From:	Mychal Loomis, Kimley-Horn and Associates
То:	Marlon Pangilinan and George Ghossain, City of San Diego
Date:	April 11, 2017
Re:	Uptown Supplemental Traffic Evaluation – Saint Paul's

This memorandum summarizes the results of the traffic evaluation for a change to land uses within traffic analysis zone (TAZ) 3542 and TAZ 3552.

Background

This evaluation includes land uses from the Adopted Uptown Community Plan combined with the mobility network provided in the Uptown Community Plan Update (CPU) as a baseline condition, consistent with direction from the City Council approval of the Uptown Community Plan Update.

SANDAG provided a model forecast for year 2035 using the adopted land uses for the Uptown community in combination with the proposed land uses for North Park and Golden Hill that were approved by City Council. The following TAZs have special considerations that would modify the adopted land uses:

- TAZs 3542 and 3552 (this evaluation)
- TAZ 3316 (northwest corner of Park and University)

Changes to volumes as a result of land use changes to each of these TAZ adjustments were estimated using the associated change in trip generation for the TAZ and an estimated trip distribution specific to the TAZ. A summary of the individual and cumulative volume changes for each of the three TAZs is provided as an Attachment. Specific to this project, the following land use changes would occur:

	ADO	OPTED COMMUNIT	Y PLAN							
TAZ	Total Dwelling Units	Total Floor Area	Estimated Hshld Pop	Estimated Trips						
3542	445	57,207	741	4,595						
3552	753	338,770	1,255	17,492						
SAINT PAUL'S AMENDMENT										
TAZ	Total Dwelling Units Total Floor Area Estimated Hshld Pop Estimated Tri									
3542	456	38,361	761	4,741						
3552	870	327,591	1,453	18,184						
		NET CHANGE								
TAZ	Total Dwelling Units	Total Floor Area	Estimated Hshld Pop	Estimated Trips						
3542	+11	-18,846	+20	+146						
3552	-117	-11,179	+198	+691						

The resulting volume changes on each segment is illustrated in Exhibit 1.

Approach Methodology

A comparative assessment of the average daily traffic (ADT) volumes was conducted between the original proposed CPU model volumes and the resulting volumes after the TAZ land use adjustments were applied to the adopted CPU model. This comparison allows for an understanding of the change in traffic patterns between the analysis performed for the CPU and the proposed project. Typically, daily volumes fluctuate no more than 10% throughout a typical week (i.e., Tuesday, Wednesday, and Thursday typical weekdays). To ensure changes in ADT weren't attributed to this daily volume fluctuation, segments were identified for further consideration if the volumes when compared to the original analysis were greater than a 5% difference for at least two consecutive segments, or greater than 10% for any single segment. Locations where changes resulted in less than these criteria were considered a marginal change whose impacts to the traffic analysis would likely be negligible or de minimis.

Locations Requiring Additional Assessment

As shown in the attachment, there were no segments that were affected by the changes to TAZ 3542 and 3552 and met the criteria described in the methodology to consider further evaluation. As such, significant changes to the analysis are not expected at any of the CPU study segments and intersections.

Conclusion

The proposed land use changes to TAZs 3542 and 3552 in the Uptown community would not change the number of or location of impacts to any roadway segments or intersections.

