City of FRESNO **REPORT TO THE CITY COUNCIL**

AGENDA ITEM NO.	1C
COUNCIL MEETING	2/3/09
APPROVED BY	
DEPARTMENT DIRECTOR	
CITY MANAGER	

February 3, 2009

FROM: PATRICK N. WIEMILLER, Director
Public Works Department

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

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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

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, 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 March 2008 have been removed from the priority ranking lists. It should be noted that this past year since the last update 4 intersections were signalized and 4 existing signals were modified for protected left turn phasing by City capital projects. Numerous other signals were installed by developers and have been removed from the priority ranking worksheets. The ranking lists will be used to prepare the FY10 capital improvement budget 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, 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 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. Construction schedules for currently funded capital improvement projects are included in the report as Attachment "D". 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 FY09 (July to November) has been $161,800, an increase from FY08 ($124,786/month) but still a decrease when compared to 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 also to 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.

PNW/SLM/BDJ/LP/eam
Traffic Signal Ranking Lists FY2009 2-3-09

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: 11/13/2008
Prepared by: T. Davisson
Checked by S.Mozier, PE

ATTACHMENT "A"

Fresno
All America City
2008

2009 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	Butler and Peach	5		2004	Sunnyside High/Ayer	33.33	$295,000	Developer to install
2	Millbrook and Shepherd	6		2004	Clovis West	32.67	$265,000	
3	Bullard and Cecelia	2		2004		30.33	$265,000	Developer to install
4	Emerson and Marks (north leg)	1			Slater Elem	30.33	$180,000	
5	Hughes and Weber	1		2004		30.00	$513,900	HSIP Grant Funded
6	Maple and Perrin	6		2004	Copper Hills Elem	28.67	$295,000	Design Funded
7	Balch and Chestnut*	5			Olmos Elementary	28.00		Safe Routes to School Grant
8	Chestnut and Nees	6		2004		28.00	$295,000	Currently Funded (Prop 1B)
9	Ventura and 99 NB off - ramp	3	50% Cal Trans	2007	Lincoln Elem	27.00	$300,000	Design Funded
10	Cedar and Woodward**	5		2007	Sequoia Middle	26.67	$295,000	
11	McKinley and SR 99 NB off	3	50% Cal Trans		Addams Elem	26.33		
12	Maple and Teague	6		2004	Maple Creek Elem	26.00	$295,000	Design Funded
13	Shepherd and Willow	6	25%Clovis 50%County	2004		25.33	$500,000	CMAQ grant; joint Clovis/Fresno
14	Blythe and Clinton**	1&3		2004	El Capitan Elem	24.67	$295,000	Developer to install
15	Behymer and Maple	6		2004	Copper Hills Elem	24.00	$240,000	Design Funded
16	Olive and SR 99 SB off	3				24.00		2008 HSIP Grant Funded
17	Marks and Sierra	2		2004		23.67	$295,000	
18	Fruit and Saginaw*	1			Williams Elementary	23.00		
19	Marks and Weber	1		2004		22.67	$800,000	Funded by CMAQ grant
20	Cornelia and Dakota	1	25% County		Central High	21.67	$295,000	
21	Clinton and Vassar	3		2004		21.00	$265,000	Developer to install
22	Shields and Weber	1		2006		21.00	$295,000	
23	Church and MLKing Jr	3	25% County	2004	Carver	20.67	$295,000	Developer to install
24	Olive and SR 99 NB off	3	50% Cal Trans			20.67		2008 HSIP Grant Funded
25	Herndon and 99 NB off - ramp	2	50% Cal Trans	2007		20.33	$300,000	Developer to install
26	Jensen and Willow	5	50% County			20.33	$295,000	RDA funding
27	Belmont and Fowler	5		2008		20.00	$500,000	Cal Trans
28	Belmont and Mariposa*	3 & 7		2006	Tehipite	20.00	$400,000	SR2S Grant
29	Chestnut and Shepherd	6		2004		19.67	$295,000	
30	Audubon and Cole	6		2004		18.67	$295,000	Developer to install
31	Blythe and McKinley	3	50% County		El Capitan Elem	18.67	$295,000	
32	Ingram and Locust	2		2006		18.33	$295,000	Developer to install
33	McKinley and Winery	4		2006		18.33	$265,000	
34	Shields and Sunnyside	4				18.33	$295,000	
35	Barstow and Brawley	2				17.67	$295,000	
36	Champlain and Fox Hill/Hickory Hill	6		2006		17.67	$295,000	
37	Chestnut and Teague	6		2004		17.33	$295,000	Developer to install
38	Dakota and Fowler	4		2004		17.33	$295,000	
39	Hughes and McKinley	3		2006	Jane Addams	17.00	$295,000	Developer to install
40	Millbrook and Spruce	6		2007		17.00	$295,000	
41	Perrin and Sommerville	6		2004		17.00	$295,000	
42	Brawley and Shields	1 & 3		2004		16.33	$295,000	
43	Perrin and Willow	6	50% Clovis/County	2004		16.33	$315,000	Funded by Measure "C" Willow Project
44	Blythe and Weldon	3	25% County		McKinley/El Capitan	15.67	$295,000	
45	Bullard and Polk	2				15.33	$295,000	
46	Champlain and Liberty Hill/Saybrook	6		2004		15.00	$295,000	
47	Clovis and Lamona	4		2006		14.67	$265,000	
48	North/Parkway and 99 SB off - ramp	3	50% Cal Trans	2007		14.67	$300,000	
49	Golden State and Ashlan Connector	1		2007		13.67	$265,000	
50	Butler and Willow	5		2004		13.33	$265,000	
51	Bullard and Dante	2		2006		12.67	$295,000	Developer to install
52	Barstow and Tenth	4		2006		12.00	$265,000	
53	Cedar and North	3		2004		12.00	$290,000	Funded by CMAQ grant
54	Belmont and SR 99 NB off	3	50% Cal Trans			11.67		
55	Belmont and Temperance	5	75% County			11.67	$315,000	Developer to install
56	Clinton and Valentine	3	50% County	2004		11.67	$295,000	Developer to install
57	Figarden and Sierra	2		2006		11.00	$265,000	
58	Marks and McKinley	3	25% County	2004		11.00	$295,000	Developer to install/Federal RSTP Grant Funded
59	Olive and West	3				10.00		
60	Belmont and SR 99 SB off	3	50% Cal Trans			9.00		
61	Fruit and Jensen	3	50% County	2004		8.33	$295,000	Developer to install
62	Marks and Olive	3				8.00	$315,000	
63	Palo Alto and Polk	2		2004		5.00	$250,000	Developer to install

