DRAFT

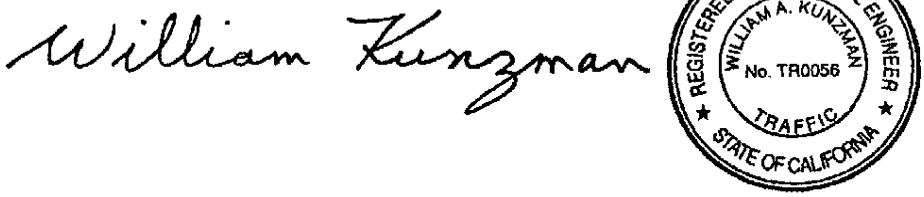
CITY OF WHITTIER

NELLES SITE PROJECT

TRAFFIC IMPACT ANALYSIS

Prepared by:

William Kunzman, P.E.



May 11, 2005

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May 11, 2005

Mr. Dan Potash
DVP Associates, Inc.
1406 Scenic Avenue
Berkeley, CA 94708

Dear Mr. Potash:

The firm of Kunzman Associates is pleased to submit this DRAFT report of the traffic analysis for the City of Whittier Nelles site project.

INTRODUCTION

This letter report determines the estimated cost for off site highway improvements for the Nelles site project. Two alternative land use plans are evaluated for the project. Because the land uses are tentative, the results may change when the land use is refined. This is a DRAFT report for that reason. Because it is a DRAFT report, Appendices with data and details of the calculations have also been eliminated.

The State of California is selling the Nelles site. When the site is developed, there will be off site roadway mitigation required. The goal of this report is to estimate what those off site roadway mitigation costs will be for the project.

FINDINGS

The total estimated off site roadway cost that this project might be held responsible for is $1.21 million for the Residential Plus Limited Commercial Plan (see Table 1), and $3.30 million for the Residential Plus Costco Plan (see Table 2).

The cost per evening peak hour trip generated by the project ranges from $2,027 to $2,637 for the two plans, respectively. The average is $2,332. These costs are consistent with the customary practice in Southern California.

It should be noted that these are order of magnitude general cost estimates, based on assumptions which are believed to be reasonable, and based on a reasonable methodology.

The assumptions can be altered and the methodology altered, and the above numbers could be halved or doubled.

There is a discussion below as to how the off site road costs and the project's pro rata share of the costs are calculated, and from that discussion it can be seen by the reader that the costs could be significantly altered using different assumptions.

The author's goal is to provide a fair analysis, based on a fair methodology and using reasonable assumptions. The author's goal is also to explain where the sensitivities are in the assumptions and methodology so that the reader is armed with information to evaluate the implications of changing the assumptions and methodology.

ASSUMED LAND USES FOR NELLES SITE

Two land use alternatives were evaluated. These land use alternatives have been labeled in this traffic analysis as follows:

Plan 1. Residential Plus Limited Commercial Plan

Plan 2. Residential Plus Costco Commercial Plan

The land use quantities assumed for each plan are as follows:

Plan 1. Residential Plus Limited Commercial Plan

Single Family Homes	300 dwellings
Townhomes	400 dwellings
Specialty Retail	20,000 square feet of floor space
General Office	20,000 square feet of floor space

Plan 2. Residential Plus Costco Commercial Plan

Single Family Homes	300 dwellings
Townhomes	200 dwellings
Discount Super Store	150,000 square feet of floor space
Specialty Retail	20,000 square feet of floor space
General Office	20,000 square feet of floor space

PROJECT TRAFFIC GENERATION AND TRAFFIC DISTRIBUTION

The traffic generation rates to calculate the project traffic are contained in Table 3.

The estimated project traffic generation by the two project alternatives are contained in Tables 4 and 5.

Figures 2, 3, and 4 show the assumed project traffic distributions for residential, retail, and office land uses, respectively.

For the specialty retail land use, it was assumed that 50 percent of the traffic in the peak hours would be pass-by traffic. What this means is that 50 percent of the traffic would be passing by the site anyway. The other half of the traffic was assumed to be a new trip where the driver specifically went to the retail and would not have been on the street otherwise.

For the Costco land use, it was assumed there would be 10 percent pass-by traffic.

COORDINATION WITH CITY OF WHITTIER

Before beginning the traffic study, William Kunzman of Kunzman Associates met with Joe Dyer, City Traffic Engineer, and Benjamin Ponghetti, City Redevelopment Analyst in mid April, 2005. The meeting was requested by Kunzman Associates and the goal was to solicit input from the City as to what intersections the City would like to see analyzed, and to set the methodology to be used. The methodology for most traffic studies in Los Angeles County is that set forth in the *Los Angeles County Congestion Management Program*, and it was agreed that methodology that would be used.

The meeting with City staff resulted in 12 intersections being identified as needing to be studied. Those 12 intersections are shown in Figure 1.

It should be noted that Whittier Boulevard is currently four lanes today, and is a six lane road on the City's General Plan.

LOS ANGELES COUNTY CONGESTION MANAGEMENT PROGRAM (CMP) METHODOLOGY

This section discusses the *Los Angeles County Congestion Management Program*. The purpose, prescribed methodology, and definition of a significant traffic impact are discussed.

County Congestion Management Program (CMP)

The CMP is a result of Proposition 111 which was a statewide initiative approved by the voters in June, 1990. The proposition allowed for a nine cent per gallon state gasoline tax increase over a five year period.

Proposition 111 explicitly stated that the new gas tax revenues were to be used to fix existing traffic problems and was not to be used to promote future development. For a city to get its share of the Proposition 111 gas tax, it has to follow certain procedures specified by the State Legislature. The legislation requires that a Traffic Impact Analysis (TIA) be prepared for new development. The TIA is prepared to monitor and fix traffic problems caused by new development.

The Legislature requires that adjacent jurisdictions use a standard methodology for conducting a TIA. To assure that adjacent jurisdictions use a standard methodology in preparing TIA's, one common procedure is that all cities within a county, and the county agency itself, adopt and use one standard methodology for conducting TIA's.

Although each county has developed standards for preparing TIA's, TIA requirements do vary in detail from one county to another, but not in overall intent or concept. The general approach selected by each county for conducting TIA's has common elements.

The general approach for conducting a TIA is that existing weekday peak hour traffic is counted and the percent of roadway capacity currently used is determined. Then growth in traffic is accounted for and added to existing traffic and the percent of roadway capacity used is again determined. Then the project traffic is added and the percent of roadway capacity used is again determined. If the new project adds traffic to an overcrowded facility, then the new project has to mitigate the traffic impact so that the facility operates at a level which is no worse than before the project traffic was added.

If the project size is below a certain minimum threshold level, then a project does not have to have a TIA prepared, once it is shown or agreed that the project is below the minimum threshold. If a project is bigger than the minimum threshold size, then a TIA is required.

Prescribed Methodology for A Traffic Impact Analysis (TIA)

The TIA must include all monitored intersections to which the project adds traffic above a certain minimum amount.

In Los Angeles County, the monitored intersections are contained in Appendix A of the *Congestion Management Program for the County of Los Angeles.*

In Los Angeles County, the minimum project added traffic that is needed before a monitored intersection has to be studied is if the project adds 50 two way trips in either the morning or evening weekday peak hour.

If a project adds more traffic than the minimum threshold amount to a monitored intersection, then that intersection has to be analyzed for deficiencies.

If the intersection has to be analyzed for deficiencies, then mitigation is required if the existing traffic plus anticipated traffic growth plus project traffic does cause the Intersection Capacity Utilization (ICU) to go above a certain point.

In Los Angeles County, mitigation is required if (1) the ICU is worse than Level of Service E, which corresponds to an ICU of 100 percent or more; and (2) the project traffic adds 2 percent or more to the ICU.

An intersection mitigation measure shall either fix the deficiency, or reduce the ICU so that it is below the level which occurs without the project.

