

AGENDA ITEM NO.

COUNCIL MEETING 03/01/12

APPROVED BY



DEPARTMENT DIRECTOR

CITY MANAGER

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**SUBJECT:** ANNUAL UPDATE OF PRIORITY RANKING LISTS FOR NEW TRAFFIC SIGNAL INSTALLATIONS, TRAFFIC SIGNAL LEFT TURN PHASING AND INTERSECTION TRAFFIC FLOW IMPROVEMENTS

### RECOMMENDATION

Staff recommends that the Council receive the updated City-wide priority ranking lists for new traffic signal installations, traffic signal left turn phasing and intersection traffic flow improvements.

### EXECUTIVE SUMMARY

Staff has completed the annual update of City-wide priority ranking lists for new traffic signal installations, left turn phasing installations, and traffic flow improvements such as widening for dual left turn lanes that are partially or wholly funded through traffic signal mitigation impact fees. The update of the priority ranking lists includes new traffic counts, analysis of accidents during the past year and engineering consideration of other field changes such as new schools that have opened in the vicinity of the subject intersections. The scoring criteria are based upon traffic engineering criteria established by the Federal Highway Administration and the California Department of Transportation. Intersections that have been completed or that have started construction since the last annual report in January 2011 have been removed from the priority ranking lists. It should be noted that this past year since the last update two existing signalized intersections were upgraded with left turn phasing by City capital projects and two intersections were signalized by City capital projects and have been removed from the priority ranking worksheets. The ranking lists will be used to prepare the FY13 capital improvement budget and apply for grants in an objective manner based upon available and projected traffic signal mitigation impact fees. Council approved an update of the impact fees and the intersections covered by those fees on October 21, 2008. Attached to this report are the new priority ranking lists for new signal installations, modifications for left turn phasing and traffic flow improvements.

### BACKGROUND

Every fall, the Traffic and Engineering Services Division conducts updated traffic counts, reviews intersection accident reports and performs an engineering analysis in accordance with adopted standards of the Federal Highway Administration and California Department of Transportation. This analysis includes 8-hour traffic volumes, peak hour volumes, pedestrian counts, accident history and proximity of schools to the intersections. Unsignalized intersections are analyzed to determine if installation of a traffic signal is warranted. Warrants are evaluated purely using FHWA standards from the Manual on Uniform Traffic Control Devices (MUTCD). Existing signalized intersections that

do not have left turn phasing (i.e., protected left turn movements via green arrows) are analyzed to determine if warrants are met for the installation of left turn phasing, which is based upon the number of peak hour conflicts between through traffic and opposing left turning vehicles or the number of accidents that would be correctable with installation of left turn phasing.

Intersections where warrants are met are then objectively scored and ranked in priority order City-wide. The point system for new traffic signal installations conforms to Federal Highway Administration requirements and is based upon overall traffic volumes for both directions (10 points maximum), peak hour traffic (10 points maximum), three-year history for correctable accidents (5 points per correctable reported collision in the annual average), schools within 0.25 miles (10 points maximum), activity centers within 1,000 feet (3 points maximum), potential signal coordination benefits (5 points maximum), intersection sight distance (2 points maximum), funding opportunities or cost/benefit ratio (2 points maximum) and engineering judgment of special conditions (3 points maximum). The point system for left turn phasing installations is based upon the peak hour product of left turning vehicles and opposing through traffic (5 points maximum), three-year history for correctable accidents (5 points per correctable reported collision in the annual average), schools within 0.25 miles (10 points maximum), activity centers within 1,000 feet (3 points maximum), intersection sight distance (2 points maximum), funding opportunities or cost/benefit ratio (2 points maximum) and engineering judgment of special conditions (3 points maximum).

The third priority ranking list for intersection traffic flow improvements such as widening for dual left turn lanes that are partially or wholly funded through traffic signal mitigation impact fees. The traffic signal mitigation impact fee program includes multiple intersections throughout the City where additional turn lanes are required to mitigate the intersection to Level of Service D with the additional traffic from new development. To date the City has primarily funded such improvements with Federal transportation grant funds with partial project funding from the impact fee program. Staff has developed this priority list using level of service for existing and future traffic conditions with and without the improvements, cost-effectiveness of dollars spent versus congestion relief, engineering judgment concerning potential for safety improvements and ability to leverage transportation grant funding.

