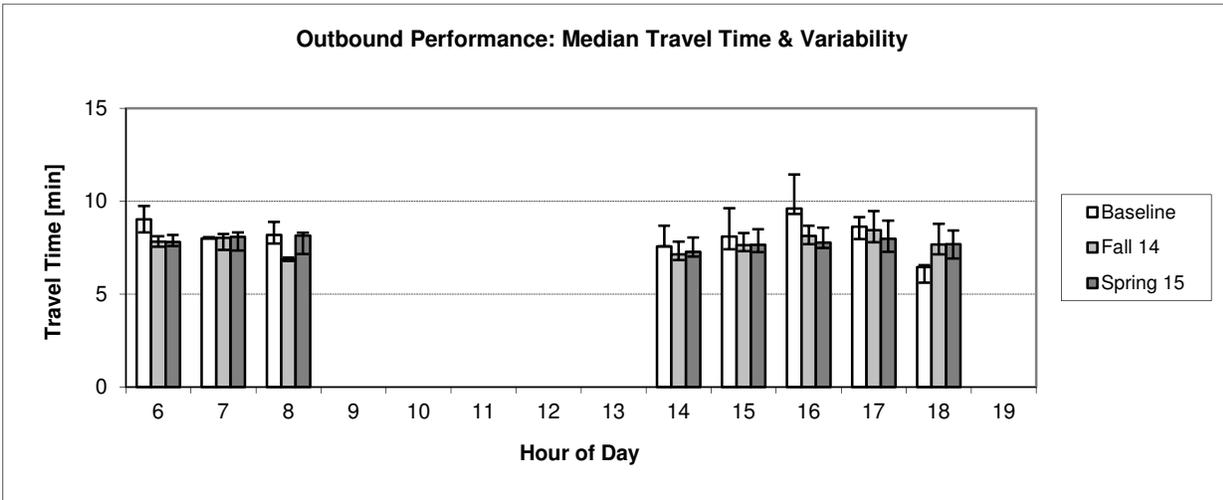
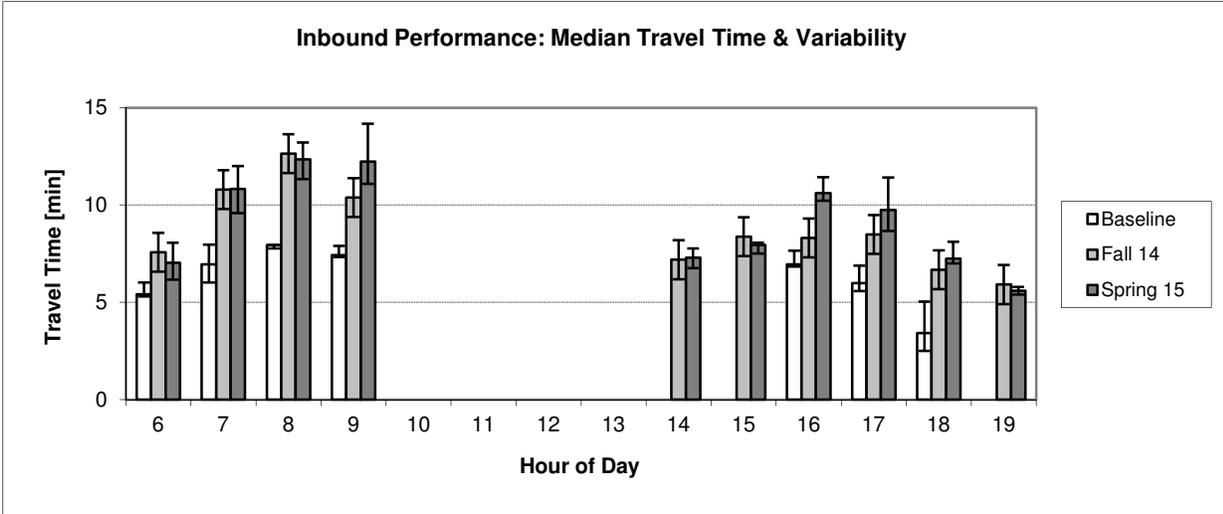
Westlake Ave/9th Ave & Denny Way to Leary Way & 15th Ave NW via Westlake Ave



Scenario	Date Range	Data source
Baseline	Pathway was not used	N/A
Fall 14	1/05/15 - 1/30/15	AVL
Spring 15	5/18/15 - 6/05/15	AVL

# Pathway I.1

East Marginal Way & 1st Ave/Alaska St to 1st Ave & Seneca/Columbia St via Marginal/AWV



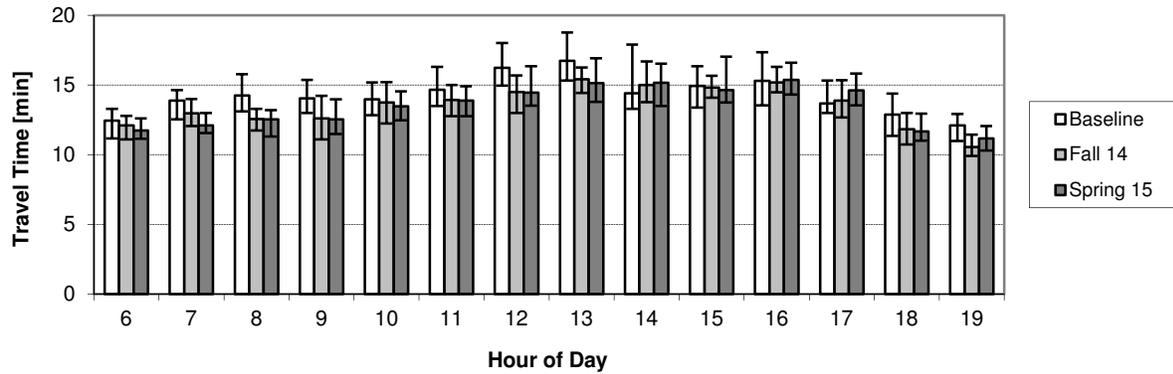
Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	AVL-AVI
Spring 15	5/18/15 - 6/05/15	AVL-AVI

