City of FRESNO **REPORT TO THE CITYCOUNCIL**

AGENDA ITEM NO.
COUNCIL MEETING _____
APPROVED BY
DEPARTMENT DIRECTOR _____
CITY MANAGER

March 20, 2007

FROM: JON R. RUIZ, Interim Public Works Director
Public Works Department

BY: SCOTT L. MOZIER, PE, Assistant Director
Public Works Department, Engineering Division

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

KEY RESULT AREA

One Fresno

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 and left turn phasing. During the January 31, 2006 annual update, the Council requested a 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. Staff has developed this additional priority list using level of service for existing and future traffic condition with and without the improvements, cost-effectiveness of dollars spent versus congestion relief, engineering judgment concerning potential for safety improvements and ability to leverage current grant funding. 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. The ranking lists will be used to prepare the FY08 capital improvement budget in an objective manner based upon available and projected traffic signal mitigation impact fees. An update of the impact fees and the intersections covered by those fees is currently scheduled to be heard by the Council on March 27, 2007. Attached to this report are the new priority ranking lists for new signal installations, modifications for left turn phasing, traffic flow improvements and a construction schedule for currently funded traffic signal capital improvement projects.

KEY OBJECTIVE BALANCE

The traffic signal lists achieve the key objectives of Financial Management by constructing improvements at higher priority locations first and prioritizing the limited funding that is available to make these improvements. The goal of Customer Satisfaction will be achieved by installing traffic signals at the most-needed locations first. Employee Satisfaction is achieved by having this information available to give to members of our community inquiring about having new signals, left turn phasing and congestion-relieving improvements constructed.

BACKGROUND

Every fall, the Traffic Engineering Section of the Engineering 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 of 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).

For 2007, staff also undertook traffic engineering field studies at City street/freeway off-ramp intersections that are currently stop-sign controlled. Although numerous locations along the 99 corridor could not be studied this year due to intermittent ramp closures due to overlay work by the State, two locations (Ventura/NB 99 off-ramp, Herndon/NB 99 off-ramp) were analyzed, met warrants and scored high to medium-high on the priority ranking list. The Public Works Department has received a number of requests from the development community, the Planning and Development Department and Caltrans to incorporate sixteen intersections along the 41 and

99 corridors into the traffic signal mitigation impact fee program. Caltrans is charging developers a fair-share impact to each developer but would only install the signal once 100% of the required funding is collected. Under the City's program, a developer still pays only their fair share but is required to install the signal once warrants are met and is then reimbursed by future developers paying their respective fair share amounts through the fee program. Considering the numerous requests to include these intersections in the program and furthermore that these locations are often critical for the safe and efficient flow of traffic from residential to employment centers in the city of Fresno, these intersections have been added by staff to the 2007 priority ranking lists.

During the January 31, 2006 annual update, the Council requested a 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 additional priority list using level of service for existing and future traffic condition 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. Construction schedules for currently funded capital improvement projects are included in the report as Attachment "D".

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.

JRR/SLM/eam
Update of new traffic signal ranking lists 3-20-07

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
"D" – Construction Schedules for Currently Funded Traffic Signal Projects

