

COUNTY OF HUMBOLDT

AGENDA ITEM NO.
C-19

For the meeting of: August 9, 2016

Date: July 20, 2016

To: Board of Supervisors

From: *TM* Thomas K. Mattson, Public Works Director

Subject: **WALNUT STREET (3J300) AND FERN STREET (3K210) TRAFFIC SIGNAL PROJECT NO.: RPL 5904 (107); CONTRACT NO.: 213501**

RECOMMENDATION(S):

That the Board of Supervisors;

1. Approves the attached plans and specifications for the Walnut Street and Fern Street Traffic Signal Project; and
2. Directs the Clerk of the Board to advertise the above-mentioned project as required by Section 22037 of the California Public Contract Code with bids to be opened on Tuesday, September 13, 2016, at 2:00 PM.

SOURCE OF FUNDING:

Road Fund, State Transportation Improvement Project Fund

DISCUSSION:

Responding to public input and concerns for public safety, the Department of Public Works applied for and received funding to determine if a signal light should be installed at the Walnut Street and Fern Street intersection. The Department hired Whitlock & Weinberger Transportation, Inc., (W-TRANS), a

Prepared by Jeffrey A. Ball CAO Approval Karen Clower

REVIEW: Auditor _____ County Counsel Sm Personnel _____ Risk Manager _____ Other _____

TYPE OF ITEM:
 Consent
 Departmental
 Public Hearing
 Other _____

BOARD OF SUPERVISORS, COUNTY OF HUMBOLDT
Upon motion of Supervisor Fennell Seconded by Supervisor Sundberg
Ayes Sundberg, Fennell, Lovelace, Bohn, Bass
Nays _____
Abstain _____
Absent _____

PREVIOUS ACTION/REFERRAL:

Board Order No. _____

Meeting of: _____

and carried by those members present, the Board hereby approves the recommended action contained in this Board report.

Dated: Aug. 9, 2016
By: [Signature]
Kathy Hayes, Clerk of the Board

transportation consultant to undertake a signal warrant analysis (Attachment 1) and assist the Department in the design of the traffic signal. W-TRANS completed the signal warrant analysis in May 2014, and recommended that a traffic signal be installed. Plans and specifications were developed by the consultant and County Engineering staff.

Construction funding for this project was approved by the California Transportation Commission (CTC) last month on June 29, 2016. Per funding guidelines, the County must award the construction contract prior to December 30, 2016, or lose funding for the project. The proposed bid opening date of Tuesday, September 13, 2016, will give the County and contractor time to complete the contractual agreement.

This project will construct a traffic signal at the intersection of Walnut Street and Fern Street in Cutten. The work to be done consists of maintaining traffic through the project site, cutting, grinding and removal of asphalt and concrete, the reconstruction of driveways and curb ramps, placing hot mix asphalt, thermoplastic striping and pavement marking at the intersection as well as the installation of the light poles, light fixtures and signal controllers.

This project conforms to the Board of Supervisors' Core Role of providing and maintaining infrastructure as identified in the Board's Strategic Framework for 2016.

FINANCIAL IMPACT:

The requested action has no significant financial impact. There is no financial commitment until the project is awarded. This project is being funded through the State Transportation Improvement Program, which will provide one hundred percent (100%) of the construction costs. The Engineer's estimate for the construction contract is \$313,030. Construction costs were included in the Fiscal Year 2016-17 Road Fund Budget.

OTHER AGENCY INVOLVEMENT:

California Department of Transportation

ALTERNATIVES TO STAFF RECOMMENDATIONS:

The Board of Supervisors may choose not to approve the project. However, this alternative is not recommended as the project will improve safety for pedestrian, bicycles, and motorists at the Walnut Street and Fern Street intersection, using funds that would not otherwise be available to the county.

ATTACHMENTS:

Attachment No. 1: Walnut Street and Fern Street Signal Warrant Analysis, dated May 15, 2015

Attachment No. 2: Plans and Specifications for the Walnut Street and Fern Street Traffic Signal Project.
(Project Number: 213501)

ATTACHMENT No. 1

Walnut Street and Fern Street Signal Warrant Analysis, dated May 15, 2015

memorandum



**Whitlock & Weinberger
Transportation, Inc.**

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Suite 201
Santa Rosa, CA 95401

voice (707) 542-9500
fax (707) 542-9590

website www.w-trans.com
email dwhitlock@w-trans.com

Date: May 15, 2014

To: **Chris Whitworth,
County of Humboldt**

From: Dalene J. Whitlock

Project: HUX055

Subject: Walnut Drive/Fern Street Signal Warrant Analysis

As requested, we have performed a signal warrant analysis to determine potential need for a traffic signal at Walnut Drive/Fern Street.

Chapter 4C of the *California Manual on Uniform Traffic Control Devices (CA-MUTCD)* provides guidance on when a traffic signal should be considered. There are eight different warrants, or criteria, presented, as follows:

- Warrant 1, Eight-Hour Vehicular Volume
- Warrant 2, Four-Hour Vehicular Volume
- Warrant 3, Peak Hour Volume
- Warrant 4, Pedestrian Volume
- Warrant 5, School Crossing
- Warrant 6, Coordinated Signal System
- Warrant 7, Crash Experience
- Warrant 8, Roadway Network

To evaluate the volume-based warrants new approach count data was obtained on April 23, 2014. Warrants 1, 2 and 3 were reviewed based on this data. Copies of the counts are enclosed for reference. Because the Cutten area where the intersection is located is essentially cut-off from the surrounding community, having only three access routes connecting it to Eureka, and the roadways serve limited through traffic, the Cutten area functions as a small community. The warrants for a population of less than 10,000 were applied to reflect the nature of this area.