## Pathway I.2

4th Ave S & S Michigan St to 4th/2nd Ave & Jackson St via 4th Ave S

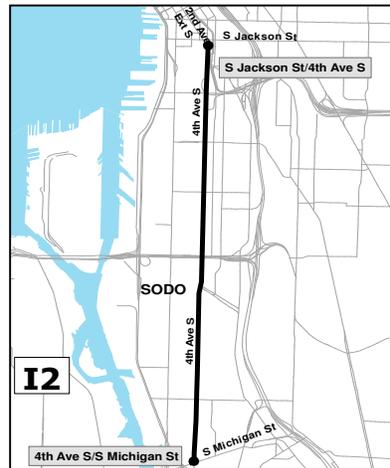
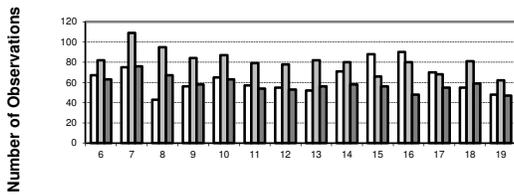
DATA NOT AVAILABLE

Outbound Performance: Median Travel Time & Variability



DATA NOT AVAILABLE

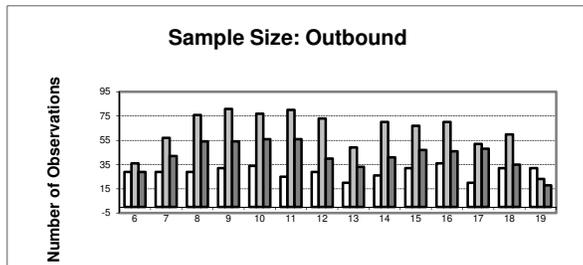
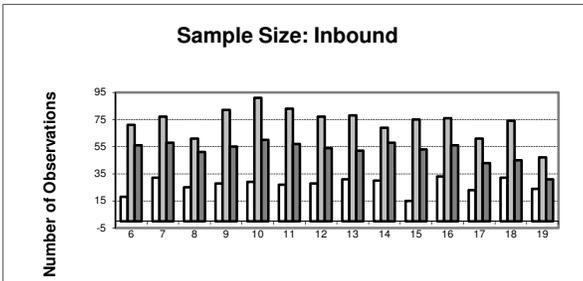
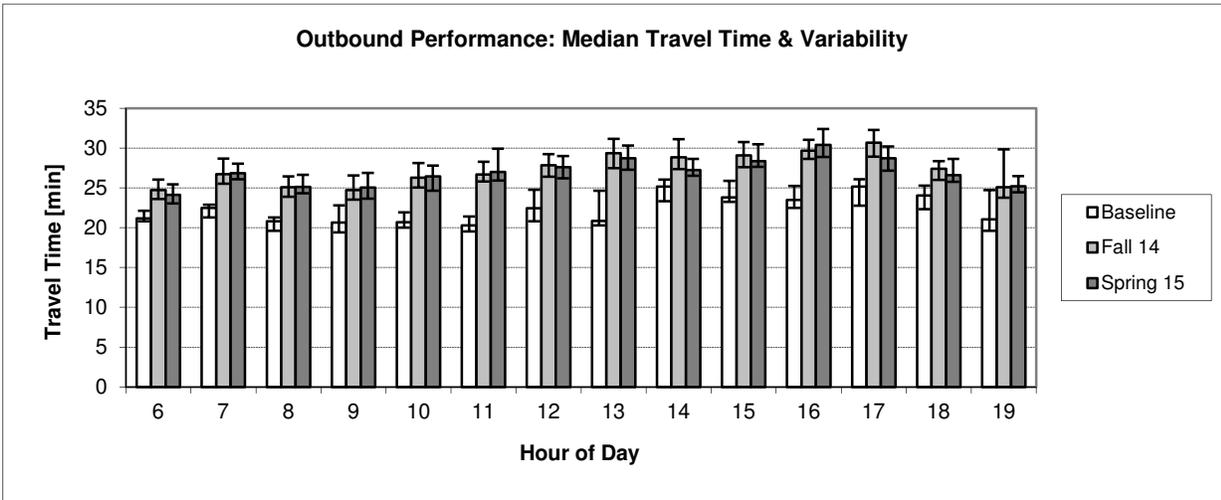
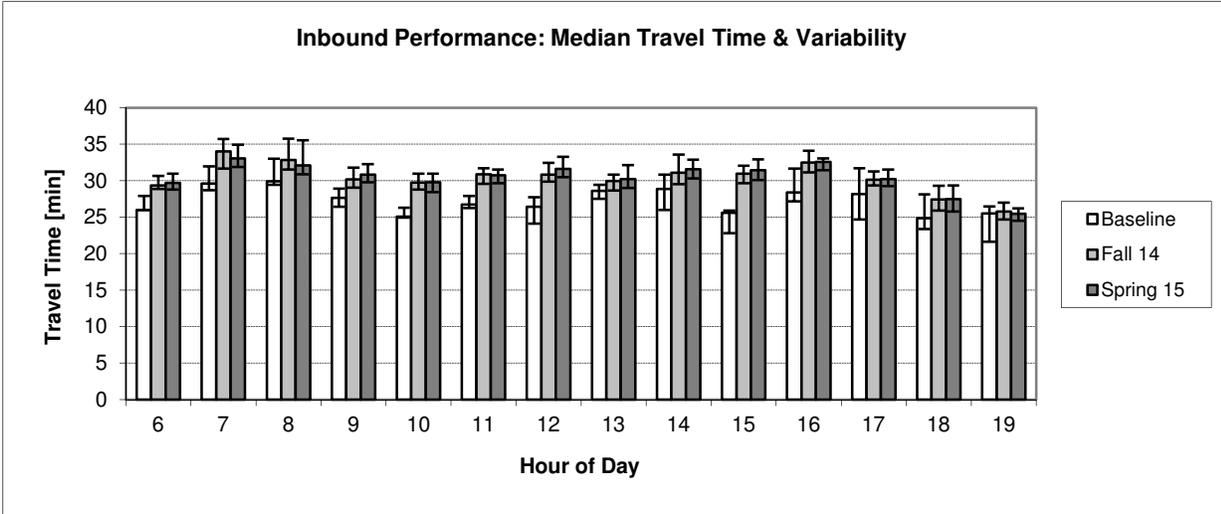
Sample Size: Outbound



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	AVL-AVI
Spring 15	5/18/15 - 6/05/15	AVL

