

CITY COUNCIL MEETING
APRIL 3, 1985

CC 48a
CC 45a

Pa 395



CITY OF LODI

PUBLIC WORKS DEPARTMENT

COUNCIL COMMUNICATION

TO: City Council
FROM: City Manager
DATE: March 27, 1985
SUBJECT: Turner Road & California Street Traffic Study

RECOMMENDED ACTION: That the Council review the attached traffic information and based on information therein, take no action at this time to install traffic signals or a 4-way stop at Turner & California.

BACKGROUND INFORMATION: At the request of the City Council, the Public Works Department initiated a traffic study at the intersection of Turner and California and the information from that study is included on the attached exhibits.

Exhibit A is an accident diagram which indicates that there were 11 accidents at the intersection during the last 27 months of which 7 were susceptible to correction by installation of traffic signals or a 4-way stop. During the last 12 months there were 7 accidents of which 6 were susceptible to correction.

Exhibit B is the Minimum Traffic Signal Warrant from State Standards which indicates that the intersection does meet the minimum vehicular volumes for Warrant 2, Interruption of Continuous Traffic. It also meets the warrant for correctible number of accidents during a 12-month period.

Exhibit C is the signalization priority worksheet used by the City of Lodi which indicates Turner Road and California Street have a total point score of 193. To place this in context, three other intersections, Ham and Lockeford, Lodi and Mills, and Lower Sacramento and Lodi have 398 points, 297 points, and 229 points respectively indicating that this intersection would be fourth or lower on the priority list for installation of signals.

Exhibit D shows that the Turner-California intersection has an accident rate for 1983-84 of 1.13 accidents per million vehicles. Of the 13 intersections with higher or equal accident rates, 10 are signalized, and the three intersections - Sacramento and Elm, Stockton and Elm, Stockton and Lockeford - all have higher accident rates and are also 2-way stops. It is highly likely that these three intersections would also meet the minimum requirements for 4-way stops or traffic signals.

If one considers the six signalized intersections on Lodi Avenue that do not have a left turn phase, Sacramento, Stockton, School, Cherokee, Church, and Central, there is an average accident rate of 2.15. By comparison, the two intersections on Lodi Avenue that do have left turn phases, Ham and Hutchins,

APPROVED:

HENRY A. GLAVES, City Manager

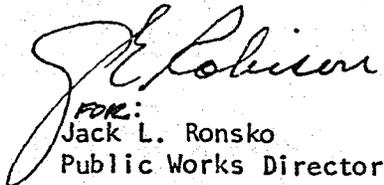
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have an accident rate of 0.85. If the installation of left turn phases at the six intersections were to have the equivalent effect on the reduction of accidents, the number of accidents would decrease by 55 per year, considerably more than the number of accidents that might be eliminated by installation of signals at two or three other locations that are not now signalized.

While a 4-way stop is sometimes considered to be a reasonable alternative to installation of traffic signals, three specific things should be considered at this particular intersection: First, the number of vehicles on Turner Road (10,609 ADT) that are going to have to be stopped in order to allow California Street (1,634 ADT) easy access to or across Turner Road, second, installation of a 4-way stop would be detrimental from a noise standpoint because of the number of trucks that are going to have to stop and go through the full range of gear shifting 24 hours per day, and third, the interruption of through traffic and the costs therein to the traveling public.

This summer we will be studying all of the high rate intersections throughout the City to determine the best way to use the available funds.


