SAN FRANCISCO
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Addendum to Environmental Impact Report

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Approval Date:	June 20, 2013
Case No.:	2007.0347E
Project Title:	Project 5-4: Bayshore Boulevard Bicycle Lanes, Cesar Chavez Street to Silver Avenue – Modified Option 2
EIR:	San Francisco Bicycle Plan SCL No. 2008032052, certified August 4, 2009
Zoning:	n/a, in public right-of-way
Block/Lot:	n/a, in public right-of-way
Lead Agency:	San Francisco Planning Department
Project Sponsor:	San Francisco Municipal Transportation Agency Rachel Carpenter - 415.701.4692- rachel.carpenter@sfmta.com
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PROJECT DESCRIPTION

Background

The San Francisco Planning Commission certified the *San Francisco Bicycle Plan Environmental Impact Report* [(EIR) Bicycle Plan FEIR, Case No. 2007.0347E] on June 25, 2009. On June 26, 2009, the SFMTA Board adopted the 2009 Bicycle Plan and adopted the environmental findings under the California Environmental Quality Act. The adoption included a statement of overriding considerations, a mitigation monitoring and reporting program, and approval of 45 of the 60 near-term Bicycle Plan projects which included Project 5-4: Modified Option 2 (*SFMTA Board Resolution 09-106*). The motion to certify the FEIR was appealed to the Board of Supervisors, but on August 4, 2009, the Board of Supervisors reaffirmed the Planning Commission's certification of the FEIR. Subsequently, the Board of Supervisors passed an ordinance adopting the 2009 San Francisco Bicycle Plan, which also amended the *San Francisco General Plan* in connection with the San Francisco Bicycle Plan. They also adopted environmental findings and findings that the General Plan amendment is consistent with the *General Plan* and eight priority policies of *Planning Code* Section 101.1; as well as authorized other acts in connection thereto. In August 2010, the trial court entered an order discharging the writ of mandate issued in 2006. The trial court order was then appealed in the California First District Court of Appeals. On January 14, 2013 the court of appeals reversed the trial court's order discharging the writ; rejected the appellant's challenges to the EIR; and found that the environmental findings, adopted pursuant to CEQA in Resolution 09-106, were inadequate. On May 7th, 2013, the SFMTA Board adopted new findings to the 2009 FEIR.

Since adoption of the FEIR and approval of the Bicycle Plan, SFMTA has revised the design of Project 5-4: Modified Option 2. This addendum addresses the environmental review of the revised design proposed by SFMTA.

Due to potential conflicts with planned improvements related to the Transit Effectiveness Project on San Bruno Avenue, the project sponsor, the San Francisco Municipal Transportation Agency (SFMTA), proposes to replace *Project 5-13: San Bruno Avenue Bicycle Lanes, Paul Avenue to Silver Avenue*, which was

analyzed in the 2009 FEIR with an alternate bicycle route on Bayshore Boulevard which is a parallel roadway. The proposed new route would extend the southern boundaries of *Project 5-4: Bayshore Boulevard Bicycle Lanes, Cesar Chavez Street to Silver Avenue,* also analyzed in the 2009 FEIR. SFMTA also proposes to implement minor improvements at two locations along Paul Avenue and San Bruno Avenue (please refer to "Proposed Revisions to Project" section below). Nine minor improvements were analyzed at a program level in the 2009 FEIR.

Two bicycle route segments, each with two design options, were studied for the Project 5-4 in the 2009 FEIR. During the Draft EIR public comment period, Project 5-4 was further refined which resulted in combining two study options into one preferred option. The preferred option was then referred to as "Project 5-4: Modified Option 2" in the FEIR. As previously stated, Project 5-4: Modified Option 2 was one of 60 near-term projects analyzed at a project-level in the FEIR.

Original Project Description

Project 5-4: Modified Option 2:

Project 5-4: Modified Option 2 is located along Bayshore Boulevard right-of-way between the intersections of Silver Avenue to the south and Cesar Chavez to the north. Please refer to **Figure 1: Project Location – Project 5-4: Southern Extension.**

As stated above, Project 5-4: Modified Option 2 was one of 60 near-term projects analyzed at a project-level in the Bicycle Plan Final EIR and one of the 45 projects approved by the SFMTA Board. Please refer to **Appendix A** of this EIR addendum for graphics depicting the original design.[1]

Project 5-4: Modified Option 2 would involve the installation of bicycle lanes in both directions on Bayshore Boulevard between Cesar Chavez Street and Silver Avenue. Project 5-4: Modified Option 2 would involve moving portions of existing southbound Bicycle Route #25 from Jerrold Avenue, Barneveld Avenue, Loomis Street, and Industrial Street onto Bayshore Boulevard. Project 5-4: Modified Option 2 is divided into two segments:

- Segment I would extend between Cesar Chavez Street and Industrial Street: In the portion of the Bayshore Boulevard corridor between Oakdale and Jerrold Avenues, the modified project would retain the existing southbound Class III[2] bicycle facility on Jerrold Avenue, Barneveld Avenue, and Loomis Street and relocate the northbound Class III[3] bicycle facility on northbound Bayshore Boulevard to Oakdale Avenue, Loomis Street, Barneveld Avenue and Jerrold Avenue. Project 5-4: Modified Option 2 would provide sharrows in both directions along Oakdale Avenue, Loomis Street, Barneveld Avenue and Jerrold Avenue.

  Project 5-4 Modified Option 2 would replace the existing right turn bicycle lane with a left turn bicycle lane on west bound Oakdale Avenue between Loomis Street and Bayshore Boulevard.

[1] Two options/alternative were analyzed for Project 5-4 in the San Francisco Bicycle Plan EIR. The project design was refined by SFMTA prior to the EIR certification and referred to as Project 5-4: Modified Option 2 in the Bicycle Plan FEIR.

[2] Bikeways are typically classified as Class I, II or III facilities. "Class II bikeways are bicycle lanes striped with the paved areas of roadways, and established for the preferential use of bicycles, while Class III bikeways are signed bicycle routes that allow bicycles to share streets or sidewalks with vehicles or pedestrians." *San Francisco Bicycle Plan FEIR,* Volume 1, p. V.A.1-14. This document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA.

[3] Ibid 2

A left-turn bicycle lane would be added on west bound Oakdale Avenue. As part of this change, the dual- left turn for vehicles would be removed at this location. The vehicular lane configuration would have one left-turn lane and one right-turn lane. Parking would not be removed.

- Segment II would extend between Industrial Street and Silver Avenue: Project 5-4: Modified Option 2 would provide a shared right turn and bicycle lane on northbound Bayshore Boulevard between Helena and Marengo Streets. Transit would be allowed to proceed straight through on Bayshore Boulevard from this lane. Project 5-4: Modified Option 2 would remove 27 parking spaces on the east side of Bayshore Boulevard from Boutwell Street to Helena Street. It would install Class II bicycle lanes in both directions on Bayshore Boulevard. This option would remove approximately 53 parking spaces on the west side of Bayshore Boulevard between Silver Avenue and Industrial Street.

Minor Improvements:
The 2009 EIR analyzed nine treatments as part of the minor improvements that may be implemented, as necessary, to improve conditions for bicycle use within the City. These include sharrows[4] (shared roadway bicycle markings), bicycle racks on the sidewalks, on-street bicycle parking, bicycle boxes, minor pavement markings, colored pavement materials, signage changes, traffic signal changes and on-street vehicle parking changes. Minor improvements are often design elements included as part of Class II and Class III bicycle routes, and would therefore be located within the existing and proposed bicycle route network.

Proposed Revisions to Project

Project 5-4: Southern Extension:
Subsequent to the certification of the Bicycle Plan FEIR, the SFMTA further revised the proposed Project 5-4: Modified Option 2 to extend the bicycle lane southward (hereafter "Southern Extension"). The proposed Southern Extension differs from that analyzed in the FEIR in that it would add three new bike lane segments to the Bicycle Network as follows:

Segment I – Paul Avenue between San Bruno Avenue and Third Street
The proposed Southern Extension project would add a combination of Class II and Class III bicycle facilities (i.e., signed bike routes with sharrows[5]) on Paul Avenue between San Bruno Avenue and Third Street by narrowing the travel lanes and removing 50 parking spaces on the north side of Paul Avenue.

Segment II – San Bruno Avenue between Paul Avenue and westbound Mansell Street/southbound US-101 Off-ramp
The proposed Southern Extension project would extend the existing northbound bicycle lane on San Bruno Avenue between Mansell Street and Paul Avenue by adding Class III bicycle facilities on San Bruno Avenue in both directions from south eastbound Mansell Street to westbound Mansell Street/southbound US-101 off-ramp (approximately 100 feet). There is no parking removal proposed at this location.

[4] Sharrows are traffic control devices that consist of pavement markings within the traffic lane. They are intended to alert drivers that bicyclists share the traffic lane and to reduce the chance of bicyclists being impacted by the open doors of parked vehicles.
[5] Ibid 4

Segment III – Bayshore Boulevard between Paul Avenue and Augusta/Boutwell Streets

Segment III would be implemented in two phases: Phase 1 would remove one travel lane in each direction on Bayshore Boulevard between Silver and Paul Avenues. The proposed project would add Class II bicycle facilities in both directions on this segment of Bayshore Boulevard. It would also remove one southbound lane and extend the existing southbound bicycle lane on Bayshore Boulevard from Augusta/Boutwell Streets to Silver Avenue. All existing left turn pockets would be maintained, and an additional left turn pocket would be added to the southbound lane approaching Fitzgerald Avenue. Additionally, the proposed project would include a "Left Lane Must Turn Left" restriction for southbound Bayshore Boulevard approaching Boutwell/Augusta Streets, a "Right Lane Must Turn Right" restriction for northbound Bayshore Boulevard approaching Paul Avenue, and a "Right Lane Must Turn Right Except Muni" restriction on westbound Paul Avenue approaching Bayshore Boulevard. There is no parking removal proposed at this location.

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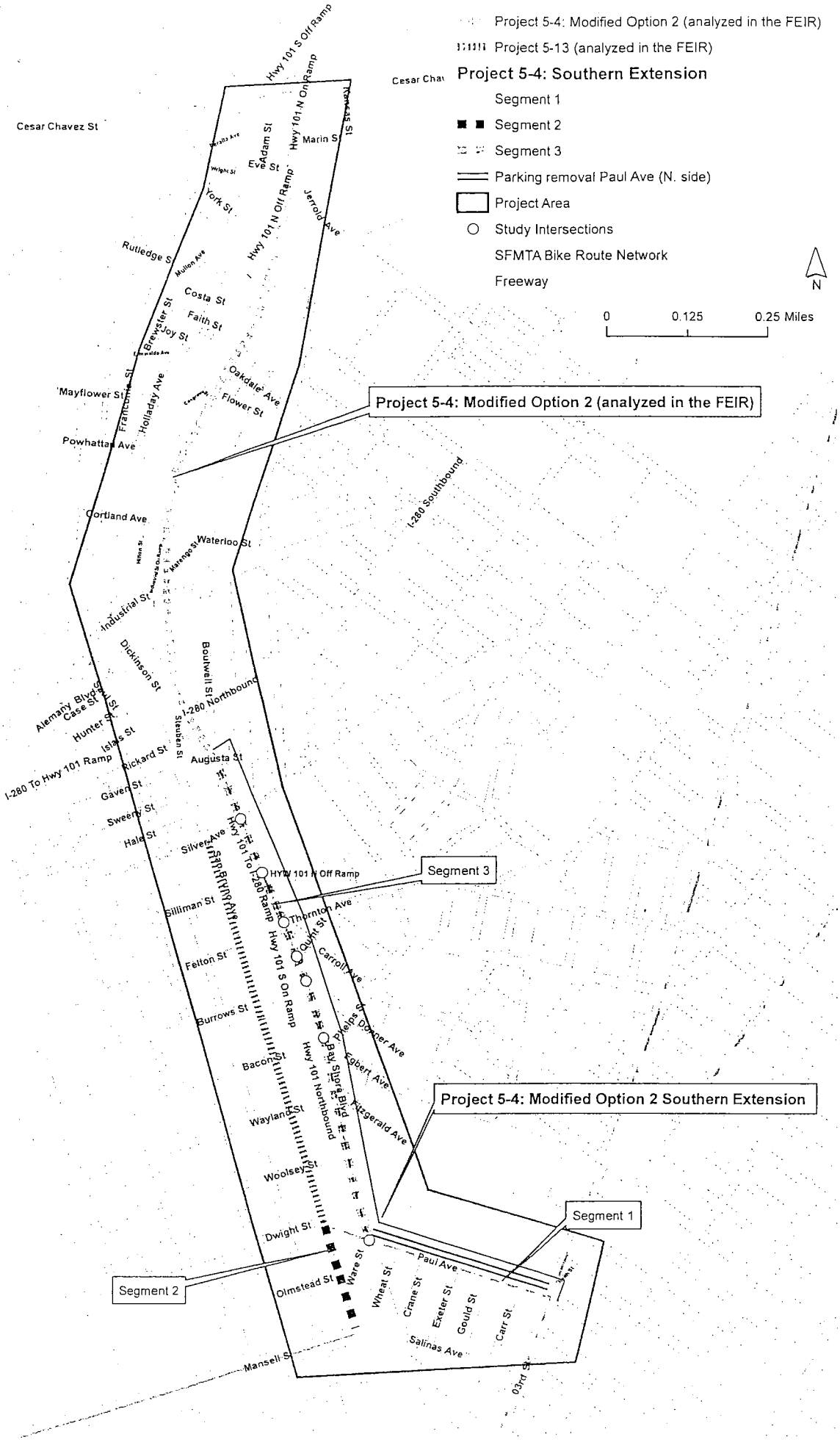
Figure 1: Project Location – Project 5-4: Southern Extension



ANALYSIS OF POTENTIAL ENVIRONMENTAL EFFECTS

San Francisco Administrative Code Section 31.19(c) (1) states that a revised project must be reevaluated and that "If, on the basis of such reevaluation, the Environmental Review Officer determines, based on the requirements of CEQA, that no additional environmental review is necessary, this determination and the reasons therefore shall be noted in writing in the case record, and no further evaluation shall be required by this Chapter."

CEQA Guidelines Section 15164 provides for the use of an addendum to document the basis of a lead agency's decision not to require a Subsequent or Supplemental EIR for a project that is already adequately covered in an existing certified EIR. The lead agency's decision to use an addendum must be supported by substantial evidence that the conditions that would trigger the preparation of a Subsequent EIR, as provided in CEQA Guidelines Section 15162, are not present.

The Initial Study and the FEIR for the Bicycle Plan evaluated the potential impacts of construction and operation of Project 5-4 and the Modified Project 5-4: Option 2 and found that with the exception of loading impacts, all environmental impacts would be less than significant with mitigation incorporated as part of the overall Bicycle Plan program.

Since certification of the FEIR, no changes have occurred in the circumstances under which the revised project would be implemented, that would change the severity of the project's physical impacts as explained herein, and no new information has emerged that would materially change the analyses or conclusions set forth in the FEIR.

Further, as demonstrated below, proposed modifications and design refinements to Modified Project 5-4: Option 2 would not result in any new significant environmental impacts, substantial increases in the significance of previously identified effects, or necessitate implementation of additional or considerably different mitigation measures than those identified in the FEIR. The effects of the proposed Southern Extension project would be substantially the same as those reported for Option 2 in the Bicycle Plan FEIR. The following discussion provides the basis for this conclusion.

Transportation

Existing Conditions

The following description of Paul Avenue, San Bruno Avenue, and Bayshore Boulevard existing conditions is based on the *San Francisco Bicycle Plan Update Transportation Impact Study*[6] (pp. 3.7-12 – 3.7-13) and SFMTA drawings (See **Appendix B** for the depiction of roadway existing conditions):

Traffic: Paul Avenue, San Bruno Avenue and Bayshore Boulevard are classified as minor arterials. Traffic volumes are generally low on these roadways during the PM peak period.

- Paul Avenue between San Bruno Avenue and Bayshore Boulevard is 50 feet wide and operates as a four-lane roadway (two lanes each way). No parking is allowed for the majority of the unit block. Between Bayshore Boulevard and Third Street Boulevard Paul Avenue is generally 36 feet wide and operates as a three-lane roadway, two westbound lanes and one eastbound lane. Currently, parking on the north side is prohibited during post-Candlestick events (i.e. San Francisco 49er football games) which is only ten times per year (if no playoff games). Parking on the south side is already prohibited.

[6] Wilbur Smith Associates, *San Francisco Bicycle Plan Transportation Study Report*, October 2008. This report is available for review in Case File No. 2007.0347E at the Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA.

- San Bruno Avenue between Paul Avenue and westbound Mansell Street/southbound US-101 Off-ramp is 46-50 feet wide and operates as a three-lane roadway, two northbound and one southbound lane. Parking is allowed on both sides of the street.
- Bayshore Boulevard between Paul Avenue and Augusta/ Boutwell Streets operates as a four-lane roadway with two northbound and two southbound lanes. Lane width varies from 56 to 63 feet.

  Bayshore Boulevard between Bacon Street and Carroll Avenue/Thornton Avenue is 60 feet wide and it includes a center two-way left-turn lane. Between Carroll Avenue/Thornton Avenue and the US NB 101 off-ramp (Silver Exit), the roadway includes a striped center median. The majority of the block between Silver Avenue and Augusta and Boutwell Streets, includes a raised concrete median that ranges from 9-12 feet in width.

Transit: Muni bus lines 9, 9L, 8AX, 90 owl, SamTrans bus line 292 and 397 run along Bayshore Boulevard between Cesar Chavez Street and Silver Avenue. The southbound Muni Bus lines 9X and 9AX run on US 101. In addition, Muni bus line 23 operates on Bayshore between Oakdale Avenue and Industrial Street with Muni bus line 24 on Bayshore Boulevard between Cortland Avenue and Industrial Street. This section of Bayshore Boulevard carries approximately 20 southbound buses and 25 northbound buses during the AM and PM peak periods. Bus stops are located at Jerrold Avenue, Oakdale Avenue, Cortland Avenue, Marengo Street, Alemany Boulevard/Industrial Street, Augusta Street/Boutwell Street, and Silver Avenue. Muni bus line 29 operates along proposed Segment I; Muni bus lines 29, 9L, 9, 8X, and 8AX operate along proposed Segment II; and Muni bus line 9, 9L, 90 owl, and SamTrans bus 292 and 397 operate along proposed Segment III. Bus Line 8X and 8AX both run on Segment II with bus stops located on San Bruno Avenue on Paul Avenue and westbound Mansell Street/southbound US-101 Off-ramp.

Parking: On Segment I, Paul Avenue between Bayshore Boulevard and Third Street, parking is prohibited at all times on the south side of the roadway. Parking is also prohibited on the north side of the roadway during 49er games; low occupancy rates were observed during site visits on the north side of the roadway. Off-street parking is available for the industrial and commercial properties located within this roadway segment. On Segment II, on-street parking is available on both sides of the roadway on San Bruno Avenue and Mansell Street. On Segment III, on-street parking is available intermittently on both sides of Bayshore Boulevard between Silver and Paul Avenues. Higher occupancies were observed on this roadway at locations closest to Silver Avenue and residential properties.[7]

Pedestrian: Low level of pedestrian activity was observed during site visits along Segment I with slightly increased volumes on Segment II, corresponding to a more commercial land use (e.g., shops, eateries) present in the area. Pedestrian activity varies along Segment III, ranging from moderate volumes at Silver Avenue (estimated 400,000 annual crossings for the entire intersection) to low levels near Paul Avenue. A continuous sidewalk exists on the east side of Bayshore Boulevard.[8]

Bicycle: Overall, bicycle volumes in the area are low. Bayshore Boulevard is designated as Bicycle Route 25. Route 25 intersects with existing Bicycle Route 70 at Silver Avenue and with existing Bicycle Route 5 at Paul Avenue. Paul Avenue between Third Street and San Bruno Avenue, and San Bruno Avenue between Paul Avenue and Mansell Street is designated as Bicycle Route 5. Bicycle Route 5 continues as

[7] SFMTA correspondence with EP staff and SFMTA staff Rachel Carpenter, May 2013. This document is available for review at the San Francisco Planning Department, 1650 Mission Street, Suite 400, San Francisco, CA.