UPTOWN GNP GGH CPU



Exhibit 1: Summary of Volume Changes TAZ 3542 and TAZ 3552







Attachments

i. TAZ Adjustments

	Park and University		St Pauls	LAND USE CHANGES	St Pauls							
	TAZ 33	316	TAZ	3542	TAZ	3552						
ROADWAY SEGMENT	Change in ADT =	-212	Change in ADT =	146	Change in ADT =	691						_
	Dist %	Assign	Dist %	Assign	Dist %	Assign	Future ADT (Original)	Future ADT (Adopted)	Total ADT Change	% Change from Original	Resulting Future ADT	
	1				UPTOWN	1		<u>.</u>		1	w/ Huopicu	•
First Ave												
University Ave to Robinson Ave		0	10%	14.6		0	16,300	17,000	14.6	4%	17,015	
Robinson Ave to Pennsylvania Ave		0	10%	14.6		0	11,500	12,000	14.6	4%	12015	
Walnut Ave to Laurel St	-	0	10%	14.6 58.4		0	12,800	13,300	58.4	4%	13315	
Laurel St to Juniper St		0	20%	29.2		0	8,400	9,000	29.2	7%	9029	
Juniper St to Grape St		0	20%	29.2		0	6,800	7,000	29.2	3%	7029	
Grape St to Elm St		0	5%	7.3		0	3,200	3,100	7.3	-3%	3107	
Fourth Ave University Ave to Robinson Ave		0	5%	73	10%	69.1	12 900	13 200	76.4	3%	13276	
Robinson Ave to Walnut Ave		0	5%	7.3	10%	69.1	11,400	11,600	76.4	2%	13270	
Walnut Ave to Laurel St		0	5%	7.3	10%	69.1	15,100	15,000	76.4	0%	15076	
Laurel St to Grape St		0		0	30%	207.3	13,700	13,500	207.3	0%	13707	
Grape St to Elm St		0	10%	14.6	10%	69.1	12,800	12,800	83.7	1%	12884	
Fifth Ave University Ave to Robinson Ave		0	5%	73	10%	69.1	14.000	14.300	76.4	3%	14376	
Robinson Ave to Walnut Ave		0	5%	7.3	10%	69.1	15,800	15,800	76.4	0%	15876	
Walnut St to Laurel St		0	5%	7.3	10%	69.1	14,800	14,900	76.4	1%	14976	
Laurel St to Hawthorn St		0		0	30%	207.3	14,400	14,300	207.3	1%	14507	
Hawthorn St to Grape St		0		0	30%	207.3	14,300	14,400	207.3	2%	14607	
Sixth Ave		0		0	10%	69.1	8,600	8,900	69.1	4%	8969	
Washington St to University Ave		0	40%	58.4	40%	276.4	50,200	50,500	334.8	1%	50835	
University Ave to Robinson Ave		0	20%	29.2	20%	138.2	32,600	33,100	167.4	1%	33267	
Robinson Ave to Upas St		0	20%	29.2	20%	138.2	29,900	30,500	167.4	1%	30667	
Upas St to Laurel St		0		0	20%	138.2	25,900	26,000	138.2	1%	26138	_
Juniper St to Grape St		0		0		0	18,700	19,100	0	0%	16900	
Grape St to Elm St	1	0		0		0	22,700	23,000	0	0%	23000	
Cleveland Ave												
Lincoln St to Richmond St Grape St	100%	-212					9600	9400	-212	-2%	9188	
First Ave to Third Ave		0	5%	7.3		0	5,800	5,900	7.3	2%	5907	
Third Ave to Sixth Ave		0	10%	14.6		0	9,000	9,000	14.6	0%	9015	
Hawthorn St												
Brant St to First Ave		0	20%	29.2	20%	138.2	15,000	15,900	167.4	7%	16067	
First Ave to Third Ave Third Ave to Sixth Ave	+	0	10%	14.6	20%	138.2	7,300	7,300	138.2	2%	7453	
Laurel St		0		0	2070	100.2	7,100	7,000	150.2	170	7150	
First Ave to Third Ave		0		0		0	18,400	18,400	0	0%	18400	
Third Ave to Sixth Ave		0	30%	43.8		0	20,200	20,300	43.8	1%	20344	
Lincoln Ave Washington St to Bark Blud	100%	212		0		0	11100	10700	212	69/	10/99	
Normal St	100%	-212		0		0	11100	10700	-212	-0%	10488	
Park Blvd to Washington St	15%	-31.8		0		0	28,300	28,900	-31.8	2%	28868	
Washington St to University Ave	100%	-212		0		0	4,900	4,900	-212	-4%	4688	
Park Blvd	459/	24.0		0		0	10 (00	10 700	21.0	00/	10((0	_
El Cajon Blvd to Polk Ave Polk Ave to University Ave	15%	-31.8		0		0	22,500	18,700	-31.8	-1%	22268	
University Ave to Robinson Ave	20%	-42.4		0		0	19,800	19,600	-42.4	-1%	19558	
Robinson Ave to Upas St	20%	-42.4		0		0	17,200	17,100	-42.4	-1%	17058	