In Los Angeles County, the technique used to calculate Intersection Capacity Utilization (ICU) is as follows. Lane capacity is 1600 vehicles per lane per hour of green time for through and turn lanes, except that a capacity of 2880 vehicles per lane per hour of green time is used for dual turn lanes. A total yellow clearance time of 10 percent is added.

Project traffic is generated using rates and procedures contained in the Institute of Transportation Engineers, **Trip Generation** manual. Project traffic distribution is provided by the reviewing agency or is agreed to in advance of the TIA being prepared. The TIA has to be prepared by a licensed Traffic Engineer.

This traffic impact analysis (TIA) has been prepared in accordance with the TIA requirements except that the TIA not only examined the CMP monitored intersections, but also additional intersections.

CMP Mitigation Measures

If a project is large enough to require that a TIA be prepared, and if the project adds traffic to an intersection above a minimum threshold, and if the intersection is operating at above an un acceptable level of operation, then the project must mitigate its traffic impact.

Traffic mitigation can be in many forms including adding lanes. Lanes can sometimes be obtained through restriping or elimination of parking, and sometimes require spot roadway widening.

In the County of Los Angeles, Transportation Demand Management (TDM) mitigation measures are required as a function of size of non-residential development. For non-residential projects with 25,000 square feet of floor space, an employee Transportation Information Area is required. For projects with 50,000 square feet or more, Preferential Carpool/Vanpool Parking, Parking Designed to Admit Vanpools, and Bicycle Parking are also required. For projects with 100,000 or more square feet of floor space, Carpool/Vanpool Loading Zones, Efficient

Pedestrian Access, Bus Stop Improvements, and Safe Bike Access from Street to Bike Parking are also required.

The Los Angeles County CMP TDM components are described below.

Projects with more than 25,000 square feet of non-residential floor space must provide:

Transportation Information Area. The information area may consist of a bulletin board, display case or kiosk featuring transportation information. The types of information that must be included are transit route maps, bicycle route maps, information numbers for local transit operators and

the regional ridesharing agency, as well as a list of alternative transportation amenities at the site.

Projects with more than 50,000 square feet of non-residential floor space must also provide:

Preferential Carpool/Vanpool Parking. No less than 10 percent of all employee parking shall be set aside for carpools and vanpools. The preferential parking spaces must be provided upon request.

Parking Designed to Admit Vanpools. Vanpool parking areas must be designed to admit vanpool vehicles. A minimum interior clearance for parking structures of 7 foot 2 inches is required.

Bicycle Parking. Bicycle parking facilities may include bicycle racks, bicycle lockers or locked storage rooms.

Projects with more than 100,000 square feet of non-residential floor space must also provide:

Carpool/Vanpool Loading Zones. A safe and convenient area for carpool and vanpool passengers to wait for, board, and disembark from their ridesharing arrangement.

Direct Access for Pedestrians. A pedestrian system which allows direct and convenient access to the development.

Bus Stop Improvements. If appropriate, improvements must be made to bus stop areas of bus routes impacted by the proposed development. Consultation with local bus service providers shall be required.

Direct Access to Bicycle Parking from Street. Safe and convenient access to development bicycle parking from the external street system for bicycle riders.

DISCUSSION OF PRO RATA SHARE CALCULATION

Over the years a method of allocating off site roadway improvement costs to a project has evolved.

That method has become known as the Pro Rata Share method.

There is no one right way of doing this calculation. However, fairness and customary practice should be the underlying principles guiding how roadway improvement costs are allocated to a project.

The roadway costs are determined based on what is needed to mitigate traffic impacts on a horizon year such as 10 years out.

A project's pro rata share of the cost to improve an intersection is typically considered to be the project's proportion of future traffic at the horizon year.

Thus, if (1) there are 100 vehicles today, (2) it is expected there will be 127 vehicles in the future horizon year without the project, and (3) the project adds 3 vehicles, then the project's pro rata share of the costs to improve an intersection is 3/(27+3) or 10 percent.

A project's pro rata share of the intersection improvement costs is based on four factors as follows assuming the mitigation itself is determined: (1) how much the mitigation costs, (2) the project's traffic added to the intersection, (3) all other traffic added to the intersection in the future, and (4) a horizon year. Each will be discussed in more detail below.

1. Cost Estimate

Cost estimates are typically based on unit costs. Unit costs for construction are pretty easy to determine. The wild card is the cost of real estate. In some cases just a sliver real estate take is required and the existing land use is still feasible. In other cases a complete parcel take is required. When a complete parcel is taken, often there will be a remnant parcel left which is then resold.

In this analysis it will be assumed that the unit cost of construction plus any real estate take that may be necessary is $100 per square foot of land. Construction typically costs in the range of $8 to $15 per square foot of road. Land is typically in the range of $15 to $30 per square foot of land. Developed land with buildings and where the buildings have to removed is in the range of $100 to $300 per square foot of land, depending on a lot of factors.

2. Project's Traffic

This can be estimated with pretty good accuracy using the procedures specified in the *Los Angeles County Congestion Management Program.*

3. Estimating All Other Traffic Growth for a Horizon Year

The process used to estimate future traffic takes many forms. One method is to account for all known projects. This may work fairly well in developing areas, but will not work well in a developed area such as Whittier.

In Whittier, and on Whittier Boulevard in particular, there are several factors which affect traffic growth. These factors are difficult to predict and they change with time.

To begin with, there is volume on Whittier Boulevard which would not be there if the freeways operated freely in the peak hours. This is diversion traffic. This diversion traffic will probably grow with time.

The growth in traffic on Whittier Boulevard is not just the result of new development that happens in Whittier, but is also the result of new development that happens in adjacent cities up to several miles away.

Traffic volumes on Whittier Boulevard will change over time even if there is no new development. The vehicles per capita increases over time, the vehicle miles of travel per capita increases over time, and the persons per vehicle decreases over time. These three factors combine to result in more vehicle miles of travel over time even if nothing changes in terms of land use or population density.

If one tries to account for changing demographics and economics, there are still more reasons why traffic volumes will change.

The Southern California Association of Government's (SCAG) traffic model predicts traffic volumes on an area wide basis and has projected volumes on Whittier Boulevard. Whether the modeling is accurate or not only time will tell. For instance, what car occupancy should SCAG assume in 20 years? Should SCAG assume the same car occupancy as today, or lower car occupancy reflecting historical trends, or should it assume higher car occupancy under the assumption that more people will ride the bus or car pool? What average home to work trip length in time should SCAG assume? Should SCAG assume it will decrease, or remain the same as today, or increase and get worse than it is today? And SCAG probably has not made an assumption on gas prices other than gas will be equally affordable in the future as it was in the past.

So using the SCAG traffic volume projections is a reasonable approach, but certainly will have some degree of error. SCAG has made many assumptions in predicting future volumes and it is likely some of the assumptions will not be valid.

So in summary, the expected annual growth rate of traffic can only be estimated. And the estimate can easily have a 50 to 100 percent error.

For other traffic growth, an annual growth rate will be used. This growth rate is very hard to precisely determine. There are several sources available, and they are discussed below and a mid value picked. This assumption is highly important and has a high variability. The next section discusses how the growth rate was determined.

4. Horizon Year

The City of Whittier staff asked that a 10 year horizon year be used,

Because there are 4 factors used to calculate a pro rata share cost, and because all 4 factors are an estimate, there are four variables which can be over or under estimated.

If all four variables are precisely estimated, then there is no error and the estimate is 1.00 of reality.

If all four variables are under estimated by just 10 percent, then the estimated value is 0.9 times 0.9 times 0.9 times 0.9, or 0.656 of reality.

If all four values are over estimated by just 10 percent, then the result is 1.1 times 1.1 times 1.1 times 1.1, or 1.461 of reality.

And it is even more complicated than this. If one assumes a low growth rate and a near term horizon year, less mitigation will be triggered on one hand, but the project's pro rata share of future traffic increases. The project will pay a bigger portion of a smaller pie.

