

**Draft For Bicycle and Pedestrian Advisory
Commission Review on July 18, 2013****Council Meeting: August 13, 2013****SUBJECT: Discussion and Possible Action Regarding Consideration of Duane Avenue Space Allocation Study****BACKGROUND**

Duane Avenue is included in the City's Bicycle Capital Improvement Program as a candidate for the installation of bike lanes, and the City has received a grant from the Transportation Development Act Article III for the project. Bike lane installation in this area would connect existing bikeways on Stewart Drive and DeGuigne Drive. This section of Duane Avenue currently features two travel lanes in each direction, sidewalks, and parking in limited areas. Adjacent land uses are commercial, apartments, town homes, institutional uses and single family residential homes. Consistent with the City's street space allocation policies, staff has conducted a technical analysis of options to meet minimum design standards for motor vehicles, bicycles, and pedestrians. Staff is presenting this information to Council for consideration on whether to change the existing roadway configuration.

DISCUSSION

In 2009, the City of Sunnyvale adopted a policy on the allocation of street space. The goal was to provide direction on how to consider all modes of transportation when allocating roadway space, particularly in situations that could require the removal of travel lanes, on-street parking, or other roadway reconfigurations, or because of right-of-way constraints. Consideration of bike lanes was a particular intent of the street space allocation policy. Council approval of roadway changes is a policy requirement.

The segment of Duane Avenue from Stewart Drive to Fair Oaks Avenue currently does not feature facilities for bicycles. A location map is provided in Attachment A. Providing bike lanes on Duane Avenue within the existing curb-to-curb width may require elimination of travel lanes and some or all on-street parking. There is not sufficient right-of-way behind the existing curb to widen the road for bike lanes. Staff has identified and studied three options for providing bike lanes. The three study alternatives are summarized as follows:

1. Travel Lane Elimination - One travel lane in each direction, center two-way left turn lane, allow on-street parking, and bike lanes
2. Parking Elimination - Two travel lanes in each direction, bike lanes, and no on-street parking

Issued by the City Manager

3. Travel Lane and Partial Parking Elimination - One travel lane in each direction, center two-way left turn lane, restrict on-street parking for the eastbound direction, buffer zones, and bike lanes

Staff evaluated roadway geometry, motor vehicle speeds, collision history, motor vehicle volumes, and roadway capacity. A summary of findings is included as Attachment B.

Speed surveys show that the 85th percentile travel speeds range from 39-43 miles per hour, which is significantly above the posted 35 miles per hour speed. A review of the collision history for the roadway shows that 30 total vehicle collisions, 5 bicycle-involved collisions, and 1 pedestrian-involved collision have occurred in the last five years. When considering travel lane elimination, motor vehicle volumes should be below 10,000 vehicles per day per lane in order to assure that congestion does not result. Traffic volumes on Duane Avenue are under 5,500 vehicles per day in the westbound direction and 4,500 vehicles per day in the eastbound direction, which is well below the 10,000 vehicles per day per lane guidance. Signalized intersection levels of service would not be affected by travel lane elimination. On-street parking supply and demand was examined and showed 29-42% occupancy throughout the week. Weekday and weekend surveys taken in morning, afternoon, and evening time periods found vehicles parked on the street. Excess off street supply was noted for all land uses in the proposed study area. This section of Duane Avenue currently has a total of 215 parking spaces with 107 parking spaces in the eastbound direction and 108 parking spaces in the westbound direction. Assuming implementation of the 20 foot parking restriction at controlled intersections as approved by the City Council, the City would remove a total of 16 parking spaces with 2 parking spaces in the east bound direction and 14 spaces in the westbound direction independent of any action to construct bike lanes. Detailed parking survey data is included as Attachment C.

***The Sunnyvale Bicycle and Pedestrian Advisory Commission considered this item at its July 18, 2013 meeting and... ***

EXISTING POLICY

Policy LT-5.5: Support a variety of transportation modes.

- LT-5.5a: Promote alternate modes of travel to the automobile.
- LT-5.5d: Maximize the provision of bicycle and pedestrian facilities.
- LT-5.5e: Implement the City of Sunnyvale Bicycle Plan.
- LT-5.5g: Ensure safe and efficient pedestrian and bicycle connections to neighborhood transit stops.
- Policy LT-5.9: Appropriate accommodations for motor vehicles, bicycles and pedestrians shall be determined for City streets to increase the use of bicycles for transportation and to enhance the safety and efficiency of the overall street network for bicyclists, pedestrians, and motor vehicles.
- Policy LT-5.10: All modes of transportation shall have safe access to City streets.

- Policy LT-5.16: When decisions on the configuration of roadway space are made, staff shall present options, including at a minimum an option that meets minimum safety-related design standards for motor vehicles, bicycles and pedestrians.
- Policy LT 5.18: The City Council shall make the final decisions on roadway space reconfiguration when roadway reconfiguration will result in changes to existing accommodations.

ENVIRONMENTAL REVIEW

This project is exempt from the California Environmental Quality Act under section 15304 (h), installation of bike lanes within existing rights-of-way.

FISCAL IMPACT

There are \$ 94,203 in funds in project 829590, Duane Avenue Bike Lanes from a Transportation Development Act III grant to install striping, signs, loop detection, and legends for bike lanes on Duane Avenue within the existing right of way.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's Web site.

The Bicycle and Pedestrian Advisory Commission held a public hearing on a draft Report to Council at its July 18, 2013 meeting.

ALTERNATIVES

1. Direct staff to allocate street space on Duane Avenue in order to provide two automobile travel lanes, bike lanes in each direction, a center two-way left turn lane, and on-street parking.
2. Direct staff to allocate street space on Duane Avenue in order to provide four automobile travel lanes, bike lanes in each direction, and remove on-street parking.
3. Direct staff to allocate street space on Duane Avenue in order to provide two automobile travel lanes, bike lanes in each direction, buffer zones, a center two-way left turn lane, and restrict on-street parking for the eastbound direction.
4. Direct staff to allocate street space on Duane Avenue in an alternative configuration as determined by Council.
5. Direct staff to make no changes from the existing configuration.

RECOMMENDATION

Staff recommends Alternative No. 1: Direct staff to allocate street space on Duane Avenue in order to provide one bike lane in each direction, one travel lane in each direction, a center two-way left turn lane, and on-street parking.

Alternative 1 provides bike lanes and sufficient roadway capacity to meet motor vehicle travel demand. Exercising this alternative will result in a roadway cross section that accommodates all modes of travel. Traffic volumes on Duane Avenue are under 5,500 vehicles per day in the westbound direction and 4,500 vehicles per day in the eastbound direction, which is well below the 10,000 vehicles per day per lane guidance and roadway congestion is not anticipated with travel lane elimination. Signalized intersection levels of service would not be affected by travel lane elimination.

Furthermore, installation of a two-way left turn lane is a safety enhancement and can decrease the chances of rear end collisions. Speed surveys show that the 85th percentile travel speeds range from 39-43 miles per hour, which is significantly above the posted 35 miles per hour speed. Removal of a travel lane in each direction will reduce speeds to effectively the speed of the slowest car on the roadway by eliminating the ability for passing. Two-way left turn lanes have been shown to decrease rear end collisions between turning vehicles and following vehicles.

Installation of bike lanes will create marked space for bicycles on the roadway, which increases the comfort level of bicyclists from a safety standpoint and increases drivers' awareness of bicycles using the roadway and should have a positive effect on safety. All alternatives studied allow for installation of bike lanes that exceed California Department of Transportation minimum width standards, which will further increase bicycle rider comfort and separation from motor vehicles.

The parking studies show that vehicles occupy both sides of the allowable on-street parking spaces on Duane Avenue and removing on-street parking will disturb residents and businesses within the surrounding neighborhood.

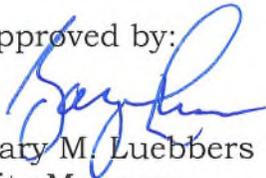
Reviewed by:



for Kent Steffens, Director, Public Works

Prepared by: Jack Witthaus, Transportation and Traffic Manager

Approved by:



Gary M. Luebbers
City Manager

ATTACHMENTS

- A. Project Location Map
- B. Street Space Allocation Study Summary
- C. Detailed Parking Survey Data
- D. Draft Bicycle and Pedestrian Advisory Commission Meeting Minutes of July 18, 2013

Attachment B: STREET SPACE ALLOCATION STUDY SUMMARY



Operational Feature	Minimum Standard or Criterion	Existing	Alternative 1: 2 lanes, 1 TWLTL, and on street parking	Alternative 2: 4 lanes and no on street parking	Alternative 3: 2 lanes, 1 TWLTL, buffer zones, and on street parking restriction for eastbound direction
Vehicle travel lane width (typical)	10' travel	12', 12', 12', 12' Total 48'	12', 12', 12' Total 36'	14', 12', 12', 14' Total 52'	12', 12', 12' Total 36'
Parking lane width	8' parking	8' parking, 16' total	8' parking, 16' total	No parking	9' parking WB
Bike lane width	5'	0'	6', Total 12'	6', Total 12'	6', Total 12'
Buffer zones					4' WB 3' EB
AM Peak Hour Intersection level of service	Level of Service "D" or above	Stewart/Duane "LOS C" DeGuigne/Duane "LOS C" Fair Oaks/Duane "LOS C"	Same	Same	Same
PM Peak Hour Intersection level of service	Level of Service "D" or above	Stewart/Duane "LOS D" DeGuigne/Duane "LOS C" Fair Oaks/Duane "LOS C"	Same	Same	Same
Roadway capacity	10,000 vpd/per lane	EB 2718 WB 2278	EB 5436 WB 4556	EB 2718 WB 2278	EB 5436 WB 4556
Sidewalks		Yes	Yes	Yes	Yes
Crash reduction potential	High = incidence of bike collisions pedestrian collisions	5 bike involved collisions and 1 pedestrian involved collisions in 5 years	Moderate	Low	Moderate
Crosswalk installation potential	Low travel speed/volume	None	None	None	None
Speed compatibility and speed reduction potential		35 MPH posted speed, 39-43 MPH 85% speed	Increased side friction from narrowing travel lanes, removing 2 travel lanes likely to reduce speeds, and install TWLTL to reduce rear-end collisions	Not likely to reduce speeds.	Increased side friction from narrowing travel lanes, removing 2 travel lanes likely to reduce speeds, and install TWLTL to reduce rear-end collisions

WEEKDAY PARKING STUDY



CORRIDOR DUANE AVE
DATE OF SURVEY 6/26/13 WEDNESDAY

ON-STREET PARKING OCCUPANCY: Possibly remove 14 spaces for WB and 2 for EB at intersections.

AM COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand	
09:00-10:00									
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
Fair Oaks to San Juan	20	8	40%	33	9	27%	53	17	32%
San Juan to DeGuigne	50	19	38%	55	24	44%	105	43	41%
DeGuigne to Duane Court	37	5	14%	20	6	30%	57	11	19%

MID COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand	
12:00-13:00									
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
Fair Oaks to San Juan	20	7	35%	33	8	24%	53	15	28%
San Juan to DeGuigne	50	15	30%	55	22	40%	105	37	35%
DeGuigne to Duane Court	37	5	14%	20	5	25%	57	10	18%

PM COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand	
21:00-22:00									
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
Fair Oaks to San Juan	20	9	45%	33	7	21%	53	16	30%
San Juan to DeGuigne	50	19	38%	55	26	47%	105	45	43%
DeGuigne to Duane Court	37	3	8%	20	9	45%	57	12	21%

OFF-STREET PARKING OCCUPANCY:

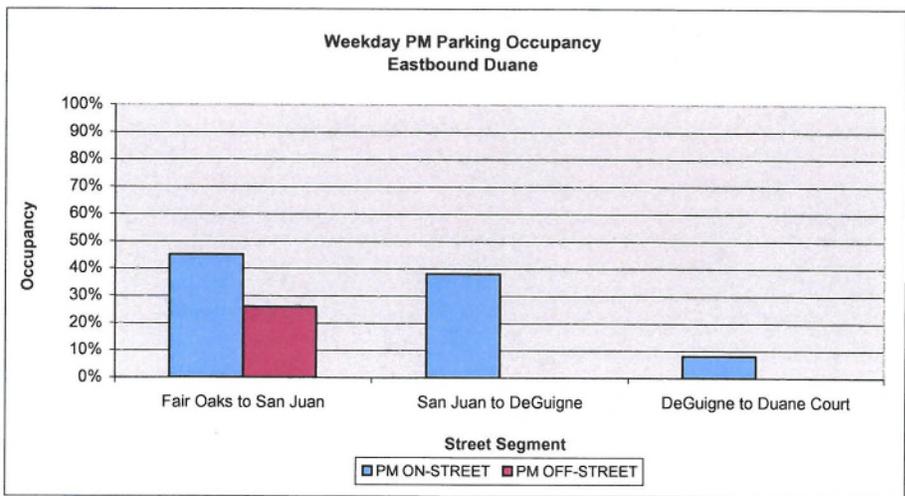
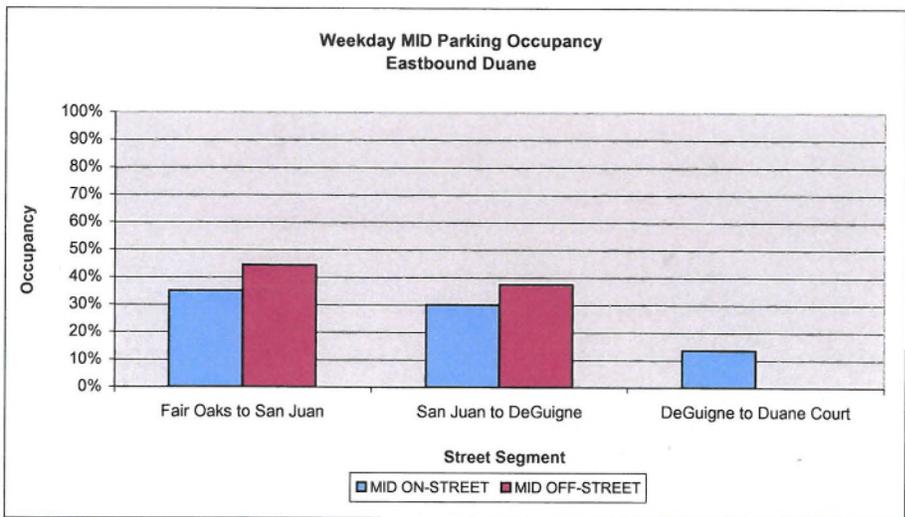
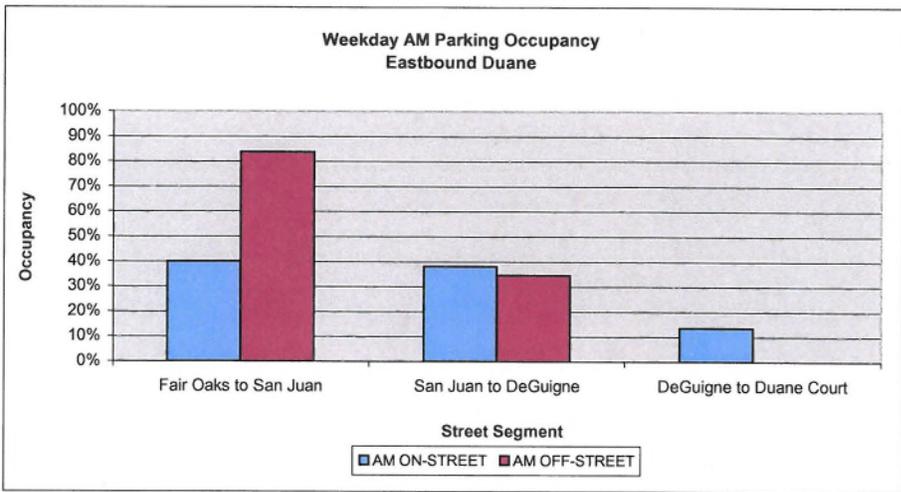
EASTBOUND	Capacity	AM		MID		PM	
		9:00-10:00		12:00-13:00		21:00-22:00	
Fair Oaks to San Juan (Drwy Parking)	23	10	43%	7	30%	19	83%
Lot 2 - Church Parking Lot	57	57	100%	29	50%	2	3%
Lot 7 - Rainbow Child Develop Parking	372	149	40%	112	30%	0	0%
Lot 8 - Spasion Inc Parking Lot	799	240	30%	320	40%	0	0%
Lot 9 - Sandis Parking Lot	25	23	90%	16	65%	1	2%

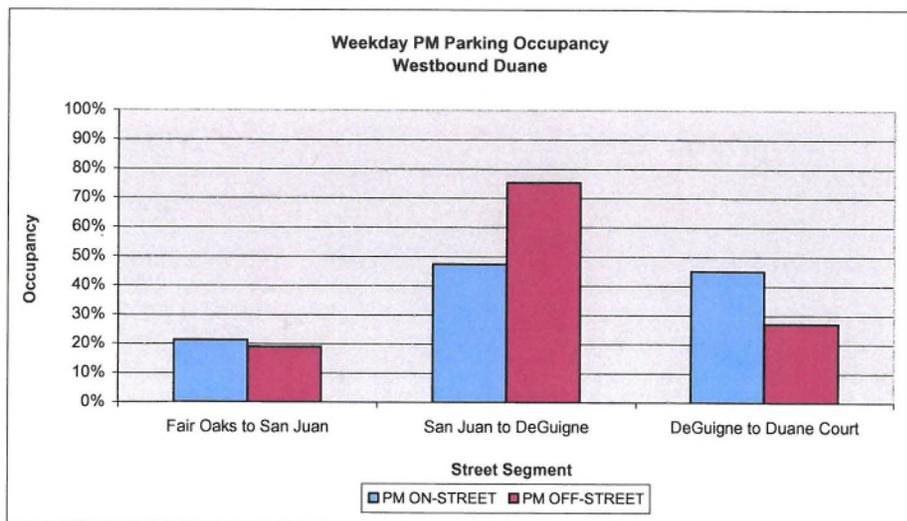
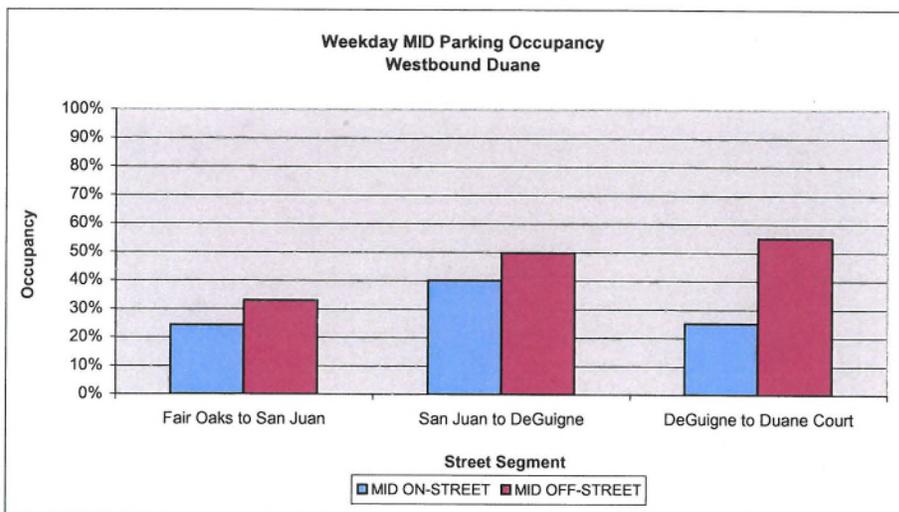
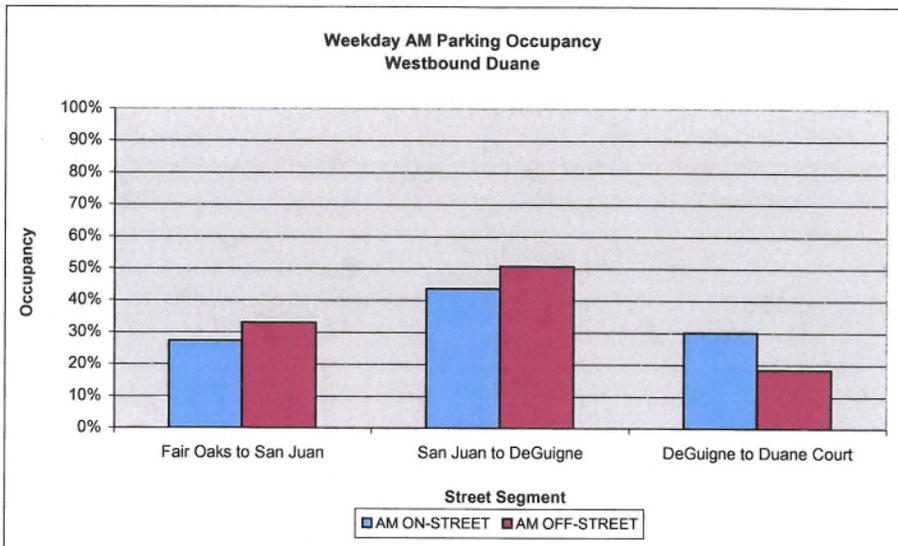
WESTBOUND	Capacity	AM		MID		PM	
		9:00-10:00		12:00-13:00		21:00-22:00	
Duane Court to Deguigne (Drwy Parking)	46	16	35%	14	30%	28	61%
Lot 10 - Fair Oaks Plaza Parking	223	33	15%	134	60%	45	20%
Lot 6 - Apartment Complex	15	8	53%	7	47%	11	73%
Lot 5 - Apartment Complex	28	11	40%	11	40%	22	80%
Lot 4 - Apartment Complex	12	7	58%	9	75%	11	92%
Lot 3 -Apartment Complex	42	23	55%	21	50%	29	70%
Lot 1 - Apartment Complex	27	9	33%	9	33%	5	19%

	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
AM COUNTS									
09:00-10:00	Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
Fair Oaks to San Juan	80	67	84%	27	9	33%	107	76	71%
San Juan to DeGuigne	1196	412	34%	97	49	51%	1293	461	36%
DeGuigne to Duane Court				269	49	18%	269	49	18%

	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
MID COUNTS									
12:00-13:00	Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
Fair Oaks to San Juan	80	36	44%	27	9	33%	107	45	42%
San Juan to DeGuigne	1196	448	37%	97	48	50%	1293	496	38%
DeGuigne to Duane Court				269	148	55%	269	148	55%

	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
PM COUNTS									
21:00-22:00	Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
Fair Oaks to San Juan	80	21	26%	27	5	19%	107	26	24%
San Juan to DeGuigne	1196	1	0%	97	73	75%	1293	74	6%
DeGuigne to Duane Court				269	73	27%	269	73	27%





WEEKEND PARKING STUDY



CORRIDOR
DATE OF SURVEY

DUANE AVE
6/22/13 SATURDAY

ON-STREET PARKING OCCUPANCY: Possibly remove 14 spaces for WB and 2 for EB at intersections.

AM COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
09:00-10:00	20	9	45%	33	12	36%	53	21	40%
Fair Oaks to San Juan	20	9	45%	33	12	36%	53	21	40%
San Juan to DeGuigne	50	26	52%	55	26	47%	105	52	50%
DeGuigne to Duane Court	37	9	24%	20	8	40%	57	17	30%

MID COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
12:00-13:00	20	7	35%	33	9	27%	53	16	30%
Fair Oaks to San Juan	20	7	35%	33	9	27%	53	16	30%
San Juan to DeGuigne	50	20	40%	55	16	29%	105	36	34%
DeGuigne to Duane Court	37	5	14%	20	6	30%	57	11	19%

PM COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand		On Street Parking Capacity	On Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
21:00-22:00	20	10	50%	33	13	39%	53	23	43%
Fair Oaks to San Juan	20	10	50%	33	13	39%	53	23	43%
San Juan to DeGuigne	50	22	44%	55	31	56%	105	53	50%
DeGuigne to Duane Court	37	7	19%	20	7	35%	57	14	25%

OFF-STREET PARKING OCCUPANCY:

By Property

EASTBOUND	Capacity	AM		MID		PM	
		9:00-10:00		12:00-13:00		21:00-22:00	
Fair Oaks to San Juan (Drwy Parking)	23	16	70%	12	52%	16	70%
Lot 2 - Church Parking Lot	57	2	4%	29	51%	26	46%
Lot 7 - Rainbow Child Develop Parking	372	26	7%	37	10%	19	5%
Lot 8 - Spasion Inc Parking Lot	799	80	10%	80	10%	40	5%
Lot 9 - Sandis Parking Lot	25	3	12%	0	0%	1	4%

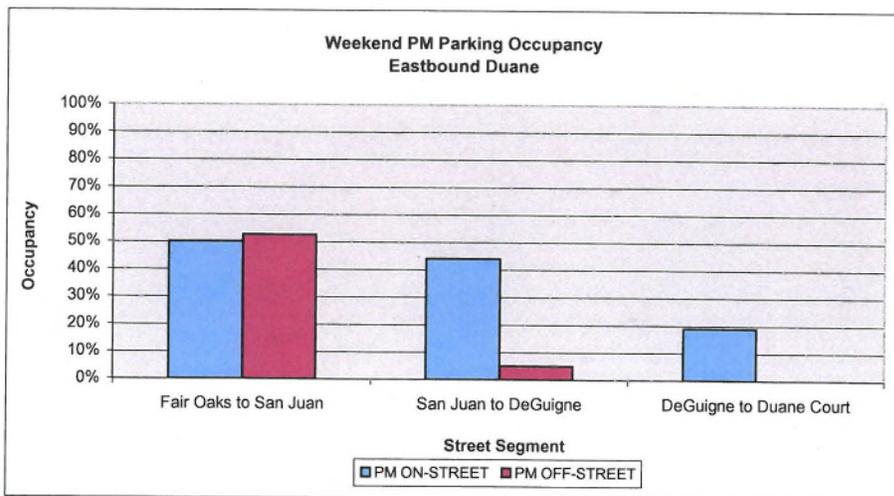
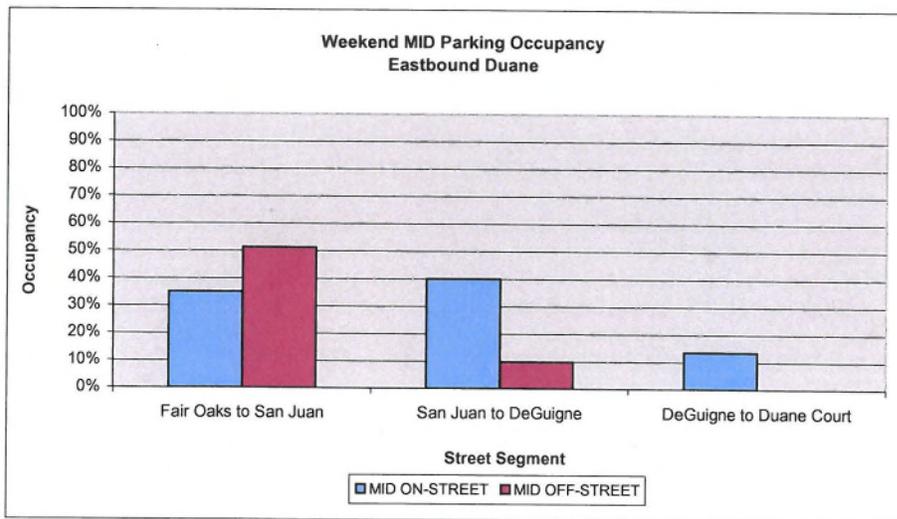
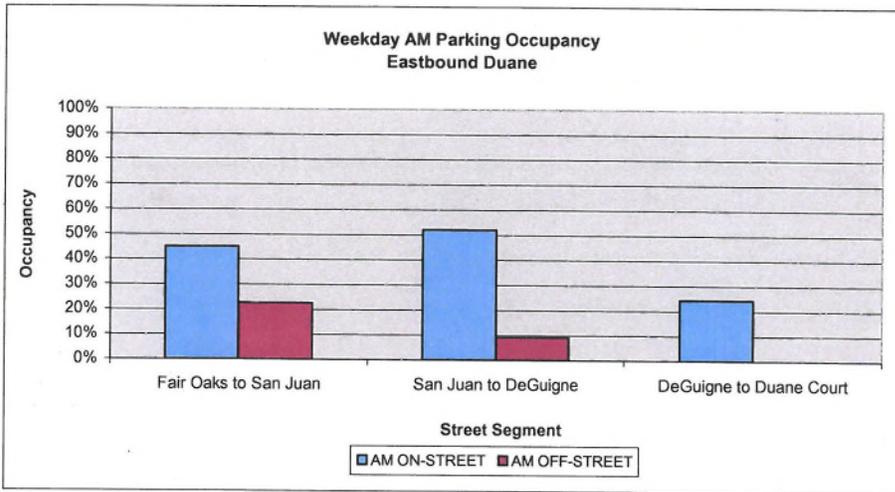
WESTBOUND	Capacity	AM		MID		PM	
		9:00-10:00		12:00-13:00		21:00-22:00	
Duane Court to Deguigne (Drwy Parking)	46	26	57%	22	48%	29	63%
Lot 10 - Fair Oaks Plaza Parking	223	33	15%	45	20%	45	20%
Lot 6 - Apartment Complex	15	13	87%	5	33%	13	87%
Lot 5 - Apartment Complex	28	20	71%	20	71%	21	75%
Lot 4 - Apartment Complex	12	8	67%	8	67%	12	100%
Lot 3 - Apartment Complex	42	25	60%	21	50%	34	81%
Lot 1 - Apartment Complex	27	14	52%	14	52%	16	59%