Upas St to Zoo Pl	20%	-42.4		0		0	17,700	17,600	-42.4	-1%	17558	
Richmond St	50%	400		0		0	0000	0000	106	10/	000.4	
University Ave	50%	-106		U		U	9000	9000	-106	-1%	8894	
First Ave to Fourth Ave		0	10%	14.6	0%	0	14,100	13,900	14.6	-1%	13915	
		0	15%	21.9	10%	69.1	19,400	20,100	91	4%	20191	
Fourth Ave to Fifth Ave		0	20%	29.2	20%	138.2	24,900	26,100	167.4	5%	26267	
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave	+	-	1	0	_	0	29,300	29,400	0	0%	29400	
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Eighth Ave	109/	0		0			35 / 44	25 400	01.0	10/	25250	
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Eighth Ave Vermont St to Richmond St Richmond St to Park Blvd	10%	0 -21.2 -21.2		0		0	25,600	25,400	-21.2	-1%	25379 21379	
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Eighth Ave Vermont St to Richmond St Richmond St to Park Blvd Washington St	10%	0 -21.2 -21.2		0		0	25,600 21,200	25,400 21,400	-21.2	-1% 1%	25379 21379	
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Eighth Ave Vermont St to Richmond St Richmond St to Park Blvd Washington St India St to University Ave	10% 10% 5%	0 -21.2 -21.2 -10.6		0 0 0		0 0 0	25,600 21,200 34,800	25,400 21,400 36,700	-21.2 -21.2 -10.6	-1% 1% 5%	25379 21379 36689	Recommer
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Eighth Ave Vermont St to Richmond St Richmond St to Park Blvd Washington St India St to University Ave University Ave to First Ave	10% 10% 5% 5%	0 -21.2 -21.2 -10.6 -10.6		0 0 0 0		0 0 0 0 0	25,600 21,200 34,800 25,400	25,400 21,400 36,700 26,700	-21.2 -21.2 -10.6 -10.6	-1% 1% 5% 5%	25379 21379 36689 26689	Recommer Recommer
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Eighth Ave Vermont St to Richmond St Richmond St to Park Blvd Washington St India St to University Ave University Ave to First Ave First Ave to Fourth Ave Earth Ave to Fourth Ave	10% 10% 5% 5% 5%	0 -21.2 -21.2 -10.6 -10.6 -10.6 -10.6		0 0 0 0 0 0		0 0 0 0 0 0	25,600 21,200 34,800 25,400 24,300 25,200	25,400 21,400 36,700 26,700 25,000	-21.2 -21.2 -10.6 -10.6 -10.6	-1% 1% 5% 5% 3%	25379 21379 36689 26689 24989	Recommer Recommer
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Eighth Ave Vermont St to Richmond St Richmond St to Park Blvd Washington St India St to University Ave University Ave to First Ave First Ave to Fourth Ave Fourth Ave to Fifth Ave Fifth Ave To Sixth Ave	10% 10% 5% 5% 5% 5% 5%	0 -21.2 -21.2 -10.6 -10.6 -10.6 -10.6 -10.6		0 0 0 0 0 0 0			25,600 21,200 34,800 25,400 24,300 37,300 41,100	25,400 21,400 36,700 26,700 25,000 38,100 42,200	-21.2 -21.2 -10.6 -10.6 -10.6 -10.6 -10.6	-1% 1% 5% 5% 3% 2% 3%	25379 21379 36689 26689 24989 38089 42189	Recommer Recommer
Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Eighth Ave Vermont St to Richmond St Richmond St to Dark Blvd Washington St India St to University Ave University Ave to First Ave First Ave to Fourth Ave Fourth Ave to Fifth Ave Fifth Ave to Sixth Ave Sixth Ave to Richmond St	10% 10% 5% 5% 5% 5% 5% 5% 5% 5%	0 -21.2 -21.2 -10.6 -10.6 -10.6 -10.6 -10.6 -10.6 -10.6		0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 0 0 0 0 0 0	25,600 21,200 34,800 25,400 24,300 37,300 41,100 38,100	25,400 21,400 36,700 26,700 25,000 38,100 42,200 39,400	-21.2 -21.2 -10.6 -10.6 -10.6 -10.6 -10.6 -10.6 -10.6	-1% 1% 5% 5% 3% 2% 3% 3%	25379 21379 36689 26689 24989 38089 42189 39294	Recomment Recomment Recomment