## Pathway J.2

35th Ave SW & SW Morgan St to 3rd Ave & Seneca St via 1st Ave S

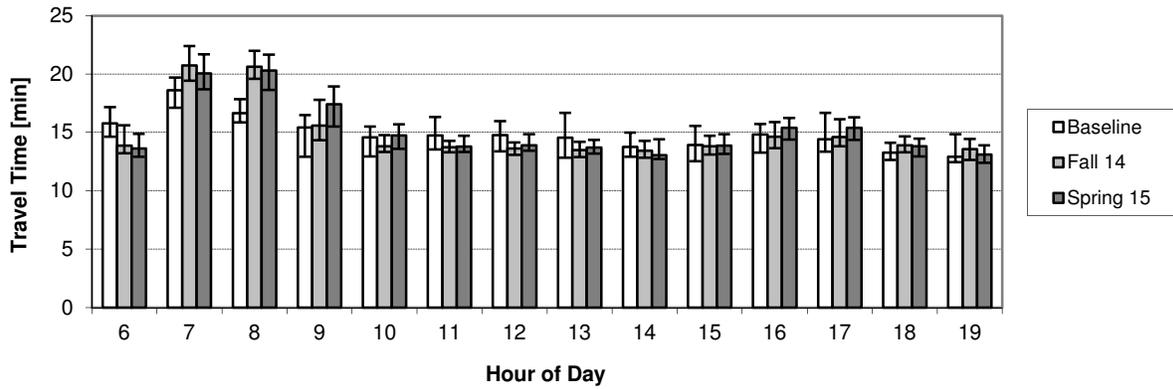


Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	AVL-AVI
Spring 15	5/18/15 - 6/05/15	AVL-AVI

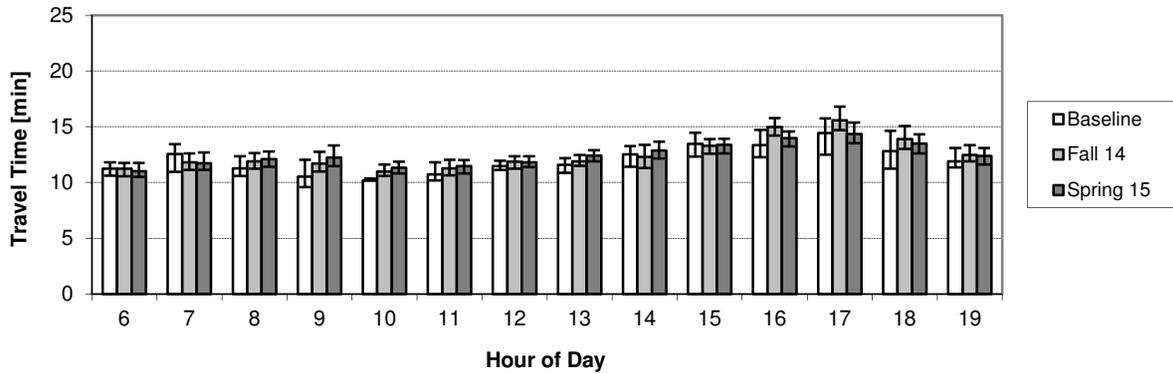
## Pathway J.3

Alaska Junction to 1st Ave & Seneca/Columbia St via Alaskan Way Viaduct

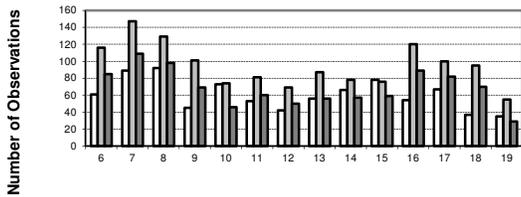
### Inbound Performance: Median Travel Time & Variability



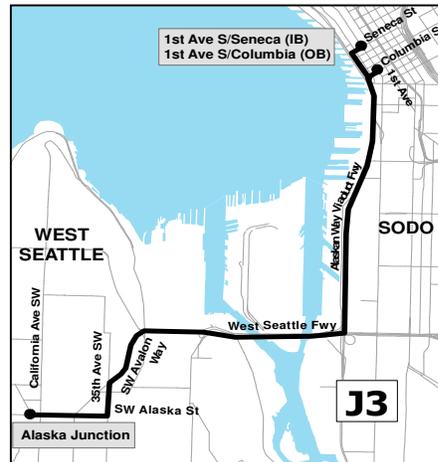
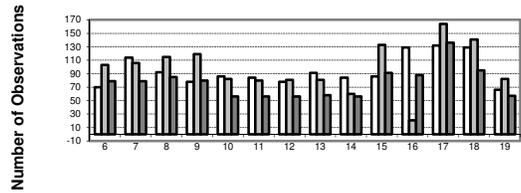
### Outbound Performance: Median Travel Time & Variability



