

Chapter 2. Existing Transportation Conditions

Functional Street Classification

The City of Renton generally follows state guidelines to classify its streets. Based on function, all streets are designated either as local streets or one of three levels of arterials.

Figure 2-1 illustrates Renton's functional street classifications within the study area.

Principal Arterials connect major intra-city activity centers. They serve high traffic volumes at relatively fast vehicle speeds and therefore provide less direct access to adjacent properties through driveways. The following study area streets are principal arterials:

- ◆ Rainier Avenue from South Grady Way to the north city limits
- ◆ South Grady Way through the study area
- ◆ Southwest Sunset Boulevard west of Rainier Avenue South
- ◆ South 3rd Street east of Rainier Avenue South
- ◆ South 2nd Street east of Rainier Avenue South
- ◆ Airport Way east of Rainier Avenue South

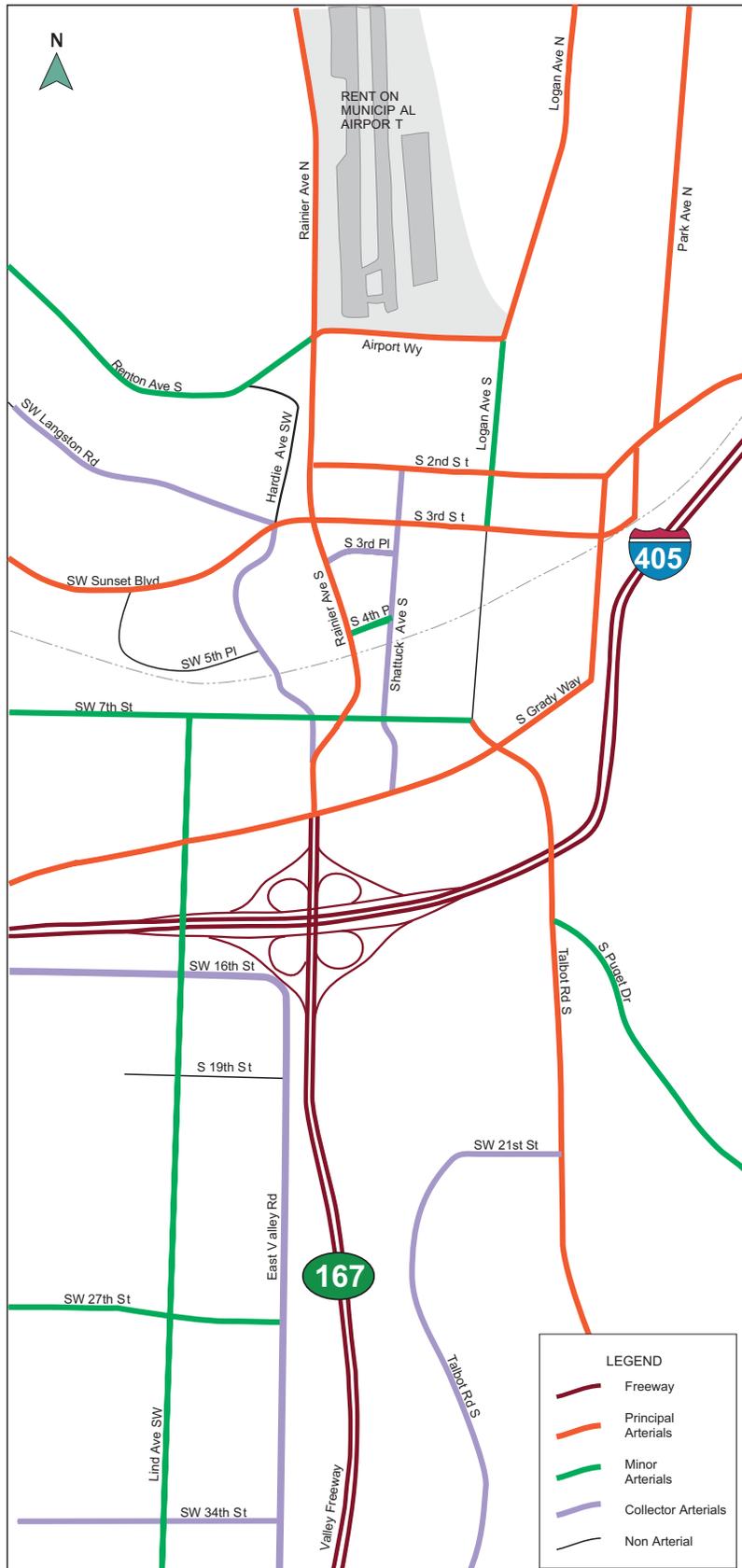
Minor Arterials provide links between principal and collector arterials, and they carry moderately high traffic volumes at slower speeds than on principal arterials. The study area includes the following minor arterials:

- ◆ Renton Avenue South, west of Rainier Avenue South
- ◆ South 4th Place, east of Rainier Avenue South
- ◆ Southwest 27th Street, west of East Valley Road

Collector Arterials distribute traffic between principal and minor arterials and local access streets. Collector arterials provide major traffic circulation with more emphasis on property access within commercial and industrial areas and residential neighborhoods. The following streets in the study area are designated as collector arterials:

- ◆ East Valley Road/SW16th Street
- ◆ Hardie Avenue Southwest from Rainier Avenue South to Southwest Sunset Boulevard
- ◆ Shattuck Avenue South from South Grady Way to South 2nd Street
- ◆ South 3rd Place from Rainier Avenue South to Shattuck Avenue South

Figure 2-1. Functional Street Classification in the Study Area



Transit Services, Facilities, and Usage

King County Metro and Sound Transit provide transit service in the City of Renton. **Appendix 2-A** summarizes all of the transit routes that currently serve Renton by area and number of weekday bus trips.

Table 2-1 shows the total number of buses that travel on Rainier Avenue South as of Spring 2003. Northbound Rainier Avenue between South 3rd Street and South 2nd Street carries the highest volume, 322 buses, during a weekday. Rainier Avenue South between South 7th Street and South 3rd Street carries about 225 buses per weekday in each direction. **Appendix 2-B** shows detailed bus volumes per route for each segment of Rainier Avenue South.

King County Metro provided recent transit rider counts for this study. **Figure 2-2** shows the locations of bus stops with total daily boardings and alightings on Rainier Avenue. The study area generated about 540 boardings and 690 alightings, a total of 1,225 passenger trips, during a weekday in Spring 2003. **Table 2-2** shows detailed passenger activities summarized by weekday periods. About 160 people board northbound buses at the bus stop at South 4th Place during the AM peak period, and about 160 alight from southbound buses at the bus stop at South 3rd Place during the PM peak period.



Rainier Avenue South at South 3rd Street

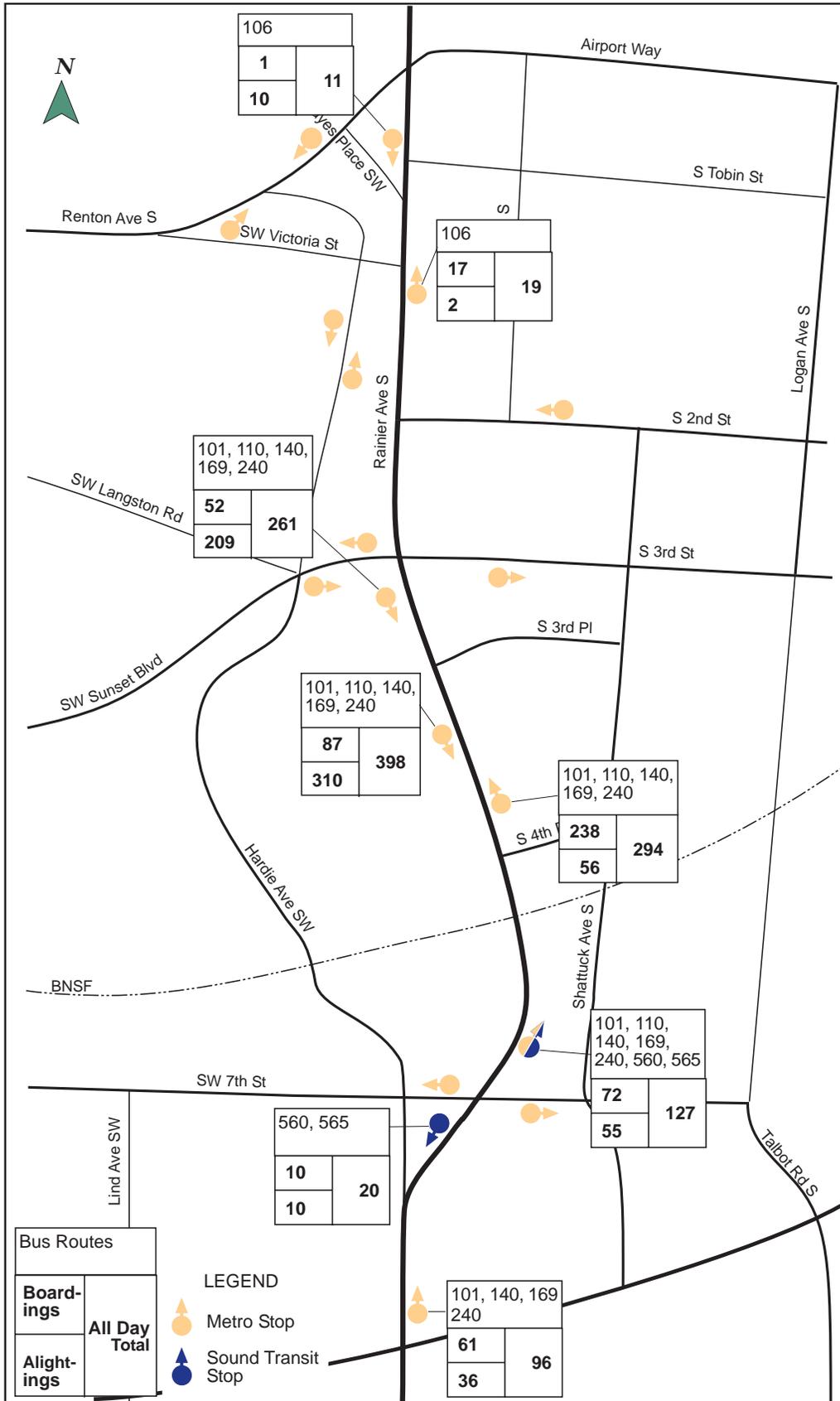
Table 2-1. Existing Weekday Bus Volumes on Rainier Avenue (Spring 2003)

Segment	Early AM Period (before 6 AM)	AM Peak Period (6 AM - 9 AM)	Midday Period (9 AM - 3 PM)	PM Peak Period (3 PM - 6 PM)	Evening Period (after 6 PM)	All Day
NORTHBOUND						
Between Airport Way and Northern City Limits	0	0	0	0	0	0
Between S 2nd St. and Airport Way	2	8	12	6	12	40
Between S 3rd St. and S 2nd St.	13	77	94	71	67	322
Between S 7th St and S 3rd St	9	57	68	48	43	225
Between S Grady Way and S 7th St	6	39	50	32	34	161
SOUTHBOUND						
Between Airport Way and Northern City Limits	0	0	0	0	0	0
Between S 2nd St. and Airport Way	0	6	12	8	14	40
Between S 3rd St. and S. 2nd St.	0	0	0	0	0	0
Between S 7th St and S 3rd St	7	48	67	59	45	226
Between S Grady Way and S 7th St	5	33	48	41	35	162
TOTAL OF BOTH DIRECTIONS						
Between Airport Way and Northern City Limits	0	0	0	0	0	0
Between S 2nd St. and Airport Way	2	14	24	14	26	80
Between S 3rd St. and S 2nd St.	13	77	94	71	67	322
Between S 7th St and S 3rd St	16	105	135	107	88	451
Between S Grady Way and S 7th St	11	72	98	73	69	323

Table 2-2. Summary of Bus Passenger Activity at the Stops on Rainier Avenue (Spring 2003)

Time Period	Activity	Northbound Bus Stop				Southbound Bus Stop			
		At S. Victoria St.	At S. 4th Pl.	At S. 7th St.	At S. Grady Way	At Hayes Pl. SW	At SW Sunset Blvd	At S. 3rd Pl.	At SW 7th St.
Early AM Period (Before 6 AM)	Boardings	0	10	4	4		2	2	0
	Alightings	0	0	3	1		0	0	0
	Total	0	10	7	5		2	2	0
AM Peak Period (6 to 9 AM)	Boardings	1	157	16	28	0	9	8	2
	Alightings	0	9	10	5	3	27	21	2
	Total	1	166	26	33	3	36	29	4
Midday Period (9 AM to 3:15 PM)	Boardings	5	46	24	14	0	21	31	4
	Alightings	1	20	25	18	3	59	73	3
	Total	6	66	49	32	3	80	104	7
PM Peak Period (3:15 to 6:15 PM)	Boardings	5	16	20	9	0	13	26	2
	Alightings	0	19	11	8	2	91	159	4
	Total	5	35	31	17	2	104	185	6
Evening Period (6:15 to 9:30 PM)	Boardings	4	8	7	5	0	5	17	1
	Alightings	1	7	4	2	1	30	54	1
	Total	5	15	11	7	1	35	71	2
Night (9:30 to End of Service)	Boardings	2	1	1	1	0	2	4	1
	Alightings	0	1	2	2	1	2	2	0
	Total	2	2	3	3	1	4	6	1
All Day	Boardings	17	238	72	61	1	52	87	10
	Alightings	2	56	55	36	10	209	310	10
	Total	19	294	127	97	11	261	397	20

Figure 2-2. Locations of Bus Stops With Daily Boardings and Alightings



Traffic Volumes

Figure 2-3, derived from the City of Renton’s traffic flow map (2004), shows average daily traffic on the arterials within the study area and its vicinity, with the following high-lights:

- ◆ Rainier Avenue South between Airport Way and South Grady Way carries a high volume of daily traffic: 34,600 to 45,900 vehicles per day.
- ◆ A short section of Rainier Avenue South between South Grady Way and I-405 carries 66,400 vehicles per day.
- ◆ The traffic volume on Rainier Avenue North north of Airport Way is much less than on the sections south of Airport Way. The daily volume north of Airport Way is about 22,000 vehicles per day.
- ◆ Hardie Avenue Southwest carries significantly less traffic than Rainier Avenue: 7,000 to 11,600 vehicles per day.
- ◆ South Grady Way and Airport Way are the two most traveled east-west arterials in the study area: 24,100 - 46,800 vehicles per day and 31,700 vehicles per day, respectively.