And if one assumes a high growth rate and a more distant horizon year, more traffic mitigation will be needed, but the project will have a smaller pro rata share. The project will pay a smaller portion of a bigger pie.

In summary, one has to be aware of the pit falls of the project's off site highway improvement cost based on its pro rata share of a total estimated improvement cost.

DETERMINING TRAFFIC GROWTH RATE

The *Los Angeles County Congestion Management Program* recommends an annual growth rate of 1.0 percent for the City of Whittier area.

Based on the City's recently released *Draft First Amendment to the Whittier Commercial Corridor Redevelopment Plan* dated April, 2005, an annual growth rate of 0.47 percent is derived if one assumes the horizon year of the General Plan is 2015, which is what staff recommended as a reasonable General Plan horizon year. The Redevelopment traffic study used the SCAG model and made adjustments to account for land use changes within the City of Whittier. See Table 6.

Based on a simple examination of the actual 10 year growth in daily traffic volumes on Whittier Boulevard for the last 10 years for which data is available, an average annual growth rate of 1.96 percent can be justified. See Table 7.

So there are three potential growth rates to use. Just averaging the three, results in an estimated annual growth rate of 1.143 percent (average of 1.00, 0.47, and 1.96 percent).

For purpose of this analysis, an annual growth rate of 1.143 percent per year will be used.

INTERSECTION MITIGATION

The methodology used to calculate future traffic volumes and then estimate the traffic impact on the 12 area intersections selected by the City of Whittier staff is that methodology recommended in the *Los Angeles County Congestion Management Program.*

That methodology specifies lane capacity to use, specifies that the Intersection Capacity Utilization (ICU) method shall be used to determine intersection Level of Service, and specifies that Level of Service E shall be maintained.

For the 12 intersections investigated, the morning and evening peak hour intersection turning movement volume counts were made in April of 2005. The project traffic was determined. Annual expected background growth in traffic was added to the existing volumes for a period of 10 years. Intersection deficiencies were identified and mitigation measures that the project would be responsible for were determined.

Table 8 shows what the lane geometrics and Intersection Capacity Utilization (ICU) are for the 12 intersections for the Residential Plus Limited Commercial Plan. For those intersections requiring that the project participate in off site

mitigation, the assumed mitigated intersection geometrics and resulting ICU are also included (see Table 1).

Table 9 shows what the lane geometrics and Intersection Capacity Utilization (ICU) are for the 12 intersections for the Residential Plus Costco Commercial Plan. For those intersections requiring that the project participate in off site mitigation, the assumed mitigated intersection geometrics and resulting ICU are also included (see Table 2).

With the above information, it was possible to estimate the project's pro rata share of mitigation cost at each intersection.

Tables 1 and 2 show the project's pro rata share cost calculation for all 12 intersections for the two land use alternatives investigated.

It should be noted that the *Los Angeles Congestion Management Program* methodology states that a project is responsible for intersection mitigation if and only if the project adds 2 percent to the Intersection Capacity Utilization. For this reason the project does not have to pay the pro rata mitigation costs to all intersections. The logical question is who pays for the unfunded part of the mitigation costs. The answer is that gas tax and other sources of money are used. This is the customary practice that has evolved from the *Los Angeles County Congestion Management Program.*

For the Residential Plus Limited Commercial Plan, 9 of the study 12 intersections were impacted less than 2 percent by the project or else operated better than the threshold requiring mitigation, and no mitigation cost was attributed to the project. The other 3 intersections require mitigation. They are along Whittier Boulevard at Norwalk Boulevard, Philadelphia Street, and Painter Avenue.

For the Residential Plus Costco Commercial Plan, 7 of the study 12 intersections were impacted less than 2 percent by the project or else operated better than the threshold requiring mitigation, and no mitigation cost was attributed to the project. The other 5 intersections require mitigation. They are along Whittier Boulevard at Norwalk Boulevard, Philadelphia Street, Santa Fe Springs/Washington, Greenleaf and Painter Avenue.

It should also be noted that for intersections not in the City's jurisdiction, typically those improvements are paid for by the other jurisdiction just like the City of Whittier pays for mitigation on its streets without receiving funds from neighboring cities to help finance improvements in the City of Whittier.

In this study, three of the intersections are outside of the jurisdiction of the City of Whittier and no mitigation cost was calculated. Even if they were in the City of Whittier, they would not require mitigation because of project traffic.

MITIGATION COST ESTIMATE

The single most important assumption in these calculation is the mitigation cost estimate.

Whittier Boulevard is currently a four lane road, but it is a six lane road on the City's General Plan.

The logical mitigation measure for future traffic is to widen the road to six lanes per the General Plan.

Also, it should be noted that in general every logical mitigation short of widening Whittier Boulevard has already been implemented such as left turn lanes and right turn lanes where there is room.

When it was looked at in more detail, it was found that widening Whittier Boulevard in one direction would typically solve just the morning or just the evening peak hour project impact, but would not solve the opposite peak hours project impact. So it was necessary to widen Whittier Boulevard in both directions through an intersection.

To widen Whittier Boulevard in either direction through an intersection was assumed that the following would need to be constructed:

1. A 60 foot long transition on the inbound side,

2. A 300 foot long, 12 foot wide approach lane to the intersection,

3. A 300 foot long, 12 foot wide exit lane from the intersection, and

4. A 600 foot long taper at a rate of 1 foot laterally for each 50 foot of forward movement.

The square footage of constructing one additional through lane in each direction is 11,160 square feet for the above.

To do both directions, the square footage of construction is 22,360 square feet.

The cost is estimated at $100 per square foot times 22,360 square feet, or $2,236,000. These are the costs used in Tables 1 and 2. Because the project will be responsible to widen its side of Whittier Boulevard to ultimate General Plan width, in the case of the Philadelphia Street intersection, $1,160,000 was listed as the mitigation cost for this intersection.

It should be noted that this cost estimate is a general order of magnitude estimate. It could vary by a factor of 2.

RECOMMENDED ALLOCATION OF FUNDS

In the end, the cost for off site road improvements will be negotiated with the State of California. Eventually some dollar amount will be negotiated between the State and the buyer.

What should happen with this money? It is fair that this money be set aside and used for highway transportation improvements. If it is allocated in three separate amounts for the three separately impacted intersections, then there will be three partially funded intersection projects that may take years to build before the rest of the funds become available. A better approach is to select one intersection improvement project and build it.

Obviously, the intersection improvement project should be closer rather than further from the Nelles site if possible, from a fairness perspective.

One of the intersections requiring mitigation by the project is the intersection of Whittier Boulevard and Philadelphia Street.

Although the project will routinely be required to widen Whittier Boulevard along its frontage to ultimate General Plan width, there are other aspects of the intersection that needs improvement that could be paid for from these mitigation fees.

It has been a pleasure preparing this informational report for you. If there are any questions, or if we can be of further assistance, please do not hesitate to call.