[8] Ibid 7

Bicycle Route 25 on San Bruno Avenue, and as 705 on Mansell Street. Street grades are mostly flat along the southern extension of Project 5-4, San Bruno Avenue and Paul Avenue.[9]

Loading: Freight loading activity on Bayshore Boulevard within the proposed project area is associated with adjacent administrative offices and limited retail stores. On Paul Avenue, freight loading activity is associated with industrial buildings that have off-street parking and off street loading facilities. There are no on-street yellow freight commercial loading spaces within any of the segments of the proposed project.[10]

Impact Analysis

Traffic: Four study intersections were analyzed in the FEIR to assess the effects of Project 5-4: Modified Option 2 at the study intersections. LOS analyses from the Bicycle Plan FEIR are summarized below and presented in **Table 1.** Eight new study intersections, four signalized and four unsignalized, were analyzed under the proposed Southern Extension project conditions to assess the effects of the proposed project at the study intersections. LOS analyses for Existing, Existing plus Project, 2040 Cumulative, 2040 Cumulative plus Project for the proposed Southern Extension project are summarized below and the results are presented in **Tables 2** and **3**. Detailed LOS calculations are presented in **Appendix C**.

The proposed Southern Extension project entails removing and narrowing existing travel lanes and changing lane geometry. These proposed improvements would occur on a section of Bayshore Boulevard and Augusta and Boutwell Streets that were not included in the Modified Project 5-4: Option 2 analyzed in the FEIR. SFMTA PM peak period traffic counts were used for the analysis. Intersection volumes under Year 2040 Baseline Conditions were developed based on traffic growth projected by the San Francisco County Transportation Authority's Chain Activity Modeling Process (SF CHAMP) Model.[11]

Intersection 23: Bayshore Boulevard/Jerrold Avenue/US 101 off-ramp:[12] This intersection was analyzed in the Bicycle Plan FEIR for the PM peak hour only. As shown in **Table 1**, Existing, Existing plus Project, Cumulative and Cumulative plus Project conditions at the intersection operate at LOS E and F.

Intersection 24: Bayshore Boulevard/Oakdale Avenue:[13] This intersection was analyzed in the Bicycle Plan FEIR for the PM peak hour only. As shown in **Table 1**, Existing, Existing plus Project, Cumulative and Cumulative plus Project conditions at the intersection operate at LOS C.

Intersection 25: Bayshore Boulevard/Cortland Avenue:[14] This intersection was analyzed in the Bicycle Plan FEIR for the PM peak hour only. As shown in **Table 1**, Existing, Existing plus Project, Cumulative and Cumulative plus Project conditions at the intersection operate at LOS C.

Intersection 26: Bayshore Boulevard/Alemany Boulevard/Industrial Street:[15] This intersection was analyzed in the Bicycle Plan FEIR for the PM peak hour only. As shown in **Table 1**, Existing, Existing plus Project, Cumulative and Cumulative plus Project conditions at the intersection operate at LOS D and F.

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[9] Ibid 7

[10] Ibid 7

[11] Traffic counts and cumulative volumes were developed by SFMTA.

[12] Sixty-one study intersections were identified by the Environmental Planning Division of the San Francisco Planning Department and SFMTA as the intersections most likely to be affected by the near-term improvements. All of the intersections were analyzed for the PM peak hour impacts. Some of these intersections were analyzed for the AM peak hour impacts as well.

[13] Ibid 11

[14] Ibid 11

[15] Ibid 11

Signalized Intersections[16]

Bayshore Boulevard/Silver Avenue: This intersection was analyzed for the PM peak hour only. As shown in **Table 2, Existing, Existing plus Project, Cumulative and Cumulative plus Project**, the intersection operates at LOS C under existing and existing plus project conditions and at LOS D under cumulative and cumulative plus project conditions.

Bayshore Boulevard/US NB 101 Off Ramp (Silver Exit): This intersection was analyzed for the PM peak hour only. As shown in **Table 2, Existing, Existing plus Project, Cumulative and Cumulative plus Project**, the intersection operates at LOS A under existing and cumulative conditions and at LOS B under existing plus project and cumulative plus project conditions.

Bayshore Boulevard/Bacon Street/Phelps Street/Egbert Street: This intersection was analyzed for the PM peak hour only. As shown in **Table 2, Existing, Existing plus Project, Cumulative and Cumulative plus Project**, the intersection operates at LOS B under existing and existing plus project conditions; LOS C under cumulative conditions; and LOS D under cumulative plus project conditions.

Bayshore Boulevard/Paul Avenue: This intersection was analyzed for the PM peak hour only. As shown in **Table 2, Existing, Existing plus Project, Cumulative and Cumulative plus Project**, the intersection operates at LOS B under existing and existing plus project conditions and LOS C under cumulative and cumulative plus project conditions.

UnSignalized Intersections[17]

Bayshore Boulevard/Thornton Avenue: This intersection was analyzed for the PM peak hour only. As shown in **Table 3, Existing, Existing plus Project, Cumulative and Cumulative plus Project,** the intersection operates at LOS B and C under existing and existing plus project conditions and LOS F under cumulative and cumulative plus project conditions; however the average delay at the worst approach (westbound) would improve.

Bayshore Boulevard/Quint Street: This intersection was analyzed for the PM peak hour only. As shown in **Table 3, Existing, Existing plus Project, Cumulative and Cumulative plus Project,** the intersection operates at LOS B under existing and existing plus project conditions and LOS C under cumulative and cumulative plus project conditions.

Bayshore Boulevard/Donner Street: This intersection was analyzed for the PM peak hour only. As shown in **Table 3, Existing, Existing plus Project, Cumulative and Cumulative plus Project,** the intersection operates at LOS B under existing and existing plus project and cumulative conditions. It operates at LOS C under cumulative plus project conditions.

Bayshore Boulevard/Fitzgerald Avenue: This intersection was analyzed for the PM peak hour only. As shown in **Table 3, Existing, Existing plus Project, Cumulative and Cumulative plus Project,** the intersection operates at LOS C under existing and existing plus project conditions and under cumulative and cumulative plus project conditions.

As shown in **Table 2** and **3**, with the exception of the Bayshore Boulevard/Thornton Avenue intersection, all intersections would operate acceptably at LOS A through D under Existing, Existing plus Southern Extension, Cumulative and Cumulative plus Southern Extension conditions. Although the Bayshore

[16] Traffic impact analysis was developed by SFMTA staff using Synchro software. Synchro is a macroscopic analysis and optimization software application. Synchro implements the Intersection Capacity Utilization 2003 method for determining intersection capacity.

[17] Ibid 16

boulevard/Thornton Avenue intersection operates at LOS F, under Cumulative and Cumulative plus project conditions, the vehicle delay at the worst approach (westbound) would improve. Thus, implementation of the proposed Southern Extension project would not create a significant impact at the analyzed study intersections.

The new analysis presented in this Addendum combined with the FEIR analysis demonstrates that the proposed Southern Extension project would not result in significant traffic impacts that were not previously identified in the Bicycle Plan FEIR. The proposed Southern Extension project would not result in a substantial increase in the significance of the average delay or service degradation at the study intersection, nor would the proposed Southern Extension project contribute considerably to cumulative effects that were not already accounted for in the certified Bicycle Plan FEIR. Overall, the proposed Southern Extension project's traffic impacts are similar to the findings reached in the FEIR that there would be "less than significant impact" as presented on Matrix 1.2, Summary of Project Level Impacts, on FEIR pg. V.A.3-631.

TABLE 1
PROJECT 5-4: MODIFIED OPTION 2 WEEKDAY PM PEAK HOUR INTERSECTION OPERATING CONDITIONS: EXISTING, EXISTING PLUS PROJECT, CUMULATIVE AND CUMULATIVE PLUS PROJECT

	Existing PM		Existing Plus Project		2025 Cumulative		2025 Cumulative Plus Project	
Intersection[a]	Average Delay[b]	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS
23. Bayshore Boulevard/Jerrold Avenue/US 101 off-ramp	58.9	**E**	58.9	**E**	>80	**F**	>80	**F**
24. Bayshore Boulevard/Oakdale Avenue	29.6	C	29.6	C	34.6	C	34.6	C
25. Bayshore Boulevard/Cortland Avenue	21.2	C	29.6	D	28.3	C	28.3	C
26. Bayshore Boulevard/Alemany Boulevard/Industrial Street	51.2	D	51.7	D	>80	**F**	>80	**F**

Sources: San Francisco Bicycle Plan Final EIR, August 2009; San Francisco Planning Department
Notes:
a. Intersection numbering reflects that presented in Bicycle Plan FEIR.
b. Average Delay in seconds per vehicle.
c. Intersections operating at LOS E or LOS F conditions highlighted in bold.

TABLE 2

SIGNALIZED INTERSECTIONS: SOUTHERN EXTENSION WEEKDAY PM PEAK HOUR INTERSECTIONS OPERATING CONDITIONS: EXISTING, EXISTING PLUS PROJECT, CUMULATIVE AND CUMULATIVE PLUS PROJECT

	Existing PM		Existing Plus Project		2040Cumulative		2040Cumulative Plus Project	
Intersection[a]	Average Delay[b]	LOS	Average Delay	LOS	Average Delay	LOS	Average Delay	LOS
Bayshore Boulevard/Silver Avenue	24.3	C	26.0	C	38.6	D	45.1	D
Bayshore Boulevard/US NB 101 Off-ramp (Silver Exit)	9.3	A	11.7	B	9.5	A	19.4	B
Bayshore Boulevard/Bacon Street /Phelps Street /Egbert Street	15.6	B	16.9	B	28.9	C	42.1	D
Bayshore Boulevard/Paul Avenue	12.2	B	12.7	B	31.4	C	25.5	C

Sources: SFMTA, March 2013.

Notes:

a. Intersection numbering reflects that presented in Bicycle Plan FEIR.

b. Average Delay in seconds per vehicle.

TABLE 3

UN-SIGNALIZED INTERSECTIONS: SOUTHERN EXTENSION WEEKDAY PM PEAK HOUR INTERSECTIONS OPERATING CONDITIONS: EXISTING, EXISTING PLUS PROJECT, CUMULATIVE AND CUMULATIVE PLUS PROJECT

	Existing PM		Existing Plus Project		2040Cumulative		2040Cumulative Plus Project	
Intersection	Delay per Vehicle Worst Approach[a]	LOS	Delay per Vehicle Worst Approach	LOS	Delay per Vehicle Worst Approach	LOS	Delay per Vehicle Worst Approach	LOS
Bayshore Boulevard/Thornton Avenue	12.6 (WB)	B	22.3 (WB)	C	174.3 (WB)	F	97.0 (WB)	F
Bayshore Boulevard/Quint Street	14.0 (SW)	B	14.6 (SW)	B	17.8 (SW)	C	19.3 (WB)	C
Bayshore Boulevard/Donner Street	12.8 (NW)	B	14.5 (SB)	B	14.8 (NW)	B	18.7 (SB)	C
Bayshore Boulevard/Fitzgerald Avenue	16.1 (WB)	C	16.4 (WB)	C	24.0 (WB)	C	24.7 (WB)	C

Sources:

SFMTA, March 2013.

Notes:

a. Abbreviations have been used for the worst approach as follows: SW=southwest approach, WB=westbound approach, NW=northwest approach. Abbreviations are consistent with Sychro and SimTraffic reports.

Transit: The FEIR for the Bicycle Plan program determined that with the implementation of mitigation measures, Project 5-4: Modified Option 2 would have a less-than-significant impact on Transit, stating on Pages V.A.3-445a of the FEIR:

> "Modified Option 2 would reduce delays at some intersections. However, due to similarities elsewhere in roadway configuration to Option 1, there would still be delays at other intersections along the project alignment. There could be potentially significant transit delay and taking a conservative position, Significant Impacts TR-P5-4f and TR-P5-4g for transit would remain as a result of Project 5-4: Modified Option 2."

And Pages V.A.3-514 -516:

> "...With mitigation Measure 5.4e, transit delay would be reduced...Therefore, impacts to transit for Muni bus lines 9, 9X, 9AX and SamTrans 292 for Project 5-4...would be reduced to a less than significant level...

Mitigation Measure 5.4e, from the Bicycle Plan FEIR, addresses green light time in the case that transit delays occur with the implementation of Project 5-4: Modified Option 2.

The proposed Southern Extension project would not result in any substantial increase in delay to transit vehicles beyond what was identified in the Bicycle Plan FEIR. Muni bus line 29 operates along Segment I (Paul Avenue, between San Bruno and Third Street). At Paul Avenue, the proposed Southern Extension project would reduce the westbound through-capacity by converting the existing shared through/right turn lane to right-turn only except Muni vehicles. This change would decrease delay for Muni line 29 and would be an improvement from existing conditions. Muni Line 8AX, 8X, 9, 9L, and 29 operate along Segment II, within the project limits, and there are no lane configuration changes that would affect transit service.

Muni Route 9, 9L, 90 owl and SamTrans bus lines 292 and 397 operate along Segment III (Bayshore Boulevard between Paul Avenue and Augusta/Boutwell Streets), within the project limits, there is one northbound, nearside stop at Fitzgerald Avenue that would be maintained. Travel lanes would be removed in each direction on Bayshore Boulevard between Silver and Paul Avenues. The proposed project also would include a "Left Lane Must Turn Left" restriction for southbound Bayshore Boulevard approaching Boutwell/Augusta Streets, a "Right Lane Must Turn Right" restriction for northbound Bayshore Boulevard approaching Paul Avenue, and a "Right Lane Must Turn Right Except Muni" restriction on westbound Paul Avenue approaching Bayshore Boulevard. As indicated in **Tables 2** and **3**, under the Existing plus Project conditions, the study intersections would operate within acceptable LOS B through C with minor increase in average travel delays. Under Cumulative plus Project conditions, except for the Bayshore Boulevard/Thornton Avenue intersection, all intersections would operate at LOS D or better. However, the average at the worst approach (westbound) at this intersection would improve. The proposed project would create an added delay for Muni bus line 9, 9L, and 90 owl headed southbound on Bayshore Boulevard into a channelized free right turn on the intersection of Bayshore Boulevard and Silver Avenue. This will create an added delay of 10.2 seconds.

In the event the proposed Southern Extension project would result in a potential to adversely affect Muni bus lines 8BX, 9, 9X, 9AX and SamTrans 292 and 397, implementation of Mitigation Measure 5-4e would be applicable to the proposed project and would reduce potential impacts to a less-than-significant level.

Pedestrians: As part of the proposed Southern Extension project, parking would only be removed along Paul Avenue, between Bayshore Boulevard and Third Street, which has low pedestrian movements. Within the remaining two proposed bicycle segments, vehicles parked at the curb could act as a buffer between moving traffic and pedestrians. In addition, the proposed improvements on Bayshore Boulevard would include buffered bicycle lanes (a bicycle lane that is double cased with double strips), in

which the buffer of the striped bike lane would provide an additional level of protection for the pedestrian. Moreover, the proposed Southern Extension project would maintain the existing pedestrian facilities (i.e., sidewalks and crosswalks in the project area). Within the project area, signal timing adjustments are only being proposed at the intersection of Bayshore Boulevard and Silver Avenue. These adjustments would maintain existing pedestrian crossing times. The implementation of the proposed Southern Extension project would not result in an alteration of the existing sidewalk widths within the project corridor. Similar to the findings in the FEIR, pedestrian impacts would be less-than-significant with implementation of the proposed Southern Extension project.

Bicycle: The proposed Southern Extension project would extend the southern limits of Project 5-4: Modified Option 2, along Bayshore Boulevard, from Silver Avenue to Paul Avenue. The proposed project would also implement minor improvements along San Bruno Avenue between Paul Avenue and Mansell Street and Paul Avenue between Bayshore Boulevard and Third Street.

The proposed Southern Extension project would include Class II bicycle lanes in both southbound and northbound lanes on Bayshore Boulevard between Silver and Paul Avenues. Class II bicycle facilities would be installed in both directions on Paul Avenue between Bayshore Boulevard and Third Street. A combination of Class II and Class III bicycle facilities would be installed on Paul Avenue, in both directions, between Bayshore Boulevard and San Bruno Avenue. Sharrows would be provided, in both directions, on San Bruno Avenue, between Paul Avenue and westbound Mansell Street/southbound US-101 off-ramp. The proposed project would also extend the existing northbound bicycle lane on San Bruno Avenue from south of eastbound Mansell Street to westbound Mansell Street/southbound US-101 off-ramp.

New bicycle facilities would give continuity to Bicycle Route 25, along Bayshore Boulevard and San Bruno Avenue, and provide the connection between Bicycle Routes 5, 25, 70 and 705. The proposed Southern Extension would enhance users' experience by providing Class II bike lanes along both south and north lanes on Bayshore Boulevard between Silver and Paul Avenues, and by providing a combination of Class II and Class III improvements along sections of San Bruno and Paul Avenues.

Similar to Project 5-4: Modified Option 2, analyzed in the FEIR, the proposed Southern Extension project is intended to have a beneficial effect of improving roadway conditions and safety for bicyclists and would not adversely affect bicycle operations in the project vicinity. Therefore, bicycle impacts would be less-than-significant.

Parking: This parking discussion for the Southern Extension supplements the parking conditions in the Bicycle Plan FEIR (p. V.A.3-607). The proposed project would not generate parking demand; however, the Southern Extension would remove approximately 50 on-street parking spaces on the north side of Paul Avenue between Bayshore Boulevard and Third Street. Currently, at this location, parking is prohibited on the north side of the street during San Francisco 49er football games (about 10 times a year if there are no playoff games); parking is prohibited at all times on the south side of the street. The removal of 50 on-street parking spaces associated with the proposed Southern Extension project would not be a substantial impact to overall parking conditions in the vicinity.

Consistent with the findings reported in the FEIR and presented here, implementation of the proposed Southern Extension project would not cause a significant change in parking occupancy in the area. While parking conditions change over time, a substantial deficit in parking caused by a project that creates hazardous conditions or significant delays to traffic, transit, bicycles or pedestrians could adversely affect the physical environment. Whether a deficit in parking creates such conditions will depend on the magnitude of the shortfall and the ability of drivers to change travel patterns or switch to other travel modes. If a substantial deficit in parking caused by a project creates hazardous conditions or significant

delays in travel, such a condition could also result in secondary physical environmental impacts (e.g., air quality or noise impacts caused by congestion), depending on the project and its setting.

The absence of a ready supply of parking spaces, combined with available alternatives to auto travel (e.g., transit service, taxis, bicycles or travel by foot) and a relatively dense pattern of urban development, induces many drivers to seek and find alternative parking facilities, shift to other modes of travel, or change their overall travel habits. Any such resulting shifts to transit service or other modes (walking and biking), would be in keeping with the City's "Transit First" policy and numerous San Francisco General Plan Polices, including those in the Transportation Element. The City's Transit First Policy, established in the City's Charter Article 8A, Section 8A.115, provides that "parking policies for areas well served by public transit shall be designed to encourage travel by public transportation and alternative transportation."

