



# CITY OF SANTA BARBARA

## COUNCIL AGENDA REPORT

**AGENDA DATE:** August 9, 2011

**TO:** Mayor and Councilmembers

**FROM:** Transportation Division, Public Works Department

**SUBJECT:** Intersection Improvements For De La Vina Street At Figueroa Street  
And De La Vina Street At Canon Perdido Street

**RECOMMENDATION:** That Council:

- A. Hear a report on the options for intersection improvements on De La Vina Street at Figueroa Street and De La Vina Street at Canon Perdido Street;
- B. Accept a Highway Safety Improvement Program (HSIP) grant of \$326,300 for pedestrian safety improvements at the intersection of De la Vina Street and Figueroa Street, which would include curb extensions and additional lighting, and appropriate the grant funds in the Streets Capital Fund; and
- C. Discontinue further capital improvements to the intersection improvements on De La Vina Street at Canon Perdido Street.

**EXECUTIVE SUMMARY:**

In November 2005, the Council approved an amendment grant agreement to reallocate unused Traffic Congestion Relief Program (TCRP) grant funds to various locations, including De La Vina Street at Figueroa Street and De La Vina Street at Canon Perdido Street. The project locations were identified through concerns expressed by the public about collisions and traffic delays. In October 2006, Council authorized the Public Works Director to execute an agreement with MNS Engineering (MNS) to conduct an intersection safety analysis and traffic signal warrant analysis for the following intersections: 1) De La Vina Street at Figueroa Street, 2) De La Vina Street at Canon Perdido Street, and 3) De La Vina Street at State Street.

The intersection at De La Vina and State has since been removed from the Capital Improvement Program. Once they identified intersection concerns, MNS was to develop three concepts to improve the safety and operations of the intersections of De La Vina at Figueroa and De La Vina at Canon Perdido. At this time, the TCRP grant fund is underfunded, and it is unknown when funds will be available.

With the uncertainty of the TCRP funds, in January 2011 staff submitted an application for the Highway Safety Improvement Program (HSIP) grant and was awarded funding for De La Vina at Figueroa for a Pedestrian Safety Improvement project. In the application, it was stated that moving forward with the project was subject to approval of the Council.

## **DISCUSSION:**

### **Background**

At the time of the study, both intersections had a higher collision rate than the statewide intersection collision rate, indicating that traffic safety was a significant concern and should be addressed through intersection modifications and additional enforcement. Also, De La Vina at Figueroa was a primary route for the Santa Barbara Metropolitan Transit District (MTD) to transition from the transit center on Chapala Street back to Carrillo Street. MTD buses were moving across three traffic lanes within 250 feet, looking for conflicts on Chapala including traffic and pedestrians crossing mid-block. Over the three-year study period ending December 2008, twelve collisions occurred at the West Figueroa intersection, with five involving pedestrians and three involving bicyclists. A fatality occurred in February 2009, but was not included in the initial analysis because statewide collision figures for 2009 were not available until late 2010. There were no reported collisions in 2010. The highest fraction of collisions at this location involve pedestrians and bicycles. The probable causes of the collisions occurring here include restricted sight distance, excessive speed, lack of adequate gaps, and inadequate or improper pavement markings or traffic control devices. The results of the intersection analysis indicated that traffic signal warrants were not met and multi-way stop warrants were met. In early 2010, MTD relocated their bus route away from Figueroa to Anapamu to facilitate transition from the transit center. Following the study period, the collision rate has fallen below the statewide average (with no accidents reported in 2010). Given the change in operating characteristics, the multi-stop warrant analysis would change and no longer be recommended for implementation.

At the Canon Perdido intersection, seven collisions occurred within the study period, with the highest percentage of collisions being right angle collisions. The probable causes are restricted sight distance, excessive speed, inadequate advance intersection warning signs, and inadequate traffic control devices. Analysis of current collision data confirms that since the time of the initial study, the collision warrant for installation of traffic signals is still not met nor is a multi-way stop.