Respectfully submitted,

KUNZMAN ASSOCIATES

William Kunzman

William Kunzman, P.E.
Principal
Professional Registration
Expiration Date 3-31-2006

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Figure 1
Intersections To Be Studied

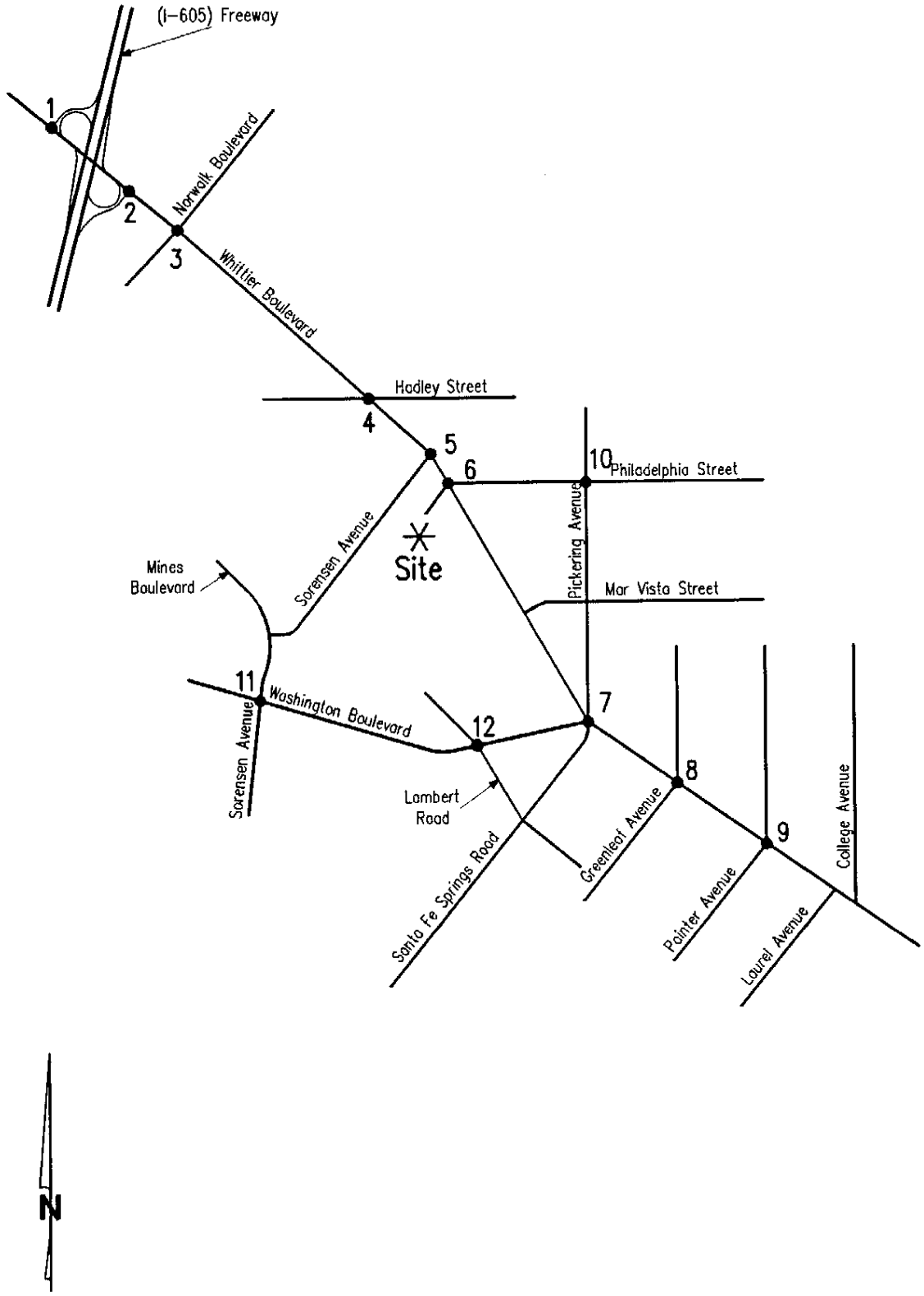

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Figure 2
Residential Traffic Distribution