The transportation analysis accounts for potential secondary effects, such as cars circling and looking for a parking space in areas of limited parking supply, by assuming that all drivers would attempt to find parking at or near the project site and then seek parking farther away if convenient parking is unavailable. The secondary effects of drivers searching for parking is typically offset by a reduction in vehicle trips due to others who are aware of constrained parking conditions in a given area, and thus choose to reach their destination by other modes (i.e. walking, biking, transit, taxi). Hence, any secondary environmental impacts which may result from a shortfall in parking in the vicinity of the Southern Extension would be minor, and the traffic assignments used in the transportation analysis, as well as in the associated air quality, noise and pedestrian safety analyses, reasonably addresses potential secondary effects. As discussed above, the project area is well-served by local public transit (Muni lines 8BX, 9, 9X and 9AX) and bike lanes (5, 25, 70 and 705), which provide alternatives to auto travel.

Loading: The FEIR for the Bicycle Plan program determined that no feasible mitigation measures were identified for the Bayshore/Jerrold Avenue/US 101 Off-Ramp intersection and a significant loading impact would occur with the implementation of Project 5-4: Modified Option 2, stating on Page V.A.3-449 of the FEIR:

> "...on the segment of Bayshore Boulevard between Cesar Chavez and Industrial Streets has a substantial amount of industrial and commercial uses; on-street parking removal would eliminate available on-street parking spaces for loading activities. ...because there are no other options available to receive deliveries. Because truck loading demand is high along this corridor, a significant loading impact (Significant Impacts TR-P5-4h and TR-P5-4i) would result with implementation of Project 5-4 Option 2 under Existing plus Project and 2025 Cumulative plus Project conditions."

And Page V.A.3-516:

> "No feasible mitigation measures have been identified. Therefore, a significant loading impact would occur on the Bayshore Boulevard between Cesar Chavez and Industrial Streets with implementation of Project 5-4 Option 2 under Existing plus project conditions. ..."
>
> "No feasible mitigation measures have been identified. Therefore, a significant loading impact would occur on the Bayshore Boulevard between Cesar Chavez and Industrial Streets with implementation of Project 5-4 Option 2 under 2025 Cumulative plus project conditions. ..."

On Paul Avenue, freight loading activity is associated with industrial buildings that have off-street parking and off street loading facilities. On Bayshore Boulevard, available on-street and off-street parking spaces are adequate to accommodate the loading demand associated with industrial buildings

and retail businesses. On San Bruno Avenue, between Paul Avenue and Mansell Street, available on-street parking spaces are adequate to accommodate the loading demand associated with retail businesses. The loading demands for the proposed Southern Extension project differ from the loading demands analyzed in the FEIR for Project 5-4: Modified Option 2 in that both on-street and off-street parking is available to accommodate loading demand for the industrial and retail operations located within the proposed project corridor.[18] Thus, the loading demands for the proposed Southern Extension project are not expected to be similar to the loading demands of Project 5-4: Modified Option 2 analyzed in the FEIR. Therefore, contrary to the conclusion reached in the FEIR, there would be less-than-significant loading impacts associated with implementation of the proposed Southern Extension project.

In summary, the significance of impacts with the proposed Southern Extension project as indicated for traffic, transit, pedestrians, bicyclists, and loading would generally be the same or less-than-significant as those described for Project 5-4: Modified Option 2 reported in the certified FEIR.

Aesthetics

The proposed Southern Extension project would result in physical changes within the street right-of-way along the project corridor. In summary, physical changes that may have an effect on the visual setting and aesthetic character of the area include establishment of new bicycle lanes, changes to number of lanes, and lane widths.

Bayshore Boulevard is listed in the General Plan as "Street View of Important Building" and "Good Quality of Street Views" (General Plan, Urban Design Element, Policy 1.12). However, typical views along Bayshore Boulevard, between Silver and Paul Avenues, are of industrial and commercial buildings on the east side and of Highway 101 on the west side of the Boulevard.

The proposed Southern Extension project would alter public views currently available from Bayshore Boulevard, as well as the visual character of the street and its immediate surroundings with the addition of new lane striping, as well as new bicycle lanes. The addition of these physical elements to the public realm would not adversely affect the streetscape and would contribute to a greater sense of visual organization associated with their specific functions for pedestrians, bicyclists and motorists than currently exists. For example, the proposed bicycle lanes on the north and south lanes sides of Bayshore Boulevard would provide a visually delineated path of travel for cyclists as well as for motorists. No unique scenic resources would be adversely affected.

Like Project 5-4: Modified Option 2, the Southern Extension would likely include the addition of signs along some of the streets, but such signs would not be excessively large and would not obstruct views or cast perceptible shadows. As described in the Bicycle Plan Initial Study (FEIR Appendix A, p. 54):

> "Article 6 of the Planning Code governs signs in the City. Section 603 exempts governmental traffic control signs from the provisions of Article 6. Portions of the Proposed Project would include improvements along designated scenic streets, which are identified in Planning Code Section 608.6. Planning Code Section 608.6 regulates the placement of signs along these designated scenic streets, and states that no general advertising sign and no other sign exceeding 200 square feet in area can be placed along such streets. The Proposed Project would include the addition of street signage. However, any new signs installed as a result of the Proposed Project would be smaller than those regulated under Planning Code Section 608.6. Therefore, there would not be a significant impact with respect to scenic street resources."

[18] Ibid 7

The proposed Southern Extension project's physical features would not affect a scenic vista, nor would they create new sources of substantial light or glare, or cast shadows. Therefore, the proposed Southern Extension project, similar to the Bicycle Plan Initial Study findings, would have no significant impacts with respect to scenic vistas, light, or glare. The project would not affect a "Street that Defines the City Form" or a street that is "Important for the Quality of its Views" in an adverse or demonstrable manner. Thus, similar to the conclusions reached in the Initial Study for the Bicycle Plan, there would be no significant adverse impacts related to visual character and less-than-significant impact with respect to scenic resources resulting from the project as modified.

Air Quality

The Bicycle Plan FEIR (p. V.B, 22) found that:

> "Implementation of the Proposed Project would not result in any new traffic volumes being added to the roadway network; therefore, there would be no change in the intersection volume under project conditions. Hence, intersection volumes stay constant between Existing and Existing plus Project Conditions. Similarly, there is no change in intersection volumes between 2025 Cumulative and 2025 Cumulative plus Project Conditions. However, the reduction of travel lanes at major intersections would increase traffic congestion at some intersections... under Cumulative Plus Project conditions, CO [carbon monoxide] would not exceed the ambient air quality standard and TAC [toxic air contaminants] emissions would be less than existing at all intersections. Therefore implementation and operation of the project would not result in significant adverse air quality impacts. "
>
> "Bicycling has no associated emissions and the Proposed Project can reasonably be expected to reduce emissions citywide by shifting a portion of motor vehicle trips to bicycle trips. The Proposed Project could contribute to a new reduction in emissions and thus would have no impact and would not contribute to a cumulative impact... implementation of the Proposed Project does not result in any new automobile trips being added to the roadway network. Under cumulative conditions, with the Proposed Project included, CO and TAC emissions are predicted to decrease."

As illustrated in **Tables 2** and **3** above, the proposed Southern Extension project's average intersection delays would generally be consistent with reported delays for Project 5-4: Modified Option 2 presented in the FEIR. Given the similarity of delays expected under the proposed Southern Extension project as compared to the Project 5-4: Modified Option 2, air quality impacts would be substantially the same. No new or substantially greater air quality impacts would occur.

Archeology

The Initial Study for the Bicycle Plan program determined that with the implementation of a mitigation measure, the project would have a less-than-significant impact on Archeology, stating on Page 58 of the Initial Study (Appendix A of the Bicycle Plan FEIR):

> "The Planning Department found that the Proposed Project may require excavation in places to widen or narrow the roadway in the process of reconfiguring traffic lanes or parking, or to modify, install or remove medians. Excavation would be to a depth no greater than 24 inches. No project activities were identified that would result in a potential to adversely affect CEQA significant archeological resources. ..."

And Page 59:

> "Given the possibility that unanticipated archeological resources may be impacted by the Proposed Project, MEA Standard Archeological Mitigation Measure 1 (Accidental Discovery) will be implemented. With this mitigation measure, the potential of the Proposed Project to affect significant archeological resources would be reduced to a less-than-significant level."

Mitigation Measure 1, from the Bicycle Plan Initial Study, addresses treatment of cultural resources in the case that any are discovered during construction of Project 5-4: Modified Option 2.

Similar to the project analyzed in the Initial Study, the proposed Southern Extension project would result in a potential to adversely affect CEQA significant archeological resources. However, implementation of Mitigation Measure 1 would be applicable to the proposed Southern Extension project and would reduce potential impacts to archeological resources and human remains to a less-than-significant level.

Water Quality & Runoff

The Initial Study for the Bicycle Plan program determined that the project would have a less-than-significant impact on Hydrology and Water Quality, stating on page 75 of the Bicycle Plan Initial Study (Appendix A of the Bicycle Plan FEIR):

> "The Proposed Project, located within the existing street right-of-way, would not change the amount of impervious surface area substantially, or alter the drainage pattern for the affected streets significantly. There are elements of the Proposed Project that would involve minor excavation and grading; however, the Proposed Project would generally replace paved surfaces with paved surfaces, with the exception of trees along streets and sidewalks. In the case of removed trees, some areas that are currently not paved might be paved over and rendered impervious, adding to stormwater runoff. These effects would be limited to small areas and would not be expected to significantly change runoff patterns."

The proposed Southern Extension project design elements would generally replace existing pavement with new pavement and would not increase impervious surface along Bayshore Boulevard. Additionally, the proposed Southern Extension project's design elements are similar to other Near-Term Projects analyzed in the FEIR and potential design elements analyzed under the Long-Term Improvement Projects in the FEIR. During construction, there would be a temporary increase in the potential for erosion and transport of soil particles during any excavation. During construction, the proposed Southern Extension project would be required to comply with all local water quality requirements, including stormwater control measures to reduce potential erosion impacts during construction and runoff would be directed to the City's combined stormwater/wastewater system and would be treated to standards contained in the City's National Pollutant Discharge Elimination System Permit prior to discharge. Therefore, the Southern Extension would not substantially degrade hydrology and water quality, and impacts on water quality would be less than significant, consistent with the analysis and conclusions made in the Bicycle Plan FEIR Initial Study.

Other Issues

The Initial Study for the Bicycle Plan program determined that for the following topics, any environmental effects associated with the program and its individual projects would either be insignificant or would be reduced to a less-than-significant level by implementation of the mitigation

measures included in as part of the program: land use, population and housing, noise, air quality, recreation, utilities and service systems, public services, biological resources, geology and soils, hydrology and water quality, hazards and hazardous materials, mineral and energy resources, and agricultural resources. The FEIR did not discuss these issues further. The Initial Study, including the significance conclusions reached therein, remains applicable to the Southern Extension designs and all applicable mitigation and improvement measures from the Initial Study and the FEIR would be applied to the Southern Extension.

CONCLUSION

Based on the foregoing, the Department concludes that the analyses conducted and the conclusions reached in the FEIR certified on June 25, 2009 remain valid, and that no supplemental environmental review is required for the proposed project modifications. The proposed Southern Extension project would not cause new significant impacts not identified in the FEIR, or result in a substantial increase in the severity of previously identified significant impacts, and no new mitigation measures would be necessary to reduce significant impacts. No changes have occurred with respect to circumstances surrounding the original project that would cause significant environmental impacts to which the proposed Southern Extension project would contribute considerably, and no new information has been put forward which shows that the proposed Southern Extension project would cause significant environmental impacts. Therefore, no supplemental environmental review is required beyond this addendum.

I do hereby certify that the above determination has been made pursuant to State and Local requirements.

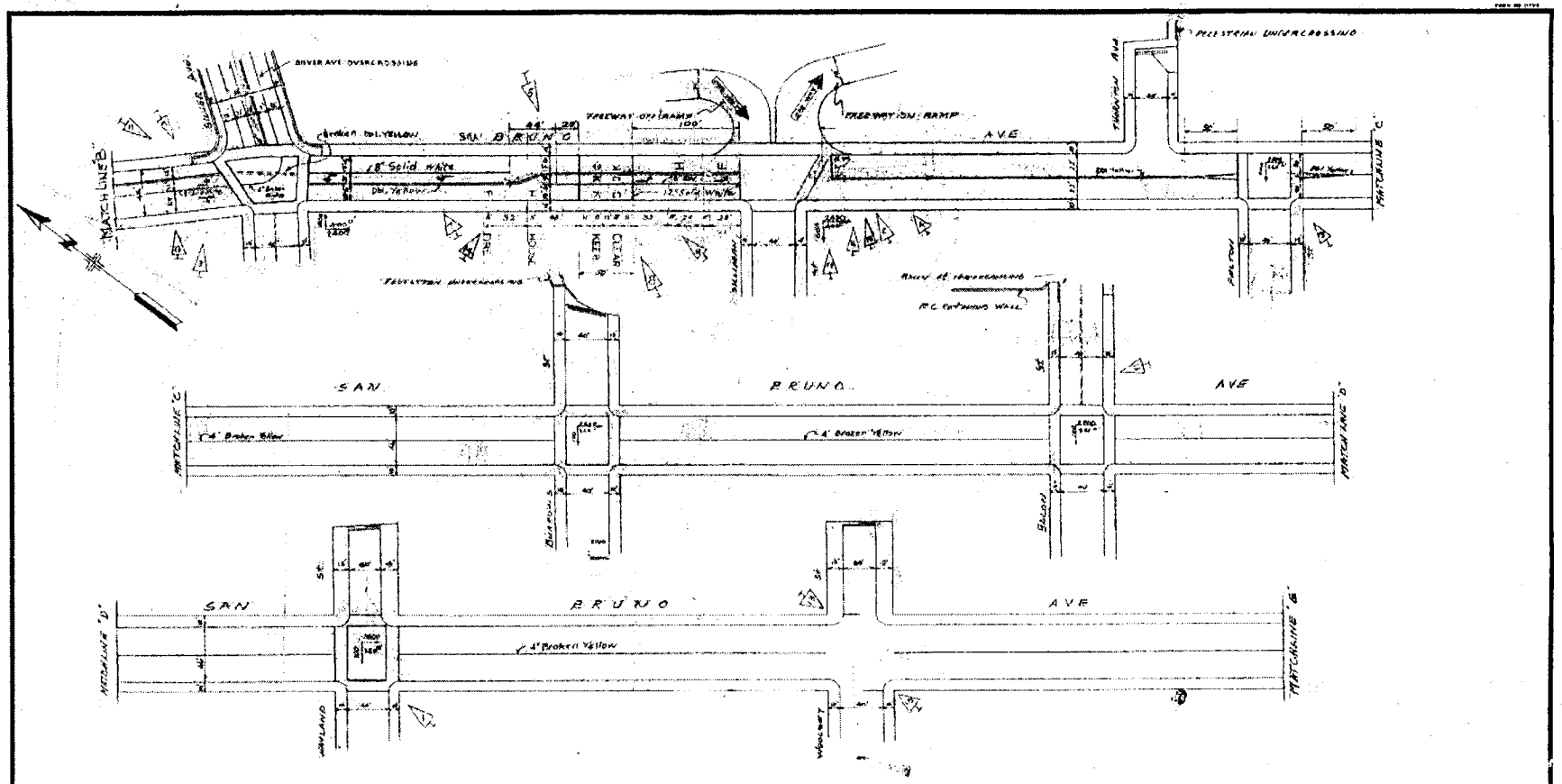
DATE June 24, 2013

Sarah Jones, Acting Environmental Review Officer
for John Rahaim, Director of Planning

cc: Rachel Carpenter, San Francisco Municipal Transportation Agency, MTA Livable Streets
Bulletin Board / Master Decision File/Distribution List

APPENDIX A

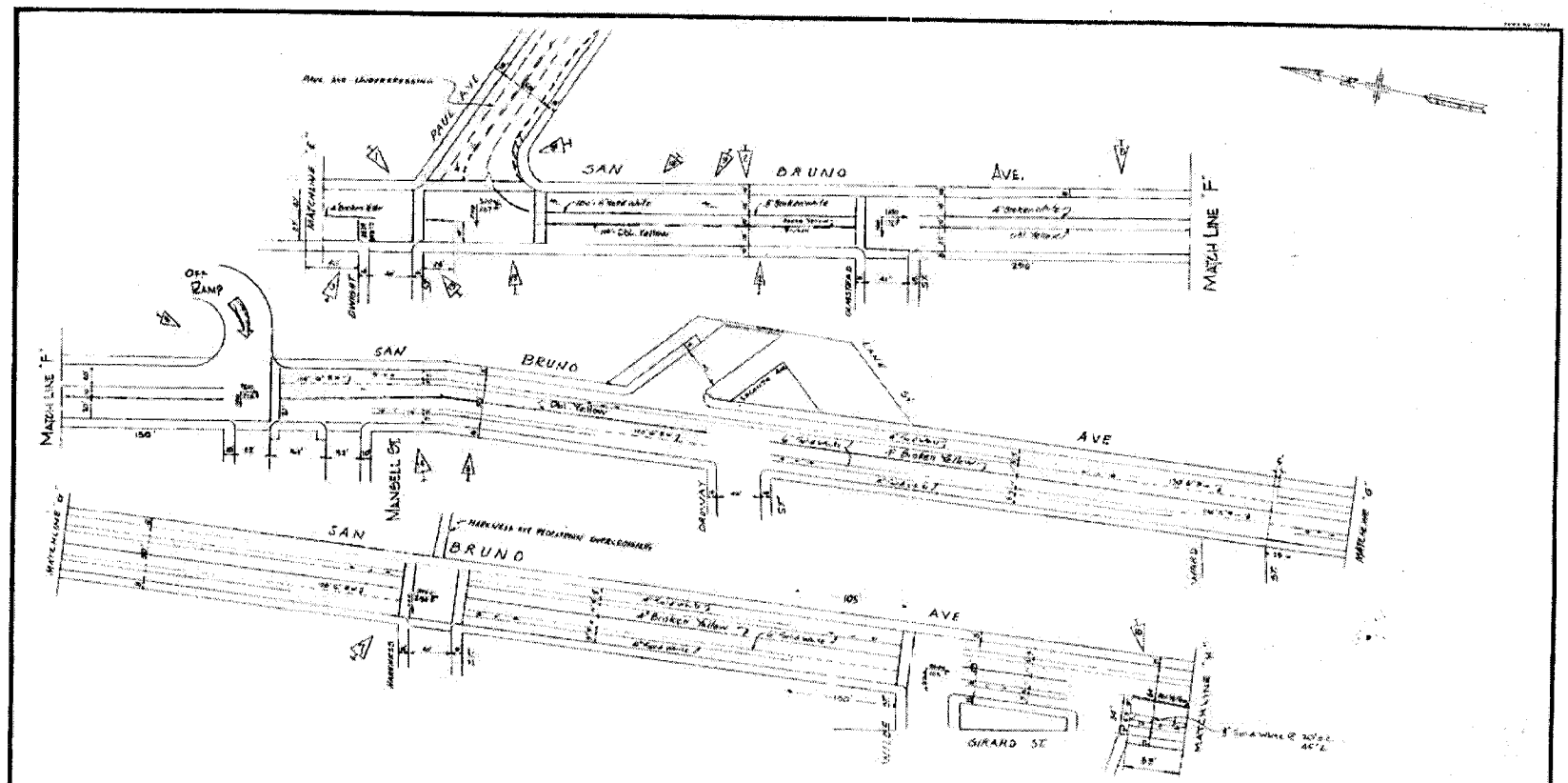
PROJECT ANALYZED IN THE FEIR
"Project 5-4: Modified Option 2" & "Project 5-13: San Bruno Avenue"