Daily Traffic Volume Trends

The City of Renton’s Planning/Building/Public Works Department keeps records of the traffic flow maps produced in previous years. Traffic volume trend charts derived from those maps reveal whether Rainier Avenue’s traffic is rapidly increasing and which sections of the corridor have experienced more traffic growth than others. The five graphs in **Figure 2-4** show the daily traffic volumes in two-year increments since 1988 on five sections of Rainier Avenue, leading to the following observations:

- ▶ The northern section of Rainier Avenue North between Airport Way and the north city limits had little traffic increase.
- ▶ Daily traffic volumes on Rainier Avenue South between South 2nd Street and South 3rd Street have increased significantly since 1994. This section carried about 35,000 vehicles per day in 1994 and 61,000 vehicles per day in 2002, which is an increase of 26,000 vehicles per day in eight years.
- ▶ The traffic growth in the sections of Rainier Avenue South between South Grady Way and South 3rd Street has been modest.

The traffic volume trend for Rainier Avenue South south of South Grady Way has two distinctive periods. Between 1988 and 1996, the daily traffic volume stayed relatively flat. Since 1996, that section has increased from 50,000 to 70,000 vehicles per day.

Figure 2-3. Renton 2004 Traffic Flow Map – Study Area Vicinity

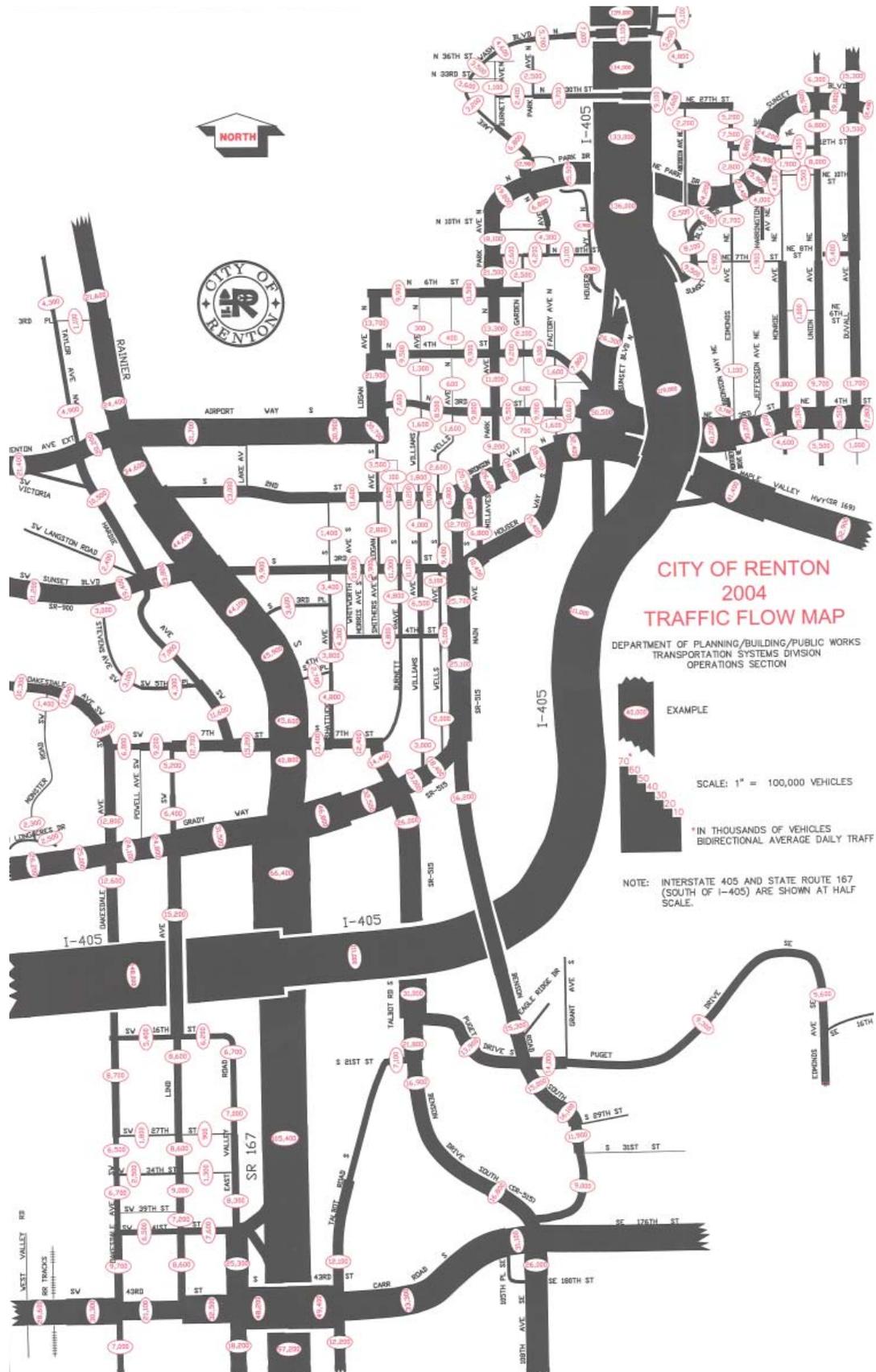


Figure 2-4. Average Daily Traffic Trends (1988 – 2002)

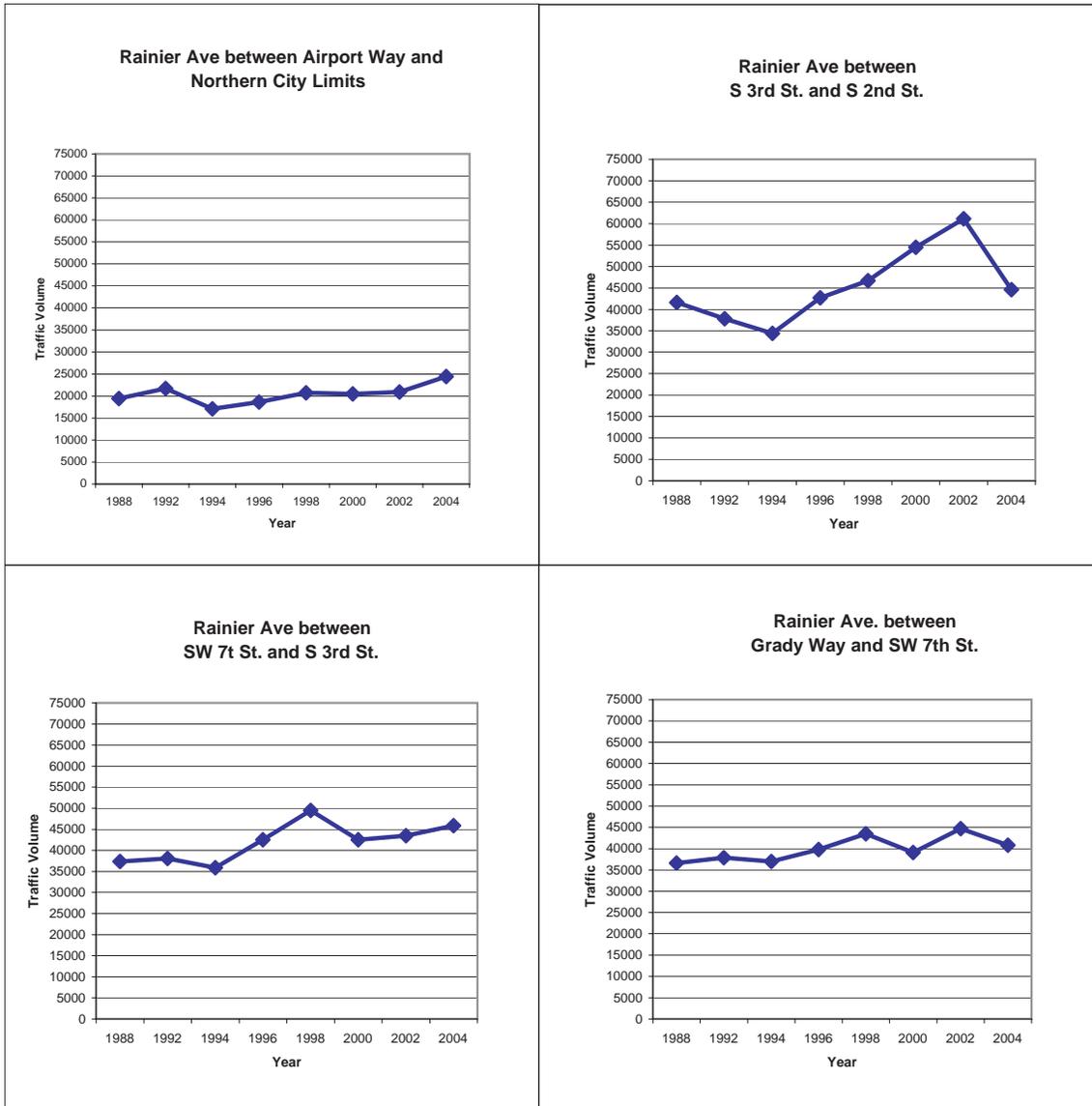
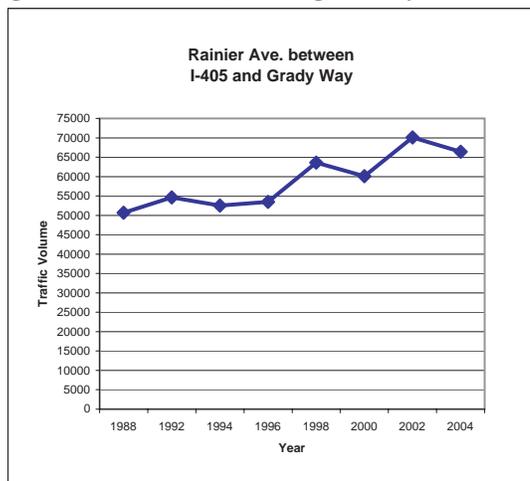


Figure 2-4. Cont. (Average Daily Traffic Volume Trends (1988 – 2002))



Hourly Distribution of Daily Traffic Volumes

Typically, traffic volumes fluctuate during the day, with the highest hourly volume during the evening “rush hour”. However, Rainier Avenue’s hourly traffic volumes do not follow typical traffic patterns. Findings below summarize the hourly traffic volumes on Rainier Avenue South south of South Grady Way, north of South 7th Street and south of South 2nd Street on **Figures 2-5, 2-6 and 2-7** respectively.

- ◆ After the 7 to 8 AM peak hour, weekday southbound hourly traffic volumes gradually increase to 3 PM. The southbound peak period lasts from 2 PM until 6 PM throughout the corridor. (Figures 2-5, 2-6 and 2-7)
- ◆ Weekday AM peak hour northbound and southbound traffic volumes on Rainier Avenue South south of South Grady Way are about the same. (Figures 2-5)
- ◆ Weekday northbound hourly traffic on Rainier Avenue South north of South 7th Street peaks between 7 and 8 AM. After the AM peak hour, northbound traffic volumes show minimal fluctuation to evening periods. (Figures 2-5, 2-6 and 2-7)
- ◆ During the weekday afternoons, the southbound lanes of Rainier Avenue South south of South Grady Way carry 40 percent more than the northbound lanes (3,000 vehicles per hour vs. 1,800 vehicles per hour). (Figures 2-5)
- ◆ Northbound and southbound traffic volumes on Rainier Avenue South between South 2nd Street and South 3rd Street differ substantially. The southbound hourly volumes are four times greater than the northbound volumes (1,000 northbound vehicles per hour vs. 4,000 southbound vehicles per hour). (Figures 2-7)
- ◆ Traffic volumes are significantly lower on Rainier Avenue South north of Airport Way compared with the sections south of Airport Way. North of Airport Way, the southbound lanes on Rainier Avenue South carry slightly higher volumes (950 vehicles per hour for northbound, 1,050 for Southbound) during the PM peak hour. (No figure)

Appendix 2-C shows hourly traffic volumes in more detail.