### *Intersection Improvement Options*

The development of the conceptual plans have included the review of various traffic data provided by the City, observations by MNS staff while conducting field visits, and technical analysis of collision and traffic volume information. The process of establishing a set of recommended conceptual plans included the review of various engineering applications to improve traffic safety. The geometric and traffic control

improvement options were developed in consideration of Caltrans and City specifications, guidelines, and policies. Measures considered included: curb extensions, enhanced pedestrian crossings, new turning lanes, bike lanes, flashing beacons, stop signs, traffic signals, various traffic and regulatory and warning signage, removal of street trees, removal of on-street parking, and additional intersection lighting.

Based on the outcome of their analysis during the study period, MNS's recommended concept for De La Vina at Figueroa was the multi-way stop for all approaches with curb extensions and additional street lighting. The impact of this improvement would be overall increased visibility and safety. However, with the addition of a stop sign on De La Vina, the Level of Service (LOS) on De La Vina would be expected to drop to D, while that on Figueroa would increase to B with minimal queues. With the implementation of stop signs, neither pedestrians nor vehicles crossing De La Vina would have to wait for acceptable gaps in traffic. Traffic safety would be addressed by reducing the need for intersection sight distance through the installation of an all-way stop, increasing visibility of traffic control through curb extensions, thereby reducing the vehicular and pedestrian crossing distance by 30%, and reducing the potential for nighttime collisions by increasing illumination. Subsequent to this study, changes occurred to intersection operations due to the relocation of MTD bus routes, and these findings have been affected by these changes. Current conditions of this intersection do not appear to support implementation of a multi-way stop.

Based on the outcome of their analysis, MNS's recommended concept for De La Vina at Canon Perdido is advanced pavement striping to include a shared through left-turn lane, bike lane, and an exclusive right turn lane with curb extensions. No LOS impacts are anticipated with the proposed improvement. However, it is anticipated that because of the reduced vehicle crossing distance, which provides increased opportunities to use smaller acceptable gaps for crossing or turning, the queue lengths on Canon Perdido may decrease. Neither stop signs nor traffic signals warrants are met. Traffic safety would be addressed by increasing stopping sight distance in either of two ways: (i) installation of curb extensions and retention of street trees; or (ii) removal of street trees and parking spaces. Additional illumination would increase roadway lighting, and reduce the potential of nighttime collisions.

A summary of the MNS study is attached. (Attachment)

#### **BUDGET/FINANCIAL INFORMATION:**

The TCRP grant program is underfunded to address all projects currently in the program, and it is unknown when funding will be available.

Due to the uncertainty of the TCRP funds, staff submitted an application for Highway Safety Improvement Program (HSIP) grant funds for the installation of a traffic signal at De La Vina and Figueroa. Caltrans' District 5 staff advised City staff that they would not forward the application for consideration because the intersection did not meet warrants for the installation of a traffic signal. Staff was given the option of withdrawing the

application or revising the application without a traffic signal. Staff submitted a revised application for pedestrian safety improvements at De La Vina and Figueroa, which included the MNS recommended improvements. The revised application included a statement that moving forward with the project was subject to Council approval.

In March, the City was advised by Caltrans that the De La Vina at Figueroa Pedestrian Safety project was approved for the HSIP grant in the amount of \$326,300. The design contract executed with MNS includes final design services.

Based on the lack of signal warrants for the intersection at Canon Perdido and De La Vina, no grant funding is available for improvements to this intersection.

### **Options**

Staff is sensitive to the controversy of installing curb extensions, and seeks direction on whether to accept the HSIP grant for De La Vina at Figueroa, or terminate further work at that intersection. Should Council direct further improvements to Canon Perdido and De La Vina requiring capital funding, the project would need to be prioritized for funding in a future year.

