

Valencia Street Bicycle Lanes

A One Year Evaluation

Submitted by:

The Department of Parking and Traffic

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EXECUTIVE SUMMARY

On November 6, 1998 the Board of Supervisors approved Resolution 892-98 authorizing the striping of bicycle lanes on Valencia Street. In March 1999, the bike lanes were striped, changing the street from four-lanes to two-lanes with bike lanes and a median lane for left turns. Please see Appendix A for a map of the project area.

This one-year report to the Board of Supervisors has been prepared as a requirement of Resolution 892-98.

This report provides travel data for the five arterials in the area before and after the bike lane installation, with emphasis on Valencia Street. Collision data and Average Daily Traffic (ADT) volumes for South Van Ness Avenue, Mission, Valencia, Guerrero, and Dolores Streets are compared. Sections discussing bicycle traffic and public response are also included.

A summary of the report's findings follows:

- Bicycle usage on Valencia Street increased 144 percent during the PM peak hour.
- Motor vehicle traffic dropped by 10 percent on Valencia Street and redistributed to parallel arterials.
- There was no statistically significant change in the number of collisions on Valencia Street or the four parallel arterials in the period before and after the bicycle lanes were installed.
- Muni has voiced concerns about routing cyclists along bus routes and reducing the number of traffic lanes on transit streets.
- Public response has been positive.

Based on the findings of this report, the Department of Parking and Traffic recommends permanently legislating the bicycle lanes.

BACKGROUND

Prior to 1997, Valencia Street was a four-lane street with a five-foot wide painted median and concrete islands at the intersections. To improve conditions for cyclists, the median was removed, median island traffic signals were replaced with sidewalk mast-arm signals, and space was added to the outside travel lanes in March 1997 in conjunction with the signal visibility upgrade project. However, there was still insufficient room to install bicycle lanes without removing traffic lanes.

After a series of community meetings and public hearings and with the support of then-Supervisor Jose Medina and the San Francisco Bicycle Coalition, Resolution 892-98 (November 6, 1998), which called for the removal of two travel lanes and the installation of bicycle lanes and a median lane for left turns, was unanimously approved. In March of 1999, work was completed on Valencia Street, resulting in the following dimensions:

	7'		6'9"		10'6"		14'		10'6"		6'9"		7'	
	parking		bike		travel		median		travel		bike		parking	
	lane		lane		lane		lane		lane		lane		lane	

Total Width of 62'6"

Please see Appendix B for a timeline of changes to Valencia Street.

This report documents the changes that have occurred to motor vehicle, bicycle, and pedestrian traffic along Valencia Street and surrounding streets as a result of the redesign. It presents a breakdown of collisions along Valencia Street before and after the bicycle lanes, including collision rates and the number of collisions involving bicycles and pedestrians. Also included are ADT volumes for South Van Ness Avenue, Mission, Valencia, Guerrero, and Dolores Streets, along with a discussion of public response.

WHY VALENCIA STREET?

Some people question the choice of routing cyclists along a commercial street with transit and have inquired about the suitability of parallel streets for bike lanes.

Valencia Street, even prior to any bicycle facility improvements, is the route chosen by cyclists through the western half of the Mission District. It is the first flat north-south street east of Twin Peaks and provides a direct and easily rideable connection between San Jose Avenue (and the neighborhoods south of Diamond and Bernal Heights) and Market Street. While Valencia Street serves as a major corridor for cyclists, it is also a destination for people wishing to shop, dine, or visit one of the many commercial establishments.

Dolores and Guerrero Streets to the west of Valencia Street are hilly. Mission Street (designated a Transit Preferential Street with a heavy bus presence) and South Van Ness

Avenue (with its freeway on-ramp and heavy traffic near Market Street) are less attractive arterials to the east. The connection to South Van Ness Avenue and Mission Street for cyclists traveling eastbound on Market Street is poor as it is illegal to make a left turn from Market Street onto these streets. Market Street is the city's most heavily used corridor by cyclists. A good connection from Market Street to the north-south corridor through the Mission District is preferable.

BICYCLE TRAFFIC

Bicycle volumes on Valencia Street during the PM peak hour increased 144 percent, from 88 to 215 bicyclists per hour. The "before" data was collected on "Bike to Work Day" in May 1997 when an entire southbound motor vehicle lane was closed for cyclists. In March 2000, 215 bicyclists were counted on a typical weekday. Given that more cyclists traditionally ride on "Bike to Work Day," the increase in bicyclists is most likely even greater than these numbers indicate.

