
MEMORANDUM

TO: Martin Akire, Principal Planner, City of Mountain View

CC:

FROM: Gregory Gleichman, P.E.; Ha Dao, P.E.; and Lilia Scott

DATE: December 1, 2015

SUBJECT: **North Bayshore Area Trip Monitoring - Fall 2015 Results**

This memorandum summarizes the results of trip-monitoring data collection activities in the North Bayshore Area in the Fall of 2015. The counts were conducted on mid-week work days during the weeks of September 21, 2015 and September 28, 2015 in the AM peak period from 7:00 AM to 10:00 AM. **Appendix A** displays the detailed count data.

The following tables present the September 2015 count data:

- **Table 1** - Inbound Gateway Volumes for both weekday AM peak period and peak hour
- **Table 2** - Inbound Gateway Available Capacity: Peak Period
- **Table 3** - Inbound Gateway Available Capacity: Peak Hour
- **Table 4** - Inbound Gateway Available Capacity: Peak Period “Shoulders”
- **Table 5** - Inbound Vehicles by Mode: Peak Period
- **Table 6** - Inbound Vehicles by Mode: Peak Hour
- **Table 7** - Vehicle Classification by Mode for both weekday AM peak period and peak hour
- **Table 8** - Inbound Person-Trips by Mode: Peak Period
- **Table 9** - Inbound Person-Trips by Mode: Peak Hour
- **Table 10** - Inbound Person-Trips Mode Share for both weekday AM peak period and peak hour

Appendix B displays detailed summaries and calculations.

Table 1: Inbound Gateway Volumes

Gateway / Roadway Segment	Weekday AM Peak Period ⁽¹⁾			Weekday AM Peak Hour ⁽¹⁾⁽²⁾		
	Previous	New Data	Change from Spring to Fall	Previous	New Data	Change from Spring to Fall
	Mar-2015	Sep-2015	(Vol. / %)	Mar-2015	Sep-2015	(Vol. / %)
1. San Antonio Road	2,270	2,470	200 / 9%	1,110	1,180	70 / 6%
<i>San Antonio Road</i>	700	830	130 / 19%	310	350	40 / 13%
Between Bayshore Parkway and Casey Avenue						
<i>Bayshore Parkway</i>	1,570	1,640	70 / 4%	800	830	30 / 4%
Between San Antonio Road and Garcia Avenue						
2. Rengstorff Avenue	5,110	5,260	150 / 3%	2,450	2,400	-50 / -2%
Between US 101 NB Ramps and Garcia Avenue-Charleston Road						
3. Shoreline Boulevard	6,290	5,530	-760 / -12%	2,370	2,180	-190 / -8%
Between US 101 NB Ramps-La Avenida Street and Pear Avenue						
Total	13,670	13,260	-410 / -3%	5,930	5,760	-170 / -3%

Source: AECOM, 2015.

Notes:

⁽¹⁾ Volumes were rounded to the nearest 10. As a result, some sum totals may be off by 10 vehicles.

⁽²⁾ Weekday AM peak hour consists of four consecutive 15-minute intervals with the highest recorded traffic volumes. These data show the peak hour to be 8:45-9:45 AM.

Table 2: Inbound Gateway Available Capacity: Peak Period

Gateway / Roadway Segment	Gateway Capacity	Weekday AM Peak Period ⁽¹⁾			
		Previous		New Data	
		Mar-2015		Sep-2015	
		Vehicle Volume	Available Capacity	Vehicle Volume	Available Capacity
1. San Antonio Road	4,140	2,270	1,870	2,470	1,670
<i>San Antonio Road</i>	1,250	700	550	830	420
Between Bayshore Parkway and Casey Avenue					
<i>Bayshore Parkway</i>	2,900	1,570	1,330	1,640	1,260
Between San Antonio Road and Garcia Avenue					
2. Rengstorff Avenue	8,020	5,110	2,910	5,260	2,760
Between US 101 NB Ramps and Garcia Avenue-Charleston Road					
3. Shoreline Boulevard	6,740	6,290	450	5,530	1,210
Between US 101 NB Ramps-La Avenida Street and Pear Avenue					
Total	18,900	13,670	5,230	13,260	5,640

Source: AECOM, 2015.