Print Date: 3/13/2007
Prepared by: L.Parker
Checked by:S.Mozier, PE, TE

Fresno
All-America City
2006

2007 PRIORITY LIST FOR NEW TRAFFIC SIGNAL INSTALLATIONS

Priority Ranking	Intersection	Council District	% Percent other Jurisdictions	Year included in TS Impact Fee	School located within 1/4-mile	Total Points	Construction Cost Estimate	Comments
1	Echo (north leg) and McKinley**	1		2006	Fresno High	33.33	$250,000	Funded by RSTP grant
2	Ventura and 99 NB off - ramp	3	50% Cal Trans	2007***	Lincoln Elem	31.00	$300,000	
3	Lane and Winery	5		2004	Cambridge Cont. High	30.00	$290,000	Currently funded
4	Barstow and Millbrook (north leg)	4		2004	Hoover High	27.67	$290,000	Currently funded
5	Maple and Perrin	6		2004	Copper Hills Elem	27.67	$290,000	
6	Dakota and Marks	1		2004	Kipp Academy	27.33	$260,000	
7	Behymer and Maple	6		2004	Copper Hills Elem	26.67	$290,000	Currently funded
8	Bullard and Cecelia	2		2004		26.33	$250,000	Developer to install
9	Maple and Nees	6		2004		26.00	$290,000	Developer to install
10	Palm and Weldon*	1		2004	Fresno High/Hamilton	25.33	$250,000	Currently funded
11	Shepherd and Willow	6	25%Clovis 50%County	2004		25.33	$2,000,000	CMAQ grant; joint Clovis/Fresno
12	Harrison and Shields*	1		2004	Dailey Elem	25.00	$250,000	Currently Funded
13	Belmont and Mariposa*	3 & 7		2006	Tehipite	24.67	$250,000	Adjacent signal upgrade[1]
14	Marks and Sierra	2		2004		24.67	$290,000	Currently funded
15	Maple and Teague	6		2004	Maple Creek Elem	24.00	$290,000	Currently funded
16	Alluvial and Chestnut	6	50% County	2004		23.67	$290,000	Developer to install
17	Cedar and Woodward**	5		2007***	Sequoia Middle	23.67	$290,000	
18	Shields and Weber	1		2006		23.67	$290,000	
19	Herndon and 99 NB off - ramp	2	50% Cal Trans	2007***		23.33	$300,000	
20	Blythe and Clinton**	1		2004	El Capitan Elem	23.00	$290,000	Developer to install
21	Chestnut and Nees	6		2004		23.00	$290,000	
22	Church and M.L.King JR	3	25% County	2004	Carver	23.00	$290,000	Developer to install
23	Hughes and Weber	1		2004		23.00	$250,000	
24	Clinton and Vassar	3		2004		22.67	$250,000	Developer to install
25	Marks and Weber	1		2004		22.67	$350,000	Funded by CMAQ grant
26	Butler and Peach	5		2004	Sunnyside High/Ayer	22.00	$290,000	Developer to install
27	Clinton and Sierra Vista**	4	50% County	2006	Ericson	21.67	$350,000	SR2S Grant (County Lead)
28	McKinley and Winery	4		2006		21.33		
29	Audubon and Cole	6		2004		20.33	$290,000	Developer to install
30	Alluvial and River Vista	2		2007***	Liddel Elem	20.00	$250,000	
31	Hughes and McKinley	3		2006	Jane Addams	20.00	$290,000	Developer to install
32	Millbrook and Shepherd	6		2004		19.00	$250,000	
33	Chestnut and Shepherd	6		2004		18.33	$290,000	
34	Ingram and Locust	2		2006		18.33	$290,000	Developer to install
35	Maple and Shepherd	6		2004		18.00	$290,000	Developer to install
36	Fowler and Shields	4	25% County	2004		17.67	$290,000	Developer to install
37	Millbrook and Spruce	6		2007***		17.00	$290,000	
38	Perrin and Sommerville	6		2004		17.00	$290,000	
39	Alluvial and Ingram	2		2004		16.67	$290,000	Developer to install
40	Champlain and Fox Hill/Hickory Hill	6		2006		16.67	$290,000	Developer to install
41	Champlain and Liberty Hill/Saybrook	6		2004		16.67		
42	Chestnut and Teague	6		2004		16.67	$290,000	Developer to install
43	North/Parkway and 99 SB off - ramp	3	50% Cal Trans	2007***		16.33	$300,000	
44	Clovis and Lamona	4		2006		15.67	$250,000	
45	Brawley and Shields	1 & 3		2004		15.33	$290,000	
46	Cedar and North	3		2004		15.33	$688,000	Funded by CMAQ grant
47	Dakota and Fowler	4		2004		15.33	$290,000	
48	Perrin and Willow	6	50% Clovis/County	2004		14.67	$330,000	Developer to install
49	Barstow and Tenth	4		2006		14.00	$250,000	
50	Bullard and Dante	2		2006		13.67	$290,000	Developer to install
52	Marks and McKinley	3	25% County	2004		11.00	$290,000	Developer to install
51	Golden State and Ashlan Connector	1		2007***		11.00	$290,000	
53	Figarden and Sierra	2		2006		10.00	$250,000	
54	Fruit and Jensen	3	50% County	2004		8.33	$290,000	Developer to install
55	Butler and Willow	5		2004		7.67	$250,000	
56	Clinton and Valentine	3	50% County	2004		7.67	$290,000	Developer to install
57	Palo Alto and Polk	2		2004		5.00	$290,000	Developer to install

** Meets the criteria for the school signal warrant only.*
*** Meets the criteria for traffic signal and school signal warrants.*
**** Will be recommended by staff for inclusion in the fee program. Pending Council approval.*

1. Interconnect with existing Fresno/Belmont traffic signal. Requires upgrade of existing signal equipment.

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"
REPORT TO CITY COUNCIL MARCH 20, 2007