During the "after" count, motor vehicles were also counted to determine the modal split (percentage of motor vehicles versus bicycles). Comparing total motor vehicles to bicycles, bicycles made up 16 percent of the vehicle traffic along Valencia Street.

"Before" bicycle counts were not taken on the parallel streets, so it is not clear whether these are all new bicycle trips or trips that shifted from parallel streets once the bike lanes on Valencia Street were installed.

COLLISION BREAKDOWN

Collision data along Valencia Street was evaluated from January 1995 to March 2000. In the year after the installation of bicycle lanes, total collisions, fatal and injury collisions, and pedestrian collisions were down. The increase in bicycle usage outpaced the increase in bicycle collisions. A summary of reported collision data for Valencia Street follows:

	<u>BEFORE</u> <u>BICYCLE LANES</u>	<u>AFTER</u> <u>BICYCLE LANES</u>	<u>PERCENT</u> <u>CHANGE</u>
# of Bicycles (PM peak hour)	88	215	+ 144 %
Bicycle Collisions per year	10.1*	12	+ 19 %
Injury Collisions per year.	58.8*	50	- 15 %
Total Collisions per year.	73.2*	62	- 16 %
Pedestrian Collisions per year.	11.8	10	- 15 %
Mid-block Collisions Rate (collisions/million vehicle miles) . . .	1.26*	1.64	+ 30 %

*Note that collisions involving bicyclists were not reported in 1996 and 1997.

Collision data for Valencia Street and the four parallel arterials (Dolores, Guerrero, Mission Streets and South Van Ness Avenue) were gathered from January 1995 to March

2000 (one year after the redesign of Valencia Street). Data from March 1999 to March 2000 is compared to data from January 1995 to February 1999. Ideally, collision data should be taken for as long a period as possible to avoid any “spiking” that may occur in collision frequency. In other words, as a matter of chance, one year may have a much higher or lower collision rate than other years along a particular street.

In fact, there were no statistically significant changes in total collision rates for Valencia Street or any of the four parallel arterials. A 90 percent confidence rate was used. Given the nature of this report, one year of “after” data will have to suffice.

Also, the effect of other operational improvements must be considered. For instance, signal visibility upgrade projects along Valencia and Guerrero Streets occurred in 1997 and most likely improved operations along these arterials. This report does not measure the effect of these improvements on collision rates, but points out that changes in collision data can be difficult to pin point to a particular project or cause.

Of primary concern with the newly installed bicycle lanes was the effect on collisions involving pedestrians, cyclists, and motorists. All discussion of collision data must be qualified with the understanding that, because there is only one year of “after” data available and a limited amount of “before” data, the changes in collision rates are not statistically significant.

Along Valencia Street, there has been a decline in most categories of collisions since the installation of bicycle lanes, including total, fatal, injury, and pedestrian collisions. There has been a rise in bicycle collisions (19 percent) but the rise is out-paced by the increase in bicycle usage (144 percent) along Valencia Street. Mid-block collisions are up.

Pedestrian collisions along Valencia Street are down 15 percent while all injury collisions are down 15 percent. There have been no fatalities since the installation of the bike lanes. These declines support anecdotal accounts that the redesign has had a calming effect on traffic.

Please see Appendix C for a breakdown of collisions along Valencia Street and the parallel arterials before and after the installation of bicycle lanes.

AVERAGE DAILY TRAFFIC

As expected, traffic levels for Valencia Street dropped while the ADTs for South Van Ness Avenue and Mission, Guerrero, and Dolores Streets increased. There was an overall increase in traffic on all five streets of about 1 percent. Please see Appendix D for ADT, morning peak, and evening peak hour traffic volumes for the five streets.

A summary of ADTs (vehicles/day) follows for Valencia Street and four parallel streets, listed from east to west. A shift in traffic distribution was expected.

	<u>1998</u>	<u>2000</u>	<u>% change</u>
South Van Ness Avenue	16,437	17,215	+ 5 %
Mission Street	15,729	17,006	+ 8 %
Valencia Street	22,188	19,979	- 10 %
Guerrero Street	22,284	23,010	+ 3 %
Dolores Street	<u>13,376</u>	<u>13,615</u>	+ 2 %
Total	90,014	90,825	+ 1 %

While the one percent increase in overall traffic must be compared to city-wide trends in vehicle trips for a valid analysis, this increase in traffic levels in spite of the reduced capacity of Valencia Street seems to support the idea that, at least in the short term, motor vehicle trips tend to re-distribute rather than “disappear” through mode shifts or decreased trips, especially if there are alternate routes with similar travel times for motorists.