#### De La Vina at Figueroa - Options

1. Accept the HSIP grant, and authorize staff to move forward with the pedestrian safety improvements at De la Vina and Figueroa, which would include curb extensions and additional lighting, and appropriate the grant funds in the Streets Capital Fund. Stop signs would not be included due to operational improvement associated with changes to MTD routing.
2. Stop further work on De la Vina at Figueroa, and advise Caltrans that the City will not proceed with the grant funded project.

#### De La Vina at Canon Perdido - Options

1. (a) Removal of at least two street trees and parking spaces, and install additional lighting at the intersection of De La Vina and Canon Perdido to improve visibility for vehicles.  
**OR**  
(b) Install curb extensions and additional lighting.
2. Discontinue further capital improvements to the intersection improvements on De La Vina at Canon Perdido.

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**ATTACHMENT:** Summary of MNS Engineering Report

**PREPARED BY:** Browning Allen, Transportation Manager/jj

**SUBMITTED BY:** Christine F. Andersen, Public Works Director

**APPROVED BY:** City Administrator's Office

## Summary Of The MNS Engineering Report

MNS Engineering was retained to provide concept development services for the project. The scope of work included the evaluation of existing and future conditions related to City and private utilities, adjacent land uses, sight distance, accessibility, level of service and volume, and collisions. Subsequent to evaluating existing and future conditions, MNS was tasked to develop three conceptual designs for further consideration. Subsequent to evaluating the effects of each of the proposals, the consultant was tasked with recommending a preferred concept alternative. The proposed improvements comply with Caltrans and City specifications related to existing policies, standards, and guidelines. In addition to the information included in this report, the study contains a summary of traffic signal warrants, and unsignalized intersection capacity analysis.

### *Existing conditions*

De La Vina Street is a two lane one way principal arterial traversing commercial, residential, and mixed land uses with many driveways. The approximate dimensions of the street include two ten foot travel lanes and two eight foot parking lanes. Turning movements are made from shared through lanes. The posted speed limit is 30 miles per hour (mph). North of Carrillo Street, De La Vina carries 8,600 vehicles per day. To the south of Carrillo, the traffic volume is 6,000 vehicles per day. Weekday volumes on Figueroa Street are 3,200 cars on the West 100 block, and 2,200 on the West 200 block. Canon Perdido traffic volumes are 700 to 800 vehicles per day. The speed limit on both streets is 25 mph. Multiple commercial destinations exist near both intersections, generating high levels of pedestrian, bicycle, and vehicle traffic.

### *De La Vina At Figueroa*

MNS identified intersection deficiencies at De La Vina at Figueroa, which are listed below:

- 1) West Figueroa westbound approach operated at a Level of Service (LOS) F and eastbound at LOS D, during the PM peak hour (4:30 to 5:30). This was prior to MTD's relocation of their turn around from Figueroa to Anapamu.
- 2) No pedestrian signage or markings at crosswalk.
- 3) The 85<sup>th</sup> percentile speed is close to the posted speed of 30 mph with 5% of the traffic driving in excess of 35 mph.
- 4) Minimal intersection lighting.
- 5) Sight distance of 200 feet satisfies only the minimum distance.
- 6) Long crossing distances on De La Vina Street north and south legs.
- 7) Crossing concrete gutter on the eastern side of the intersection slows vehicle speeds during turning movements.
- 8) No designated bicycle facilities.

The project improvements prepared for consideration at De La Vina at Figueroa include the following:

Concept A: Multi-way stop for all approaches- the PM peak hour LOS on De La Vina will decrease from A to D. Improvement in the LOS on Figueroa.

Concept B: Multi-way stop with curb extensions- the PM peak hour LOS on De La Vina will decrease from A to D. Improvement in the LOS on Figueroa.

Concept C: Two way stop for side street approaches, curb extensions, and pedestrian actuated flashing beacons. No improvement to LOS on Figueroa.

Concept D: Curb extensions with traffic signal.