FOR:
Jack L. Ronsko
Public Works Director

Attachments

JLR/GER/eeh

cc: Police Chief

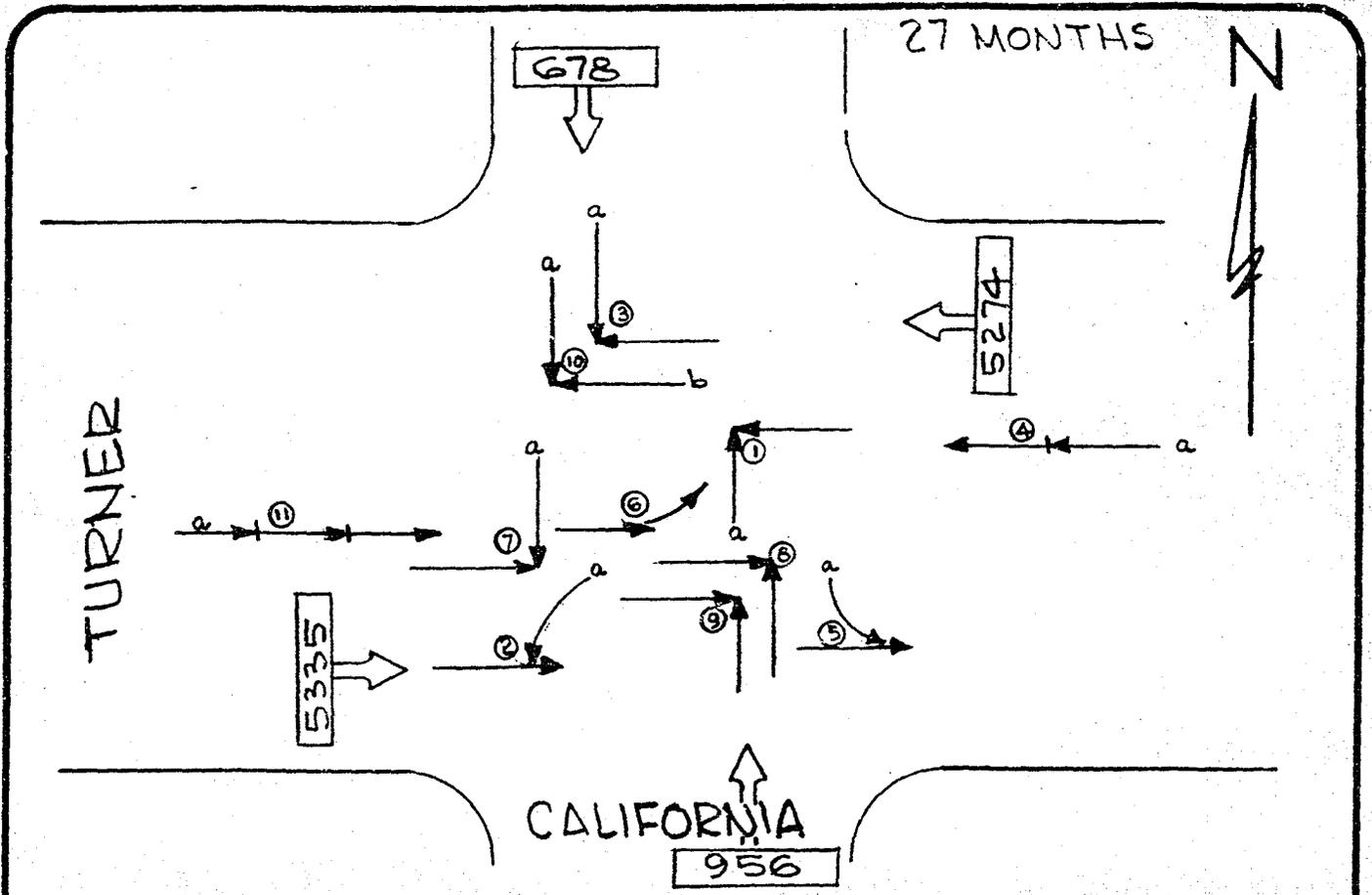


CITY OF LODI

PUBLIC WORKS DEPARTMENT

ACCIDENT DIAGRAM TURNER & CALIFORNIA 1983, 1984, TO DATE

3-15-85



NO.	DATE	TIME	DAMAGE	INJ.	APPARENT CAUSE
1	5-31-83	0745	Maj-Mod.	0	a Fail to Yield After Stop
2	2-14-84	1107	Maj-Maj.	0	a " " "
3	7-31-84	1600	Mod-Maj.	0	a " " " " "
4	9-7-84	1812	Maj-Maj.	0	a speed
5	9-24-84	1900	Min-Mod.	0	a Fail to Yield " "
6	9-28-84	1545	Min-Min	0	a Unknown H&R
7	10-15-84	1730	Min-Min	0	a Fail to Yield " "
8	11-4-84	1239	Tot-Tot	2	a " " " " "
9	2-15-85	1802	Maj-Maj.	2	a Unsafe Speed, H&R
10	2-27-85	1713	Mod-Mod.	1	a Fail to Yield, b Speed
11	3-1-85	1717	Min-Mod-Mod	2	a Speed