NOT	ES
further evaluation	
further evaluation	

From:	Mychal Loomis, Kimley-Horn and Associates
To:	Marlon Pangilinan and George Ghossain, City of San Diego
Date:	April 11, 2017
Re:	Uptown Supplemental Traffic Evaluation – Park and University

This memorandum summarizes the results of the traffic evaluation for a change to land uses within traffic analysis zone (TAZ) 3316.

Background

This evaluation includes land uses from the Adopted Uptown Community Plan combined with the mobility network provided in the Uptown Community Plan Update (CPU) as a baseline condition, consistent with direction from the City Council approval of the Uptown Community Plan Update.

SANDAG provided a model forecast for year 2035 using the adopted land uses for the Uptown community in combination with the proposed land uses for North Park and Golden Hill that were approved by City Council. The following TAZs have special considerations that would modify the adopted land uses:

- TAZ 3316 (this evaluation)
- TAZs 3542 and 3552 (Saint Paul's site)

Changes to volumes as a result of land use changes to each of these TAZ adjustments were estimated using the associated change in trip generation for the TAZ and an estimated trip distribution specific to the TAZ. A summary of the individual and cumulative volume changes for each of the three TAZs is provided as an Attachment. Specific to this project, the following land use changes would occur:

ADOPTED COMMUNITY PLAN										
TAZ	Total Dwelling Units	Total Floor Area	Estimated Hshld Pop	Estimated Trips						
3316	930	98,687	1,546	12,057						
	PARK & UNIVERSITY AMENDMENT									
TAZ	Total Dwelling Units	Estimated Hshld Pop	Estimated Trips							
3316	1,024	95,396	1,710	11,845						
		NET CHANGE								
TAZ	Total Dwelling Units	Total Floor Area	Estimated Hshld Pop	Estimated Trips						
3316	+94	-3,291	+164	-212						

The resulting volume changes on each segment is illustrated in Exhibit 1.

Approach Methodology

A comparative assessment of the average daily traffic (ADT) volumes was conducted between the original proposed CPU model volumes and the resulting volumes after the TAZ land use adjustments were applied to the adopted CPU model. This comparison allows for an understanding of the change in traffic patterns between the analysis performed for the CPU and the proposed project. Typically, daily volumes fluctuate no more than 10% throughout a typical week (i.e., Tuesday, Wednesday, and Thursday typical weekdays). To ensure changes in ADT weren't attributed to this daily volume fluctuation, segments were identified for further consideration if the volumes when compared to the original analysis were greater than a 5% difference for at least two consecutive segments, or greater than 10% for any single segment. Locations where changes resulted in less than these criteria were considered a marginal change whose impacts to the traffic analysis would likely be negligible or de minimis.

Locations Requiring Additional Assessment

The locations described below were selected for additional assessment using the criteria discussed in the methodology section. Updated analysis results for these locations are provided in this evaluation. Significant changes to the analysis are not expected at the remaining CPU study segments and intersections.

Roadway Segments

Washington Street between India Street and First Avenue: 5% increase

Intersections

3. Washington Street and India Street

This intersection was selected since the change in ADT on Washington Street was increased by 5% near India Street. Year 2035 peak hour turning movements were developed using the same methodologies used previously from National Cooperative Highway Research Program (NCHRP) 255 – Highway Traffic Data for Urbanized Area Project Planning and Design, Chapter 8. For this method, existing and future daily traffic volumes, existing peak hour turning movements, and projected peak hour "K" and directional "D" factors are used to calculate future year turning movements. Existing daily segment traffic volumes and peak hour intersection turning movements were counted in the field and are the same as the ones used in the CPU traffic impact study. Year 2035 daily traffic volumes were obtained from the SANDAG-provided model forecast using the adopted land uses in the Uptown community. Using the "Directional Volume Forecast" technique, the existing turning movements at each study area intersection were factored based on increases in daily approach traffic and existing K and D factors. Each respective movement was derived using an iterative approach that balances the inflows and outflows for each approach. The supporting worksheets for calculating the Year 2035 volumes at this intersection can be seen in the Attachments.

UPTOWN GNP GGH CPU



Exhibit 1: Summary of Volume Changes TAZ 3316



Potential Impacts to Roadway Segments

Table 1 provides a comparison of roadway segment analysis between the volumes originally studied in the CPU, volumes studied with adopted land uses, and adjusted adopted land use volumes with the TAZ adjustments described in this document. The table only shows the segments identified to have potential change as described in the methodology section. Table 2 shows roadway segment impact analysis of the updated adopted land uses compared to existing conditions. The previous impact analysis tables are provided as an Attachment for reference, and would be updated with tables in this document.

The increase in volumes on Washington Street due to the updated adopted land uses would result in slightly worse roadway operations between India Street and First Avenue, but would remain at acceptable level of service. No additional impacts would be created.

Potential Impacts to Intersections

Table 3 provides a comparison of intersection analysis between the volumes originally studied in the CPU, volumes studied with adopted land uses, and adjusted adopted land use volumes with the TAZ adjustments described in this document. The table only shows the intersections identified to have potential change as described in the methodology section. It should be noted that the intersection operations with the TAZ adjustments are identical to the adopted land use results, as the change in 11 daily trips at this location due to the TAZ adjustments would have no resulting change in peak hour volumes. Table 4 shows intersection impact analysis of the updated adopted land uses compared to existing conditions. The previous impact analysis tables are provided as an Attachment for reference, and would be updated with tables in this document.

The increase in volumes at Washington Street and India Avenue due to the updated adopted land uses would result in similar operations. The intersection would continue to operate at acceptable levels during both the morning and evening peaks and there would continue to be no significant impacts at this intersection.

Conclusion

In summary, the proposed land use changes to TAZ 3316 in the Uptown community would not change the number of or location of impacts to any roadway segments or intersections.

