



## AGENDA

### PUBLIC WORKS COMMISSION CITY OF HUNTINGTON BEACH

Wednesday September 21, 2011 – 5:00 PM

City Council Chambers

2000 Main Street

Huntington Beach, CA 92648

#### A. PLEDGE OF ALLEGIANCE

##### ROLL CALL

Cook, Herbel, McGovern, O'Connell,  
Siersema, Spencer, Thomas

#### B. PRESENTATIONS-COMMENDATIONS

#### C. MINUTES

C-1. (Pg 4-7) Minutes of July 20, 2011

#### D. ORAL COMMUNICATIONS

Public Comments – the Public Works Commission welcomes public comments on all items on this agenda or of community interest. **Three minutes per person**, time may not be donated to others. Commission on this date can take no action on any item not on the agenda. This is the time to address Commission regarding items of interest or agenda items other than public hearings. Communications on agenda items will be scheduled such that public comments may be received as close to 5:00 p.m. as possible.

#### E. DIRECTOR'S ITEMS

#### F. INFORMATION ITEMS

F-1. (Pg 8) NPDES Water Quality Management Plan - The Santa Ana Regional Water Quality Control Board (RWQCB) (RWQCB) adopted NPDES Permit Order No. R8-2009-0030 on May 22, 2009. The County of Orange is the principal permittee along with 26 cities within Orange County as co-permittees to the National Pollutant Discharge Elimination System (NPDES) permit. A progress report will be presented.

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- F-2. (Pg 9-13) Active Capital Project Report – An update on active capital projects is presented for the Commission’s information. Project information, including description, location maps and funding sources can be found in the FY 2010/11 Capital Improvement Program notebook, or on the city’s website under Government, Current [Budget](#) information.

**G. ADMINISTRATIVE ITEMS**

- G-1. (Pg 14-19) Citywide Left Turn Phasing Study - A comprehensive evaluation of a prioritized list for the potential installation of left turn arrows at existing signalized intersections is presented to the Public Works Commission to review the methodology applied and the staff recommended priority list of locations. The Public Works Commission has the opportunity to provide input, suggestions and a recommendation to be forwarded to the City Council.

Funding Source: None required for this action. Traffic signals are typically funded through a variety of sources including grants, Air Quality Management funds, and Traffic Impact Fees. The Citywide Left Turn Phasing Study can be used to develop the annual Capital Improvement Program and identify grant opportunities.

Recommended Action: Motion to recommend to the City Council,  
1. Approve the methodology presented for developing the rankings contained in the Citywide Left Turn Phasing Study; and  
2. Approve the revised Citywide Left Turn Phasing Study and ranking.

- G-2. (Pg 20-33) 2011 Traffic Signal Priority List Update - A comprehensive evaluation of a prioritized list for potential new traffic signal installations is presented to the Public Works Commission to review the methodology applied and the staff recommended priority list of locations. The Public Works Commission has the opportunity to provide input, suggestions and a recommendation to be forwarded to the City Council.

Funding Source: None required for this action. Traffic signals are typically funded through a variety of sources including grants, Air Quality Management funds, and Traffic Impact Fees. The Traffic Signal Priority List can be used to develop the annual Capital Improvement Program and identifying grant opportunities.

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- Recommended Action: Motion to recommend to the City Council,
1. Approve the methodology presented for developing the Traffic Signal Priority List; and
  2. Approve the revised Traffic Signal Priority List and ranking.

**H. WRITTEN COMMUNICATIONS**

**I. COMMISSION AND STAFF COMMENTS**

**J. ADJOURNMENT**

<p><b>NEXT PUBLIC WORKS COMMISSION MEETING</b> <i>October 19, 2011 5:00 PM, City Council Chambers</i></p>
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## MINUTES

### CITY OF HUNTINGTON BEACH PUBLIC WORKS COMMISSION JULY 20, 2011

**Call to Order/  
Pledge of Allegiance:** The meeting was called to order at 5:00 p.m. by Chairman Siersema, who led Commissioners and the audience in the Pledge of Allegiance to the Flag.

**Commissioners Absent:** O'Connell

**Commissioners Present:** Commissioners Cook, Herbel, McGovern, Siersema, Spencer and Thomas were in attendance.

**Others Present:** Travis Hopkins, Director of Public Works  
Tony Olmos, City Engineer  
Brian Ragland, Utilities Manager  
Dahle Bulosan, Finance  
Ken Dills, Project Manager  
Joyce Greene, Administrative Assistant

#### **B. PRESENTATIONS-COMMENDATIONS**

None

#### **C. MINUTES**

Motion by Commissioner Cook, seconded by Commissioner Thomas to approve the minutes of June 16, 2011 as presented.

VOTE: The motion carried.  
AYES: 6  
NOES: 0  
ABSENT: 1 (O'Connell)  
ABSTENTIONS: 0

#### **D. ORAL COMMUNICATIONS**

None

**E. DIRECTOR'S ITEMS**

- E-1. Travis Hopkins informed the Public Works Commissioners of the upcoming AB1234 training July 28, 2011, 6-8:00 pm in City Council Chambers. All Commissioners are required to complete the training every two years and it is offered several times each year. Attendance will fulfill the requirement for 2011/12.

The question was asked if the training can be held with other cities. A request was made for a schedule of all upcoming training sessions, if available, and more lead time be given before an offered training. Travis Hopkins will inquire with the City Attorney on the questions presented.

- E-2. Travis Hopkins provided the Commissioners with a memo that included a list of annual reports to the Public Works Commission and the month in which they are typically presented. Chair Siersema requested the list be provided to the Commissioners each January.

- E-3. Travis Hopkins introduced Dahle Bulosan from Finance who provided information on the Infrastructure Calculation FY 2007/08 to FY 2011/12. Revenues and Expenditures were listed explaining what is included.

Discussion held on the current debt service and how it affects the 15% calculation. For FY 2011/12, an additional \$1.3million was allocated to Public Works for pavement projects to ensure the 15% is met. Commissioner McGovern thanked Finance for their work and the presentation. He expressed concern over the use of debt service in the calculation for infrastructure. Discussion continued.

**F. INFORMATION ITEMS**

- F-1. Active Capital Project Report – Tony Olmos provided the updates and then asked the Commissioners for any questions.

**G. ADMINISTRATIVE ITEMS**

- G-1. Sewer Service Charge Adjustment for 2011/12 – A PowerPoint presentation was given by Ken Dills. The Consumer Price Index for all Urban Consumers (CPIU) annual percentage adjustment is used to calculate the recommended Sewer Service Charge. Staff is recommending suspending a rate increase for FY 2011/12 due to the fund balance.