PUBLIC RESPONSE

To allow people to respond to the new conditions on Valencia Street, the Department of Parking and Traffic (DPT) created a telephone hotline and advertised the hotline phone number on traffic signs and public notices along the street. The public notice and the text of the hotline message are shown in Appendix E. People also voiced their opinion with letters, emails, and postcards. Many of the postcards received were part of a campaign by the San Francisco Bicycle Coalition (SFBC).

From 286 hotline responses, 259 calls were supportive of the bike lanes and 27 were opposed to the bike lanes. Of the letters and emails received, 39 supported the bicycle lanes and 3 did not. From the postcard campaign led by the SFBC, 484 supported the bicycle lanes and 4 did not. A sample of individual responses is included in Appendix F.

A common complaint from these responses was the proliferation of double-parking in the bike lanes along Valencia Street. The Department of Parking and Traffic Enforcement Division has been informed of this problem and signs informing motorists of the fine for parking in bicycle lanes have been installed. Valencia Street has also been included in a route of bike lanes that are regularly patrolled by the Enforcement division when there are no special events (ie. Giants games). It should be noted that double-parking on Valencia Street was a problem before the installation of bicycle lanes.

The Mission Merchants Association, whose boundaries are Division Street and Duboce Avenue to the north, Guerrero Street to the west, Cesar Chavez Street to the south, and Folsom Street to the east, supports the bicycle lanes.

The Valencia Street bicycle lanes also garnered media praise when they were selected as “Best Civic Improvement” in the *San Francisco Bay Guardian’s* 25th annual “Best of the Bay” issue and “Best City Improvement” in the *SF Weekly’s* respective “Best of” issue.

GUERRERO STREET

A concern of the redesign of Valencia Street was the predicted increase in traffic along the predominantly residential Guerrero Street. DPT predicted a 10 percent shift of traffic from Valencia Street and assumed that the bulk of that would spillover to Guerrero Street. While there was indeed a 10 percent shift of traffic from Valencia Street, Guerrero Street's traffic increased by 3.3 percent, with the rest of the spillover distributed among the other three arterials.

After the bicycle lanes were installed on Valencia Street, DPT lowered the speed limit along Guerrero Street from 30 to 25 miles per hour. To encourage compliance, DPT also re-timed the traffic signals along Guerrero Street to accommodate a 25 mph progression.

As shown in Appendix C, there has been a general, but not statistically significant, increase in collisions along Guerrero Street. While some of the increase in collisions can be attributed to the increase in traffic, a closer look at the types of collisions along the street may be warranted if this trend continues.

SOUTH VAN NESS AVENUE AND DOLORES AND MISSION STREETS

ADTs for all three streets increased, as shown above and in Appendix D.

While there were some fluctuations in collision rates for all three streets, none of the changes were statistically significant at the 90 percent confidence level. More details on collisions statistics are presented in Appendix C.

PARKING ISSUES

Due to the commercial nature of the area and the high demand for parking, the center two-way left-turn lane (TWLTL) median has attracted delivery vehicles and short and long term parkers. The Fire Department has expressed concerns about parking in the TWLTL for two reasons. First, vehicles are sometimes parked close enough to the intersection that emergency vehicles have a difficult time turning onto Valencia Street. Secondly, vehicles in the TWLTL can make it impossible for trucks to extend their jacks when extending their ladders. The Police Department has also expressed frustration at the number of long-term parkers in the TWLTL, especially on weekend nights, and has asked for clearer signage and pavement messages.

In October 2000, DPT staff attended a community meeting at the Mission Police Station along with the Police and Fire Departments to discuss these parking issues. DPT will continue to work with these groups to develop a satisfactory plan of action. Increased enforcement, along with clearer signage and pavement markings to inform motorists of parking restrictions, will likely be part of DPT's plan for resolving parking issues in this area.

MUNI

Data regarding Muni travel times before the redesign of Valencia Street was not collected. After speaking with Muni, DPT has collected before transit travel time data for the other trial bicycle lane projects, Polk Street and Arguello Boulevard.

With regards to incident data for the 26-Valencia bus line, there were 15 incidents in the year before the bike lanes including four collisions with motor vehicles along Valencia Street. In the year after the bike lanes, there were 11 incidents including three collisions with motor vehicles. Total incidents and total collisions involving the 26-Valencia dropped. There were no bus-bike collisions in the year before or the year after the bicycle lane installation.

While we cannot prove statistical significance with this limited incident data, the drop in collisions at least indicates that there has not been a deterioration in safety for the 26-Valencia. Bus-bike collisions have also not been an issue.

