



CITY OF SANTA BARBARA

COUNCIL AGENDA REPORT

AGENDA DATE: January 24, 2012

TO: Mayor and Councilmembers

FROM: Engineering Division, Public Works Department

SUBJECT: De La Vina Intersection Improvements At Figueroa And Canon Perdido Streets

RECOMMENDATION: That Council:

- A. Receive a report on the options for intersection improvements at the intersection of De La Vina and Figueroa Streets;
- B. Approve the installation of marked crosswalks and associated warning signs at the intersection of De La Vina and Figueroa Streets; and
- C. Hear an update on improvements at the intersection of De La Vina and Canon Perdido Streets.

EXECUTIVE SUMMARY:

At the August 9, 2011 Council meeting, staff was instructed to return to Council and present information concerning options and funding sources for three improvement alternatives for the intersection of De La Vina and Figueroa Streets. The alternatives are: 1) striping, lighting, and signage with an extended red curb on De La Vina Street; 2) construction of curb extensions on fewer than four corners of the intersection; and 3) the construction of curb extensions on all four corners. Staff recommends partial implementation of the first of the alternatives, the installation of painted crosswalks and pedestrian warning signs, as a first step. If the number of crashes increases, a higher level of traffic control may be considered. Progressively increasing the level of traffic control is consistent with good traffic engineering practices. However, if the City proceeds with this recommendation the City will need to abandon a secured Highway Safety Improvement Project (HSIP) grant, which would have funded construction costs associated with the installation of curb extensions and additional street lighting.

Council also directed staff to implement operational improvements at the intersection of De La Vina and Canon Perdido streets and to report those improvements to Council. To improve operations at De La Vina and Canon Perdido Streets, staff increased visibility by adding additional red curb on De La Vina Street, just north of the intersection.

DISCUSSION:

Background

The frequency of pedestrian involved crashes at the intersection of De La Vina and Figueroa Streets peaked between July 2008 and August 2009, when four pedestrian-involved crashes were reported, including one fatality. Since August 2009, one pedestrian involved crash has been reported, which occurred in May 2010.

There have been no crashes reported at the intersection of De La Vina and Figueroa Streets since that pedestrian involved crash in May 2010. It is unknown whether there is a trend moving towards less frequent intersection related crashes, or whether we are experiencing a temporary lull in crashes. Typically, crash data from the three most recent years are considered when looking for trends. Because there have been relatively few recent crashes, data for the past ten years is presented in Table 1 to illustrate long term trends. Most of the pedestrian-involved crashes (8 of 10) have happened during daylight hours. As illustrated in Table 2, the pedestrian involved crashes have not been concentrated at one particular segment of the intersection.

Table 1- Ten Year Crash History – De La Vina and Figueroa Streets

| Year | Correctable Type Vehicle/Vehicle Crashes | Pedestrian Involved Crashes | | |
|-----------|--|-----------------------------|-----|-------|
| | | Total | Day | Night |
| 2001 | 2 | 1 | 1 | 0 |
| 2002 | 1 | 0 | 0 | 0 |
| 2003 | 2 | 1 | 1 | 0 |
| 2004 | 0 | 1 | 1 | 0 |
| 2005 | 1 | 0 | 0 | 0 |
| 2006 | 2 | 1 | 0 | 1 |
| 2007 | 1 | 1 | 1 | 0 |
| 2008 | 0 | 2 | 1 | 1 |
| 2009 | 1 | 2 | 2 | 0 |
| 2010 | 0 | 1 | 1 | 0 |
| 2011 YTD* | 0 | 0 | 0 | 0 |
| Total | 10 | 10 | 8 | 2 |

* As of November 28, 2011. Availability of crash data can take several months.