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

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

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"

Print Date: 11/14/2008
Prepared by: L Parker
Checked by: M.S.Tyler PE
S Mozier PE,TE

FY09 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 First	7			2004	35.33	$290,000	Currently Funded (Prop 1B)
2	Belmont and Maple	7				33.67	$510,100	HSIP (Grant Funded)
3	Emerson and Marks (SL)	1		Slater	2007	27.00	$180,000	
4	Chestnut and Shields	4	50% County	Scandinavian	2004	25.33	$290,000	Fully Covered by TSMI Fees; Developer to Install
5	Alluvial and Cedar	6		Fresno Christian	2006	24.33	$290,000	(Existing LTP N/S)
6	Bullard and Maroa	2	25% County	St Anthony of Padua	2006	20.00	$290,000	Currently Funded
7	McKinley and Palm	1 & 3		Fresno High	2006	20.00	$290,000	
8	Palm and Sierra	2	25% County	Kratt	2004	20.00	$290,000	Requires County Participation
9	Foxhill/Saybrook and Perrin	6			2007	19.67	$20,000	Left Turn Phasing needed on Perrin only
10	Bullard and Fruit	2	50% County	Tenaya	2004	19.33	$290,000	Design Funded,Requires County Participation
11	Millbrook and Shields	4 & 7		Fulton		19.00	$290,000	
12	Dakota and West	1		Roeding	2004	18.33	$290,000	
13	Dakota and First	4 & 7			2004	17.33	$516,100	Design Funded, HSIP GRANT
14	Hughes and Shields	1				17.33	$290,000	
15	Alluvial and Millbrook	6			2006	16.00	$290,000	
16	Cedar and Eleventh	6		Fresno Christian	2007	15.33	$290,000	
17	Barstow and Palm*	2		Gibson Elem & Bullard High	2004	14.67	$290,000	(Existing LTP N/S)
18	Bullard and Forkner	2		Malloch	2006	13.00	$290,000	
19	Peach and Tulare	5 & 7	25% County	Easterby	2004	13.00	$290,000	Future Tier 1 Measure C/TCRP Funded
20	Bulldog and Cedar	4			2004	12.33	$290,000	
21	R and Tulare	3			2004	11.00	$290,000	Requires Railroad Preemption Upgrade
22	Blackstone and Gettysburg	7			2006	10.67	$177,495	(Existing LTP N/S)
23	Barstow and West	2	25% County		2006	8.33	$290,000	Design Funded,Requires County Participation
24	Blackstone and Sierra	2 & 6			2006	6.33	$290,000	(Existing LTP N/S)