Commissioner Herbel agreed with suspending a rate increase and inquired about the substantial reserve. Travis Hopkins responded several upcoming projects will be funded with the reserve. He also stated staff is looking to create

a Reserve Policy. The city will work with an outside resource to develop the policy. It is anticipated to be prepared next fiscal year.

Commissioner McGovern stated he recalled with last year's report presentation the discussion to defer or initiate the increase. He felt it best to defer any suspension of fee increase until the reserve policy is established. He is opposed to changing from the existing policy of using the CPIU to establish the rate until the reserve policy is established. Discussion held.

Motion by Commissioner Thomas, seconded by Commissioner Cook to recommend to City Council the programmed increase to the sewer service fee be suspended for Fiscal Year 2011/12.

VOTE: The motion carried.  
AYES: 5  
NOES: 1 (McGovern)  
ABSENT: 1 (O'Connell)  
ABSTENTIONS: 0

- G-2. Approve Infrastructure Fund Annual Report for Fiscal Year 2010/11 – Ken Dills presented the report. Current fiscal year projects that are incomplete will carry over to Fiscal Year 2011/12.

Commissioner Spencer recalled approximately \$400,000 General Fund revenue is received from Rainbow Disposal for street repairs due to the increase of collection trucks on city streets. As he remembered the discussion, the funding was to be designated for infrastructure repairs and was to be over and above the 15% calculation for infrastructure. Discussion. Travis Hopkins will refer to the minutes of the July 2006 City Council meeting and report back his findings to the Commission.

Motion by Commissioner Herbel, seconded by Commissioner McGovern to recommend to the City Council approval of the Infrastructure Fund Annual Report.

VOTE: The motion carried.  
AYES: 6  
NOES: 0  
ABSENT: 1 (O'Connell)  
ABSTENTIONS: 0

- G-3. Approve FY 2011/12 Capital Improvement Program Amendment – Tony Olmos presented the item. At the June 20, 2011 City Council Study Session, the proposed FY 2011/12 Pavement Management Plan was presented. The City Manager discussed the addition of \$1.3 million to meet the 15% Infrastructure

calculation. The additional funding resulted in two streets being added for rehabilitation. Discussion held.

Motion by Commissioner Thomas, seconded by Commissioner Herbel to recommend to the City Council the Fiscal Year 2011/12 Capital Improvement Program as amended.

VOTE:                   The motion carried.  
AYES:                   6  
NOES:                   0  
ABSENT:                1 (O'Connell)  
ABSTENTIONS:        0

**H. WRITTEN COMMUNICATIONS**

None

**I. COMMISSION AND STAFF COMMENTS**

Travis Hopkins addressed the recent Water Conservation Study by the Sierra Club and the City rating of poor. Staff is investigating the criteria the Sierra Club uses and if all rating areas were correctly counted for the City. Travis Hopkins is working with Building and Planning on city standards for rating criteria listed in the report and verifying green code compliance. A summary report on the findings will be provided to City Council and a follow-up report will be provided to the Public Works Commission. Discussion held.

**J. ADJOURNMENT**

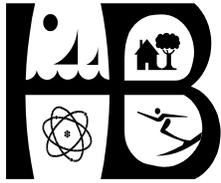
The meeting adjourned at 6:08 pm to August 17, 2011 in City Council Chambers.

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Michael Siersema  
Chair

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Joyce Greene  
Administrative Assistant



**CITY OF HUNTINGTON BEACH  
PUBLIC WORKS COMMISSION  
INFORMATION ITEM**

Item No. PWC 11-21

**SUBMITTED TO:** Chairman Siersema and Members of the Commission  
**SUBMITTED BY:** Travis K. Hopkins, PE, Director of Public Works  
**DATE:** September 21, 2011  
**SUBJECT:** NPDES Water Quality Management Plan

**Analysis:** The Santa Ana Regional Water Quality Control Board (RWQCB) (RWQCB) adopted NPDES Permit Order No. R8-2009-0030 on May 22, 2009. The County of Orange is the principal permittee along with 26 cities within Orange County as co-permittees to the National Pollutant Discharge Elimination System (NPDES) permit.

As part of the permit, the County and the cities of Orange County were required to modify the Model Water Quality Management Plan (WQMP) to include Low Impact Development (LID) best management practices (BMPs). The Model WQMP is an aid for project proponents to address post-construction urban runoff and stormwater pollution from new development and significant redevelopment projects that qualify as Priority Projects.

On May 19, 2011, the Executive Officer for the RWQCB approved the Model WQMP and accompanying Technical Guidance Document. Project proponents will be required to comply with the modified Model WQMP beginning August 17, 2011.

Staff will be providing an overview of the Model WQMP.

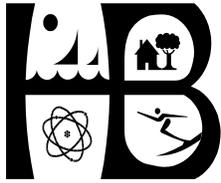












**CITY OF HUNTINGTON BEACH  
PUBLIC WORKS COMMISSION  
REQUEST FOR ACTION**

Item No. PW 11-23

**SUBMITTED TO:** Chairman Siersema and Members of the Commission

**SUBMITTED BY:** Travis K. Hopkins, PE, Director of Public Works

**DATE:** September 21, 2011

**SUBJECT:** Citywide Left Turn Phasing Study

**Statement of Issue:** A comprehensive evaluation of a prioritized list for the potential installation of left turn arrows at existing signalized intersections is presented to the Public Works Commission to review the methodology applied and the staff recommended priority list of locations. The Public Works Commission has the opportunity to provide input, suggestions and a recommendation to be forwarded to the City Council.

**Funding Source:** None required for this action. Traffic signals are typically funded through a variety of sources including grants, Air Quality Management funds, and Traffic Impact Fees. The Citywide Left Turn Phasing Study can be used to develop the annual Capital Improvement Program and identify grant opportunities.

**Impact on Future Maintenance Costs:** The Citywide Left Turn Phasing Study does not have an impact on future maintenance costs except through the identification of future installations that, if constructed, would marginally add to the City's infrastructure.

**Recommended Action:** Motion to recommend to the City Council,

1. Approve the methodology presented for developing the rankings contained in the Citywide Left Turn Phasing Study; and
2. Approve the revised Citywide Left Turn Phasing Study and ranking.

**Alternative Action(s):**

1. Recommend modification of evaluation
2. Other alternatives as identified by the Public Works Commission

### **Analysis:**

The City of Huntington Beach, as a part of its Strategic Plan, undertook a comprehensive study of the existing signalized intersections in the City to determine the need for the installation of left turn arrows.

The priority list resulting from this study fulfills several purposes including the following:

- Identifying future infrastructure needs for long-term fiscal planning;
- As a tool for evaluating potential grant opportunities to enhance City infrastructure funding;
- To identify locations that may require urgent attention;
- To aid in communication with residents and property owners requesting left turn arrows.