### Sample Size: Inbound



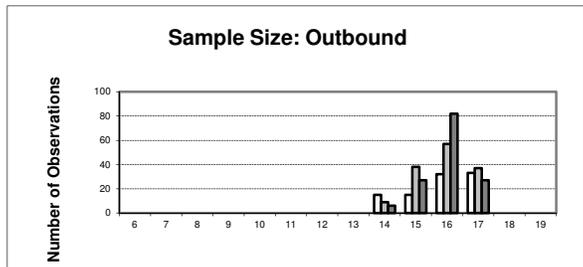
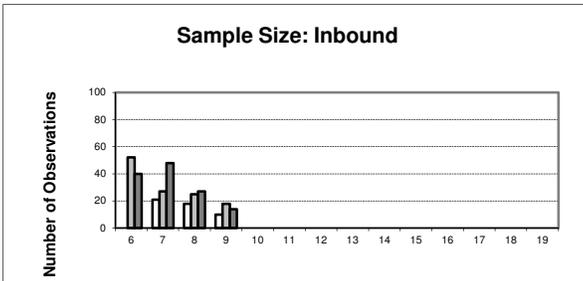
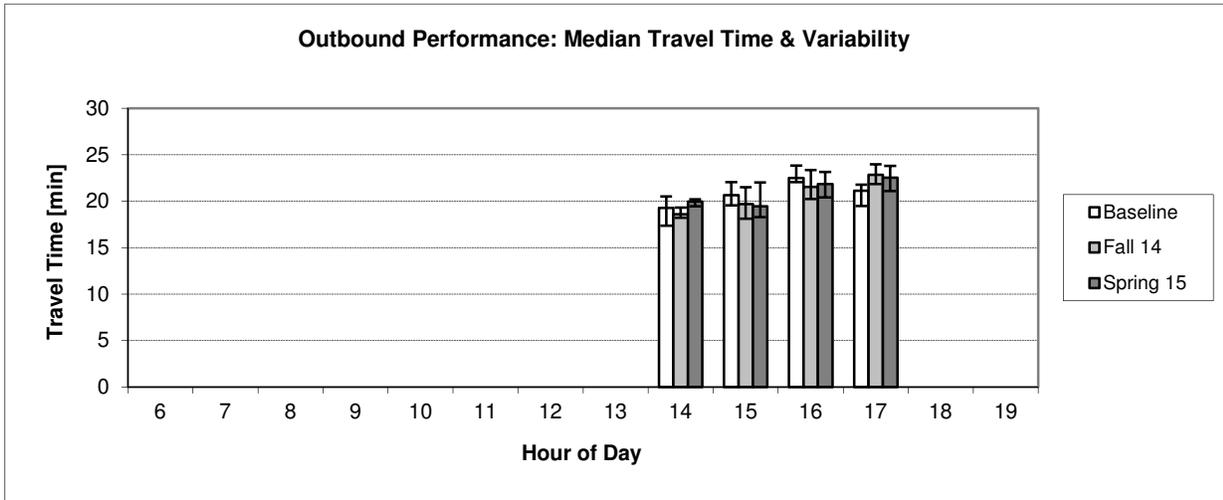
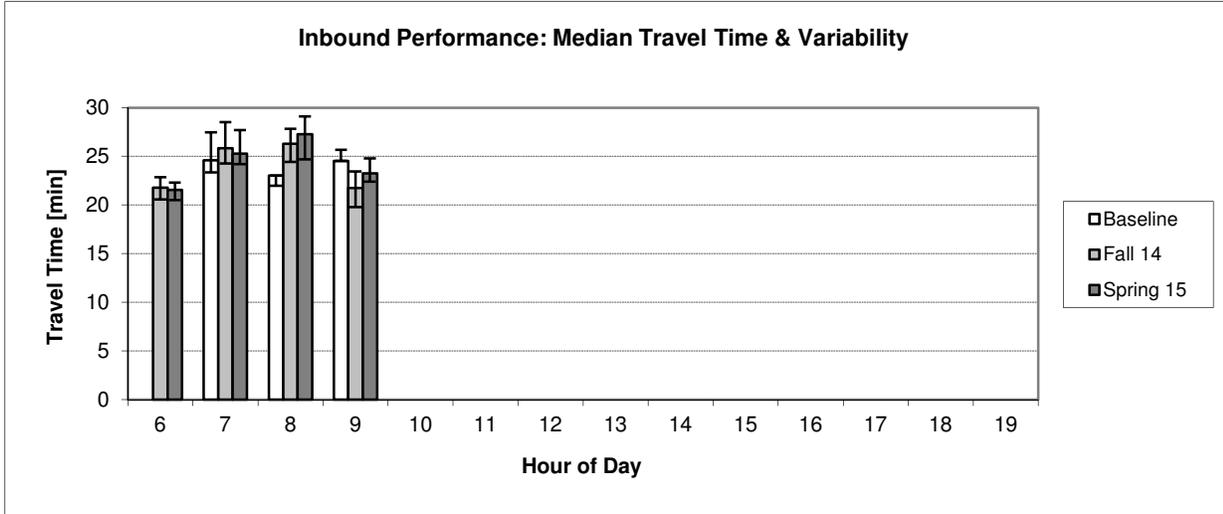
### Sample Size: Outbound



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVI
Fall 14	1/05/15 - 1/30/15	TSP-AVI
Spring 15	5/18/15 - 6/05/15	TSP-AVI

## Pathway J.4

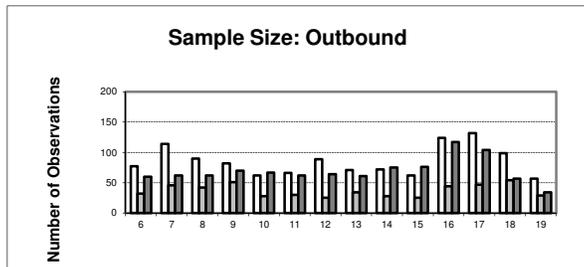
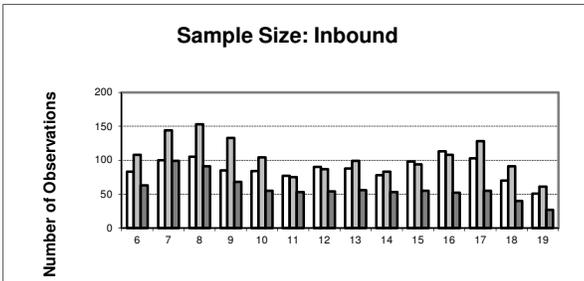
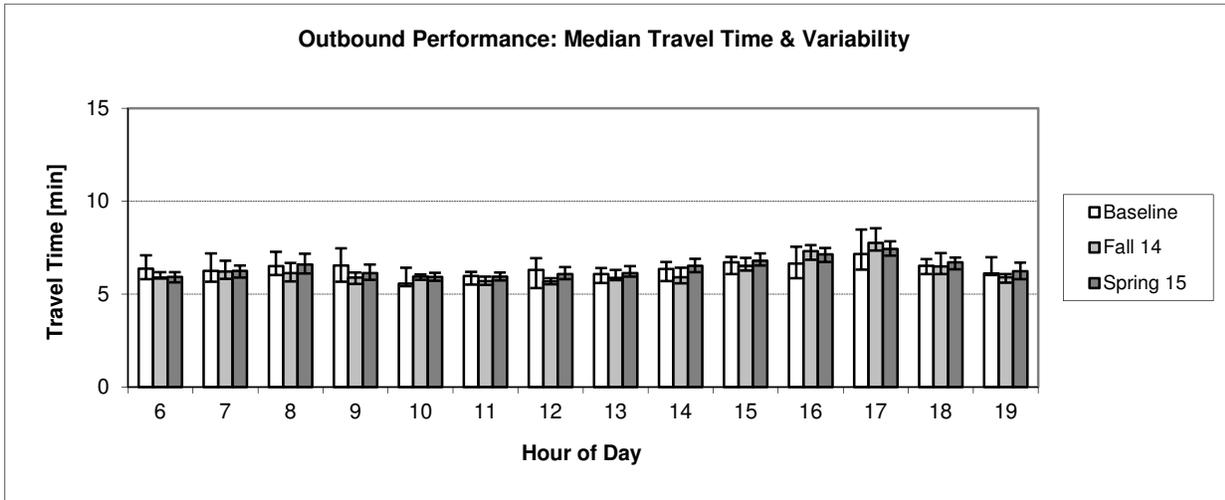
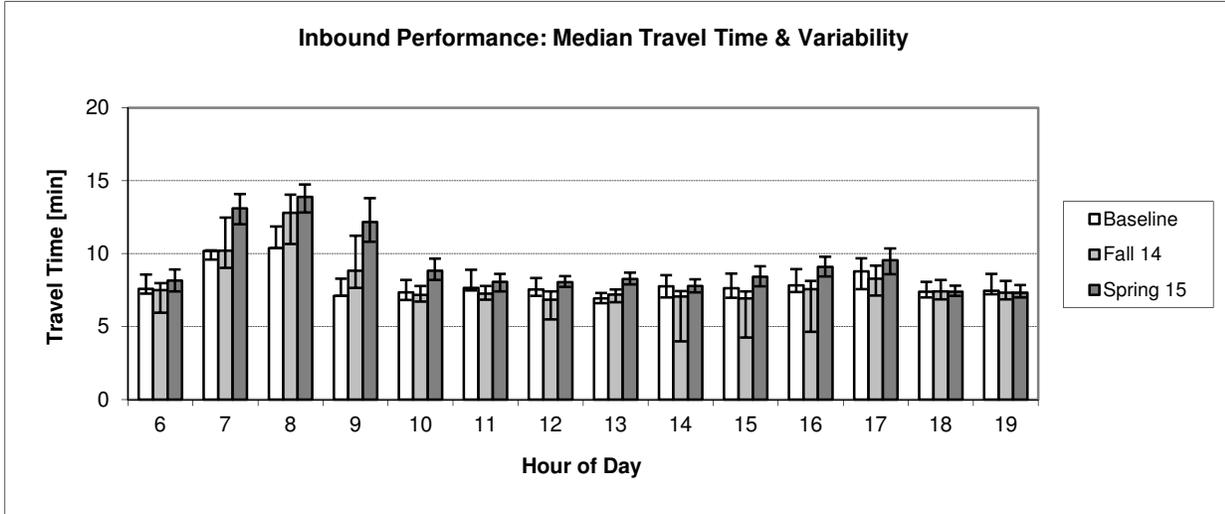
California Ave SW & SW Fauntleroy Way SW to 3rd Ave & Yesler St via 1st Ave S (Peak Only)