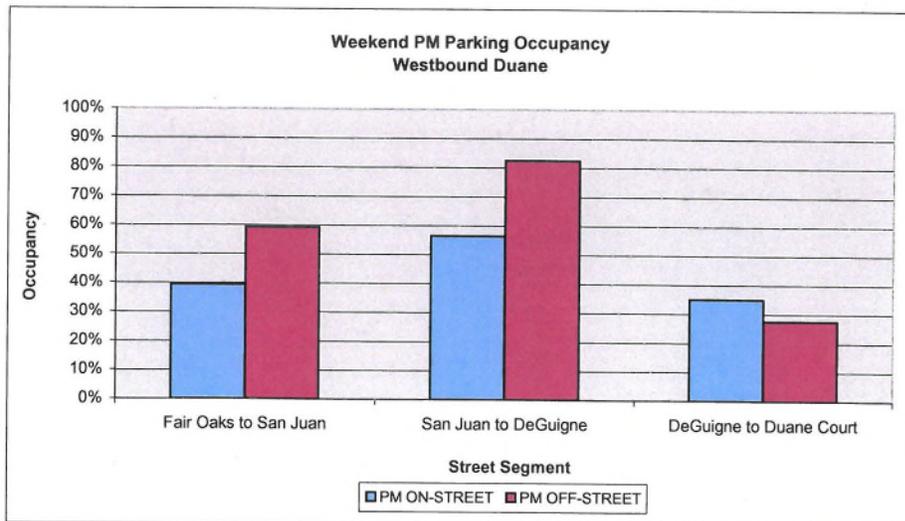
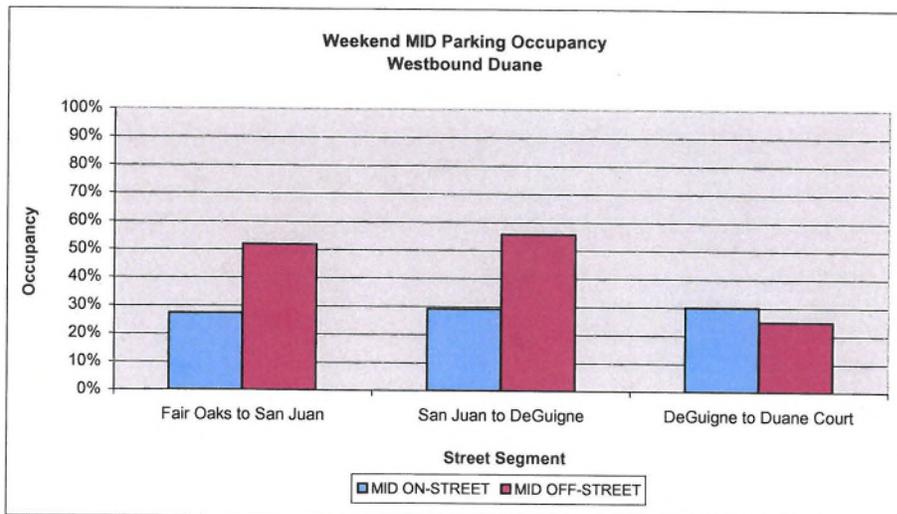
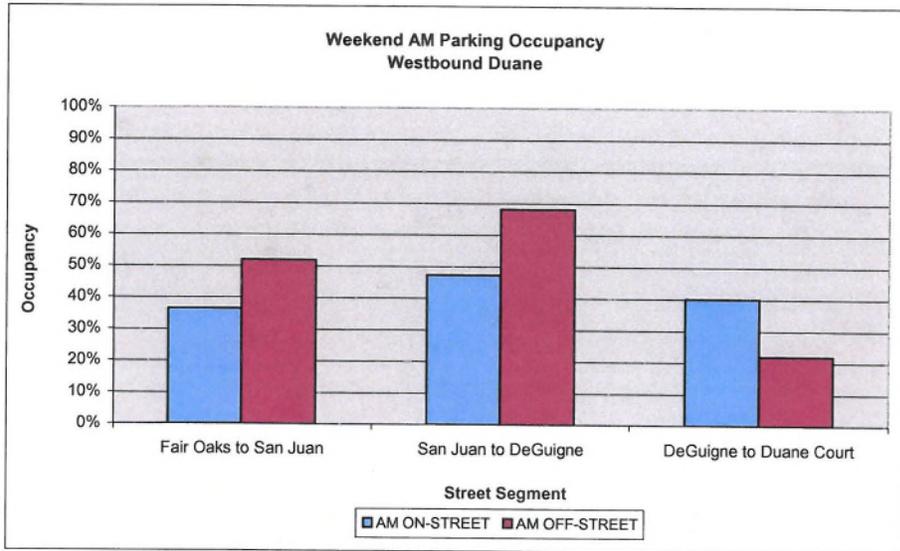
By Adjacent Roadway Segment:

AM COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
09:00-10:00									
Fair Oaks to San Juan	80	18	23%	27	14	52%	107	32	30%
San Juan to DeGuigne	1196	109	9%	97	66	68%	1293	175	14%
DeGuigne to Duane Court				269	59	22%	269	59	22%

MID COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
12:00-13:00									
Fair Oaks to San Juan	80	41	51%	27	14	52%	107	55	51%
San Juan to DeGuigne	1196	117	10%	97	54	56%	1293	171	13%
DeGuigne to Duane Court				269	67	25%	269	67	25%

PM COUNTS	EASTBOUND			WESTBOUND			EAST/WESTBOUND		
	Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand		Off Street Parking Capacity	Off Street Parking Demand	
Street Segment	No.	No.	%	No.	No.	%	No.	No.	%
21:00-22:00									
Fair Oaks to San Juan	80	42	53%	27	16	59%	107	58	54%
San Juan to DeGuigne	1196	60	5%	97	80	82%	1293	140	11%
DeGuigne to Duane Court				269	74	28%	269	74	28%





Draft Bicycle and Pedestrian Advisory Commission
Meeting Minutes of July 18, 2013



**For Bicycle and Pedestrian Advisory
Commission Review on July 18, 2013**

Council Meeting: August 13, 2013

**SUBJECT: Discussion and Possible Action Regarding Mary Avenue
Street Space Allocation Study**

BACKGROUND

A segment of Mary Avenue from Fremont Avenue to Maude Avenue (Attachment A – Location Map) is the subject of a street space allocation study to consider the addition of bike lanes to the roadway. The City Council directed that a study of the provision of bike lanes along Mary Avenue be a high priority, and grant funding was subsequently secured to conduct this study. This section of Mary Avenue currently features multiple travel lanes, a mix of on-street parking on both sides of the street and areas without on-street parking. Consistent with the City's street space allocation policies, staff has conducted a technical analysis of options to meet minimum design standards for motor vehicles, bicycles and pedestrians. Staff also conducted three public outreach meetings. Staff is presenting this information to Council in order for Council to consider whether to change the existing transport mode accommodations to provide bicycle facilities along this section of Mary Avenue.

EXISTING POLICY

General Plan, Land Use and Transportation Element:

LT 5.5D, Maximize the provision of bicycle and pedestrian facilities.

Additional relevant policies can be found in Attachment B

DISCUSSION

In 2008, the City of Sunnyvale adopted a Policy on the Allocation of Street Space and subsequently amended the General Plan to include the Policy on April 28, 2009 (RTC 09-085). The Policy for Allocation of Street Space was initiated by the City's Bicycle and Pedestrian Advisory Commission (BPAC). The goal of the Policy was to provide direction on how to consider all modes of transportation when allocating roadway space, particularly in situations that could require the removal of travel lanes or on-street parking or other roadway reconfigurations because of right-of-way constraints. Consideration of bike lanes was a particular intent of the Street Space Allocation Policy.

Mary Avenue from Fremont Avenue to Maude Avenue currently features a bike route delineated by signs, but there are no bike lanes. Staff and the consultant team considered five design concepts for providing bike lanes.

The characteristics and general actions required to provide bike lanes under the five concepts are summarized as follows:

Concept	Fremont to Evelyn	Evelyn to Central Expressway	Central Expressway to Maude Avenue
Concept 1	Eliminate one travel lane each direction, two-way left turn lane, on-street parking both sides	Convert southbound through lane to right turn lane, substandard bike lane	Minor roadway widening/median modification, sharrows at Central Expressway
Concept 2	Retain travel lanes, eliminate parking one side of the street	Minor roadway, median modifications	Eliminate one travel lane in each direction
Concept 3	Eliminate one travel lane each direction, two-way left turn lane, on-street parking both sides	Convert southbound through lane to right turn lane, modify median, narrow travel lanes	Minor roadway widening, minimum width bike lanes
Concept 3A	Same as 3	Same as 3	Additional widening to provide wide bike lanes
Concept 4	Eliminate one travel lane each direction, two-way left turn lane, on-street parking both sides	Convert southbound through lane to right turn lane, widen roadway, narrow lanes	Eliminate one travel lane in each direction, provide buffered bike lanes

Typical sections for concepts 1-4 are presented in Attachment C; drawings are too large to present in the written staff report but can be viewed at www.marybikelanes.insunnyvale.com. Staff evaluated roadway geometry, motor vehicle volume and roadway capacity, parking supply and demand, motor vehicle speeds, and collision history for concepts 1, 2, 3, and 4. Staff conducted a more refined operations analysis of the El Camino Real to Evelyn Avenue segment for concepts 2 and 4. Cost was evaluated for all concepts. Possible environmental impacts and budgetary implications were also generally considered. Staff utilized an iterative process by which two concepts were initially produced, reviewed, and presented to the public; these were subsequently modified to produce additional alternatives that addressed issues and ideas raised in the initial review. A final iteration was development of the El Camino Real to Evelyn Avenue operations analysis using a computer simulation.

Generally speaking, the study found that the five concepts are technically feasible without creating significant traffic or parking impacts. Concept 2 proposes to eliminate on-street parking on one-side of Mary Avenue in the Fremont to Evelyn segment. The study found that off-street parking supply is technically sufficient to service the current on-street demand from a purely supply and demand perspective. Concepts 1, 3, and 4 propose to eliminate a travel lane in each direction in the Fremont to Evelyn and Central Expressway to Maude segments. The study found that a travel lane can be eliminated in each direction if the number of travel lanes is kept at the intersections of Evelyn Avenue and El Camino Real, without impacting intersection levels of service.

Because of higher peak hour traffic volumes on the El Camino Real to Evelyn segment, staff conducted more detailed simulation modeling of traffic flow to understand how traffic merging from two lanes to one would behave. The concern was that although intersection capacity at El Camino Real and Evelyn (the two busiest intersections in this segment) would be retained, traffic merging downstream from these locations might queue excessively. This might also create sufficient delay in traffic flow to incite diversion of traffic to other area streets. The simulation modeling was performed for both existing and future year (2020) traffic volumes. The analysis concluded that elimination of a travel lane would function without causing significant delay or back ups into the adjoining intersections. A small amount of traffic diversion could occur, on the order of about 2% of the total traffic volume in the evening peak hour, with most of this traffic diverting to a Mathilda Avenue route. Another phenomenon that could occur would be drivers destined for the neighborhoods adjacent to this segment of Mary Avenue may make turns into the neighborhood sooner than they currently do. This again was a small percentage of vehicles, on the order of 1% of total traffic.

The five concepts are not wedded together across the three distinct roadway segments analyzed. Different concept treatments for the different roadway segments can be mixed and matched.

Three public outreach meetings were held; meeting summaries are included as Attachment D.

ANALYSIS OF CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

An environmental checklist was completed for this project which identified potential environmental impacts. Each impact was studied and if significant, mitigations were identified to address the impacts which render them to a less than significant. The Mitigated Negative Declaration is attached as Attachment E to this RTC which provides a more thorough analysis of each impact, the mitigations which will render those impacts to a less than significant level, and which will be monitored by city staff.