An initial task of this study was to develop an objective rating system to evaluate the intersections. Forty-seven signalized intersections which currently do not have left turn phasing in at least one direction were identified for analysis. For these 47 locations, the analysis of 66 separate street segments was undertaken. As an example, for an intersection with existing north-south left turn arrows, the study of the east-west left turns would constitute a single street segment. For an intersection with no existing left turn arrows, the study of both the east-west and north-south left turns would be considered two street segments.

The Manual of Uniform Traffic Control Devices (MUTCD) identifies two measures of analysis for the consideration of the installation of left turn arrows at an existing signalized intersection. The first measure is the collision history of the incidents which could be corrected by the installation of left turn arrows. The second measure is the delay time encountered by vehicles waiting to complete a left turn at the subject intersection.

### **Collision Criteria**

The MUTCD states that left turn arrows may be considered when five or more left turn collisions for a particular left turn movement occur within a recent twelve month period which could be correctable by the installation of left turn arrows.

Three left turn movements were identified which met the criteria. In addition, twenty additional left turn movements were identified which had three or four collisions within a recent twelve month period in a particular direction and were recommended for continued monitoring.

## Delay Criteria

The MUTCD states that left turn phasing may be considered if over the period of one hour, one or more vehicles which were waiting at the beginning of the green interval are still remaining in the left turn lane after the signal turns red after at least 80% of the traffic signal cycles in an hour. Delay studies were conducted at most of the study intersections and none were found to meet this threshold.

## Ranking

With three movements recording five correctible collisions, four movements recording four correctible collisions and 16 movements recording three correctible collisions, a ranking system was developed to prioritize intersections with similar collision counts. The ranking system employs a series of thresholds to act as "tiebreakers" among left turn movements with similar collision counts.

Under the criteria, the initial threshold was number of left turn collisions within a recent twelve month period, analyzing three years worth of data. The time period of September 1, 2006 to August 31, 2009 was selected since these were the most recent complete three year data sets that were available at the start of the study efforts.

As stated earlier, three left turn movements met the five collision criteria for consideration of left turn phasing. In order to develop a ranking among these three locations, a second threshold was developed considering the number of collisions within the latest twelve month period (September 1, 2008 to August 31, 2009). This was selected in an attempt to account for any recent increase in collisions. With this ranking system, a ranking of the top three locations was determined.

With the three movements that met the collision criteria ranked, a ranking process was undertaken for the locations that recorded three or four correctible collisions within a recent twelve month period. While not meeting the criteria for consideration of left turn arrows, the number of collisions does warrant continued monitoring as updated collision data is obtained.

The first threshold for ranking the "three collision" and "four collision" locations was the recent twelve month collision count, similar to that employed for the locations with five collisions. The next threshold was considering the highest twelve month collision count over the past nine years. A final tiebreaking threshold was considering the total number of collisions over the three year period from September 1, 2006 to August 31, 2009.

## Conclusions

The study identified locations which meet the criteria for consideration for the installation of left turn arrows, along with identifying and ranking other locations, which while they do not record the quantity of collisions that meet the criteria for left turn arrows, should be considered for future monitoring. This ranking, while included within the study is also included separately as Attachment 1.

## **Attachments:**

1. Analysis Summary Table and Rankings

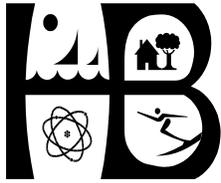
# **ATTACHMENT #1**

**TABLE B - CITY OF HUNTINGTON BEACH LEFT TURN STUDY  
COLLISION ANALYSIS BASED ON COLLISION DATA FROM JANUARY 2000 TO SEPTEMBER 2009**