TABLE 1 Future Year Comparison Roadway Segment LOS Summary

			CPU STUDY EVALUATION			ADOPTED LAND USES VOLUMES				ADOPTED LAND USES WITH PROJECT TAZ CHANGES			
	ROADWAY FUNCTIONAL	LOS E		V/C		CHANGE IN		V/C RATIO	1.00	CHANGE IN		V/C RATIO	1.00
ROADWAY SEGMENT	CLASSIFICATION	CAPACITY	FUTURE ADT	RATIO (a)	LOS	ADT	FUTURE ADT	(a)	LOS	ADT	FUTURE ADT	(a)	LOS
Washington St													
India St to University Ave	4 Lane Prime Arterial	48,000	34,800	0.725	С	1900	36,700	0.765	С	1889	36,689	0.764	С
University Ave to First Ave	4 Lane Major Arterial	40,000	25,400	0.635	С	1300	26,700	0.668	С	1289	26,689	0.667	С

Notes:

Bold values indicate roadway segments operating at LOS E or F.

Capacity for non-standard roadway classifications were provided by City of San Diego staff.

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

K:\SND_TPTO\095240114-UPTOWN_SITES\ANALYSIS\EXCEL\[240042RS01-PaU and StPaul.xism]Volume Compare-PaU

TABLE 2
Future Year - Adopted Land Uses with Park and University TAZ Modification Supplemental Analysis
Roadway Segment Impact Analysis Summary

		EXISTING			FU	TURE YEA	AR				
				V/C			V/C		∆ in ADT	∆ in V/C	SIGNIFI
				RATIO		RATIO					CANT?
ROADWAY SEGMENT	ROADWAY FUNCTIONAL CLASSIFICATION	CAPACITY	ADT	(a)	LOS	ADT	(a)	LOS			
Washington St											
India St to University Ave	4 Lane Prime Arterial	48,000	27,929	0.582	В	36,689	0.764	С	8760	0.182	NO
University Ave to First Ave	4 Lane Major Arterial	40,000	20,477	0.512	В	26,689	0.667	С	6212	0.155	NO

Notes:

Bold values indicate roadway segments operating at LOS E or F.

Capacity for non-standard roadway classifications were provided by City of San Diego staff.

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

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TABLE 3

Future Year Comparison

Intersection Impact Analysis Summary

r			CPU STUDY I	EVALUATION	ADOPTED I EVALU	LAND USES TATION	ADOPTED LAND USES WITH PROJECT TAZ CHANGES		
INTERSECTION		PEAK	FUT	URE	FUT	URE	FUTURE		
		HOUR	DELAY (a)	LOS (b)	DELAY (a)	LOS (b)	DELAY (a)	LOS (b)	
2	Weshington St. & India St.	AM	15.8	В	16.3	В	16.3	В	
5 Washington St & India St		PM	20.3	С	21.4	С	21.4	С	

Notes:

Bold values indicate intersections operating at LOS E or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one-way or two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 8

TABLE 4

Future Year - Adopted Land Uses Supplemental Analysis

Intersection Impact Analysis Summary

	TRAFFIC		TRAFFIC PEAK		TING	FUTUR	E YEAR				
	INTERSECTION	CONTROL	HOUR	DELAY (a)	LOS (b)	DELAY (a)	LOS (b)	Δ (c)	SIGNIFICANT?		
2	Washington St. & India St	Signal	AM	11.7	В	16.3	В	4.6	NO		
3	washington St & Ilidia St	Signal	PM	14.2	В	21.4	С	7.2	NO		

Notes:

Bold values indicate intersections operating at LOS E or F.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 8



Attachments

- i. TAZ Adjustments
- *ii. Future Volume Forecasts*
- iii. Original Roadway Segment Impact Analysis Summary
- iv. Original Intersection Impact Analysis Summary
- v. Synchro Worksheets