PROJECT 5-13 EXISTING

SAN BRUNO AVENUE
PAUL AVENUE TO SILVER AVENUE

SHEET 1 OF 2



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SAN BRUNO AVENUE
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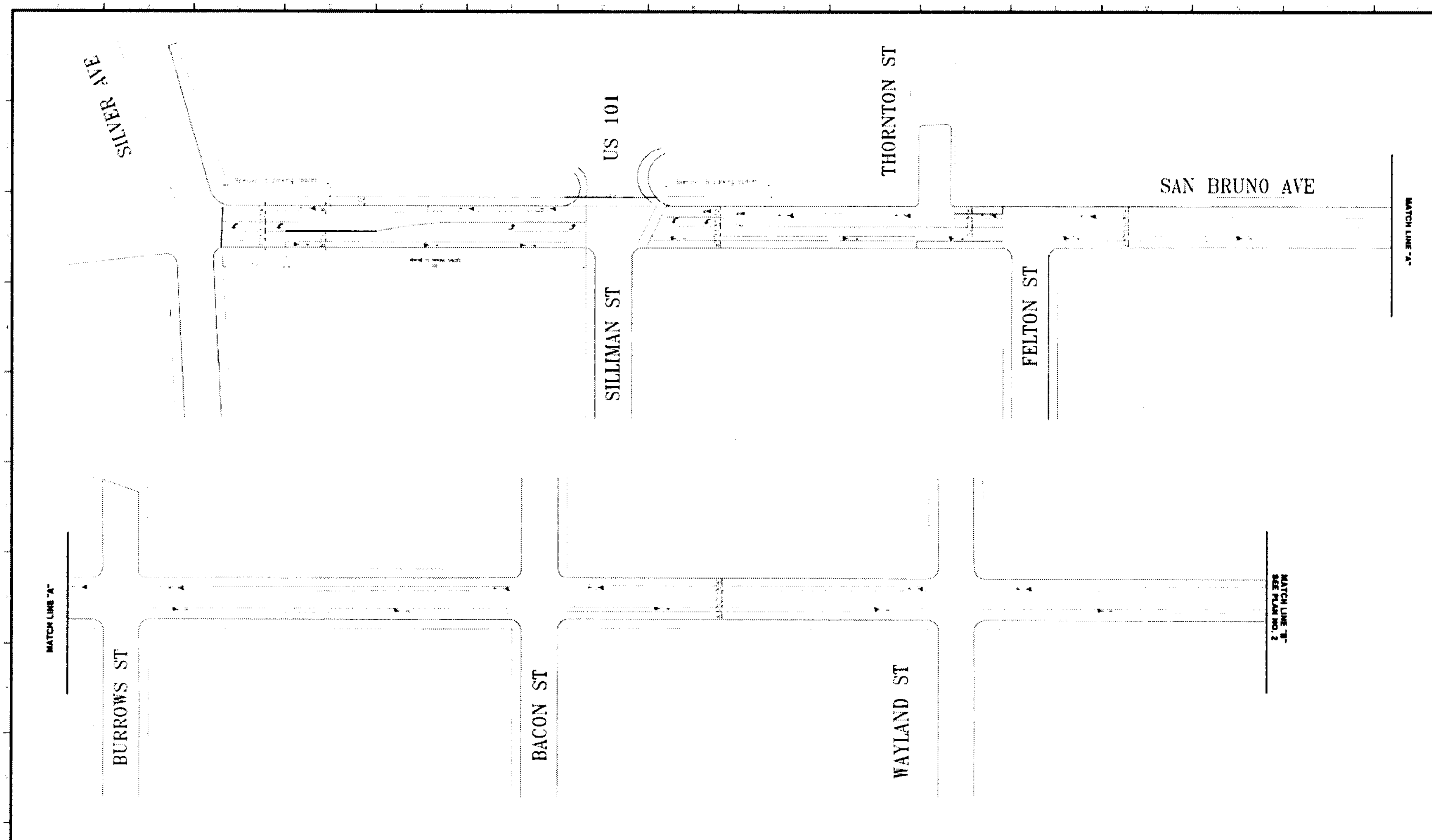
SHEET 2 OF 2



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CITY AND COUNTY OF SAN FRANCISCO

PROJECT 5-13 PROPOSED OPTION 1

SAN BRUNO AVENUE
PAUL AVENUE TO SILVER AVENUE

1 OF 2

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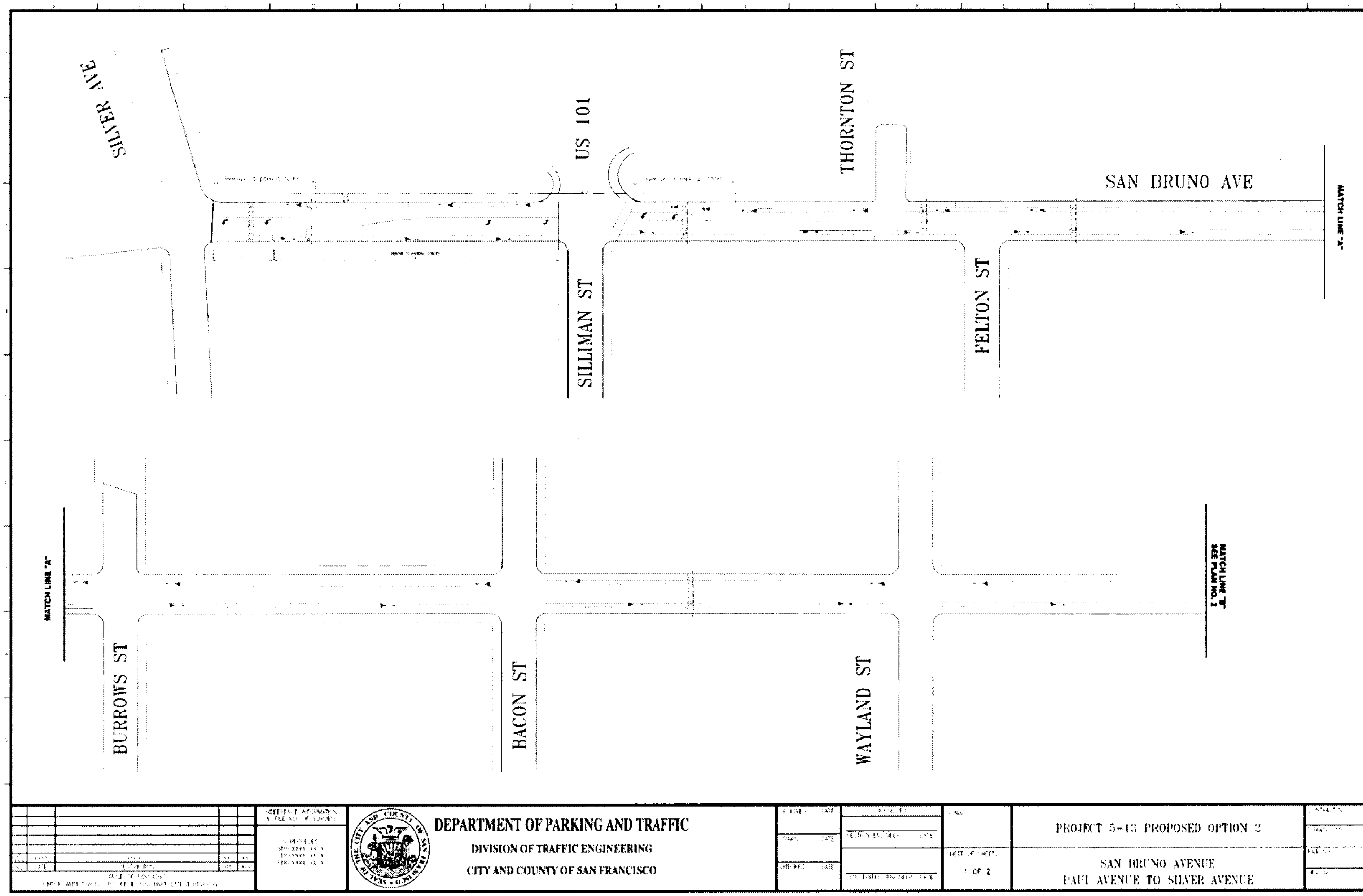
CITY AND COUNTY OF SAN FRANCISCO

SHEET OF SHEETS 2 OF 2

PROJECT 5-13 PROPOSED OPTION 1

SAN BRUNO AVENUE
PAUL AVENUE TO SILVER AVENUE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MATCH LINE "A"
BURROWS ST
BACON ST
WAYLAND ST
MATCH LINE "B" SEE PLAN NO. 2
DEPARTMENT OF PARKING AND TRAFFIC
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CITY AND COUNTY OF SAN FRANCISCO
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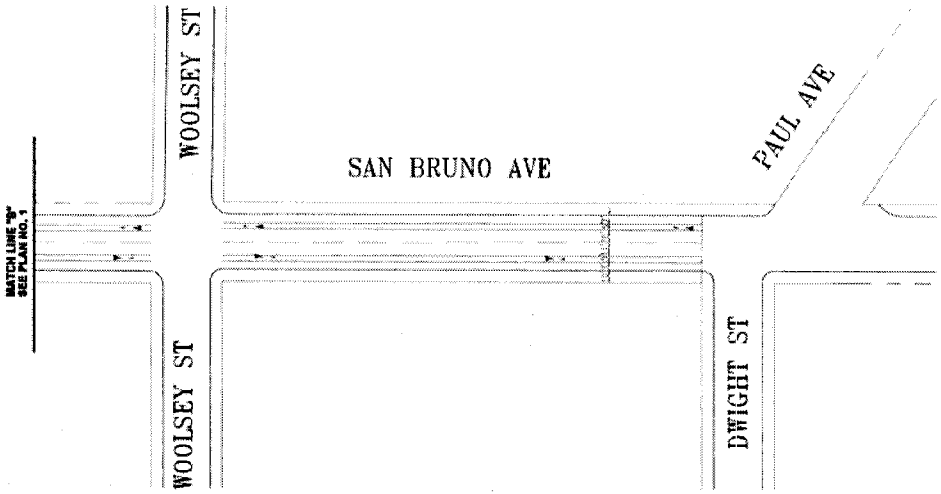

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PROJECT 5-13 PROPOSED OPTION 2

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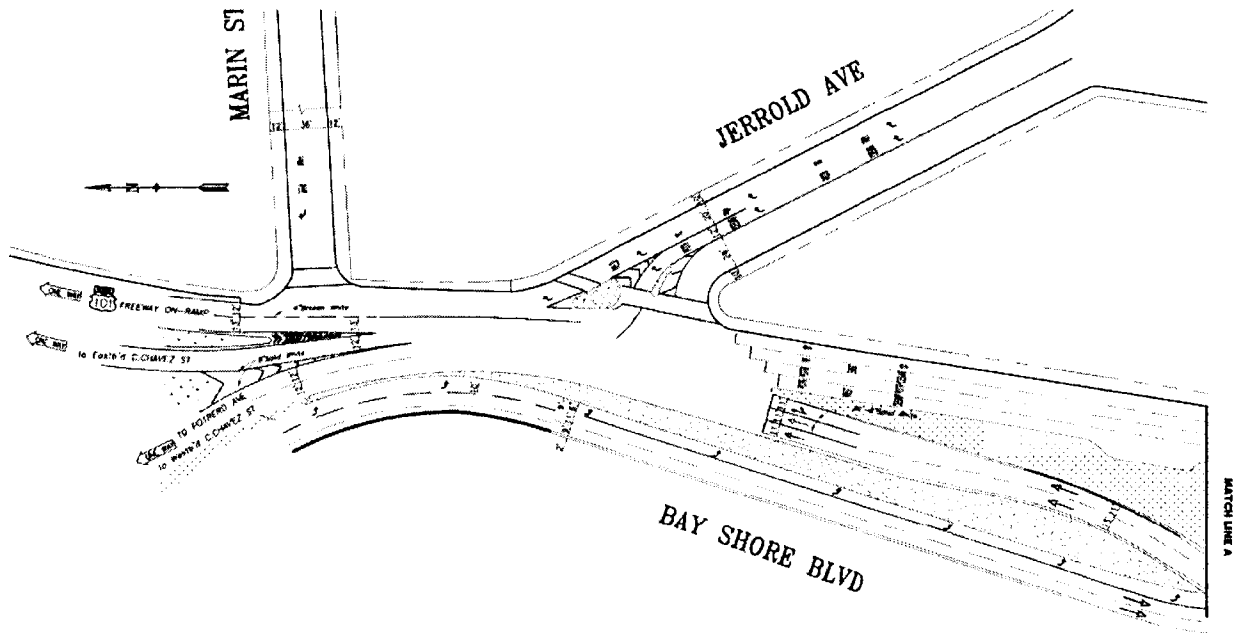
2 OF 2



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PROJECT 5-4 EXISTING

DAYSHORE BOULEVARD
CESAR CHAVEZ TO SILVER AVENUE

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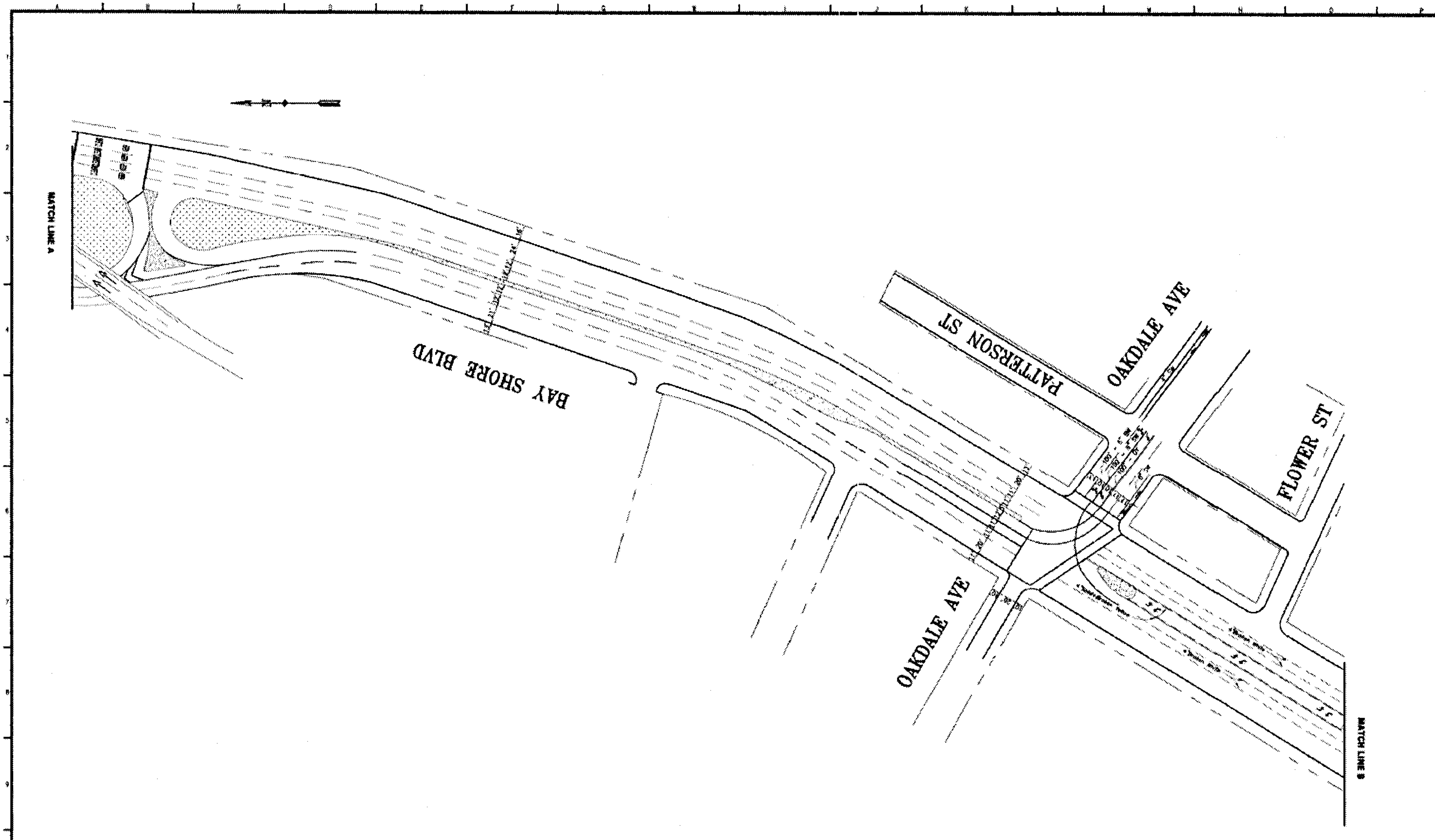

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PROJECT 5-4 EXISTING

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CESAR CHAVEZ TO SILVER AVENUE

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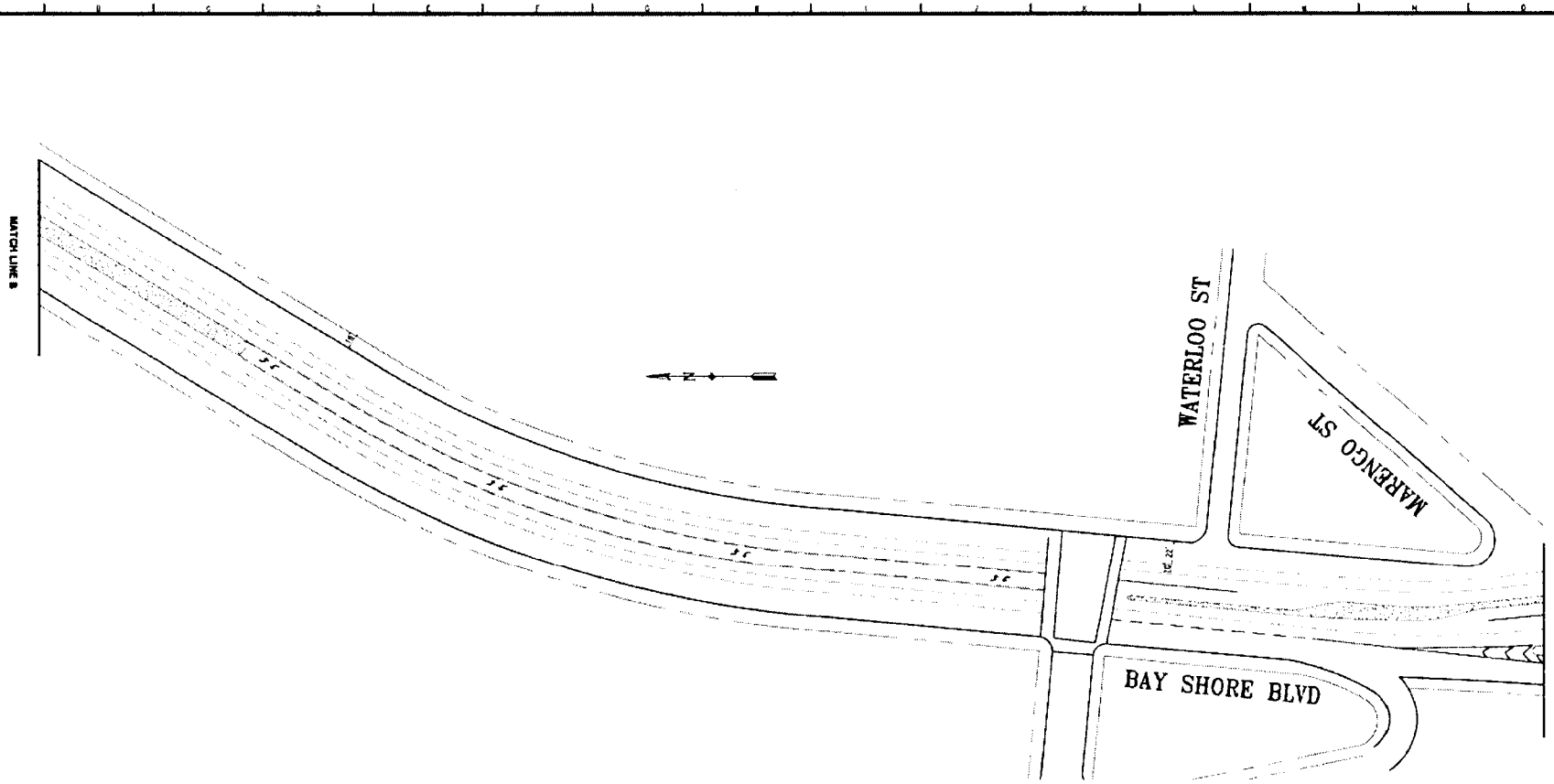