Rank	ID #	Intersection (E/W and N/S)	Unprotected Approaches	Recent 12 month period in last 3 years (2006 - 2009) <sup>1</sup>			Past 12 months (9/08 - 9/09) <sup>2</sup>			12 month period in last 9 years (2000 - 2009) <sup>3</sup>			TOTAL last 3 years (2006 - 2009) <sup>4</sup>		
				1 Yr. NB or EB ULT	1 Yr. SB or WB ULT	Max Single Approach N/S or E/W	1 Yr. NB or EB ULT	1 Yr. SB or WB ULT	Max Single Approach N/S or E/W	1 Yr. NB or EB ULT	1 Yr. SB or WB ULT	Max Single Approach N/S or E/W	3 Yr. NB or EB ULT	3 Yr. SB or WB ULT	Max Single Approach N/S or E/W
				1	8	Heil and <b>Gothard</b>	NB/SB	7	1	7	2	1	2	7	4
2	17	Talbert and <b>Gothard</b>	NB/SB	0	5	5	0	4	4	0	6	6	0	10	10
3	29	<b>Yorktown</b> and Magnolia	EB/WB	3	5	5	0	1	1	3	5	5	4	7	7
4	24	(Garfield) and ( <b>Magnolia</b> )	NB/SB	4	2	4	0	2	2	4	5	5	4	6	6
5	19	(Garfield) and ( <b>Edwards</b> )	NB/SB	2	4	4	2	0	2	2	4	4	4	9	9
6	13	(Warner) and ( <b>Gothard</b> )	NB/SB	2	4	4	0	1	1	5	4	5	5	6	6
7	18	<b>Ellis</b> and Newland	EB/WB	4	2	4	0	1	1	4	3	4	3	3	3
8	2	<b>McFadden</b> and (Springdale)	EB/WB	3	2	3	3	1	3	4	4	4	9	3	9
9	29	Yorktown and <b>Magnolia</b>	NB/SB	3	2	3	3	1	3	3	4	4	7	4	7
10	16	<b>Slater</b> and Newland	EB/WB	1	3	3	0	3	3	3	3	3	3	8	8
11	18	Ellis and <b>Newland</b>	NB/SB	3	0	3	3	0	3	3	1	3	7	1	7
12	39	Hamilton and <b>Bushard</b>	NB/SB	2	3	3	2	3	3	2	3	3	3	4	4
13	14	<b>Slater</b> and (Gothard) 5	EB/WB	0	3	3	0	2	2	3	3	3	0	7	7
14	23	(Garfield) and <b>Newland</b>	NB/SB	1	3	3	1	2	2	2	3	3	1	4	4
15	1	<b>McFadden</b> and Graham	EB/WB	0	3	3	0	2	2	1	3	3	0	3	3
16	38	<b>Hamilton</b> and (Magnolia)	EB/WB	3	1	3	1	0	1	5	2	5	6	2	6
17	16	<b>Slater</b> and <b>Newland</b>	NB/SB	3	2	3	0	1	1	4	2	4	5	3	5
18	40	( <b>Hamilton</b> ) and (Brookhurst)	EB/WB	1	3	3	1	1	1	2	3	3	1	5	5
19	46	(Edinger) and <b>Sher</b>	NB/SB	2	3	3	1	0	1	2	3	3	3	3	3
20	11	( <b>Warner</b> ) and Graham	EB/WB	0	3	3	0	0	0	4	3	4	0	3	3
21	25	(Garfield) and <b>Bushard</b>	NB/SB	3	2	3	0	0	0	3	2	3	4	3	4
22	7	<b>Heil</b> and (Goldenwest)	EB/WB	1	3	3	0	0	0	2	3	3	1	3	3
23	35	Indianapolis and <b>Bushard</b>	NB/SB	1	3	3	0	0	0	2	3	3	1	3	3
24	12	(Warner) and ( <b>Edwards</b> )	NB/SB	1	2	2	1	2	2	2	6	6	3	3	3
25	38	Hamilton and ( <b>Magnolia</b> )	NB/SB	0	2	2	0	2	2	1	5	5	1	6	6
26	17	<b>Talbert</b> and Gothard	EB/WB	1	2	2	0	2	2	3	5	5	2	6	6
27	8	<b>Heil</b> and Gothard	EB/WB	1	2	2	0	2	2	2	5	5	2	5	5
28	6	<b>Heil</b> and Edwards	EB/WB	1	2	2	0	2	2	3	2	3	3	4	4
29	1	McFadden and <b>Graham</b>	NB/SB	1	2	2	0	2	2	1	2	2	1	2	2
30	6	Heil and <b>Edwards</b>	NB/SB	2	1	2	1	0	1	6	2	6	2	1	2
31	47	<b>Slater</b> and (Goldenwest)	EB/WB	0	2	2	0	1	1	2	4	4	1	5	5
32	2	McFadden and ( <b>Springdale</b> )	NB/SB	1	2	2	1	1	1	2	3	3	3	5	5
33	44	(Slater) and <b>Edwards</b>	NB/SB	1	2	2	0	1	1	2	3	3	1	5	5
34	26	( <b>Yorktown</b> ) and (Main)	EB/WB	2	0	2	1	0	1	3	3	3	4	0	4
35	28	Yorktown and <b>Newland</b>	NB/SB	2	1	2	1	0	1	2	2	2	4	1	4
36	36	<b>Atlanta</b> and Bushard	EB/WB	2	0	2	1	0	1	2	1	2	3	0	3
37	39	<b>Hamilton</b> and Bushard	EB/WB	2	0	2	1	0	1	2	2	2	3	1	3
38	5	<b>Heil</b> and (Springdale)	EB/WB	2	2	2	0	0	0	2	3	3	2	3	3
39	3	( <b>McFadden</b> ) and (Goldenwest)	EB/WB	2	2	2	0	0	0	2	3	3	3	2	3
40	4	Edinger and <b>Graham</b>	NB/SB	1	2	2	0	0	0	1	3	3	2	2	2
41	46	( <b>Edinger</b> ) and Sher	EB/WB	0	2	2	0	0	0	0	2	2	0	4	4
42	36	Atlanta and <b>Bushard</b>	NB/SB	2	1	2	0	0	0	2	2	2	3	2	3
43	11	(Warner) and <b>Graham</b>	NB/SB	1	0	1	1	0	1	4	2	4	3	0	3
44	37	<b>Atlanta</b> and (Brookhurst)	EB/WB	1	0	1	1	0	1	3	1	3	5	0	5
45	33	Indianapolis and <b>Newland</b>	NB/SB	1	1	1	1	1	1	1	3	3	1	4	4
46	27	<b>Yorktown</b> and Lake	EB/WB	1	1	1	1	0	1	1	2	2	2	3	3
47	22	( <b>Garfield</b> ) and Florida	EB/WB	1	1	1	1	0	1	1	2	2	2	1	2
48	34	( <b>Indianapolis</b> ) and (Magnolia)	EB/WB	1	1	1	0	1	1	1	2	2	2	2	2
49	45	( <b>Ellis</b> ) and (Goldenwest)	EB/WB	1	1	1	1	1	1	1	1	1	1	1	1
50	32	( <b>Adams</b> ) and (Bushard)	EB/WB	0	1	1	0	0	0	6	4	6	0	1	1
51	42	( <b>Warner</b> ) and Nichols	EB/WB	1	1	1	0	0	0	1	4	4	1	2	2
52	4	<b>Edinger</b> and Graham	EB/WB	0	1	1	0	0	0	2	2	2	0	2	2
53	42	(Warner) and <b>Nichols</b>	NB/SB	0	1	1	0	0	0	1	2	2	0	2	2
54	28	<b>Yorktown</b> and Newland	EB/WB	1	1	1	0	0	0	2	1	2	1	1	1
55	33	<b>Indianapolis</b> and Newland	EB/WB	0	1	1	0	0	0	1	1	1	1	2	2
56	21	(Garfield) and ( <b>Gothard</b> )	NB/SB	1	1	1	0	0	0	1	1	1	1	1	1
57	32	(Adams) and ( <b>Bushard</b> )	NB/SB	0	1	1	0	0	0	1	1	1	0	1	1
58	35	<b>Indianapolis</b> and Bushard	EB/WB	0	1	1	0	0	0	0	1	1	0	1	1
59	43	( <b>Warner</b> ) and Ash	EB/WB	0	0	0	0	0	0	1	2	2	0	1	1
60	31	(Adams) and <b>Newland</b>	NB/SB	0	0	0	0	0	0	1	2	2	0	0	0
61	15	<b>Slater</b> and (Nichols)	EB/WB	0	0	0	0	0	0	1	1	1	0	0	0
62	20	(Garfield) and <b>Saddleback</b>	NB/SB	0	0	0	0	0	0	0	1	1	0	0	0
63	30	( <b>Adams</b> ) and Coldwater	EB/WB	0	0	0	0	0	0	0	1	1	0	0	0
64	9	<b>Heil</b> and (Newland)	EB/WB	0	0	0	0	0	0	0	0	0	0	0	0
65	10	(Warner) and <b>Plaza/Greentree</b>	NB/SB	0	0	0	0	0	0	0	0	0	0	0	0
66	41	<b>Bolsa</b> and Boeing	EB	0	0	0	0	0	0	0	0	0	0	0	0

Notes:

- Data provided in columns are for the street in **BOLD**.
- (Street) = Approaches on street have existing protected or protected-permissive left turn phasing.
- # = MUTCD Collision Guidance Criteria of 5 or more collisions in a recent 12 month period met. "Recent" is defined as the last three years of reporting.
- <sup>1</sup> - Number of collisions in a particular left turn approach within a 12 month period between September 2006 to September 2009 (3 year period).
- <sup>2</sup> - Number of collisions in a particular left turn approach in the past 12 months between September 2008 to September 2009 (1 year period).
- <sup>3</sup> - Number of collisions in a particular left turn approach within a 12 month period between September 2000 to September 2009 (9 year period).
- <sup>4</sup> - Number of collisions in a particular left turn approach for a TOTAL 3 year period between September 2006 to September 2009 (last 3 years).
- 5 - The highest "Not Cleared" location in the delay analysis. The intersection is NOT flat. Gothard Street is higher than Slater Avenue.