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVL-AVI
Fall 14	1/05/15 - 1/30/15	AVL-AVI
Spring 15	5/18/15 - 6/05/15	AVL-AVI

## Pathway J.5

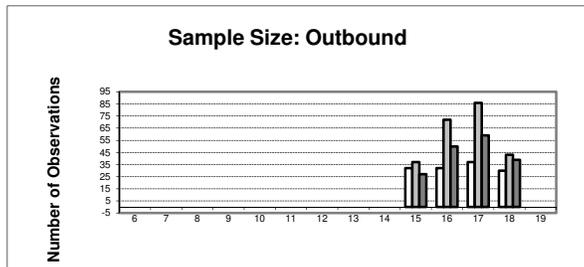
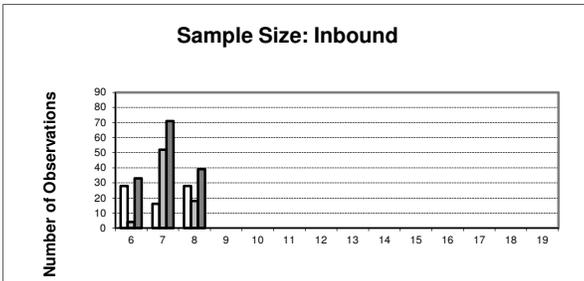
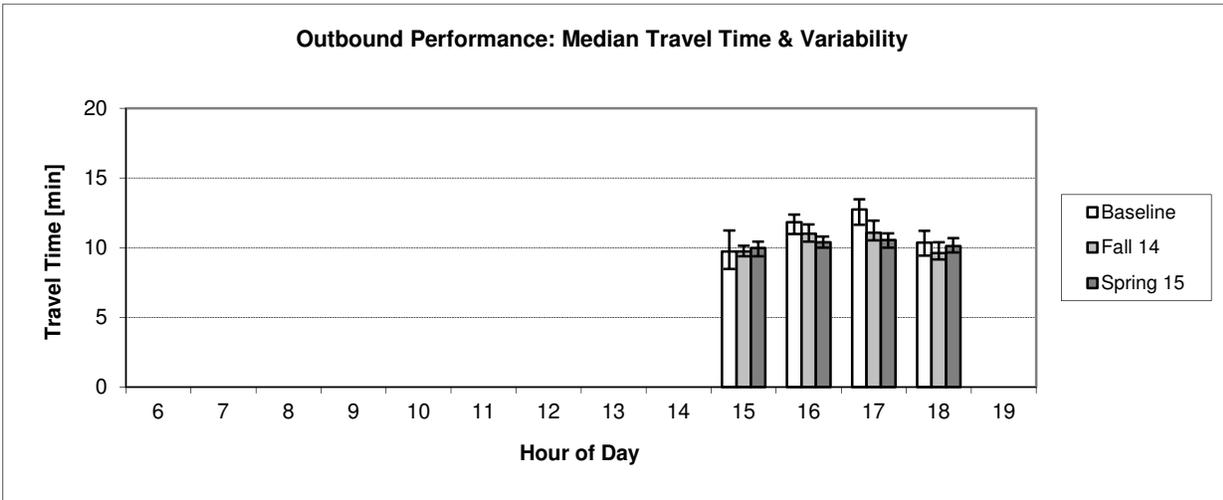
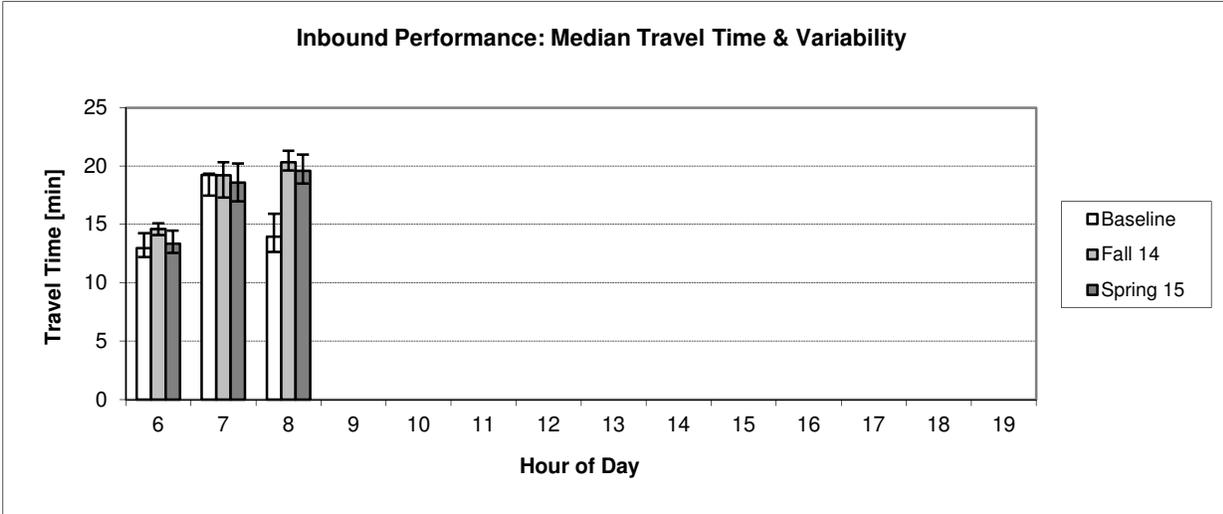
Delridge Way SW & SW Andover St to 1st Ave & Seneca/Columbia St via AWW



