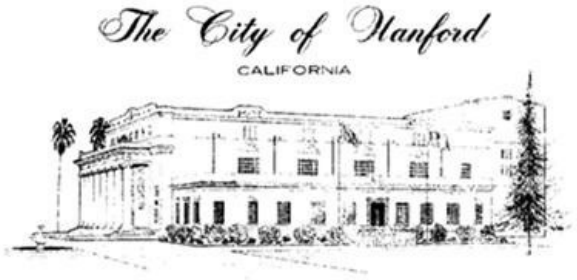

AGENDA

PARKING AND TRAFFIC COMMISSION
of the
CITY OF HANFORD

COUNCIL CHAMBERS
400 N. Douty St.
5:30 PM, Thursday, January 26, 2017

CALL TO ORDER

ROLL CALL

FLAG SALUTE

MINUTES APPROVAL

1. **Approve Minutes from October, 27 2016 Parking & Traffic Commission Meeting**

PUBLIC COMMENT

*This is the time for citizens to comment on subject matters not on the agenda and that are within the jurisdiction of the Commission. A maximum of **five minutes** is allowed for each speaker. Please begin your comments by stating your name and providing your city of residence.*

STAFF REPORTS

2. **Crosswalk on Florinda Street at Sequoia Circle**
3. **Install All-way Stop on 12th Avenue at Flint Avenue**

STAFF COMMUNICATION

4. **City Council Actions**

COMMISSIONERS ITEMS OF INTEREST

ADJOURNMENT

Materials related to an item on this Agenda submitted to the Parking & Traffic Commission after distribution of the agenda packet are available to public inspection in the Public Works Office located at 900 S. 10th Avenue, Hanford, California 93230, during normal

business hours. Such documents are also available at the city's website, www.cityofhanfordca.com subject to staff's ability to post documents before the meeting.

If you need a disability-related modification or accommodation, including auxiliary aids or services, to participate in this meeting, please contact the Public Works office, 559-585-7166, 900 S. 10th Avenue, Hanford, California 93230, at least 2 days prior to the meeting {28 CFR 35.102.35.104 ADA Title II}

AGENDA
STAFF REPORT

MEETING DATE: 1/26/2017	**AGENDA SECTION:** 1

SUBJECT:
Approve Minutes from October, 27 2016 Parking & Traffic Commission Meeting

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RECOMMENDATION:
That the Parking & Traffic Commission, by motion, approve the October 27, 2016 Parking & Traffic Commission minutes.

FISCAL IMPACT:

ATTACHMENTS:
10.27.16 minutes

The City of Hanford
CALIFORNIA

MINUTES

PARKING AND TRAFFIC COMMISSION
of the
CITY OF HANFORD

COUNCIL CHAMBERS
400 N. Douty St.
5:30 PM, Thursday, October 27, 2016

Attachment: 10.27.16 minutes (1792 : Minutes Approval)

CALL TO ORDER

Chairman BUTTS called the meeting to order at 5:38 pm.

ROLL CALL

Attendee Name	Title	Status	Arrived
Richard Butts	Chairman	Present	
Glenda Dwyer	Commissioner	Present	
James MacLellan	Vise-Chairman	Present	
Shaka Sudds		Excused	
Alex Dwiggins	Commissioner	Present	

Also in attendance:
Joseph Bonner, III

FLAG SALUTE

Chairman BUTTS led the flag salute.

MINUTES APPROVAL

1. **Approve Minutes from June 23, 2016 Parking and Traffic Commission Meeting.**

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	Alex Dwiggins, Commissioner
SECONDER:	Glenda Dwyer, Commissioner
AYES:	Butts, Dwyer, MacLellan, Dwiggins

PUBLIC COMMENT

*This is the time for citizens to comment on subject matters not on the agenda and that are within the jurisdiction of the Commission. A maximum of **five minutes** is allowed for each speaker. Please begin your comments by stating your name and providing your city of residence.*

Joseph Bonner, III asked Commissioners to address parking issues on Valley Springs Avenue. Mr. Bonner stated that vehicles are parking illegally, bumper facing curb and double and triple parking in the cal-de-sack leaving no room for emergency vehicles. Mr. Bonner also stated that there is alcohol being consumed and that he can smell marijuana coming from this area. Mr. Bonner then stated that he and his neighbors met with the Parks Division in 2006 or 2007 and the Parks Division stated that this street wouldn't be a problem. Mr. Bonner stated he was told that this area was going to be labeled a "loading and unloading zone" but couldn't remember who told him that. Mr. Bonner stated that he has spoken with PD on several occasions.
Staff stated that it is possible to place "parallel parking only" signs however, any restrictions would also restrict home owners in the area. Commissioners asked staff to contact PD to see what could be done regarding the issues.

STAFF REPORTS

2. South Street and Phillips Street Two-way Stop

Staff presented a request for stop signs to be installed on South Street at its intersection with Phillips Street. After a brief discussion Commissioner MacLELLAN made a motion to accept staffs recommendation to install stop signs on east and west bound South Street at Phillips Street and to change section 10.32.010 of the Municipal Code to include the entrance stops at this intersection.

RESULT:	**APPROVED [UNANIMOUS]**
MOVER:	James MacLellan, Vise-Chairman
SECONDER:	Glenda Dwyer, Commissioner
AYES:	Butts, Dwyer, MacLellan, Dwiggins

STAFF COMMUNICATION

3. City Council Actions

Staff commented briefly on Actions of the City Council.

COMMISSIONERS ITEMS OF INTEREST

Commissioner MacLELLAN asked staff when the signal at Douty St. and Fargo Ave. will be repaired. Staff informed Commissioner's that the controller has been ordered and should be here and installed in the next 2 weeks.

ADJOURNMENT

Chairman BUTTS adjourned the meeting at 6:32 pm.

Respectfully submitted,

Shawn Dailey, Secretary
Senior Engineering Technician

Attachment: 10.27.16 minutes (1792 : Minutes Approval)

AGENDA
STAFF REPORT

MEETING DATE: 1/26/2017	**AGENDA SECTION:** 2

SUBJECT:
Crosswalk on Florinda Street at Sequoia Circle

RECOMMENDATION:

That a crosswalk not be placed on Florinda Street at Sequoia Circle.

BACKGROUND:

Staff received a request from Hanford Elementary School District asking if a crosswalk could be placed on Florinda Street at Sequoia Circle. It was stated that students are crossing at this intersection. To address this concern, staff conducted an intersection study of the location.

Florinda Street is an east-west bound two-lane residential street with a curb to curb width of 60 feet. This width is adequate for a single lane in each direction with room for street parking with Florinda Street having the thru movement. Sequoia Circle is a north-south bound two-lane residential street with a curb to curb width of 38 feet. This width is adequate for two lanes in each direction with room for parking with Sequoia Circle having to stop.

The speed limit on Florinda Street is 30 MPH on Sequoia Circle it is prima facie 25 MPH. The 85th percentile speed on Florinda Street is 34 MPH with the majority of the traffic volume being on Florinda Street. In the last five years, there have been 1 accident reported at the intersection which evolved a single vehicle hitting a fore hydrant. . The sight stopping distance at the intersection is adequate for north bound Sequoia Circle and westbound Florinda Street however, the sight stopping distance for east bound Florinda Street does not meet the required sight distance and would require additional traffic controls for the condition.

There are 2 schools in the vicinity of the intersection and crosswalks are located approximately 500 feet east and 500' west of the intersection. The crossing to the west is a controlled crossing location. Students from Lee Richmond Elementary School and John F. Kennedy Junior High

School are provided a Suggested Routes to School map at the beginning of the school year which directs them to the crosswalks previously mentioned

The warrant for a crosswalk was checked, and the intersection does not meet the four basic warrants based on the low pedestrian counts, sight visibility for east bound traffic, existing crosswalks in close proximity, and adequate gaps provided.

A gap study was performed to determine the number of opportunities a pedestrian has to cross Florinda Street in the morning and afternoon vehicle peak hours. Based on calculations, a pedestrian will take 15 seconds to cross Florinda Street. The gap study shows that there are 4.5 opportunities in a 5 minute period during the peak vehicle hours for a pedestrian to safely cross the road.

Based on the crosswalk study not meeting the basic warrants, Staff recommends that no additional intersection controls be placed at this time. Attached is an aerial photo of the area, warrant for pedestrian crosswalks, and the entering volume summary.

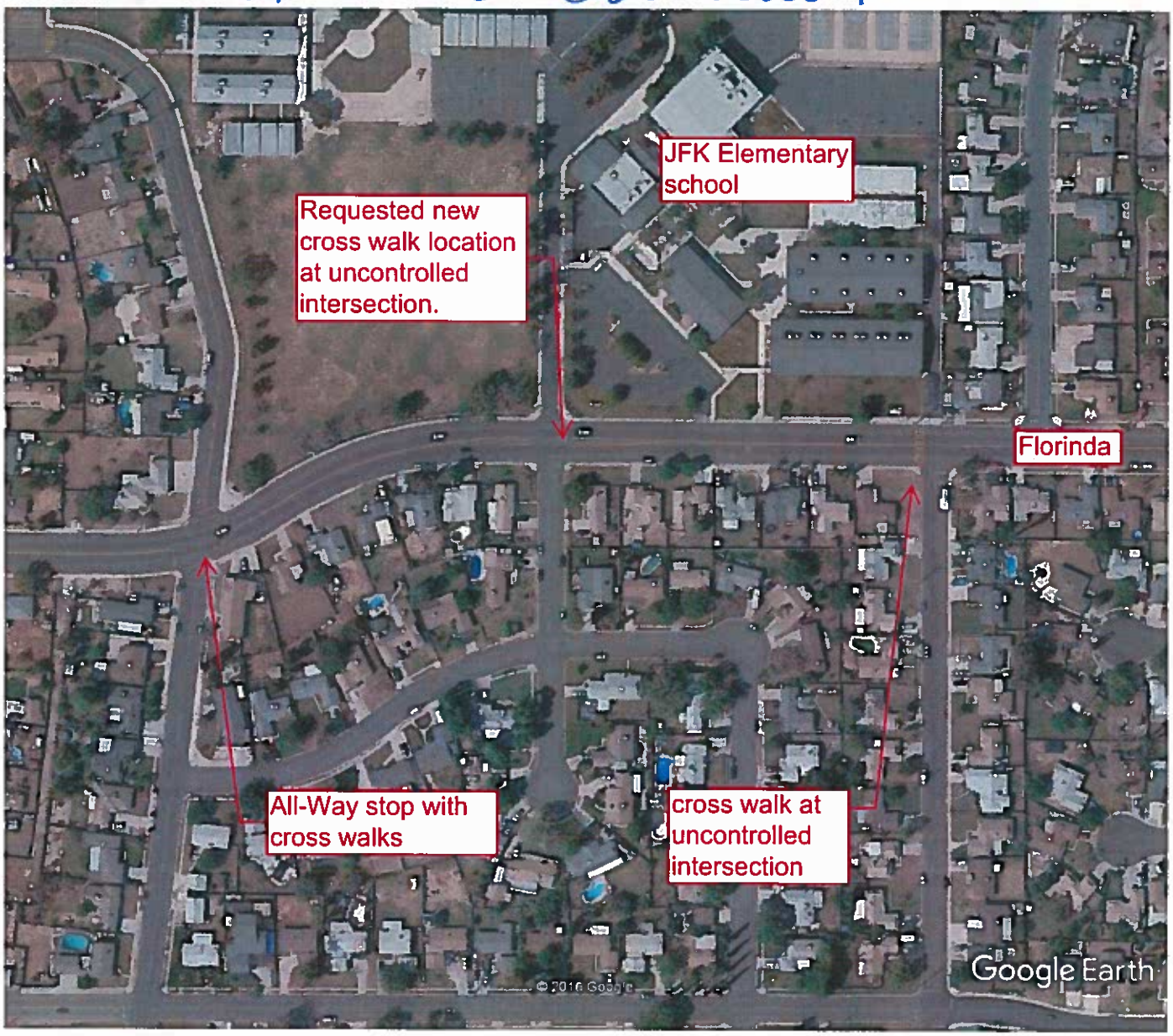
Respectfully submitted,

Shawn Dailey
Engineering Technician, II

FISCAL IMPACT:

ATTACHMENTS:
JFK crosswalk study

Request for Crosswalk



Google Earth

feet 800
meters 200

LOCATION: FLORINDA ST. AT SEQUOIA CIR.

WARRANTS FOR PEDESTRIAN CROSSWALKS

In order to qualify for a marked crosswalk, a location must: (A) meet the following basic warrants, and (B) rate 16 points or more under the following point system:

A) Basic Warrants

	SATISFIED Yes	No
Pedestrian Volume Warrant Are there more than 20 pedestrians crossing during peak hour? Crosswalks will not be installed where the pedestrian volume is less than 20 pedestrians per hour (pph) during the peak pedestrian hour.	☒	☐
Approach Speed Warrant Is the 85 percentile less than 45 mph? Crosswalks will not be installed on roadways where the 85th percentile approach speeds are in excess of 45 mph. The approach speeds shall be determined by approved engineering speed study techniques. All crosswalks installed on roadways in excess of 40 mph will require additional safety improvements (ie. traffic-calming treatments, flashing beacons, and/or rapid flashings signs, etc.)	☒	☐
Visibility Warrant Is visibility clear for 200'? Crosswalks will not be installed unless the motorist has an unrestricted view of all pedestrians at the proposed crosswalk site, for a distance not less than 200' approaching from each direction. Sites with grades, curves and other sight-restrictive features will require special attention.	☐	☒
Illumination Warrant Proposed crosswalk site must have adequate crosswalk lighting in existence or scheduled for installation prior to the installation of the crosswalk. Is there adequate lighting at the site?	☐	☒

B) Warrant point system

Children under 13 years of age, adults over 64 years of age, or disabled persons count as 1.5 pedestrians.

Pedestrian Volume Warrant

Criterion	Pedestrian Total	Point Assignment Points
The total number of pedestrians crossing the street under study during the peak pedestrian hour. This includes pedestrians in both crosswalks at an intersection. Crosswalks will not be installed where the pedestrian volume is 20 pph or less.	0-20	0
	21-40	2
	41-60	4
	61-90	6
	91-100	8
	Over 100	10
	Maximum	10

31 TOTAL PEDESTRIANS

2

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

General Conditions Warrant

	Points	
(a) Will clarify and define pedestrian routes across a complex Intersection.	2 ☒	
(b) Will channelize pedestrians into a significantly shorter path.	2 ☐	
(c) Will position pedestrians to be seen better by motorists.	2 ☐	
(d) Will position pedestrians to expose them to fewer vehicles.	2 ☐	
(e) Is located within the Central Business District.	2 ☐	
(f) Is adjacent to a pedestrian generating facility (i.e. school, park, shopping district, etc.)	4 ☒	
Maximum	10	6

Gap Time Warrant

Criterion	Point Assignment Average number of gaps per five-minute period	Points	
The number of unimpeded vehicle time gaps equal to or exceeding the required pedestrian crossing time (PCT) in an average five minute period during the peak vehicle hour.	0 – 0.99	10 ☐	
	1 – 1.99	8 ☐	
	2 – 2.99	6 ☐	
	3 – 3.99	4 ☐	
	4 – 4.99	2 ☒	
	5 or over	0 ☐	
	Maximum	10	2

Computations:

(1) Pedestrian crossing time = $\frac{\text{Street width curb to curb}}{\text{4.0 feet per second}}$ $\quad 60' = 15$ sec.

(2) Average number of gaps per five-minute period = $\frac{\text{Total gaps/hr} > \text{required PCT}}{12}$ $\quad \frac{54}{12} = 4.5$

Provisions:

(1) The above criterion is based on a one hour field survey.

(2) All roadways having a raised median or a painted median (4 foot minimum width) will be considered as two separate roadways, if the pedestrian has a protected place to stand out of the path of traffic.

10 pts.