Drawn MED	No.	Date	Approved	Approved By
Checked				
Date MAR '85				
			Public Works Director RCE	Date

Exhibit A

Figure 9-1A

TRAFFIC SIGNAL WARRANTS

DIST _____ CO _____ RTE _____ PM _____ CALC _____ DATE _____
 CHK _____ DATE _____

Major St: TURNER RD Critical Approach Speed 43 mph
 Minor St: CALIFORNIA ST Critical Approach Speed _____ mph **STOP SIGN**

Critical speed of major street traffic > 40 mph -----
 In built up area of isolated community of < 10,000 pop. ----- RURAL (R)
 URBAN (U)

WARRANT 1 - Minimum Vehicular Volume

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				100% SATISFIED		80% SATISFIED					
	1		2 or more		Yes	No	Yes	No				
	U	R	U	R								
Both Approchs. Major Street	500 (400)	350 (280)	600 (480)	420 (336)	792 ^x	638 ^x	658 ^x	663 ^x	665 ^x	924 ^x	940 ^x	922 ^x
Highest Approach Minor Street *	150 (120)	105 (84)	200 (160)	140 (112)	77 ^x	60 ^x	74 ^x	61 ^x	63 ^x	74 ^x	92 ^x	93 ^x

7-8 AM / 8-9 AM / 12-1 P / 1-2 / 2-3 / 3-4 / 4-5 / 5-6 P Hour

*NOTE: Heavier of left turn movement from Major Street included when LT-phasing is proposed

WARRANT 2 - Interruption of Continuous Traffic

APPROACH LANES	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)				100% SATISFIED		80% SATISFIED					
	1		2 or more		Yes	No	Yes	No				
	U	R	U	R								
Both Approchs. Major Street	750 (600)	525 (420)	900 (720)	630 (504)	792 ^x	638 ^x	658 ^x	663 ^x	665 ^x	924 ^x	940 ^x	922 ^x
Highest Approach Minor Street *	75 (60)	53 (42)	100 (80)	70 (56)	77 ^x	60 ^x	74 ^x	61 ^x	63 ^x	74 ^x	92 ^x	93 ^x

7-8 AM / 9-10 AM / 10-11 AM / 1-2 / 2-3 / 3-4 / 4-5 / 5-6 P Hour

*NOTE: Heavier of left turn movement from Major Street included when LT-phasing is proposed

WARRANT 3 - Minimum Pedestrian Volume

Both Approchs. Major Street	MINIMUM REQUIREMENTS (80% SHOWN IN BRACKETS)		100% SATISFIED		80% SATISFIED			
	No Median		U	R	Yes	No	Yes	No
	Raised 4' Median		U	R				
Volume			1000 (800)	700 (560)	LESS NOT APPLICABLE			
Ped's On Highest Volume X-Walk Xing Major Street			150 (120)	105 (84)				

IF MIDBLOCK SIGNAL PROPOSED

MIN. REQUIREMENT	DISTANCE TO NEAREST ESTABLISHED CROWL	FULFILLED
150 Feet	N/E _____ ft S/W _____ ft	Yes <input type="checkbox"/> No <input type="checkbox"/>

WARRANT 4 - School Crossings

Not Applicable
 See School Crossings Warrant Sheet

Figure 9-1B

TRAFFIC SIGNAL WARRANTS

WARRANT 5 - Progressive Movement

Satisfied Yes No

MINIMUM REQUIREMENTS	DISTANCE TO NEAREST SIGNAL	FULFILLED
> 1000 ft	N _____, S _____ ft, E _____ ft, W <u>2250</u> ft	YES <input type="checkbox"/> NO <input checked="" type="checkbox"/>
ON ISOLATED ONE WAY ST. OR ST. WITH ONE WAY TRAFFIC SIGNIFICANCE ADJACENT SIGNALS ARE SO FAR APART THAT NECESSARY PLATOONING & SPEED CONTROL WOULD BE LOST		<input type="checkbox"/> <input checked="" type="checkbox"/>
ON 2-WAY ST. WHERE ADJACENT SIGNALS DO NOT PROVIDE NECESSARY PLATOONING & SPEED CONTROL. PROPOSED SIGNALS COULD CONSTITUTE A PROGRESSIVE SIGNAL SYSTEM		<input type="checkbox"/> <input checked="" type="checkbox"/>