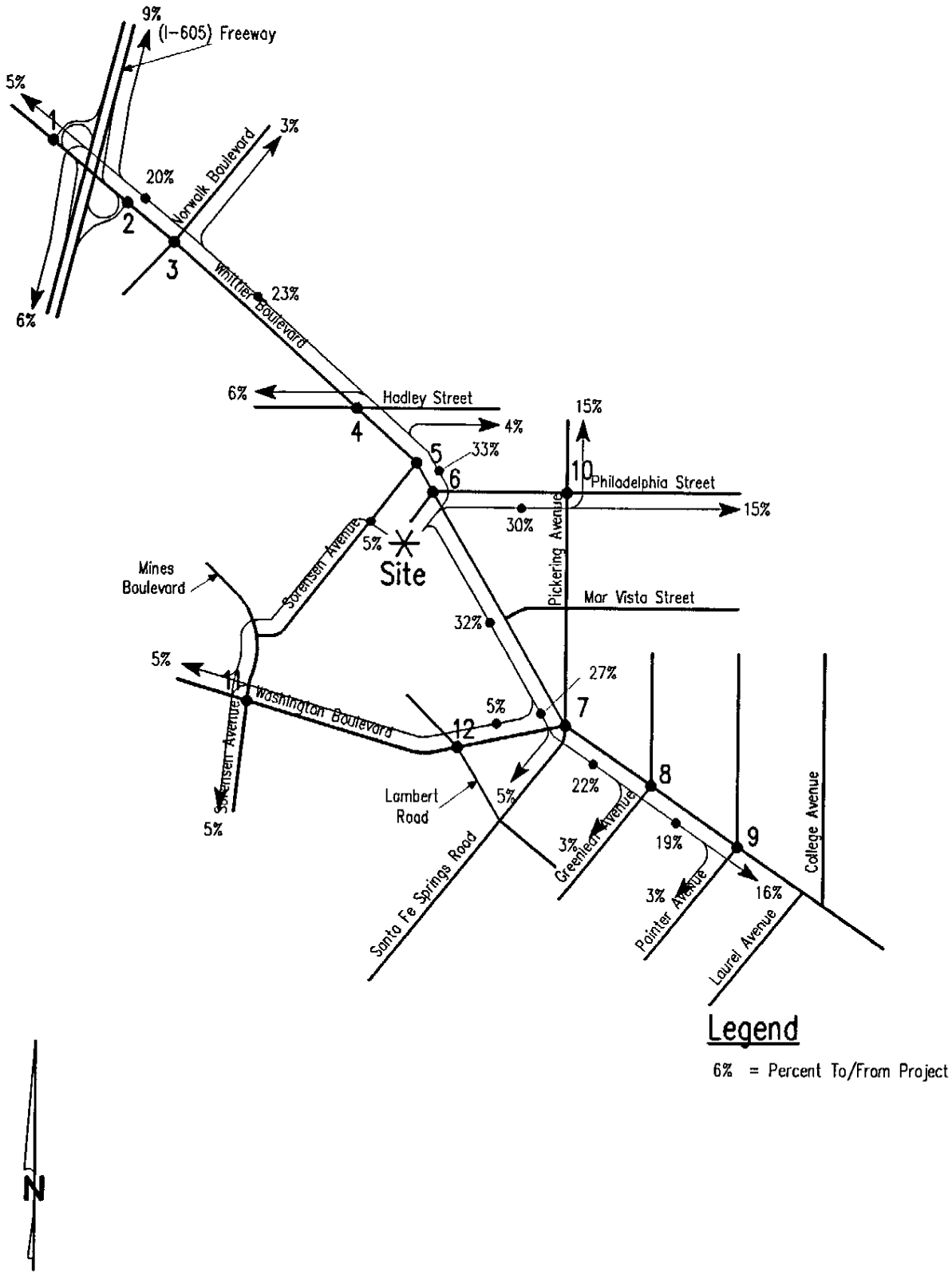

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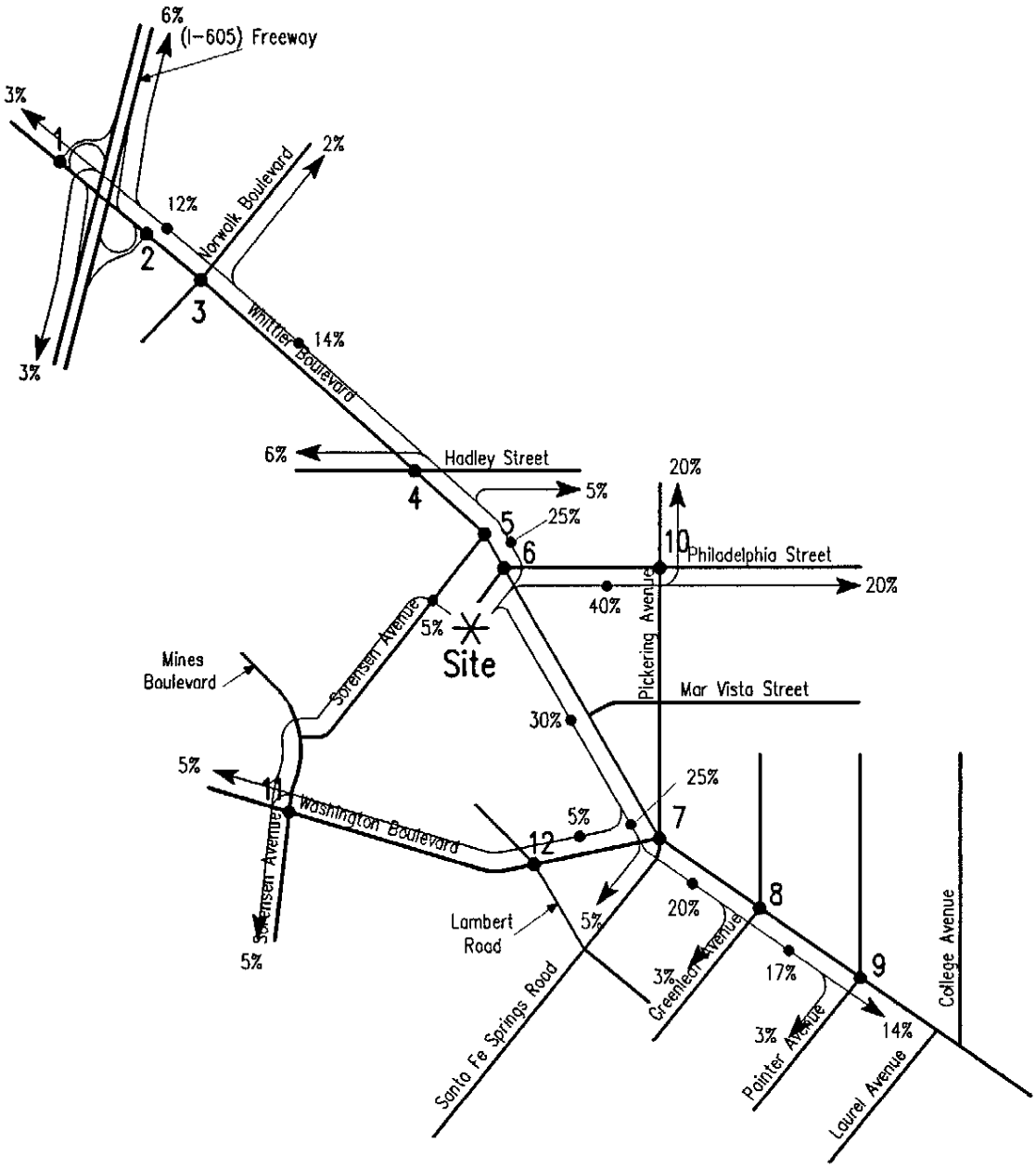
Figure 3
Retail Traffic Distribution



Legend

6% = Percent To/From Project

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Figure 4
Office Traffic Distribution