Google Earth

feet 600
meters 200

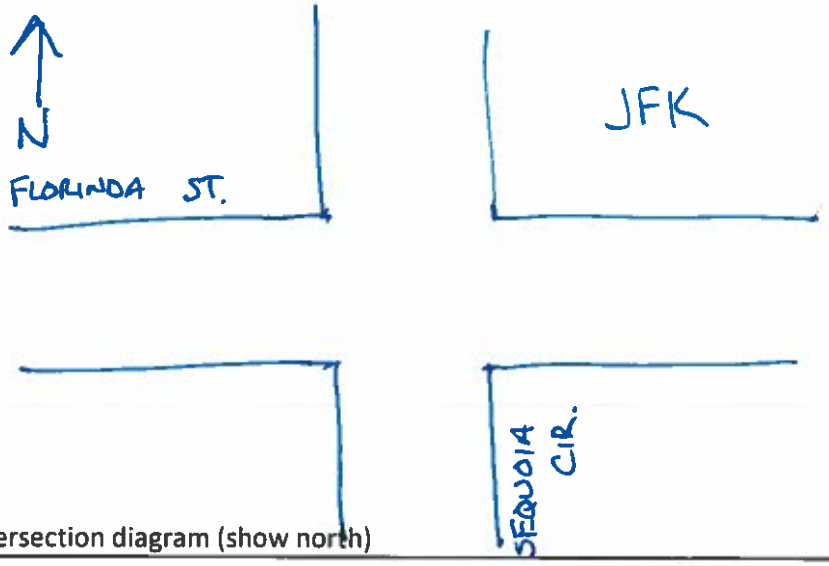
Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

Weather OVERCAST Time Interval (2 hours) 7-9 AM

Location FLORINDA ST. AND SEQUOIA CIR.

Time (15 minute interval)	Children (thru middle school)	High School & Adults	Seniors (64+)	Disabled	Total Counts
7:15	NNEW	WN			
7:30	EWEWWNNNEWN NWEEWW NN NN WE	WW			
7:45	EEEEEEEEEEWN WEEEEEENEEW WWNEEEENENNE	W			
8:00	EEEEEEWNEEE EENNEEEE	WE			
8:15	NEE				
8:30	E				
8:45					
9:00					
	(20) (x1.5)= 30	1	(x1.5)=	(x1.5)=	

- count and designate which leg of the intersection is being crossed in the boxes above with a N, S, E, or W
- draw and lable intersection below



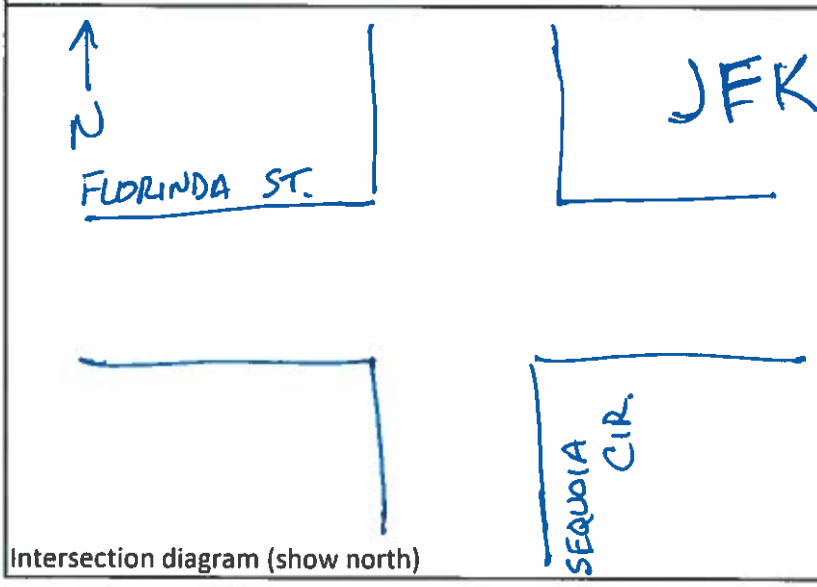
Intersection diagram (show north)

Weather OVERCAST Time Interval (2 hours) 2-4 PM

Location FLORINDA ST. AND SEQUOIA CIR.

Time (15 minute interval)	Children (thru middle school)	High School & Adults	Seniors (64+)	Disabled	Total Counts
2:15	W	EEEW			
2:30	S	EES			
2:45	SE	N			
3:00	EWEEESEEEESEE-ESSWEENWEWNW WWWSSWS	SW			
3:15	WWWWWWWSSWWW WWWWWWWWWWWS WWWWWWWWWWWW WSSSWWWWWWWW				
3:30	WWWWWWWWW EESEWNSSEEEEE E	EE			
3:45	EEEWWWE	EEW			
4:00	E	E			
	(17) (x1.5)= 25.5	3	(x1.5)=	(x1.5)=	

- count and designate which leg of the intersection is being crossed in the boxes above with a N, S, E, or W
- draw and lable intersection below



Intersection diagram (show north)

City of Hanford

900 S. 10th Avenue
Hanford, CA 93230

Site Code: 064 FY16 EB
Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

Direction 1

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
08/31/16	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	5	4	15	21	12	6	2	0	0	0	0	0	0	0	65	34	38
12 PM	11	6	17	40	16	5	1	0	0	0	0	0	0	0	96	32	36
13:00	2	3	15	20	17	8	0	0	0	0	0	0	0	0	65	34	37
14:00	1	4	10	18	9	13	0	0	0	0	0	0	0	0	55	36	38
15:00	2	4	15	27	24	10	0	0	0	0	0	0	0	0	82	34	37
16:00	2	1	19	21	26	9	3	1	0	0	0	0	0	0	82	35	39
17:00	1	3	20	32	22	15	1	0	0	0	0	0	0	0	94	35	38
18:00	3	3	13	30	23	6	0	0	0	0	0	0	0	0	78	33	36
19:00	3	4	14	30	17	7	0	0	0	0	0	0	0	0	75	33	37
20:00	10	7	15	18	12	10	0	0	0	0	0	0	0	0	72	34	38
21:00	3	3	16	18	8	3	1	0	0	0	0	0	0	0	52	32	37
22:00	2	2	10	7	9	1	0	1	0	0	0	0	0	0	32	33	37
23:00	1	1	5	10	5	2	0	0	0	0	0	0	0	0	24	33	36
Total	46	45	184	292	200	95	8	2	0	0	0	0	0	0	872		
Percent	5.3%	5.2%	21.1%	33.5%	22.9%	10.9%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	11:00	11:00	11:00	11:00	11:00								11:00		
Vol.	5	4	15	21	12	6	2								65		
PM Peak	12:00	20:00	17:00	12:00	16:00	17:00	16:00	16:00							12:00		
Vol.	11	7	20	40	26	15	3	1							96		

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

City of Hanford

900 S. 10th Avenue
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Site Code: 064 FY16 EB
Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

Direction 1

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
09/01/16	1	0	0	2	3	1	1	0	0	0	0	0	0	0	8	38	42
01:00	0	0	1	0	1	3	0	0	0	0	0	0	0	0	5	38	39
02:00	1	1	1	0	0	1	0	0	0	0	0	0	0	0	4	37	39
03:00	1	0	1	0	1	0	0	0	0	0	0	0	0	0	3	32	34
04:00	0	0	1	4	0	0	0	0	0	0	0	0	0	0	5	29	29
05:00	1	2	2	9	4	3	1	0	0	0	0	0	0	0	22	36	39
06:00	1	3	7	5	7	5	2	0	0	1	0	0	0	0	31	38	43
07:00	3	4	18	30	24	7	1	1	0	0	0	0	0	0	88	34	38
08:00	4	1	14	15	13	8	0	0	0	0	0	0	0	0	55	34	38
09:00	2	0	7	10	17	1	2	0	0	0	0	0	0	0	39	34	40
10:00	2	1	3	18	16	8	0	0	0	0	0	0	0	0	48	35	38
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	16	12	55	93	86	37	7	1	0	1	0	0	0	0	308		
Percent	5.2%	3.9%	17.9%	30.2%	27.9%	12.0%	2.3%	0.3%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	07:00	07:00	07:00	07:00	08:00	06:00	07:00		06:00					07:00		
Vol.	4	4	18	30	24	8	2	1		1					88		
PM Peak																	
Vol.																	
Total	62	57	239	385	286	132	15	3	0	1	0	0	0	0	1180		
Percent	5.3%	4.8%	20.3%	32.6%	24.2%	11.2%	1.3%	0.3%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%			

	15th Percentile :	21 MPH
	50th Percentile :	28 MPH
	85th Percentile :	34 MPH
	95th Percentile :	38 MPH
Stats	10 MPH Pace Speed :	26-35 MPH
	Number in Pace :	671
	Percent in Pace :	56.9%
	Number of Vehicles > 30 MPH :	437
	Percent of Vehicles > 30 MPH :	37.0%
	Mean Speed(Average) :	28 MPH

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

City of Hanford

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Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

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08/31/16	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	1	9	21	15	9	6	0	0	0	0	0	0	0	0	61	33	37
12 PM	13	21	30	31	13	3	1	0	0	0	0	0	0	0	112	30	34
13:00	3	7	18	23	19	3	2	0	0	0	0	0	0	0	75	33	37
14:00	7	5	11	13	14	4	1	1	0	0	0	0	0	0	56	34	39
15:00	2	4	15	12	17	14	4	1	0	0	0	0	0	0	69	38	41
16:00	3	4	15	17	19	6	1	0	0	0	0	0	0	0	65	34	38
17:00	2	5	20	24	24	10	1	1	0	0	0	0	0	0	87	34	38
18:00	2	6	30	29	18	8	2	0	0	0	0	0	0	0	95	33	38
19:00	8	5	14	18	6	5	0	0	0	0	0	0	0	0	56	32	37
20:00	2	5	12	25	5	1	1	0	0	1	0	0	0	0	52	30	37
21:00	2	2	14	15	14	3	0	0	0	0	0	0	0	0	50	33	35
22:00	0	2	9	8	2	2	0	0	0	0	0	0	0	0	23	31	37
23:00	0	1	7	4	2	1	0	2	0	0	0	0	0	0	17	37	47
Total	45	76	216	234	162	66	13	5	0	1	0	0	0	0	818		
Percent	5.5%	9.3%	26.4%	28.6%	19.8%	8.1%	1.6%	0.6%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	11:00	11:00	11:00	11:00	11:00									11:00		
Vol.	1	9	21	15	9	6									61		
PM Peak	12:00	12:00	12:00	12:00	17:00	15:00	15:00	23:00		20:00					12:00		
Vol.	13	21	30	31	24	14	4	2		1					112		

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

City of Hanford

900 S. 10th Avenue
Hanford, CA 93230

Site Code: 064 FY16 WB
Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

Direction 1

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
09/01/16	0	0	0	1	0	1	0	1	0	0	0	0	0	0	3	47	49
01:00	0	0	1	1	1	0	0	0	0	0	0	0	0	0	3	32	34
02:00	0	0	0	1	0	1	0	0	0	0	0	0	0	0	2	38	39
03:00	0	1	0	1	2	1	0	0	0	0	0	0	0	0	5	36	38
04:00	2	1	4	4	1	1	1	0	0	0	0	0	0	0	14	34	41
05:00	2	5	10	6	2	3	0	0	0	0	0	0	0	0	28	32	37
06:00	0	3	16	12	4	4	4	1	0	0	0	0	0	0	44	38	43
07:00	2	11	34	53	35	10	1	0	0	0	0	0	0	0	146	33	36
08:00	3	2	15	15	14	12	3	0	0	0	0	0	0	0	64	37	39
09:00	4	2	12	15	10	5	2	0	0	0	0	0	0	0	50	34	39
10:00	1	4	7	13	12	5	2	0	0	0	0	0	0	0	44	35	39
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	14	29	99	122	81	43	13	2	0	0	0	0	0	0	403		
Percent	3.5%	7.2%	24.6%	30.3%	20.1%	10.7%	3.2%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	09:00	07:00	07:00	07:00	07:00	08:00	06:00	00:00							07:00		
Vol.	4	11	34	53	35	12	4	1							146		
PM Peak Vol.																	
Total	59	105	315	356	243	109	26	7	0	1	0	0	0	0	1221		
Percent	4.8%	8.6%	25.8%	29.2%	19.9%	8.9%	2.1%	0.6%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%			

15th Percentile :	20 MPH
50th Percentile :	26 MPH
85th Percentile :	34 MPH
95th Percentile :	38 MPH

Stats		
10 MPH Pace Speed :	21-30 MPH
Number in Pace :	671
Percent in Pace :	55.0%
Number of Vehicles > 30 MPH :	386
Percent of Vehicles > 30 MPH :	31.6%
Mean Speed(Average) :	27 MPH

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

City of Hanford

900 S. 10th Avenue
Hanford, CA 93230

Site Code: 064 FY16 EB
Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

Direction 1

Start	1	5	7	9	11	13	15	17	19	21	23	25	27	29
Time	4	6	8	10	12	14	16	18	20	22	24	26	28	999
08/31/16	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	8	2	0	2	3	1	0	3	4	0	2	0	2	38
12 PM	12	11	4	6	2	5	3	3	1	6	0	1	2	40
13:00	5	2	0	3	2	1	3	1	2	1	0	1	1	43
14:00	5	3	1	2	0	1	3	1	1	0	1	0	1	36
15:00	13	4	4	4	1	1	1	1	1	4	7	0	3	38
16:00	15	2	2	2	4	1	1	3	5	2	3	2	0	40
17:00	10	4	2	3	2	6	4	1	2	3	3	4	0	50
18:00	7	3	2	6	3	2	3	2	2	1	1	3	0	43
19:00	6	8	3	2	2	5	2	3	0	2	1	3	1	37
20:00	8	3	7	3	1	2	0	0	3	0	2	1	2	40
21:00	7	1	1	2	2	0	3	0	2	1	0	1	3	29
22:00	3	1	1	0	0	1	0	1	1	1	1	0	0	22
23:00	0	1	0	0	0	1	0	0	0	1	0	3	0	18
Total	99	45	27	35	22	27	23	19	24	22	21	19	15	474

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

City of Hanford

900 S. 10th Avenue
Hanford, CA 93230

Site Code: 064 FY16 EB
Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

Direction 1

Start Time	1 4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 999
09/01/16	0	0	0	0	0	0	0	0	0	0	0	0	0	8
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	5
02:00	0	0	0	0	0	1	0	0	0	0	0	0	0	3
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	3
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	5
05:00	0	0	2	0	1	0	0	0	0	1	0	0	0	18
06:00	2	0	0	0	0	0	0	0	0	1	1	0	1	26
07:00	9	6	4	2	6	5	3	4	4	2	1	1	3	38
08:00	9	2	2	1	2	0	0	4	1	2	2	0	2	28
09:00	0	0	0	1	3	2	1	0	0	2	1	1	1	27
10:00	4	3	3	1	0	0	0	0	0	1	1	1	0	34
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	24	11	11	5	12	8	4	8	5	9	6	3	7	195
Grand Total	123	56	38	40	34	35	27	27	29	31	27	22	22	669

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

City of Hanford

900 S. 10th Avenue
Hanford, CA 93230

Site Code: 064 FY16 WB
Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

Direction 1

Start	1	5	7	9	11	13	15	17	19	21	23	25	27	29
Time	4	6	8	10	12	14	16	18	20	22	24	26	28	999
08/31/16	*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00	4	4	3	1	2	1	4	0	1	2	0	1	1	37
12 PM	24	10	7	5	7	1	2	4	1	4	3	1	1	42
13:00	9	5	4	3	3	2	1	1	1	1	4	2	1	38
14:00	8	4	0	4	2	0	0	1	2	1	0	2	2	30
15:00	3	2	2	3	2	3	5	1	1	3	1	1	1	41
16:00	4	3	3	5	0	1	3	1	1	5	2	0	1	36
17:00	7	6	3	2	1	4	5	1	4	0	3	0	3	48
18:00	11	11	10	3	2	3	4	0	3	2	1	2	2	41
19:00	5	7	0	2	0	1	0	1	2	0	1	1	0	36
20:00	4	5	0	3	0	0	0	1	0	2	1	1	0	35
21:00	2	0	2	2	1	1	1	0	1	0	1	2	0	37
22:00	0	0	0	0	0	0	0	0	0	0	1	1	0	21
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	17
Total	81	57	34	33	20	17	25	11	17	20	18	14	12	459