WARRANT 6 - Accident Experience

Satisfied Yes No

REQUIREMENT	WARRANT	FULFILLED
ONE WARRANT SATISFIED 80%	WARRANT 1 - MINIMUM VEHICULAR VOLUME OR WARRANT 2 - INTERRUPTION OF CONTINUOUS TFC OR WARRANT 3 - MINIMUM PEDESTRIAN VOLUME	YES <input checked="" type="checkbox"/> NO <input type="checkbox"/>
SIGNAL WILL NOT SERIOUSLY DISRUPT PROGRESSIVE TRAFFIC FLOW		<input type="checkbox"/> <input checked="" type="checkbox"/>
ADEQUATE TRIAL OF LESS RESTRICTIVE REMEDIES HAS FAILED TO REDUCE ACC. FREQ.		<input type="checkbox"/> <input checked="" type="checkbox"/>
ACC WITHIN A 12 MON. PERIOD SUSCEPTIBLE OF CORR. & INVOLVING INJURY OR >\$200 DAMAGE		<input type="checkbox"/> <input checked="" type="checkbox"/>
MINIMUM REQUIREMENT	NUMBER OF ACCIDENTS	<input checked="" type="checkbox"/> <input type="checkbox"/>
5 OR MORE	<u>6</u>	

* NOTE: Left turn accidents can be included when LT-phasing is proposed

WARRANT 7 - Systems Warrant

Satisfied Yes No

MINIMUM VOLUME REQUIREMENT	ENTERING VOLUMES - ALL APPROACHES	FULFILLED
80% VEH/HR	DURING TYPICAL WEEKDAY PEAK HOUR _____ VEH/HR DURING EACH OF ANY 5 HRS OF A SATURDAY AND/ OR SUNDAY _____ VEH/HR	YES <input type="checkbox"/> NO <input type="checkbox"/>
CHARACTERISTICS OF MAJOR ROUTES		
FACT OF HWY SYSTEM SERVING A PRINCIPLE NETWORK FOR THROUGH TFC		
CONNECTS AREAS OF PRINCIPLE TRAFFIC GENERATION		
RURAL OR SUBURBAN HWY OUTSIDE OF, ENTERING, OR TRAVERSING A CITY		
HAS SURFACE STREET FWY OR EXPWAY RAMP TERMINALS		
APPEARS AS MAJOR ROUTE ON AN OFFICIAL PLAN		
ANY MAJOR ROUTE CHARACTERISTICS MET, BOTH STS.		<input type="checkbox"/> <input type="checkbox"/>

WARRANT 8 - Combination of Warrants

(Used if no one warrant satisfied 100%)

Satisfied Yes No

REQUIREMENT	WARRANT	FULFILLED
TWO WARRANTS SATISFIED 80%	1 - MINIMUM VEHICULAR VOLUME 2 - INTERRUPTION OF CONTINUOUS TRAFFIC 3 - MINIMUM PEDESTRIAN VOLUME	YES <input type="checkbox"/> NO <input type="checkbox"/>

The satisfaction of a warrant is not necessarily justification for signals. Delay, congestion, confusion or other evidence of the need for right of way assignment must be shown.