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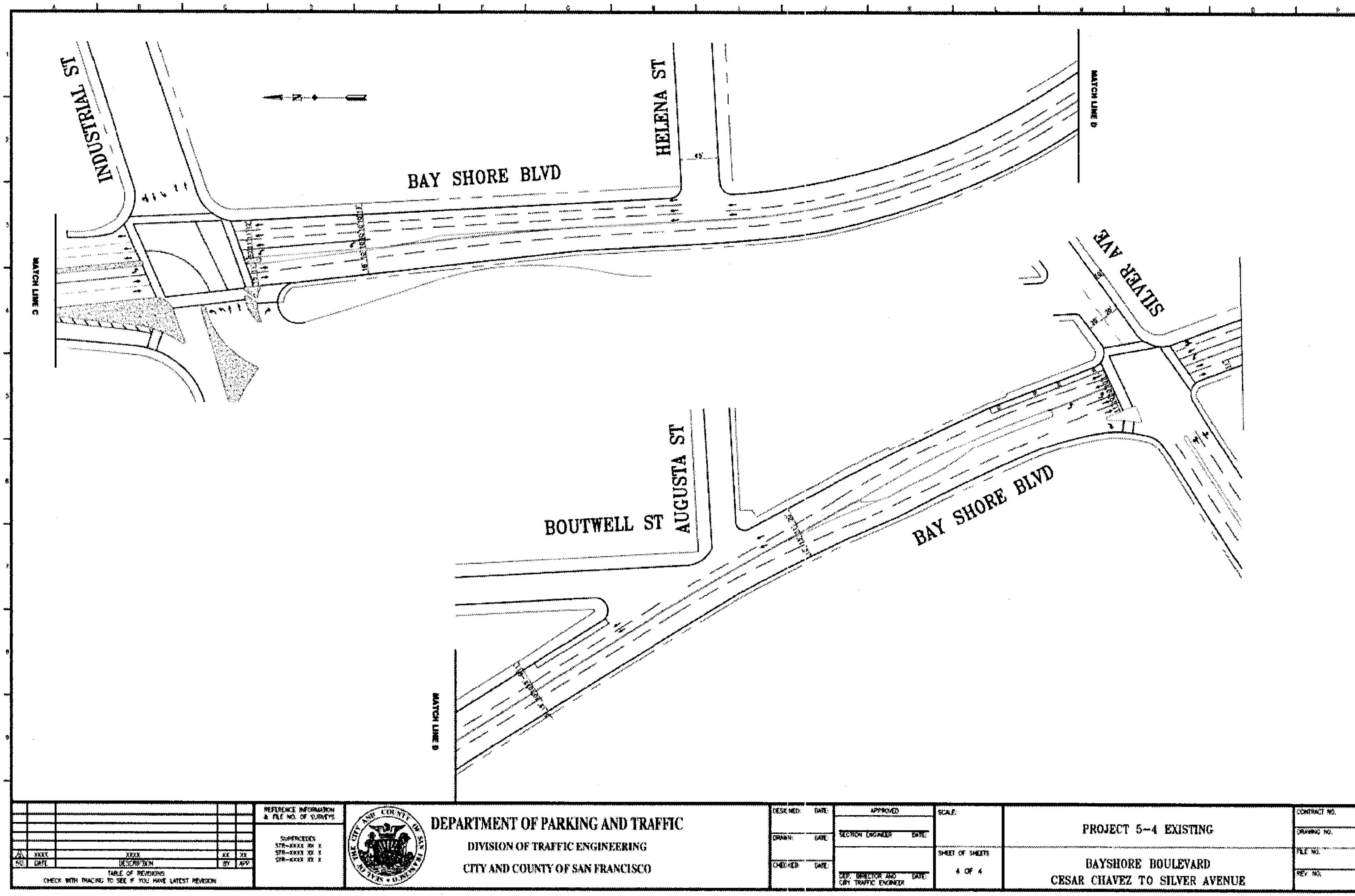
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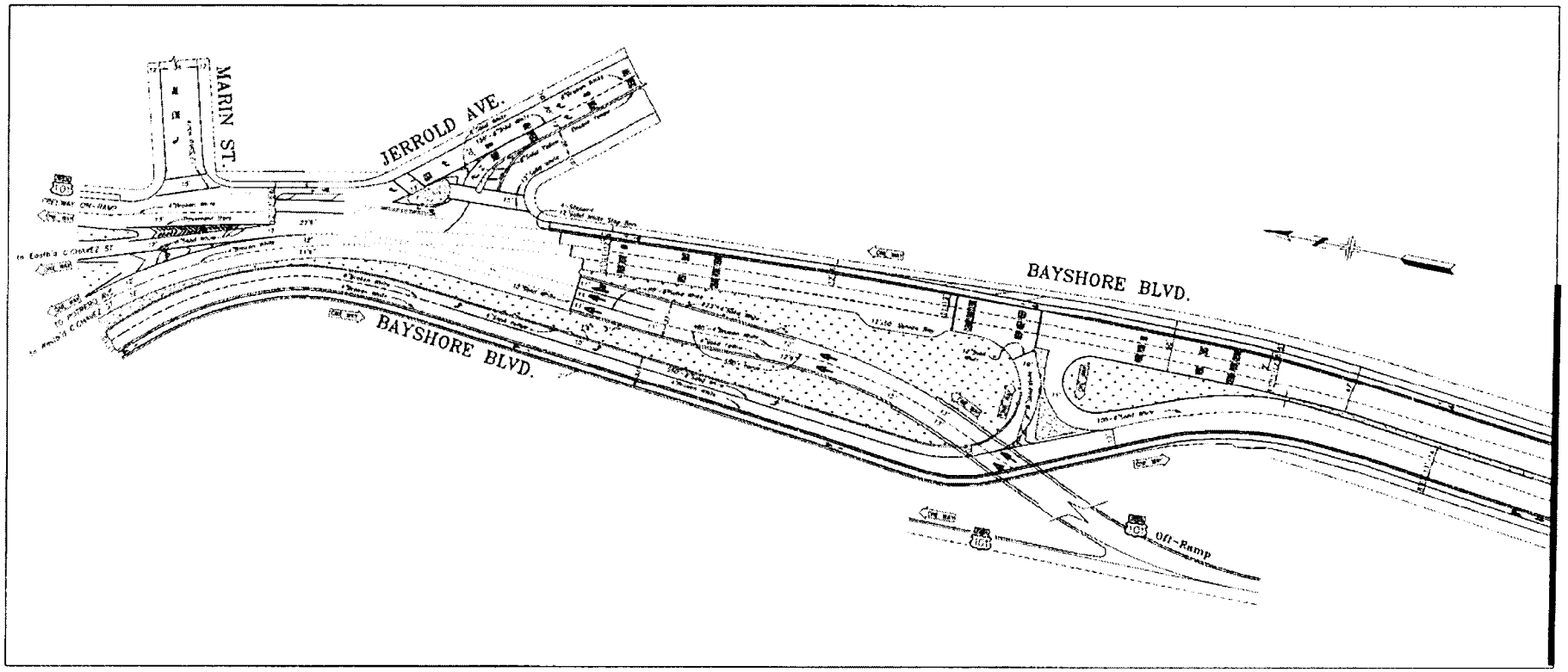

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PROJECT 5-4 PROPOSED OPTION 1

BAYSHORE BOULEVARD
CESAR CHAVEZ TO SILVER AVENUE

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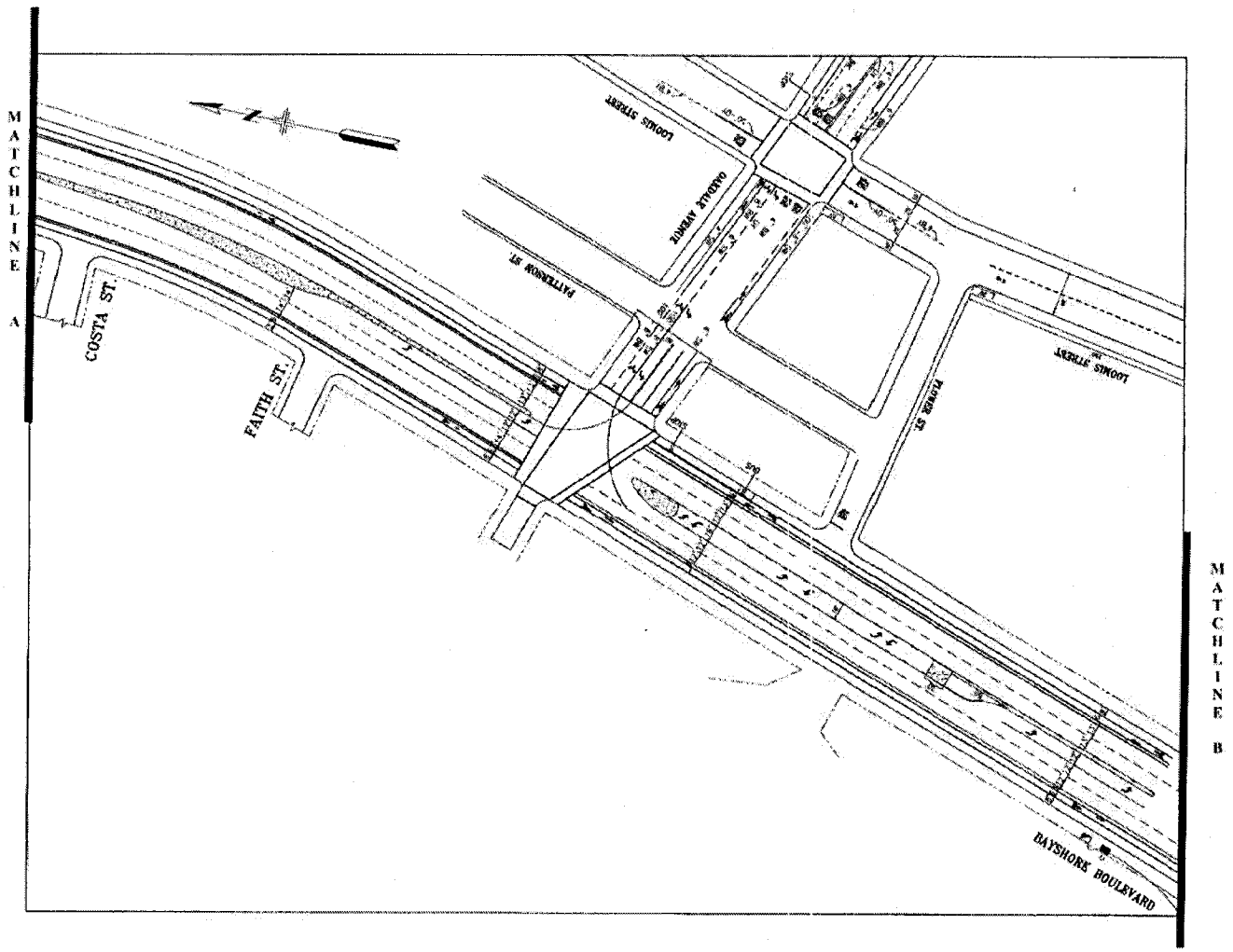
REV. NO.



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PROJECT 5-4 PROPOSED OPTION 1

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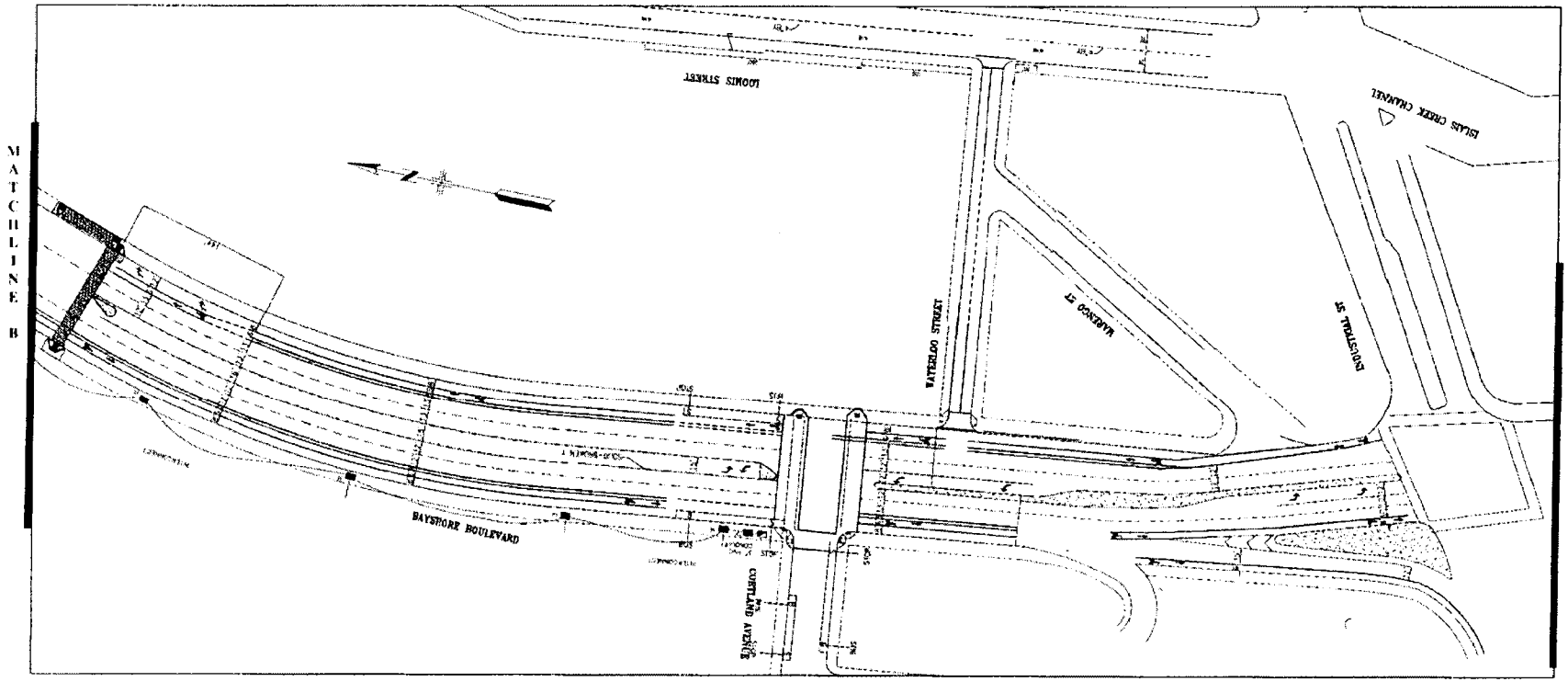

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PROJECT 5-4 PROPOSED OPTION 1

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CESAR CHAVEZ TO SILVER AVENUE

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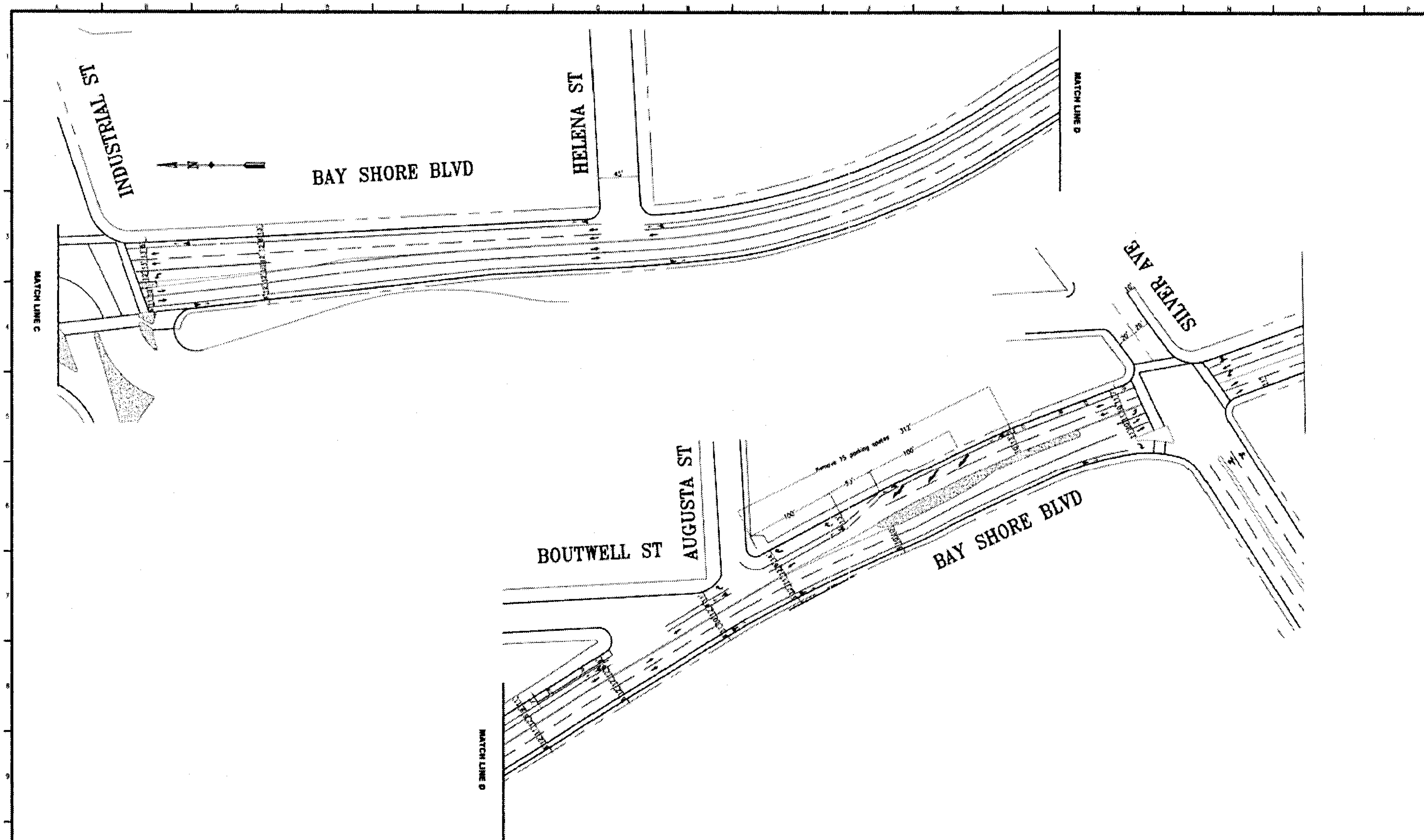

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PROJECT 5-4 PROPOSED OPTION 1