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

City of Hanford

900 S. 10th Avenue
Hanford, CA 93230

Site Code: 064 FY16 WB
Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

Direction 1

Start Time	1 4	5 6	7 8	9 10	11 12	13 14	15 16	17 18	19 20	21 22	23 24	25 26	27 28	29 999
09/01/16	0	0	0	0	0	0	0	0	0	0	0	0	0	3
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	3
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	5
04:00	1	0	0	0	0	0	0	0	0	0	0	0	0	13
05:00	1	0	0	1	0	1	0	0	0	0	0	1	0	24
06:00	3	1	2	1	0	1	2	0	1	1	2	1	0	29
07:00	31	12	15	8	9	9	3	4	2	4	7	4	3	35
08:00	6	3	3	1	2	1	2	3	0	4	0	0	1	38
09:00	5	2	0	2	0	0	0	2	3	1	3	0	0	32
10:00	1	3	1	1	0	2	0	1	0	0	2	0	2	31
11:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
12 PM	*	*	*	*	*	*	*	*	*	*	*	*	*	*
13:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
14:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
15:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
16:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
17:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
18:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
19:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
20:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
21:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
22:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
23:00	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Total	48	21	21	14	11	14	7	10	6	10	14	6	6	215
Grand Total	129	78	55	47	31	31	32	21	23	30	32	20	18	674

Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

City of Hanford

900 S. 10th Avenue
Hanford, CA 93230

Site Code: 064 FY EB
Florinda St. e. of Lassen Dr.
Date Start: 31-Aug-16

Start Time	Mon 29-Aug-16	Tue	Wed	Thu	Fri	Average Day	Sat	Sun	Week Average
12:00 AM	*	*	*	8	*	8	*	*	8
01:00	*	*	*	5	*	5	*	*	5
02:00	*	*	*	4	*	4	*	*	4
03:00	*	*	*	3	*	3	*	*	3
04:00	*	*	*	5	*	5	*	*	5
05:00	*	*	*	22	*	22	*	*	22
06:00	*	*	*	31	*	31	*	*	31
07:00	*	*	*	**88**	*	**88**	*	*	**88**
08:00	*	*	*	55	*	55	*	*	55
09:00	*	*	*	39	*	39	*	*	39
10:00	*	*	*	48	*	48	*	*	48
11:00	*	*	**65**	*	*	65	*	*	65
12:00 PM	*	*	**96**	*	*	**96**	*	*	**96**
01:00	*	*	65	*	*	65	*	*	65
02:00	*	*	55	*	*	55	*	*	55
03:00	*	*	82	*	*	82	*	*	82
04:00	*	*	82	*	*	82	*	*	82
05:00	*	*	94	*	*	94	*	*	94
06:00	*	*	78	*	*	78	*	*	78
07:00	*	*	75	*	*	75	*	*	75
08:00	*	*	72	*	*	72	*	*	72
09:00	*	*	52	*	*	52	*	*	52
10:00	*	*	32	*	*	32	*	*	32
11:00	*	*	24	*	*	24	*	*	24
Total	0	0	872	308	0	1180	0	0	1180
% Avg. WkDay	0.0%	0.0%	73.9%	26.1%	0.0%	100.0%			
% Avg. Week	0.0%	0.0%	73.9%	26.1%	0.0%	100.0%	0.0%	0.0%	
AM Peak	-	-	11:00	07:00	-	07:00	-	-	07:00
Vol.	-	-	65	88	-	88	-	-	88
PM Peak	-	-	12:00	-	-	12:00	-	-	12:00
Vol.	-	-	96	-	-	96	-	-	96
Total	0	0	872	308	0	1180	0	0	1180

ADT ADT 1,120 AADT 1,120

City of Hanford

900 S. 10th Avenue
Hanford, CA 93230

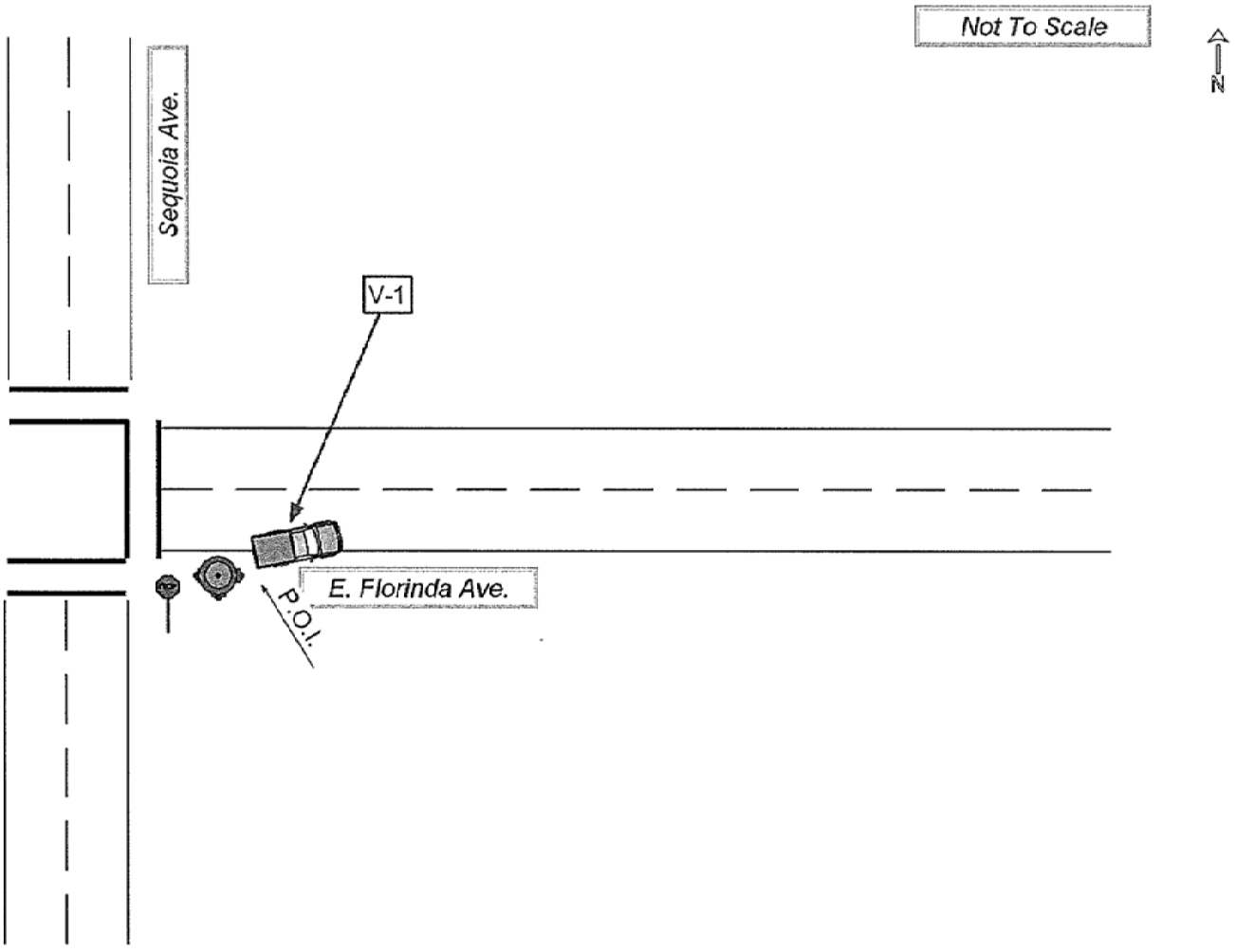
Site Code: 064 FY16 WB

Date Start: 31-Aug-16

Start Time	Mon 29-Aug-16	Tue	Wed	Thu	Fri	Average Day	Sat	Sun	Week Average
12:00 AM	*	*	*	3	*	3	*	*	3
01:00	*	*	*	3	*	3	*	*	3
02:00	*	*	*	2	*	2	*	*	2
03:00	*	*	*	5	*	5	*	*	5
04:00	*	*	*	14	*	14	*	*	14
05:00	*	*	*	28	*	28	*	*	28
06:00	*	*	*	44	*	44	*	*	44
07:00	*	*	*	**146**	*	**146**	*	*	**146**
08:00	*	*	*	64	*	64	*	*	64
09:00	*	*	*	50	*	50	*	*	50
10:00	*	*	*	44	*	44	*	*	44
11:00	*	*	**61**	*	*	61	*	*	61
12:00 PM	*	*	**112**	*	*	**112**	*	*	**112**
01:00	*	*	75	*	*	75	*	*	75
02:00	*	*	56	*	*	56	*	*	56
03:00	*	*	69	*	*	69	*	*	69
04:00	*	*	65	*	*	65	*	*	65
05:00	*	*	87	*	*	87	*	*	87
06:00	*	*	95	*	*	95	*	*	95
07:00	*	*	56	*	*	56	*	*	56
08:00	*	*	52	*	*	52	*	*	52
09:00	*	*	50	*	*	50	*	*	50
10:00	*	*	23	*	*	23	*	*	23
11:00	*	*	17	*	*	17	*	*	17
Total	0	0	818	403	0	1221	0	0	1221
% Avg. WkDay	0.0%	0.0%	67.0%	33.0%	0.0%	100.0%			
% Avg. Week	0.0%	0.0%	67.0%	33.0%	0.0%	100.0%	0.0%	0.0%	
AM Peak	-	-	11:00	07:00	-	07:00	-	-	07:00
Vol.	-	-	61	146	-	146	-	-	146
PM Peak	-	-	12:00	-	-	12:00	-	-	12:00
Vol.	-	-	112	-	-	112	-	-	112
Total	0	0	818	403	0	1221	0	0	1221

ADT ADT 1,156 AADT 1,156

Case Number: 161336	Date: 3/5/2016
Location: Florinda and Sequoia	
Description: By 1472	



Attachment: JFK crosswalk study (1796 : Florinda-Sequia crosswalk)

AGENDA
STAFF REPORT

MEETING DATE: 1/26/2017	**AGENDA SECTION:** 3

SUBJECT:
Install All-way Stop on 12th Avenue at Flint Avenue

RECOMMENDATION:

That the Parking & Traffic Commission make a recommendation to the City Council to authorize King's County Public Works to move forward with the installation of an All-way Stop on 12th Avenue at Flint Avenue and to change Section 10.32.010 of the Hanford Municipal Code to include an All-way Stop at this intersection.

BACKGROUND:

The Kings County, Public Works Department has asked the City of Hanford for concurrence to proceed with a project to place an All-way Stop on 12th Avenue at Flint Avenue. Kings County contracted JLB Traffic Engineering, Inc., of Fresno, CA to conduct a study of the intersection of 12th Avenue and Flint Avenue.

JLB conducted the intersection study in November 2016. The study has concluded that the intersection of 12th Avenue and Flint Avenue does meet King's County's warrants for an All-way Stop. Staff would recommend the Parking & Traffic Commission ask City Council to allow King's County to move forward with the project to install an All-Way Stop at the intersection of 12th Avenue and Flint Avenue and to change Section 10.32.010 of the Hanford Municipal Code to include this intersection.

Respectfully submitted,

Shawn Dailey
Secretary,

Engineering Technician, II

FISCAL IMPACT:

ATTACHMENTS:
12th-Flint

December 29, 2016

Dominic Tyburski, P.E.
Kings County, Public Works Department
1400 W. Lacey Blvd.
Hanford, CA 93230

Via email only: Dominic.Tyburski@co.kings.ca.us

Subject: 12th Avenue at Flint Avenue Traffic Safety Audit (Project 002-007)

Dear Mr. Dominic Tyburski,

JLB Traffic Engineering, Inc. (JLB) has completed the preparation of the Traffic Safety Audit (TSA) for the intersection of 12th Avenue at Flint Avenue in Kings County. As part of the TSA, JLB completed the following tasks: 1) Collect Traffic Counts, 2) Collect 85th Percentile Speeds, 3) Collision History Analysis, and 4) Preparation of Warrants (Multi-Way STOP/Signal). These tasks were prepared pursuant to the 2014 Edition of the California Manual on Uniform Traffic Control Devices (CA MUTCD).

The purpose of the preparation of this intersection TSA is to provide Kings County with an independent evaluation, findings, and recommendations to help improve traffic safety at the intersection of 12th Avenue at Flint Avenue. This letter along with its appendices provides the data and findings utilized to complete the intersection TSA.

Introduction

This letter presents the results of JLB's TSA of the intersection of 12th Avenue at Flint Avenue in Kings County. The TSA includes the collection of traffic counts, a radar speed survey, collision analyses, and an analysis of roadway conditions for the intersection of 12th Avenue at Flint Avenue. The subject intersection has experienced an apparent operational degradation in the past few years and the County has requested an independent intersection TSA along with recommendations to improve intersection safety, if any. Therefore, the purpose of this TSA is to evaluate if the intersection has the appropriate intersection traffic controls in conformance with the CA MUTCD.

Traffic Counts

One of the first steps in the preparation of the TSA was to collect new 24-hour volume counts for the project intersection. These counts were collected during non-inclement weather, when schools in the area were in session, and when roadway conditions did not impact travel patterns. The 24-hour volume counts were collected on Tuesday, November 15, 2016. The 24-hour volume counts collected for this TSA are listed below.

- Flint Avenue west of 12th Avenue

Attachment: 12th-Flint (1795 : 12th-Flint stop)

- Flint Avenue east of 12th Avenue
- 12th Avenue south of Flint Avenue
- 12th Avenue north of Flint Avenue

The intersection turning movement count was collected between the hours of 7:00 AM and 9:00 AM, and 4:00 PM and 6:00 PM on Tuesday, November 15, 2016. The 24-hour volume counts and intersection turning movement count are included in Appendix A.

85th Percentile and Posted Speeds

A crucial component of the intersection TSA was to determine the 85th percentile speeds of the major street, in this case 12th Avenue, and the posted speed limits of both cross streets. The 85th percentile speeds were utilized to determine the critical speed of the major street. Based on the speed surveys, the 85th percentile speeds for 12th Avenue were observed to be 64 MPH and 68 MPH for the northbound and southbound approaches, respectively. The 85th percentile spot speed studies are contained in Appendix B. The posted speed limit for both legs of 12th Avenue is 55 MPH, and the prima facie speed limit for both legs of Flint Avenue is 55 MPH.

Based on the 85th percentile speeds, speeds on 12th Avenue are higher than those currently posted. A potential solution for consideration is the installation of dynamic speed feedback signs placed below the posted speed limit sign for northbound and southbound traffic on 12th Avenue (see right). Dynamic speed feedback signs are an effective and affordable tool to slow drivers down. The dynamic speed feedback signs display the speed of approaching vehicles, making speeding drivers aware that they are exceeding the speed limit. Studies have shown that speed feedback signs produce 10-20% reductions in average roadway speeds and increase compliance with the posted speed limit.

Existing Traffic Operations

New 24-hour volume counts and peak hour intersection turning movement counts were collected for the study intersection. Further, JLB staff observed the traffic operations of the intersection during the one-hour AM peak which was found to take place between 7:30 AM and 8:30 AM. During JLB's observation, no pedestrians or bicyclists were observed during the AM peak hour. During the AM peak hour, JLB staff observed a maximum of 11 and 6 vehicles queued on the westbound and eastbound approaches of Flint Avenue, respectively.