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

ATTACHMENT "C"
REPORT TO CITY COUNCIL FEBRUARY 3, 2009

Print Date:1/27/2009
Prepared By : S. Mozier, TE
Checked By: S. Tyler, PE

Intersection Traffic Flow Improvement 2009 Priority List

RANK	LOCATION	COUNCIL DISTRICT	PROPOSED IMPROVEMENTS	COST ESTIMATE	TOTAL PEAK HOUR VOLUMES SERVED AT INTERSECTION: 2006 AM PEAK HOUR	TOTAL PEAK HOUR VOLUMES SERVED AT INTERSECTION: 2006 PM PEAK HOUR	AVERAGE DELAY PER VEHICLE (sec) WITH EXISTING LANE CONFIGURATION: 2006 AM PEAK HOUR	AVERAGE DELAY PER VEHICLE (sec) WITH EXISTING LANE CONFIGURATION: 2006 PM PEAK HOUR	2006 LOS (AM/PM), NO PROJECT	AVERAGE DELAY PER VEHICLE (sec) WITH PROJECT: 2006 AM PEAK HOUR	AVERAGE DELAY PER VEHICLE (sec) WITH PROJECT: 2006 PM PEAK HOUR	2006 LOS (AM/PM) WITH PROJECT	TOTAL SCORE	REMARKS
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	Chestnut and Kings Canyon	5	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,900,000	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	$2,200,000	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	$1,900,000	4782	6382	43.7	120.0	D / F	30.9	63.8	C / E	35.0	
5	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	
6	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
7	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
8	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	
9	Cedar and Nees	6	Dual left turn lanes and dedicated right turn lanes for eastbound, westbound	$550,000	3825	4470	40.9	51.8	D / D	33.9	35	C / C	20.0	
10	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	
11	Shaw and Golden State	2	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,600,000	3878	4279	32.8	57.4	C / E	26.3	50.5	C / D	12.0	
12	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
13	Bullard and West	2	Dual left turn lanes and dedicated right turn lanes on all four legs	$1,900,000	4366	3698	52.2	38.0	D / D	36.2	26.1	D / C	10.0	
14	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	
15	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	
16	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
17	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

ATTACHMENT "D"
REPORT TO CITY COUNCIL FEBRUARY 3, 2009

CONSTRUCTION SCHEDULES FOR CURRENTLY FUNDED PROJECTS

LOCATION	COUNCIL DISTRICT	PROJECT TYPE	BID OPENING	AWARD OF CONTRACT	START CONSTRUCTION	FINISH CONSTRUCTION
Clinton/Sierra Vista	4	New Signal	August 2008	August 2008	October 2008	February 2009
Blackstone/Dayton	7	Left turn phasing (Bus Service)	August 2008	November 2008	March 2009	June 2009
Willow/Shepherd	6	New signal, intersection widening	October 2008	January 2009	February 2009	August 2009
Belmont/Mariposa	3	New Signal	March 2009	May 2009	June 2009	August 2009
Dakota/Palm	1	Left turn phasing	May 2009	June 2009	June 2009	August 2009
Balch/Chestnut	5	New Signal	April 2009	May 2009	June 2009	August 2009
Chestnut/Kings Canyon	5	New signal, intersection widening	March 2009	May 2009	June 2009	September 2009
Chestnut/Nees	6	New signal	May 2009	June 2009	July 2009	September 2009
Marks/Weber	1	New signal	February 2009	April 2009	June 2009	October 2009
"O"/SR-41 Off-Ramp	3	New signal, ramp widening	September 2009	October 2009	November 2009	April 2010
First/Clinton	7	Left turn phasing	July 2009	August 2009	September 2009	April 2010
Herndon/Golden State	2	Left turn phasing, dual lefts	August 2009	September 2009	October 2009	May 2010
Shaw/Polk	1,2	Left turn phasing	September 2009	October 2009	November 2009	May 2010
Cedar/North	3	New signal, intersection widening	December 2009	January 2010	February 2010	August 2010
First/Dakota	4,7	Left turn phasing	April 2010	May 2010	June 2010	December 2010
Belmont/Maple	7	Left turn phasing	April 2010	May 2010	June 2010	December 2010
Hughes/Weber	1	New Signal	April 2010	May 2010	June 2010	December 2010
Olive/SR-99 Off-Ramps	1	New Signals	July 2010	August 2010	September 2010	May 2011
Willow/Nees	6	Intersection widening	April 2011	May 2011	June 2011	December 2011
Bullard/Maroa	2	Left turn phasing	Scheduled TBD - Joint project with County of Fresno as lead agency			

The schedule does not include installations by developers.

SHELF READY PROJECTS NEEDING CONSTRUCTION FUNDS

LOCATION	COUNCIL DISTRICT	PROJECT TYPE
Maple/Behymer	6	New signal
Maple/Teague	6	New signal
Jensen/Willow	5	New signal