CITY OF LODI
PUBLIC WORKS DEPARTMENT

SIGNALIZATION PRIORITY WORK SHEET

For the intersection of TURNER RD and CALIFORNIA ST
(major street) (minor street)

ADT in 1000's 10.6 = V 87% ADT in 1000's 1.6 = S 13%

ADT entering intersection in 1000's 12.2 = T

FACTOR	COMPUTATIONS	POINTS
Volume	From Volume Table	42
Accidents	10 x average annual number of accidents correctible by signalization <u>6</u>	60
Pedestrians	Points 0 to 100 estimated	10
Through Street	Main street distance (in 1000 ft.) to nearest signal $\times V^2 =$ distance factor <u>2.2</u> \times <u>112</u> = <u>246</u>	
	Factor = 100 150 200 250 300 350 400 500 600 700 800 Points = 7 15 22 28 32 35 38 43 47 51 54	28
Approach Speed	Speed (estimated in MPH) = 25 30 35 40 45 50 points = 0 10 20 35 50 75 <u>43</u> ^{43 mph}	43
Coordination	Now signal between 2 exist, signals 2 cycles apart 50 " " " " " 1 cycle apart 20 " " 1/2 cycle or 1 cycle from 1 exist. signal 20 " " 1/3 off from 1/2 cycle distance - 20 " " 1/2 off from 1/2 cycle distance - 50	
4-way Stop	If now 4-way, compute $T(\frac{V}{S} + 1)$	0
Select System	5 x each approach of intersection on Select Street System	10
TOTAL POINT SCORE.		193

Exhibit C

By MED

DATE 3-15-85

1983-84 INTERSECTION ACCIDENT RATES

Location	Existing Control	1983 Accidents	1984 Accidents	1983-84 * Accidents per Million Vehicles	1974-76 ** Accidents per Million Vehicles
Lodi & Sacramento	S	14	20	2.66	1.38
Lodi & Stockton	S	16	15	2.53	1.99
Sacramento & Elm	2WS	2	7	2.46	7.51
Lodi & School	S	11	21	2.25	2.43
Lodi & Cherokee	S	18	14	1.99	1.74
Stockton & Elm	2WS	1	6	1.91	2.83
Lodi & Church	S	12	18	1.86	2.49
Lodi & Central	S	8	9	1.63	2.58
Hutchins & Kettleman	S	14	16	1.47	2.10
Ham & Kettleman	S	9	12	1.42	0.68
Stockton & Lockeford	2WS	3	7	1.40	2.43
Stockton & Kettleman	S	6	14	1.34	1.11
Cherokee & Kettleman	S	6	15	1.13	2.61
Turner & California	2WS	1	7	1.13	0.87
Lodi & Ham	S	5	11	0.93	1.05
Church & Lockeford	S	2	7	0.88	0.92
Lodi & Crescent	S	4	6	0.83	1.30
Ham & Lockeford	4WS	1	8	0.78	0.92
Lodi & Hutchins	S	4	10	0.77	1.58
Lodi & Fairmont	S	1	4	0.41	0.67

*Accident Rate: $\frac{\text{Number of Annual Accidents}}{\text{Million Vehicles Annually entering intersection}}$

$$\text{Lodi \& Sacramento (1983-84)} = \frac{14 + 20}{(2) 6.39M} = 2.66$$

** From 1977 Accident Identification Study prepared by George Nolte & Associates

Legend: (S) - Signal
 (4WS) - 4way Stop
 (2WS) - 2way Stop
 (Y) - Yield

① Accidents at
Turner & California

- Studer Barber Pickups
1963 Contractor
- Plymouth hit Chevy at 100 MPH
Mrs. Vern Lewis killed.
- Valiant Convertible
& Pickup
- Pontiac & Keys Mechanic
- Motorola Co. Car
- Chevy pickup hit Ford P.U.
- Cadillac hit Ernest on bike
- 1-14-74 Studer Barber hit old stopped
- 2-17-74 Chevy Chevelli stopped
motor cycle through windshield
- '56 Chevy hit Coys' pickup
- Volkswagon hit Coys' Ford
- 2-27-74 GMC Pickup hit Coys' Chev Pick
& Truck pickup hit his Ford
- 2-9-74 Valiant station got hit in right
side by 350 Ford motorcycle