**CITY OF HUNTINGTON BEACH  
PUBLIC WORKS COMMISSION  
REQUEST FOR ACTION**

Item No. PW 11-22

**SUBMITTED TO:** Chairman Siersema and Members of the Commission

**SUBMITTED BY:** Travis K. Hopkins, PE, Director of Public Works

**DATE:** September 21, 2011

**SUBJECT:** 2011 Traffic Signal Priority List Update

**Statement of Issue:** A comprehensive evaluation of a prioritized list for potential new traffic signal installations is presented to the Public Works Commission to review the methodology applied and the staff recommended priority list of locations. The Public Works Commission has the opportunity to provide input, suggestions and a recommendation to be forwarded to the City Council.

**Funding Source:** None required for this action. Traffic signals are typically funded through a variety of sources including grants, Air Quality Management funds, and Traffic Impact Fees. The Traffic Signal Priority List can be used to develop the annual Capital Improvement Program and identifying grant opportunities.

**Impact on Future Maintenance Costs:** The Traffic Signal Priority List does not have an impact on future maintenance costs except through the identification of future installations that, if constructed, would add to the City's infrastructure.

**Recommended Action:** Motion to recommend to the City Council,

1. Approve the methodology presented for developing the Traffic Signal Priority List; and
2. Approve the revised Traffic Signal Priority List and ranking.

**Alternative Action(s):**

1. Recommend modification of evaluation methodology (e.g. revise attribute weighting, revise point assessments for specific locations).
2. Other alternatives as identified by the Public Works Commission.

## Analysis:

The City Council establishes a Traffic Signal Priority List to fulfill several purposes including the following:

- Identifying future infrastructure needs for long-term fiscal planning
- As a tool for evaluating potential grant opportunities to enhance City infrastructure funding
- To identify locations that may require urgent attention
- To aid in communication with residents and property owners requesting new traffic signals

The City has been using a multi-point attribute weighting system to assess traffic signal needs and establish priorities since 2004. These attributes were developed to not only reflect accepted engineering principles for determining the need for traffic signals, but also better differentiate between conditions at locations and reflect community priorities. The Public Works Commission actively participated in the development of this methodology at that time.

The warrant analysis and attribute weighting system reflects the basic factors used in evaluating the need for traffic signals (traffic volumes, accident history, pedestrian volumes, school pedestrian activity, vehicle delay and roadway system characteristics).

The warrants are summarized below:

- Warrant 1 – Eight Hour Vehicle Volume
- Warrant 2 – Four Hour Vehicular Volume
- Warrant 3 – Peak Hour
- Warrant 4 – Pedestrian Volume
- Warrant 5 – School Crossing
- Warrant 6 – Coordinated Signal System
- Warrant 7 – Crash Warrant
- Warrant 8 – Roadway Network

For the purposes of this analysis, Warrants 1, 2, 3, 5 and 7 were analyzed in detail. Staff then applied the attribute weighting system shown in Attachment 1. Staff developed a list of 150 locations for potential traffic signal installations. Attachment 2 presents the initial list of locations along with the initial screening criteria summary. These criteria were used to identify those locations with the greatest likelihood of ranking highly in this system.

## Location Screening Criteria

Locations satisfying any of the following criteria were retained for further study.

- a) Three or more correctable property damage accidents or one injury accident at a location during a 12-month period in the past three years. Correctable accidents are those that would likely be reduced with the installation of a traffic signal such as broadside and head-on collisions.

- b) Pedestrian activity meeting the traffic signal threshold based on school area pedestrian crossings.
- c) Locations on previous Traffic Signal Priority List.

Using these criteria, the initial list is substantially reduced from 150 to 49, with the 49 remaining locations requiring additional analysis.

The detailed analyses and attribute weighting system applied to each of the 50 locations yielded a wide range of attribute scoring. The overall point system was developed to weight each of the three major components of the warrant system equally. The traffic volume-related warrants comprise 35 of the potential points, school crossings 35 points, and accident history 30 points. Staff also included an “adjustment” category to assess factors not directly included in the warrants, but relevant in the ultimate decision of whether or not to provide traffic signal control at an intersection. Each of the elements assessed in the adjustment factor is reviewed in the following sections:

Non-school Pedestrian Activity – Up to 20 additional points were given to locations where significant pedestrian activity was present at a location where there are no other traffic controls to assist pedestrians in crossing the streets. Since specific pedestrian counts were not conducted at non-school locations, the assessment is based on staff experience. This factor was not applied to locations where existing all-way stop traffic control is provided.

Current or Potential All-Way Stop Control – Locations that meet signal warrants but currently have or are good candidates for all-way stop control had points deducted from their total. This adjustment reflects the fact that stop signs generally work to assign right-of-way, reduce vehicle conflicts and injury accident potential. This can be an effective way of managing traffic if volumes are relatively low and evenly distributed around an intersection. However, this operation limits capacity and can result in significant delays as demand becomes high. Intersections experiencing acceptable delays even during peak periods were reduced 20 points. Those with some periods of heavy delay were reduced 10 points.

The results of the attribute analysis help to further refine the list of intersections down to those that should be considered viable candidates for signalization and inclusion in the priority list. Based on the analysis, staff recommends that only those intersections that scored more than 15 points in the attribute analysis be considered viable traffic signal locations.

One intersection that scored well in the attribute analysis is being recommended for alternative treatment. The intersection of Yorktown Avenue and Huntington Street received a total of 41 points in the evaluation, ranking it second in points. However, due to the close spacing of signal controlled intersections that would

result if one were installed at that location, staff is recommending that an alternative strategy be pursued for this location. The vast majority of capacity and safety challenges at this intersection can be eliminated by restricting several of the traffic movements at the intersection. Construction of a channelizing median that would only allow left turns to be made from Yorktown into Huntington Street while restricting all other movements from either leg of Huntington Street to right turns would eliminate the need for a traffic signal. It would result in some diversion of traffic to other streets or require U-turns at adjacent intersections.