	Park and University		St Pauls	LAND USE CHANGES	St Pauls							
	TAZ 33	316	TAZ	3542	TA	Z 3552						
ROADWAY SECMENT	Change in ADT =	-212	Change in ADT =	146	Change in ADT =	691						-
KOND WAT SEGMEAT	Dist %	Assign	Dist %	Assign	Dist %	Assign	Future ADT (Original)	Future ADT (Adopted)	Total ADT Change	% Change from Origina	Resulting Future AD	ç
					UPTOWN						w/ Adopted	<u>· </u>
First Ave												
University Ave to Robinson Ave		0	10%	14.6		0	16,300	17,000	14.6	4%	17,015	
Robinson Ave to Pennsylvania Ave		0	10%	14.6		0	11,500	12,000	14.6	4%	12015	
Pennsylvania Ave to Walnut Ave		0	10%	14.6		0	12,800	13,300	14.6	4%	13315	
Walnut Ave to Laurel St		0	40%	58.4		0	11,900	12,000	58.4	1%	12058	
Juniper St to Grape St		0	20%	29.2		0	6,800	7,000	29.2	3%	9029 7029	
Grape St to Elm St		0	5%	7.3		0	3,200	3,100	7.3	-3%	3107	
Fourth Ave												
University Ave to Robinson Ave	_	0	5%	7.3	10%	69.1	12,900	13,200	76.4	3%	13276	<u> </u>
Robinson Ave to Walnut Ave Walnut Ave to Laurel St		0	5%	7.3	10%	69.1	11,400	11,600	76.4	2%	11676	
Laurel St to Grape St		0	5%	0	30%	207.3	13,100	13,000	207.3	0%	13707	
Grape St to Elm St		0	10%	14.6	10%	69.1	12,800	12,800	83.7	1%	12884	
Fifth Ave												
University Ave to Robinson Ave		0	5%	7.3	10%	69.1	14,000	14,300	76.4	3%	14376	
Robinson Ave to Walnut Ave		0	5%	7.3	10%	69.1	15,800	15,800	76.4	0%	15876	
Laurel St to Hawthorn St		0	5%	0	30%	207.3	14,000	14,900	207.3	1%	14507	
Hawthorn St to Grape St		0		0	30%	207.3	14,300	14,400	207.3	2%	14607	
Grape St to Elm St		0		0	10%	69.1	8,600	8,900	69.1	4%	8969	
Sixth Ave												
Washington St to University Ave		0	40%	58.4	40%	276.4	50,200	50,500	334.8	1%	50835	
University Ave to Robinson Ave Robinson Ave to Unas St		0	20%	29.2	20%	138.2	29,900	30,500	167.4	1%	30667	
Upas St to Laurel St		0	2070	0	20%	138.2	25,900	26,000	138.2	1%	26138	
Laurel St to Juniper St		0		0		0	16,600	16,900	0	0%	16900	
Juniper St to Grape St		0		0		0	18,700	19,100	0	0%	19100	
Grape St to Elm St		0		0		0	22,700	23,000	0	0%	23000	
Lincoln St to Richmond St	100%	-212					9600	9400	-212	-2%	9188	
Grape St First Ave to Third Ave		0	E9/	7.2		0	5 800	5 000	7.2	20/	5007	
Third Ave to Sixth Ave		0	10%	14.6		0	9,000	9,000	14.6	0%	9015	
Hawthorn St		-										
Brant St to First Ave		0	20%	29.2	20%	138.2	15,000	15,900	167.4	7%	16067	
First Ave to Third Ave	_	0	10%	14.6	20%	138.2	7,300	7,300	152.8	2%	7453	
Third Ave to Sixth Ave		0		0	20%	138.2	7,100	7,000	138.2	1%	7138	
First Ave to Third Ave		0		0		0	18.400	18,400	0	0%	18400	
Third Ave to Sixth Ave		0	30%	43.8		0	20,200	20,300	43.8	1%	20344	
Lincoln Ave												
Washington St to Park Blvd	100%	-212		0		0	11100	10700	-212	-6%	10488	
Normal St Park Blyd to Washington St	159/	21.0		0		0	28.300	28.000	31.8	204	20060	
Washington St to University Ave	100%	-212		0		0	4,900	4,900	-212	-4%	4688	
Park Blvd												
El Cajon Blvd to Polk Ave	15%	-31.8		0		0	18,600	18,700	-31.8	0%	18668	
Polk Ave to University Ave	15%	-31.8		0		0	22,500	22,300	-31.8	-1%	22268	<u> </u>
Robinson Ave to Unas St	20%	-42.4		0		0	19,800	19,000	-42.4	-1%	19558	
Upas St to Zoo Pl	20%	-42.4		0		0	17,700	17,600	-42.4	-1%	17558	
Richmond St							,					
Cleveland Ave to University Ave	50%	-106		0		0	9000	9000	-106	-1%	8894	
University Ave		^	1001	11.0		^	11100	12,000		4.04	12015	
First Ave to Fourth Ave		0	10%	14.6	0%	69.1	14,100	13,900	91	-1%	13915	
Fifth Ave to Sixth Ave	+ +	0	20%	29.2	20%	138.2	24,900	26,100	167.4	470 5%	26267	1
Sixth Ave to Eighth Ave	1	0		0		0	29,300	29,400	0	0%	29400	
Vermont St to Richmond St	10%	-21.2		0		0	25,600	25,400	-21.2	-1%	25379	
Richmond St to Park Blvd	10%	-21.2		0		0	21,200	21,400	-21.2	1%	21379	
Washington St	59/	10.6		0		0	24 800	36 700	10.4	E0/	26690	Boormer
India St to University Ave	5%	-10.6		0		0	34,800 25 400	36,700	-10.6	5% 5%	26689	Recommer
First Ave to Fourth Ave	5%	-10.6		0		0	24,300	25,000	-10.6	3%	24989	e
Fourth Ave to Fifth Ave	5%	-10.6		0		0	37,300	38,100	-10.6	2%	38089	
Fifth Ave to Sixth Ave	5%	-10.6		0		0	41,100	42,200	-10.6	3%	42189	
Sixth Ave to Richmond St	50%	-106		0		0	38,100	39,400	-106	3%	39294	_
KICHMOND ST TO NORMAL ST	50%	-106		U		U	49,900	50,200	-106	0%	50094	