Figure 2-5. Hourly Traffic Volumes on Rainier Avenue South, South of South Grady Way (Average Weekday in 2002)

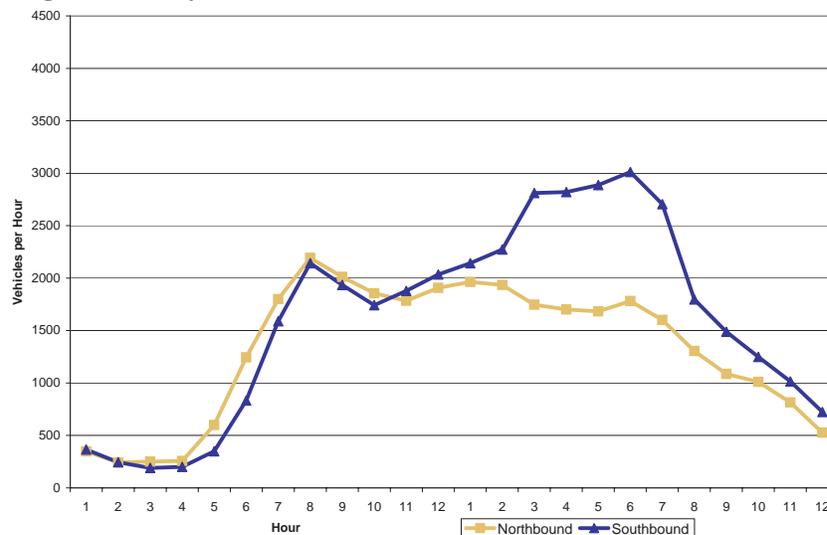


Figure 2-6. Hourly Traffic Volumes on Rainier Avenue South, North of South 7th Street (Weekday in 2002)

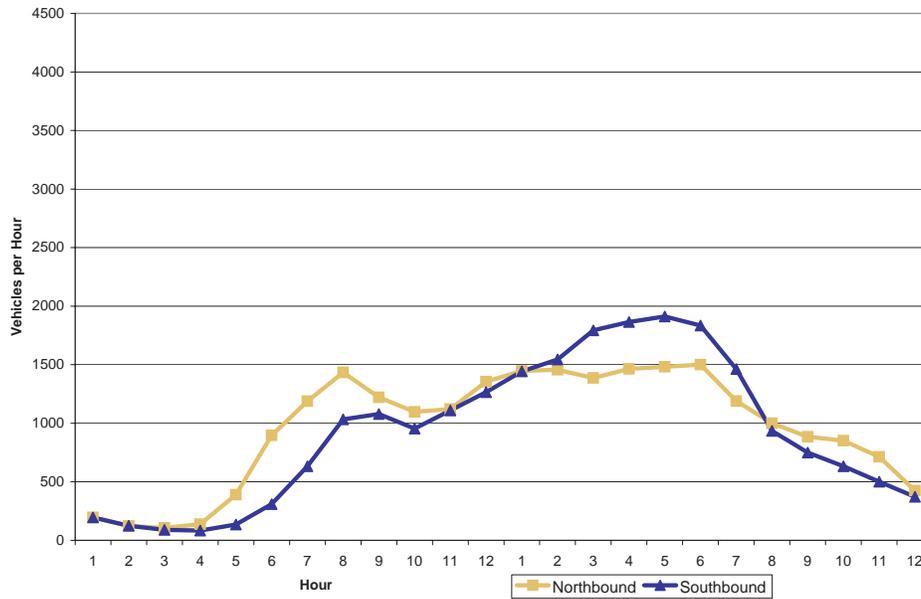
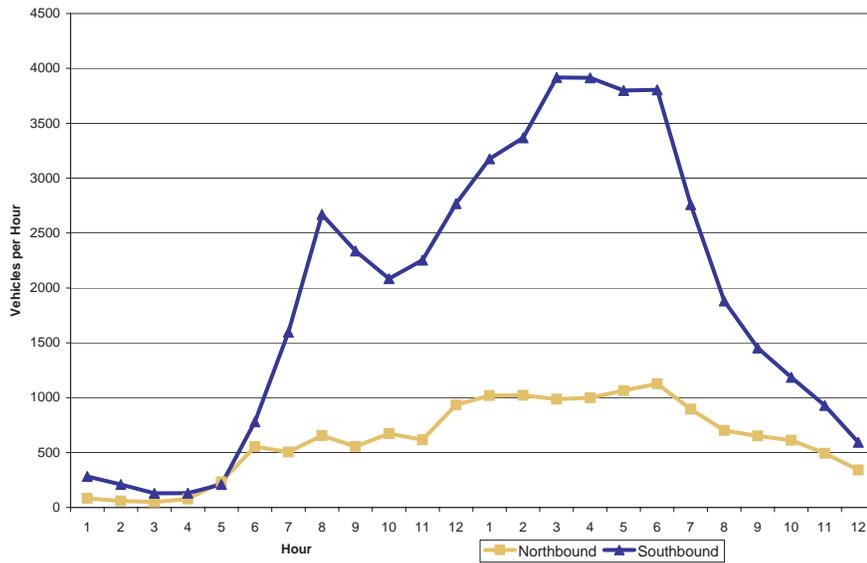


Figure 2-7. Hourly Traffic Volumes on Rainier Avenue South, South of South 2nd Street (Weekday in 2002)



Vehicle Travel Speed Survey

Mirai surveyed vehicle travel speeds on Rainier Avenue between I-405 and the north city limits on June 17th and 18th, 2003. Vehicle travel time was recorded between midpoints of key intersections, from which an average speed was computed. Average speed includes waiting time at signalized intersections. **Appendix 2-D** shows averaged hourly speeds from 11 AM to 6 PM.

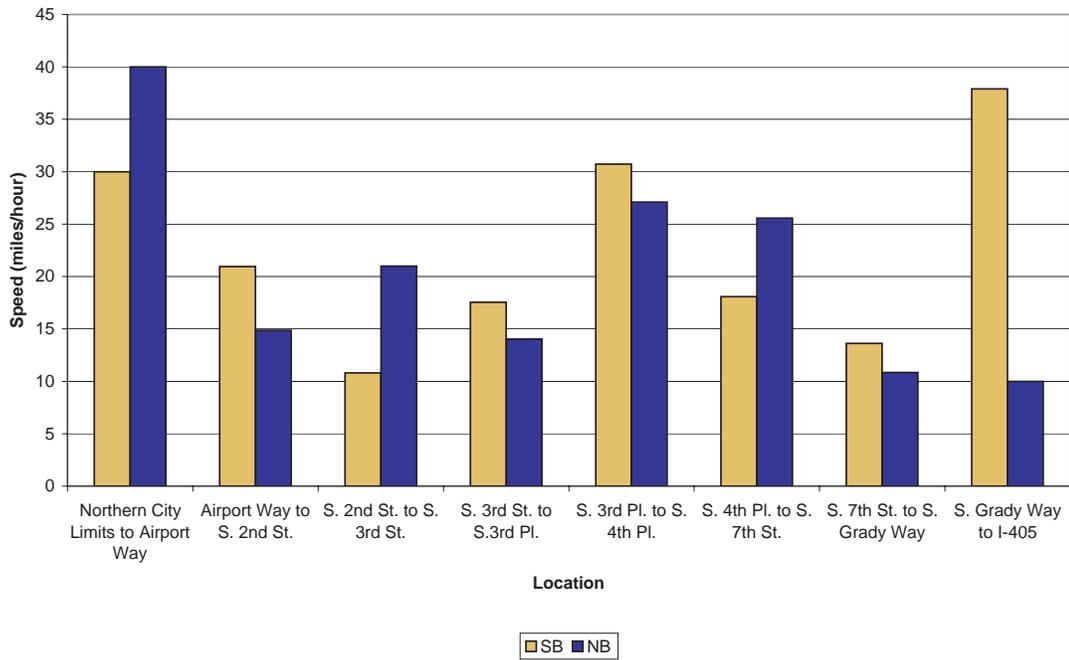
Figure 2-8 illustrates two-day average vehicle speeds from 11 AM to 6 PM on Rainier Avenue. Key findings include:

- ◆ Southbound vehicles from South 2nd to South 3rd Street travel the slowest: about 11 miles per hour. The second slowest segment is from South 7th Street to South Grady Way, 14 miles per hour. Between Airport Way and South 7th Street, the southbound vehicles traveled at 18 to 30 miles per hour. As soon as the vehicles clear the intersection at South Grady Way, speeds pick up to 38 miles per hour.
- ◆ Northbound vehicles between I-405 and South Grady Way travel at 10 miles per hour. This is due to the large volume of vehicles from the SR 167 and I-405 ramps. The average northbound speed does not increase until after South 7th Street. Vehicle speeds from South 7th Street and South 3rd Place range from 25 to 27 miles per hour. The speed drops to 14 miles per hour on the block between South 3rd Place and South 3rd Street. Between South 3rd Street and Airport Way, northbound vehicle speeds average 15 to 20 miles per hour.

Figures 2-9 and **2-10** show average vehicle speeds at midday and those from 4 PM to 5 PM, respectively. Findings comparing the two times of day include:

- ◆ The pattern of travel speeds on the Rainier Avenue South segments for the noon to 1 PM hour and the 4 to 5 PM hour is almost identical, showing that speeds during the PM peak hour are not significantly lower than the mid-day period. Between South 2nd Street and South 7th Street, the southbound vehicles travel at slightly higher speeds during the PM peak period than those during the mid-day hour.
- ◆ Vehicles traveling on southbound Rainier Avenue South from South 7th Street to South Grady Way experience a significant PM peak period speed reduction from the mid-day hour (22 miles per hour vs. 11 miles per hour). This is due to high levels of traffic congestion at the intersection of South Grady Way and Rainier Avenue South.
- ◆ Regardless of the time of day, the northbound vehicles between I-405 and South 7th Street travel at about 8 to 14 miles per hour. After northbound vehicles pass the intersection with South 7th Street, their speeds significantly increase to 25 to 28 miles per hour.

**Figure 2-8. Two-Day Average of Vehicle Travel Speeds From 11 AM to 6 PM
 (June 17th and 18th, 2003)**



**Figure 2-9. Two-Day Average of Vehicle Travel Speeds From Noon to 1 PM
 (June 17th and 18th, 2003)**

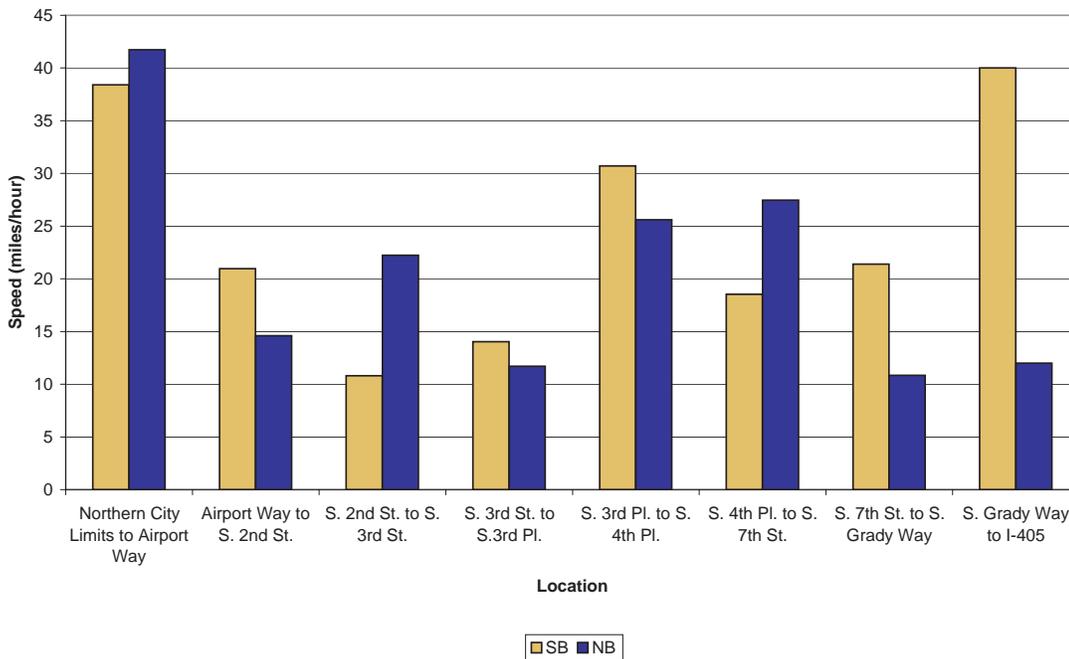
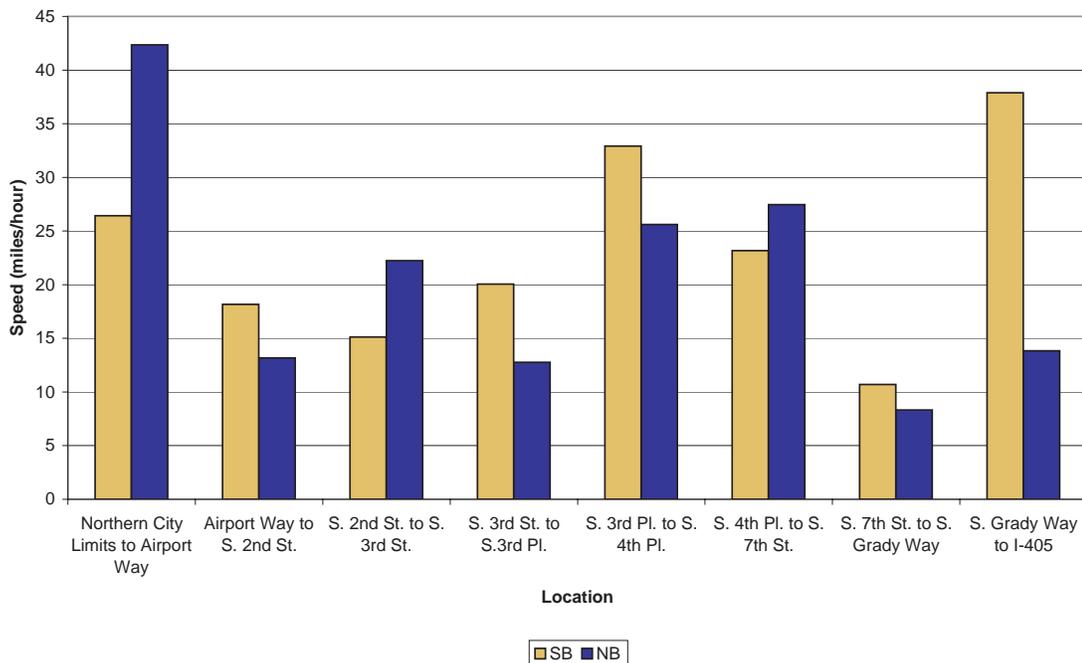


Figure 2-10. Two-Day Average of Vehicle Travel Speeds From 4 PM to 5 PM (June 17th and 18th, 2003)



Bus Travel Speed Surveys

Mirai conducted field surveys to obtain typical bus travel speeds for buses traveling on Rainier Avenue on June 20, 2003. Bus speed is affected by a number of factors: traffic congestion, location of bus stops, passenger boardings and alightings, types of buses, etc. In the Rainier corridor, King County Metro and Sound Transit operate buses using separate stop locations, with Sound Transit making fewer stops. The results of the bus speed surveys are reported separately for the two agencies.