Print Date: 3/13/2007
Prepared by: L Parker
Checked by: S Mozier, PE, TE

FY07 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	Clinton and West	1		Homan	2004	53.00	$600,000	Grant Funded (CMAQ)
2	Belmont and Fresno**	3		Tehipite	2004	50.33	$275,000	Currently Funded
3	Fresno and Sierra	6		McCardle	2004	44.67	$275,000	Currently Funded
4	Ashlan and Millbrook	4		Ashlan Park Christian	2004	39.00	$275,000	Currently Funded
5	Dakota and Fresno	7		Manchester	2004	35.67	$275,000	Currently Funded
6	Clinton and First	7			2004	35.33	$275,000	Currently Funded
7	Maple and Shields	4		Scandinavian	2004	34.00	$275,000	Currently Funded
8	McKinley and West	1 & 3		Fremont	2006	32.33	$275,000	Currently Funded
9	Emerson and Marks	1		Slater	2007***	31.00	$200,000	
10	Cedar and Spruce	6		Fresno Christian	2004	28.33	$200,000	Developer to Install
11	Alluvial and Millbrook	6			2006	25.33	$275,000	
12	Dakota and First	4 & 7			2004	24.00	$275,000	Currently Funded
13	McKinley and Palm	1 & 3		Fresno High	2006	23.33	$275,000	
14	Alluvial and Cedar	6		Fresno Christian	2006	22.67	$275,000	
15	Bullard and Maroa	2	25% County	St Anthony of Padua	2006	22.33	$275,000	Currently Funded
16	Chestnut and Shields	4	50% County	Scandinavian	2004	21.00	$275,000	Requires County Participation
17	Palm and Sierra	2	25% County	Kratt	2004	20.67	$275,000	Requires County Participation
18	Cedar and Eleventh	6		Fresno Christian	2007***	19.67	$200,000	
19	Dakota and West	1		Roeding	2004	19.00	$275,000	
20	Bullard and Fruit	2	50% County	Tenaya	2004	17.33	$275,000	Requires County Participation
21	Barstow and Palm*	2		Gibson Elem & Bullard High	2004	16.33	$200,000	
22	Peach and Tulare	5 & 7	25% County	Easterby	2004	16.33	$300,000	Requires County Participation
23	Bulldog and Cedar	4			2004	15.00	$200,000	
24	Foxhill/Saybrook and Perrin	6			2007***	14.00	$150,000	
25	Bullard and Forkner	2		Malloch	2006	13.00	$200,000	
26	Blackstone and Gettysburg	7			2006	9.67	$200,000	
27	R and Tulare	3			2004	9.00	$275,000	
28	Barstow and West	2	25% County		2006	6.33	$200,000	Requires County Participation
29	Blackstone and Sierra	2 & 6			2006	6.33	$200,000	

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.

* Met warrants 1998 and 2003 did not meet warrants 2006
** warranted by accidents
***Staff will recommend inclusion in the fee program; pending Council approval.