Attachment 3 presents the results of the attribute analysis and recommended priority ranking for the viable traffic signal locations with the Yorktown/Huntington intersection still included. Attachment 4 presents those locations that did not meet that scoring criteria and the results of the associated attribute analysis.

### Conclusions

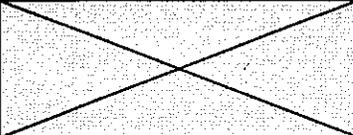
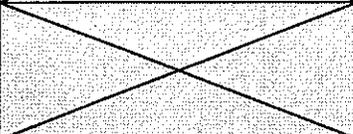
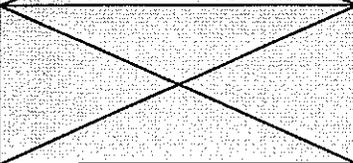
The recommended Traffic Signal Priority List is based on the analyses and attribute weighting system presented. The methodology for establishing traffic signal priorities presents a formal method for reflecting both the actual street conditions and community priorities. The updated traffic volume and accident information has resulted in some significant changes in the priority list. The list reflects sound application of the current State of California standards for traffic control devices.

### **Attachments:**

1. Attribute Weight System Scoring Summary
2. Initial Locations Analyzed
3. Recommended Traffic Signal Priority Ranking
4. Locations Meeting Initial Screening and Not Meeting Final Scoring Criteria

# **ATTACHMENT #1**

## TRAFFIC SIGNAL PRIORITY ATTRIBUTE WEIGHTING ASSIGNMENT

Criteria	Points Available	Point Value Description			
<u>Warrant 1 - 8 Hour Vehicle Volume</u>	15	0		10	15
		Does not satisfy any portion of warrant		Satisfies minimum warrants for all times	All volumes exceed threshold by 50%
<u>Warrant 2 - 4 Hour Vehicle Volume</u>	10	0		8	10
		Does not satisfy any portion of warrant		Satisfies minimum warrants for all times	All volumes exceed threshold by 50% or more
<u>Warrant 3 - Peak Hour</u>	10	0		8	10
		Does not satisfy any portion of warrant		Satisfies minimum warrants for all times	All volumes exceed threshold by 50% or more
<u>Warrant 5 - School Crossing</u>	35	0	10	25	35
		Warrant not satisfied	Pedestrian volume element of warrant satisfied, minimal traffic volumes, 2 lane roadway	Warrant satisfied, multi-lane roadway or high volume 2 lane roadway	Warrant satisfied, substantial pedestrians outside school hours, street volume >15,000/day
<u>Warrant 7 - Crash Warrant</u>	30	0	10	25	30
		Warrant not satisfied. No correctable accidents reported	Warrant not satisfied. 3+ correctable PDO in 12 month period or 1+ injury or fatal accident	Warrant satisfied. 5-7 correctable PDO accidents in 12 month period; or Warrant not satisfied and 3+ injury/fatal accidents in 12 month period	Warrant satisfied. 5+ correctable accidents - 2+ injury/fatal in 12-month period; or 8+ PDO accidents in 12-month period
<u>Other Traffic Control Adjustment</u>	+ 20 to -20	20	-20	-10	-10
		Significant uncontrolled pedestrian activity	Current or potential all-way stop treatment with minimal delays	Current all-way stop with significant delays at peak times	Potential local modification to mitigate signal need (e.g. increase sight distance)
<b>Total (excluding adjustment factor)</b>	<b>100</b>				

# **ATTACHMENT #2**

**INITIAL INTERSECTION EVALUATION SUMMARY  
2010 SIGNAL PRIORITY STUDY**

	<b>Location</b>	<b>A. Correctable Accidents</b>	<b>B. Pedestrian Volume</b>	<b>C. Previous Priority List</b>	<b>D. Special Conditions</b>	<b>Satisfied Any Criteria (A, B, C, or D)?</b>
1	12th St at Main St	1	NO	NO	NO	NO
2	14th St at Crest	0	YES	YES	NO	YES
3	17th St at Acadia	5	NO	NO	NO	YES
4	17th St at Adams	5	NO	NO	NO	YES
5	17th St at Clay	0	NO	NO	NO	NO
6	17th St at Estate Cir	5	NO	NO	NO	YES
7	17th Street at Orange	2	NO	NO	NO	NO
8	A at Warner	1	NO	NO	NO	NO
9	Adams at Crown Reef/Felcliff	2	NO	YES	NO	YES
10	Adams at Derbyshire Ln	1	NO	NO	NO	NO
11	Adams at Huntington	4	NO	NO	NO	YES
12	Adams at Lawson	0	NO	NO	NO	NO
13	Adams at Piccadilly	1	NO	NO	NO	NO
14	Adams at Shorewood Cir	1	NO	NO	NO	NO
15	Algonquin at Davenport	0	NO	NO	NO	NO
16	Alabama at Frankfort/6th	1	NO	NO	NO	NO
17	Alabama at Memphis	2	NO	NO	NO	NO
18	Atlanta at Surfwood	1	NO	YES	YES	YES
19	B at Warner	3	NO	NO	NO	YES
20	Banning at Malibu	1	YES	YES	NO	YES
21	Beach at Blaylock	4	NO	NO	NO	YES
22	Beach at Chrysler	6	NO	NO	NO	YES
23	Beach at Clay	2	NO	YES	NO	YES
24	Beach at Constantine	4	NO	NO	NO	YES
25	Beach at Cypress	4	NO	NO	NO	YES
26	Beach at Graziadio	5	NO	YES	NO	YES
27	Beach at Holland	7	NO	YES	NO	YES
28	Beach at Liberty	0	NO	NO	NO	NO
29	Beach at Knoxville	2	NO	NO	NO	NO
30	Beach at Memphis	4	NO	YES	NO	YES
31	Beach at Robidoux	1	NO	YES	NO	YES
32	Beach at Ronald	4	NO	NO	NO	NO
33	Beach at Seabridge/Memphis	4	NO	YES	NO	YES
34	Beach at Speer	3	NO	YES	NO	YES
35	Bolsa Chica at Pearce	3	NO	YES	NO	YES
36	Bolsa Chicat at Sisson	0	NO	NO	NO	NO
37	Brookhurst at Constitution	2	NO	YES	NO	YES
38	Brookhurst at Continental	2	NO	YES	NO	YES
39	Brookhurst at Kukui	2	NO	NO	NO	NO
40	Brookhurst at Villa Pacific	1	NO	NO	NO	NO
41	Bushard at Banning	4	NO	NO	NO	YES
42	Bushard at Castlegate	0	NO	NO	NO	NO
43	Bushard at Woodlawn/Nantucket	1	NO	NO	NO	NO
44	Delaware at 17th	1	NO	NO	NO	NO
45	Delaware at Atlanta	2	NO	NO	NO	NO
46	Delaware at Frankfort	1	NO	NO	NO	NO
47	Delaware at Indianapolis	1	NO	NO	NO	NO
48	Delaware at Memphis	1	NO	NO	NO	NO
49	Delaware at Utica	1	NO	NO	NO	NO
50	Edinger at Belfast	1	NO	NO	NO	NO

Initial Evaluation - Intersections evaluated in 2007 were reevaluated, as were intersections on the "High Incidence Intersection Report".  
Accident data for the 146 locations were evaluated along with other factors evaluated such as accident type, ped volumes, special conditions, etc.