The updated City-wide priority ranking lists are included as Attachments "A", "B" and "C". The priority ranking lists also indicate the funding status of each intersection. Some intersections must be signalized as a condition of approval for a specific development and have been noted as "Developer to Install". Other intersections have been funded as capital improvement projects based upon a high ranking in prior years and/or a successful grant application for State and Federal funds.

The construction schedules have been delayed due to a significant decline in traffic signal mitigation impact fee revenues generated from new development. The average monthly revenue for FY12 (July to November) is \$50,866 which is a decrease from FY11 (\$62,495/month). Previous fiscal year monthly averages are as follows: FY10 (\$61,150/month), FY09 (\$96,472/month), FY08 (\$124,786/month), FY07 (\$248,623/month) and FY06 (\$260,170/month). Given the limited impact fees currently available for capital projects, the Department's goal is to have our current projects "shelf-ready" for construction and to also aggressively pursue alternative funding sources such as Federal and State grants for delivery of these projects.

**FISCAL IMPACT**

The annual update of traffic signal priority ranking lists has been accomplished within the operating budget of the Public Works Department. There will be no additional impact on the General Fund.

Attachments:     **"A" - Priority Ranking List for New Traffic Signals**  
                      **"B" - Priority Ranking List for Left Turn Phasing**  
                      **"C" - Priority Ranking List for Intersection Traffic Flow Improvements**



ATTACHMENT "A"

**2012 PRIORITY LIST FOR NEW TRAFFIC SIGNAL INSTALLATIONS**

Priority Ranking	Intersection	Council District	School located within 1/4-mile	Total Points	Construction Cost Estimate	Comments
1	Ventura and 99 NB off ramp	3	Lincoln Elementary	35.22	\$300,000	Design Funded-Future RSTP Funded
2	Shields and Weber	1		29.33	\$290,000	
3	Barstow and Brawley	2		28.67	\$290,000	
4	McKinley and SR 99 NB off ramp	3	Addams Elementary	28.00	\$400,000	
5	Bullard and Cecelia	2		27.00	\$250,000	Funded by CMAQ grant
6	Blackstone and Fedora	7	Fort Miller Middle	24.00	\$290,000	
7	Clinton and Vassar	3		24.00	\$250,000	RDA Funding
8	Cedar and Woodward**	5	Sequoia Middle	23.67	\$290,000	
9	Church and MLKing Jr*	3	Carver Elementary	23.67	\$290,000	County Grant Funding
10	Blythe and Gates	2	Lawless Elementary	23.00	\$290,000	
11	Chestnut and Shepherd	6		23.00	\$290,000	Funded by CMAQ grant
12	Church and Peach*	5	Storey Elementary	22.00	\$290,000	Funded by SR2S grant
13	Audubon and Cole	6		21.00	\$290,000	Developer to install
14	Cornelia and Dakota	1	Central high	20.67	\$290,000	
15	Gates and San Jose	2	Lawless Elementary	20.67	\$290,000	
16	Clinton and Valentine	3		20.00	\$290,000	
17	Olive and SR 99 NB off ramp	3		19.00	\$400,000	HSIP 2008-Grant Funding
18	Shields and Sunnyside	4		19.00	\$290,000	Funded by CMAQ grant
19	Barstow and Thorne*	2	Gibson Elementary/Bullard High	18.67	\$290,000	
20	Blythe and McKinley	3	El Capitan Middle	18.67	\$290,000	
21	Herndon and 99 NB off ramp	2		18.67	\$300,000	Developer to install
22	Ingram and Locust	2		17.67	\$290,000	Developer to install
23	Dennett and Palm*	3	Muir Elementary	17.33	\$290,000	
24	Hughes and McKinley	3	Addams Elementary	17.00	\$290,000	RSTP Grant Funding
25	McKinley and Winery	4		16.67	\$290,000	
26	Perrin and Somerville	6		16.67	\$290,000	Funded by CMAQ grant
27	Marks and Sierra	2		16.33	\$290,000	
28	Millbrook and Spruce	6		16.00	\$290,000	Funded by CMAQ grant
29	Olive and SR 99 SB off ramp	3		15.67	\$400,000	HSIP 2008-Grant Funding
30	North/Parkway and 99 SB off ramp	3		15.33	\$300,000	
31	Belmont and SR 99 NB off ramp	3		15.00	\$400,000	
32	Champlain and Fox Hill/Hickory Hill	6		15.00	\$290,000	Developer to install
33	Champlain and Liberty Hill/Saybrook	6		15.00	\$290,000	Funded by CMAQ grant
34	Bullard and Polk	2		14.33	\$290,000	
35	Golden State and Ashlan Connector	1		14.00	\$290,000	
36	Barstow and Tenth	4		13.67	\$250,000	
37	Clovis and Lamona	4		13.00	\$250,000	
38	Amador and Trinity*	3	Columbia Elementary	12.67	\$290,000	
39	Dakota and Fowler	4		12.67	\$290,000	
40	Figarden and Sierra	2		12.67	\$250,000	
41	Brawley and Shields	1 & 3		12.00	\$290,000	Funded by CMAQ grant
42	Huntington and Peach	5		11.67	\$290,000	Measure "C" project
43	Olive and West	3		11.67	\$290,000	
44	Parkway and Shields	3		11.67	\$290,000	
45	Belmont and SR 99 SB off ramp	3		10.67	\$400,000	
46	Bullard and Dante	2		10.00	\$290,000	Developer to install
47	Butler and Willow	5		10.00	\$250,000	Funded by CMAQ grant
48	N street and Tulare***	3		9.33	\$290,000	
49	Angus and Clinton	7		9.00	\$290,000	
50	Belmont and Temperance	5		8.00	\$290,000	
51	Fruit and Jensen	3		8.00	\$290,000	Developer to install
52	Marks and McKinley	3		8.00	\$290,000	RSTP Grant Funding
53	Marks and Olive	3		7.00	\$290,000	