BAYSHORE BOULEVARD
CESAR CHAVEZ TO SILVER AVENUE

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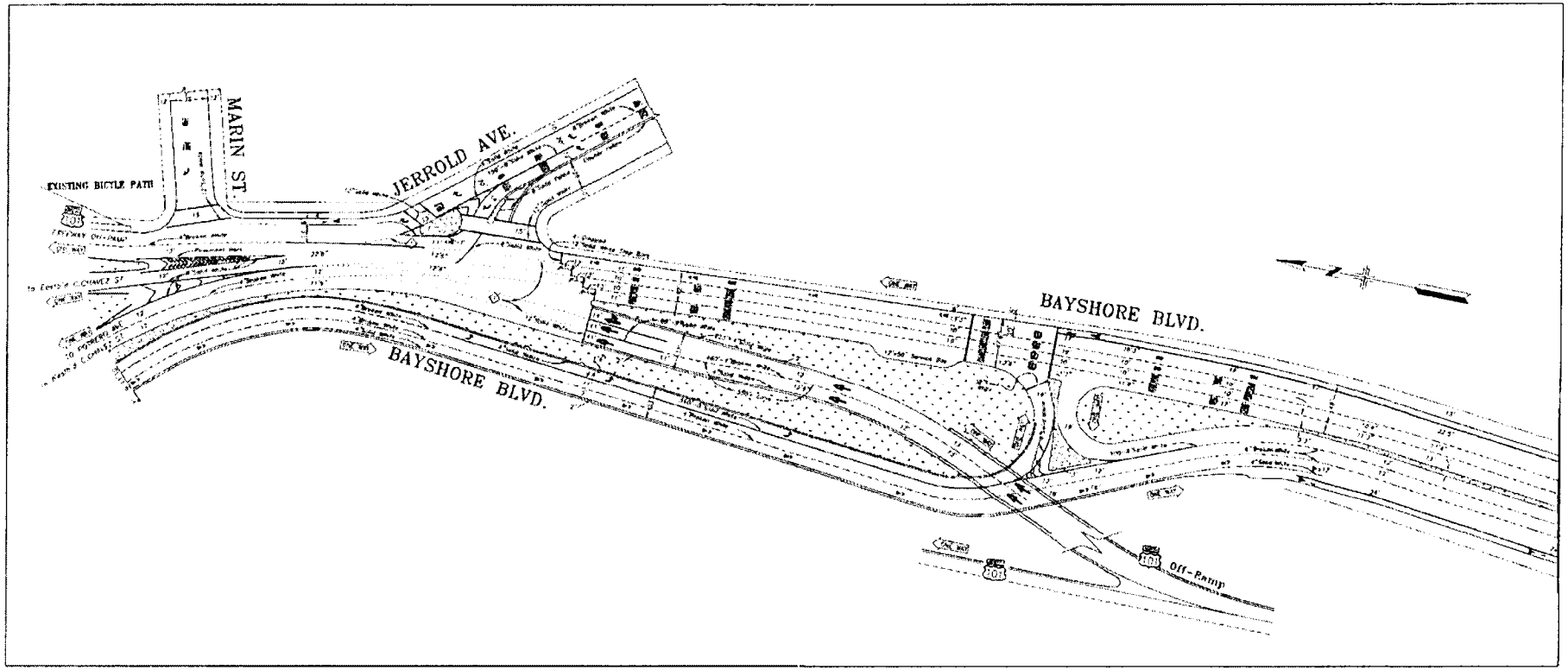

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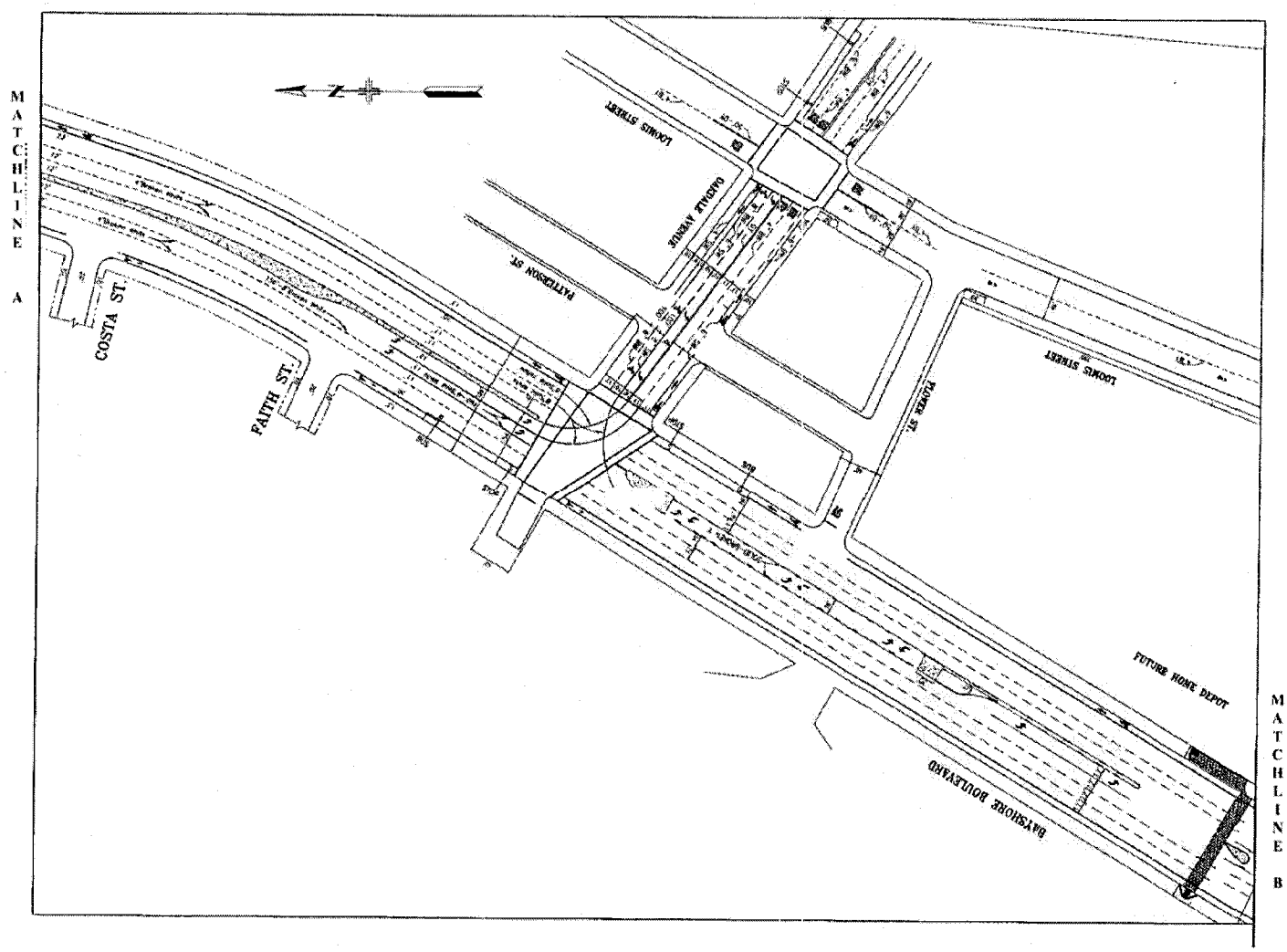
PROJECT 5-4 PROPOSED OPTION 2

BAYSHORE BOULEVARD
CESAR CHAVEZ TO SILVER AVENUE

CONTRACT NO
DRAWING NO
TEST NO
REV NO



NO.	DATE	DESCRIPTION	BY	APP'D
		TABLE OF REVISIONS CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION		

REFERENCE INFORMATION & FILE NOS. OF SURVEYS

DEPARTMENT OF PARKING AND TRAFFIC
DIVISION OF TRAFFIC ENGINEERING
CITY AND COUNTY OF SAN FRANCISCO

APPROVED
SIGNAL ENGINEER DATE
TO BE SIGNED AND DATED BY TRAFFIC ENGINEER

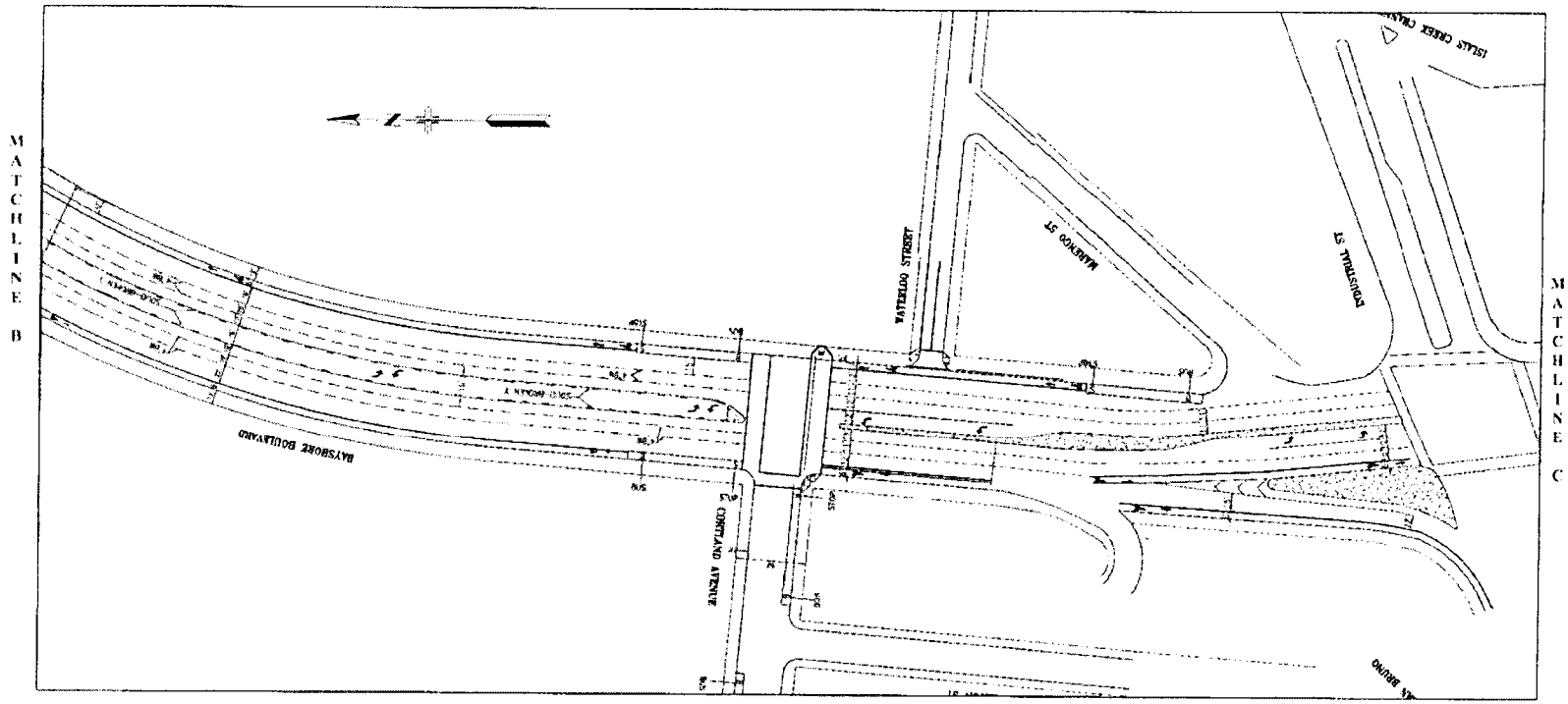
SCALE:

SHEET OF SHEETS
2 OF 4

PROJECT 5-4 PROPOSED OPTION 2

BAYSHORE BOULEVARD
CESAR CHAVEZ TO SILVER AVENUE

CONTRACT NO.
DRAWING NO.
FILE NO.
REV. NO.



DEPARTMENT OF PARKING AND TRAFFIC
DIVISION OF TRAFFIC ENGINEERING
CITY AND COUNTY OF SAN FRANCISCO

PROJECT 5-4 PROPOSED OPTION 2

BAYSHORE BOULEVARD
CESAR CHAVEZ TO SILVER AVENUE

3 OF 4

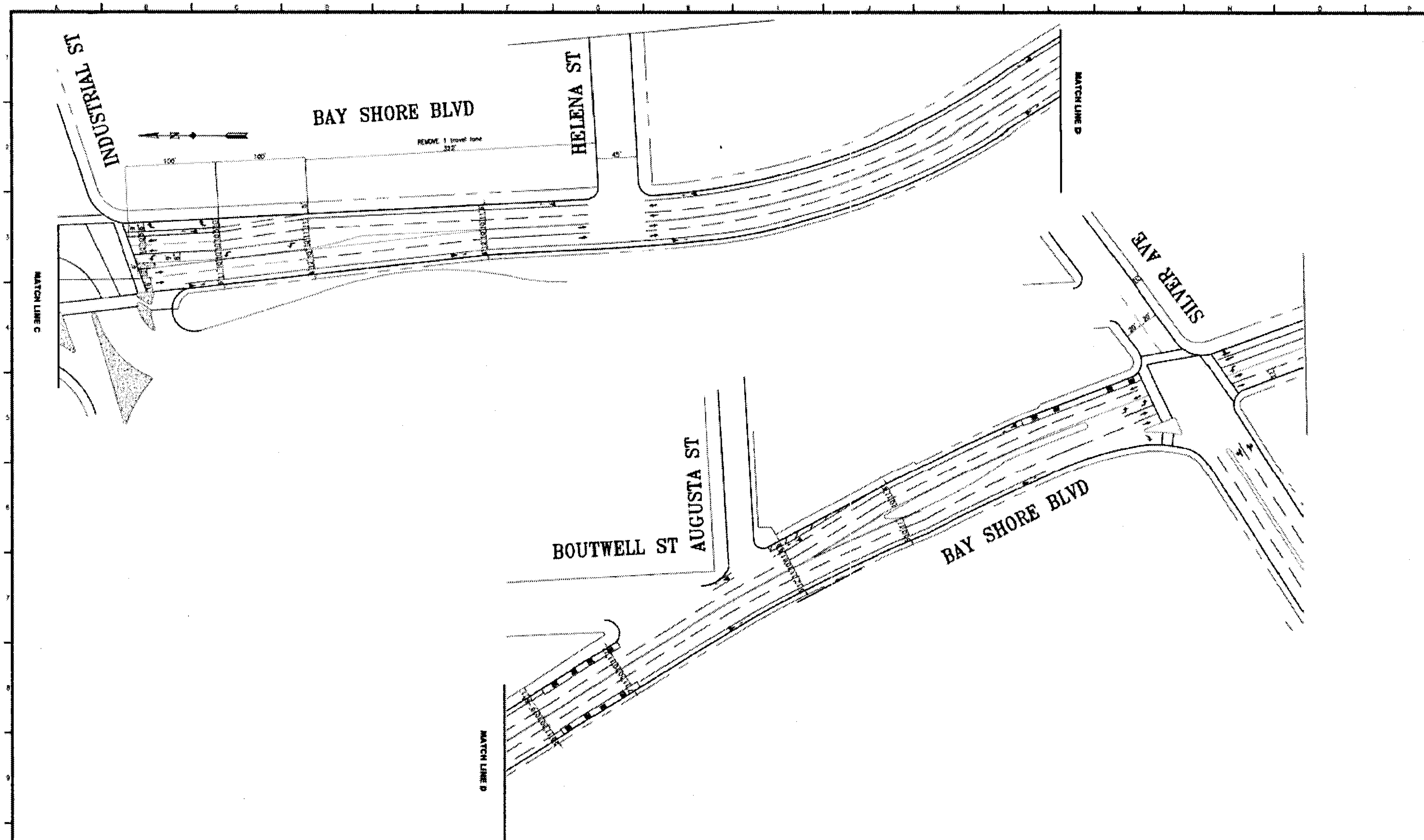


TABLE OF REVISIONS
CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION

REFERENCE INFORMATION & FILE NO. OF SURVEYS

SUPERCEDES:
STR-XXXX XX X
STR-XXXX XX X
STR-XXXX XX X

DEPARTMENT OF PARKING AND TRAFFIC
DIVISION OF TRAFFIC ENGINEERING
CITY AND COUNTY OF SAN FRANCISCO

DESIGNED: DATE:
DRAWN: DATE:
CHECKED: DATE:

APPROVED
SECTION ENGINEER DATE:
DEP. DIRECTOR AND CITY TRAFFIC ENGINEER DATE:

SCALE:
SHEET OF SHEETS
4 OF 4

PROJECT 5-4 PROPOSED OPTION 2

BAYSHORE BOULEVARD
CESAR CHAVEZ TO SILVER AVENUE

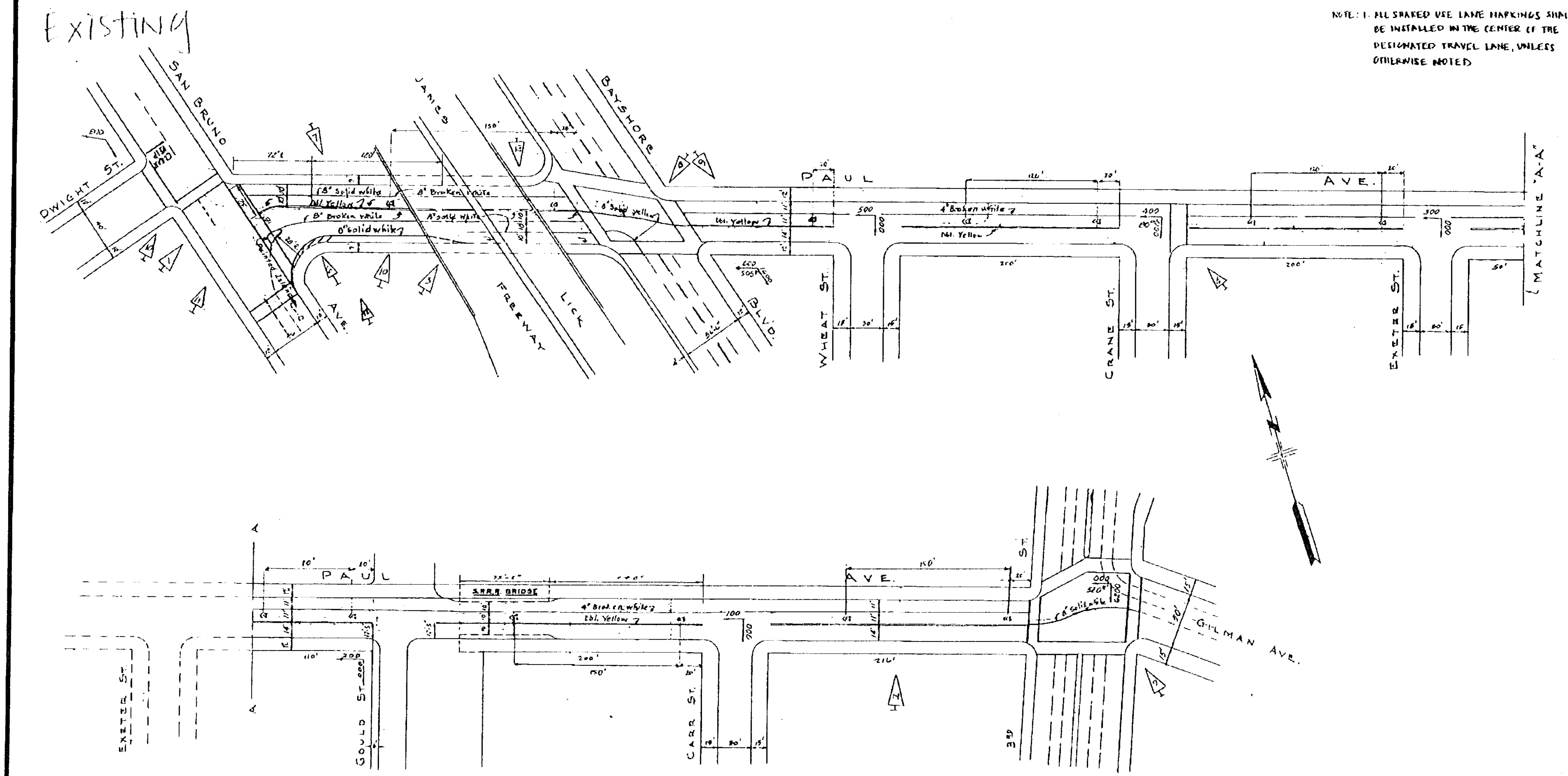
CONTRACT NO.
DRAWING NO.
FILE NO.
REV. NO.