On the northbound and southbound approaches, vehicles were observed to pass on the right through the intersection while traffic ahead of them slowed to make a left turn onto Flint Avenue. On the westbound approach, two vehicles were observed to enter the intersection with an inadequate "safe gap" in traffic, forcing 12th Avenue traffic to significantly slow down to avoid a collision.

The highest delay observed on the Flint Avenue approaches was 1 minute and 42 seconds. Approximately four school buses were observed to cross 12th Avenue while traveling on Flint Avenue during the AM peak hour. An operational analysis was also conducted for the intersection of 12th Avenue at Flint Avenue to

Attachment: 12th-Flint (1795 : 12th-Flint stop)

determine the average delay for the worst minor street approach. These analyses were prepared with Synchro software utilizing the methodologies of the 2010 Highway Capacity Manual. Based on the analyses, the worst minor street approach is currently operating at LOS D with an average delay of 26.4 seconds during the AM peak and LOS C with an average delay of 16.5 seconds during the PM peak. The LOS worksheets are contained in Appendix C.

Multi-Way STOP Warrant Analysis and Guidelines

Section 2B.07 Multi-Way STOP Applications of the CA MUTCD provides standards and guidelines to determine if an intersection should be considered for Multi-Way STOP controls. "*The decision to install Multi-Way STOP control should be based on an engineering study.*" This section also provides criteria that should be considered in the engineering study for Multi-Way STOP sign installation and are listed below.

A. *Where traffic control signals are justified, the Multi-Way STOP is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.*
B. *Five or more reported crashes in a 12-month period that are susceptible to correction by a Multi-Way STOP installation. Such crashes include right-turn and left-turn collisions as well as right-angle collisions.*
C. *Minimum volumes:*
    1. *The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day; and*
    2. *The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour; but*
    3. *If the 85th percentile approach speed of the major-street traffic exceeds 40 MPH, the minimum vehicular volume warrants are 70 percent of the values provided in Items 1 and 2.*
D. *Where no single Criteria is satisfied, but where Criteria B, C.1, and C.2 are all satisfied to 80 percent of the minimum values. Criteria C.3 is excluded from this condition.*

Multi-Way STOP Warrant – Criteria A and B

To complete Criteria A and B of the Multi-Way STOP Warrant, JLB completed CA MUTCD Signal Warrants 1, 3, and 7. The findings and results for Criteria C and D will be presented after Criteria A and B.

Section 4C.01 Studies and Factors for Justifying Traffic Control Signals of the 2014 CA MUTCD provide standards and guidelines to determine if an intersection should be considered for signalization. These guidelines are used to complete Criteria A and B of the Multi-Way STOP Warrant. The first of three steps in the process to determine if a signal is warranted is that an "*engineering study of traffic conditions,*

Attachment: 12th-Flint (1795 : 12th-Flint stop)

pedestrian characteristics, and physical characteristics of the location shall be performed to determine whether installation of a traffic control signal is justified at a particular location."

The intersection of 12th Avenue at Flint Avenue is a four-legged intersection at a relatively flat grade. 12th Avenue runs north-south, while Flint Avenue intersects 12th Avenue at approximately 90 degrees. Flint Avenue is the minor street and is controlled by two-way STOP signs. 12th Avenue is the major street and is uncontrolled.

Secondly, the investigation to determine if a traffic signal should be implemented shall include the applicable factors contained in various traffic Signal Warrants. The CA MUTCD contains the following warrants:

1. Warrant 1: Eight-Hour Vehicular Volume
2. Warrant 2: Four-Hour Vehicular Volume
3. Warrant 3: Peak Hour
4. Warrant 4: Pedestrian Volume
5. Warrant 5: School Crossing
6. Warrant 6: Coordinated Signal System
7. Warrant 7: Crash Experience
8. Warrant 8: Roadway Network
9. Warrant 9: Intersection Near a Grade Crossing

Of the nine warrants, the most appropriate for the subject intersection are Warrants 1, 3, and 7. Therefore, for purposes of this study, Warrants 1, 3, and 7 were completed. To complete Warrants 1 and 3, the new 24-hour volume counts and the intersection turning movement count were utilized.

Warrant 1

The standard to satisfy Warrant 1 of the 2014 CA MUTCD is as follows:

> *The need for a traffic control signal shall be considered if an engineering study finds that one of the following conditions exist for each of any 8 hours of an average day:*
>
> *A. The vehicles per hour given in both of the 100 percent columns of Condition A in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection; or*
>
> *B. The vehicles per hour given in both of the 100 percent columns of Condition B in Table 4C-1 exist on the major-street and the higher-volume minor-street approaches, respectively, to the intersection.*
>
> *In applying each condition the major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of these 8 hours.*

JLB completed Warrant 1 pursuant to the above guidelines. A copy of the completed Warrant 1 is contained in Appendix D. Based on the above guidelines and the existing traffic volumes, the intersection

Attachment: 12th-Flint (1795 : 12th-Flint stop)

of 12th Avenue at Flint Avenue does not satisfy Conditions A or B of Warrant 1. Furthermore, Condition C of Warrant 1 is also not satisfied. Thus, Warrant 1 is not satisfied.

Warrant 3

The standard to satisfy Warrant 3 of the 2014 CA MUTCD is as follows:

> *The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:*
>
> *A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:*
>
> *1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; and*
>
> *2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and*
>
> *3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.*
>
> *B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.*

Based on the new intersection turning movement counts, the intersection served a maximum of 744 hourly trips (peak hour), 164 of which were trips from the highest minor approach (westbound Flint Avenue). The highest average delay was found to take place during the AM peak with a total of 26.4 seconds of average delay per vehicle to the westbound minor street approach. Therefore, the total stopped time delay on the westbound Flint Avenue approach is (26.4 seconds X 164 vehicles)/(3600 seconds/hour) = 1.20 vehicle hours. Therefore, Conditions A1, A2, and A3 are all unsatisfied, and thus Condition A of Warrant 3 is not satisfied.

JLB also completed Condition B of Warrant 3 based on the new intersection turning movement count. Based on the new counts, the plotted points fall under the applicable curve, and thus the intersection does not satisfy Condition B of Warrant 3.

JLB completed Warrant 3 pursuant to the 2014 CA MUTCD guidelines. A copy of the completed Warrant 3 is contained in Appendix D. Based on the above guidelines and the existing traffic volumes, the intersection of 12th Avenue at Flint Avenue does not satisfy Conditions A or B of Warrant 3. Therefore, signalization of the intersection is not justified under Warrant 3.

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Warrant 7

The standard to satisfy Warrant 7 of the 2014 CA MUTCD states that the need for a traffic control signal based on crash experience shall be considered if an engineering study finds that *all* the following criteria are satisfied:

A. *Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency; and*
B. *Five or more reported crashes, of types susceptible to correction by a traffic control signal, have occurred within a 12-month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash; and*
C. *For each of any 8 hours of an average day, the vehicles per hour (vph) given in both of the 80 percent columns of Condition A in Table 4C-1 (Warrant 1), or the vph in both of the 80 percent columns of Condition B in Table 4C-1 exists on the major-street and the higher-volume minor-street approach, respectively, to the intersection. These major-street and minor-street volumes shall be for the same 8 hours. On the minor street, the higher volume shall not be required to be on the same approach during each of the 8 hours."*

To complete Condition B of Warrant 7, JLB reviewed collision reports for the most recent three-year period (August 26, 2013 - August 25, 2016) provided by Kings County. JLB also conducted a search of the Statewide Integrated Traffic Records System (SWITRS) to ensure that the collision reports provided by the County were the only reported collisions at the project intersection for the analysis period. The SWITRS "*is a database that serves as a means to collect and process data gathered from a collision scene. The Internet SWITRS application is a tool by which California Highway Patrol (CHP) staff and members of its Allied Agencies throughout California can request various types of statistical reports in an electronic format.*" A review of the SWITRS database confirmed that the collision report data provided by the County were all inclusive of the three-year analysis period. In this three-year period, a total of ten collisions were reported within the influence zone of the intersection. Figure 1 illustrates a diagram of the collisions that took place between August 26, 2013 and August 25, 2016.

During this period, the maximum number of collisions susceptible to correction by the installation of a traffic signal in a twelve-month period is five. Based on the number of collisions susceptible to correction, Condition B of Warrant 7 is satisfied.

To complete Condition C of Warrant 7, the data from Warrant 1 was utilized. As stated in the Warrant 1 analyses, both Conditions A and B, as well as Condition C of Warrant 1 are not satisfied. As stated above, for Warrant 7 to be met, Conditions A, B, and C must be satisfied. As two of the conditions for Warrant 7 are not satisfied, Warrant 7 is not satisfied.

Multi-Way STOP Warrant – Criteria A

To complete Criteria A (Signal Warrants) of the Multi-Way STOP Warrant, JLB utilized the data from Warrants 1, 3, and 7 previously presented within this letter. Criteria A is satisfied when the installation of

Attachment: 12th-Flint (1795 : 12th-Flint stop)

the Multi-Way STOP is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of a traffic control signal. Since the intersection of 12th Avenue at Flint Avenue does not meet Signal Warrants 1, 3, or 7, Criteria A of the Multi-Way STOP Warrant is not satisfied.

Multi-Way STOP Warrant – Criteria B

To complete Criteria B (Collisions) of the Multi-Way STOP Warrant, JLB utilized the data from the collision analysis previously presented within this letter. Criteria B is satisfied when five or more reported collisions in a 12-month period are susceptible to correction by the installation of a Multi-Way STOP. Since the number of collisions in a 12-month period that are susceptible to correction by the installation of a Multi-Way STOP control totals five, Criteria B of the Multi-Way STOP Warrant is satisfied. Therefore, it is recommended that the County consider implementing Multi-Way STOP controls at the intersection to promote safety. If the County implements a Multi-Way STOP control, it is possible the traffic volumes on Flint Avenue at 12th Avenue could increase as motorists would feel safer to cross 12th Avenue. As a result, the anticipated increase in traffic volumes resulting from the Multi-Way STOP control could satisfy volume-based Signal Warrants in the next few years. Thus, it is also recommended that the County monitor the intersection of 12th Avenue at Flint Avenue every other year for Signal Warrants 1 and 3.

Multi-Way STOP Warrant – Criteria C

To complete Criteria C (Minimum Volumes) of the Multi-Way STOP Warrant, JLB compared the highest 8-hour volumes from the 24-hour volume counts for all legs of the intersection. Also, since the critical speed for the major street is greater than 40 MPH, 70 percent of the volume thresholds were used. Therefore, for Criteria C to be met, a minimum of 210 trips on the major street (total of both approaches) and 140 trips on the highest minor street approach are required for the same eight hours. Based on these volume thresholds, the volume for both approaches on the major street meets this threshold for the highest eight hours. However, the highest minor street approach does not meet the required threshold during three of the highest eight hours. The observed highest eight-hour volumes do not meet the minimum volumes. Therefore, Criteria C of the Multi-Way STOP Warrant is not satisfied.

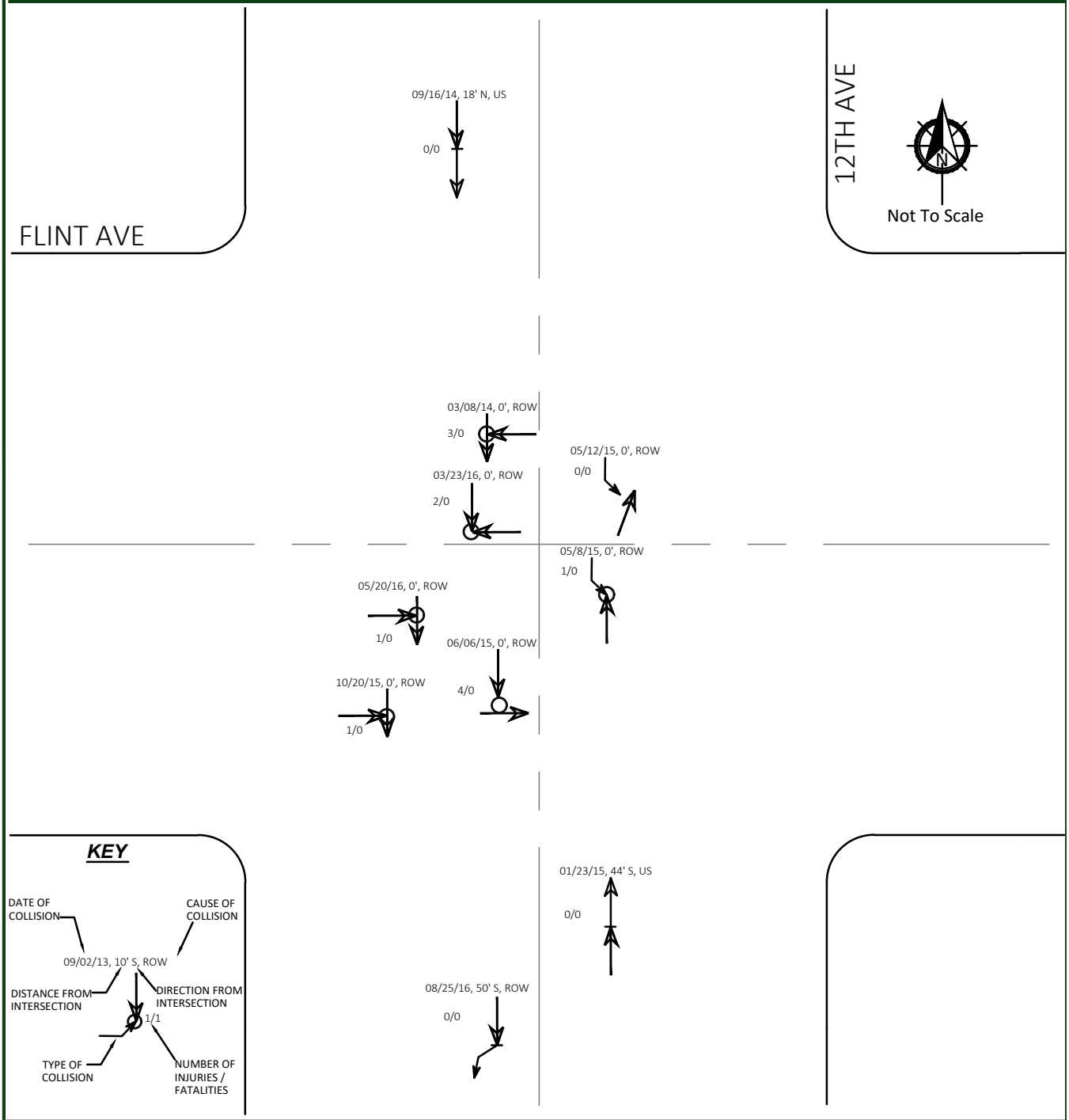
Multi-Way STOP Warrant – Criteria D

Criteria D is utilized where no single Criteria is satisfied, but where Criteria B, C.1, and C.2 of the Multi-Way STOP Warrant are all satisfied to 80 percent of the minimum values. In this case, Criteria B was satisfied. Therefore, Criteria D of the Multi-Way STOP Warrant would not apply.

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Kings County Intersection Safety Audit
10 Collisions
November 21, 2016

Figure 1



LEGEND

- STRAIGHT
- STOPPED
- UNKNOWN
- BACKING
- OVERTAKING
- ERRATIC
- OUT OF CONTROL
- RIGHT TURN
- LEFT TURN
- PARKED
- SIDESWIPE
- U-TURN
- PEDESTRIAN
- BICYCLE
- INJURY
- FATALITY
- NIGHTTIME
- DUI

FIXED OBJECTS:

- POLE , POLE WITH ANCHOR
- CURB
- ANIMAL
- GENERAL
- SIGNAL
- TREE
- 3RD VEHICLE
- EXTRA DATA: NOT USED

ROW = RIGHT OF WAY
UTM = UNSAFE TURNING MOVEMENT
WSOR = WRONG SIDE OF ROAD
US = UNSAFE SPEED

JLB TRAFFIC ENGINEERING, INC.
1300 E. Shaw Ave., Ste. 103, Fresno, CA 93710
PHONE:(559) 570-8991, EMAIL: info@JLBtraffic.com, www.JLBTraffic.com

COLLISION DIAGRAM

INTERSECTION: FLINT AVE AT 12TH AVE
PERIOD FROM: AUGUST 26, 2013 TO AUGUST 25, 2016

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Summary and Recommendations

JLB has completed the Traffic Safety Audit for the intersection of 12th Avenue at Flint Avenue. Based on these analyses, JLB's recommendations are provided below.