The following findings are derived from **Figures 2-11** through **2-15**, showing bus speeds using the data points obtained through Mirai's field survey:

- ◆ Northbound buses generally travel at higher speeds than southbound buses.
- ◆ Between South 7th Street and South Grady Way, Metro and ST buses travel between 5 and 12 miles per hour in both directions all day, except for the 1 PM to 2 PM hour.
- ◆ On Rainier Avenue South north of South 7th Street, bus speeds (15 to 20 miles per hour) are much higher than south of South 7th Street.
- ◆ While the northbound and southbound bus speeds remain relatively constant throughout the day in the corridor, southbound buses on Rainier from South 4th Place to South 7th Place are much slower than northbound buses: 5 to 7 miles per hour for southbound buses vs. 15 to 23 miles per hour for northbound buses.

Figure 2-11. Transit Travel Speeds Between South 7th Street and South Grady Way*

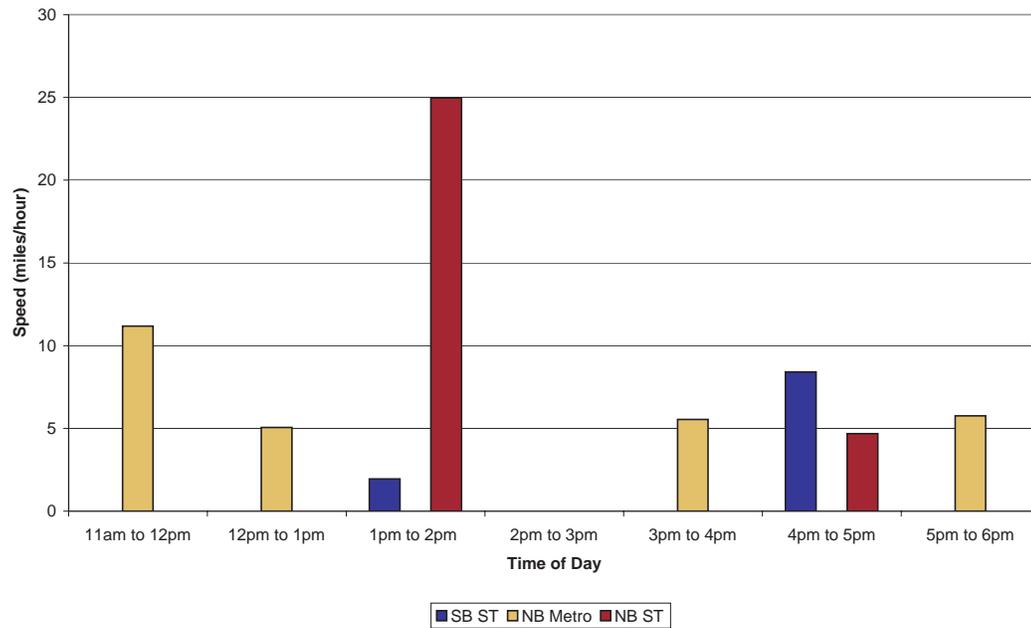
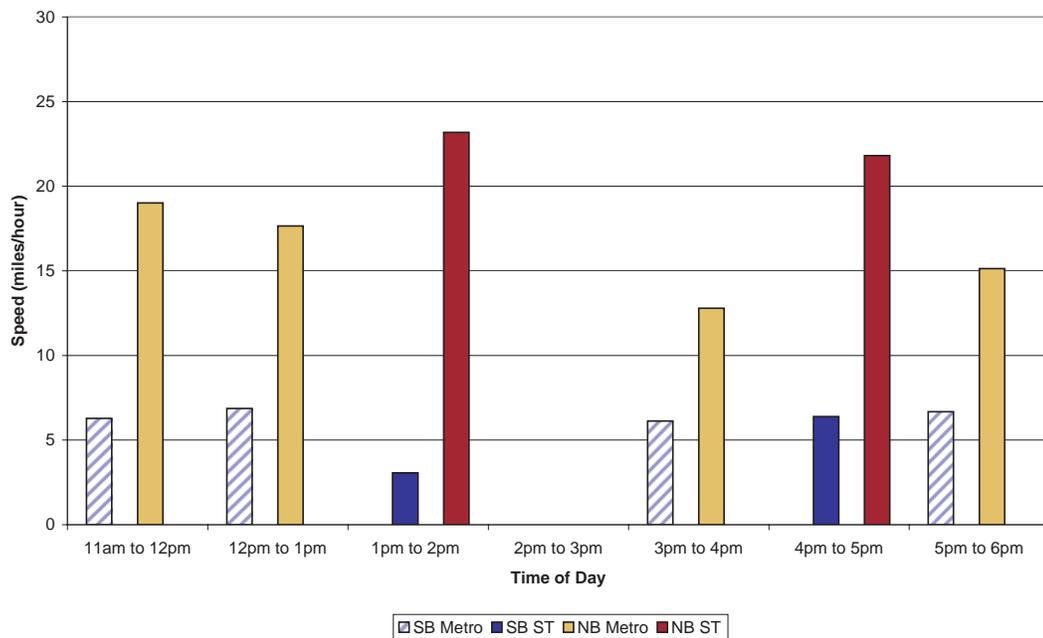


Figure 2-12. Transit Travel Speeds Between South 4th Place and South 7th Street*



* Data for 2pm to 3pm was not available

Figure 2-13. Transit Travel Speeds Between South 3rd Place and South 4th Place*

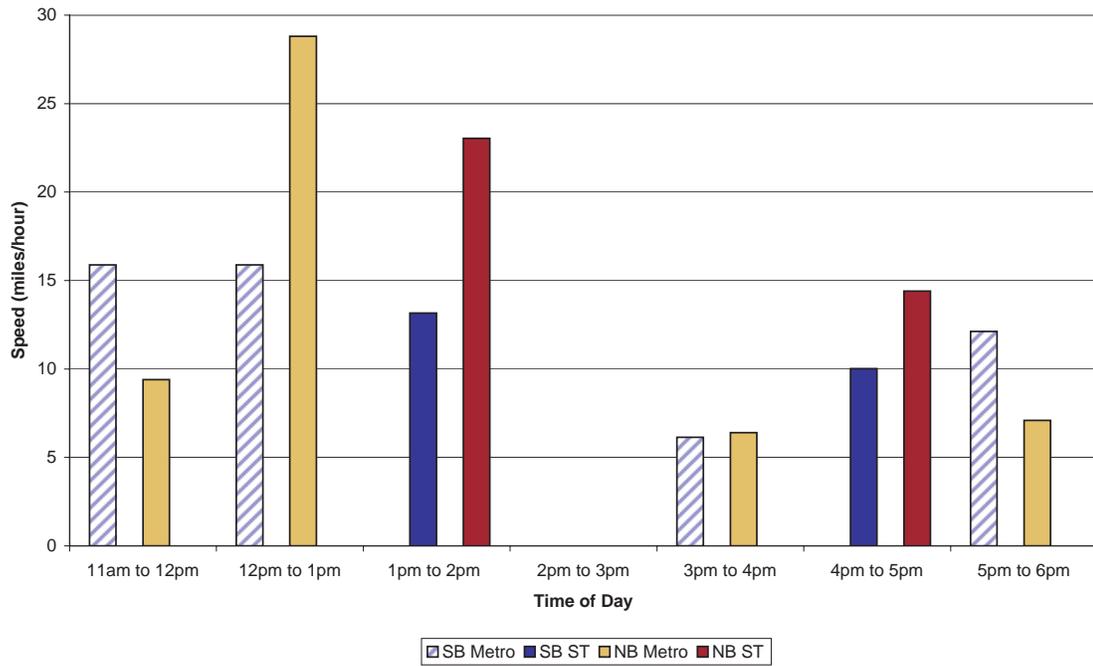
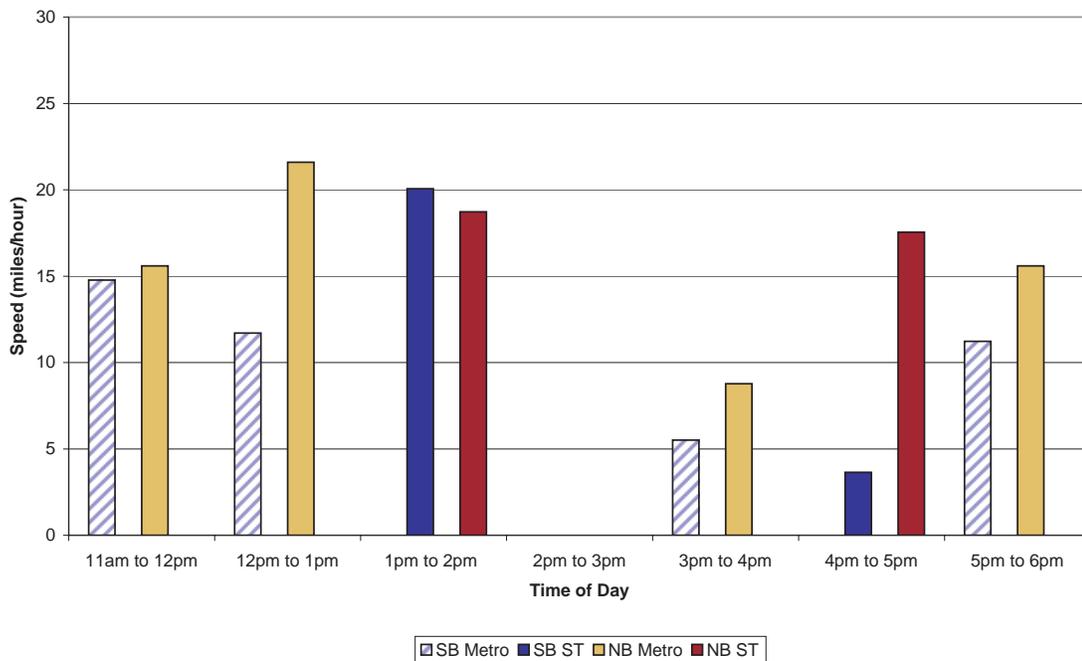
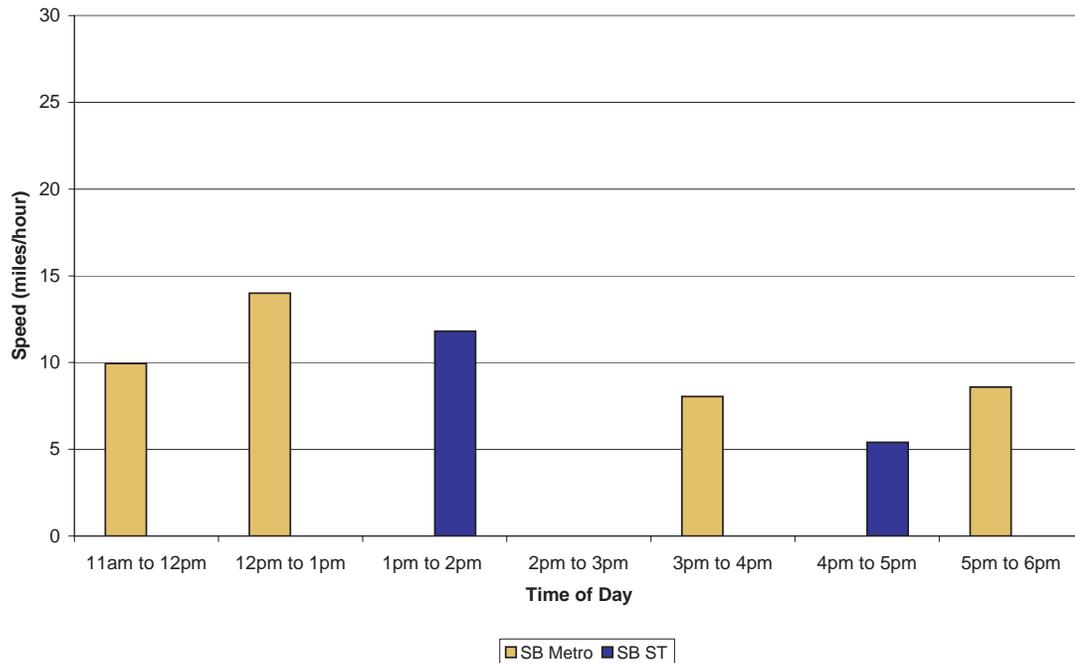


Figure 2-14. Transit Travel Speeds Between South 3rd Street and South 3rd Place*



* Data for 2pm to 3pm was not available

Figure 2-15. Transit Travel Speeds Between South 2nd Street and South 3rd Street*



* Data for 2pm to 3pm was not available

Comparison of Vehicle and Bus Travel Speeds

One of the important issues for the Rainier Avenue Corridor Transportation Study is how to improve transit travel speeds.

Figures 2-16 through 2-23 compare general vehicle speeds with bus speeds, from which the following observations are drawn. Some data points are excluded if no bus travels at that location on Rainier Avenue. Key findings include:

- ◆ Throughout the day, northbound Sound Transit and King County buses on Rainier Avenue South travel slightly slower than general vehicles. However, on some segments, bus speeds are higher than the average vehicle speeds, which may reflect limited sample data.
- ◆ During the mid-day, northbound and southbound Sound Transit and King County Metro buses travel at speeds close to the general vehicles' speeds from South 2nd Street to South 4th Place. Beyond South 4th Place, Sound Transit bus speeds slow to less than 5 miles per hour.
- ◆ During the PM peak hour, the southbound Sound Transit and King County Metro buses travel substantially slower than general vehicles (4 to 8 miles per hour for buses vs. 10 to 30 miles per hour for general vehicles). On most segments, the bus speeds are about one third to one-quarter of the general vehicle speeds.