APPENDIX B
Modified Project 5-4: Modified Option 2 SouthernExtension

SEGMENT 1

Existing

NOTE: 1. ALL SHARED USE LANE MARKINGS SHALL BE INSTALLED IN THE CENTER OF THE DESIGNATED TRAVEL LANE, UNLESS OTHERWISE NOTED



NO.	DATE	DESCRIPTION	APP'D	BY
15	[illegible]	ADDED SHARROWS FROM [illegible] TO 3RD	[illegible]	LCA
14	3-7-12	ADDED [illegible] AT BAYSHORE	RW	TA
13	1/12/15	Paul at Bayshore lane assignment	[illegible]	RO
12	[illegible]	ADDED "KEEP CLEAR" MESSAGE & LIMIT STRIPE	BD	TA
11	1/13/[illegible]	ADDED X-WALK & STOP BAR AT SAN BRUNO	BP	TA
10	[illegible]	REVD. STRIPING BET. SAN BRUNO AVE AND BAYSHORE BLVD. AS PER FIELD CHECK	RJ	[illegible]
9	5-23-78	Chg'd Striping Bet. Bayshore & 3rd St.	[illegible]	KK
8	2-17-77	Added 8' wide @ Bayshore Blvd.	J.C.	[illegible]
7	5-12-76	Chg'd Striping Bet. Bayshore & San Bruno	[illegible]	KK
6	[illegible]	Add Left Turn Only @ San Bruno Av.	KLW	[illegible]
5	[illegible]	Revised Striping, [illegible]	KLW	[illegible]
4	[illegible]	Added X-Walk at Crane St. [illegible]	[illegible]	[illegible]
3	1961	Relocated offset [illegible]; added guide line at Bayshore and deleted 8" guide line at 3rd St.	[illegible]	G.D.K.
2	[illegible]	[illegible]	[illegible]	[illegible]
1	5-2-60	Revised striping [illegible] at Paul Ave [illegible]	[illegible]	G.D.K.

TABLE OF CHANGES

CAUTION: CHECK WITH TRACINGS TO SEE IF YOU HAVE LATEST REVISION

REFERENCES
INSERT FILE NO'S OF SURVEYS, PLANS, ETC., USED

		DATE
DESIGNED BY		
DRAWN BY	Y.T.F.	9-19-58
TRACED BY	G.D.K.	9-11-59
CHECKED BY	H.F.	9-14-59
APPROVED	[illegible]	9-11-59
SECTION ENG.	BCJ	9-11-59
DIVISION ENG.		

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PUBLIC WORKS
BUREAU OF ENGINEERING

PAUL AVE.
FROM
SAN BRUNO AVE. TO 3RD ST.
TRAFFIC STRIPING

SCALE 1" = 50'

SHEET 1 OF 1 SHEETS

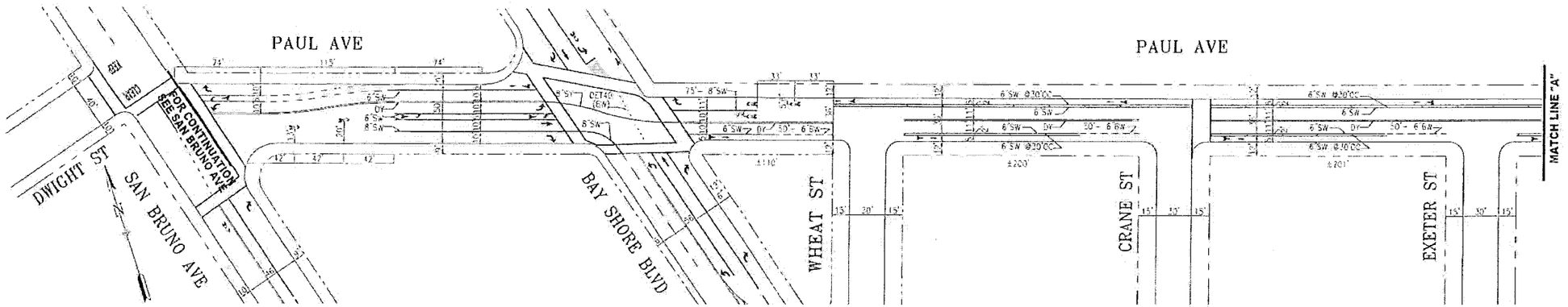
APPROVED

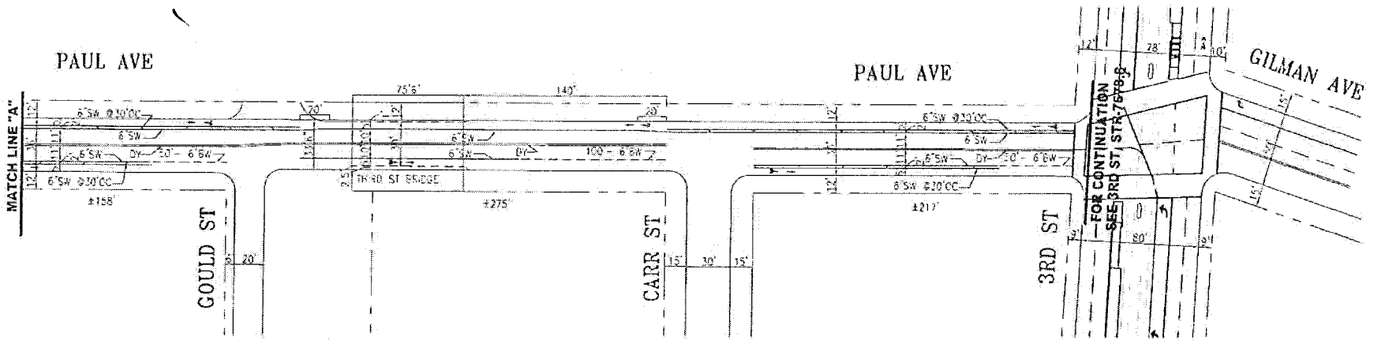
DATE CITY ENGINEER

FILE STR-3041

CHANGE 14

Proposed





NO.	DATE	DESCRIPTION	BY	APP
		TABLE OF REVISIONS CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION		

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

CITY AND COUNTY OF SAN FRANCISCO

DRAWN: ML	DATE: 3/2013
CHECKED: DRC	DATE: #/2013

APPROVED

SENIOR ENGINEER DATE

CITY TRAFFIC ENGINEER DATE

SCALE: 1" = 50'

SHEET OF SHEETS

TRAFFIC STRIPING

PAUL AVENUE
SAN BRUNO AVENUE TO THIRD STREET

CONTRACT NO.

DRAWING NO. STR-####

FILE NO.

REV. NO. 0

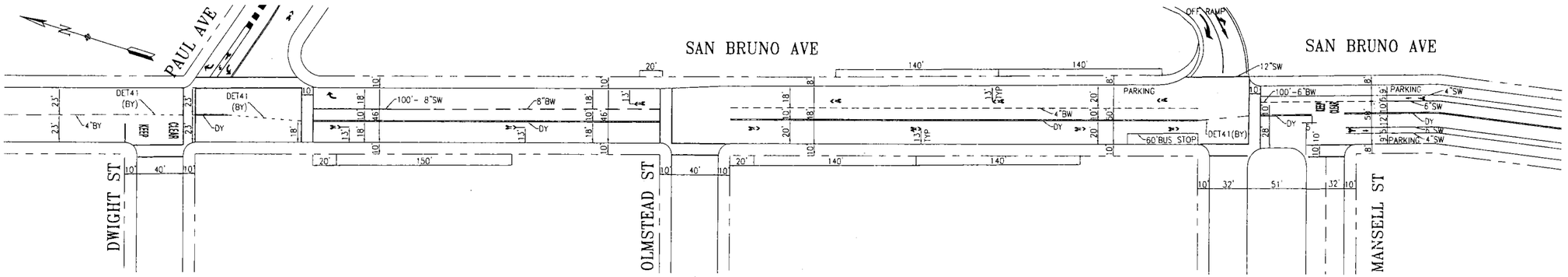
T:\T_E_FILES\Livable Streets\Bicycle Program\BP Projects - New - Tgm from 2009 Bike Plan\San Bruno Avenue, Paul Avenue to Silver Ave Ped_Ave_STR-#### (San Bruno Ave, Paul Ave to Third St) Rev0.dwg mlus By: Apr 05,2013 - 12:02 pm

EXTERNAL REFERENCES: XREFS:
FONTS USED: FONTS

SCALE FACTOR: 50
PLOT SCALE: 1 = 1

FILE NAME: Paul Ave_STR-#### (San Bruno Ave, Paul Ave to Third St)
DATE: --/--/--

Proposed



NO.	DATE	DESCRIPTION	BY	APP.

TABLE OF REVISIONS
CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

CITY AND COUNTY OF SAN FRANCISCO

DRAWN: ML DATE: 3/2013
CHECKED: DRC DATE: #/2013

APPROVED
SENIOR ENGINEER DATE:
CITY TRAFFIC ENGINEER DATE:

SCALE: 1" = 50'
SHEET OF SHEETS

TRAFFIC STRIPING

SAN BRUNO AVENUE
DWIGHT STREET TO MANSELL STREET

CONTRACT NO.
DRAWING NO. STR-####
FILE NO.
REV. NO. 0

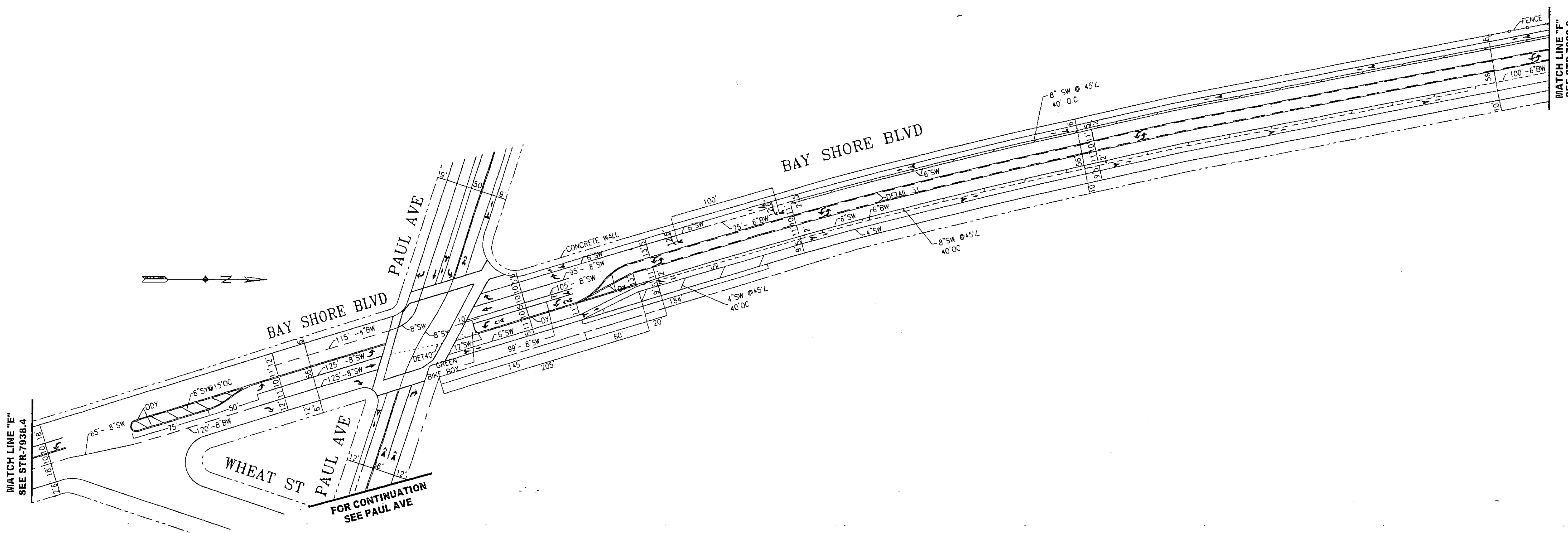
EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS

SCALE FACTOR: 50
PLOT SCALE: 1=1

FILE NAME: San Bruno Ave_STR-#### (Dwight St to Mansell St) -ex0
DATE: --/--/--

SEGMENT III

Proposed



1		REMOVED NB & SB TRAVEL LANES, ADDED BUFFERED BIKE LANES	RAC	DRC
NO.	DATE	DESCRIPTION	BY	APP

TABLE OF REVISIONS
CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

CITY AND COUNTY OF SAN FRANCISCO

SUPERCEDES STR-2566.3, REV10

DRAWN: PL DATE: 2/2012
CHECKED: DRC DATE: 4/30/12

APPROVED
MIKE SALLABERRY #/2013 — SENIOR ENGINEER DATE
RICARDO OLEA #/2013 — CITY TRAFFIC ENGINEER DATE

SCALE: 1" = 50'

SHEET OF SHEETS

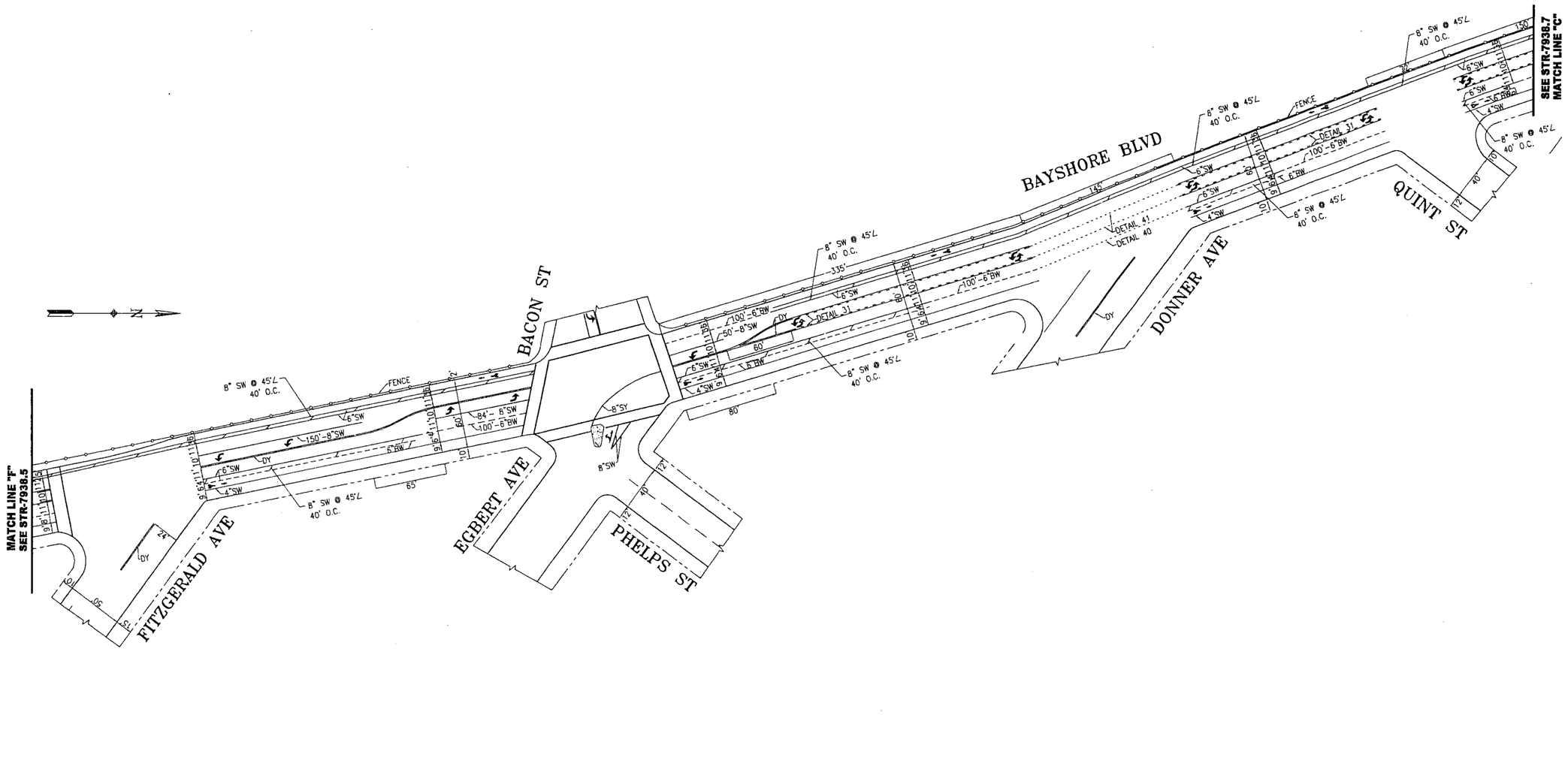
TRAFFIC STRIPING

BAYSHORE BOULEVARD
WHEAT STREET TO FITZGERALD AVENUE

CONTRACT NO.
DRAWING NO. STR-7938.5
FILE NO.
REV. NO. 1

T:\L_E_FILES\LivableStreets\Bicycle Program\BP Projects - Near-Term from 2009 Bike Plan\San Bruno Avenue, Paul Avenue to Silver Ave Bayshore Blvd_STR-7938 (City and County Limit to Cesar Chavez St).dwg mluc Fri Apr 05,2013 - 1:19 pm

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS
SCALE FACTOR: 50
PLOT SCALE: 1=1



NO.	DATE	DESCRIPTION	BY	APP.
1		REMOVED NB & SB TRAVEL LANES ADDED BUFFERED BIKE LANES	RAC	DRC

TABLE OF REVISIONS
CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

CITY AND COUNTY OF SAN FRANCISCO

SUPERCEDES STR-2566.4, REV16

	DATE:
DRAWN: PL	2/2012
CHECKED: DRC	4/30/2012

APPROVED

MIKE SALLABERRY #/2013
SENIOR ENGINEER DATE:

RICARDO OLEA #/2013
CITY TRAFFIC ENGINEER DATE:

SCALE: 1" = 50'

SHEET OF SHEETS

TRAFFIC STRIPING

BAYSHORE BOULEVARD
FITZGERALD AVENUE TO CARROLL AVENUE

CONTRACT NO.

DRAWING NO. STR-7938.6

FILE NO.