- It is recommended that consideration be given to the installation of dynamic speed feedback signs for 12th Avenue north and south of Flint Avenue.
- It is recommended that the County work with the CHP to provide periodic speed enforcement of 12th Avenue between Elder Avenue and Fargo Avenue.
- Based on the warrant analyses, the intersection of 12th Avenue at Flint Avenue does not satisfy Signal Warrants, but does satisfy Multi-Way STOP Warrants. Therefore, it is recommended that the County consider implementing Multi-Way STOP controls at the intersection to promote safety.
- After implementation of Multi-Way STOP controls, it is recommended that the County monitor the intersection every other year for Signal Warrants 1 and 3.

Please contact me by phone at (559) 570-8991, or email at jbenavides@jlbtraffic.com if you have questions regarding this Traffic Safety Audit.

Sincerely,

Jose Luis Benavides, P.E., T.E.
President

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Appendix A: Traffic Counts

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Prepared by NDS/ATD

VOLUME

Flint Ave 800' W/O 12th Ave

Day: Tuesday
Date: 11/15/2016

County: Kings
Project #: CA16_8149_001

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	600	639	1,239

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		1		1		12:00			8		6		14	
00:15			0		0		0		12:15			5		7		12	
00:30			0		1		1		12:30			4		3		7	
00:45			1	1	0	2	1	3	12:45			4	21	12	28	16	49
01:00			0		0		0		13:00			7		10		17	
01:15			1		0		1		13:15			7		7		14	
01:30			0		1		1		13:30			3		11		14	
01:45			0	1	1	2	1	3	13:45			7	24	7	35	14	59
02:00			0		0		0		14:00			3		16		19	
02:15			0		0		0		14:15			15		12		27	
02:30			0		0		0		14:30			17		14		31	
02:45			1	1	0		1	1	14:45			11	46	14	56	25	102
03:00			0		1		1		15:00			25		13		38	
03:15			0		0		0		15:15			22		21		43	
03:30			0		0		0		15:30			15		24		39	
03:45			1	1	0	1	1	2	15:45			18	80	12	70	30	150
04:00			1		0		1		16:00			18		13		31	
04:15			0		0		0		16:15			15		9		24	
04:30			0		3		3		16:30			14		12		26	
04:45			0	1	2	5	2	6	16:45			16	63	8	42	24	105
05:00			1		4		5		17:00			11		17		28	
05:15			1		3		4		17:15			17		7		24	
05:30			2		5		7		17:30			13		16		29	
05:45			9	13	6	18	15	31	17:45			8	49	8	48	16	97
06:00			6		4		10		18:00			9		5		14	
06:15			5		7		12		18:15			10		8		18	
06:30			1		16		17		18:30			11		10		21	
06:45			13	25	15	42	28	67	18:45			9	39	7	30	16	69
07:00			4		10		14		19:00			5		3		8	
07:15			6		9		15		19:15			3		4		7	
07:30			16		28		44		19:30			4		3		7	
07:45			23	49	23	70	46	119	19:45			3	15	3	13	6	28
08:00			16		36		52		20:00			4		3		7	
08:15			17		12		29		20:15			1		6		7	
08:30			10		6		16		20:30			4		1		5	
08:45			7	50	7	61	14	111	20:45			3	12	1	11	4	23
09:00			8		9		17		21:00			2		2		4	
09:15			11		5		16		21:15			4		4		8	
09:30			1		9		10		21:30			2		1		3	
09:45			6	26	11	34	17	60	21:45			7	15	1	8	8	23
10:00			5		8		13		22:00			2		0		2	
10:15			6		6		12		22:15			1		1		2	
10:30			2		6		8		22:30			1		2		3	
10:45			10	23	11	31	21	54	22:45			2	6	1	4	3	10
11:00			9		10		19		23:00			0		1		1	
11:15			9		5		14		23:15			2		0		2	
11:30			8		1		9		23:30			1		0		1	
11:45			10	36	10	26	20	62	23:45			0	3	1	2	1	5
TOTALS				227		292		519	TOTALS				373		347		720
SPLIT %				43.7%		56.3%		41.9%	SPLIT %				51.8%		48.2%		58.1

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	600	639	1,239

AM Peak Hour			07:30	07:30	07:30		PM Peak Hour			15:00	14:45	15:0
AM Pk Volume			72	99	171		PM Pk Volume			80	72	150
Pk Hr Factor			0.783	0.688	0.822		Pk Hr Factor			0.800	0.750	0.87
7 - 9 Volume	0	0	99	131	230		4 - 6 Volume	0	0	112	90	202
7 - 9 Peak Hour			07:30	07:30	07:30		4 - 6 Peak Hour			16:00	16:45	16:0
7 - 9 Pk Volume	0	0	72	99	171		4 - 6 Pk Volume	0	0	63	48	105
Pk Hr Factor	0.000	0.000	0.783	0.688	0.822		Pk Hr Factor	0.000	0.000	0.875	0.706	0.84

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Prepared by NDS/ATD

VOLUME

Flint Ave 800' E/O 12th Ave

Day: Tuesday
Date: 11/15/2016

County: Kings
Project #: CA16_8149_002

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,164	1,199	2,363

AM Period	NB	SB	EB		WB		TOTAL		PM Period	NB	SB	EB		WB		TOTAL	
00:00			0		2		2		12:00			14		13		27	
00:15			0		1		1		12:15			14		12		26	
00:30			0		0		0		12:30			14		15		29	
00:45			1	1	1	4	2	5	12:45			11	53	19	59	30	112
01:00			1		0		1		13:00			18		14		32	
01:15			1		0		1		13:15			11		16		27	
01:30			0		1		1		13:30			11		22		33	
01:45			0	2	0	1	0	3	13:45			16	56	18	70	34	126
02:00			0		0		0		14:00			12		25		37	
02:15			2		2		4		14:15			19		17		36	
02:30			1		0		1		14:30			28		19		47	
02:45			0	3	1	3	1	6	14:45			19	78	33	94	52	172
03:00			0		0		0		15:00			61		21		82	
03:15			0		0		0		15:15			39		39		78	
03:30			0		0		0		15:30			23		39		62	
03:45			1	1	2	2	3	3	15:45			25	148	23	122	48	270
04:00			2		0		2		16:00			28		27		55	
04:15			0		1		1		16:15			27		22		49	
04:30			1		6		7		16:30			29		16		45	
04:45			1	4	4	11	5	15	16:45			27	111	18	83	45	194
05:00			1		5		6		17:00			24		19		43	
05:15			2		5		7		17:15			37		18		55	
05:30			5		10		15		17:30			22		26		48	
05:45			14	22	9	29	23	51	17:45			25	108	16	79	41	187
06:00			13		9		22		18:00			22		6		28	
06:15			9		15		24		18:15			18		10		28	
06:30			9		26		35		18:30			18		18		36	
06:45			12	43	16	66	28	109	18:45			17	75	14	48	31	123
07:00			14		26		40		19:00			10		12		22	
07:15			16		35		51		19:15			8		7		15	
07:30			23		32		55		19:30			9		6		15	
07:45			40	93	40	133	80	226	19:45			10	37	8	33	18	70
08:00			43		62		105		20:00			7		9		16	
08:15			40		30		70		20:15			5		6		11	
08:30			13		15		28		20:30			6		2		8	
08:45			12	108	23	130	35	238	20:45			8	26	3	20	11	46
09:00			8		14		22		21:00			2		4		6	
09:15			17		15		32		21:15			5		6		11	
09:30			8		9		17		21:30			3		2		5	
09:45			12	45	16	54	28	99	21:45			8	18	2	14	10	32
10:00			13		16		29		22:00			2		3		5	
10:15			15		11		26		22:15			1		4		5	
10:30			14		16		30		22:30			3		1		4	
10:45			12	54	22	65	34	119	22:45			2	8	1	9	3	17
11:00			14		18		32		23:00			0		2		2	
11:15			23		10		33		23:15			1		1		2	
11:30			16		15		31		23:30			1		1		2	
11:45			15	68	21	64	36	132	23:45			0	2	2	6	2	8
TOTALS				444		562		1006	TOTALS				720		637		135
SPLIT %				44.1%		55.9%		42.6%	SPLIT %				53.1%		46.9%		57.4

DAILY TOTALS	NB	SB	EB	WB	Total
	0	0	1,164	1,199	2,363

AM Peak Hour			07:30	07:15	07:30	PM Peak Hour			15:00	14:45	14:4
AM Pk Volume			146	169	310	PM Pk Volume			148	132	274
Pk Hr Factor			0.849	0.681	0.738	Pk Hr Factor			0.607	0.846	0.83
7 - 9 Volume	0	0	201	263	464	4 - 6 Volume	0	0	219	162	381
7 - 9 Peak Hour			07:30	07:15	07:30	4 - 6 Peak Hour			16:30	16:00	16:0
7 - 9 Pk Volume	0	0	146	169	310	4 - 6 Pk Volume	0	0	117	83	194
Pk Hr Factor	0.000	0.000	0.849	0.681	0.738	Pk Hr Factor	0.000	0.000	0.791	0.769	0.88

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Prepared by NDS/ATD

VOLUME

12th Ave 800' S/O Flint Ave

Day: Tuesday
Date: 11/15/2016

County: Kings
Project #: CA16_8149_003

DAILY TOTALS	NB	SB	EB	WB	Total
	2,469	2,608	0	0	5,077

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	1		4				5		12:00	35		33				68	
00:15	2		3				5		12:15	36		34				70	
00:30	5		0				5		12:30	25		45				70	
00:45	2	10	3	10			5	20	12:45	40	136	38	150			78	286
01:00	3		2				5		13:00	45		38				83	
01:15	2		2				4		13:15	38		37				75	
01:30	1		0				1		13:30	33		40				73	
01:45	5	11	1	5			6	16	13:45	27	143	40	155			67	298
02:00	0		2				2		14:00	41		26				67	
02:15	1		2				3		14:15	42		36				78	
02:30	2		2				4		14:30	60		50				110	
02:45	0	3	4	10			4	13	14:45	63	206	43	155			106	361
03:00	0		3				3		15:00	78		49				127	
03:15	3		0				3		15:15	53		53				106	
03:30	3		2				5		15:30	48		60				108	
03:45	2	8	6	11			8	19	15:45	52	231	56	218			108	449
04:00	5		4				9		16:00	47		60				107	
04:15	5		5				10		16:15	64		44				108	
04:30	5		7				12		16:30	53		61				114	
04:45	10	25	11	27			21	52	16:45	53	217	54	219			107	436
05:00	9		10				19		17:00	84		52				136	
05:15	13		12				25		17:15	66		53				119	
05:30	18		12				30		17:30	48		69				117	
05:45	27	67	13	47			40	114	17:45	42	240	51	225			93	465
06:00	27		13				40		18:00	46		31				77	
06:15	23		13				36		18:15	44		38				82	
06:30	33		33				66		18:30	31		36				67	
06:45	33	116	50	109			83	225	18:45	28	149	39	144			67	293
07:00	29		39				68		19:00	34		14				48	
07:15	36		56				92		19:15	18		23				41	
07:30	65		74				139		19:30	22		20				42	
07:45	70	200	93	262			163	462	19:45	17	91	13	70			30	161
08:00	50		76				126		20:00	17		24				41	
08:15	32		71				103		20:15	17		18				35	
08:30	22		36				58		20:30	12		10				22	
08:45	20	124	43	226			63	350	20:45	16	62	8	60			24	122
09:00	24		35				59		21:00	12		10				22	
09:15	34		27				61		21:15	14		12				26	
09:30	18		36				54		21:30	11		8				19	
09:45	30	106	42	140			72	246	21:45	17	54	4	34			21	88
10:00	24		35				59		22:00	2		9				11	
10:15	23		26				49		22:15	12		6				18	
10:30	38		33				71		22:30	6		4				10	
10:45	28	113	44	138			72	251	22:45	5	25	5	24			10	49
11:00	26		38				64		23:00	1		5				6	
11:15	27		51				78		23:15	6		6				12	
11:30	33		30				63		23:30	2		3				5	
11:45	34	120	32	151			66	271	23:45	3	12	4	18			7	30
TOTALS		903		1136				2039	TOTALS		1566		1472				303
SPLIT %		44.3%		55.7%				40.2%	SPLIT %		51.5%		48.5%				59.8

DAILY TOTALS	NB	SB	EB	WB	Total
	2,469	2,608	0	0	5,077

AM Peak Hour	07:15	07:30					07:30	PM Peak Hour	16:30	15:15					16:4
AM Pk Volume	221	314					531	PM Pk Volume	256	229					479
Pk Hr Factor	0.789	0.844					0.814	Pk Hr Factor	0.762	0.954					0.88
7 - 9 Volume	324	488	0	0			812	4 - 6 Volume	457	444	0	0			901
7 - 9 Peak Hour	07:15	07:30					07:30	4 - 6 Peak Hour	16:30	16:45					16:4
7 - 9 Pk Volume	221	314	0	0			531	4 - 6 Pk Volume	256	228	0	0			479
Pk Hr Factor	0.789	0.844	0.000	0.000			0.814	Pk Hr Factor	0.762	0.826	0.000	0.000			0.88

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Prepared by NDS/ATD

VOLUME

12th Ave 800 ' N/O Flint Ave

Day: Tuesday
Date: 11/15/2016

County: Kings
Project #: CA16_8149_004

DAILY TOTALS	NB	SB	EB	WB	Total
	2,290	2,404	0	0	4,694

AM Period	NB		SB		EB	WB	TOTAL		PM Period	NB		SB		EB	WB	TOTAL	
00:00	1		4				5		12:00	36		27				63	
00:15	2		1				3		12:15	28		35				63	
00:30	4		0				4		12:30	24		39				63	
00:45	1	8	2	7			3	15	12:45	30	118	34	135			64	253
01:00	3		2				5		13:00	39		36				75	
01:15	2		2				4		13:15	40		30				70	
01:30	1		0				1		13:30	30		39				69	
01:45	4	10	1	5			5	15	13:45	25	134	38	143			63	277
02:00	0		2				2		14:00	39		22				61	
02:15	1		2				3		14:15	36		28				64	
02:30	1		2				3		14:30	54		46				100	
02:45	0	2	3	9			3	11	14:45	55	184	42	138			97	322
03:00	0		3				3		15:00	60		39				99	
03:15	3		0				3		15:15	49		42				91	
03:30	3		2				5		15:30	56		52				108	
03:45	4	10	6	11			10	21	15:45	45	210	53	186			98	396
04:00	4		5				9		16:00	52		49				101	
04:15	5		6				11		16:15	56		52				108	
04:30	5		7				12		16:30	52		59				111	
04:45	10	24	10	28			20	52	16:45	57	217	53	213			110	430
05:00	10		8				18		17:00	78		52				130	
05:15	13		10				23		17:15	60		67				127	
05:30	17		12				29		17:30	38		72				110	
05:45	28	68	14	44			42	112	17:45	44	220	48	239			92	459
06:00	28		15				43		18:00	37		31				68	
06:15	21		12				33		18:15	37		38				75	
06:30	38		35				73		18:30	27		34				61	
06:45	29	116	46	108			75	224	18:45	25	126	32	135			57	261
07:00	40		40				80		19:00	30		7				37	
07:15	39		51				90		19:15	21		25				46	
07:30	69		69				138		19:30	23		18				41	
07:45	49	197	94	254			143	451	19:45	17	91	15	65			32	156
08:00	34		60				94		20:00	19		22				41	
08:15	18		51				69		20:15	15		17				32	
08:30	32		33				65		20:30	10		9				19	
08:45	23	107	38	182			61	289	20:45	14	58	8	56			22	114
09:00	21		27				48		21:00	12		9				21	
09:15	41		25				66		21:15	13		9				22	
09:30	14		39				53		21:30	12		8				20	
09:45	20	96	39	130			59	226	21:45	14	51	2	28			16	79
10:00	24		34				58		22:00	4		9				13	
10:15	21		25				46		22:15	12		3				15	
10:30	31		29				60		22:30	4		3				7	
10:45	27	103	34	122			61	225	22:45	5	25	4	19			9	44
11:00	20		34				54		23:00	1		4				5	
11:15	23		49				72		23:15	6		4				10	
11:30	30		23				53		23:30	3		3				6	
11:45	29	102	27	133			56	235	23:45	3	13	3	14			6	27
TOTALS		843		1033				1876	TOTALS		1447		1371				281
SPLIT %		44.9%		55.1%				40.0%	SPLIT %		51.3%		48.7%				60.0