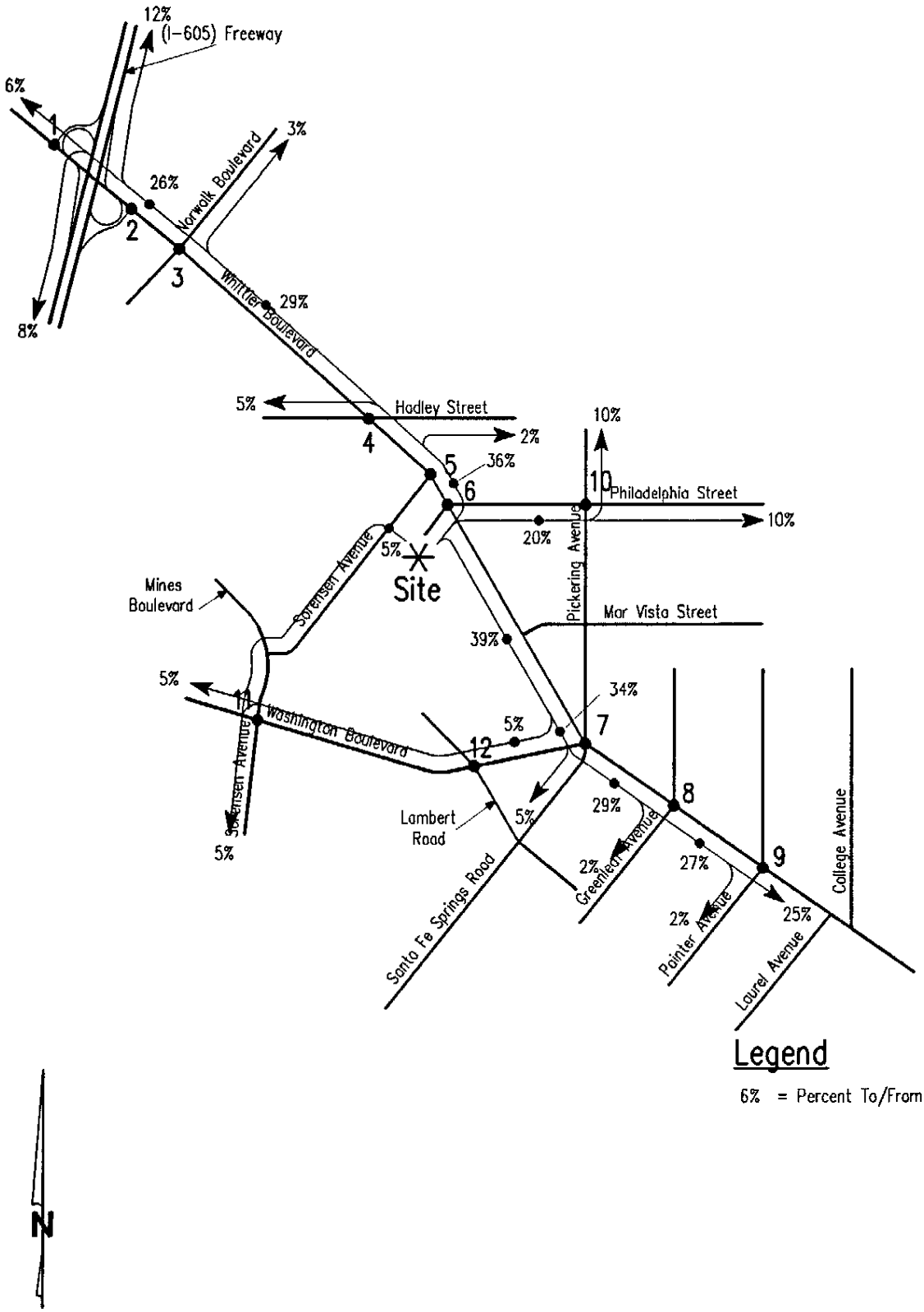

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Table 1

OFF SITE ROADWAY MITIGATION COST FOR PLAN 1, RESIDENTIAL PLUS LIMITED COMMERCIAL

Intersection	City of Whittier Inter-section	Year 2005 Existing Traffic Conditions				Year 2015 Traffic Conditions Without Project				Year 2015 Traffic Conditions With Project				Is Intersection Deficient, and Does Project Add More Than 2 Percent to ICU, and Is Project Therefore Responsible for Participation in Mitigation?	Project's Pro Rata Share of Future Increase in Evening Peak Hour ICU	Estimated Mitigation Cost	Project's Share of Mitigation Cost
		Morning Peak Hour		Evening Peak Hour		Morning Peak Hour		Evening Peak Hour		Morning Peak Hour		Evening Peak Hour					
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS				
Whittier Boulevard and																	
1. I-605 Southbound Ramps	NO	0.675	B	0.846	D	0.741	C	0.931	E	0.757	C	0.952	E	NO	0.19804	$0	$0
2. I-605 Northbound Ramps	NO	0.858	D	0.703	C	0.944	E	0.772	C	0.967	E	0.795	C	NO	0.25063	$0	$0
3. Norwalk Boulevard	YES	1.344	F*	1.262	F*	1.486	F*	1.394	F*	1.506	F*	1.415	F*	YES	0.13688	$2,236,000	$306,062
3. **Mitigated (1)	YES	1.177	F*	1.101	F*	1.300	F*	1.215	F*	1.313	F*	1.229	F*				
4. Hadley Street	YES	0.809	D	0.727	C	0.890	D	0.799	C	0.913	E	0.815	D	NO	0.18279	$0	$0
5. Sorensen Avenue	YES	0.861	D	0.842	D	0.948	E	0.927	E	0.981	E	0.963	E	NO	0.29843	$0	$0
6. Philadelphia Street	YES	0.895	D	0.815	D	0.986	E	0.897	D	1.052	F*	0.944	E	YES	0.36559	$1,118,000	$408,727
6. **Mitigated (1)	YES	0.732	C	0.657	B	0.804	D	0.720	C	0.870	D	0.767	C				
7. Santa Fe Springs/Wash	YES	0.951	E	1.105	F*	1.048	F*	1.220	F*	1.051	F*	1.232	F*	NO	0.09478	$0	$0
8. Greenleaf Avenue	YES	0.927	E	0.878	D	1.021	F*	0.967	E	1.032	F*	0.992	E	YES	0.21983	$2,236,000	$491,543
8. **Mitigated (1)	YES	0.857	D	1.026	F*	0.943	E	1.132	F*	0.856	D	0.828	D				
9. Painter Avenue	YES	0.904	E	1.144	F*	0.996	E	1.263	F*	1.003	F*	1.274	F*	NO	0.08461	$0	$0
Pickering Avenue																	
10. Philadelphia Avenue	YES	0.683	B	0.678	B	0.750	C	0.744	C	0.800	C	0.830	D	NO	0.56615	$0	$0
Washington Boulevard																	
11. Sorensen Avenue	NO	0.750	C	0.821	D	0.824	D	0.903	E	0.832	D	0.914	E	NO	0.11806	$0	$0
12. Lambert Road	YES	0.647	B	0.706	C	0.709	C	0.775	C	0.714	C	0.780	C	NO	0.06750	$0	$0
Total																$5,590,000	$1,206,332
Mitigation Fee per Evening Peak Hour Trip Generated, based on an evening peak hour trip generation of 595																$5,590,000	$2,027

* = Deficient Intersection with ICU above 1.000

Table 2

OFF SITE ROADWAY MITIGATION COST FOR PLAN 2, RESIDENTIAL PLUS COSTCO COMMERCIAL

Intersection	City of Whittier Inter-section	Year 2005 Existing Traffic Conditions				Year 2015 Traffic Conditions Without Project				Year 2015 Traffic Conditions With Project				Is Intersection Deficient, and Does Project Add More Than 2 Percent to ICU, and Is Project Therefore Responsible for Participation in Mitigation?	Project's Pro Rata Share of Future Increase in Evening Peak Hour ICU	Estimated Mitigation Cost	Project's Share of Mitigation Cost
		Morning Peak Hour		Evening Peak Hour		Morning Peak Hour		Evening Peak Hour		Morning Peak Hour		Evening Peak Hour					
		ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS	ICU	LOS				
Whittier Boulevard and																	
1. I-605 Southbound Ramps	NO	0.675	B	0.846	D	0.741	C	0.931	E	0.756	C	0.960	E	NO	0.25430	$0	$0
2. I-605 Northbound Ramps	NO	0.858	D	0.703	C	0.944	E	0.772	C	0.964	E	0.808	D	NO	0.34362	$0	$0
3. Norwalk Boulevard	YES	1.344	F*	1.262	F*	1.486	F*	1.394	F*	1.502	F*	1.423	F*	YES	0.17966	$2,236,000	$401,710
3. **Mitigated	YES	1.177	F*	1.101	F*	1.300	F*	1.215	F*	1.311	F*	1.235	F*		0.14914		
4. Hadley Street	YES	0.809	D	0.727	C	0.890	D	0.799	C	0.909	E	0.827	D	NO	0.28132	$0	$0
5. Sorensen Avenue	YES	0.861	D	0.842	D	0.948	E	0.927	E	0.976	E	0.982	E	NO	0.39390	$0	$0
6. Philadelphia Street	YES	0.895	D	0.815	D	0.986	E	0.897	D	1.049	F*	1.164	F*	YES	0.76601	$1,118,000	$856,397
6. **Mitigated	YES	0.732	C	0.657	B	0.804	D	0.720	C	0.867	D	0.983	E		0.80564		
7. Santa Fe Springs/Wash	YES	0.951	E	1.105	F*	1.048	F*	1.220	F*	1.053	F*	1.248	F*	YES	0.19633	$2,236,000	$439,003
7. **Mitigated	YES	0.857	D	1.026	F*	0.943	E	1.132	F*	0.948	E	1.155	F*		0.17884	$2,236,000	$399,880
8. Greenleaf Avenue	YES	0.927	E	0.878	D	1.021	F*	0.967	E	1.036	F*	1.019	F*	YES	0.36952	$2,236,000	$826,244
8. **Mitigated	YES	0.771	C	0.736	C	0.848	D	0.809	D	0.859	D	0.849	D		0.35538		
9. Painter Avenue	YES	0.904	E	1.144	F*	0.996	E	1.263	F*	1.005	F*	1.287	F*	YES	0.16782	$2,236,000	$375,235
9. **Mitigated	YES	0.767	C	1.002	F*	0.843	D	1.105	F*	0.849	D	1.122	F*		0.14185	$0	$0
Pickering Avenue																	
10. Philadelphia Avenue	YES	0.683	B	0.678	B	0.750	C	0.744	C	0.815	D	0.943	E	NO	0.75122	$0	$0
Washington Boulevard																	
11. Sorensen Avenue	NO	0.750	C	0.821	D	0.824	D	0.903	E	0.852	D	0.923	E	NO	0.19574	$0	$0
12. Lambert Road	YES	0.647	B	0.706	C	0.709	C	0.775	C	0.714	C	0.785	C	NO	0.12646	$0	$0
Total																$12,298,000	$3,298,469
Mitigation Fee per Evening Peak Hour Trip Generated, based on an evening peak hour trip generatiorm of 1,251																$12,298,000	$2,637

* = Deficient Intersection with ICU above 1.000

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Table 3

TRAFFIC GENERATION RATES

Land Use	ITE Land Use Category	Units *	Moring Peak Hour		Evening Peak Hour		Daily Two-Way
			Inbound	Outbound	Inbound	Outbound	
1. Residential Single Family	0	DU	0.190	0.560	0.640	0.370	9.570
2. Residential Townhome	0	DU	0.070	0.370	0.350	0.170	5.860
3. Specialty Retail	0	TSF	0.050	0.050	1.190	1.520	44.320
4. Discount Super Store	0	TSF	0.570	0.270	2.530	2.530	56.020
5. General Office	0	TSF	1.360	0.190	0.250	1.240	11.010
6. Medical Office	0	TSF	1.960	0.520	1.000	2.720	36.130

* TSF = 1,000 Square Feet of Floor Area
DU = Dwelling Unit

Source: Institute of Transportation Engineers (ITE), TRIP GENERATION, Seventh Edition, 2003.