② Whacked at Turner & California
8-7-73 '72 Ford LTD &
1963 Valiant Collide

- 12-16-73 1967 Chevelli (red) caught
1964 Pontiac to sidewalk
Sickpage & hit a water tank
Lynchwood bus in red lights
bumping left end of rear bumper
about 2 feet.
- 1-15-74 ^{6:00 PM} Blue Chevelli Sa. Weg.
went west & killed a 77 yr woman
crossing street Turner Road
walking north. Another car
had already stopped to hit bus pass.
- 3-13-74 Great Coy hit a car &
got smashed in left rear fender
of Yellow Chevelli II. One black west.
- 2-13-75 Blue DeSuey hit a man allie
in left rear door. Front of fender
is well smashed.
- 4-4-76 Blue
Apr 1975 Coys' Ford pickup hit.
- 5-29-75 Coys' Pontiac hit in driv-
eway by eastbound car hit &
rear.
- 7-4-76 Ford in blue 67 Old West beam
swerved to miss West side
& speared front of east bound
School bus driving thru car on
front of driveway & got around.

③ Turner Road Crashes

- Sept 1974 2 more & a foot
east bound. Front over hit
El Camino pickup into stopped light
turning Cobin II car.
- Feb 1, 1977 ^{11:00 AM} in
turning into turn. Subj. parked under
lining out of N. Cobin II. Front hit
in turner head, but someone hit
Coys' 74 Ton. Ford pickup at left
front wheel. Landing at right over
curb.
- 2-11-77 Young man in VW ran into
the rear of Richard Chevelli at 4
pm. Bumping rear bumper 45°
bumping front of body. Getting out
W. &
- 2-13-77 Eastbound 57 Chevelli
ran into Chevelli at 1963 Coys'
Boris's described what happened
& over were found in driveway.
Several people said it was total.
- 10-7-77 East bound Edge Chevy (Mercury)
crashed into ^{Marjory} Ferguson's Mustang
right rear. ^{Marjory} Ferguson's
& Richard skidded out of driveway into
the street spinning both cars around
West ^{at 8:00 PM} → East
- 5-2-81 Southbound Cadillac hit
Westbound Pontiac. Ejected in right
door and smashed down S.W. street
over the
5-5-81 Mustang & State Hotel &
5-5-81 got hit in front of Plymouth
Mickey's Station by east bound Cadillac
at 7:00 AM ^{no insurance}

⑤ Turney Road Accidents & Crashes
at California Street

~~Wed~~ Wed Feb 27, 1985 6:10 PM (approx)
2 Cars Collided; fender bender, while Police
attended to motorcycle accident.
Fri. Mar. 1, 1985 5:15 AM Small Tan Car
Rear ended a small brown car eastbound
stopped to make a left turn into Willow Glen.
Extensive damage to both cars; people stuck up
I called Police who arrived in 3 min. flat.

④ Turney Road Crashes
at California Street

Jan. 16, 1982 Saturday. A white VW Rabbit
and a maroon '68 Pontiac 2A sedan
collided causing right rear of VW Rabbit
to be crushed in impact area and
right front fender of Pontiac crumpled.
A yellow VW was headed north & Pontiac west.
Feb 14, 1984 Valentine Day
Bill Green & wife driving north on Highway 101X Station.
Smashed head-on into a Grey 2dr Old's Cadillac for
Sedan. Right door & rear wheel, tearing both.
No one hurt. Just banged up & bruised.

SEVENTH STREET
West bound + left bound into collision & flip
A - not reported wreck.

X - Sunday Nov 7, 1984 12:40 PM Head-on collision
between a Westbound Pontiac Firebird (grey) turning
left into the path of an Eastbound Dodge (grey)
(maroon) about 100'. Car sped west in Park
Extensive damage to both front ends. Dodge was
Stops & General Ford Fire Truck's found them stuck.
Ambulance service was there.

X Sunday Nov 4, 1984 6:20 AM Rear-end
collision in a pickup truck & Ford Mustang
Tried to make a left turn into Lodi Community
Church parking lot. Spun in rear of
pickup truck. Other in woods & rearward.

X Friday GPH Feb 15, 1985 Head Collision.
1983 Brown Cadillac Simile was hit westbound
by a 1969 Olds, white or brown Eastbound
at a first clip knocking the Cad, which was
trying to make a left turn into the
park gutter, backward, landing the street
six feet with 200

X Wed Feb 27, 1985 6 PM East bound Car hit
young man on 750 Honda motorcycle Westbound
attempting a left turn onto California St South.
Ambulance took motorcycle rider to Hosp after first aid.