DAILY TOTALS	NB	SB	EB	WB	Total
	2,290	2,404	0	0	4,694

AM Peak Hour	07:00	07:15				07:15	PM Peak Hour	16:30	16:45				16:3
AM Pk Volume	197	274				465	PM Pk Volume	247	244				478
Pk Hr Factor	0.714	0.729				0.813	Pk Hr Factor	0.792	0.847				0.91
7 - 9 Volume	304	436	0	0		740	4 - 6 Volume	437	452	0	0		889
7 - 9 Peak Hour	07:00	07:15				07:15	4 - 6 Peak Hour	16:30	16:45				16:3
7 - 9 Pk Volume	197	274	0	0		465	4 - 6 Pk Volume	247	244	0	0		478
Pk Hr Factor	0.714	0.729	0.000	0.000		0.813	Pk Hr Factor	0.792	0.847	0.000	0.000		0.91

Attachment: 12th-Flint (1795 : 12th-Flint stop)

ITM Peak Hour Summary

Prepared by:

National Data & Surveying Services

12th St and Flint Ave , Kings

Date: 11/15/2016
Day: Tuesday

Project #: 16-8150-001
County: Kings

AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	430 PM

Peak Hour Summary

Southbound Approach

	Lanes	0	1	0		
AM		6	263	16	186	AM
NOON		0	0	0	0	NOON
PM		2	200	36	250	PM

12th St

Flint Ave

Eastbound Approach

Lanes	AM	NOON	PM
	99	0	43
0	1	0	2
1	64	0	53
0	8	0	3

Westbound Approach

Lanes	AM	NOON	PM
0	30	0	23
1	88	0	32
0	46	0	17
	142	0	116

CONTROL

2-Way Stop (EB/WB)

Count Periods	Start	End
AM	7:00 AM	9:00 AM
NOON	NONE	NONE
PM	4:00 PM	6:00 PM

Northbound Approach

AM	317	5	155	62	AM
NOON	0	0	0	0	NOON
PM	220	9	225	27	PM
Lanes		0	1	0	Lanes

Total Ins & Outs

	North Leg		
AM	285	186	AM
NOON	0	0	NOON
PM	238	250	PM

West Leg				East Leg			
AM	NOON	PM		AM	NOON	PM	
99	0	43		164	0	72	
73	0	58		142	0	116	

	South Leg		
AM	317	222	AM
NOON	0	0	NOON
PM	220	261	PM

Total Volume Per Leg

	North Leg	
AM	471	AM
NOON	0	NOON
PM	488	PM

West Leg			East Leg		
AM	NOON	PM	AM	NOON	PM
172	0	101	306	0	188

	South Leg	
AM	539	AM
NOON	0	NOON
PM	481	PM

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-8150-001 **Day:** Tuesday

County Kings **Date:** 11/15/2016

AM

NS/EW Streets:	12th St			12th St			Flint Ave			Flint Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
7:00 AM	0	28	3	5	34	1	0	5	0	7	10	6	99
7:15 AM	1	30	3	7	42	0	0	4	1	11	8	17	124
7:30 AM	1	61	7	4	62	3	0	12	5	7	24	3	189
7:45 AM	0	48	20	3	92	0	0	20	1	5	25	10	224
8:00 AM	3	29	21	6	56	3	0	16	1	17	28	10	190
8:15 AM	1	17	14	3	53	0	1	16	1	17	11	7	141
8:30 AM	2	19	1	5	34	0	1	8	1	3	5	10	89
8:45 AM	1	16	2	3	34	0	0	7	0	7	5	8	83
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	9	248	71	36	407	7	2	88	10	74	116	71	1139
APPROACH %'s :	2.74%	75.61%	21.65%	8.00%	90.44%	1.56%	2.00%	88.00%	10.00%	28.35%	44.44%	27.20%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	5	155	62	16	263	6	1	64	8	46	88	30	744
PEAK HR FACTOR :		0.804			0.750			0.869			0.745		0.830

CONTROL : 2-Way Stop (EB/WB)

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 16-8150-001 **Day:** Tuesday

County: Kings **Date:** 11/15/2016

PM

NS/EW Streets:	12th St			12th St			Flint Ave			Flint Ave			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
LANES:	0	1	0	0	1	0	0	1	0	0	1	0	
4:00 PM	1	46	5	4	48	0	0	19	1	11	12	6	153
4:15 PM	0	50	9	6	41	0	0	12	3	4	10	7	142
4:30 PM	1	49	6	9	55	1	0	13	1	3	9	5	152
4:45 PM	1	46	8	7	46	1	1	13	0	7	7	3	140
5:00 PM	5	74	4	8	47	0	0	11	2	3	12	5	171
5:15 PM	2	56	9	12	52	0	1	16	0	4	4	10	166
5:30 PM	1	38	8	7	58	1	1	9	1	7	14	3	148
5:45 PM	1	34	8	6	45	1	0	9	2	7	7	4	124
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
TOTAL VOLUMES :	12	393	57	59	392	4	3	102	10	46	75	43	1196
APPROACH %'s :	2.60%	85.06%	12.34%	12.97%	86.15%	0.88%	2.61%	88.70%	8.70%	28.05%	45.73%	26.22%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	9	225	27	36	200	2	2	53	3	17	32	23	629
PEAK HR FACTOR :		0.786			0.915			0.853			0.900		0.920

CONTROL : 2-Way Stop (EB/WB)

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Appendix B: 85th Percentile Speeds

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Spot Speed Study

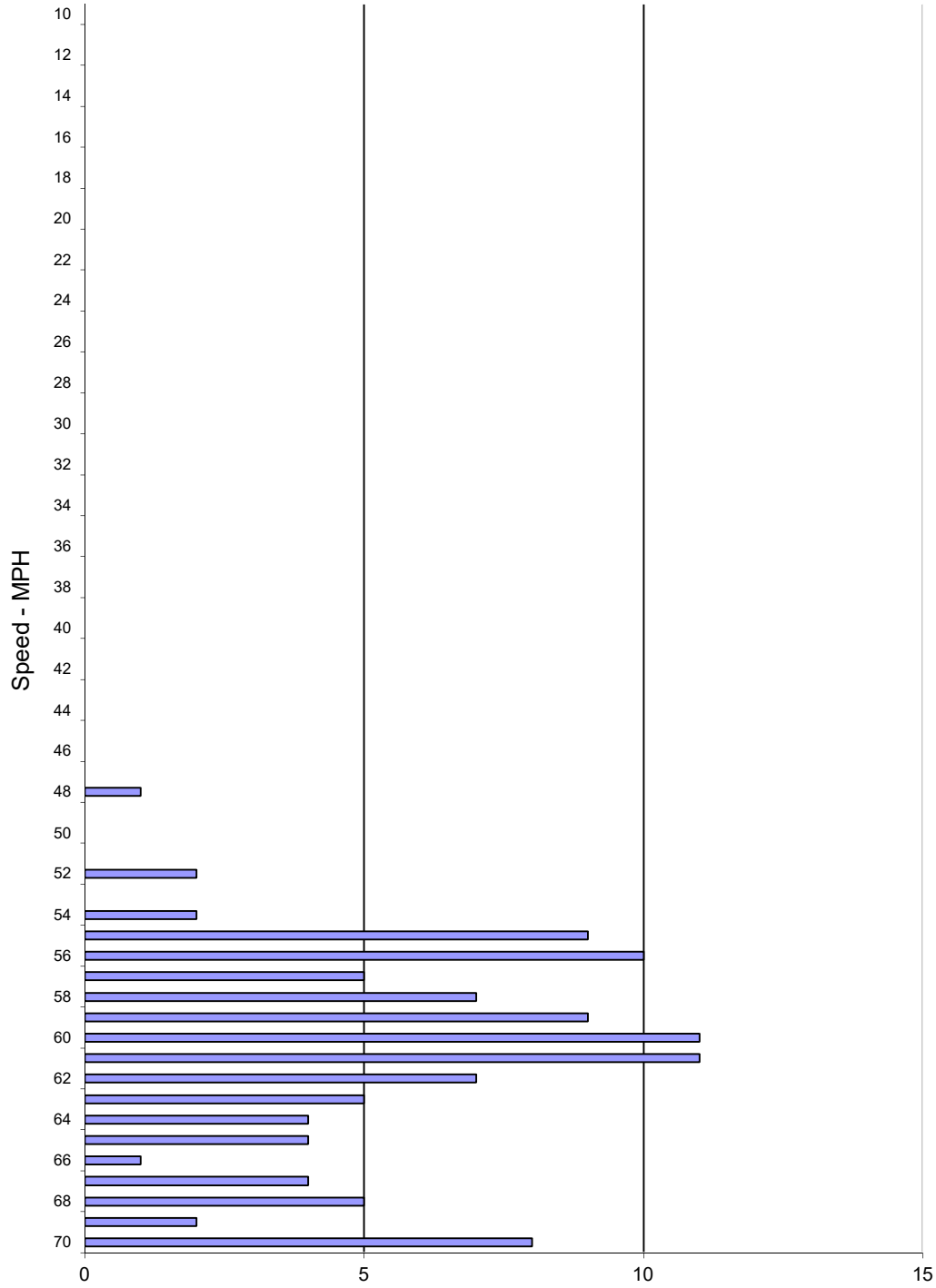
Prepared by: National Data & Surveying Services

County of Kings

DATE: 11/15/2016 **Location:** 12th Ave 1200' N/O Flint Ave
TIME: 13:00-13:35 **Posted Speed:** 55 MPH Sunny/Clear **Project #:** 16-8151-001

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	1
49	
50	
51	
52	2
53	
54	2
55	9
56	10
57	5
58	7
59	9
60	11
61	11
62	7
63	5
64	4
65	4
66	1
67	4
68	5
69	2
>=70	8



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	107	48 - 69	60 mph	67 mph	55 - 64	78	73%	4% / 5	23% / 24

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Spot Speed Study

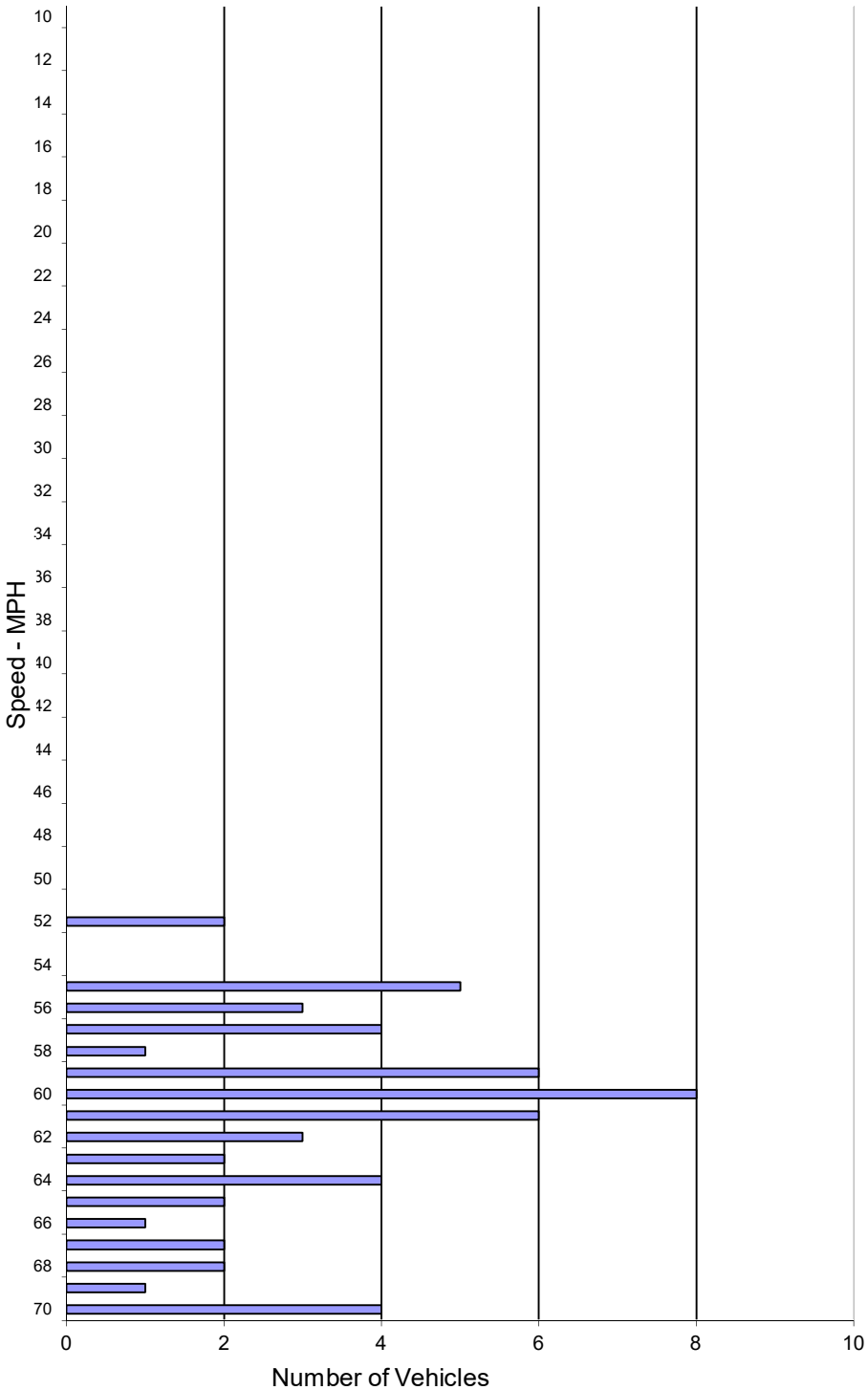
Prepared by: National Data & Surveying Services

County of Kings

DATE: 11/15/2016 **Location:** 12th Ave 1200' N/O Flint Ave
TIME: 13:00-13:35 **Posted Speed:** 55 MPH Sunny/Clear **Project #:** 16-8151-001

Northbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	2
53	
54	
55	5
56	3
57	4
58	1
59	6
60	8
61	6
62	3
63	2
64	4
65	2
66	1
67	2
68	2
69	1
>=70	4



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	56	52 - 69	60 mph	67 mph	55 - 64	42	75%	3% / 2	22% / 12

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Spot Speed Study

Prepared by: National Data & Surveying Services

County of Kings

DATE: 11/15/2016 **Location:** 12th Ave 1200' N/O Flint Ave
TIME: 13:00-13:35 **Posted Speed:** 55 MPH Sunny/Clear **Project #:** 16-8151-001

Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
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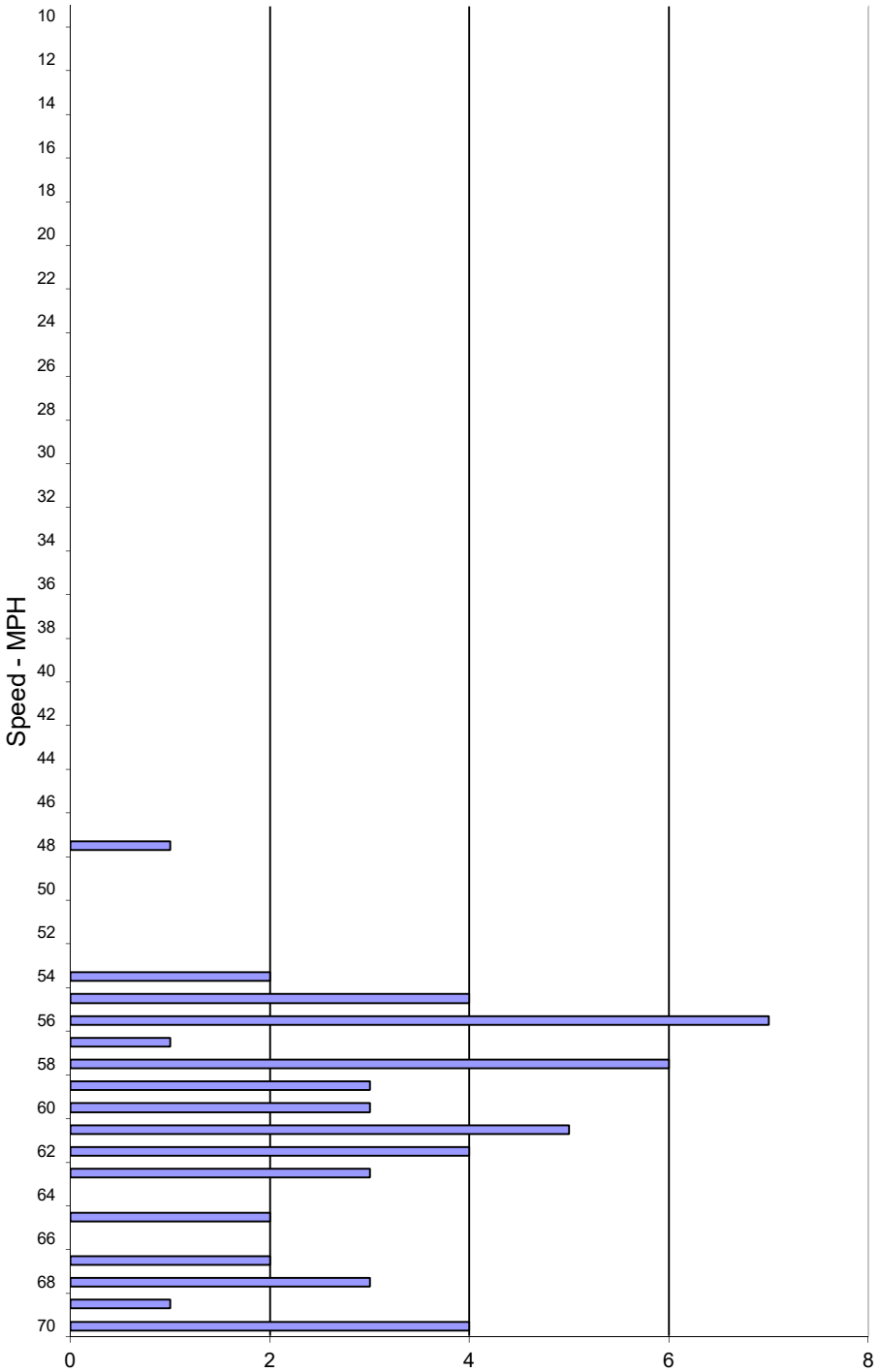
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	1
49	
50	
51	
52	
53	
54	2
55	4
56	7
57	1
58	6
59	3
60	3
61	5
62	4
63	3
64	
65	2
66	
67	2
68	3
69	1
>=70	4



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	51	48 - 69	60 mph	68 mph	54 - 63	38	75%	1% / 1	24% / 12

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Spot Speed Study

Prepared by: National Data & Surveying Services

County of Kings

DATE: 11/15/2016 **Location:** 12th Ave 1200' S/O Flint Ave
TIME: 13:40-14:15 **Posted Speed:** 55 MPH Sunny/Clear **Project #:** 16-8151-002

Northbound & Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
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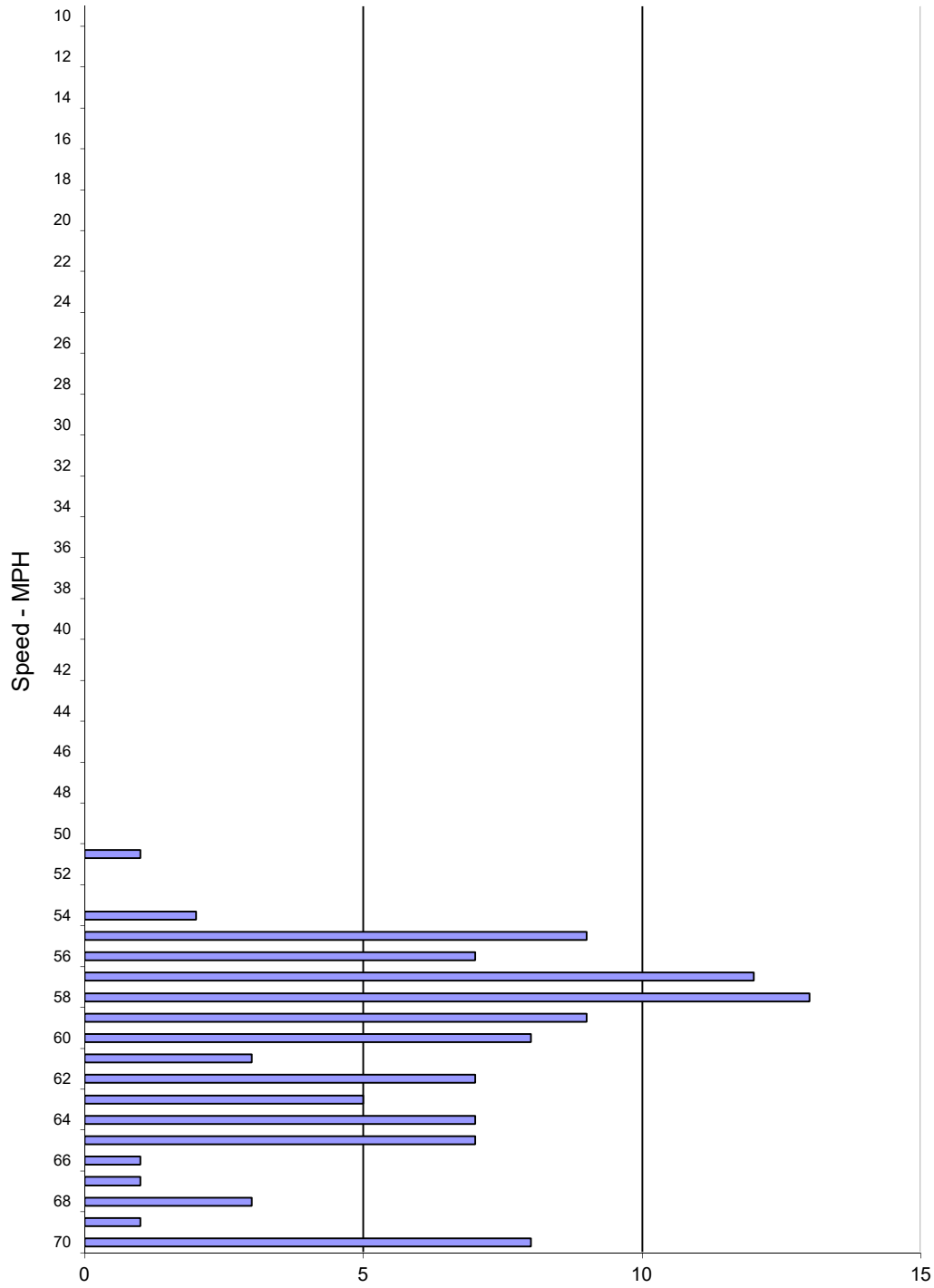
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	1
52	
53	
54	2
55	9
56	7
57	12
58	13
59	9
60	8
61	3
62	7
63	5
64	7
65	7
66	1
67	1
68	3
69	1
>=70	8



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	104	51 - 69	59 mph	65 mph	55 - 64	80	77%	2% / 3	21% / 21

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Spot Speed Study

Prepared by: National Data & Surveying Services

County of Kings

DATE: 11/15/2016 **Location:** 12th Ave 1200' S/O Flint Ave
TIME: 13:40-14:15 **Posted Speed:** 55 MPH Sunny/Clear **Project #:** 16-8151-002

Northbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
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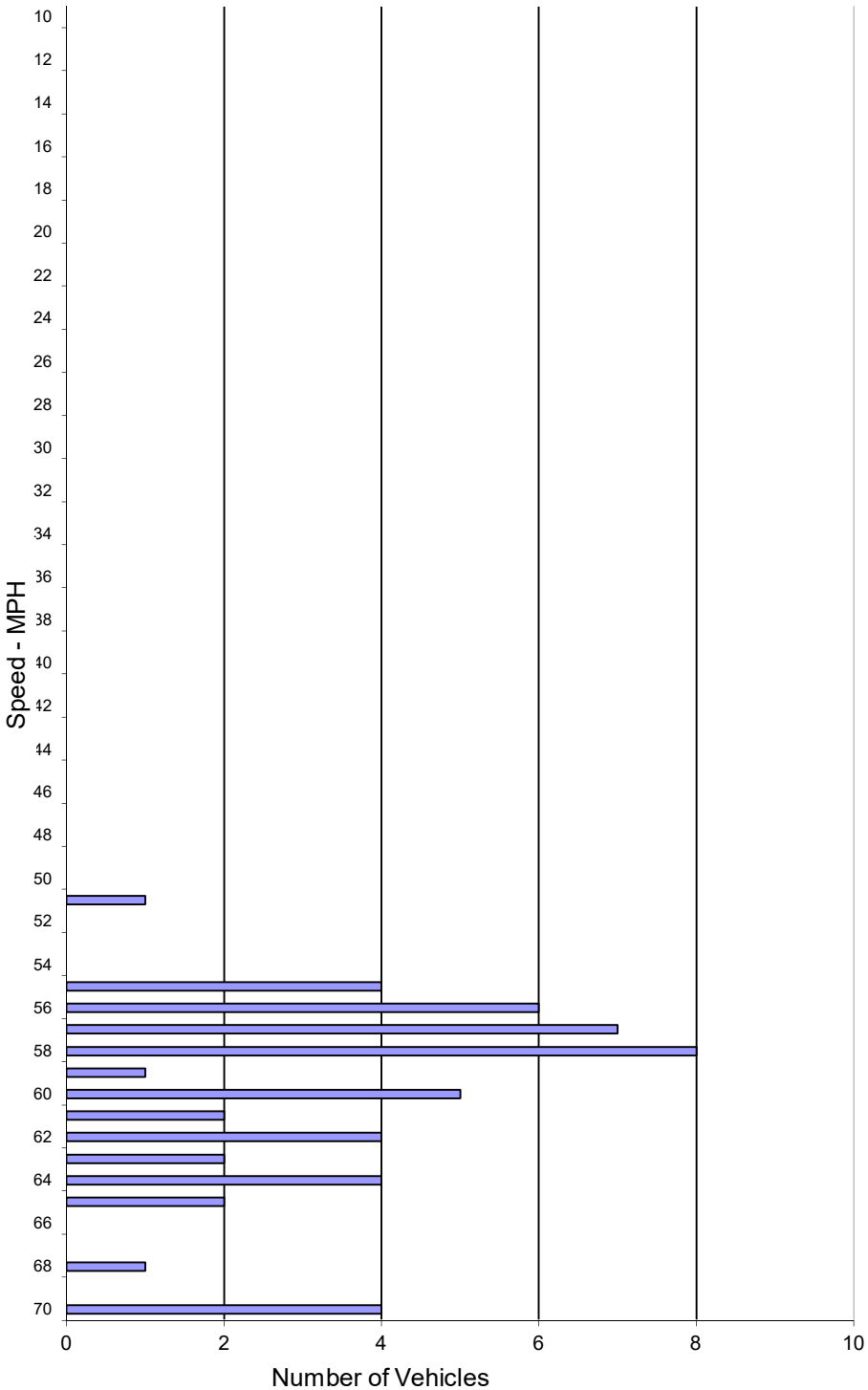
48	
49	
50	
51	1
52	
53	
54	
55	4
56	6
57	7
58	8
59	1
60	5
61	2
62	4
63	2
64	4
65	2
66	
67	
68	1
69	
>=70	4



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	51	51 - 68	58 mph	64 mph	55 - 64	43	84%	1% / 1	14% / 7

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Spot Speed Study

Prepared by: National Data & Surveying Services

County of Kings

DATE: 11/15/2016 **Location:** 12th Ave 1200' S/O Flint Ave
TIME: 13:40-14:15 **Posted Speed:** 55 MPH Sunny/Clear **Project #:** 16-8151-002

Southbound Spot Speeds

Speed mph	ALL Vehicles
<=10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
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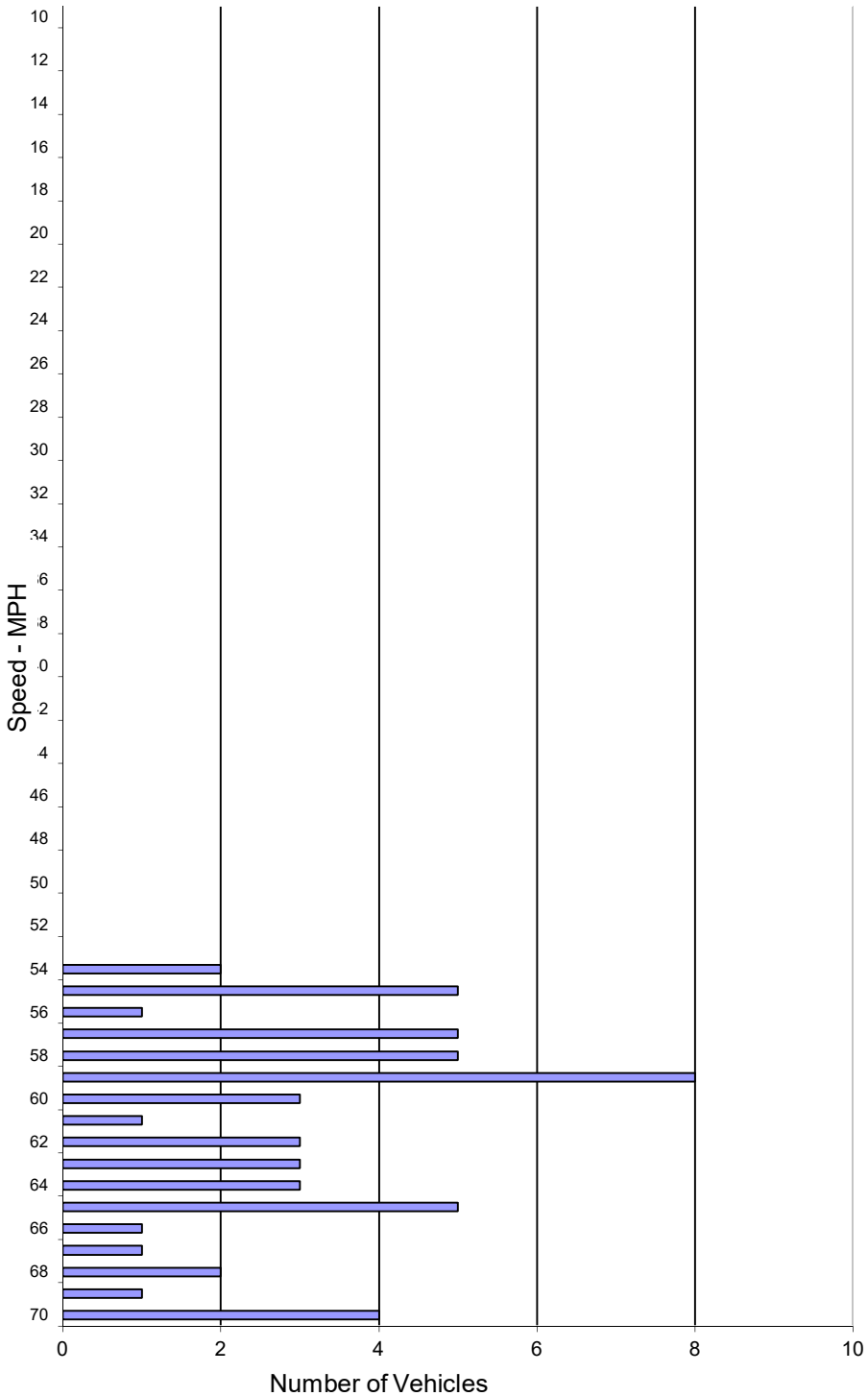
46	
47	
48	
49	
50	
51	
52	
53	
54	2
55	5
56	1
57	5
58	5
59	8
60	3
61	1
62	3
63	3
64	3
65	5
66	1
67	1
68	2
69	1
>=70	4