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVI
Fall 14	1/05/15 - 1/30/15	AVI
Spring 15	5/18/15 - 6/05/15	AVI

# Pathway J.7

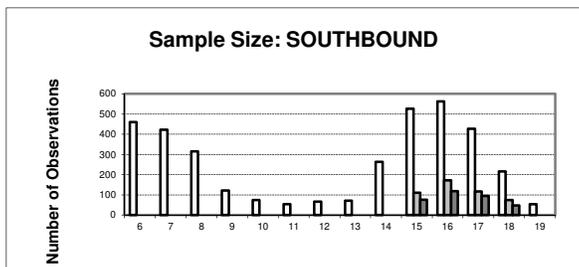
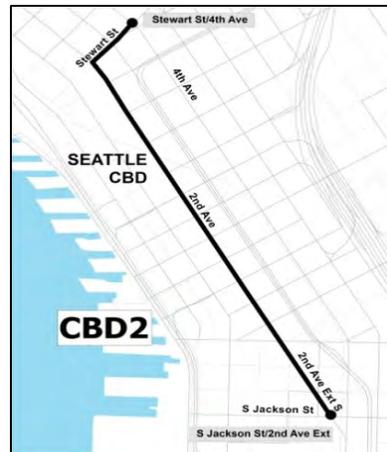
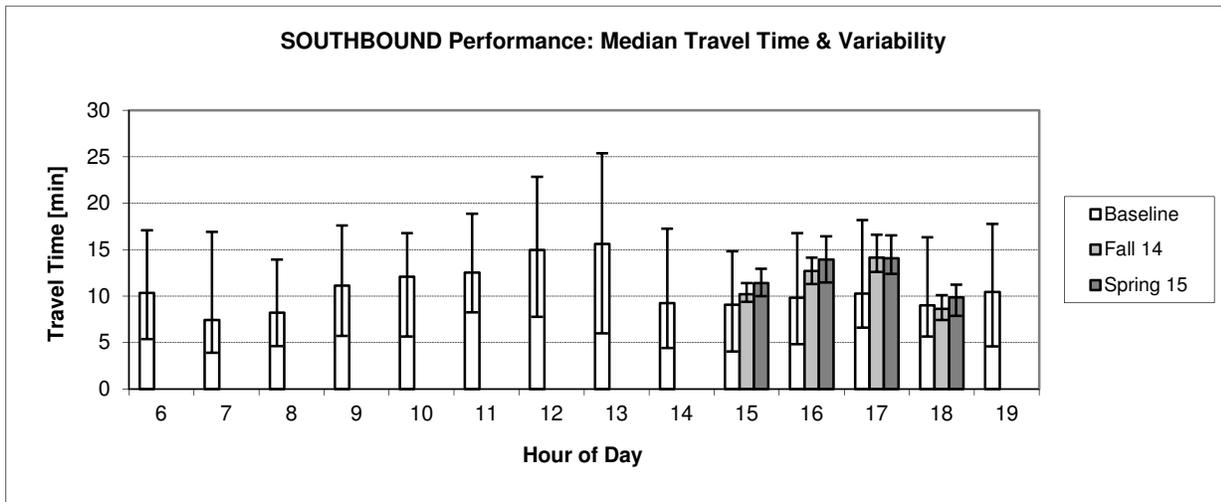
Admiral Way SW & California Ave SW to 1st Ave & Seneca/Columbia St via AWV (Peak Only)



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVI-AVL
Fall 14	1/05/15 - 1/30/15	AVI-AVL
Spring 15	5/18/15 - 6/05/15	AVI-AVL