Table 2- Location of Pedestrian Involved Crashes, 2001 to 2011

| | Intersection Segment | | | |
|------------------------------|----------------------|------|-------|------|
| | North | West | South | East |
| Number of Pedestrian Crashes | 2 | 1 | 3 | 3 |

Intersection Improvement Alternatives for De La Vina and Figueroa Streets

Typically, when an operational issue is identified, progressive steps are taken to mitigate the issue. Initial steps are usually low cost. In this case, progressive steps include improving visibility so that pedestrians and drivers can see each other in time to make good decisions, adding signs and pavement markings to draw attention to this frequently used pedestrian crossing, improving street lighting, and reducing the crossing distance so that pedestrians can utilize smaller gaps in traffic to cross.

Staff has already taken steps to improve visibility: The previous red curb zone provided about 163 feet of visibility between approaching vehicles and pedestrians standing on the edge of the curb. The red curb zone was extended from about 85 feet to 100 feet so that 200 feet of visibility is available, which is considered adequate for a speed limit of 30 mph.

Alternative 1A – Add Painted Crosswalk and Warning Signs

Staff recommends this alternative, the installation of painted crosswalks and pedestrian warning signs, at this time. Given the site conditions at De La Vina and Figueroa Streets, the use of this type of treatment is consistent with nationally established traffic engineering practices. In addition to providing increased visibility, providing ladder style crosswalk markings and florescent green pedestrian warning signs can increase driver awareness of pedestrians.

Painted crosswalks and warning signs are a reasonable first step to improve pedestrian crossing conditions. If direction is given to proceed with this treatment, this intersection will be flagged and re-reviewed. If the desired results have not been achieved, more restrictive and expensive forms of traffic control can then be considered, such as curb extensions, pedestrian activated beacons, and if warranted, traffic signals.

The cost to install painted crosswalks and warning signs is about \$1,000, and would be paid for with money from the Streets Operations Fund. Accepting this recommendation, however, will mean that the HSIP grant that was obtained for a project that contained curb extensions and additional street lighting will no longer be available.

Alternative 1B - Add Painted Crosswalk and Warning Signs, and Add Lighting

This alternative would add improved lighting. A single streetlight exists on the southwest corner of the intersection. Providing a streetlight on the northeast corner of the intersection would improve lighting for the crossing on the north leg of the intersection. As noted earlier in this report, only 2 of 10 pedestrian related crashes reported in the past 10 years occurred during dark hours.

The cost to install an additional streetlight on the northeast corner is about \$35,000, which would be funded by the City, in addition to \$1,000 for the painted crosswalk and warning signs in Alternative 1A.

Alternative 2A – Add Curb Extensions (All Corners), and Add Lighting

This alternative would add curb extensions at all corners. It is the most expensive option, but has been approved for a Highway Safety Improvement Project (HSIP) grant. As applied to pedestrian applications, curb extensions provide two benefits: 1) to improve visibility by moving the starting point for the pedestrian closer to the travel lane; and, 2) to decrease the pedestrian crossing distance.

Curb extensions designed for pedestrian applications can be designed differently than curb extensions designed for traffic calming purposes. The goal of traffic calming is typically to slow traffic, and that is usually accomplished by introducing a horizontal deflection (like a curb extension or median) or vertical deflection (like a speed hump) to the roadway. The more pronounced the traffic calming device, the more likely traffic will be slowed. Curb extensions designed for pedestrians only have to extend far enough into the roadway to gain the desired sight distance and decrease the crossing distance.

A good starting point for this type of design is to overlay all possible turning movements by a large delivery truck (the design vehicle for Downtown Santa Barbara). Areas of unused pavement near the corners of the intersection are potential areas to locate curb extensions (See Attachment 1).

Driving lanes that are wide enough for vehicles and bikes to share are 14 feet wide. For De La Vina Street, two of these shared lanes are needed (28 feet wide). De La Vina Street is 36 feet wide, meaning that up to eight feet would be available for curb extensions (four feet per side).

A concept showing curb extensions on all corners is shown on Attachment 2. Curb extensions were intentionally not shown in areas that would interfere with the normal movement of larger vehicles.

An analysis of gaps in traffic was performed to determine the number of crossing opportunities that pedestrians have. At 36 feet wide, most pedestrians can cross De La Vina Street with a 14 second gap in traffic. At 28 feet wide, most pedestrian would be able to cross De La Vina Street with an 11 second gap.