SPEED PARAMETERS									
Class	Count	Range	50th Percentile	85th Percentile	10 MPH Pace	# in Pace	Percent in Pace	% / # Below Pace	% / # Above Pace
ALL	53	54 - 69	60 mph	67 mph	55 - 64	37	70%	3% / 2	27% / 14

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Appendix C: LOS Worksheets

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Intersection	
Int Delay, s/veh	7.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	1	64	8	46	88	30	5	155	62	16	263	6
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	87	87	87	75	75	75	80	80	80	75	75	75
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	1	74	9	61	117	40	6	194	78	21	351	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	721	681	355	684	646	233	359	0	0	271	0	0
Stage 1	397	397	-	245	245	-	-	-	-	-	-	-
Stage 2	324	284	-	439	401	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.16	6.56	6.26	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.554	4.054	3.354	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	337	368	680	357	385	796	1178	-	-	1270	-	-
Stage 1	621	596	-	750	696	-	-	-	-	-	-	-
Stage 2	680	669	-	589	594	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	238	358	680	291	375	796	1178	-	-	1270	-	-
Mov Cap-2 Maneuver	238	358	-	291	375	-	-	-	-	-	-	-
Stage 1	617	583	-	746	692	-	-	-	-	-	-	-
Stage 2	533	665	-	497	582	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17.3	26.4	0.2	0.4
HCM LOS	C	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1178	-	-	375	381	1270	-	-
HCM Lane V/C Ratio	0.005	-	-	0.224	0.574	0.017	-	-
HCM Control Delay (s)	8.1	0	-	17.3	26.4	7.9	0	-
HCM Lane LOS	A	A	-	C	D	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.8	3.5	0.1	-	-

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Intersection	
Int Delay, s/veh	3.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Vol, veh/h	2	53	3	17	32	23	9	225	27	36	200	2
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	85	85	85	90	90	90	79	79	79	92	92	92
Heavy Vehicles, %	6	6	6	6	6	6	6	6	6	6	6	6
Mvmt Flow	2	62	4	19	36	26	11	285	34	39	217	2

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	652	639	218	655	623	302	220	0	0	319	0	0
Stage 1	297	297	-	325	325	-	-	-	-	-	-	-
Stage 2	355	342	-	330	298	-	-	-	-	-	-	-
Critical Hdwy	7.16	6.56	6.26	7.16	6.56	6.26	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.16	5.56	-	6.16	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.554	4.054	3.354	3.554	4.054	3.354	2.254	-	-	2.254	-	-
Pot Cap-1 Maneuver	376	389	812	374	397	728	1326	-	-	1219	-	-
Stage 1	703	660	-	679	642	-	-	-	-	-	-	-
Stage 2	654	631	-	675	660	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	325	371	812	313	379	728	1326	-	-	1219	-	-
Mov Cap-2 Maneuver	325	371	-	313	379	-	-	-	-	-	-	-
Stage 1	696	636	-	672	636	-	-	-	-	-	-	-
Stage 2	590	625	-	584	636	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.5	15.5	0.3	1.2
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1326	-	-	380	423	1219	-	-
HCM Lane V/C Ratio	0.009	-	-	0.18	0.189	0.032	-	-
HCM Control Delay (s)	7.7	0	-	16.5	15.5	8.1	0	-
HCM Lane LOS	A	A	-	C	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.6	0.7	0.1	-	-

Attachment: 12th-Flint (1795 : 12th-Flint stop)

Appendix D: Warrants

Attachment: 12th-Flint (1795 : 12th-Flint stop)

MULTI-WAY STOP WARRANT

MAJOR STREET: **12th Avenue** CRITICAL APPROACH SPEED: **68** CALC: JL COUNT DATE: 11/15/16
MINOR STREET: **Flint Avenue** CHK: JLB DATE: 12/27/16

	12th Avenue	12th Avenue	Flint Avenue	Flint Avenue	12th Avenue	Flint Avenue	Intersection
	NB Approach	SB Approach	EB Approach	WB Approach	Total Volume Both Approaches	Total Volume Both Approaches	Approach Totals
Hour	Volume	Volume	Volume	Volume	Volume	Volume	Volume
0	10	7	1	4	17	5	22
1	11	5	1	1	16	2	18
2	3	9	1	3	12	4	16
3	8	11	1	2	19	3	22
4	25	28	1	11	53	12	65
5	67	44	13	29	111	42	153
6	116	108	25	66	224	91	315
7	200	254	49	133	454	182	636
8	124	182	50	130	306	180	486
9	106	130	26	54	236	80	316
10	113	122	23	65	235	88	323
11	120	133	36	64	253	100	353
12	136	135	21	59	271	80	351
13	143	143	24	70	286	94	380
14	206	138	46	94	344	140	484
15	231	186	80	122	417	202	619
16	217	213	63	83	430	146	576
17	240	239	49	79	479	128	607
18	149	135	39	48	284	87	371
19	91	65	15	33	156	48	204
20	62	56	12	20	118	32	150
21	54	28	15	14	82	29	111
22	25	19	6	9	44	15	59
23	12	14	3	6	26	9	35

CONDITION A - SIGNAL WARRANT(S)

SIGNAL WARRANT(S) MET

[ ] YES [X] NO

WHERE TRAFFIC SIGNALS ARE JUSTIFIED, THE MULTI-WAY STOP IS AN INTERIM MEASURE THAT CAN BE INSTALLED QUICKLY TO CONTROL TRAFFIC WHILE ARRANGEMENTS ARE BEING MADE FOR THE INSTALLATION OF THE TRAFFIC CONTROL SIGNAL.

* [ ] HIGHEST 8 HOURS

CONDITION B - COLLISIONS

WARRANT MET

[x] YES [ ] NO

Year Beginning	Collisions Reported
Aug-13	1
Aug-14	5
Aug-15	4

FIVE OR MORE REPORTED COLLISIONS IN A 12-MONTH PERIOD THAT ARE SUSCEPTIBLE TO CORRECTION BY A MULTI-WAY STOP INSTALLATION. SUCH INCLUDES RIGHT-TURN AND LEFT-TURN COLLISIONS AS WELL AS RIGHT-ANGLE COLLISIONS.

CONDITION C - MINIMUM VOLUMES

WARRANT MET [ ] YES [X] NO

MAJOR STREET (TOTAL OF BOTH APPROACHES) AT LEAST 300 (210) TRIPS PER HOUR FOR ANY 8 HOURS?

[X] YES [ ] NO

HIGHEST MINOR STREET (TOTAL OF BOTH APPROACHES) AT LEAST 200 (140) TRIPS PER HOUR FOR THE SAME 8 HOURS?

[ ] YES [X] NO

AND WITH AN AVERAGE DELAY TO THE MINOR-STREET VEHICULAR TRAFFIC OF AT LEAST 30 SEC. DURING THE HIGHEST HOUR. (XX) = VOLUMES FROM > 40 MPH

CONDITION D - 80% OF THE MINIMUM VALUES OF CRITERIA B, C.1, C.2

WARRANT MET

[ ] YES [X] NO

WHERE NO SINGLE CRITERION IS SATISFIED, BUT WHERE CRITERIA B, C.1, AND C.2 ARE ALL SATISFIED TO 80 PERCENT OF THE MINIMUM VALUES. CRITERION C.3 IS EXCLUDED FROM THIS CONDITION.

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(559) 570 - 8991

Attachment: 12th-Flint (1795 : 12th-Flint stop)

California MUTCD 2014 Edition

(FHWA'S MUTCD 2009 Edition, as amended for use in California)

Signal Warrant Analysis

Figure 4C-101 (CA). Traffic Signal Warrants Worksheet

006	KINGS	n/a	n/a
DIST	CO	RTE	KPM

COUNT DATE 11/15/2016
CALC JL DATE 12/21/2016
CHK JLB DATE 12/28/2016

Major St: **12th Avenue** Critical Approach Speed 65 MPH

Minor St: **Flint Avenue** Critical Approach Speed 55 MPH

Critical speed of major street traffic > 64 km/h (40 mph)..... ☑ or ☐ RURAL (R)

In built up area of isolated community of < 10,000 population ..... ☐ URBAN (U)

WARRANT 1 - Eight Hour Vehicular Volume

(Condition A or Condition B or combination of A and B must be satisfied)

Condition A - Minimum Vehicle Volume **100% SATISFIED** YES ☐ NO ☑

80 % SATISFIED YES ☐ NO ☑

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or More U	2 or More R	7:00 a.m.	8:00 a.m.	1:00 p.m.	2:00 p.m.	3:00 p.m.	4:00 p.m.	5:00 p.m.	6:00 p.m. Hour
Both Approaches	500	350	600	420	454	306	286	344	417	430	479	284
Major Street	(400)	(280)	(480)	(336)	454	306	286	344	417	430	479	284
Highest Approaches	150	105	200	140	133	130	70	94	122	83	79	48
Minor Street	(120)	(84)	(160)	(112)	133	130	70	94	122	83	79	48

Condition B - Interruption of Continuous Traffic **100% SATISFIED** YES ☐ NO ☑

80 % SATISFIED YES ☐ NO ☑

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS) 1 U	1 R	2 or More U	2 or More R	7:00 a.m.	8:00 a.m.	12:00 p.m.	2:00 p.m.	3:00 p.m.	4:00 p.m.	5:00 p.m.	6:00 p.m. Hour
Both Approaches	750	525	900	630	454	306	286	344	417	430	479	284
Major Street	(600)	(420)	(720)	(504)	454	306	286	344	417	430	479	284
Highest Approaches	75	53	100	70	133	130	70	94	122	83	79	48
Minor Street	(60)	(42)	(80)	(56)	133	130	70	94	122	83	79	48

The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.

Combination of Conditions A & B **SATISFIED** YES ☐ NO ☑

REQUIREMENT	WARRANT		FULFILLED
TWO WARRANTS SATISFIED 80%	1. MINIMUM VEHICULAR VOLUME	X	Yes ☐ No ☑
	2. INTERRUPTION OF CONTINUOUS TRAFFIC	X	

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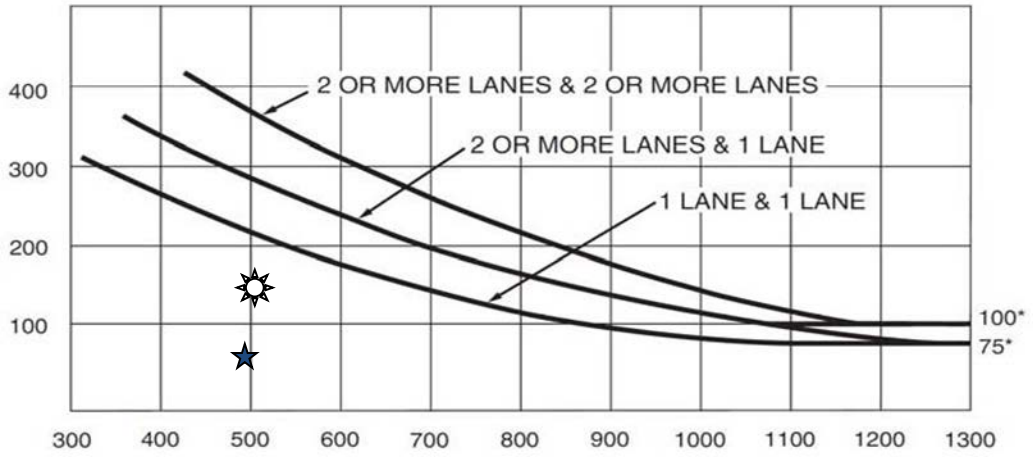
Attachment: 12th-Flint (1795 : 12th-Flint stop)

Peak Hour Warrant (Rural Areas)

Existing - AM (PM) Peak Hour
Intersection: 12th Avenue at Flint Avenue

Flint Ave
Highest Approach
Volume = 149 (61) VPH

Figure 4C-4. Warrant 3, Peak Hour (70% Factor)
(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 100 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 75 vph applies as the lower threshold volume for a minor-street approach with one lane.

12th Ave Total Volume = 507 (499) VPH

AM Peak Hour Volume – Signal Warrant is Not Met

PM Peak Hour Volume – Signal Warrant is Not Met

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Part 4: Highway Traffic Signals, November 7, 2014

Attachment: 12th-Flint (1795 : 12th-Flint stop)

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Warrant 7 – Crash Experience

August 26th, 2013 through August 25th, 2016
Intersection: 12th Avenue at Flint Avenue

WARRANT 7 - Crash Experience Warrant **SATISFIED YES ☐ NO ☒**
(All Parts Must Be Satisfied)

Adequate trial of alternatives with satisfactory observance and enforcement has failed to reduce the crash frequency.			Yes ☐ No ☒
REQUIREMENTS	Number of crashes reported within a 12 month period susceptible to correction by a traffic signal, and involving injury or damage exceeding the requirements for a reportable crash.		Yes ☒ No ☐
5 OR MORE			
REQUIREMENTS	CONDITIONS	✓	Yes ☐ No ☒
ONE CONDITION SATISFIED 80%	Warrant 1, Condition A - Minimum Vehicular Volume		
	OR, Warrant 1, Condition B - Interruption of Continuous Traffic		
	OR, Warrant 4, Pedestrian Volume Condition Ped Vol ≥ 80% of Figure 4C-5 through Figure 4C-8		

Source: California Manual of Uniform Traffic Control Devices (CA MUTCD 2014 Edition)
Part 4: Highway Traffic Signals, November 7, 2014

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Attachment: 12th-Flint (1795 : 12th-Flint stop)

AGENDA
STAFF REPORT

MEETING DATE: 1/26/2017	**AGENDA SECTION:** 4

SUBJECT:
City Council Actions

FISCAL IMPACT:

ATTACHMENTS:
City Council Actions

CITY COUNCIL ACTIONS

Meeting of December 6, 2016

None to report

Meeting of December 20, 2016

1. Approve Notice of Completion for Tract No. 843, Independence Subdivision, Unit III.

2. Approve Notice of Completion for FY 16/17 Centerline Striping Project.

3. Approve Purchase of decorative street lights for various downtown locations.

Meeting of January 3, 2017

Cancelled

Meeting January 17, 2017

1. Adopt Ordinance 16-14 Amending Section 10.32.010 of Municipal Code to include a Two-way Stop on South Street at Phillips Street.

2. Permission to Advertise the FY 16/17 Slurry Seal Project.

3. Permission to Advertise the FY 16/17 Cape Seal and Fiberized Micro-Surfacing Projects.

4. Approve purchase of traffic signal poles and mast arm equipment for 11th Avenue at Houston Traffic Signal Project and authorize to advertise project for construction bids.

Attachment: City Council Actions (1797 : City council actions)