Muni has stated a general opposition to bike lanes along bus routes. Bikes and buses tend to have similar travel times for a given distance and often end up “leap-frogging” each other along the street. This situation is less than ideal for both bus operators and bicyclists. DPT’s policy is to avoid designating bicycle routes on streets with transit routes. However, this is often impossible without compromising the attractiveness of the route for cyclists. Regardless, according to Muni records, bus-bike incidents involving the 26-Valencia have not been a problem, as stated above.

Muni has also stated concerns that the 26-Valencia is falling behind schedule more often as a result of the lane removal along Valencia Street.

CONCLUSION

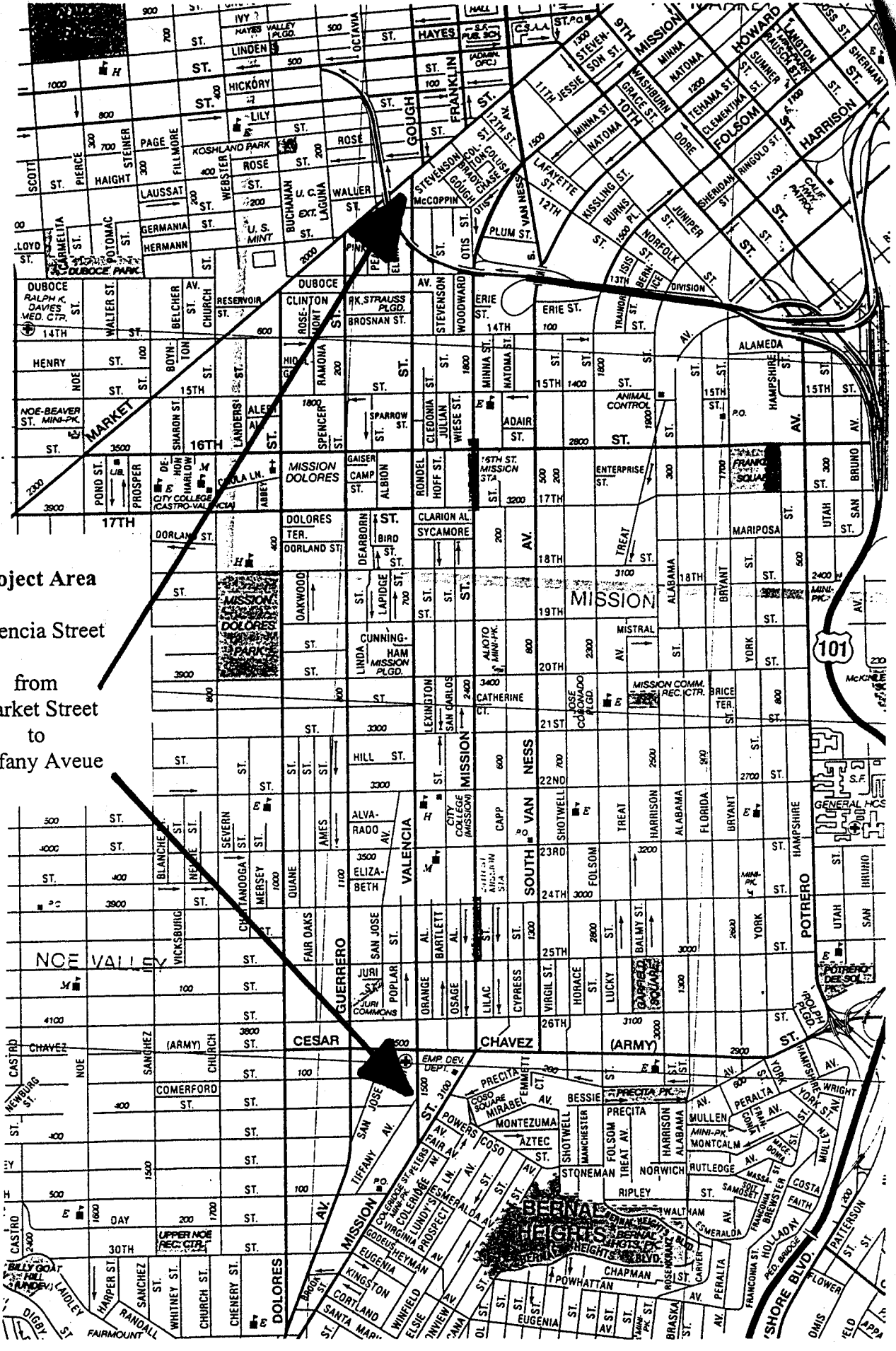
This one-year evaluation yields the following results:

- Bicycle volume increased 144 percent on Valencia Street during the PM peak hour.
- Motor vehicle traffic decreased on Valencia Street but increased on parallel streets.
- Collisions along Valencia Street generally decreased, including declines in pedestrian and injury collisions. Bicycle collisions increased but at a lower rate than the rise in bicycle trips. Mid-block collisions increased. These numbers are based on limited before and after data, however, and are not statistically significant.
- Although there were shifts in collision rates for Valencia Street and the four parallel arterials, none of the changes in total collisions was statistically significant at a 90 percent confidence rate.
- Muni has voiced concerns about routing cyclists and reducing roadway capacity along bus routes.
- Public response has been positive.

APPENDIX A

Map of Project Area

Project Area
Valencia Street
from
Market Street
to
Tiffany Avenue

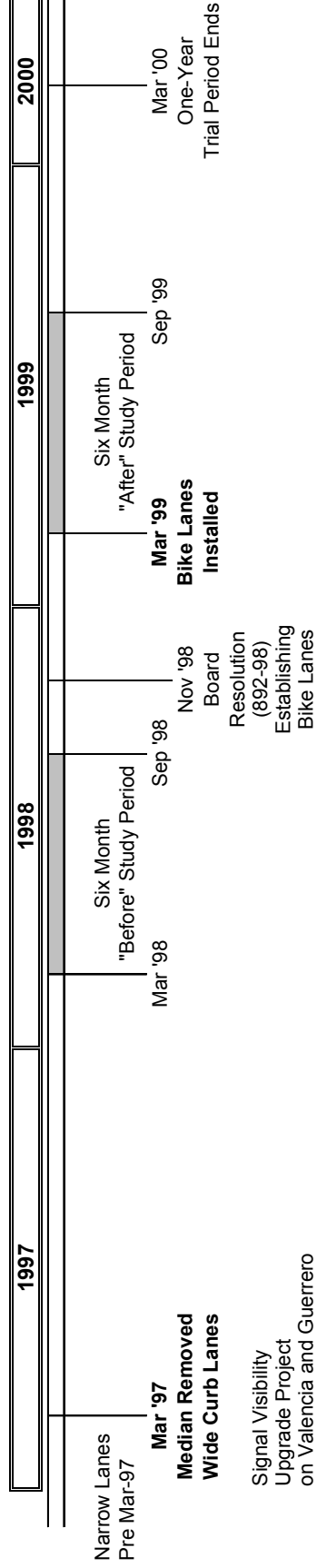


APPENDIX B

Timeline of Valencia Street's Recent History

VALENCIA STREET BICYCLE LANES

A Brief History



APPENDIX C

**Collisions along
Valencia, Dolores, Guerrero, and Mission Streets and South Van Ness Avenue**

Collisions along Mission Arterials, Before and After Bike Lanes

Collisions per Year (Includes Midblock and Intersection)

	"Before"					"After"
	1995	1996	1997	1998	Average	3/1/99-2/29/00
Dolores	38	25	32	18	28	31
Guerrero	54	62	43	49	52	63
Valencia	96	77	55	68	74	62
Mission	127	86	71	89	93	88
S. Van Ness	76	68	53	56	63	59

Collision Rates per Year, per Million Vehicle Miles (Includes Midblock and Intersection)

	"Before"					"After"
	1995	1996	1997	1998	Average	3/1/99-2/29/00
Dolores	7.8	5.1	6.6	3.7	5.8	6.3
Guerrero	6.4	7.4	5.3	6.0	6.3	7.3
Valencia	11.7	9.4	6.6	9.4	9.3	8.6
Mission	22.1	15.0	12.4	15.5	16.2	14.5
S. Van Ness	12.7	11.3	8.8	9.3	10.5	9.1

Collision Data for Five Arterials

Valencia Street	Before Bike Lanes		After Bike Lanes 03/01/99 - 02/29/00	Percent Change*
	01/01/95 - 01/30/99	Average per year		
total accidents	299	73.2	62	-16
intersection	216	52.9	38	-28
midblock	83	20.3	24	18
injury accidents	240	58.8	50	-15
fatal accidents	2	0.5	0	-100
pedestrian accidents	48	11.8	10	-15
bicycle accidents**	21	5.1	12	133

Dolores Street	Before Bike Lanes		After Bike Lanes 03/01/99 - 02/29/00	Percent Change*
	01/01/95 - 01/30/99	Average per year		
total accidents	116	28.4	31	9
intersection	86	21.1	23	9
midblock	30	7.3	8	9
injury accidents	81	19.8	27	36
fatal accidents	1	0.2	0	-100
pedestrian accidents	11	2.7	2	-26