Figure 2-16. Comparisons of Vehicle Speeds with Sound Transit Bus Speeds on Southbound Rainier Avenue South During Mid-Day Hour (1-2 PM)

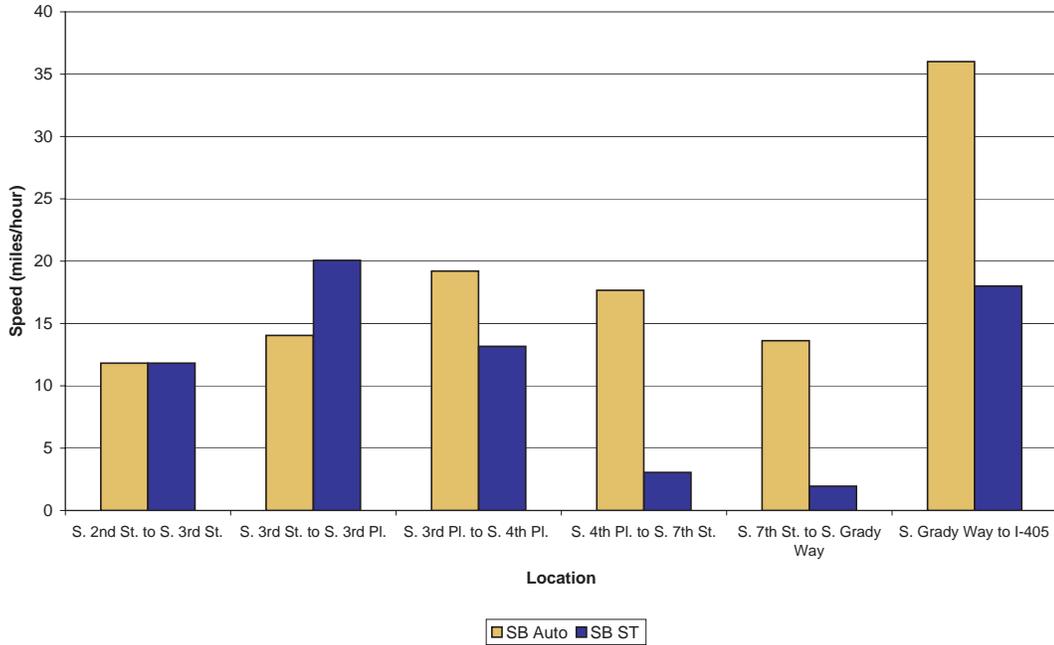


Figure 2-17. Comparisons of Vehicle Speeds with Sound Transit Bus Speeds on Northbound Rainier Avenue South During Mid-Day Hour (1-2 PM)

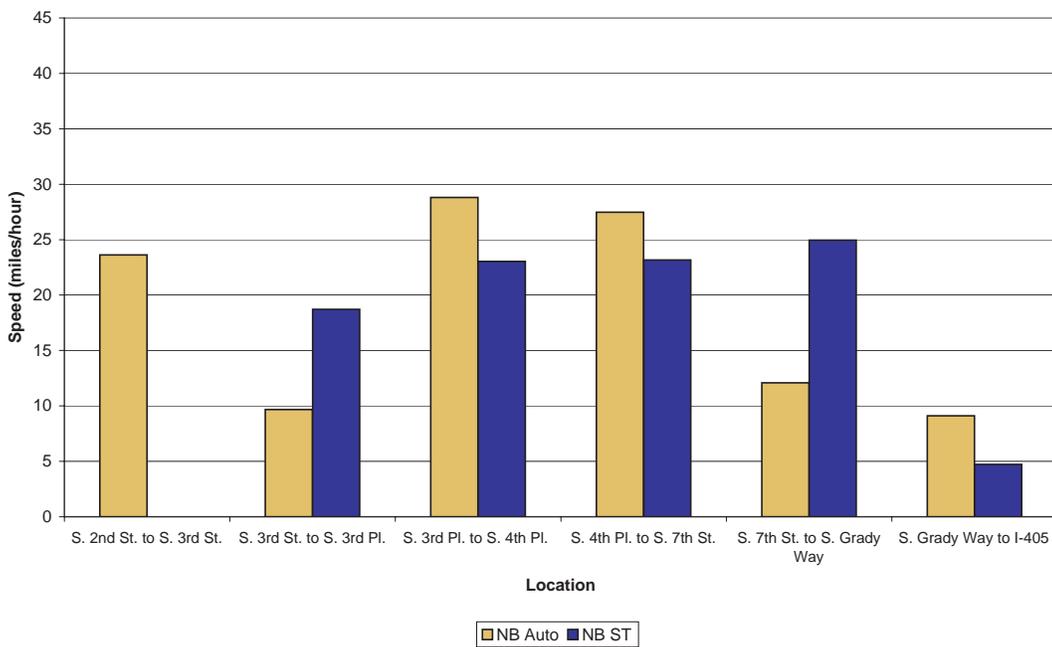


Figure 2-18. Comparisons of Vehicle Speeds with King County Metro Bus Speeds on Southbound Rainier Avenue South During Mid-Day Hour (Noon-1 PM)

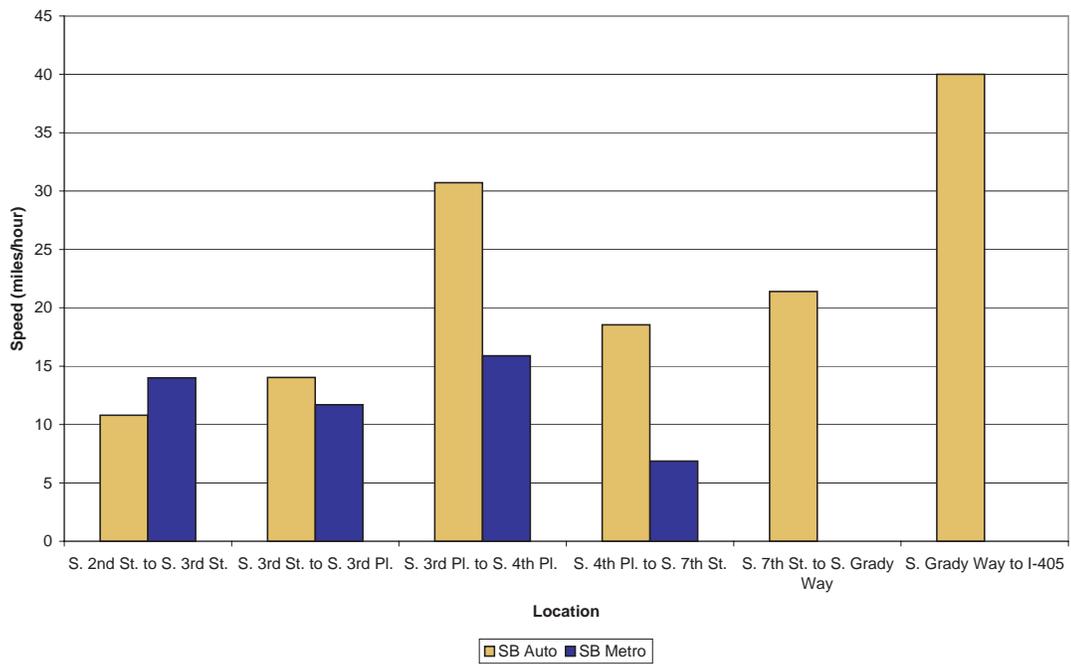


Figure 2-19. Comparisons of Vehicle Speeds with King County Metro Bus Speeds on Northbound Rainier Avenue South During Mid-Day Hour (Noon-1 PM)

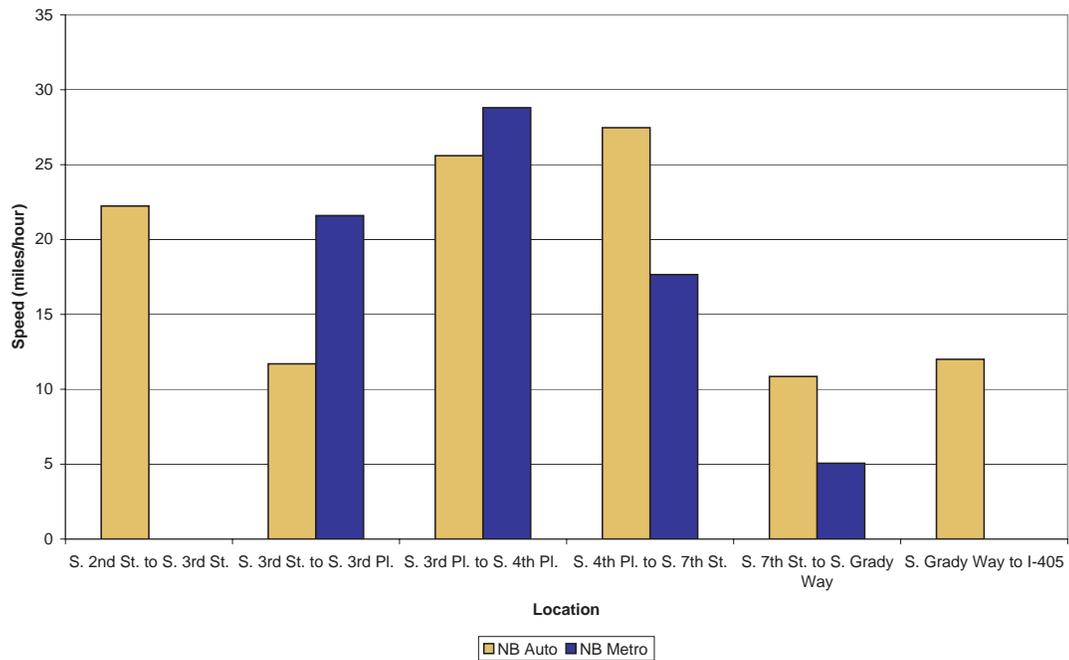


Figure 2-20. Comparisons of Vehicle Speeds with Sound Transit Bus Speeds on Southbound Rainier Avenue South During PM Peak Hour (4-5 PM)

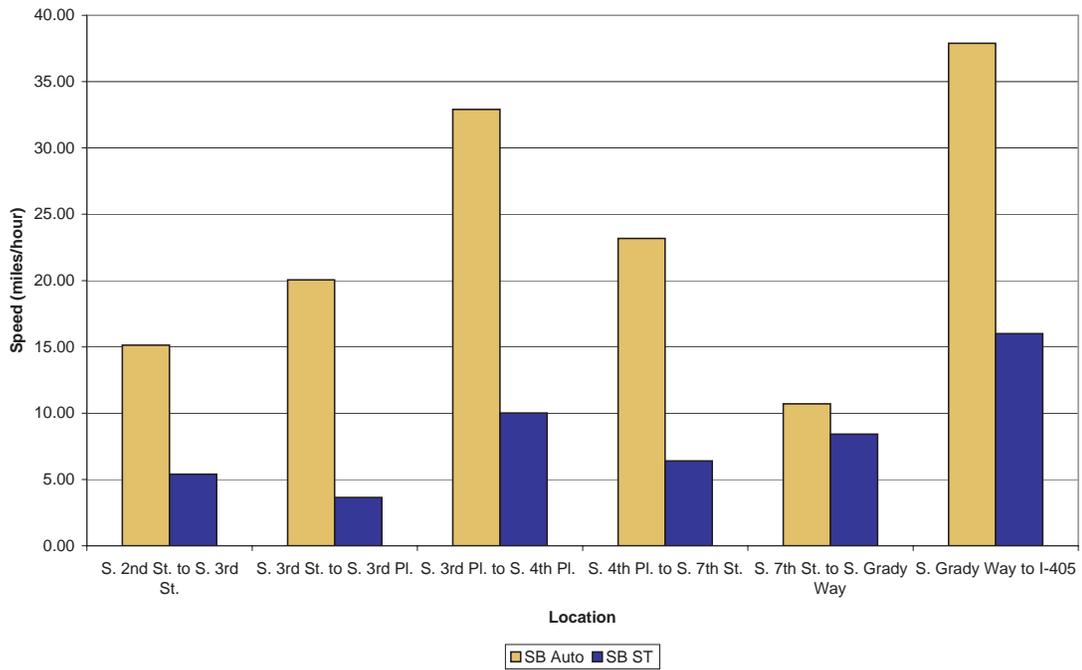


Figure 2-21. Comparisons of Vehicle Speeds with Sound Transit Bus Speeds on Northbound Rainier Avenue South During PM Peak Hour (4-5 PM)

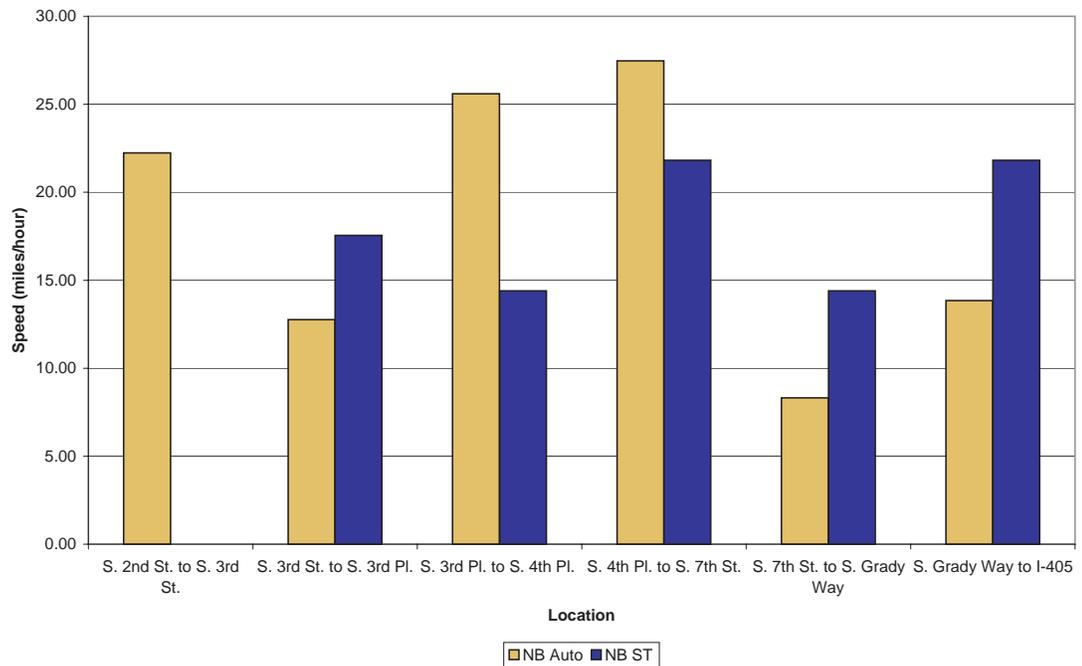


Figure 2-22. Comparisons of Vehicle Speeds with King County Metro Bus Speeds on Southbound Rainier Avenue South During PM Peak Hour (3-4 PM)