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Int 3 AM Peak Volumes



Note: Traffic volumes were collected by Traffic Data Services Southwest during February 2005.

Scenario:	Horizon Year Conditions
N/S Street:	India St
E/W Street:	Washington St





Int 3 PM Peak Volumes



Note: Traffic volumes were collected by Traffic Data Services Southwest during February 2005.

Scenario:	Horizon Year Conditions
N/S Street:	India St
E/W Street:	Washington St





ATTACHMENT Future Year - Original Evaluation

Roadway Segment Impact Analysis Summary

			EXISTIN			FUTURE YEAR					
				V/C			V/C			A in M/C	SIGNIFI
		LOS E		RATIO	ATIO		RATIO				CANT?
ROADWAY SEGMENT	ROADWAY FUNCTIONAL CLASSIFICATION	CAPACITY	ADT	(a)	LOS	ADT	(a)	LOS			
	U	PTOWN									
Washington St											
India St to University Ave	4 Lane Prime Arterial	48,000	27,929	0.582	В	34,800	0.725	С	6871	0.143	NO
University Ave to First Ave	4 Lane Major Arterial	40,000	20,477	0.512	В	25,400	0.635	С	4923	0.123	NO

Notes:

Bold values indicate roadway segments operating at LOS E or F.

Capacity for non-standard roadway classifications were provided by City of San Diego staff.

(a) The v/c Ratio is calculated by dividing the ADT volume by each respective roadway segment's capacity.

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ATTACHMENT

Future Year - Original Evaluation

Intersection Impact Analysis Summary

		TRAFFIC PEAK		TRAFFIC PEAK EXISTING							
	INTERSECTION	CONTROL	HOUR	DELAY (a)	LOS (b)	DELAY (a)	LOS (b)	Δ (c)	SIGNIFICANT?		
2	Washington St. & India St	Signal	AM	11.7	В	15.8	В	4.1	NO		
3	vasnington St & India St	Signal	PM	14.2	В	20.3	С	6.1	NO		

Notes:

Bold values indicate intersections operating at LOS E or F.

ECL = Exceeds Calculable Limit.

(a) Delay refers to the average control delay for the entire intersection, measured in seconds per vehicle. At a one-way or two-way stop-controlled intersection, delay refers to the worst movement.

(b) LOS calculations are based on the methodology outlined in the 2000 Highway Capacity Manual and performed using Synchro 8

Uptown GNP GGIFf @ Without Lane Reductions with Optimized Signal Timing (Adopted CP) 3: India St & Washington St