Guerrero Street	Before Bike Lanes		After Bike Lanes 03/01/99 - 02/29/00	Percent Change*
	01/01/95 - 01/30/99	Average per year		
total accidents	213	52.1	63	20
intersection	160	39.2	51	30
midblock	53	13.0	12	-8
injury accidents	161	39.4	57	44
fatal accidents	1	0.2	0	-100
pedestrian accidents	26	6.4	5	-22

Mission Street	Before Bike Lanes		After Bike Lanes 03/01/99 - 02/29/00	Percent Change*
	01/01/95 - 01/30/99	Average per year		
total accidents	377	92.3	88	-5
intersection	250	61.2	54	-12
midblock	127	31.1	34	9
injury accidents	268	65.6	57	-13
fatal accidents	1	0.2	3	1122
pedestrian accidents	106	25.9	19	-27

South Van Ness Ave	Before Bike Lanes		After Bike Lanes 03/01/99 - 02/29/00	Percent Change*
	01/01/95 - 01/30/99	Average per year		
total accidents	256	62.7	59	-6
intersection	209	51.2	54	5
midblock	47	11.5	5	-57
injury accidents	199	48.7	41	-16
fatal accidents	1	0.2	1	307
pedestrian accidents	31	7.6	8	5

* Negative number indicates a decrease in collisions. Numbers compared are collisions/unit time.

** Bicycle collisions were not reported in 1996 and 1997.

APPENDIX D

Traffic Counts for Mission Corridor

ADTs for Valencia Street and four parallel streets

Streets*	1998						
	AM Peak (8-9AM)		PM Peak (5-6PM)		ADT		
	NB	SB	NB	SB	NB	SB	Total
S. Van Ness/20th	562	386	572	731	7413	9024	16437
Mission/20th	425	240	600	566	7925	7804	15729
Valencia/20th	813	353	812	973	10814	11374	22188
Guerrero/20th	1197	563	919	932	12336	9948	22284
Dolores/20th	611	326	514	479	7100	6276	13376
	Total				45588	44426	90014

Streets*	Apr-00						
	AM Peak (8-9AM)		PM Peak (5-6PM)		ADT		
	NB	SB	NB	SB	NB	SB	Total
S. Van Ness/20th	803	465	652	840	8205	9010	17215
Mission/20th	577	449	598	696	8704	8302	17006
Valencia/20th	751	567	723	847	9870	10109	19979
Guerrero/20th	1470	614	1177	1095	13043	9967	23010
Dolores/20th	762	407	600	622	7044	6571	13615
	Total				46866	43959	90825

* Streets are listed in order from east to west

From 1998 to April 2000, total ADT for these five streets increased by 0.9%
 Valencia decreased by 10.0%
 S. Van Ness increased by 4.7%
 Mission increased by 8.1%
 Guerrero increased by 3.3%
 Dolores increased by 1.8%