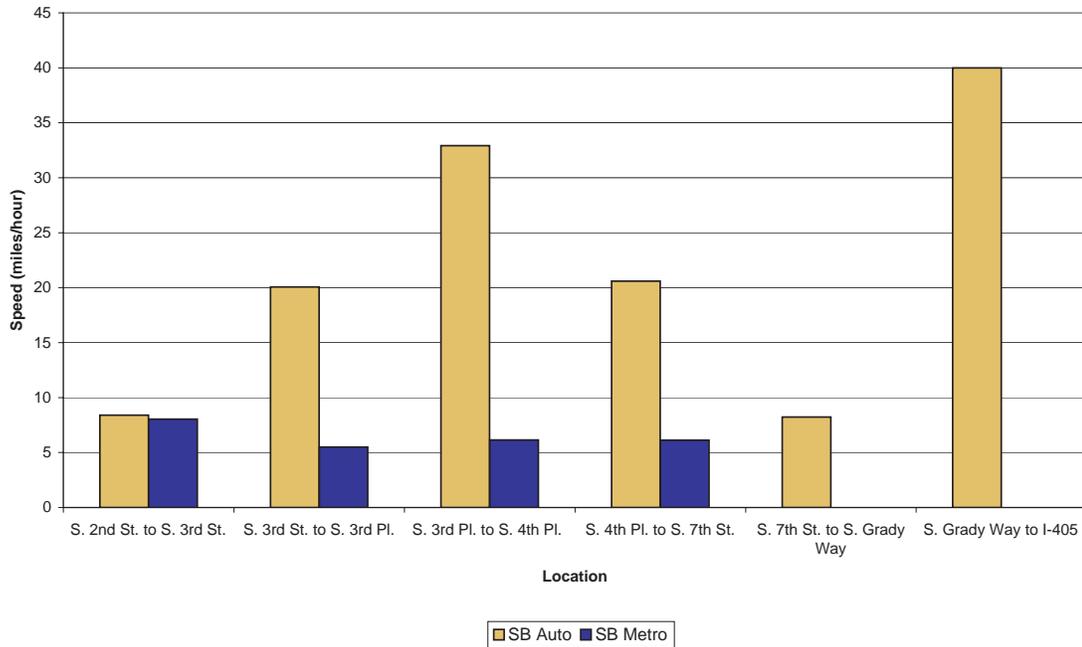
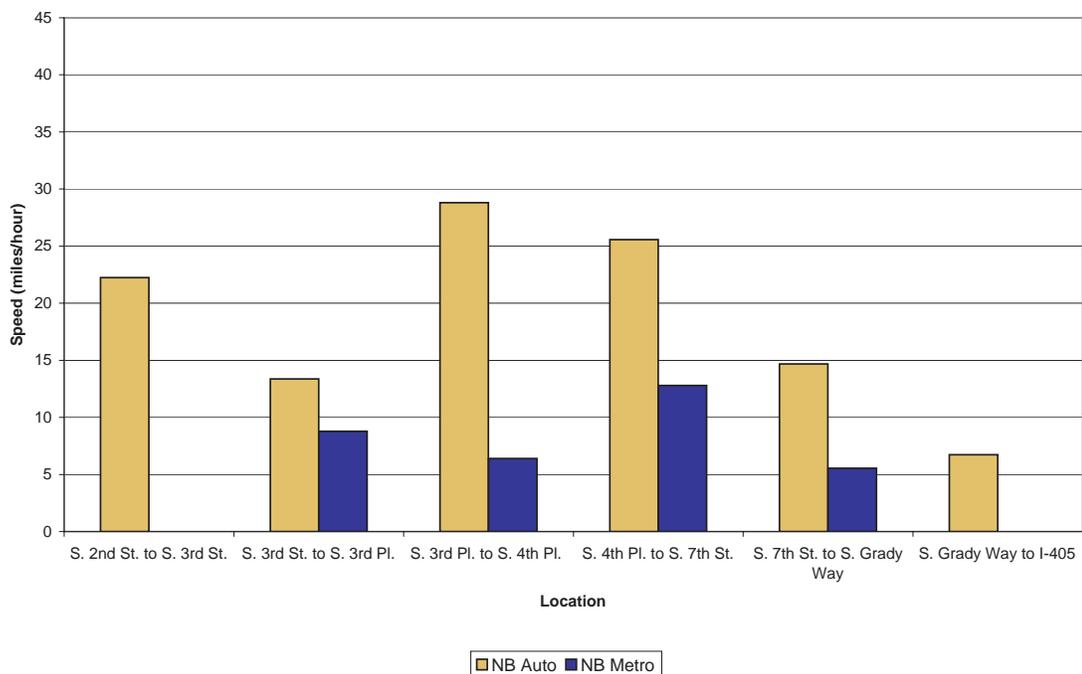


Figure 2-23. Comparisons of Vehicle Speeds with King County Metro Bus Speeds on Northbound Rainier Avenue South During PM Peak Hour (3-4 PM)



Intersection Level of Service

Level of Service is a qualitative measure used to denote intersection operating conditions. It generally describes levels of traffic congestion at signalized and unsignalized intersections in an urban area. Level of service is represented on a scale ranging from A at the highest level to F at the lowest level. As shown in **Table 2-3**, level of service is based on the average delay time per vehicle approaching and traveling through the intersection as defined in the 2000 Highway Capacity Manual. It also provides qualitative descriptions of each level of service (LOS) rating. Intersection delay is the travel time in seconds experienced by a driver traveling through the intersection, compared with a free flow condition.

LOS A and B represent minimal delays, and LOS C represents generally acceptable delays. LOS D represents an increasing amount of delay and an increasing number of vehicles stopped at the intersection. An intersection with LOS E is approaching capacity and is processing the maximum number of vehicles possible through the intersection. LOS F means that the intersection is operating with excessive delays, meaning that it has a high level of traffic congestion. Vehicles approaching an intersection with LOS F may have to wait for more than one signal cycle to get through the intersection.

Table 2-3. Level of Service Definition

LOS	Average Signalized Intersection Delay Per Vehicle (seconds)	Average Unsignalized Intersection Delay Per Vehicle (seconds)	Descriptions of Level of Service Operations
A	≤10	≤10	Highest driver comfort. Little delay. Free flow.
B	>10 and ≤20	>10 and ≤15	High degree of driver comfort. Little delay.
C	>20 and ≤35	>15 and ≤25	Some delays. Acceptable level of driver comfort. Efficient traffic operation.
D	>35 and ≤55	>25 and ≤35	Long cycle length. Some driver frustration. Efficient traffic operation.
E	>55 and ≤80	>35 and ≤50	Approaching capacity. Notable delays. High level of driver frustration.
F	>80	>50	Break-down flow. Excessive delays.

Source: 2000 Highway Capacity Manual

The City of Renton’s Planning/Building/Public Works department provided files containing 2002 AM and PM peak hour traffic volumes and signal phasing in Synchro, a software program used for this study to calculate intersection levels of service.

Figure 2-24 shows 2002 AM and PM peak hour averaged intersection delays and levels of service. As expected, the most congested intersection in the study area is at Rainier Avenue South and South Grady Way, which operates at LOS F during the PM peak hour. The intersection of Southwest Sunset Boulevard and Hardie Avenue Southwest is operating at LOS E during the PM peak hour. All other intersections operate at LOS D or better for the AM and PM peak hours.

Figure 2-25 provides detailed levels of service for turning movements at each intersection approach for the PM peak hour. For example, at the Rainier Avenue South/South Grady Way intersection, the northbound vehicles approaching the intersection from SR 167 encounter LOS F with 90 seconds of delay, where vehicles approaching the intersection from other directions experience seconds of delay varying from 73 (LOS E) to 54 (LOS D).

The levels of service for left turn, through and right turn movements are provided separately for each intersection in **Appendix 2-E** along with an aerial photograph of the intersection.



Rainier Avenue South and Southwest 7th Street



Southbound Rainier Avenue South approaching South 2nd Street



South Grady Way/Rainier Avenue South Intersection

Figure 2-24. AM and PM Peak Hour Average Intersection Delays and Levels of Service

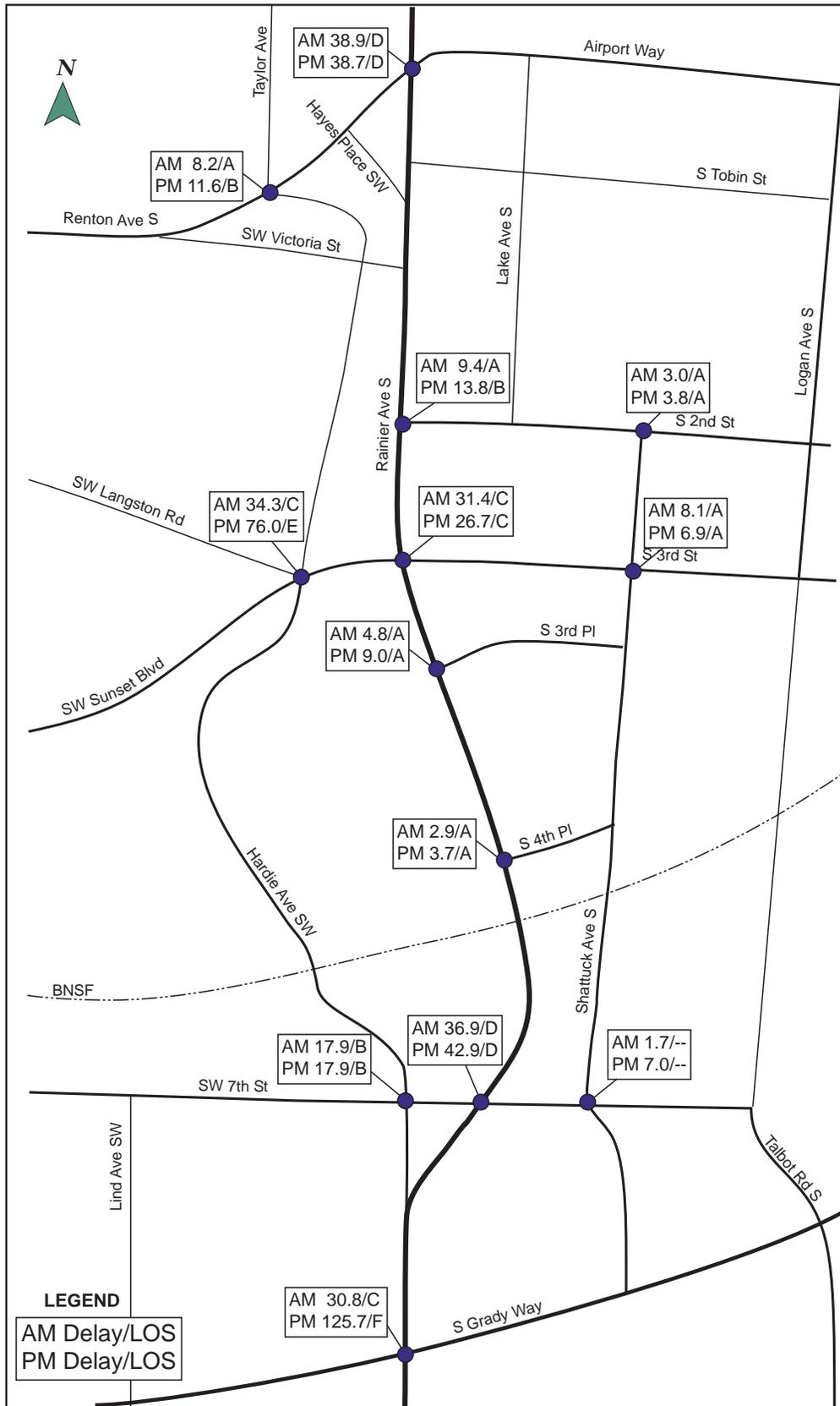
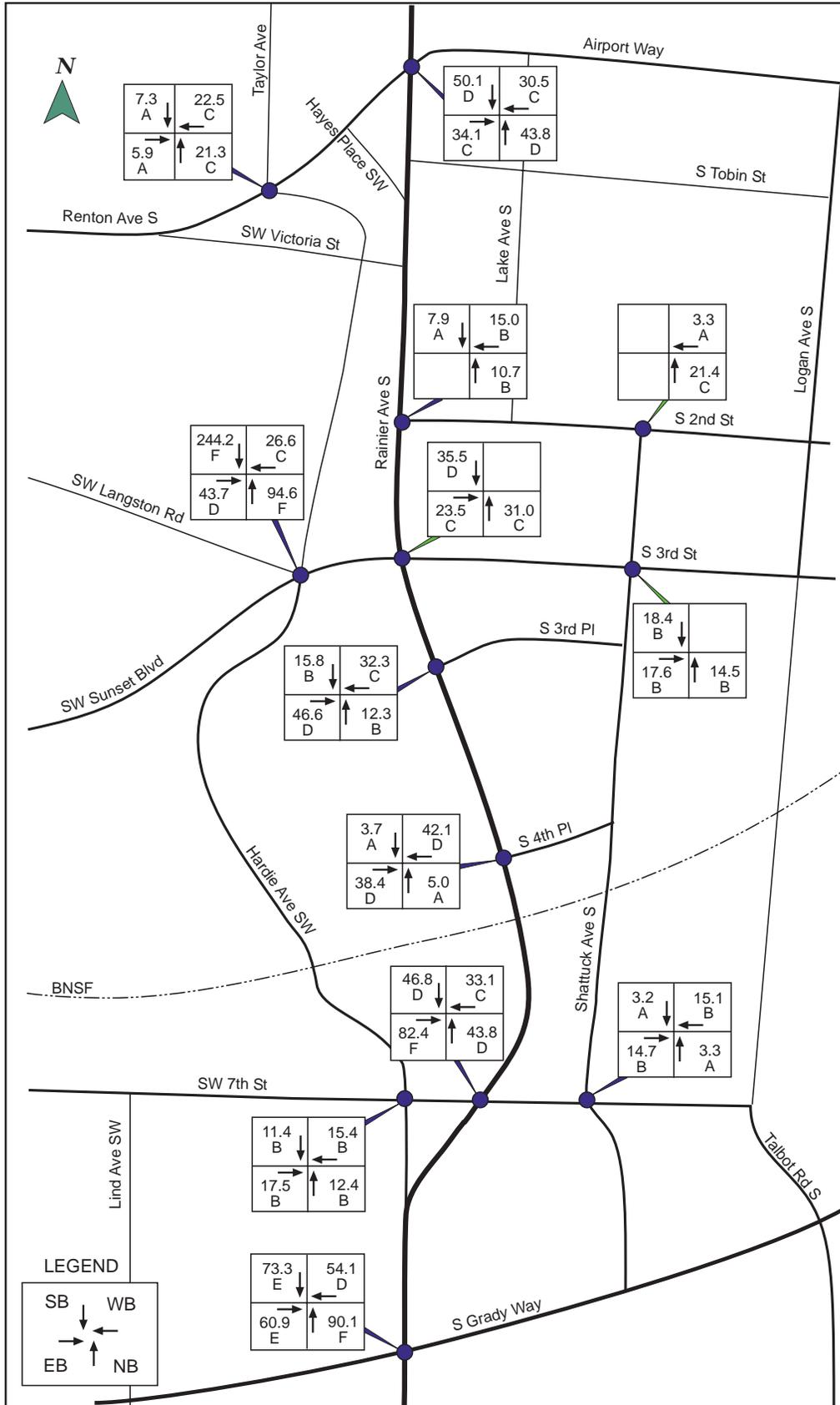