Notes:

⁽¹⁾ Volumes were rounded to the nearest 10. As a result, some sum totals may be off by 10 vehicles.

Table 3: Inbound Gateway Available Capacity: Peak Hour

Gateway / Roadway Segment	Weekday AM Peak Hour ⁽¹⁾⁽²⁾				
	Gateway Capacity	Previous		New Data	
		Mar-2015		Sep-2015	
		Vehicle Volume	Available Capacity	Vehicle Volume	Available Capacity
1. San Antonio Road	1,530	1,110	420	1,180	350
<i>San Antonio Road</i>					
Between Bayshore Parkway and Casey Avenue	460	310	150	350	110
<i>Bayshore Parkway</i>					
Between San Antonio Road and Garcia Avenue	1,070	800	270	830	240
2. Rengstorff Avenue	2,960	2,450	510	2,400	560
Between US 101 NB Ramps and Garcia Avenue-Charleston Road					
3. Shoreline Boulevard	2,490	2,370	120	2,180	310
Between US 101 NB Ramps-La Avenida Street and Pear Avenue					
Total	6,980	5,930	1,050	5,760	1,220

Source: AECOM, 2015.

Notes:

⁽¹⁾ Volumes were rounded to the nearest 10. As a result, some sum totals may be off by 10 vehicles.

⁽²⁾ Weekday AM peak hour consists of four consecutive 15-minute intervals with the highest recorded traffic volumes. These data show the peak hour to be 8:45-9:45 AM.

Table 4: Inbound Gateway Available Capacity: Peak Period “Shoulders”

Gateway / Roadway Segment	Weekday AM Peak Period “Shoulders” ⁽¹⁾				
	Gateway Capacity	Previous		New Data	
		Mar-2015		Sep-2015	
		Vehicle Volume	Available Capacity	Vehicle Volume	Available Capacity
1. San Antonio Road	2,610	1,160	1,450	1,290	1,320
<i>San Antonio Road</i>					
Between Bayshore Parkway and Casey Avenue	790	390	400	480	310
<i>Bayshore Parkway</i>					
Between San Antonio Road and Garcia Avenue	1,830	770	1,060	810	1,020
2. Rengstorff Avenue	5,060	2,660	2,400	2,860	2,200
Between US 101 NB Ramps and Garcia Avenue-Charleston Road					
3. Shoreline Boulevard	4,250	3,920	330	3,350	900
Between US 101 NB Ramps-La Avenida Street and Pear Avenue					
Total	11,920	7,740	4,180	7,500	4,420

Source:AECOM, 2015.

Notes:

⁽¹⁾ Volumes were rounded to the nearest 10. As a result, some sum totals may be off by 10 vehicles.

Table 5: Inbound Vehicles by Mode: Peak Period

Travel Mode	Weekday AM Peak Period			
	Previous		New Data	
	Mar-2015		Sep-2015	
	Volume	Proportion	Volume	Proportion
Auto	13,045	87.1%	12,775	85.1%
<i>Single-Occupancy Vehicle</i>	11,809	78.8%	11,398	76.0%
<i>High Occupancy Vehicle</i>	1,236	8.2%	1,377	9.2%
Transit	291	1.9%	325	2.2%
<i>Employer Based Bus</i>	251	1.7%	279	1.9%
<i>Double Decker</i>	75	0.5%	82	0.5%
<i>Small</i>	38	0.3%	81	0.5%
<i>Standard</i>	139	0.9%	116	0.8%
<i>Public Transit Bus</i>	41	0.3%	47	0.3%
<i>MVgo</i>	20	0.1%	19	0.1%
<i>VTA</i>	18.5	0.1%	25	0.2%
<i>ACE</i>	2	0.0%	3	0.0%
Other⁽¹⁾	301	2.0%	312	2.1%
Bicycle	1114	7.4%	1,315	8.8%
Pedestrian	235	1.6%	280	1.9%
All Modes Total⁽²⁾	14,985	100.0%	15,006	100.0%

Source: AECOM, 2015.

Notes:

⁽¹⁾ The "Other" category includes motorcycles, trucks, and intercampus Google shuttles.