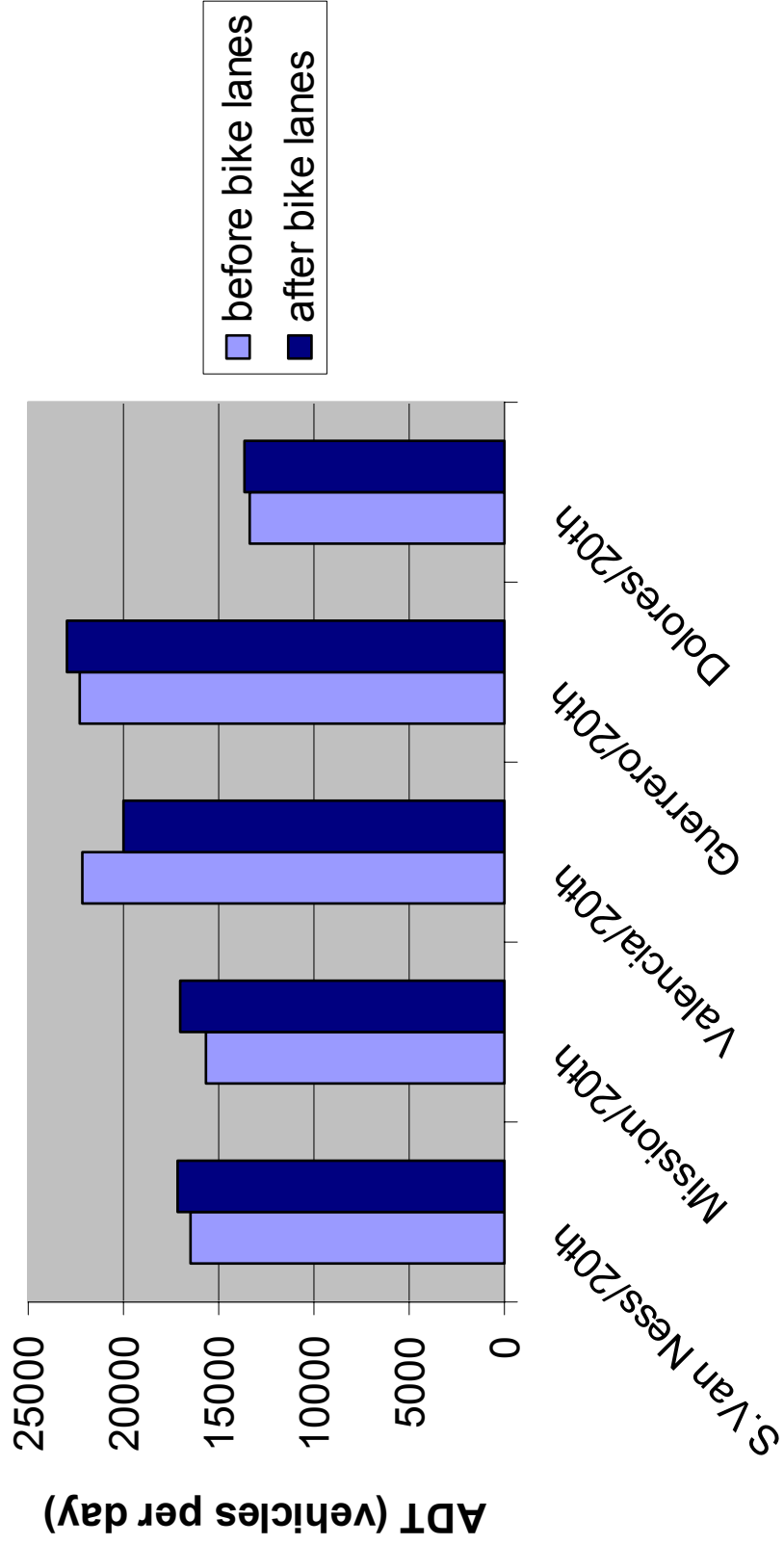
Bikes

PM peak hour counts*			
1997		1999	
NB	SB	NB	SB
38	50	63	152
88		215	

144% increase

*taken along Valencia at Sycamore

Mission District ADTs



APPENDIX E

Public Notice and Hotline Message



PUBLIC NOTICE

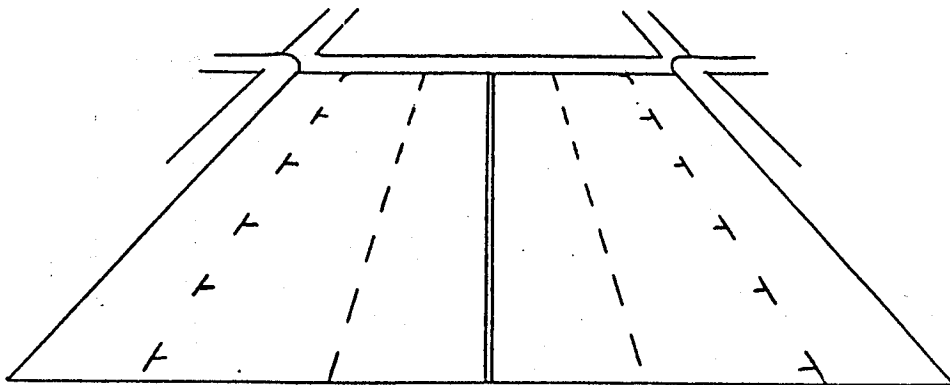
For Traffic Changes



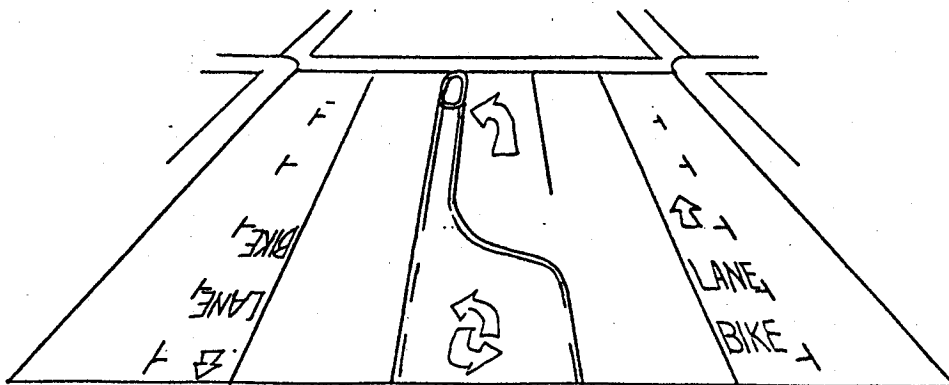
In late January 1999 the Department of Parking and Traffic will begin restriping the entire length of Valencia Street. This new striping will include bike lanes, one through lane in each direction for motorists and MUNI, left-turn lanes at intersections, a continuous two-way left turn lane between intersections, and painted pedestrian islands at each crosswalk. The present condition of Valencia Street and its reconfiguration are illustrated below. The Project will be evaluated after a one-year trial period. The San Francisco Transportation Authority is providing funds for this project from the Measure B ½-Cent Sales Tax.

Public hearings were held on this project and Resolution # 893-98 was adopted by the Board of Supervisors on November 6, 1998.

Please Call the Valencia Street Bicycle Lane Project Hotline at (415) 554-2351 for more information.



CURRENT



PROJECT

Good day, you have reached the Valencia Street Bicycle Lane information hotline. What follows is a brief overview of the bike lane project. You may skip this message and leave a message by pressing the #. We will get back to you as soon as we are able.

In late January 1999, the Department of Parking and Traffic will be undertaking traffic work on Valencia Street between Market and Mission Streets. This 2 mile section of roadway will be restriped to accommodate a bicycle lane in each direction. Funding for this project was obtained from the San Francisco County Transportation Authority's half-cent sales tax.

The purpose of bicycle lanes is to provide additional lateral street space for bicyclists. This helps reduce the conflicts between bicyclists and other vehicles as well as between bicyclists and parked vehicles. Valencia Street is the major north-south bicycle route in the Mission District. It was designated as a principal bicycle arterial in the *San Francisco Bicycle Plan* and in the City's *General Plan*. Valencia Street connects Market Street to intermediate destinations in the Mission District and to Tiffany Avenue, another key bicycle route, in the Outer Mission District.