\* Meets the criteria for the school signal warrant only.

\*\* Meets the criteria for traffic signal and school signal warrants.

\*\*\* Meets the criteria for pedestrian signal

**PRIORITY RANKING**

Priority ranking is determined by assigning points attributed to annual daily traffic and peak hour traffic volumes, reported collisions, proximity of a school and/or other pedestrian generators, need for signal coordination, and engineering judgment.

ATTACHMENT "B"



**2012 PRIORITY LIST FOR WARRANTED LEFT TURN SIGNALS**

	Intersection	Council District(s)	% Other Jurisdictions	School located within 1/4-mile	Year Included in TS Impact Fee	Total Points	Construction Cost Estimate	Comments
1	Millbrook and Shields	4 & 7		Fulton	2004	30.00	\$290,000	HSIP Funding
2	McKinley and Palm	1 & 3		Fresno High	2006	26.67	\$290,000	
3	Chestnut and Shields	4	50% County	Scandinavian	2004	25.33	\$290,000	RDA Funded
4	Dakota and West	1		Roeding	2004	25.00	\$290,000	
5	Palm and Sierra	2	25% County	Kratt	2004	25.00	\$290,000	HSIP Funding
6	Bulldog and Cedar	4			2004	20.67	\$290,000	
7	Foxhill/Saybrook and Perrin	6			2007	19.67	\$20,000	Left Turn Phasing needed on Perrin only
8	Peach and Tulare	5 & 7	25% County	Easterby	2004	19.00	\$290,000	Future Tier 1 Measure C/TCRP Funded
9	Hughes and Shields	1			2004	17.33	\$290,000	
10	Cedar and Eleventh	6		Fresno Christian	2007	17.00	\$290,000	
11	Bullard and Forkner	2		Malloch	2006	14.67	\$290,000	
12	Cedar and Teague	6		Clovis West	-	13.67	\$200,000	
13	Barstow and Palm	2		Gibson Elem & Bullard High	2004	13.00	\$290,000	(Existing LTP N/S)
14	Alluvial and Millbrook	6			2006	12.67	\$290,000	
15	R and Tulare	3			2004	12.67	\$290,000	Requires Railroad Preemption Upgrade
16	Blackstone and Gettysburg	7			2006	9.67	\$177,495	(Existing LTP N/S)
17	Blackstone and Sierra	2 & 6			2006	8.67	\$290,000	(Existing LTP N/S)
18	Barstow and West	2	25% County		2006	6.67	\$290,000	Funded by joint City/County Project

**PRIORITY RANKING**

Priority ranking is determined by adding points attributed to vehicular traffic, number of reported left-turn type collisions, proximity of a school and/or other pedestrian generators, and engineering judgment.