**INITIAL INTERSECTION EVALUATION SUMMARY  
2010 SIGNAL PRIORITY STUDY**

	<b>Location</b>	<b>A. Correctable Accidents</b>	<b>B. Pedestrian Volume</b>	<b>C. Previous Priority List</b>	<b>D. Special Conditions</b>	<b>Satisfied Any Criteria (A, B, C, or D)?</b>
51	Edinger at Plymouth	4	NO	NO	NO	YES
52	Edinger at Saybrook	3	NO	NO	NO	YES
53	Edwards at Alexandria	0	NO	NO	NO	NO
54	Edwards at Central Park/Varsity	0	NO	NO	NO	NO
55	Edwards at El Cortijo	1	NO	NO	NO	NO
56	Edwards at Lennox	4	NO	NO	NO	YES
57	Edwards at Wrenfield	0	NO	NO	NO	NO
58	Ellis at Delaware	4	NO	YES	NO	YES
59	Ellis at Patterson	0	NO	NO	NO	NO
60	Florida at Clay	1	NO	NO	NO	NO
61	Florida at Utica	0	NO	NO	NO	NO
62	Garfield at Coldchester/Mora Kai	2	NO	NO	NO	NO
63	Garfield at Suva	0	NO	NO	NO	NO
64	Goldenwest at Deep Harbor	2	NO	YES	NO	YES
65	Graham at Glenstone	0	NO	NO	NO	NO
66	Graham at Meadowlark	2	NO	NO	NO	NO
67	Graham at Research	1	NO	YES	NO	YES
68	Graham at Slater	0	NO	NO	NO	NO
69	Hamilton at Polynesian	2	NO	NO	NO	NO
70	Heil at Algonquin/Seaview	0	NO	NO	NO	NO
71	Heil at Bradbury	1	NO	YES	NO	YES
72	Heil at Clubhouse	0	NO	NO	NO	NO
73	Heil at Monroe	0	YES	YES	NO	YES
74	Heil at Redlands	1	NO	NO	NO	NO
75	Heil at Sabot	1	NO	YES	NO	YES
76	Heil at Silver	2	NO	NO	NO	NO
77	Indianapolis at Alisa	1	NO	NO	NO	NO
78	Indianapolis at Ives/Oakridge	2	YES	NO	NO	YES
79	Lake at Memphis/11th St	0	NO	NO	NO	NO
80	Lake at Orange/3rd St	1	NO	NO	NO	NO
81	Lake at Utica	1	NO	YES	NO	YES
82	Magnolia at Bedel/Village	2	NO	NO	NO	NO
83	Magnolia at Mediterranean	0	NO	YES	NO	YES
84	Magnolia at Moorpark/Seahurst	3	NO	YES	NO	YES
85	Magnolia at Pioneer	1	NO	NO	NO	NO
86	Main at Crest	1	NO	YES	NO	YES
87	Main at Loma/14th	0	NO	YES	NO	YES
88	Main at Olive	1	NO	NO	NO	NO
89	Main at Orange	3	NO	NO	NO	YES
90	Main at Walnut	1	NO	YES	NO	YES
91	McFadden at Sugar	0	NO	NO	NO	NO
92	Newland at Bridgeport/Naples	0	NO	NO	NO	NO
93	Newland at Deepview/Doremere	2	NO	NO	NO	NO
94	Newland at Friesland	2	NO	NO	NO	NO
95	Newland at Kelso/Norfolk	0	NO	NO	NO	NO
96	Newland at Rembrandt	0	NO	NO	NO	NO
97	Newland at St Augustine	0	NO	NO	NO	NO
98	Olive at 3rd	1	NO	NO	NO	NO
99	Olive at 5th	1	NO	NO	NO	NO
100	Olive at 6th	1	NO	NO	NO	NO

**INITIAL INTERSECTION EVALUATION SUMMARY**  
**2010 SIGNAL PRIORITY STUDY**

	Location	A. Correctable Accidents	B. Pedestrian Volume	C. Previous Priority List	D. Special Conditions	Satisfied Any Criteria (A, B, C, or D)?
101	Orange at 6th	2	NO	NO	NO	NO
102	Orange at 11th	1	NO	NO	NO	NO
103	Orange at 14th	1	NO	NO	NO	NO
104	Orange at 5th St/Townsquare	1	NO	NO	NO	NO
105	Orange at 7th	2	NO	NO	NO	NO
106	Orange at 9th	0	NO	NO	NO	NO
107	Pacific Coast Hwy at 14th	1	NO	NO	NO	NO
108	Pacific Coast Hwy at 18th	0	NO	NO	NO	NO
109	Palm at 11th	1	NO	NO	NO	NO
110	Palm at 14th	1	NO	NO	NO	NO
111	Palm at Cherryhill	0	NO	NO	NO	NO
112	Palm at Island Bay	0	NO	NO	NO	YES
113	Palm at Main	5	NO	NO	NO	YES
114	Palm at Ofelia	0	NO	NO	NO	NO
115	Saybrook at Branford	0	NO	NO	NO	NO
116	Saybrook at Davenport	0	NO	NO	NO	NO
117	Saybrook at Edinger	4	NO	NO	NO	YES
118	Saybrook at Heil	0	NO	NO	NO	NO
119	Saybrook at Humboldt	0	NO	NO	NO	NO
120	Stater at Cordoba	1	NO	NO	NO	NO
121	Stater at Griffin	1	NO	NO	NO	NO
122	Stater at Jefferson	1	NO	NO	NO	NO
123	Stater at Keelson	2	NO	YES	NO	NO
124	Stater at Morgan	1	NO	NO	NO	YES
125	Springdale at Briarcliff	0	NO	NO	NO	NO
126	Springdale at Croupier	1	NO	NO	YES	YES
127	Springdale at Meadowlark	1	NO	NO	NO	NO
128	Springdale at Orlando	0	NO	NO	NO	NO
129	Springdale at Talbert	1	NO	NO	NO	NO
130	Talbert at Brookshire/Kovacs	4	NO	NO	NO	YES
131	Talbert at Hartlund	4	NO	NO	NO	YES
132	Talbert at Varsity/Ivorycrest	0	NO	NO	NO	NO
133	Walnut at 3rd	0	NO	NO	NO	NO
134	Walnut at 5th	0	NO	NO	NO	NO
135	Walnut at 6th	0	NO	NO	NO	NO
136	Warner at Green	3	NO	NO	NO	YES
137	Warner at Lyndon	3	NO	NO	NO	YES
138	Warner at Lynn	5	NO	NO	NO	YES
139	Warner at Minoru	0	NO	NO	NO	NO
140	Warner at Oak	2	NO	NO	NO	YES
141	Warner at Pinehurst	2	NO	NO	NO	NO
142	Warner at Ross	3	NO	NO	NO	YES
143	Warner at Sculpin	4	NO	NO	NO	YES
144	Yorktown at Brigantine	0	NO	NO	NO	NO
145	Yorktown at Honeywood	0	NO	NO	NO	NO
146	Yorktown at Huntington	6	NO	YES	NO	YES