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲.	≜1 ≱		1	≜1 }			र्स	1		4	
Traffic Volume (vph)	5	783	20	19	1791	0	155	0	342	1	0	4
Future Volume (vph)	5	783	20	19	1791	0	155	0	342	1	0	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	5.9			4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	0.99		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85		0.89	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1770	3522		1770	3539			1770	1562		1616	
Flt Permitted	0.07	1.00		0.28	1.00			0.75	1.00		0.96	
Satd. Flow (perm)	131	3522		525	3539			1405	1562		1563	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	851	22	21	1947	0	168	0	372	1	0	4
RTOR Reduction (vph)	0	1	0	0	0	0	0	0	302	0	4	0
Lane Group Flow (vph)	5	872	0	21	1947	0	0	168	70	0	1	0
Confl. Peds. (#/hr)			12			4			1			11
Confl. Bikes (#/hr)			3			6						
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	57.8	56.8		59.0	56.9			16.9	16.9		16.9	
Effective Green, g (s)	57.8	56.8		59.0	56.9			16.9	16.9		16.9	
Actuated g/C Ratio	0.64	0.63		0.66	0.63			0.19	0.19		0.19	
Clearance Time (s)	4.4	4.9		4.4	5.9			4.9	4.9		4.9	
Vehicle Extension (s)	2.0	3.8		2.0	5.4			2.0	2.0		2.0	
Lane Grp Cap (vph)	102	2222		373	2237			263	293		293	
v/s Ratio Prot	0.00	0.25		c0.00	c0.55							
v/s Ratio Perm	0.03			0.04				c0.12	0.04		0.00	
v/c Ratio	0.05	0.39		0.06	0.87			0.64	0.24		0.00	
Uniform Delay, d1	13.4	8.1		5.7	13.5			33.7	31.1		29.7	
Progression Factor	0.13	0.11		1.00	1.00			1.00	1.00		1.00	
Incremental Delay, d2	0.1	0.5		0.0	5.0			3.7	0.2		0.0	
Delay (s)	1.8	1.4		5.8	18.5			37.4	31.2		29.7	
Level of Service	А	А		А	В			D	С		С	
Approach Delay (s)		1.4			18.4			33.2			29.7	
Approach LOS		А			В			С			С	
Intersection Summary												
HCM 2000 Control Delay			16.3	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capac	city ratio		0.81									
Actuated Cycle Length (s)	, ,		90.0	S	um of lost	t time (s)			15.2			
Intersection Capacity Utilizat	tion		73.8%	IC	CU Level o	of Service	;		D			
Analysis Period (min)			15									

c Critical Lane Group

Uptown GNP GGH CPU 3: India St & Washington St

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	۲	≜1 ≱		1	∱1 }			र्स	1		4	
Traffic Volume (vph)	36	1443	131	45	1468	7	241	14	399	7	1	24
Future Volume (vph)	36	1443	131	45	1468	7	241	14	399	7	1	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.9		4.4	5.9			4.9	4.9		4.9	
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		0.98	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00		1.00	
Frt	1.00	0.99		1.00	1.00			1.00	0.85		0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.95	1.00		0.99	
Satd. Flow (prot)	1770	3482		1770	3536			1779	1583		1623	
Flt Permitted	0.09	1.00		0.09	1.00			0.71	1.00		0.92	
Satd. Flow (perm)	172	3482		175	3536			1326	1583		1507	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	39	1568	142	49	1596	8	262	15	434	8	1	26
RTOR Reduction (vph)	0	7	0	0	0	0	0	0	215	0	20	0
Lane Group Flow (vph)	39	1703	0	49	1604	0	0	277	219	0	15	0
Confl. Peds. (#/hr)			12			2						16
Confl. Bikes (#/hr)			5			8						3
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA	Perm	Perm	NA	
Protected Phases	5	2		1	6			8			4	
Permitted Phases	2			6			8		8	4		
Actuated Green, G (s)	46.7	43.4		46.1	42.6			18.9	18.9		18.9	
Effective Green, g (s)	46.7	43.4		46.1	42.6			18.9	18.9		18.9	
Actuated g/C Ratio	0.58	0.54		0.58	0.53			0.24	0.24		0.24	
Clearance Time (s)	4.4	4.9		4.4	5.9			4.9	4.9		4.9	
Vehicle Extension (s)	2.0	3.8		2.0	5.4			2.0	2.0		2.0	
Lane Grp Cap (vph)	166	1888		170	1882			313	373		356	
v/s Ratio Prot	0.01	c0.49		c0.01	0.45			0.01			0.04	
v/s Ratio Perm	0.13			0.15	0.05			c0.21	0.14		0.01	
V/c Ratio	0.23	0.90		0.29	0.85			0.88	0.59		0.04	
Uniform Delay, d1	12.0	16.4		14.2	16.0			29.5	27.1		23.6	
Progression Factor	0.54	0.57		1.00	I.00			1.00	1.00		1.00	_
Incremental Delay, d2	0.2	5.7		0.3	5. I			23.8	1.5		0.0	
Delay (S)	0.7	15.1		14.0 D	21.1			53.3 D	28.0		23.0	
Level of Service	А	B		В	ل 20.0			20 D	L		ل 12 4	
Approach LOS		14.9 D			20.9			30.Z			23.0	
Approach LOS		D			C			U			C	
Intersection Summary												
HCM 2000 Control Delay			21.4	Н	CM 2000	Level of	Service		С			
HCM 2000 Volume to Capa	acity ratio		0.88									
Actuated Cycle Length (s)			80.0	S	um of los	t time (s)			15.2			
Intersection Capacity Utiliz	ation		93.1%	IC	CU Level	of Service)		F			
Analysis Period (min)			15									

c Critical Lane Group