The BPAC considered this item at its July 18, 2013 meeting and voted to ...(Attachment G – Draft Minutes of July 18 BPAC meeting).

FISCAL IMPACT

Approval of street space allocation for bikes will not have an immediate fiscal impact. Funds for construction of a revised roadway configuration have been identified from the Traffic Impact Fee fund but have not been allocated to a specific project. Staff would return to Council for approval of a capital project allocation at such time that Council gives direction to approve an allocation of street space. Per City policy, staff would also pursue outside grant funding to supplant City impact fee funds.

PUBLIC CONTACT

Public contact was made by posting the Council agenda on the City's official-notice bulletin board outside City Hall, at the Sunnyvale Senior Center, Community Center and Department of Public Safety; and by making the agenda and report available at the Sunnyvale Public Library, the Office of the City Clerk and on the City's Web site.

In addition, three public outreach meetings were held. Also, the Bicycle and Pedestrian Advisory Commission held public hearings on the Mary Avenue Street Space Allocation Study at its October 21, 2010, March 17, 2011, April 28, 2011, and May 16, 2013 meetings (Attachment F).

ALTERNATIVES

1. Direct staff to allocate street space on Mary Avenue between Fremont Avenue Maude Avenue in order to provide bike lanes utilizing Concept 3 from Fremont Avenue to Evelyn Avenue and Evelyn Avenue to Central Expressway and Concept 4 between Central Expressway and Maude Avenue.
2. Direct staff to allocate street space on Mary Avenue between Fremont Avenue and Maude Avenue in order to provide bike lanes utilizing Concept 3 from Fremont Avenue to El Camino Real, Concept 2 from El Camino Real to Evelyn Avenue, Concept 3 between Evelyn Avenue and Central Expressway, and Concept 4 between Central Expressway and Maude Avenue.
3. Direct staff to implement a different alternative.
4. Direct staff to make no changes from the existing configuration.
5. Certify the Mitigated Negative Declaration for a Mary Avenue Bike Lanes project.

RECOMMENDATION

As a result of the evaluation, staff is recommending Alternatives No. 2 and No. 5: Direct staff to allocate street space on Mary Avenue between Fremont Avenue and Maude Avenue in order to provide bike lanes utilizing Concept 3 from Fremont Avenue to El Camino Real (eliminate one travel lane in each direction, add a two-way left turn lane, retain parking on both sides of the street), Concept 2 from El Camino Real to Evelyn Avenue

(retain travel lanes, eliminate parking on the west side of Mary Avenue), Concept 3 between Evelyn Avenue and Central Expressway (convert right turn lane, narrow lanes, narrow median) and Concept 4 between Central Expressway and Maude Avenue (eliminate one travel lane in each direction, provide buffered bike lanes), and certify the mitigated negative declaration.

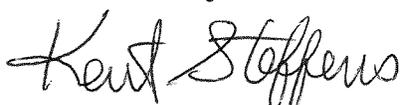
Alternative 2 provides bike lanes the full length of the study area. Six-foot wide bike lanes can be provided along most of the study area, which is viewed as the safest accommodation for bicyclists, pedestrians and motorists by providing bike lanes of an optimal width as identified by the Santa Clara Valley Transportation Authority Bicycle Technical Guidelines. Providing parking on both sides of the street between Fremont Avenue and El Camino Real reduces the need for people to walk across the street to access adjacent single family homes and avoids potential discrepancies between single family home driveway supply and observed demand. This also avoids elimination of on-street parking at Sunnyvale Middle School, which hosts weekend youth sports and other school-related activities and their associated parking demand. The two-way left-turn lane installation between Fremont Avenue and El Camino Real provides a refuge for left turning traffic which reduces conflicts and delays; and provides parking lanes that exceed minimum dimensional standards. Traffic levels-of-service are maintained above City standards by retaining capacity at key intersections. Construction work is limited to minor modification of median islands, roadway re-striping, and traffic signal detection adjustments. Between Central Expressway and Maude Avenue, removal of one travel lane allows for bike lane and travel lane widths that exceed minimum standards, minimizes construction cost, and eliminates the interaction of bicycles with the gutter.

Between El Camino Real and Evelyn Avenue, staff is recommending retaining two travel lanes in each direction and removing on-street parking on the west side of the roadway. The volumes of traffic on Mary Avenue north and south of El Camino distinctly vary, being significantly lower south of El Camino. The nature of traffic is much more localized as well, as Mary Avenue south of El Camino primarily serves traffic destined to the adjacent residential neighborhoods, while north of El Camino Mary Avenue carries more through traffic connecting to Central Expressway, Evelyn Avenue, and El Camino Real. A significant volume of traffic takes advantage of the Caltrain crossing, as the Caltrain line is a significant impediment to north-south travel in the City. While the computer simulation shows that in concept a reduction in travel lanes with capacity retained at Evelyn and El Camino Real could work without causing significant congestion, staff is concerned that the existing and future condition traffic volumes exceed by 4,000 to 5,000 vehicles the maximum recommended volume for two-lane streets as defined by traffic engineering industry sources. The analysis shows that existing lengthy vehicle queues that occur during parts of the peak traffic hours would continue or be exacerbated by removing travel lanes. Also, the model shows the potential for traffic diversion to neighborhood and other streets.

The City's Street Space Allocation policies contain sometimes conflicting policy regarding roadway capacity considerations, safety, and parking. In some situations, it is not possible to meet all objectives. In this case, providing safe bicycle accommodation is a primary objective of the study. Roadway capacity considerations should not and do not take precedence over providing safe accommodation. Providing for all *transport* modes is a primary objective of the street space allocation policies in general, and parking is not considered a transport mode. The evaluation of parking supply and demand shows a low demand for on-street parking, with the highest demand to be 19 spaces during the weekend day and evening hours out of a total supply of approximately 72 on-street spaces. Available off-street capacity is significant during these times, with over 204 available off-street spaces during the period with the highest on-street parking demand. Land uses in this area are primary multi-family residences and commercial and institutional uses, which have a different roadway frontage character than single family uses and have off-street parking provisions for residents, visitors, customers and users. Because of the availability of significant off-street parking resources to service the on-street demand, staff believes retaining two travel lanes and eliminating on-street parking on the west side of Mary Avenue is the most technically prudent and feasible means to provide safe accommodation for all transport users.

Certifying the Mitigated Negative Declaration provides environmental clearance for the project, addresses potential environmental impacts and allows the project to move to the final design and construction phase.

Reviewed by:



Kent Steffens, Director, Public Works

Prepared by: Jack Witthaus, Transportation and Traffic Manager

Approved by:



Gary M. Luebbers, City Manager

ATTACHMENTS

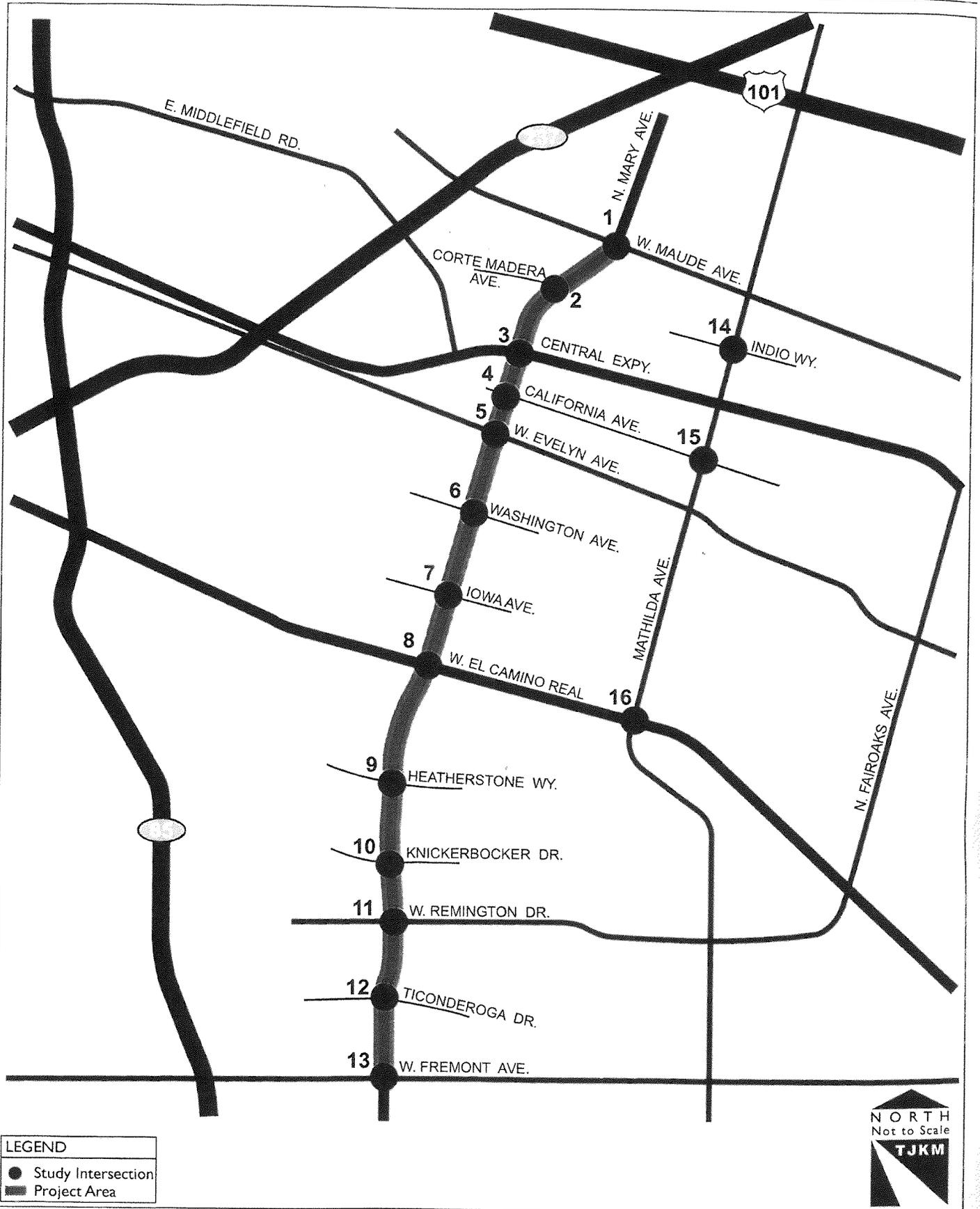
- A. Project Location Map
- B. Existing Policies
- C. Street Space Allocation Concepts Typical Sections
- D. Public Meeting Summaries
- E. Mitigated Negative Declaration
- F. Excerpts from Various BPAC Meeting Minutes
- G. Draft Minutes of the July 18 BPAC Meeting

Mary Avenue Street Space Allocation Study

ATTACHMENT A PROJECT LOCATION MAP

City of Sunnyvale – Mary Avenue Street Space Allocation Study – Alternatives Traffic Operations Analysis Figure 1
 Project Study Corridor

1



LEGEND
 ● Study Intersection
 ■ Project Area

NORTH
 Not to Scale
 TJKM

EXISTING POLICY

General Plan, *Land Use and Transportation Element*:

Policy LT 5.9 Appropriate accommodations for motor vehicles, bicycles, and pedestrians shall be determined for City streets to increase the use of bicycles for transportation and to enhance the safety and efficiency of the overall street network for bicyclists, pedestrians, and motor vehicles.

Policy LT 5.10 All modes of transportation shall have safe access to City streets.

Policy LT 5.12 City streets are public space dedicated to the movement of vehicles, bicycles and pedestrians. Providing safe accommodation for all transportation modes takes priority over non-transport uses. Facilities that meet minimum appropriate safety standards for transport uses shall be considered before non-transport uses are considered.

Policy LT 5.13 Parking is the storage of transportation vehicles and shall not be considered a transport use.

Policy LT 5.14 Historical precedence for street space dedicated for parking shall be a lesser consideration than providing street space for transportation uses when determining the appropriate future use of street space.

Policy LT 5.16 When decisions on the configuration of roadway space are made, staff shall present options, including at a minimum an option that meets minimum safety -related design standards for motor vehicles, bicycles and pedestrians.

Policy LT 5.17 Bike retrofit projects shall be evaluated based on the merits of each project in the context of engineering and planning criteria.

- **LT 5.17a** The City shall maintain engineering and planning criteria with respect to roadway geometry, collisions, travel speed, motor vehicle traffic volume, and parking supply and demand (on and off street) to guide decisions on the provision of bike lanes.

Policy LT 5.18 The City Council shall make the final decisions on roadway space reconfiguration when roadway reconfiguration will result in changes to existing accommodations.

Policy LT 5.19 Public input on roadway space reconfiguration shall be encouraged and presented independently of technical engineering and planning analyses.

Policy LT 5.21 Safety considerations of all modes shall take priority over capacity considerations of any one mode.

- **LT 5.21a** For each roadway space retrofit project, a bike and pedestrian safety study shall be included in the staff report to evaluate the route in question.