As illustrated in Table 3, reducing the crossing distance by eight feet could provide approximately 45% more crossing opportunities (1046 versus 720) between the hours of 7 A.M. and 7 P.M. on a typical weekday.

Table 3 – Pedestrian Crossing Opportunities By Time of Day and Crossing Distance at De La Vina and Figueroa Streets

| Hour of Day | Opportunities to Cross Per Hour | |
|-------------|---------------------------------|------------------|
| | 36-foot Crossing (Existing) | 28-foot Crossing |
| 7:00 AM | 80 | 98 |
| 8:00 AM | 66 | 93 |
| 9:00 AM | 75 | 105 |
| 10:00 AM | 68 | 89 |
| 11:00 AM | 58 | 85 |
| 12:00 PM | 54 | 88 |
| 1:00 PM | 53 | 82 |
| 2:00 PM | 55 | 83 |
| 3:00 PM | 53 | 81 |
| 4:00 PM | 43 | 73 |
| 5:00 PM | 45 | 70 |
| 6:00 PM | 70 | 99 |
| Total | 720 | 1046 |

The cost to install curb extensions on all corners, plus new street lighting is about \$251,000. Construction costs would be funded by a Highway Safety Improvement Project (HSIP) grant. Design costs of about \$25,000 would be the responsibility of the City. Funding for this design is available in the Streets Fund.

Alternative 2B – Add Curb Extensions (North Side Only), and Add Lighting

If curb extensions are added to only two corners, operationally, the north side corners would benefit the most. Visibility for the south side crossing is already good because of the additional distance to parked cars north of the intersection.

Of all of the alternatives that include curb extensions, this alternative is not recommended because some of the past crashes have occurred in the south crosswalk and overall safety benefits would not be fully realized.

The cost to install curb extensions on the north side corners only, plus new street lighting is about \$206,000, which includes design costs. Because the project, as approved for the grant by CalTrans, includes curb extensions on all corners, any change to the project would trigger a re-evaluation of the safety benefits, and funding may or may not be approved.

Update On Improvements to De La Vina and Canon Perdido Streets

As directed by Council, staff made improvements to the De La Vina and Canon Perdido Streets intersection. The improvements included increasing the available sight distance by increasing the amount of red curb on De La Vina Street north of the intersection. This resulted in a loss of one parking space on either side of the road.

Staff has flagged this intersection, and operations will be re-reviewed. If further mitigation is justified, additional improvements could include marked crosswalks and warnings signs, and/or tree removal.

BUDGET/FINANCIAL INFORMATION:

The financial impact for each alternative is shown in Table 4, below:

Table 4 – Budget and Financial Information for each Alternative

| Alternative Number | Description | Total Cost | City Cost | Grant Funding |
|---------------------------|--|-------------------|------------------|----------------------|
| 1A | Add Crosswalks and Warning Signs | \$1000 | \$1000 | \$0 |
| 1B | Add Crosswalks and Warning Signs, Add Lighting | \$36,000 | \$36,000 | \$0 |
| 2A | Add Curb Extensions All Corners, Add Lighting | \$276,000 | \$25,000 | \$251,000 |
| 2B | Add Curb Extensions North Side, Add Lighting | \$206,000 | unknown | unknown |

HSIP grant funding, which is Federal funding administered by Caltrans, was awarded for the project represented by Alternative 2A. The project, as currently approved by Caltrans, is to provide improved street lighting and curb extensions on all corners. Any modification to that plan, such as curb extensions only on the north side, will require the

project's safety benefits to be reevaluated by Caltrans, and funding may or may not be approved for the modified plan.

The City would be responsible for any design costs. For the alternatives that include curb extensions, design costs are estimated to be \$25,000, which is available in the Streets Fund.