# **ATTACHMENT #3**

2010 TRAFFIC SIGNAL PRIORITY LIST

Priority	Location	Warrant 1 - 8 Hour Vehicle Volume		Warrant 2 - 4 Hour Vehicle Volume		Warrant 3 - Peak Hour		Warrant 5 - School Crossing		Warrant 7 - Crash Warrant		Adjustment Factor (1)		Total Points	Previous Priority Rank
		Satisfied?	Points	Satisfied?	Points	Satisfied?	Points	Satisfied?	Points	Satisfied?	Points	Satisfied?	Points		
1	Magnolia at Moorpark/Seahurst	YES	10	YES	8	YES	8	NO	-	NO	25	NO	-	51	10
2	Yorktown at Huntington*	YES	10	YES	8	YES	8	NO	-	YES	25	YES	(10)	41	6
3	Springdale at Croupier	YES	10	NO	-	YES	8	NO	-	YES	20	NO	-	38	-
3	Beach at Memphis	YES	10	YES	8	YES	10	NO	-	NO	10	NO	-	38	4
5	Bolsa Chica at Pearce	YES	10	YES	8	YES	8	NO	-	NO	10	NO	-	36	5
5	Goldenwest at Deep Harbor	YES	10	YES	8	YES	8	NO	-	NO	10	NO	-	36	6
5	Adams at Huntington	YES	10	YES	8	YES	8	NO	-	NO	10	NO	-	36	-
5	Atlanta at Surfwood	YES	10	YES	8	YES	8	NO	-	NO	10	NO	-	36	-
9	Ellis at Delaware	YES	10	YES	8	YES	8	NO	-	NO	25	YES	(20)	31	24
9	Edinger at Saybrook	YES	10	YES	8	YES	8	NO	-	NO	25	YES	(20)	31	-
11	Graham at Research	YES	10	YES	8	NO	-	NO	-	NO	10	NO	-	28	18
12	Magnolia at Mediterranean	YES	10	YES	8	YES	8	NO	-	NO	-	NO	-	26	3
12	Talbert at Brookshire/Kovacs	YES	10	YES	8	YES	8	NO	-	NO	10	YES	(10)	26	-
12	Heil at Sabot	YES	10	YES	8	YES	8	NO	-	NO	10	YES	(10)	26	10
14	Edwards at Lennox	YES	10	NO	-	NO	-	NO	-	NO	10	NO	-	20	-
15	17th Street at Adams	YES	10	YES	8	YES	8	NO	-	NO	10	YES	(20)	16	10

Point summary (> 15 points) based on Traffic Signal Priority Attribute Weighting Assignment

# **ATTACHMENT #4**

2010 TRAFFIC SIGNAL PRIORITY LIST

Ref. #	Location	Warrant 1 - 8 Hour Vehicle Volume		Warrant 2 - 4 Hour Vehicle Volume		Warrant 3 - Peak Hour		Warrant 5 - School Crossing		Warrant 7 - Crash Warrant		Adjustment Factor (1)		Total Points	Previous Priority Rank
		Satisfied?	Points	Satisfied?	Points	Satisfied?	Points	Satisfied?	Points	Satisfied?	Points	Satisfied?	Points		
18	Edinger at Plymouth	NO	-	NO	-	NO	-	NO	-	NO	25	YES	(10)	15	-
19	Main at Walnut	NO	-	NO	-	NO	-	NO	-	NO	25	NO	(10)	15	-
20	Warner at Lynn	NO	-	NO	-	NO	-	NO	-	NO	25	NO	(10)	15	-
21	17th Street at Acacia	NO	-	NO	-	NO	-	NO	-	YES	30	YES	(20)	10	-
22	Adams at Crown Reef/Felcliff	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	23
23	Banning at Malibu	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	15
24	Beach at Blaylock	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
25	Beach at Chrysler	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
26	Beach at Clay	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
27	Beach at Constantine	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
28	Beach at Cypress	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
29	Beach at Holland	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	9
30	Beach at Robidoux	NO	-	NO	-	YES	8	NO	-	NO	10	NO	-	10	10
31	Beach at Speer	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	15
32	Indianapolis at Ives/Oakridge	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
33	Lake at Utica	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	20
34	Main at Crest	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	26
35	Main at Orange	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
36	Palm at Main	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
37	Talbert at Hartlund	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
38	Warner at Green	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
39	Warner at Lyndon	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
40	Warner at Ross	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
41	Warner at Sculpin	NO	-	NO	-	NO	-	NO	-	NO	10	NO	-	10	-
42	Beach at Graziadio	NO	-	NO	-	YES	8	NO	-	NO	10	NO	(10)	8	20
43	Brookhurst at Constitution	NO	-	NO	-	YES	8	NO	-	NO	-	NO	-	8	20
44	McFadden at Sugar	NO	-	NO	-	YES	8	NO	-	NO	-	NO	-	8	-
45	14th Street at Crest	NO	-	NO	-	NO	-	YES	25	NO	-	NO	(20)	5	26
46	Bushard at Banning	NO	-	NO	-	NO	-	NO	-	NO	25	YES	(20)	5	-
47	Heil at Monroe	NO	-	NO	-	NO	-	NO	-	NO	-	NO	-	-	15
48	Main at Loma/14th	NO	-	NO	-	NO	-	NO	-	NO	-	NO	-	-	24
49	Slater at Morgan	NO	-	NO	-	NO	-	NO	-	NO	-	NO	-	-	10

Point summary based on Traffic Signal Priority Attribute Weighting Assignment