Last year, the Board of Supervisors passed legislation sponsored by Supervisor Jose Medina to install bicycle lanes on this street by reducing the number of vehicular lanes from four to three. This project received overwhelming support from the bicycling community as well as a number of neighborhood organizations. The new configuration will have one northbound lane, one southbound lane and a center lane designated for left-turns at the intersections. A two-way left-turn lane will be striped in between intersections. A two-way left turn lane can be used to turn into or turn out of alleys or driveways. It cannot be used to pass or overtake another vehicle. Parking is also not allowed on the two-way left turn lane. Double-parking on the bike lane will also not be tolerated. There is a \$100 fine for parking on the bike lane.

The new restriping will be evaluated based on a one-year trial period. If you have any questions or comments, please leave your name and phone number and we will get back to you as soon as we are able.

APPENDIX F

Sample of Public Response to Bicycle Lanes on Valencia

Sample responses to bike lanes on Valencia Street:

“should be permanent...delivery vehicles ok...double parking bad...”

“more bike lanes like this...”

“as a driver and cyclist...not inconvenienced as driver...easier for cycling...hope network is expanded to east and west as well as north and south...”

“it’s a delight to use these lanes...I use them to pick up lunch...”

“enforce double-parking...bike lanes are like wheelchair retrofits, they should be done but they lead to grumbling...center lane should be used for overtaking and passing...”

“I’m 61 years old...quit riding due to autos...resumed riding along Valencia...”

merchant – “I haven’t seen any bikes...”

“good that various modes are accommodated...safer lanes will attract more cyclists...keep up good work...”

“bikers can bicycle on any street...why are lanes needed?...”

“best thing that has happened in the Valencia Street corridor...far more peaceful and pedestrians seem happy and everyone I have talked to thinks they are great...”

“wrecked traffic in the Mission...”

“makes cars obey speed limit...”

“turn lanes work well...I’m not a cyclist...”

“waste of taxpayers’ money...just makes cars angry at bikes...”

motorist who thinks it makes drive safer - “we don’t want to run them over...”

“double parking is a problem...great job DPT! (referring to bike lanes)...”

motorist – “it is a good idea and it marks where bikes should be...I have hit one before and now I feel safer driving...”

“ridiculous and absurd...center lane is unnecessary...”