ATTACHMENTS: 1. Truck Turning Templates for Possible Truck Movements
2. Curb Extension Concept: All Corners, All Non-Interfering Directions

PREPARED BY: Pat Kelly, Assistant Public Works Director/City Engineer/DB/kts

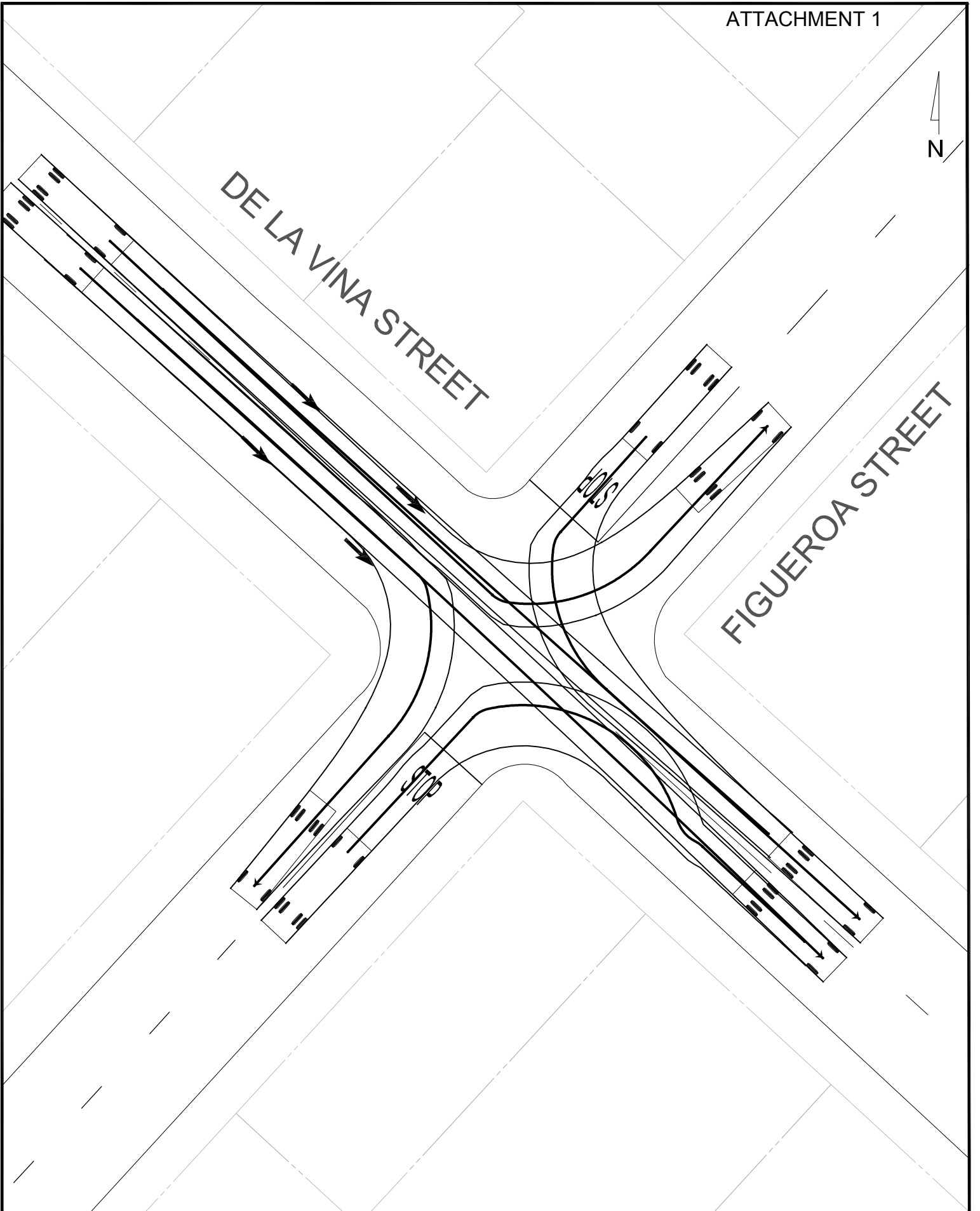
SUBMITTED BY: Christine F. Andersen, Public Works Director

APPROVED BY: City Administrator's Office



DE LA VINA STREET

FIGUEROA STREET





DE LA VINA STREET

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