#### *De La Vina At Canon Perdido*

MNS identified the following intersection deficiencies at De La Vina at Canon Perdido:

- 1) West Canon Perdido westbound approach operates as a LOS D, and eastbound at LOS C during PM peak hour.
- 2) It appears the number of gaps for a left turn movement from West Canon Perdido might be small.
- 3) South leg pedestrian crosswalk pavement marking only, no additional pedestrian signage.
- 4) Restricted stopping sight distance of 130 feet due to on street parking and street trees.
- 5) Minimal intersection lighting level.
- 6) Long crossing distances on De La Vina Street north and south legs.
- 7) No designated bicycle facilities.

The project improvements prepared for consideration at De La Vina at Canon Perdido include the following:

Concept A: Advanced pavement striping to include shared through left-turn lane, bike lane, and an exclusive right turn lane.

Concept B: Advanced pavement striping to include shared through left-turn lane, bike lane, and an exclusive right turn lane with curb extensions.

Concept C: Introduction of exclusive left turn only lane, through right lane, and curb extensions.

Concept D: Removal of tree and on street parking to improve sight distance.

The following weighted decision matrix was completed by MNS in order to evaluate the various concepts against the factors of vehicular level of service, traffic safety, pedestrian safety and convenience, bicycle safety and convenience, public transit impact, intersection aesthetics, neighborhood impact, parking impact, noise pollution, and cost. The recommended concept was developed to address the needs of the motorists and the pedestrians.

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## **Weighted Matrix**

The City of Santa Barbara has requested MNS to provide a weighted matrix to help summarize and rank the value of each option based upon various factors.

Table 2-11 identifies the rated rankings and weighted importance factor rankings used for this intersection. Totals and weighted totals are provided in the table.

**Rated Rankings:** A range from -2 to +2 in whole numbers, used to provide a value on the improvement listed, in addition, to provide a numerical value to the intersection option.

- 2 = Significant Negative Benefit Related to Option
- 1 = Some Negative Benefit Related to Option
- 0 = Neutral no Impact or Benefit with Option
- +1 = Some Benefit Related to Option
- +2 = Significant Benefit Related to Option

**Weighted Importance Factor Rankings:** A bias range from 1 to 3 in whole numbers, used to adjust the rated ranking above based on the community's perception of importance.

- 1 = Low Value
- 2 = Moderate Value
- 3 = High Value

Table 2-11 Weighted Matrix – De La Vina Street at W. Figueroa Street

Evaluation Factor	Importance Factor (Used with Weighted Grand Total)	Intersection Options									
		2030 Existing Conditions – No Build Comparison		Option A – Multi-way Stop with Street Lighting		Option B – Multi-way Stop with Curb Extensions and Street Lighting		Option C – Curb Extensions with Flashing Beacons and Street Lighting		Option D – Traffic Signal with Curb Extensions	
		Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
<b>Vehicle Facilities</b>											
Level of Service (LOS) - De La Vina Street	3	2	6	-1	-3	-1	-3	2	6	1	3
Level of Service (LOS) – W. Figueroa Street	1	-2	-2	1	1	2	2	-2	-2	2	2
Traffic Safety	3	-1	-3	1	3	2	6	1	3	1	3
<i>Sub-Total</i>		-1	1	1	1	3	5	1	7	4	8
<b>Pedestrian Facilities</b>											
Traffic Safety	3	-2	-6	1	3	2	6	2	6	2	6
Convenience	2	-2	-4	1	2	2	4	1	2	1	2
<i>Sub-Total</i>		-4	-10	2	5	4	10	3	8	3	8
<b>Bicycle Facilities</b>											
Traffic Safety	2	-1	-2	1	2	1	2	1	2	1	2
Convenience	1	-1	-1	-1	-1	-1	-1	1	1	-1	-1
<i>Sub-Total</i>		-2	-3	0	1	0	1	2	3	0	1
<b>Public Transit Facilities</b>											
MTD Bus LOS on W. Figueroa Street	3	-2	-6	1	3	2	6	-2	-6	2	6
<i>Sub-Total</i>		-2	-6	1	3	2	6	-2	-6	2	6
<b>Intersection Aesthetics and Neighborhood Desirability</b>											
Landscape Potential	1	0	0	0	0	1	1	1	1	1	1
Minimized Parking Loss	1	0	0	1	1	1	1	-1	-1	1	1
Neighborhood Safety and Convenience	2	-1	-2	1	2	1	2	1	2	1	2
Noise Pollution	1	1	1	-1	-1	-1	-1	1	1	-1	-1
<i>Sub-Total</i>		0	-1	1	2	2	3	2	3	2	3
<b>Cost of Improvements</b>											
Cost of Improvements	1	2	2	1	1	-1	-1	-2	-2	-2	-2
<i>Sub-Total</i>		2	2	1	1	-1	-1	-2	-2	-2	-2
<b>Total (Non-Weighted)</b>		-7		6		10		4		9	
<b>Weighted Grand Total</b>		-17		13		24		13		24	