⁽²⁾ Sum totals may not match due to rounding.

Table 6: Inbound Vehicles by Mode: Peak Hour

Travel Mode	Weekday AM Peak Hour ⁽²⁾			
	Previous		New Data	
	Mar-2015		Sep-2015	
	Volume	Proportion	Volume	Proportion
Auto	5,609	87.4%	5,534	85.2%
<i>Single-Occupancy Vehicle</i>	5,114	79.7%	4,910	75.6%
<i>High Occupancy Vehicle</i>	495	7.7%	624	9.6%
Transit	120	1.9%	138	2.1%
<i>Employer Based Bus</i>	106	1.6%	119	1.8%
<i>Double Decker</i>	35	0.5%	36	0.6%
<i>Small</i>	16	0.2%	32	0.5%
<i>Standard</i>	55	0.9%	52	0.8%
<i>Public Transit Bus</i>	14	0.2%	19	0.3%
<i>MVgo</i>	7	0.1%	6	0.1%
<i>VTA</i>	6	0.1%	11	0.2%
<i>ACE</i>	1	0.0%	3	0.0%
Other⁽¹⁾	99	1.5%	123	1.9%
Bicycle	511	8.0%	585	9.0%
Pedestrian	79	1.2%	114	1.8%
All Modes Total⁽³⁾	6,417	100.0%	6,494	100.0%

Source: AECOM, 2015.

Notes:

⁽¹⁾ The "Other" category includes motorcycles, trucks, and intercampus Google shuttles.

⁽²⁾ Weekday AM peak hour consists of four consecutive 15-minute intervals with the highest recorded motor vehicle volumes. These data show the peak hour to be 8:45-9:45 AM.

⁽³⁾ Sum totals may not match due to rounding.

Table 7: Vehicle Classification by Mode

Classification	Weekday AM Peak Period ⁽¹⁾⁽⁴⁾			Weekday AM Peak Hour ⁽¹⁾⁽³⁾⁽⁴⁾		
	Previous	New Data	Difference between Spring & Fall	Previous	New Data	Difference between Spring & Fall
	Mar-2015	Sep-2015		Mar-2015	Sep-2015	
Drive Alone (SOV)	79%	76%	-3%	80%	76%	-4%
Carpool (HOV)	8%	9%	1%	8%	10%	2%
Transit / Shuttle	2%	2%	0%	2%	2%	0%
Other⁽²⁾	2%	2%	0%	2%	2%	0%
Bicycle	7%	9%	2%	8%	9%	1%
Pedestrian	2%	2%	0%	1%	2%	1%

Source: AECOM, 2015.

Notes:

⁽¹⁾ Classification percentages are rounded to the nearest whole number.

⁽²⁾ The "Other" category includes motorcycles, trucks, and intercampus Google shuttles.

⁽³⁾ Weekday AM peak hour consists of four consecutive 15-minute intervals with the highest recorded motor vehicle volumes. These data show the peak hour to be 8:45-9:45 AM.

⁽⁴⁾ Sum totals may not match due to rounding.

Table 8: Inbound Person-Trips by Mode: Peak Period

Travel Mode	Weekday AM Peak Period			
	Previous		New Data	
	Mar-2015		Sep-2015	
	Person-Trips	Mode Share	Person-Trips	Mode Share
Auto	14,528	67.8%	14,428	66.7%
<i>Single-Occupancy Vehicle</i>	11,809	55.1%	11,398	52.7%
<i>High Occupancy Vehicle⁽¹⁾</i>	2,719	12.7%	3,030	14.0%
Transit	5,267	24.6%	5,284	24.4%
<i>Employer Based Bus</i>	5,049	23.5%	5,117	23.7%
<i>Double Decker</i>	2,312	10.8%	2,782	12.9%
<i>Small</i>	100	0.5%	236	1.1%
<i>Standard</i>	2,637	12.3%	2,099	9.7%
<i>Public Transit Bus</i>	217	1.0%	166	0.8%
<i>MVgo</i>	130	0.6%	118	0.5%
<i>VTA</i>	62	0.3%	42	0.2%
<i>ACE</i>	26	0.1%	6	0.0%
Other⁽²⁾	301	1.4%	312	1.4%
Bicycle	1,114	5.2%	1,315	6.1%
Pedestrian	235	1.1%	280	1.3%
All Modes Total⁽³⁾	21,443	100.0%	21,617	100.0%

Source: AECOM, 2015.