## Pathway CBD2

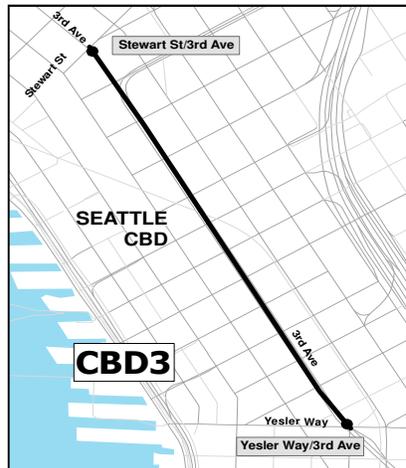
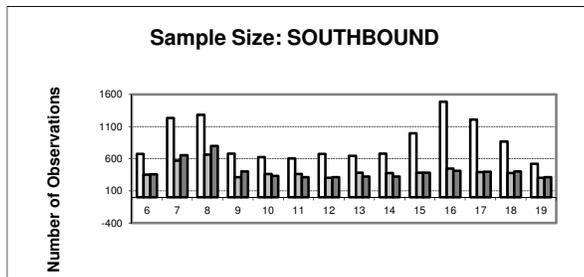
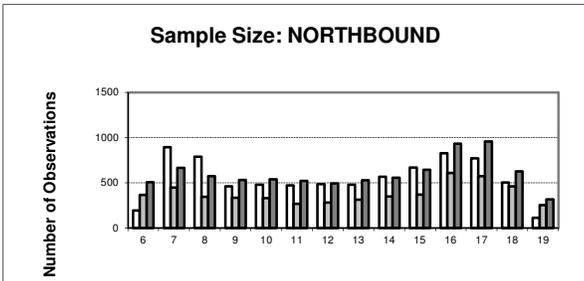
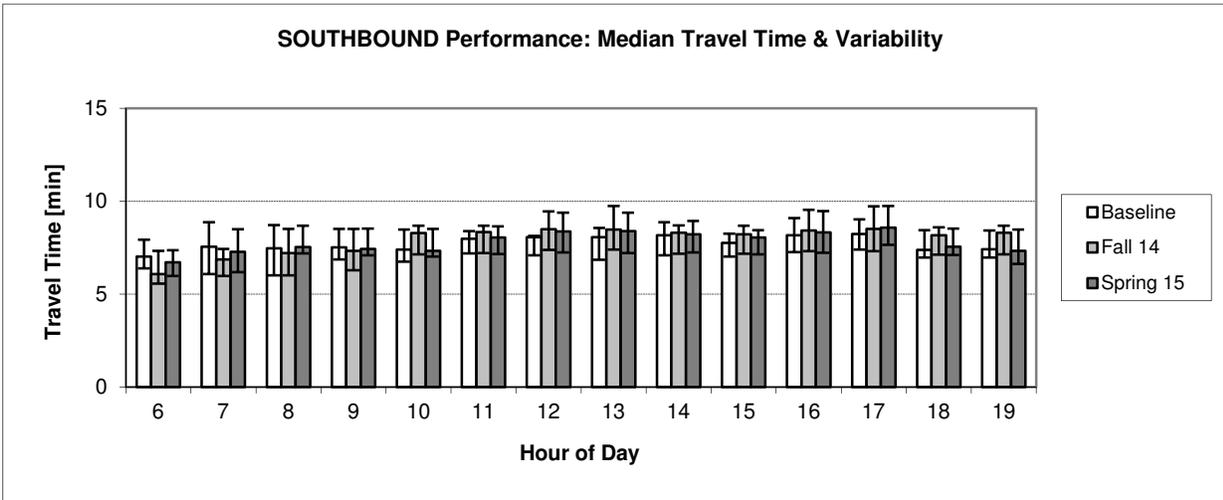
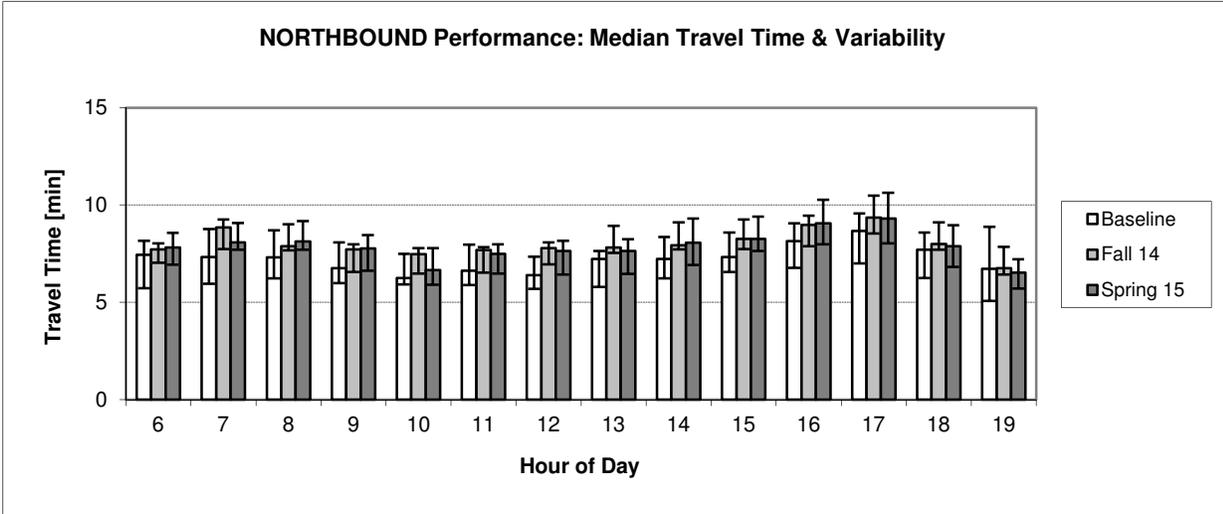
Second Avenue: Pike St to Jackson St



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVI
Fall 14	1/05/15 - 1/30/15	AVI
Spring 15	5/18/15 - 6/05/15	AVI-AVL

# Pathway CBD3

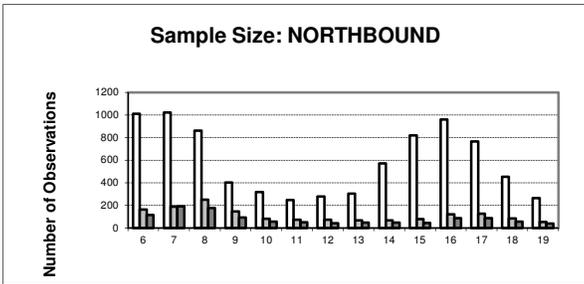
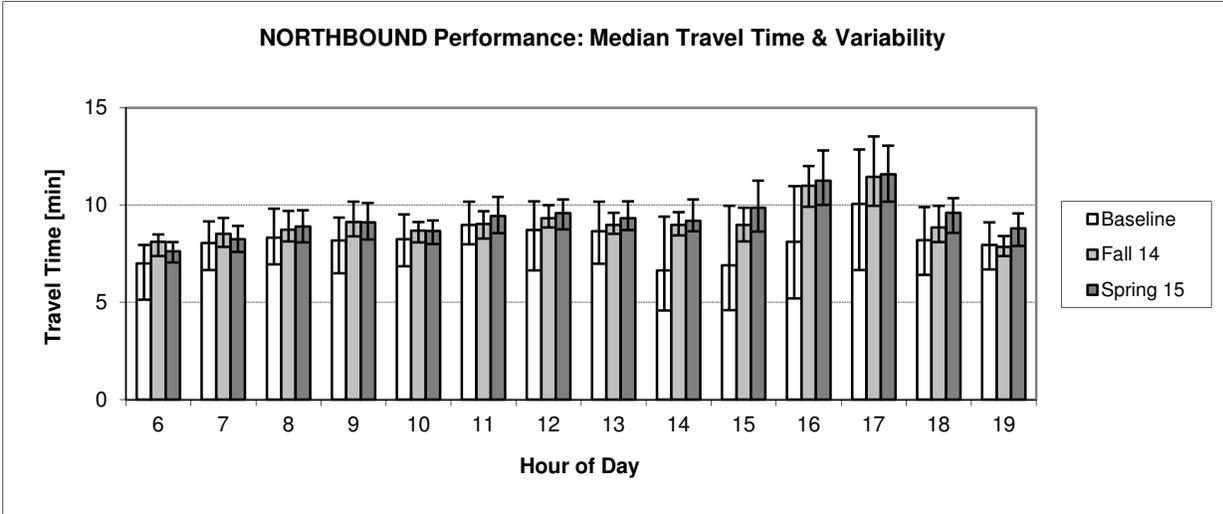
## Third Ave: Stewart St to Yesler Way



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVI
Fall 14	1/05/15 - 1/30/15	AVI
Spring 15	5/18/15 - 6/05/15	AVI