Table 4

TRIP GENRATION BY RESIDENTIAL PLUS LIMITED COMMERCIAL PLAN

Land Use	Morning Peak Hour		Evening Peak Hour		Daily Two Way
	Inbound	Outbund	Inbound	Outbund	
Residential	85	316	332	179	5,215
Retail	1	1	24	30	886
Office	27	4	5	25	220
Total	113	321	361	234	6,321

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Table 5

TRIP GENRATION BY RESIDENTIAL PLUS COSTCO COMMERCIAL PLAN

Land Use	Morning Peak Hour		Evening Peak Hour		Daily Two Way
	Inbound	Outbund	Inbound	Outbund	
Residential	71	242	262	145	4,043
Retail	87	42	404	410	9,289
Office	27	4	5	25	220
Total	185	288	671	580	13,552

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Table 6

ESTIMATION OF TRAFFIC GROWTH BASED ON
2005 WHITTIER COMMERCIAL CORRIDOR REDEVELOPMENT PLAN TRAFFIC STUDY (1)

Link of Road	Number of Lanes	Existing Daily Volume	Existing General Plan	Ratio of Existing / Existing General Plan	Annual Growth Rate (Assumes Existing General Plan volumes reached in 10 years)
Whittier Boulevard					
I-605 to Norwalk Blvd	4	44500	44900	1.0090	0.09%
Norwalk Blvd to Broadway	4	39336	44200	1.1237	1.24%
Sorenson to Philadelphia	4	39161	41000	1.0470	0.47%
Washington Boulevard					
Sorenson to Lambert	4	39743	45100	1.1348	1.35%
Sorenson Avenue					
Whiitier Blvd to Washington	2	8724	7800	0.8941	-1.06%
Minimum					-1.06%
Maximum					1.35%
Average					0.42%
Meidan					0.47%

(1) Draft Environmental Impact Report for First Amendment to the Whittier Commercial Corridor Redevelopment Plan; April, 2005.

Table 7

WHITTIER BOULEVARD HISTORIC TRAFFIC GROWTH RATE

Whittier Boulevard Link	Year 1993 Daily Traffic Volume	Year 2003 Daily Traffic Volume	Ratio of Year 2003 Divded by Year 1993 Daily Traffic Volume	Annual Growth Rate
I-605 to Norwalk	37,500	44,500	1.1867	1.87%
Norwalk to Washington	22,000	26,500	1.2045	2.05%
Washington to Painter	33,500	37,000	1.1045	1.04%
Painter to Colima	40,500	45,000	1.1111	1.11%
Colima to Santa Gertrudes	29,000	36,000	1.2414	2.41%
Santa Gertrudes to City Limit	28,000	37,000	1.3214	3.21%
Minimum				1.04%
Maximum				3.21%
Average				1.95%
Median				1.96%
Design Value Based on This Data				1.96%

Source: Caltrans Traffic Volumes Books, 1993 and 2003.

Table 8

YEAR 2015 SUMMARY OF INTERSECTION CAPACITY UTILIZATION (ICU) AND LEVEL OF SERVICE (LOS)
FOR PLAN 1, RESIDENTIAL PLUS LIMITED COMMERCIAL

Intersection	Land Use Scenario	Lanes												Morning Peak Hour	Evening Peak Hour	Lane Description
		Northbound			Southbound			Eastbound			Westbound			ICU-LOS	ICU-LOS	
		Thr	Rt	Lt	Thr	Rt	Lt	Thr	Rt	Lt	Thr	Rt	Lt			
1. I-605 Southbound (NS) and Whittier Boulevard (EW)	2015 W/o Project	0	0	0	0	1.5	1.5	2	0	0	2	0	0	0.741-C	0.931-E	Existing
1. I-605 Southbound (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	0	0	0	0	1.5	1.5	2	0	0	2	0	0	0.757-C	0.952-E	Existing
2. I-605 Southbound (NS) and Whittier Boulevard (EW)	2015 W/o Project	0	1.5	1.5	0	0	0	2	0	0	2	0	0	0.944-E	0.772-C	Existing
2. I-605 Southbound (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	0	1.5	1.5	0	0	0	2	0	0	2	0	0	0.967-E	0.795-C	Existing
3. Norwalk Boulevard (NS) and Whittier Boulevard (EW)	2015 W/o Project	2	1	1	1	1	1	2	1	1	2	1	1	1.486-F	1.394-F	Existing
3. Norwalk Boulevard (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	2	1	1	1	1	1	2	1	1	2	1	1	1.506-F	1.415-F	Existing
3. Norwalk Boulevard (NS) and Whittier Boulevard (EW)	2015 W/o Project	2	1	1	1	1	1	3	1	1	3	1	1	1.300-F	1.215-F	General Plan
3. Norwalk Boulevard (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	2	1	1	1	1	1	3	1	1	3	1	1	1.313-F	1.229-F	General Plan
4. Hadley Street (NS) and Whittier Boulevard (EW)	2015 W/o Project	2	1	0	2	1	0	2	1	1	2	1	1	0.890-D	0.799-C	Existing
4. Hadley Street (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	2	1	0	2	1	0	2	1	1	2	1	1	0.913-E	0.815-D	Existing
4. Hadley Street (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	2	1	0	2	1	0	2	1	1	2	1	1	0.909-E	0.827-D	Existing
5. Sorensen Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1	0	1	1	0	1	2	1	1	2	1	1	0.948-E	0.927-E	Existing
5. Sorensen Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	1	0	1	1	0	1	2	1	1	2	1	1	0.981-E	0.963-E	Existing
5. Sorensen Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	1	0	1	1	0	1	2	1	1	2	1	1	0.976-E	0.982-E	Existing
6. Philadelphia Street (NS) and Whittier Boulevard (EW)	2015 W/o Project	1	0	1	0.5	1	0.5	2	0	2	2	0	1	0.986-E	0.897-D	Existing
6. Philadelphia Street (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	1	0	1	0.5	1	0.5	2	0	2	2	0	1	1.052-F	0.944-E	Existing
6. Philadelphia Street (NS) and Whittier Boulevard (EW)	2015 W/o Project	1	0	1	0.5	1	0.5	3	0	2	3	0	1	0.804-D	0.720-C	General Plan
6. Philadelphia Street (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	1	0	1	0.5	1	0.5	3	0	2	3	0	1	0.870-D	0.767-C	General Plan
7. Santa Fe Springs (NS) and Whittier Blvd./Washington (EW)*	2015 W/o Project	1	1	1	2	0	0	2	1	1	2	0	3	1.048-F	1.220-F	Existing
7. Santa Fe Springs (NS) and Whittier Blvd./Washington (EW)*	2015 W/ Res.+Limited Commercial Pla	1	1	1	2	0	0	2	1	1	2	0	3	1.051-F	1.232-F	Existing
8. Greenleaf Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1.3	1	0.7	1.5	0	1.5	2	0	1	2	1	1	1.021-F	0.967-E	Existing
8. Greenleaf Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	1.3	1	0.7	1.5	0	1.5	2	0	1	2	1	1	1.032-F	0.992-E	Existing
8. Greenleaf Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1.3	1	0.7	1.5	0	1.5	3	0	1	3	1	1	0.848-D	0.809-D	General Plan
8. Greenleaf Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	1.3	1	0.7	1.5	0	1.5	3	0	1	3	1	1	0.856-D	0.828-D	General Plan
9. Painter Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1.5	1	1.5	2	0	2	2	1	1	2	1	1	0.996-E	1.263-F	Existing
9. Painter Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	1.5	1	1.5	2	0	2	2	1	1	2	1	1	1.003-F	1.274-F	Existing
10. Pickering Avenue (NS) and Philadelphia Avenue (EW)	2015 W/o Project	1	1	1	1	0	1	1	1	1	1	1	1	0.750-C	0.744-C	Existing
10. Pickering Avenue (NS) and Philadelphia Avenue (EW)	2015 W/ Res.+Limited Commercial Pla	1	1	1	1	0	1	1	1	1	1	1	1	0.800-C	0.830-D	Existing
10. Pickering Avenue (NS) and Philadelphia Avenue (EW)	2015 W/ Res.+Costco Commercial Plan	1	1	1	1	0	1	1	1	1	1	1	1	0.815-D	0.943-E	Existing
11. Sorensen Avenue (NS) and Washington Street (EW)	2015 W/o Project	2	0	2	2	1	1	2	1	1	2	1	1	0.824-D	0.903-E	Existing
11. Sorensen Avenue (NS) and Washington Street (EW)	2015 W/ Res.+Limited Commercial Pla	2	0	2	2	1	1	2	1	1	2	1	1	0.832-D	0.914-E	Existing
11. Sorensen Avenue (NS) and Washington Street (EW)	2015 W/ Res.+Costco Commercial Plan	2	0	2	2	1	1	2	1	1	2	1	1	0.832-D	0.923-E	Existing
12. Lambert Road (NS) and Washington Boulevard (EW)	2015 W/o Project	0.5	1	1.5	2	1	1	2	1	1	2	1	1	0.709-C	0.775-C	Existing
12. Lambert Road (NS) and Washington Boulevard (EW)	2015 W/ Res.+Limited Commercial Pla	0.5	1	1.5	2	1	1	2	1	1	2	1	1	0.714-C	0.780-C	Existing
12. Lambert Road (NS) and Washington Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	0.5	1	1.5	2	1	1	2	1	1	2	1	1	0.714-C	0.785-C	Existing