ATTACHMENT "C"
REPORT TO CITY COUNCIL MARCH 20, 2007

Print Date:3/13/2007
Prepared By : S. Mozier, TE
Checked By: B. Jones, TE

Intersection Traffic Flow Improvement 2007 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	$1,500,000	5102	5850	76.9	102.5	E / F	45.1	61.3	D / E	39.0	
2	Chestnut and Kings Canyon	5	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,800,000	2943	4750	33.5	84.2	C / F	30.1	49.3	C / D	39.0	Currently funded
3	Palm and Shaw	2,7	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,300,000	5903	6670	54.1	83.0	D / F	39.8	51.9	D / D	36.0	
4	Fresno and Bullard	6	Dual left turn improvements, dedicated right turn lanes	$1,400,000	4782	6382	43.7	120.0	D / F	30.9	63.8	C / E	35.0	
5	Cedar and Shaw	4	Dual left turn lanes and dedicated right turn lanes for northbound, southbound	$1,900,000	5767	5767	51.5	51.5	D / D	39.7	39.7	D / D	33.0	Currently funded
6	Blackstone and Shields	7	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,600,000	5011	6242	64.5	69.7	E / E	36.8	36.7	D / D	32.0	
7	Blackstone and Bullard	2,6	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,900,000	3990	5054	37.2	47.3	D / D	32.3	35.2	C / D	28.0	Currently funded
8	Clinton and Weber	1	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,200,000	3008	3372	41.5	59.3	D / E	20.7	27.2	C / C	25.0	Developer to install EB dual left
9	Clovis and Jensen	5	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,080,000	3164	3183	63.0	41.8	E / D	30.4	29.9	C / C	23.0	Developer to install
10	Willow and Bullard	4,6	Dual left turn lanes and dedicated right turn lanes on all four legs. Six lanes on Willow.	$1,000,000	4680	4967	47.2	49.1	D / D	29.3	32.6	C / C	22.0	
11	Cedar and Nees	6	Dual left turn lanes and dedicated right turn lanes for eastbound, westbound	$500,000	3825	4470	40.9	51.8	D / D	33.9	35	C / C	20.0	
12	Clovis and Kings Canyon	5	Dedicated right turn pocket for westbound and northbound dual left turn lanes.	$500,000	3183	4296	31.1	40.1	C / D	26	35.7	C / D	13.0	
13	Shaw and Golden State	2	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,300,000	3878	4279	32.8	57.4	C / E	26.3	50.5	C / D	12.0	
14	First and Nees	6	Dual left turn lanes and dedicated right turn lanes on all four legs	$900,000	3696	4362	33.9	54.6	C / D	24.8	34.7	C / C	11.0	Developer to install
15	Bullard and West	2	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,300,000	4366	3698	52.2	38.0	D / D	36.2	26.1	D / C	10.0	
16	Clovis and Shields	4	Dual left turns for northbound, westbound	$1,400,000	3395	3826	39.5	27.3	D / C	31.1	23.3	C / C	5.0	
17	Blackstone and McKinley	7	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,300,000	3400	4172	31.4	34.3	C / C	25.1	25.7	C / C	4.0	
18	Figarden and Bullard	2	Dual lefts and dedicated right turn lanes for eastbound, southbound	$1,200,000	3267	3480	43.2	32.5	D / C	44.4	24.1	D / C	3.0	Developer to install
19	Maple and McKinley	4	Dual left turn lanes for northbound. Dedicated right turn pocket for eastbound.	$1,120,000	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

ATTACHMENT "D"
REPORT TO CITY COUNCIL MARCH 20, 2007

CONSTRUCTION SCHEDULES FOR CURRENTLY FUNDED PROJECTS

LOCATION	COUNCIL DISTRICT	PROJECT TYPE	BID OPENING	AWARD OF CONTRACT	START CONSTRUCTION	FINISH CONSTRUCTION
"O"/Ventura	3	Left turn phasing, intersection widening	February 2007	February 2007	April 2007	October 2007
Maple/Shields	4	Left turn phasing	March 2007	April 2007	May 2007	September 2007
McKinley/Echo	1	New signal	April 2007	May 2007	June 2007	October 2007
Barstow/Millbrook	4	New signal	April 2007	May 2007	June 2007	October 2007
Shaw/Cedar	4	Dual lefts	April 2007	May 2007	May 2007	September 2007
Ashlan/Millbrook	4	Left turn phasing	April 2007	May 2007	June 2007	October 2007
Fresno/Sierra	6	Left turn phasing	May 2007	June 2007	July 2007	November 2007
Belmont/Fresno	3	Left turn phasing	May 2007	June 2007	July 2007	November 2007
Dakota/Fresno	7	Left turn phasing	May 2007	June 2007	July 2007	November 2007
Lane/Winery	5	New signal	May 2007	June 2007	July 2007	November 2007
Palm/Weldon	1	New signal	May 2007	June 2007	July 2007	November 2007
McKinley/West	1,3	Left turn phasing	July 2007	August 2007	September 2007	January 2008
Clinton/West	3	Left turn phasing, dual lefts	August 2007	September 2007	October 2007	March 2008
"O"/SR-41 Off-Ramp	3	New signal, ramp widening	September 2007	October 2007	November 2007	April 2008
Marks/Weber	1	New signal	October 2007	November 2007	December 2007	May 2008
Blackstone/Bullard	2,6	Dual lefts	November 2007	December 2007	January 2008	June 2008
Clinton/First	7	Left turn phasing	December 2007	January 2008	February 2008	June 2008
Willow/Shepherd	6	New signal, intersection widening	February 2008	March 2008	April 2008	August 2008
Shields/Harrison	1	New signal	July 2008	August 2008	September 2008	January 2009
Maple/Behymer	6	New signal	July 2008	August 2008	September 2008	January 2009
Dakota/First	4,7	Left turn phasing	July 2008	August 2008	September 2008	January 2009
Herndon/Golden State	2	Left turn phasing, dual lefts	November 2008	December 2008	January 2009	June 2009
Cedar/North	3	New signal, intersection widening	February 2009	March 2009	April 2009	September 2009
Maple/Teague	6	New signal	April 2009	May 2009	June 2009	November 2009
Clinton/Sierra Vista	4	New signal	Schedule TBD - joint grant project with County of Fresno as lead agency			

The schedule does not include installations by developers.