Table 3-11  
 Weighted Matrix – De La Vina Street at W. Canon Perdido Street

Evaluation Factor	Importance Factor (Used with Weighted Grand Total)	Intersection Options									
		2030 Existing Conditions – No Build Comparison		Option A – Straight- Left / Bicycle / Right Turn Lane with Street Lighting		Option B – Straight- Left / Bicycle / Right Turn Lane with Curb Extensions and Street Lighting		Option C – Left Turn Lane / Straight – Right with Curb Extensions and Street Lighting		Option D – Tree and Parking Removal with Street Lighting	
		Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted	Unweighted	Weighted
<b>Vehicle Facilities</b>											
Level of Service (LOS) - De La Vina Street	2	2	4	2	4	2	4	2	4	2	4
Level of Service (LOS) – W. Canon Perdido Street	1	-2	-2	-2	-2	-2	-2	-2	-2	-2	-2
Traffic Safety	3	-2	-6	1	3	2	6	2	6	2	6
<i>Sub-Total</i>		-2	-4	1	5	2	8	2	8	2	8
<b>Pedestrian Facilities</b>											
Traffic Safety	2	-2	-4	1	2	2	4	2	4	2	4
Convenience	1	-2	-2	1	1	2	2	2	2	1	1
<i>Sub-Total</i>		-4	-6	2	3	4	6	4	6	3	5
<b>Bicycle Facilities</b>											
Traffic Safety	1	-1	-1	2	2	2	2	-1	-1	0	0
Convenience	1	-1	-1	2	2	2	2	-1	-1	-1	-1
<i>Sub-Total</i>		-2	-2	4	4	4	4	-2	-2	-1	-1
<b>Public Transit Facilities</b>											
Bus Stop Relocation on De La Vina Street	1	0	0	-1	-1	-1	-1	-1	-1	0	0
<i>Sub-Total</i>		0	0	-1	-1	-1	-1	-1	-1	0	0
<b>Intersection Aesthetics and Neighborhood Desirability</b>											
Landscape Potential	1	0	0	0	0	1	1	1	1	0	0
Minimized Parking Loss	2	1	2	-2	-4	-2	-4	-1	-2	-1	-2
Neighborhood Safety and Convenience	2	-1	-2	1	2	2	4	2	4	1	2
Tree Removal	2	0	0	0	0	0	0	0	0	-2	-4
<i>Sub-Total</i>		0	0	0	0	1	1	2	3	-2	-4
<b>Cost of Improvements</b>											
Cost of Improvements	1	2	2	1	1	-2	-2	-2	-2	1	1
<i>Sub-Total</i>		2	2	1	1	-2	-2	-2	-2	1	1
<b>Total (Non-Weighted)</b>			-6		7		8		3		3
<b>Weighted Grand Total</b>			-10		12		16		12		9