### Intersection Traffic Flow Improvement 2012 Priority List

RANK	LOCATION	COUNCIL DISTRICT	PROPOSED IMPROVEMENTS	COST ESTIMATE	TOTAL PEAK HOUR VOLUMES SERVED AT INTERSECTION		AVERAGE DELAY PER VEHICLE (sec) WITH EXISTING LANE CONFIGURATION		2006 LOS (AM/PM), NO PROJECT	AVERAGE DELAY PER VEHICLE (sec) WITH PROJECT		2006 LOS (AM/PM) WITH PROJECT	TOTAL SCORE	REMARKS
					2006 AM PEAK HOUR	2006 PM PEAK HOUR	2006 AM PEAK HOUR	2006 PM PEAK HOUR		2006 AM PEAK HOUR	2006 PM PEAK HOUR			
1	First and Bullard	4,6	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,600,000	5102	5850	76.9	102.5	E / F	45.1	61.3	D / E	39.0	
2	Palm and Shaw	2,7	Dual left turn lanes and dedicated right turn lanes on all four legs	\$2,200,000	5903	6670	54.1	83.0	D / F	39.8	51.9	D / D	36.0	
3	Fresno and Bullard	6	Dual left turn improvements, dedicated right turn lanes	\$1,900,000	4782	6382	43.7	120.0	D / F	30.9	63.8	C / E	35.0	
4	Blackstone and Shields	7	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,900,000	5011	6242	64.5	69.7	E / E	36.8	36.7	D / D	32.0	
5	Clinton and Weber	1	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,500,000	3008	3372	41.5	59.3	D / E	20.7	27.2	C / C	25.0	Developer to install EB dual left
6	Clovis and Jensen	5	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,300,000	3164	3183	63.0	41.8	E / D	30.4	29.9	C / C	23.0	Developer to install
7	Willow and Bullard	4,6	Dual left turn lanes and dedicated right turn lanes on all four legs. Six lanes on Willow.	\$1,400,000	4680	4967	47.2	49.1	D / D	29.3	32.6	C / C	22.0	
8	Clovis and Kings Canyon	5	Dedicated right turn pocket for westbound and northbound dual left turn lanes.	\$600,000	3183	4296	31.1	40.1	C / D	26	35.7	C / D	13.0	WB right turn pocket is funded
9	Shaw and Golden State	2	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,800,000	3878	4279	32.8	57.4	C / E	26.3	50.5	C / D	12.0	
10	First and Nees	6	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,000,000	3696	4362	33.9	54.6	C / D	24.8	34.7	C / C	11.0	Developer to install
11	Clovis and Shields	4	Dual left turns for northbound, westbound	\$1,900,000	3395	3826	39.5	27.3	D / C	31.1	23.3	C / C	5.0	
12	Blackstone and McKinley	7	Dual left turn lanes and dedicated right turn lanes on all four legs	\$1,900,000	3400	4172	31.4	34.3	C / C	25.1	25.7	C / C	4.0	
13	Figarden and Bullard	2	Dual lefts and dedicated right turn lanes for eastbound, southbound	\$1,300,000	3267	3480	43.2	32.5	D / C	44.4	24.1	D / C	3.0	Developer to install
14	Maple and McKinley	4	Dual left turn lanes for northbound. Dedicated right turn pocket for eastbound.	\$1,250,000	2936	3441	32.4	33.4	C / C	25.5	25.9	C / C	2.0	

LOS	Control Delay per Vehicle
A	< 10 sec
B	> 10-20
C	>20-35
D	>35-55
E	>55-80
F	>80