# Pathway CBD4

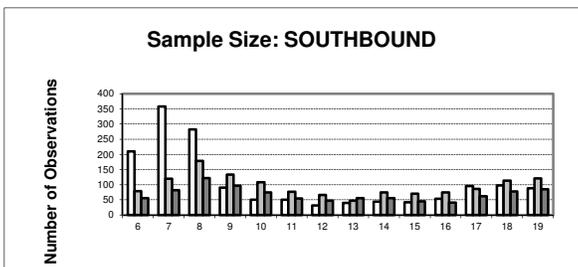
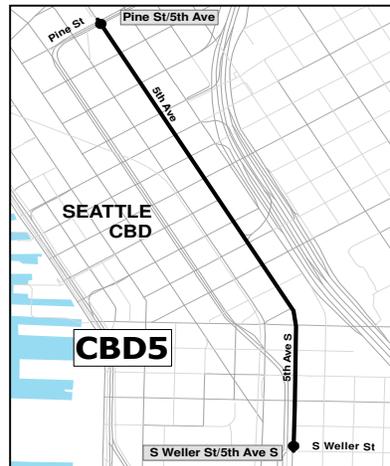
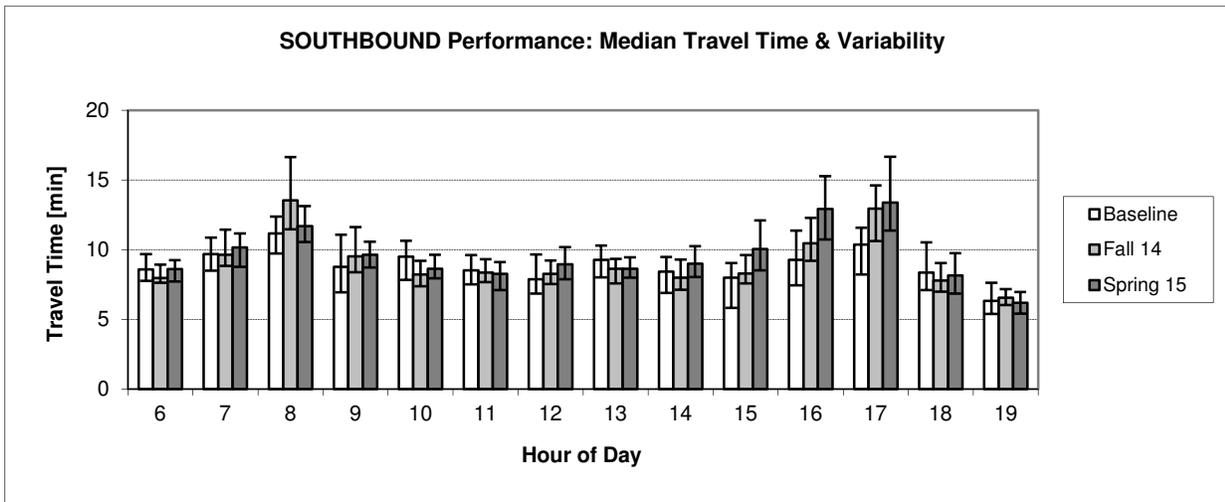
Fourth Ave: Jackson St to Stewart St



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVI
Fall 14	1/05/15 - 1/30/15	AVI
Spring 15	5/18/15 - 6/05/15	AVI-AVL

## Pathway CBD5

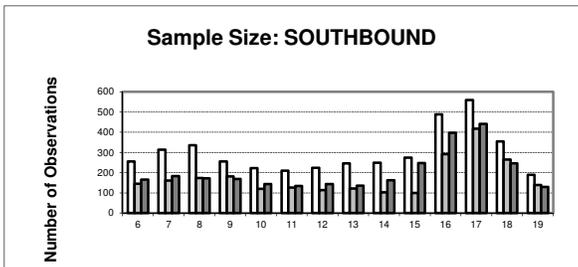
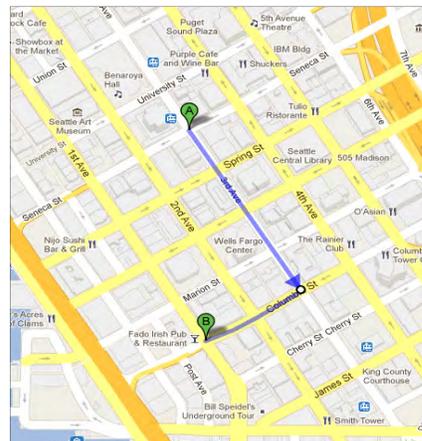
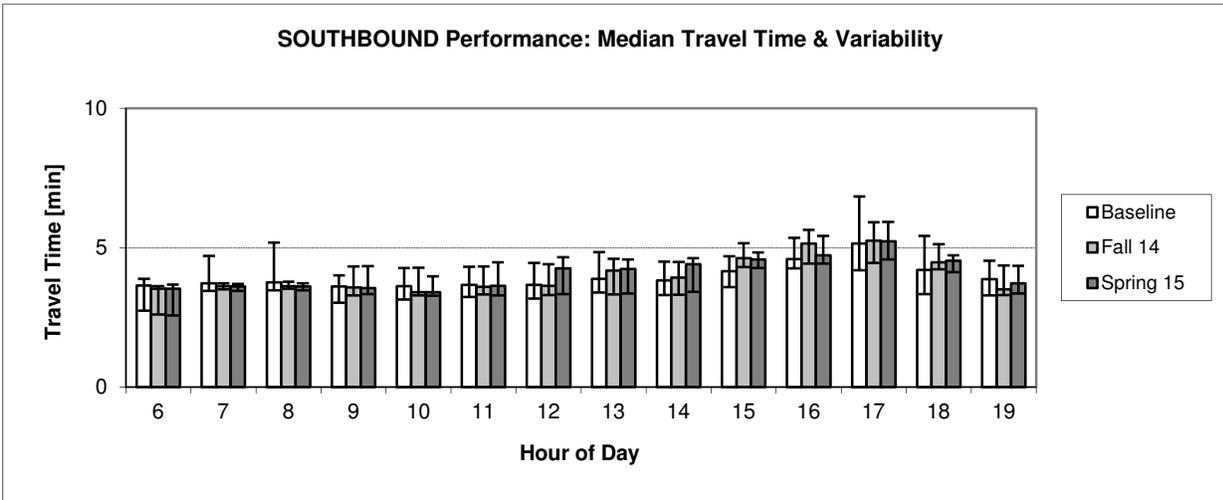
Fifth Ave: Pine St to Weller St



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVI
Fall 14	1/05/15 - 1/30/15	AVI
Spring 15	5/18/15 - 6/05/15	AVI

# Pathway Columbia

Columbia Street: 3rd & Seneca to 1st & Columbia



Scenario	Date Range	Data source
Baseline	9/21/09 - 10/16/09	AVI
Fall 14	1/05/15 - 1/30/15	AVI
Spring 15	5/18/15 - 6/05/15	AVI