Warrant 1 bases the need for a traffic control signal 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.

As shown on the attached worksheet, Warrant 1 is met.

Warrant 2 is met when an engineering study finds that, for each of any 4 hours of an average day, the plotted points 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) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.

This warrant is also met, as indicated on the attached worksheet.

Warrant 3, which is often the first warrant to be met, has a notice that this signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time. Under the Peak Hour Warrant 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.

This warrant is not recommended for application to the existing intersection of two public streets; however, it was checked and not met. A worksheet showing the results for Warrant 3 is attached.

Warrant 7 addresses the collision history of a location. The need for a traffic control signal shall be considered if an engineering study finds that all of the following criteria are met:

- 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 (see Section 4C.02), 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, or the volume of pedestrian traffic is not less than 80 percent of the

requirements specified in the Pedestrian Volume warrant. 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.

A review of the collision history for the intersection, which is currently all-way stop-controlled, was performed. During the five-year periods between October 1, 2008 and September 30, 2012 there was only one correctible collision during that time, so this warrant is not met.

Based on our review, we have determined that Warrants 1 and 2 are met. Installation of a traffic signal is therefore recommended.

Warrant I: Eight-Hour Vehicular Volume

Walnut St & Fern St

County of Humboldt

	<u>Major Street</u>	<u>Minor Street</u>
Street Name:	Walnut St	Fern St
Direction:	N-S	E-W
Number of Lanes:	1	1
Approach Speed:	25	25

Low population (<10,000)? Yes

Warrant I Met?

Yes

Condition A — Minimum Vehicle Volume: No
Condition B — Minimum Vehicle Volume: Yes
Conditions A & B: No

Warrant 2: Four-Hour Vehicular Volume

Walnut St & Fern St
 County of Humboldt

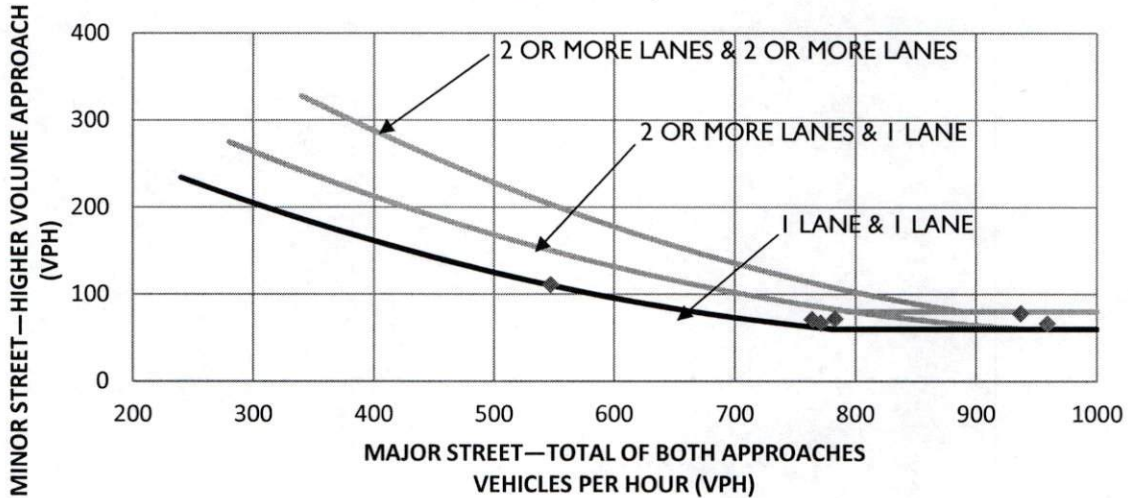
	<u>Major Street</u>	<u>Minor Street</u>
Street Name	Walnut St	Fern St
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	25	25

Low population (<10,000)? Yes

Warrant 2 Met?

Yes

Warrant 2, Peak Hour (70% Factor)
 (COMMUNITY LESS THAN 10,000 POPULATION, OR ABOVE 40 MPH ON MAJOR STREET)



Signal Warrant Analysis
Warrant 3: Peak-Hour Volumes and Delay
 Walnut St & Fern St
 County of Humboldt

	<u>Major Street</u>	<u>Minor Street</u>
Street Name	Walnut St	Fern St
Direction	N-S	E-W
Number of Lanes	1	1
Approach Speed	25	25
Low population (<10,000)?	Yes	

Warrant 3: Met when either Condition A or B is met

Condition A: Met when conditions A1, A2, and A3 are met

Condition A1

The total delay experienced by traffic on one minor street approach (one direction only) controlled by a STOP sign equals or exceeds four vehicle-hours for a one lane approach, or five vehicle-hours for a two-lane approach

Condition A2

The volume on the same minor street approach (one direction only) equals or exceeds 100 vph for one moving lane of traffic of 150 vph for two moving lanes

Condition A3

The total entering volume serviced during the hour equals or exceeds 800 vph for intersections with four or more approaches or 650 vph for intersections with three approaches

Condition B

The plotted point falls above the curve

Not Met

Not Met

Not Met

Not Met

Not Met

Not Met