ICU-LOS = Intersection Capacity Utilization - Level of Service
* Partial lanes geometrics shown for this intersection

Table 9

YEAR 2015 SUMMARY OF INTERSECTION CAPACITY UTILIZATION (ICU) AND LEVEL OF SERVICE (LOS)
FOR PLAN 2, RESIDENTIAL PLUS COSTCO COMMERCIAL

Intersection	Land Use Scenario	Lanes												Morning Peak Hour	Evening Peak Hour	Lane Description
		Northbound			Southbound			Eastbound			Westbound			ICU-LOS	ICU-LOS	
		Thr	Rt	Lt	Thr	Rt	Lt	Thr	Rt	Lt	Thr	Rt	Lt			
1. I-605 Southbound (NS) and Whittier Boulevard (EW)	2015 W/o Project	0	0	0	0	1.5	1.5	2	0	0	2	0	0	0.741-C	0.931-E	Existing
1. I-605 Southbound (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	0	0	0	0	1.5	1.5	2	0	0	2	0	0	0.756-C	0.960-E	Existing
2. I-605 Southbound (NS) and Whittier Boulevard (EW)	2015 W/o Project	0	1.5	1.5	0	0	0	2	0	0	2	0	0	0.944-E	0.772-C	Existing
2. I-605 Southbound (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	0	1.5	1.5	0	0	0	2	0	0	2	0	0	0.964-E	0.808-D	Existing
3. Norwalk Boulevard (NS) and Whittier Boulevard (EW)	2015 W/o Project	2	1	1	1	1	1	2	1	1	2	1	1	1.486-F	1.394-F	Existing
3. Norwalk Boulevard (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	2	1	1	1	1	1	2	1	1	2	1	1	1.502-F	1.423-F	Existing
3. Norwalk Boulevard (NS) and Whittier Boulevard (EW)	2015 W/o Project	2	1	1	1	1	1	3	1	1	3	1	1	1.300-F	1.215-F	General Plan
3. Norwalk Boulevard (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	2	1	1	1	1	1	3	1	1	3	1	1	1.311-F	1.235-F	General Plan
4. Hadley Street (NS) and Whittier Boulevard (EW)	2015 W/o Project	2	1	0	2	1	0	2	1	1	2	1	1	0.890-D	0.799-C	Existing
4. Hadley Street (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	2	1	0	2	1	0	2	1	1	2	1	1	0.909-E	0.827-D	Existing
5. Sorensen Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1	0	1	1	0	1	2	1	1	2	1	1	0.948-E	0.927-E	Existing
5. Sorensen Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	1	0	1	1	0	1	2	1	1	2	1	1	0.976-E	0.982-E	Existing
6. Philadelphia Street (NS) and Whittier Boulevard (EW)	2015 W/o Project	1	0	1	0.5	1	0.5	2	0	2	2	0	1	0.986-E	0.897-D	Existing
6. Philadelphia Street (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	1	0	1	0.5	1	0.5	2	0	2	2	0	1	1.049-F	1.164-F	Existing
6. Philadelphia Street (NS) and Whittier Boulevard (EW)	2015 W/o Project	1	0	1	0.5	1	0.5	3	0	2	3	0	1	0.804-D	0.720-C	General Plan
6. Philadelphia Street (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	1	0	1	0.5	1	0.5	3	0	2	3	0	1	0.867-D	0.983-E	General Plan
7. Santa Fe Springs (NS) and Whittier Blvd./Washington (EW)*	2015 W/o Project	1	1	1	2	0	0	2	1	1	2	0	3	1.048-F	1.220-F	Existing
7. Santa Fe Springs (NS) and Whittier Blvd./Washington (EW)*	2015 W/ Res.+Costco Commercial Plan	1	1	1	2	0	0	2	1	1	2	0	3	1.053-F	1.248-F	Existing
7. Santa Fe Springs (NS) and Whittier Blvd./Washington (EW)*	2015 W/o Project	1	1	1	2	0	0	3	1	1	3	0	3	0.943-E	1.132-F	General Plan
7. Santa Fe Springs (NS) and Whittier Blvd./Washington (EW)*	2015 W/ Res.+Costco Commercial Plan	1	1	1	2	0	0	3	1	1	3	0	3	0.948-E	1.155-F	General Plan
8. Greenleaf Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1.3	1	0.7	1.5	0	1.5	2	0	1	2	1	1	1.021-F	0.967-E	Existing
8. Greenleaf Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	1.3	1	0.7	1.5	0	1.5	2	0	1	2	1	1	1.036-F	1.019-F	Existing
8. Greenleaf Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1.3	1	0.7	1.5	0	1.5	3	0	1	3	1	1	0.848-D	0.809-D	General Plan
8. Greenleaf Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	1.3	1	0.7	1.5	0	1.5	3	0	1	3	1	1	0.859-D	0.849-D	General Plan
9. Painter Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1.5	1	1.5	2	0	2	2	1	1	2	1	1	0.996-E	1.263-F	Existing
9. Painter Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	1.5	1	1.5	2	0	2	2	1	1	2	1	1	1.005-F	1.287-F	Existing
9. Painter Avenue (NS) and Whittier Boulevard (EW)	2015 W/o Project	1.5	1	1.5	2	0	2	3	1	1	3	1	1	0.843-D	1.105-F	General Plan
9. Painter Avenue (NS) and Whittier Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	1.5	1	1.5	2	0	2	3	1	1	3	1	1	0.849-D	1.122-F	General Plan
10. Pickering Avenue (NS) and Philadelphia Avenue (EW)	2015 W/o Project	1	1	1	1	0	1	1	1	1	1	1	1	0.750-C	0.744-C	Existing
10. Pickering Avenue (NS) and Philadelphia Avenue (EW)	2015 W/ Res.+Costco Commercial Plan	1	1	1	1	0	1	1	1	1	1	1	1	0.815-D	0.943-E	Existing
11. Sorensen Avenue (NS) and Washington Street (EW)	2015 W/o Project	2	0	2	2	1	1	2	1	1	2	1	1	0.824-D	0.903-E	Existing
11. Sorensen Avenue (NS) and Washington Street (EW)	2015 W/ Res.+Costco Commercial Plan	2	0	2	2	1	1	2	1	1	2	1	1	0.832-D	0.923-E	Existing
12. Lambert Road (NS) and Washington Boulevard (EW)	2015 W/o Project	0.5	1	1.5	2	1	1	2	1	1	2	1	1	0.709-C	0.775-C	Existing
12. Lambert Road (NS) and Washington Boulevard (EW)	2015 W/ Res.+Costco Commercial Plan	0.5	1	1.5	2	1	1	2	1	1	2	1	1	0.714-C	0.785-C	Existing

ICU-LOS = Intersection Capacity Utilization - Level of Service
* Partial lanes geometrics shown for this intersection