Figure 2-25. 2002 Intersection Approach Levels of Service for PM Peak Hour



Traffic Accidents

RAINIER AVENUE

The City of Renton's traffic accident data for the Rainier Avenue corridor from 1998 to 2002 are summarized into two categories: midblock accidents and intersection accidents.

- ◆ Over the past five years, the Rainier Avenue Corridor experienced 24 -31 midblock accidents per year and 102 – 134 intersection accidents per year.
- ◆ The highest number of midblock accidents occurred in the segment of Rainier Avenue South between South 7th Street and South 4th Place.
- ◆ The intersection of Rainier Avenue South and South Grady Way recorded the greatest number of intersection traffic accidents, 16 to 30 accidents per year. The majority of the intersection accidents were rear-end collisions.

Table 2-4 shows a summary of the midblock traffic accidents, and **Table 2-5** shows a summary of the intersection traffic accidents from 1998 to 2002. The accident rate, in addition to the actual number of accidents, indicates the number of accidents relative to the volume of traffic at those locations. So, for example a location may have fewer than 5 accidents in a year, but if the traffic volume is extremely low (for example, 40,000 vehicles per year, or about 110 vehicles per day), then the accident rate would be high. Conversely, if a location has 15 accidents per year but more than twenty million vehicles per year (55,000 vehicles per day), the rate may relatively low, given the number of vehicles traveling at that location. A traffic engineer will use both numbers, and compare them to other locations in the city and to national statistics, to determine the extent of the safety concern. The midblock accident rates are accidents per one million vehicles per year, and the intersection accident rates are accidents per one million vehicles per year entering the intersection.

During the last five years, a total 17 accidents involved pedestrians and/or bicycles in the Rainier Avenue corridor. Most of those occurred at intersections.

The highest intersection accident rate occurred at Rainier Avenue South and South 2nd Street. The intersection accident rates could not be calculated at three unsignalized intersections due to the lack of traffic counts: Rainier Avenue North/South Victoria Street, Rainier Avenue South/Southwest Hayes Place, and Rainier Avenue South/South Tobin Street.

HIGH ACCIDENT LOCATIONS WITHIN THE LARGER STUDY AREA

Table 2-6 highlights the City of Renton's high accident locations within the Study Area by rate at select intersections.

- ◆ The highest intersection accident rate occurred at the intersection of Shattuck Avenue South and South 3rd Street.
- ◆ Rainer Avenue South was the north/south street with the most high accident locations. These locations included the following cross streets by highest rate: South 3rd Place, Southwest Grady Way, Southwest Victoria Street, Airport Way, Southwest Sunset Boulevard, South 7th Street, South 4th Place, and South 2nd Street (SR-900).
- ◆ Southwest Grady Way was the east/west street with the most high accident locations. These locations included the following cross streets (ordered by highest rate): Rainer Avenue S (SR-167), Talbot Road S, Lind Avenue SW, Shattuck Avenue S.

Table 2-4. Midblock Traffic Accidents and Accident Rates from 1998 to 2002

	From Grady Way to South 7th St.	From South 7th St. to South 4th PI	From South 4th PI to South 3rd PI	From South 3rd PI to South 3rd St.	From S. 3rd St. to South 2nd St.	From South 2nd St. to Victoria St. Southwest	From Victoria St. to South Tobin St.	From South Tobin St. to Airport Way	From Airport Way to Northern City Limits	Total
1998										
Approach Turn	2		1						1	4
Backing										0
Fixed Object/Parked Vehicle		3								3
Head On								1		1
Other										0
Pedestrian/Bicycle					1					2
Rear End	3	1		3		1		1		9
Right Angle		2			1	1			1	5
Sideswipe	2	1	2				1			7
Total	7	7	4	3	2	2	1	3	2	31
Accident Rate*	0.441	0.412	0.221	0.162	0.117	0.147	0.073	0.220	0.265	
1999										
Approach Turn	1					2				3
Backing										0
Fixed Object/Parked Vehicle		2			1					3
Head On										0
Other										0
Pedestrian/Bicycle										0
Rear End	1	1		1	2	2		1	1	9
Right Angle		1		1		1				4
Sideswipe	3				1					5
Total	5	4	0	2	4	5	0	3	1	24
Accident Rate*	0.340	0.223	0.000	0.117	0.217	0.329	0.000	0.197	0.133	

*Accident Rate=Annual Accidents/Annual Vehicles Volumes/One Million

Table 2-4. Midblock Traffic Accidents and Accident Rates from 1998 to 2002 (Continued)

	From Grady Way to South 7th St.	From South 7th St. to South 4th PI	From South 4th PI to South 3rd PI	From South 3rd PI to South 3rd St.	From South 3rd St. to South 2nd St.	From South 2nd St. to Victoria St. Southwest	From Victoria St. to South Tobin St.	From South Airport Tobin St. to Airport Way	From Airport Way to Northern City Limits	Total
2000										
Approach Turn	2	1					1	1	1	5
Backing										0
Fixed Object/ Parked Vehicle	1	1						1	1	3
Head On										0
Other										0
Pedestrian/ Bicycle	1									1
Rear End	2	3					1	3	3	9
Right Angle		1		1						2
Sideswipe			1					1	2	4
Total	6	5	1	1	1	0	0	3	7	24
Accident Rate*	0.420	0.265	0.064	0.064	0.050	0.000	0.000	0.179	0.936	
2001										
Approach Turn	1	1								1
Backing									1	1
Fixed Object/ Parked Vehicle		1						1	1	3
Head On										0
Other										0
Pedestrian/ Bicycle	1				1					2
Rear End	4	2	1	1	2	1			1	12
Right Angle		1	1		1				1	4
Sideswipe	2	1				1			2	6
Total	8	6	2	1	4	2	0	1	6	30
Accident Rate*	0.536	0.340	0.127	0.064	0.190	0.121	0.000	0.061	0.794	

*Accident Rate=Annual Accidents/Annual Vehicles Volumes/One Million

Table 2-4. Midblock Traffic Accidents and Accident Rates from 1998 to 2002 (Continued)

	From Grady Way to South 7th St.	From South 7th St. to South 4th PI	From South 4th PI to South 3rd PI	From South 3rd PI to South 3rd St.	From South 3rd St. to South 2nd St.	From South 2nd St. to Victoria St. Southwest	From Victoria St. to South Tobin St.	From South Tobin St. to Airport Way	From Airport Way to Northern City Limits	Total
	2002									
Approach Turn	1									1
Backing		1								1
Fixed Object/ Parked Vehicle					1				3	4
Head On										0
Other										0
Pedestrian/ Bicycle	1		1							2
Rear End	1	2	1		1					5
Right Angle	1	3			1					5
Sideswipe	2	1		1		1		2	1	8
Total	6	7	2	1	3	1	0	2	4	26
Accident Rate*	0.368	0.425	0.126	0.065	0.135	0.062	0.000	0.123	0.524	

*Accident Rate=Annual Accidents/Annual Vehicles Volumes/One Million

Table 2-5. Intersection Traffic Accidents and Accident Rates from 1998 to 2002

	Rainier Ave. South at Grady Way	Rainier Ave. South at 7th St.	Rainier Ave. South at South 4th Pl.	Rainier Ave. South at South 3rd Pl.	Rainier Ave. South at South 3rd St.	Rainier Ave. South at South 2nd St.	Rainier Ave. South at Victoria St. Southwest	Rainier Ave. South at Hayes Pl. Southwest	Rainier Ave. South at Tobin St.	Rainier Ave. South at Airport Way	Total
1998											
Approach Turn	1	2	1	2	2	1	1			3	10
Backing											0
Fixed Object/ Parked Vehicle	1	1			1						4
Head On									1		2
Other		2									2
Pedestrian/ Bicycle					1						1
Rear End	15	7	5	7	4	4				6	49
Right Angle	3	2	5	2	8	2		1		2	27
Sideswipe	8	3	3	5	3					1	23
Total	28	14	11	17	16	7	0	13	1	1.207	118
Accident Rate*	1.249	0.906	0.988	1.096	1.633	N/A	N/A	N/A	N/A		
1999											
Approach Turn	2	1	3	1	2	1	1				11
Backing	1										1
Fixed Object/ Parked Vehicle	1	2									3
Head On										1	1
Other	1										1
Pedestrian/ Bicycle				1							1
Rear End	6	6	3	9	5	4	1			5	42
Right Angle	3	2	2	4	9			1		3	26
Sideswipe	2	2	2	6	1	1				2	16
Total	16	13	8	21	17	6	2	11	1	1.845	102
Accident Rate*	0.709	0.826	0.596	1.237	1.646	N/A	N/A	N/A	N/A		

*Accident Rate=Annual Accidents/Annual Entering Vehicles Volumes/One Million

Table 2-5. Intersection Traffic Accidents and Accident Rates from 1998 to 2002 (Continued)

	Rainier Ave. South at Grady Way	Rainier Ave. South at 7th St.	Rainier Ave. South at 4th Pl.	Rainier Ave. South at 3rd Pl.	Rainier Ave. South at 3rd St.	Rainier Ave. South at 2nd St.	Rainier Ave. South at Victoria St. Southwest	Rainier Ave. South at Hayes Pl. Southwest	Rainier Ave. South at Tobin St.	Rainier Ave. South at Airport Way	Total
2000											
Approach Turn	2	2	1	5		2			1	2	15
Backing											0
Fixed Object/ Parked Vehicle											0
Head On	1										1
Other			1								1
Pedestrian/ Bicycle				1	1	1					3
Rear End	13	7	5	3	4	9	4	2		4	51
Right Angle	7	3	1	5	2	3			1	3	25
Sideswipe	4	4			8	1				1	18
Total	27	16	8	14	15	16	4	2	2	10	114
Accident Rate*	1.180	0.939	0.566	1.131	0.998	1.345	N/A	N/A	N/A	0.838	
2001											
Approach Turn	1	2	1	1	3	1	2	1		3	15
Backing	1									2	3
Fixed Object/ Parked Vehicle					1		1				2
Head On											0
Other										1	1
Pedestrian/ Bicycle	1		1	1		1					4
Rear End	19	7	4	6	12	3	5		1	11	68
Right Angle	5	1	1	5	1	5	1		1	1	21
Sideswipe	3	3		1	1	5	1		1	5	20
Total	30	13	7	14	18	15	10	1	3	23	134
Accident Rate*	1.334	0.791	0.527	1.180	1.197	1.284	N/A	N/A	N/A	1.616	

*Accident Rate=Annual Accidents/Annual Entering Vehicles Volumes/One Million

Table 2-5. Intersection Traffic Accidents and Accident Rates from 1998 to 2002 (Continued)