Notes:

⁽¹⁾ An average vehicle occupancy of 2.2 persons per vehicle, derived from the American Community Survey, was used to determine the HOV person trips.

⁽²⁾ The "Other" category includes motorcycles, trucks, and intercampus Google shuttles at one person-trip per vehicle.

⁽³⁾ Sum totals may not match due to rounding.

Table 9: Inbound Person-Trips by Mode: Peak Hour

Travel Mode	Weekday AM Peak Hour ⁽³⁾			
	Previous		New Data	
	Mar-2015		Sep-2015	
	Person-Trips	Mode Share	Person-Trips	Mode Share
Auto	6,202	66.6%	6,283	65.7%
<i>Single-Occupancy Vehicle</i>	5,114	54.9%	4,910	51.3%
<i>High Occupancy Vehicle⁽¹⁾</i>	1,088	11.7%	1,373	14.4%
Transit	2,424	26.0%	2,457	25.7%
<i>Employer Based Bus</i>	2,345	25.2%	2,368	24.8%
<i>Double Decker</i>	1,122	12.0%	1,279	13.4%
<i>Small</i>	54	0.6%	89	0.9%
<i>Standard</i>	1,168	12.5%	1,000	10.5%
<i>Public Transit Bus</i>	79	0.8%	89	0.9%
<i>MVgo</i>	48	0.5%	70	0.7%
<i>VTA</i>	18	0.2%	13	0.1%
<i>ACE</i>	14	0.1%	6	0.1%
Other⁽²⁾	99	1.1%	123	1.3%
Bicycle	511	5.5%	585	6.1%
Pedestrian	79	0.8%	114	1.2%
All Modes Total⁽⁴⁾	9,314	100.0%	9,561	100.0%

Source: AECOM, 2015.

Notes:

(1) An average vehicle occupancy of 2.2 persons per vehicle, derived from the American Community Survey, was used to determine the HOV person trips.

(2) The "Other" category includes motorcycles, trucks, and intercampus Google shuttles at one person-trip per vehicle.

(3) Weekday AM peak hour consists of four consecutive 15-minute intervals with the highest recorded motor vehicle volumes. These data show the peak hour to be 8:45-9:45 AM.

(4) Sum totals may not match due to rounding.

Table 10: Inbound Person-Trips Mode Share

Classification	Weekday AM Peak Period ⁽¹⁾			Weekday AM Peak Hour ⁽¹⁾⁽³⁾		
	Previous	New Data	Difference between Spring & Fall	Previous	New Data	Difference between Spring & Fall
	Mar-2015	Sep-2015		Mar-2015	Sep-2015	
Drive Alone (SOV)	55%	53%	-2%	55%	51%	-4%
Carpool (HOV)	13%	14%	1%	12%	14%	2%
Transit / Shuttle	25%	24%	-1%	26%	26%	0%
Other⁽²⁾	1%	1%	0%	1%	1%	0%
Bicycle	5%	6%	1%	5%	6%	1%
Pedestrian	1%	1%	0%	1%	1%	0%

Source: AECOM, 2015.

Notes:

(1) Classification percentages were rounded to the nearest whole number.

(2) The "Other" category includes motorcycles, trucks, and intercampus Google shuttles at one person-trip per vehicle.

(3) Weekday AM peak hour consists of four consecutive 15-minute intervals with the highest recorded motor vehicle volumes. These data show the peak hour to be 8:45-9:45 AM.

Summary

This data collection effort identifies volumes of inbound motor vehicle trips and person-trip mode shares for single occupancy vehicle mode share. The analysis of the new data collected in September 2015, compared with the previous data from March 2015, shows little change.

The total inbound motor vehicles dropped 3% during both the weekday AM peak period and the weekday AM peak hour from March 2015 to September 2015.

The single occupancy vehicle mode share decreased 2% in the AM peak period and 4% in the AM peak hour.