Mary Avenue Street Space Allocation Study

Typical Street Cross-Sections

Concept 1

Fremont Avenue to Evelyn Avenue

Evelyn Avenue to Central Expressway

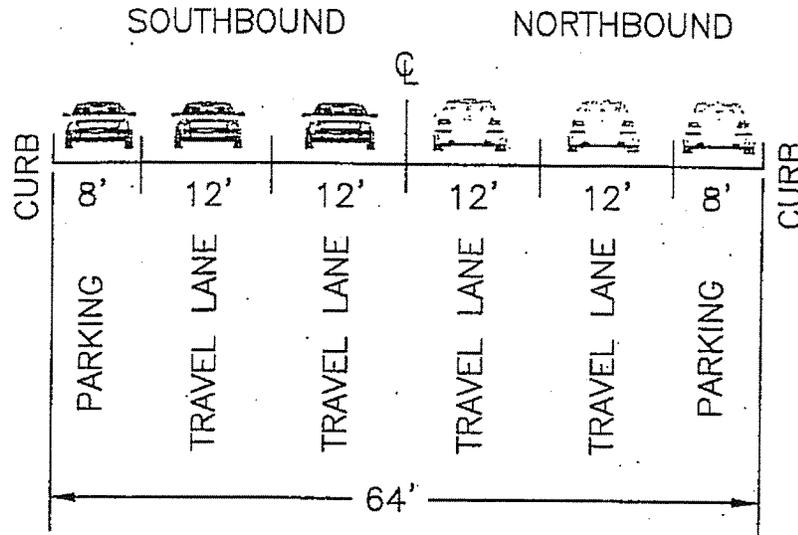
Central Expressway to Maude Avenue

Concept 1

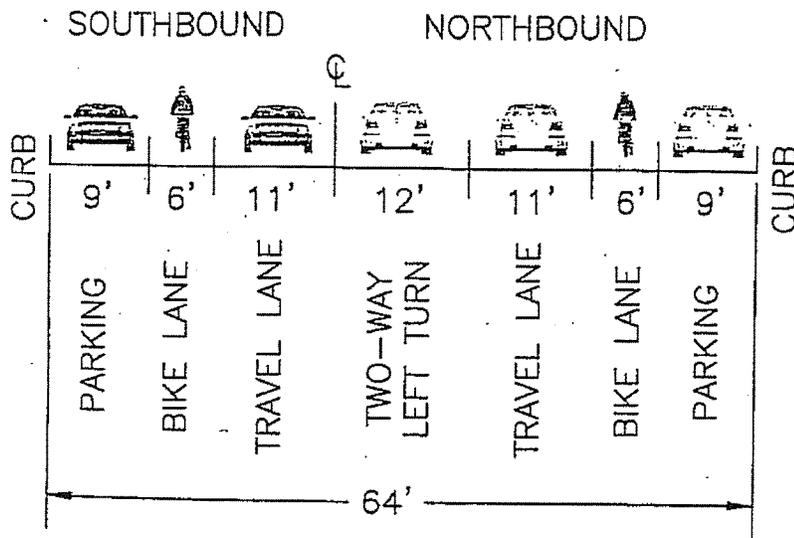
Fremont Avenue to Evelyn Avenue

NOT TO SCALE

EXISTING:



PROPOSED:

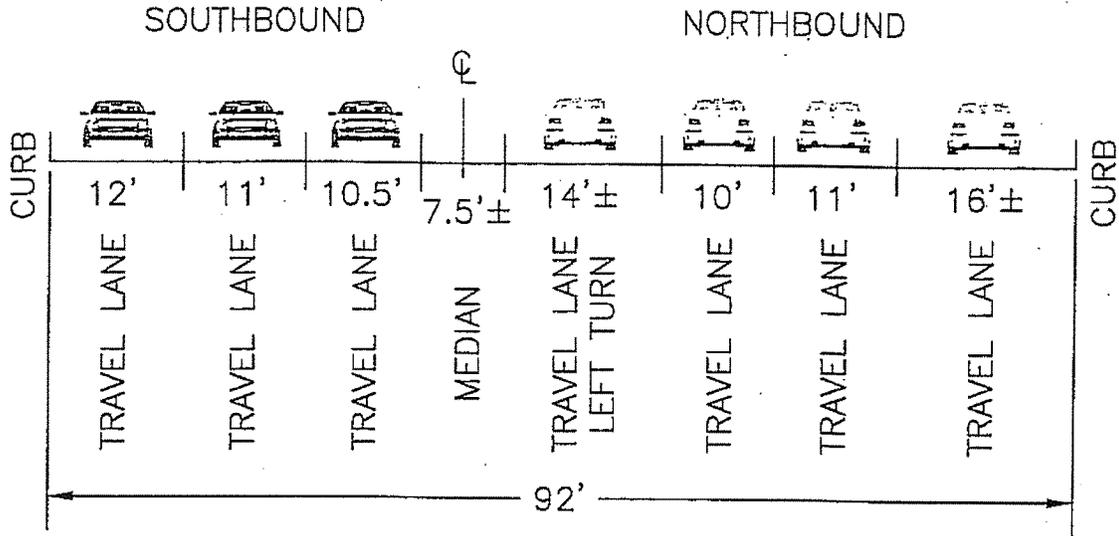


Concept 1

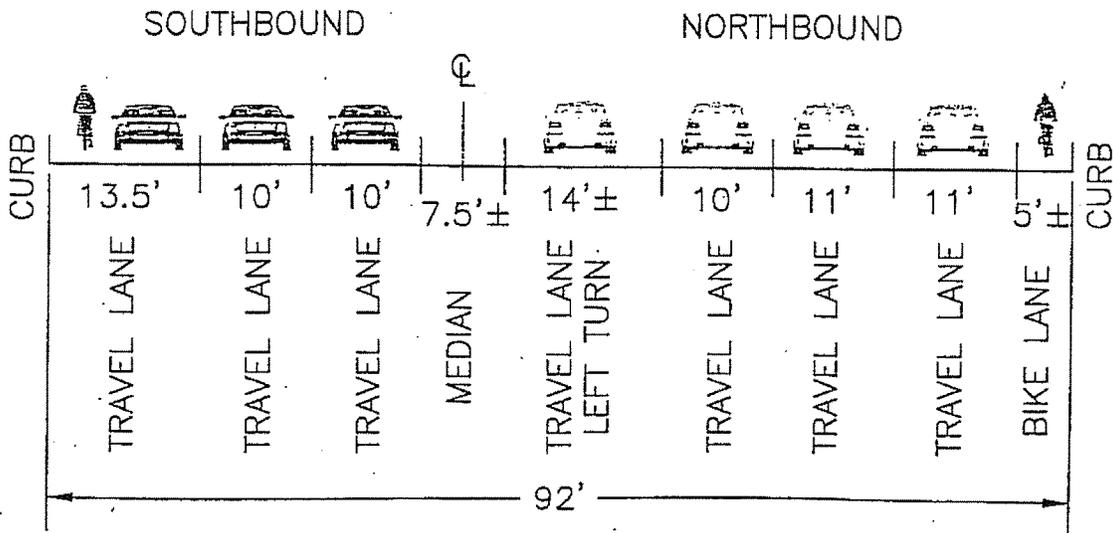
Evelyn Avenue to Central Expressway

NOT TO SCALE

EXISTING:



PROPOSED:

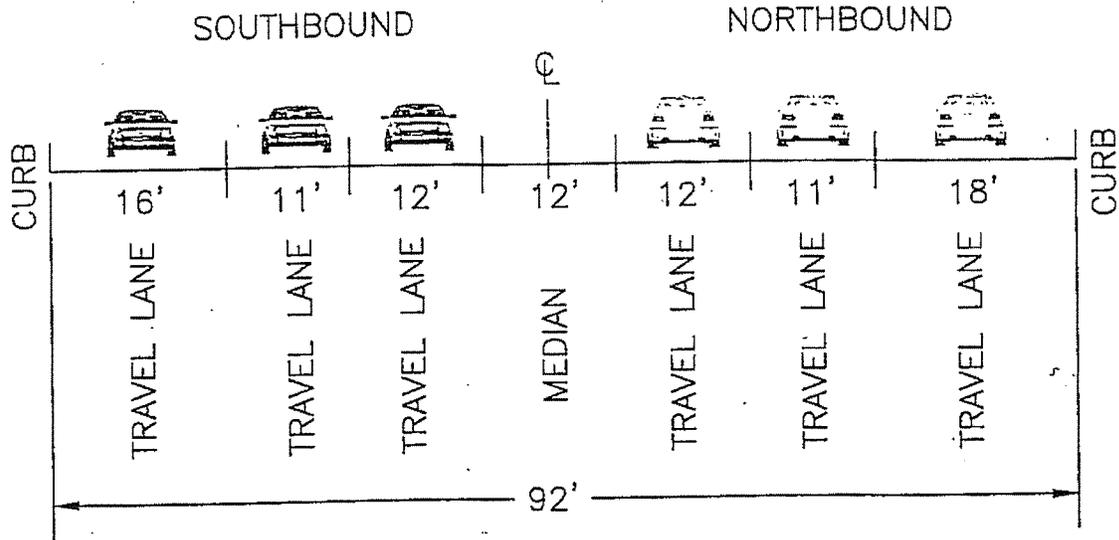


Concept 1

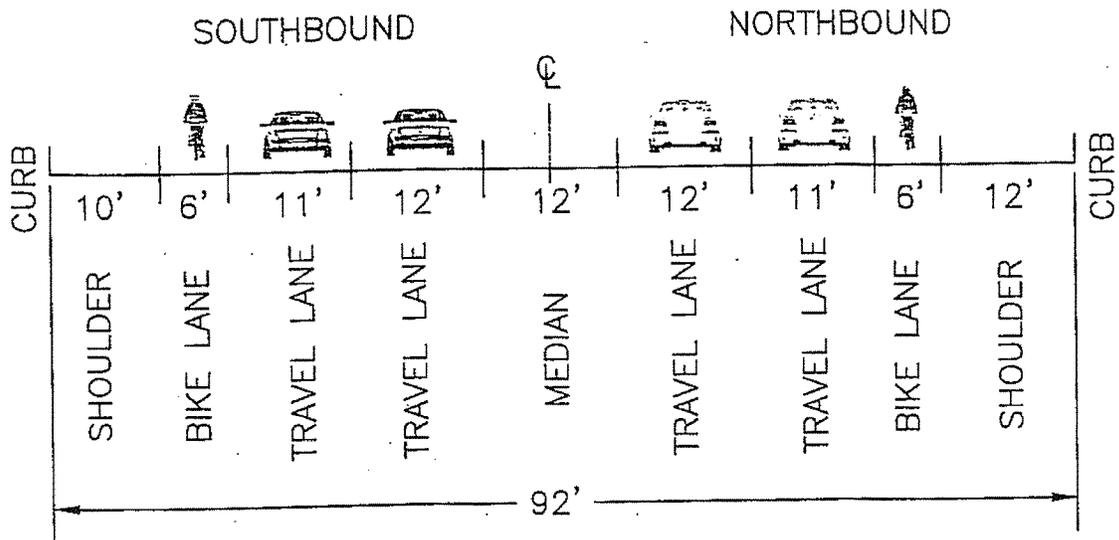
Central Expressway to Maude Avenue

NOT TO SCALE

EXISTING:



PROPOSED:



Concept 2

Fremont Avenue to Evelyn Avenue

Evelyn Avenue to Central Expressway

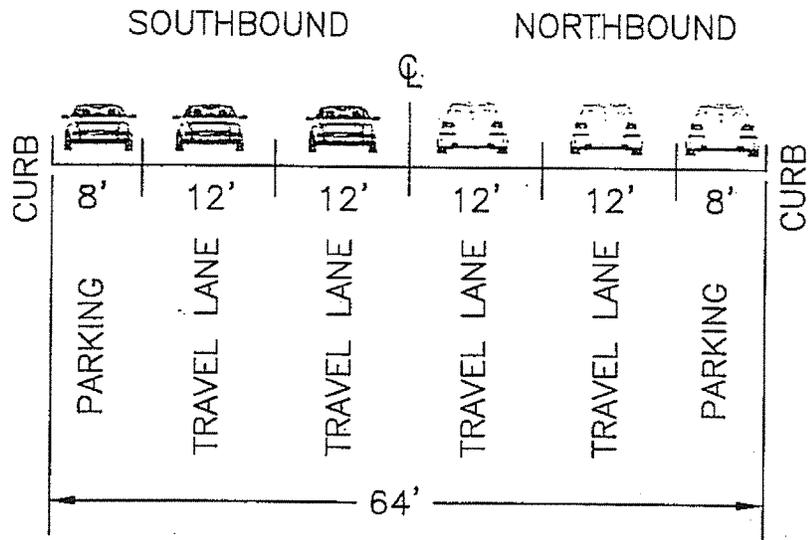
Central Expressway to Maude Avenue

Concept 2

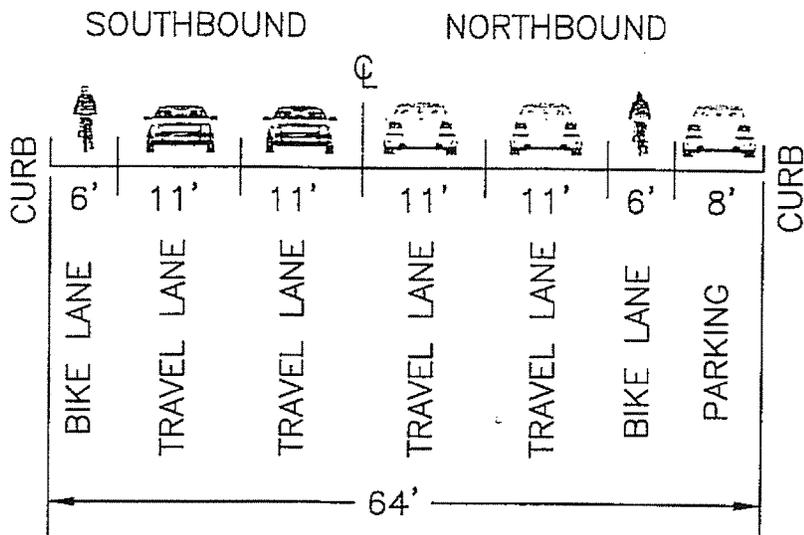
Fremont Avenue to Evelyn Avenue

NOT TO SCALE

EXISTING:



PROPOSED:

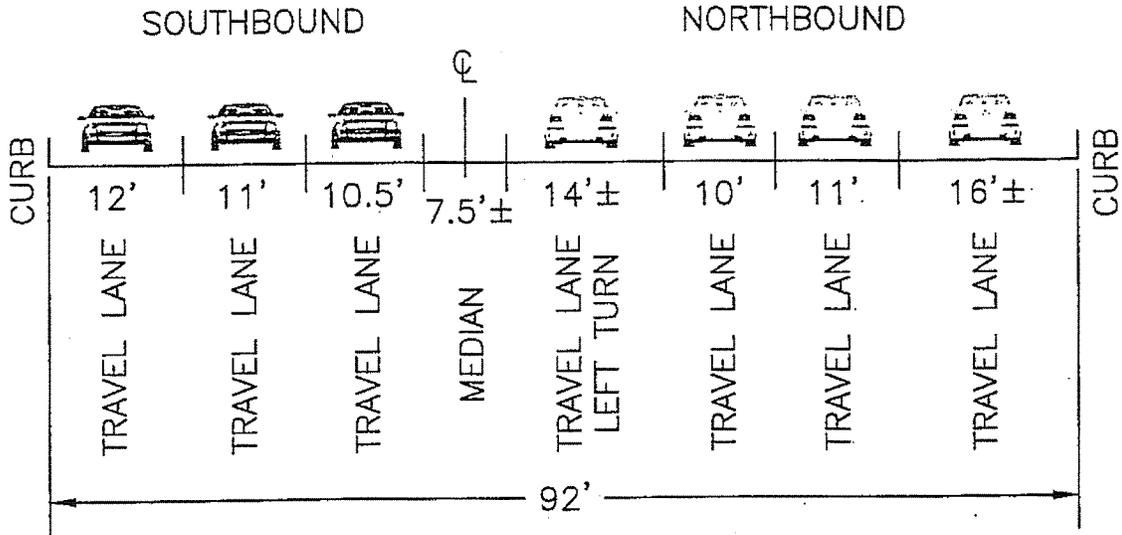


Concept 2

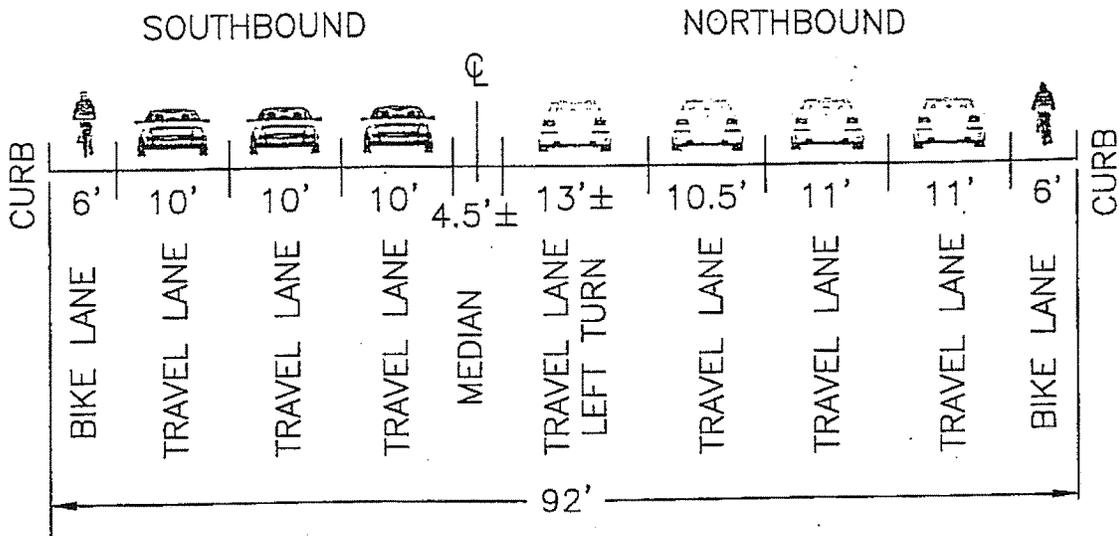
Evelyn Avenue to Central Expressway

NOT TO SCALE

EXISTING:



PROPOSED:

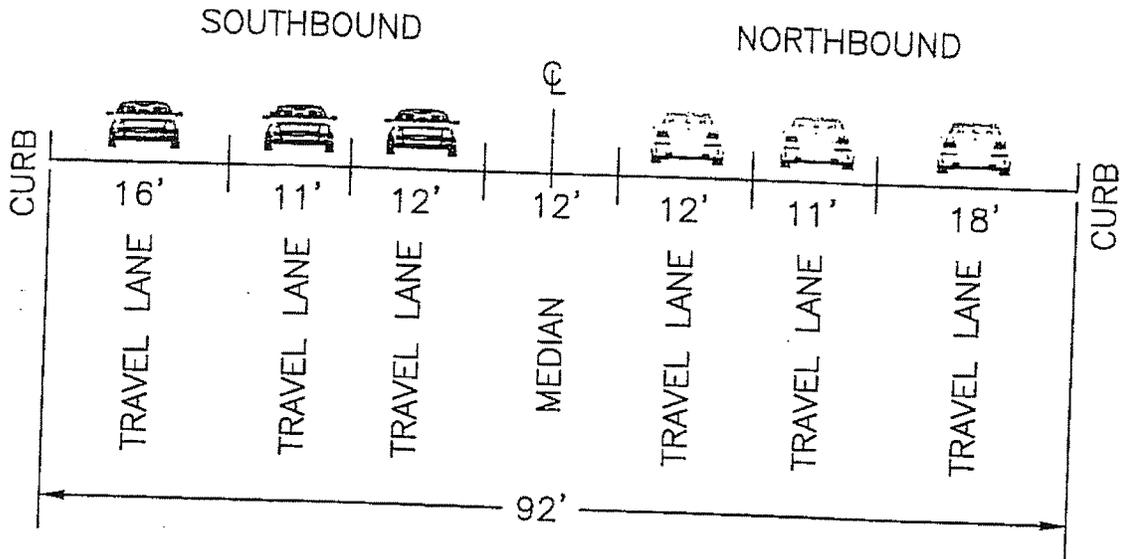


Concept 2

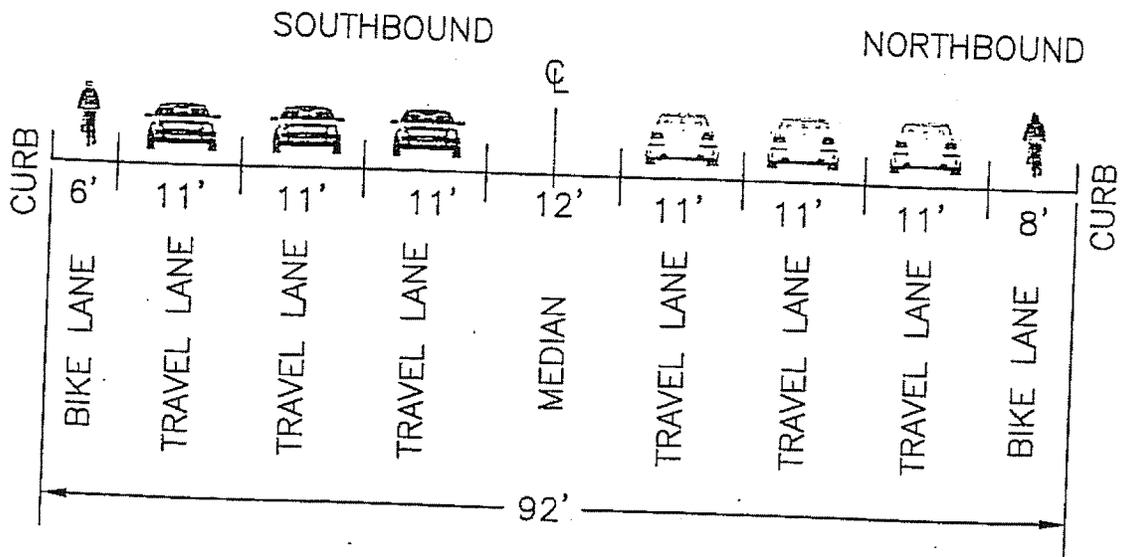
Central Expressway to Maude Avenue

NOT TO SCALE

EXISTING:



PROPOSED:



Concept 3

Fremont Avenue to Evelyn Avenue

Evelyn Avenue to Central Expressway

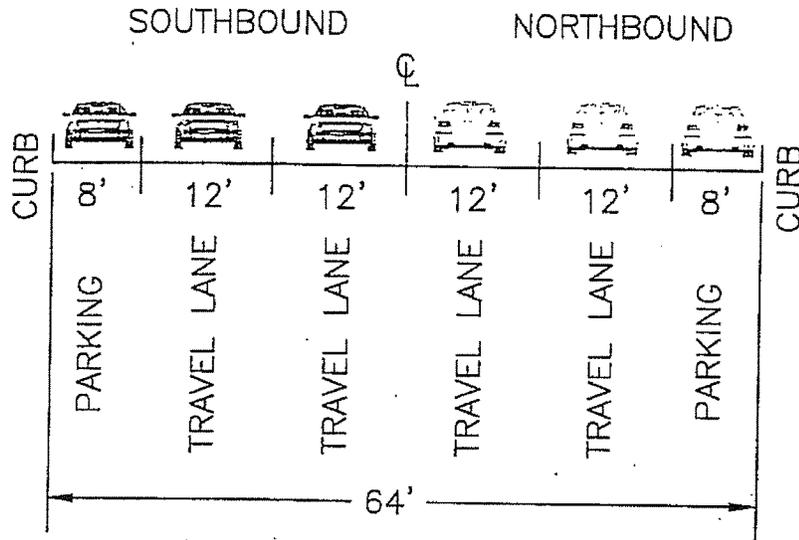
Central Expressway to Maude Avenue

Concept 3

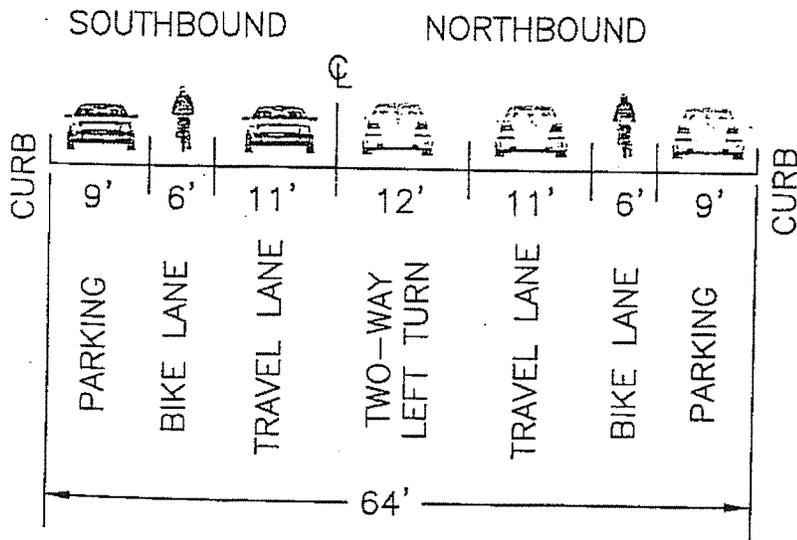
Fremont Avenue to Evelyn Avenue

NOT TO SCALE

EXISTING:



PROPOSED:

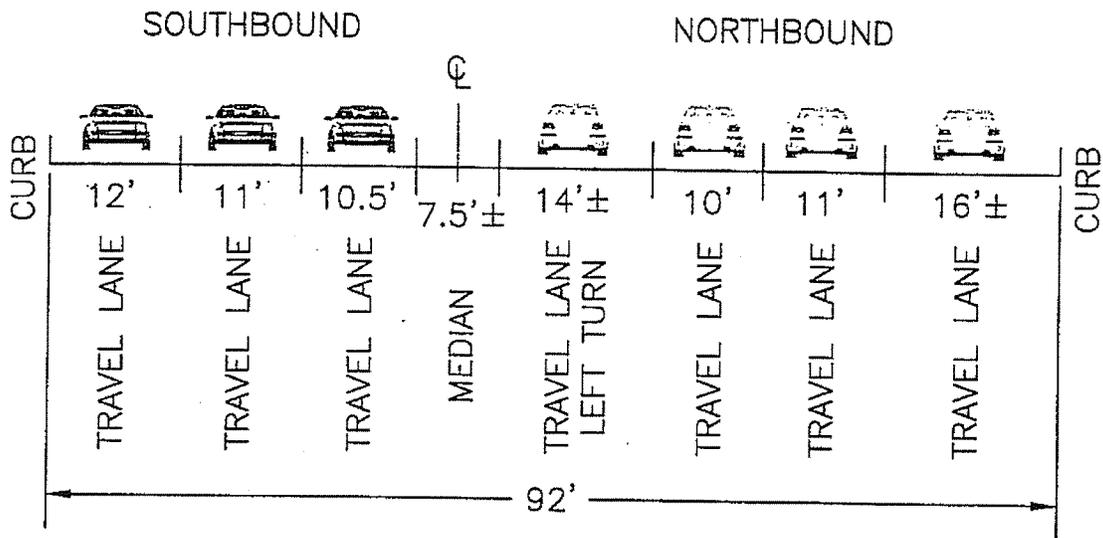


Concept 3

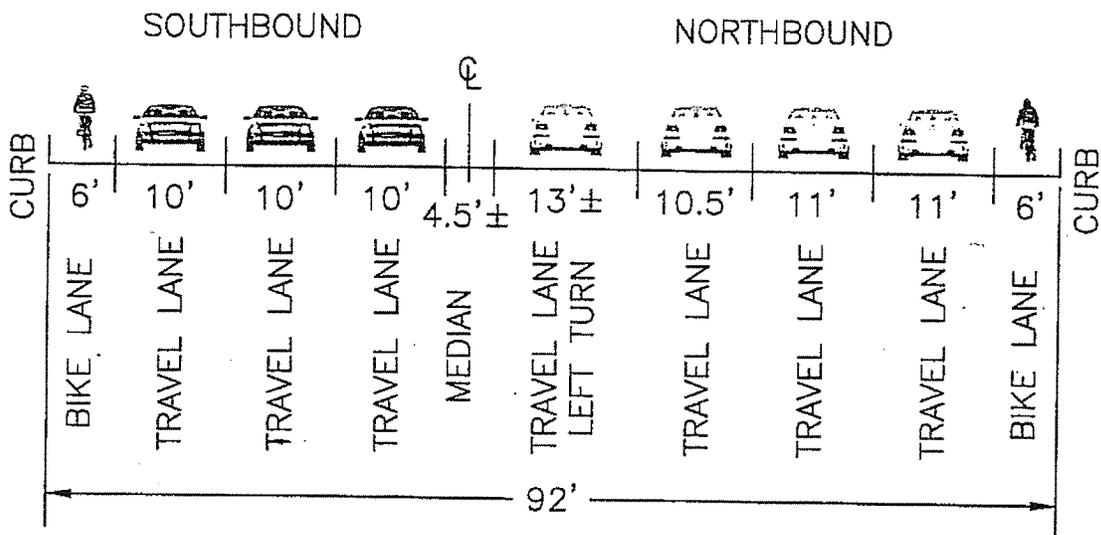
Evelyn Avenue to Central Expressway

NOT TO SCALE

EXISTING:



PROPOSED:

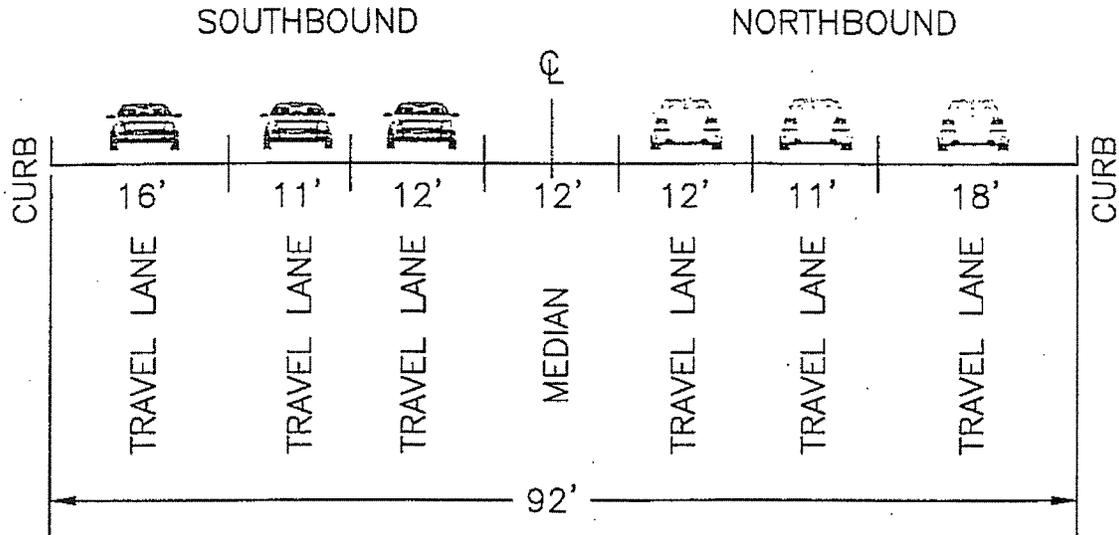


Concept 3

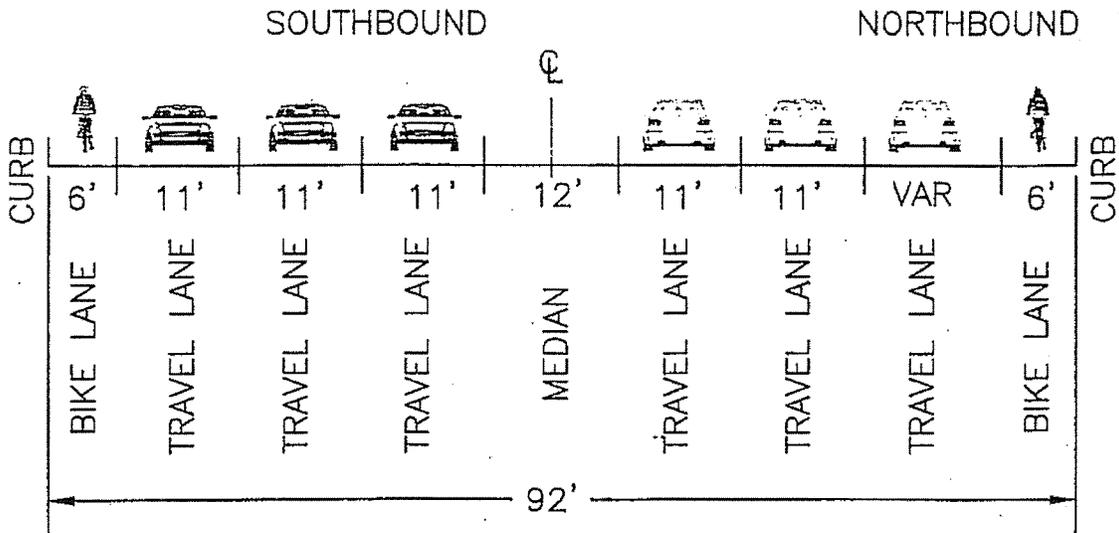
Central Expressway to Maude Avenue

NOT TO SCALE

EXISTING:



PROPOSED:

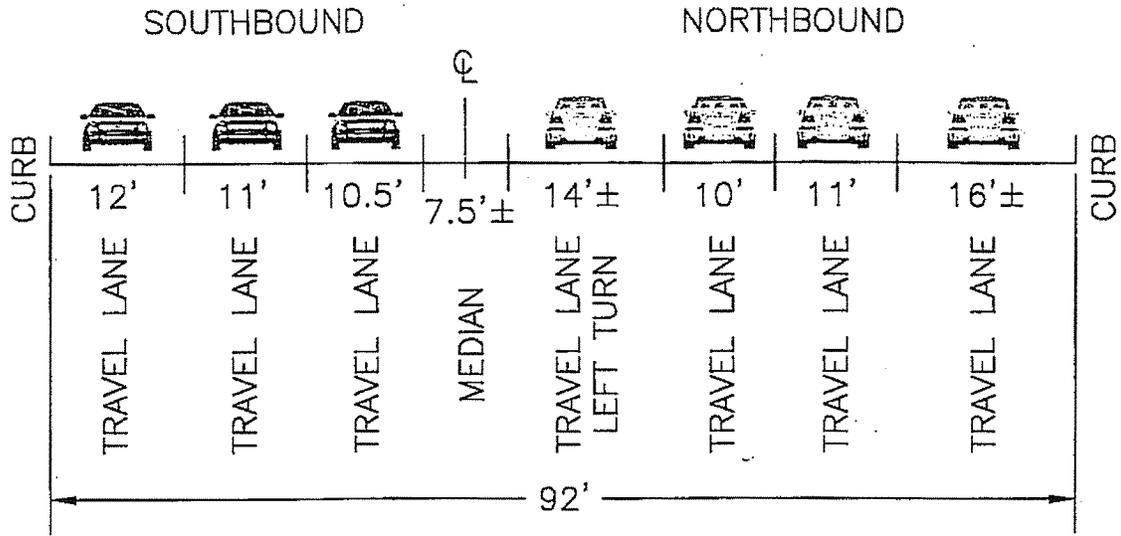


Concept 4

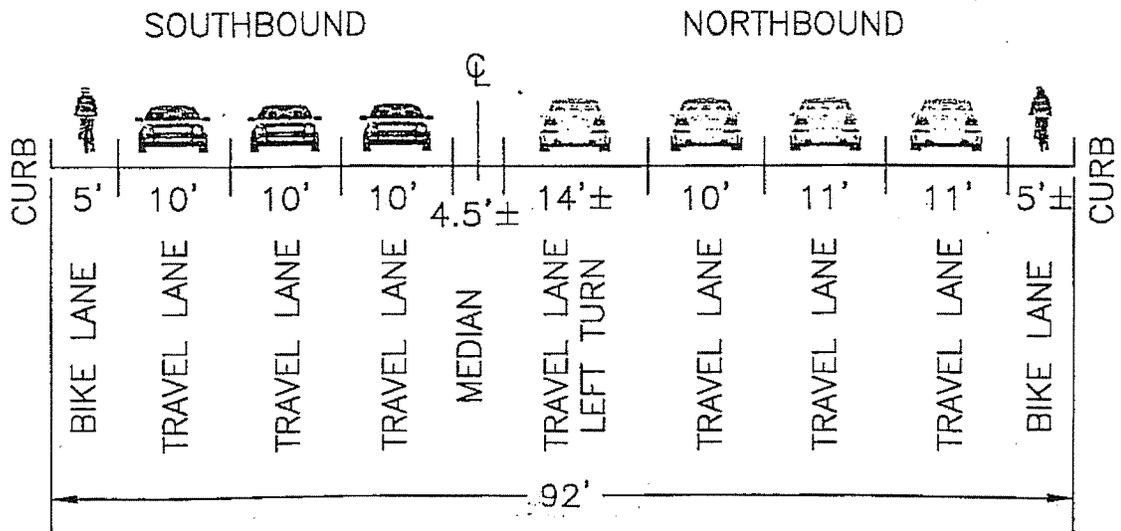
Evelyn Avenue to Central Expressway

NOT TO SCALE

EXISTING:



PROPOSED:



Concept 4

Fremont Avenue to Evelyn Avenue

Evelyn Avenue to Central Expressway

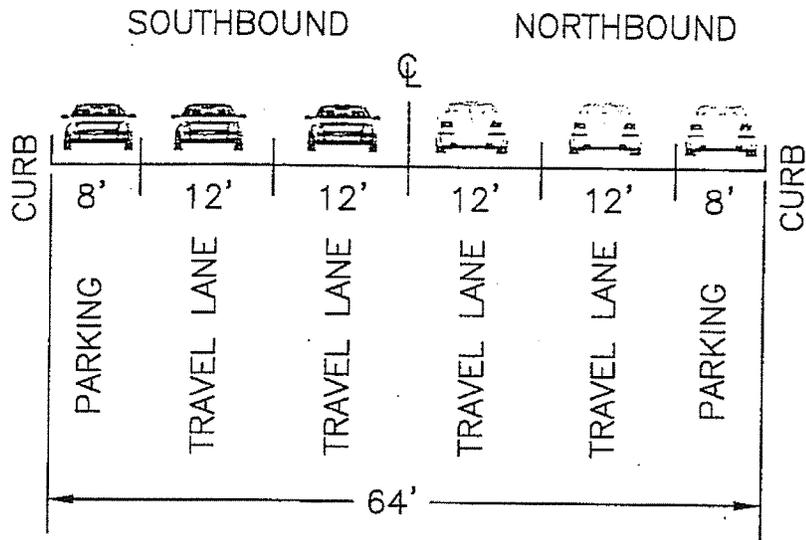
Central Expressway to Maude Avenue

Concept 4

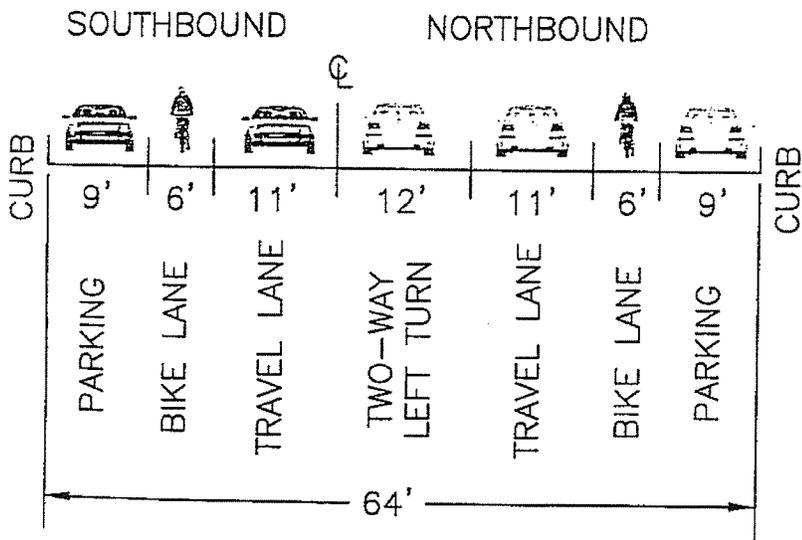
Fremont Avenue to Evelyn Avenue

NOT TO SCALE

EXISTING:



PROPOSED:

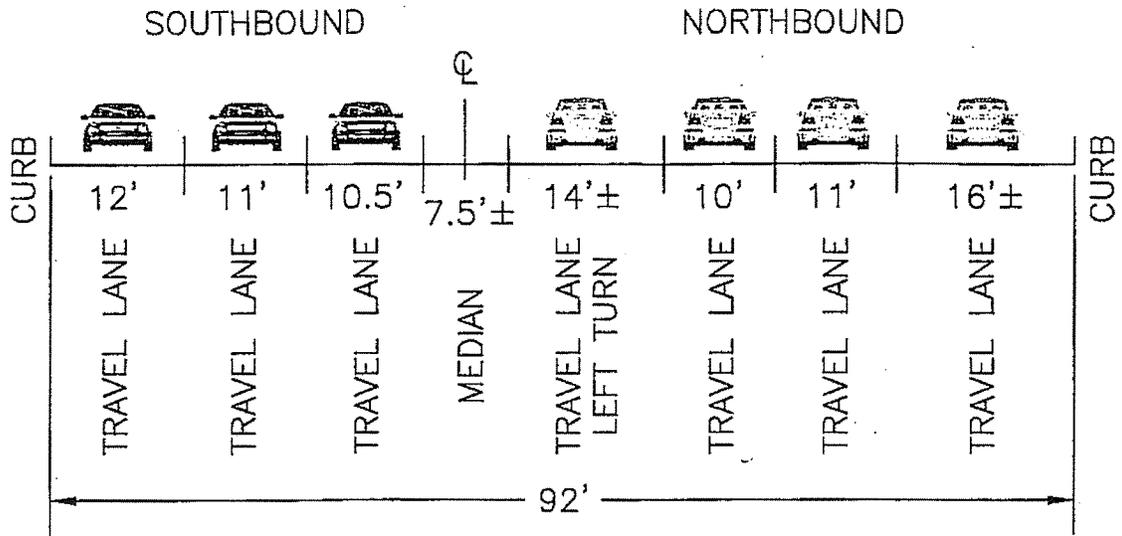


Concept 4

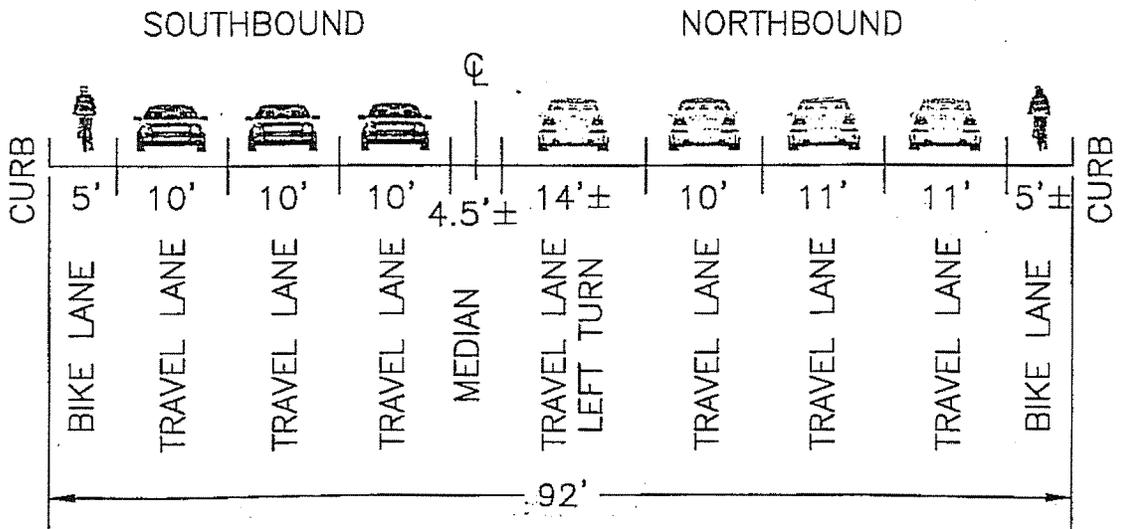
Evelyn Avenue to Central Expressway

NOT TO SCALE

EXISTING:



PROPOSED:

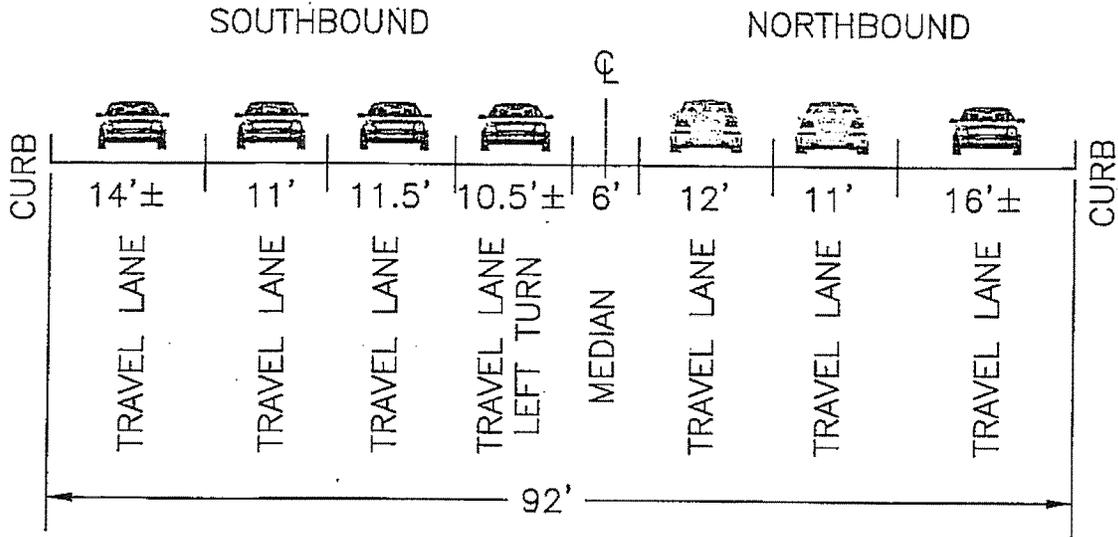


Concept 4

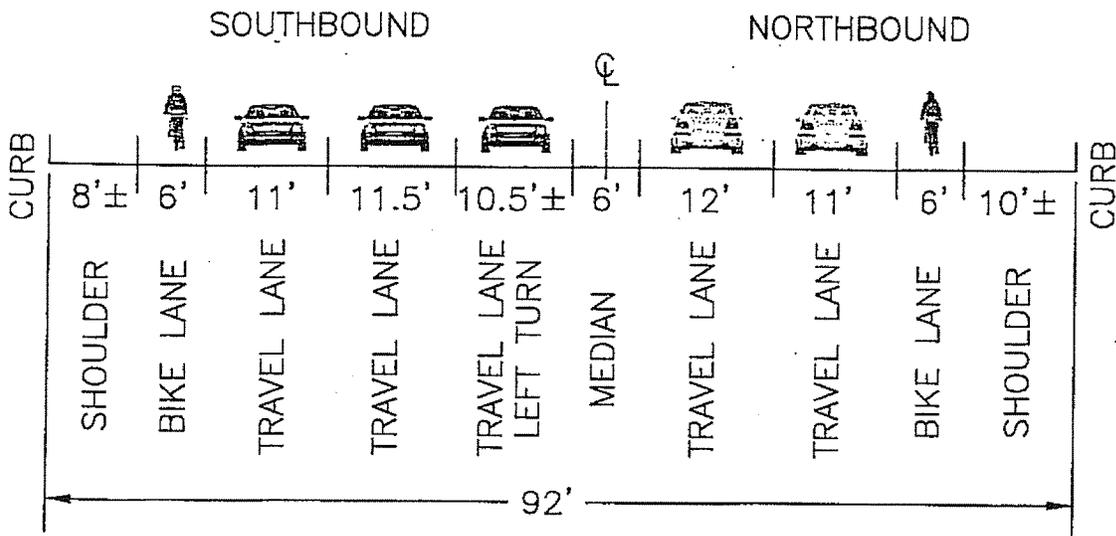
Central Expressway to Maude Avenue

NOT TO SCALE

EXISTING:



PROPOSED:



Mary Avenue Street Space Allocation Study

Public Meeting Summaries and Comments

TABLE OF CONTENTS

- I. PROJECT DESCRIPTION**
- II. PROJECT NOTICING AND PUBLICITY**
- III. PUBLIC MEETING**
- IV. COMMENT SUMMARY**
- V. APPENDIX**

- **Public Signs along Project Area**
- **E-blast Announcement**
- **Webpage on City of Sunnyvale Website**
- **Meeting Materials**
- **Sign-In Sheets**
- **Comment Forms**

I. PROJECT DESCRIPTION

The Mary Avenue Street Space Allocation Study will look at different ways to accommodate motor vehicles, bicycles, pedestrians and transit along Mary Avenue between Fremont and Maude Avenues. The study will apply the City's Policy for the Allocation of Street Space, which promotes the continued planning, design and construction of a comprehensive citywide bikeway network. Application of this policy will be integral to the evaluation of street configuration design alternatives proposed under this Study.

The goal of the study is to develop a street design that will promote safer and more convenient access for all road users, including bicyclists, in accordance with the City of Sunnyvale Bicycle Plan and Policy for the Allocation of Street Space. Such a design may include the provision of bicycle lanes and removal of parking along certain portions of the Study corridor.

II. PROJECT NOTICING AND PUBLICITY

With the development of preliminary design alternatives for reallocating road space on Mary Avenue developed by the City's transportation consultant, as well as proposed evaluation criteria to be applied to these alternatives, the project team made an effort to seek and collect public feedback on the project.

First Public Meeting: October 13, 2010

The City of Sunnyvale hosted a meeting for interested members of the public on October 13, 2010, from 7 p.m. to 9 p.m. at the Washington Park Building in Sunnyvale, Calif. The meeting was publicized to the broader public, through a webpage on the City of Sunnyvale's website, signs, flyers mailed to residents in the project boundary area, and an e-blast sent to the City of Sunnyvale's contact database.



- Public mailers were sent to households on Mary Avenue in the project area
- Email notice distributed to the City's community email list
- Meeting notices were posted on the City of Sunnyvale's website
- Display signs placed along Mary Avenue in the project area

III. PUBLIC MEETING

Public Meeting: September 15, 2010

A public meeting was hosted on October 13, 2010, from 7 p.m. to 9 p.m. at the Washington Park Building in the City of Sunnyvale. The purpose of the meeting was to present preliminary design alternatives for reallocating road space on Mary Avenue developed by the City's transportation consultant, as well as proposed evaluation criteria to be applied to these alternatives. The meeting provided an opportunity for interested community members to review the preliminary alternatives, share comments and suggestions, and provide feedback to the project team. It also provided participants a chance to ask questions regarding project and timeline, and project information, including maps of the alternatives, was available.



The project team provided copies of the meeting agenda and comment forms at the welcome table, where attendees were asked to sign in. Approximately 40 interested community members attended, based on sign-in sheets.

The meeting began with an open house at 7 p.m. Community members reviewed wall-mounted maps displaying the concept design alternatives for three separate roadway segments. Team members were available to answer questions during this open house period. A formal project presentation began at 7:30 p.m., followed by a Q&A/comments period with the community members in attendance. The open house resumed at 8:45 p.m. until meeting adjournment at 9 p.m.

IV. COMMENT SUMMARY

The project team received feedback in a variety of ways. During the open house, the team spoke with several community members and corridor users, answering questions and discussing specific comments with respect to the displayed design alternatives. The team also recorded community comments on flip charts during the question-and-answer period, and comment forms were provided for residents to submit their feedback in writing either during the meeting, or for mailing or e-mailing afterwards. A mailing address and e-mail address were provided to interested community members for this purpose. All mailed and e-mailed input was requested by the end of October to allow adequate time for the information to be considered as part of the development of a preferred alternative.

Following is an overview of the key issues and comments raised during the meeting, as well as comments received via the written forms. Copies of all written comments received at the meeting are included in the appendix.

Summary of written comments and issues by segment

- The majority of comments reflect a preference on Segment 1 for Alternative 1, because it seems to provide a greater level of safety for pedestrians, bicyclists and motorists. Also,

the two-way left-turn lane calms traffic, facilitates residents' left turns into driveways, and retains parking for residents.

- Comments show that Segment 1, Alternative 2 is not preferred because while it solves the bike lane issue, taking away parking on one side of the road creates a perceived dangerous situation for residents or visitors who have to park on one side of the street and cross to get to a residence. Also, it continues the perceived unsafe condition of turning left into driveways across two lanes of opposing traffic and blocking trailing through traffic. Others believe the four-lane cross-section encourages speeding.
- The majority of comments show that on Segment 2, Alternative 1 is the preferred alternative. However, some concerns were raised over safety for bicyclists, particularly where they would have to share a curb travel lane with motorists.
- Comments on Segment 3 showed that there is concern over bikes sharing curb lanes with cars due to safety issues, particularly near the Central Expressway and Maude Avenue intersections.

Summary of written comments on evaluation criteria

- Comments indicate safety is the number one priority. Provision of continuous bicycle lanes throughout segments was the next closest priority. Traffic calming, maintenance of existing parking supply, home values, and economic impacts were also mentioned as considerations.

Summary of general comments during the Q&A session

- Key issues for residents included safety while parking or exiting driveways along Mary Avenue, concern with bicyclists on sidewalks, difficulty in crossing the street if parking only allowed on one side (Segment 1, Alternative 2), and desire for traffic analysis for possible lane reduction and future Mary Avenue extension
- Key issues for bike lanes include safety where proposed bike lane width is less than 6 feet, use of sharrows instead of bike lanes (especially on Segments 2 and 3), alternating lane alignment from one side to the other, and need to traverse between travel lanes at intersections.
- Members of the public asked about potential sources of funding for the project
- Several comments addressed the traffic counts, including the time of year that they were collected, during which peak-hour periods, and their duration. Others asked whether existing bicycle counts on Mary Avenue were taken.
- Most comments concerning sharrows were against their use. Many believe that sharrows are not safe and are generally not a good idea to include in the plan.
- Members of the public generally felt that taking away on-street parking along Mary Avenue is undesirable
- Some participants asked whether potential redistributive traffic effects were studied for the existing Mary Avenue road diet located south of Fremont Avenue.
- Some comments were made concerning the existing pavement condition on Mary Avenue, and whether bicycle project implementation would include improving the pavement surface.
- Bicycle lanes less than 5 feet wide were not considered desirable.

IV. PROJECT STATUS/NEXT STEPS

Community feedback on proposals and evaluation criteria from the first public meeting will continue to be collected following this first public meeting. The project will be presented to the Bicycle and Pedestrian Advisory Committee (BPAC) on October 16, 2010, including an overview of key technical aspects and also issues raised during the public meeting. The project team will finalize proposals based on technical data and informed by community feedback. A second community meeting will be held in early 2011 to present revised plans and gather additional community feedback.