	Rainier Ave. South at Grady Way	Rainier Ave. South at 7th St.	Rainier Ave. South at South 4th PI.	Rainier Ave. South at South 3rd PI.	Rainier Ave. South at South 3rd St.	Rainier Ave. South at South 2nd St.	Rainier Ave. South at Victoria St. Southwest	Rainier Ave. South at Hayes Pl. Southwest	Rainier Ave. South at Tobin St.	Rainier Ave. South at Airport Way	Total
	2002										
Approach Turn	1	1	1	1	1	1				5	9
Backing					1						1
Fixed Object/ Parked Vehicle			1		1	1					3
Head On											0
Other	1					1					2
Pedestrian/ Bicycle		1									1
Rear End	18	10	2	3	4	12	6	2	1	7	65
Right Angle	5	4	3	5	1	3				4	25
Sideswipe	2	3	2	2	6	1		1		2	19
Total	27	18	8	12	13	19	6	3	1	18	125
Accident Rate*	1.217	1.133	0.645	1.054	0.865	1.646	N/A	N/A	N/A	1.161	

*Accident Rate=Annual Accidents/Annual Entering Vehicles Volumes/One Million

Table 2-6. Intersection Traffic Accidents in 2004 by Rate

North/South Street	East/West Street	2004 Annual Accidents	Accident Rate
Shattuck Avenue S	S 3rd St	9	1.82
Hardie Avenue SW	Renton Avenue Ext	14	1.30
Hardie Avenue SW	SW Sunset Blvd	11	0.89
Rainier Avenue S (SR-167)	S 2nd St (SR-900)	13	0.67
Rainier Avenue S	S 7th St	16	0.62
Rainier Avenue S	S 4th Pl	12	0.62
Rainier Avenue S (SR-167)	SW Grady Way	22	0.59
Rainier Avenue S	S 3rd Pl	11	0.53
Talbot Road S	S Puget Dr	7	0.49
Talbot Road S	S Grady Way	9	0.49
Rainier Avenue S	SW Victoria St	7	0.48
Rainier Avenue S	Airport Way	10	0.44
Rainier Avenue S	SW Sunset Blvd	11	0.44
Lind Avenue SW	SW Grady Way	7	0.43
Shattuck Avenue S	S Grady Way	5	0.27

**Accident Rate=Annual Accidents/Annual Entering Vehicle Volumes/One Million*

Plans and Programs

I-405 CORRIDOR

2003 Nickel Gas Tax Increase:

The 2003 legislative session adopted a five-cent gas tax increase, which will fund the following improvements to begin implementing the I-405 Corridor Program Plan:

- ◆ I-405: one additional lane approaching the I-405/SR 167 interchange - northbound from SR 181 to SR 167 and southbound from SR 169 to SR 167 (I-405 Congestion Relief and Bus Rapid Transit Project)
- ◆ SR 167: Extend southbound HOV Lane to the I-405/SR 167 interchange

Implementation Plan:

The I-405 Executive Committee with WSDOT staff developed a list (currently known as Implementation Plan or “Option C”) of facility improvements and funding levels for the implementation program, much of which is targeted for potential funding through a new three-county taxing district, the Regional Transportation Investment District (RTID).

The main difference affecting Renton between Implementation Plan and the full I-405 Corridor Program is that Implementation Plan includes only one additional lane on I-405 west of SR 167. It may include a bus rapid transit (BRT) system between SeaTac and Lynnwood. The BRT would be an express bus system providing a limited number of stops at the stations located in the I-405 corridor. The following is a list of the key improvements in Implementation Plan in the Renton area:

- ◆ Construct one additional lane on I-405 in both directions through the SR 167 interchange.
- ◆ Construct ultimate northbound and southbound frontage roads with local access at Lind and Talbot.
- ◆ Construct a general-purpose lane direct connector between southbound I-405 and southbound SR 167.
- ◆ Utilize existing northbound SR 167 to southbound I-405 loop ramp.
- ◆ Remove loop ramps south of I-405, loop ramp in northwest quadrant (southbound I-405 to southbound SR 167) and braided flyover north of I-405.
- ◆ Construct ultimate exterior ramps to south of I-405 (to and from SR 167).
- ◆ Reconstruct East Valley Road between SW 16th Street and SW 23rd Street (No connection between Rainier Avenue and East Valley Road).
- ◆ Construct I-405 (northbound and southbound) east of SR 167 to “Master Plan” level (two additional lanes plus one auxiliary lane in both directions).
- ◆ Construct one auxiliary lane on SR-167 in both directions: a northbound lane from the South 180th northbound on-ramp and a southbound drop lane at the Southwest 41st northbound off-ramp.
- ◆ Add HOV and GP direct connectors between SR 167 and north I-405.
- ◆ Rainier Avenue weaves through direct connector ramps to connect to SR 167 south of I-405 with one GP and one HOV lane (instead of current two GP lanes).

The schematic diagrams of the lane configuration for Implementation Plan/Option C in the Renton area are shown in **Figure 2-26**.

KING COUNTY WEST HILL COMMUNITY TRANSPORTATION PLAN

As part of this study, the City's consultant reviewed a report prepared by a traffic consultant for King County entitled "West Hill Study Rainier Avenue South Corridor," dated December 13, 2002. The study evaluated five intersections (four unsignalized intersections and one signalized intersection) along Rainier Avenue in unincorporated King County for five design concepts and a No Build alternative in the beginning of the study. The City's consultant found that the report lacks sufficient analysis of traffic operations on Rainier Avenue to adequately support a decision to reduce traffic lanes from four to three. King County reduced the Rainier Avenue traffic lanes from four to three in 2004 and is monitoring the traffic impacts.

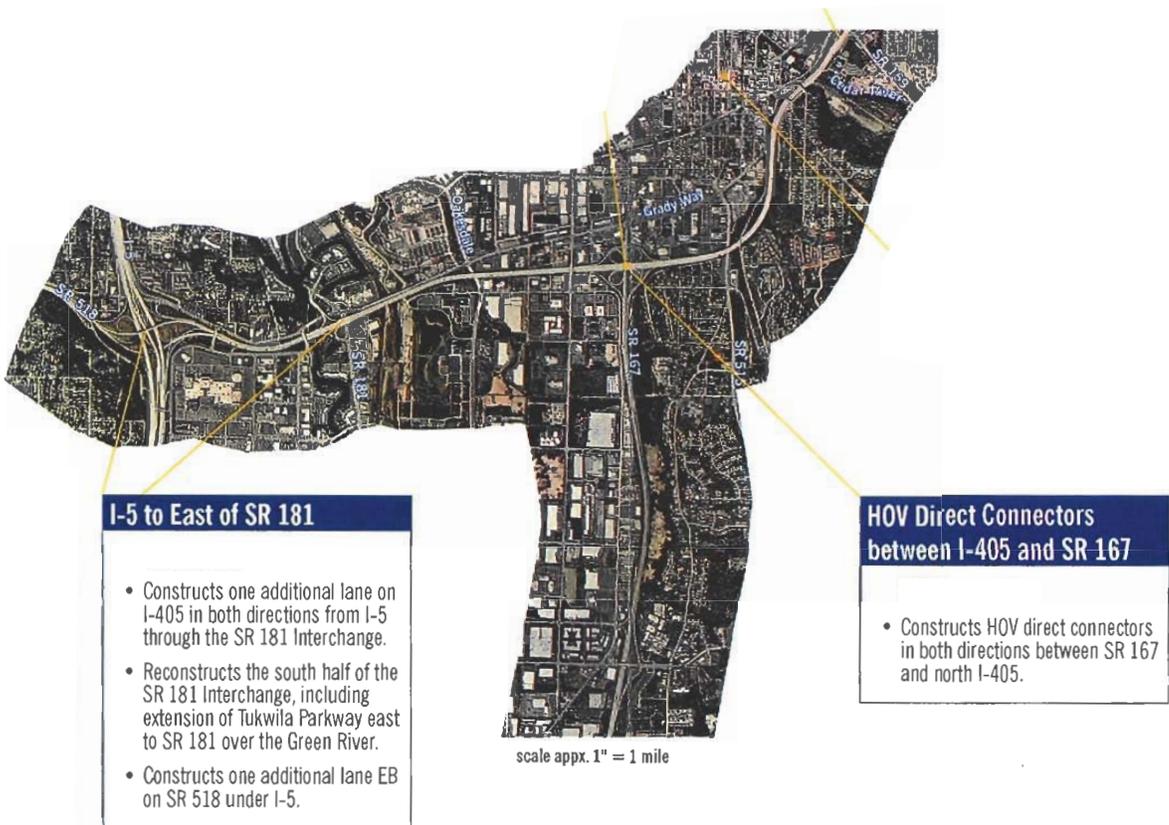
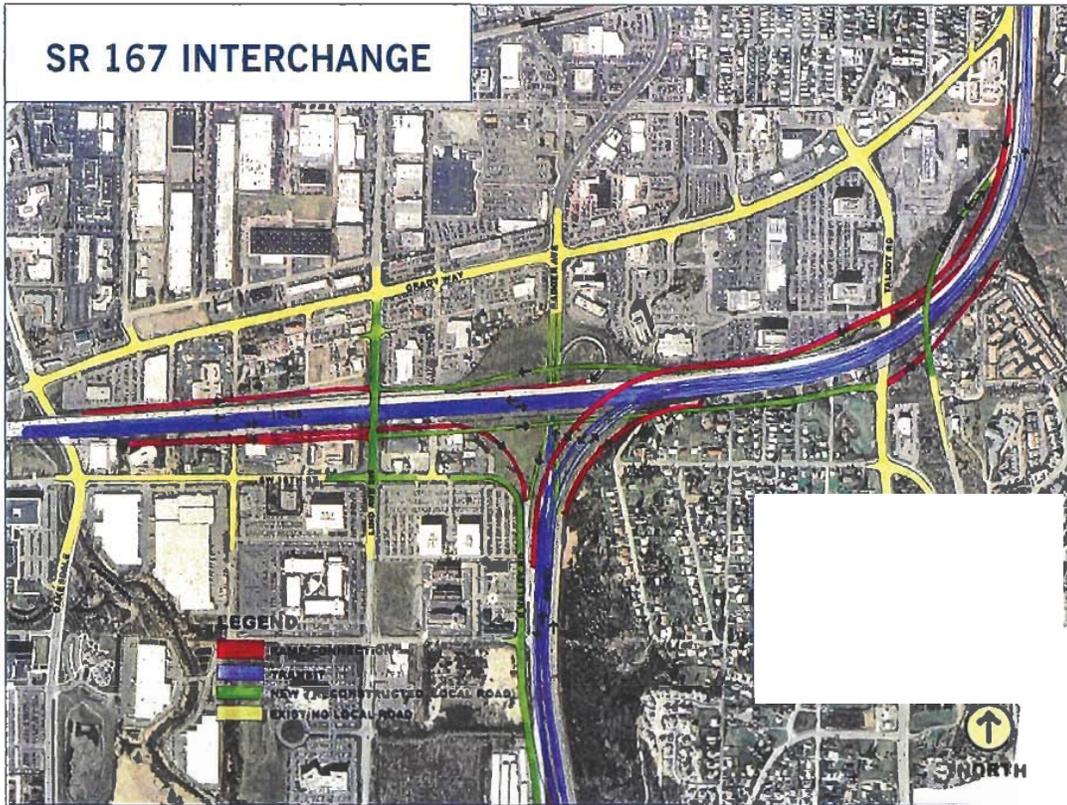
RENTON ARTERIAL PLAN

The 20-year Renton Arterial Plan in the 2004 adopted Comprehensive Plan includes two transportation improvement projects in the study corridor: "arterial widening/railroad crossing replacement" on Rainier Avenue South from South 4th Place to South 7th Street, and "arterial improvements" on South/Southwest Grady Way from Main Avenue South to Renton West City Limits.

Renton's adopted 2006-2011 Six-Year Transportation Improvement Program also includes the Rainier Avenue South/South 4th Place to South 7th Street widening and railroad overcrossing replacement project, and a Grady Way Corridor Study to identify improvements between Main Avenue and Renton's West City Limits.

Resulting Rainier Avenue Corridor study revisited the need and scope of these arterial improvements. The study recommendations will be incorporated into an updated Arterial Plan.

Figure 2-26. I-405 Implementation Program Under Option C



PEDESTRIAN/BIKE PLAN

The City's Transportation Element designates Rainier Avenue North from the north city limit to Airport Way as a mixed-use facility, for pedestrians and bicycles as well as automobiles. It also designates Taylor Avenue Northwest and Hardie Avenue Southwest as a bicycle route. Rainier Avenue through Renton includes sidewalks on both sides of the street, and occasional street trees and pedestrian amenities. The sidewalks are four to five feet wide and located next to the traffic lane (the exception is the Rainier Avenue North section north of Airport Way, where shoulder/bike lanes are provided between the curb and the traffic lane).

COMPREHENSIVE CITYWIDE WALKWAY STUDY (MAY 2003)

This study updated the inventory of existing sidewalks, identified gaps in the system and key walkway centers, established a priority criteria system for improvements, and identified design guidelines, cost estimates and recommendations for walkway construction.

The study shows that Hardie Avenue from 2nd Street to Southwest Sunset Boulevard, Shattuck Avenue near the Railroad, Southwest Harris Place and Southwest Victoria Street have no sidewalks.

Citizens requested repairs or improvements at three sidewalk locations neighboring Rainier Avenue from early 2001 through 2002: Hardie Avenue between Rainier Avenue South and Southwest 7th Street; South 4th Place between Rainier Avenue South and Shattuck Avenue South; and Hardie Avenue between Southwest 2nd Street and Southwest Victoria Street.

The study identified the top 38 street segments that received the highest scores from the Project Priority Evaluation system. These 38 projects were projected to cost approximately \$1.8 million, or \$250,000 per year over six years. None of these projects are located on Rainier Avenue South, although the following streets in the vicinity of the corridor are among these 38 projects:

- ◆ Hayes Place Southwest
- ◆ South Tillicum Street
- ◆ Lake Avenue South from South 2nd Street to South Tobin Street
- ◆ Hardie Avenue Southwest from Southwest Harris Place to Southwest Victoria Street