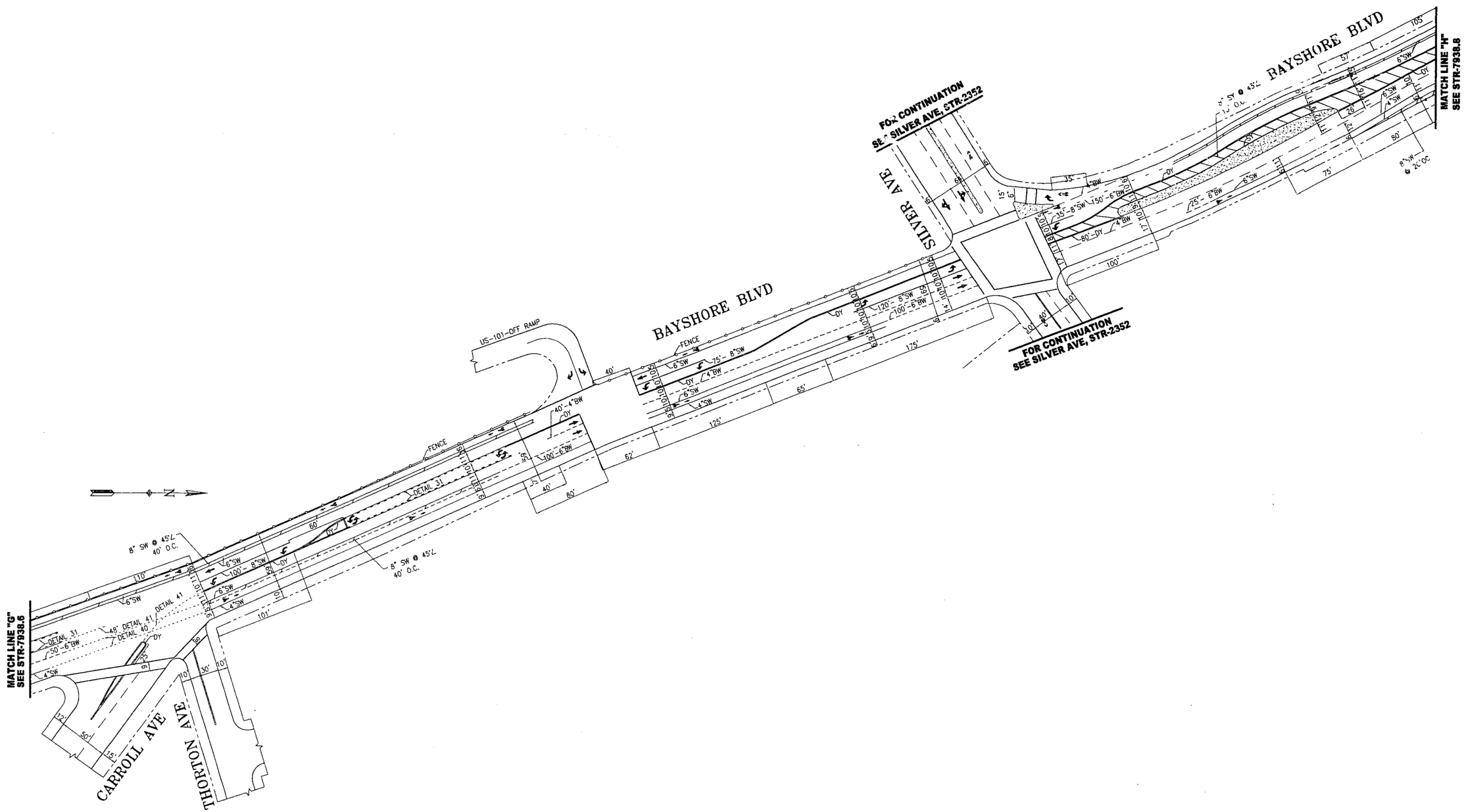
REV. NO. 1

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS

SCALE FACTOR: 50
PLOT SCALE: 1=1

FILE NAME: Bayshore Blvd_STR-7938.1 to 7938.7 (City and County Limit to Cesar Chavez St).dwg
DATE: --/--/--

T:\T_E_FILES\LivableStreets\Bicycle Program\BP Projects - Near-Term from 2009 Bike Plan\San Bruno Avenue, Poul Avenue to Silver Ave Bayshore Blvd_STR-7938 (City and County Limit to Cesar Chavez St).dwg mluc Fri Apr 05,2013 - 12:05 pm



NO.	DATE	DESCRIPTION	BY	APP.
1		REMOVED NB & SB TRAVEL LANES ADDED BUFFERED BIKE LANES	RAC	DRC

TABLE OF REVISIONS
CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

CITY AND COUNTY OF SAN FRANCISCO

SUPERCEDES STR-2566.5, REV9

DRAWN: PL	DATE: 2/2012
CHECKED: DRC	DATE: 4/30/12

APPROVED

THOMAS P FOLKS 5/31/12
SENIOR ENGINEER DATE:

RICARDO OLEA 5/31/12
CITY TRAFFIC ENGINEER DATE:

SCALE: 1" = 50'

SHEET OF SHEETS

TRAFFIC STRIPING

BAYSHORE BOULEVARD
CARROLL AVENUE TO AUGUSTA STREET

CONTRACT NO.

DRAWING NO. STR-7938.7

FILE NO.

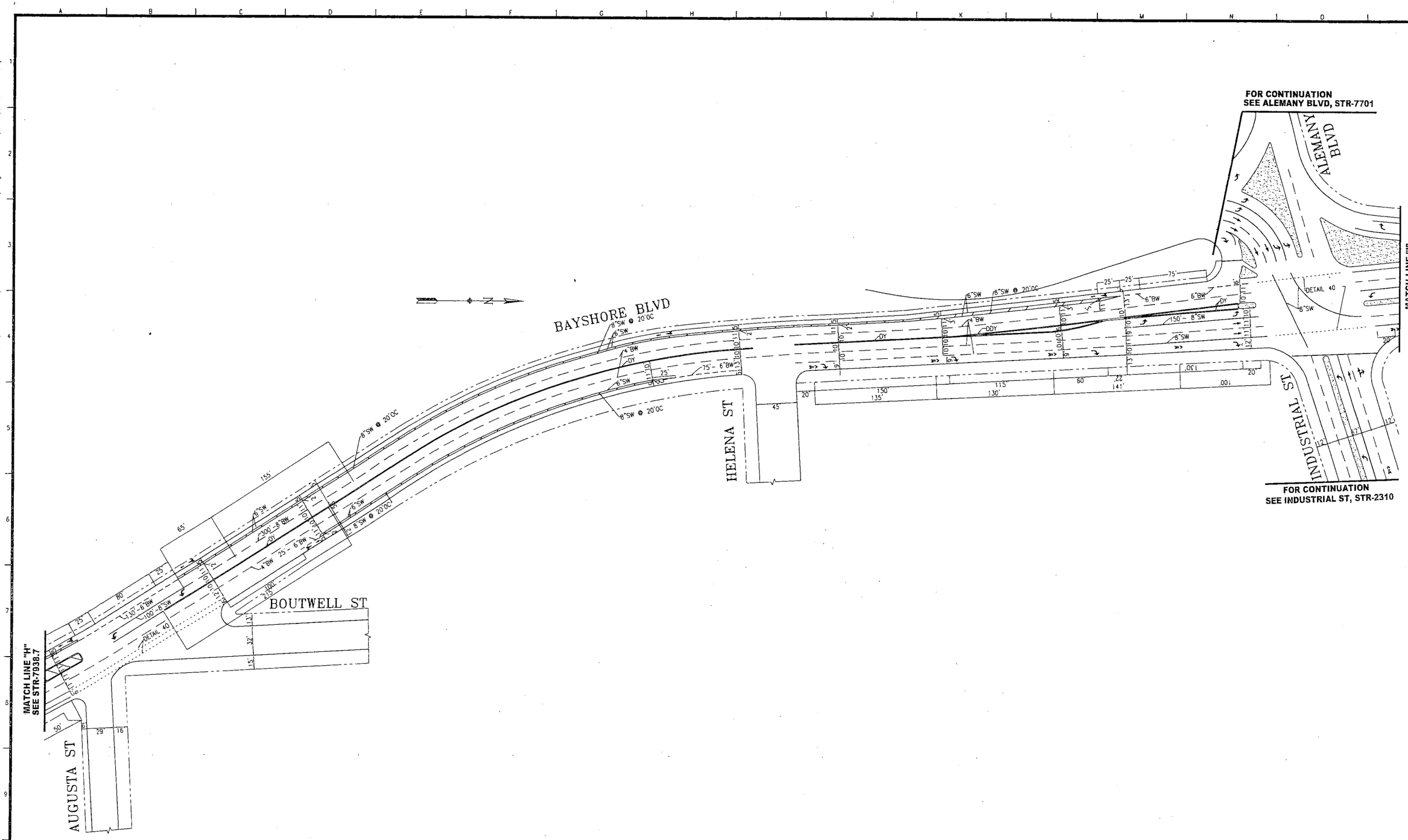
REV. NO. 1

FILE NAME: Bayshore Blvd_STR-7938.1 to 11(City and County Limit to Cesar Chavez St).dwg
DATE: --/--/--

EXTERNAL REFERENCES: XREFS
FONTS USED: FONTS

PLOT SCALE: 1=1
SCALE FACTOR: 50
ORIGINAL PAPER SIZE: 34"x22"

T:\T_E_FILES\LivableStreets\Bicycle Program\SP Projects - Near-Term from 2009 Bike Plan\San Bruno Avenue, Paul Avenue to Silver Ave Bayshore Blvd_STR-7938 (City and County Limit to Cesar Chavez St).dwg miuc Fri Apr 05,2013 - 12:05 pm



NO.	DATE	DESCRIPTION	BY	APP.
1		ADDED LEFT TURN LANE AT AUGUSTA STREET	RAC	DRC
		REMOVED SB TRAVEL LANE		

TABLE OF REVISIONS
CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION

SAN FRANCISCO MUNICIPAL TRANSPORTATION AGENCY

CITY AND COUNTY OF SAN FRANCISCO

DRAWN:	DATE:
PL	2/2012
CHECKED:	DATE:
DRC	4/30/12

APPROVED	
THOMAS P FOLKS	5/31/12
SENIOR ENGINEER	DATE:
RICARDO OLEA	5/31/12
CITY TRAFFIC ENGINEER	DATE:

SCALE: 1" = 50'

SHEET OF SHEETS

TRAFFIC STRIPING

BAYSHORE BOULEVARD
AUGUSTA STREET TO INDUSTRIAL STREET

CONTRACT NO.

DRAWING NO. STR-7938.8

FILE NO.

REV. NO. 1

EXTERNAL REFERENCES: XREFS
FONTS USED: TCVTS

SCALE FACTOR: 50
PLOT SCALE: 1=1

FILE NAME: Bayshore Blvd_STR-7938.1 to Alemany Blvd_STR-7938.9 Near-Term from 2009 Bike Plan\San Bruno Avenue, Poul Avenue to Silver Ave Bayshore Blvd_STR-7938 (City and County Limit to Cesar Chavez St).dwg mluc Fri Apr 05,2013 - 1:19 pm
DATE: --/--/--

T:\I_E_FILES\LivableStreets\Bicycle Program\BP Projects - Near-Term from 2009 Bike Plan\San Bruno Avenue, Poul Avenue to Silver Ave Bayshore Blvd_STR-7938 (City and County Limit to Cesar Chavez St).dwg mluc Fri Apr 05,2013 - 1:19 pm

APPENDIX C

SYNCHRO OUTPUT
INTERSECTION LEVEL OF SERVICE CALCULATIONS

Existing

HCM Signalized Intersection Capacity Analysis
9: Bayshore & Silver

6/7/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↰	↑↑		↰	↑↑	↱
Volume (vph)	86	343	227	27	251	38	282	1050	92	39	382	97
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	10	10	10	10	10	10	10	11	11
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.89
Flpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.95			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3141			2868		1486	2747		1486	3079	1230
Flt Permitted		0.84			0.83		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		2648			2382		1486	2747		1486	3079	1230
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	88	350	232	28	256	39	288	1071	94	40	390	99
RTOR Reduction (vph)	0	92	0	0	14	0	0	6	0	0	0	68
Lane Group Flow (vph)	0	578	0	0	309	0	288	1159	0	40	390	31
Confl. Peds. (#/hr)	100		20	20		100	100		20	20		100
Bus Blockages (#/hr)	5	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)								5	5			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)		19.7			19.7		17.3	37.2		2.2	22.1	22.1
Effective Green, g (s)		20.7			20.7		18.3	38.2		3.2	23.1	23.1
Actuated g/C Ratio		0.28			0.28		0.25	0.52		0.04	0.31	0.31
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		739			665		366	1416		64	959	383
v/s Ratio Prot							c0.19	c0.42		0.03	0.13	
v/s Ratio Perm		c0.22			0.13							0.03
v/c Ratio		0.78			0.46		0.79	0.82		0.62	0.41	0.08
Uniform Delay, d1		24.6			22.1		26.1	15.0		34.9	20.1	18.0
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.0			0.2		15.6	3.6		12.9	0.1	0.0
Delay (s)		29.6			22.3		41.7	18.7		47.8	20.2	18.0
Level of Service		C			C		D	B		D	C	B
Approach Delay (s)		29.6			22.3			23.2			21.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	24.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	74.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	93.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Bayshore & US 101 Off Ramp/Gas Station

6/7/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	277	3	63	3	0	2	0	615	5	3	668	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		3.0	5.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		1.00		0.96	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1544	1378	1540		1378		3072		1474	3079	
Flt Permitted		0.95	1.00	0.53		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1544	1378	857		1378		3072		1474	3079	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	283	3	64	3	0	2	0	628	5	3	682	0
RTOR Reduction (vph)	0	0	46	0	0	1	0	1	0	0	0	0
Lane Group Flow (vph)	0	286	18	3	0	1	0	632	0	3	682	0
Confl. Peds. (#/hr)							100		100	100		100
Parking (#/hr)									5			
Turn Type	Split	NA	Perm	custom		custom		NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4	8		8						
Actuated Green, G (s)		10.4	10.4	10.4		10.4		14.5		0.9	18.4	
Effective Green, g (s)		10.4	10.4	10.4		10.4		14.5		0.9	17.4	
Actuated g/C Ratio		0.28	0.28	0.28		0.28		0.39		0.02	0.47	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		3.0	4.0	
Vehicle Extension (s)		4.0	4.0	4.0		4.0		4.0		3.0	4.0	
Lane Grp Cap (vph)		436	389	242		389		1210		36	1455	
v/s Ratio Prot		c0.19						c0.21		0.00	c0.22	
v/s Ratio Perm			0.01	0.00		0.00						
v/c Ratio		0.66	0.05	0.01		0.00		0.52		0.08	0.47	
Uniform Delay, d1		11.6	9.6	9.5		9.5		8.5		17.5	6.6	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		3.9	0.1	0.0		0.0		0.5		1.0	0.3	
Delay (s)		15.5	9.7	9.5		9.5		9.0		18.5	6.9	
Level of Service		B	A	A		A		A		B	A	
Approach Delay (s)		14.5			9.5			9.0			6.9	
Approach LOS		B			A			A			A	

Intersection Summary				
HCM 2000 Control Delay	9.3	HCM 2000 Level of Service	A	
HCM 2000 Volume to Capacity ratio	0.58			
Actuated Cycle Length (s)	36.8	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	51.9%	ICU Level of Service	A	
Analysis Period (min)	15			
c Critical Lane Group				

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	192	60	97	122	41	100	300	106	16	279	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			1.00	0.91	1.00	0.97		1.00	0.97	
Flpb, ped/bikes	0.91	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1402	1339			1550	1100	1463	2699		1466	2873	
Flt Permitted	0.52	1.00			0.63	1.00	0.52	1.00		0.51	1.00	
Satd. Flow (perm)	775	1339			999	1100	803	2699		786	2873	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	196	61	99	124	42	102	306	108	16	285	105
RTOR Reduction (vph)	0	17	0	0	0	0	0	0	0	0	43	0
Lane Group Flow (vph)	71	240	0	0	223	42	102	414	0	16	347	0
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Parking (#/hr)		5				5		5	5			
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	17.6	17.6			17.6	17.6	38.3	38.3		38.3	38.3	
Effective Green, g (s)	18.6	18.6			18.6	18.6	39.3	39.3		39.3	39.3	
Actuated g/C Ratio	0.28	0.28			0.28	0.28	0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0			5.0	5.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	215	372			277	305	471	1585		461	1687	
v/s Ratio Prot		0.18						c0.15			0.12	
v/s Ratio Perm	0.09				c0.22	0.04	0.13			0.02		
v/c Ratio	0.33	0.65			0.81	0.14	0.22	0.26		0.03	0.21	
Uniform Delay, d1	19.2	21.3			22.5	18.1	6.5	6.7		5.8	6.5	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.9	3.8			15.5	0.2	1.1	0.4		0.1	0.3	
Delay (s)	20.1	25.1			38.0	18.3	7.6	7.1		6.0	6.8	
Level of Service	C	C			D	B	A	A		A	A	
Approach Delay (s)		24.0			34.9			7.2			6.7	
Approach LOS		C			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	66.9	Sum of lost time (s)	9.0
Intersection Capacity Utilization	117.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	165	226	16	204	76	246	346	20	84	274	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00		0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.91		0.98		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.95	1.00	1.00		1.00		0.97	1.00		0.94	1.00	
Frt	1.00	1.00	0.85		0.96		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1462	1621	1099		2875		1487	2846		1453	2927	
Flt Permitted	0.55	1.00	1.00		0.94		0.52	1.00		0.52	1.00	
Satd. Flow (perm)	843	1621	1099		2709		821	2846		792	2927	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	72	168	231	16	208	78	251	353	20	86	280	83
RTOR Reduction (vph)	0	0	142	0	48	0	0	6	0	0	40	0
Lane Group Flow (vph)	72	168	89	0	254	0	251	367	0	86	323	0
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Parking (#/hr)			5			5		5				
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	23.0	23.0	23.0		23.0		31.0	31.0		31.0	31.0	
Effective Green, g (s)	25.0	25.0	25.0		25.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.38	0.38	0.38		0.38		0.52	0.52		0.52	0.52	
Clearance Time (s)	5.0	5.0	5.0		5.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	324	623	422		1041		429	1488		414	1531	
v/s Ratio Prot		c0.10						0.13			0.11	
v/s Ratio Perm	0.09		0.08		0.09		c0.31			0.11		
v/c Ratio	0.22	0.27	0.21		0.24		0.59	0.25		0.21	0.21	
Uniform Delay, d1	13.5	13.7	13.4		13.6		10.7	8.5		8.3	8.3	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	1.1	1.1		0.6		5.7	0.4		1.1	0.3	
Delay (s)	15.0	14.8	14.5		14.1		16.4	8.9		9.4	8.6	
Level of Service	B	B	B		B		B	A		A	A	
Approach Delay (s)		14.7			14.1			11.9			8.8	
Approach LOS		B			B			B			A	

Intersection Summary				
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.45			
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0	
Intersection Capacity Utilization	61.8%	ICU Level of Service	B	
Analysis Period (min)	15			

c Critical Lane Group

EXISTING

SimTraffic Simulation Summary
Baseline 6/7/2013

Summary of All Intervals

Run Number	1	10	2	3	4	5	6
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded mScheduledIntervals	4	4	4	4	4	4	4
Vehs Entered	5172	5200	5054	5112	5148	5072	5046
Vehs Exited	5191	5199	5029	5129	5152	5091	5055
Starting Vehs	124	133	101	127	105	111	103
Ending Vehs	105	134	126	110	101	92	94
Denied Entry Before	1	0	1	0	0	1	1
Travel Distance (mi)	1732	1738	1699	1724	1724	1691	1712
Travel Time (hr)	125.0	119.9	112.1	113.5	113.8	112.8	112.4
Total Delay (hr)	61.6	56.0	49.9	50.4	50.6	50.8	49.6
Total Stops	6148	6148	5881	5859	6025	5877	5872
Fuel Used (gal)	83.2	82.4	78.4	80.1	80.5	78.4	79.2

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded mScheduledIntervals	4	4	4	4
Vehs Entered	5055	4933	4874	5065
Vehs Exited	5092	4931	4871	5075
Starting Vehs	110	110	103	106
Ending Vehs	73	112	106	97
Denied Entry Before	0	3	2	0
Travel Distance (mi)	1696	1629	1640	1699
Travel Time (hr)	110.7	108.7	104.4	113.3
Total Delay (hr)	48.3	48.9	44.3	51.0
Total Stops	5790	5639	5502	5878
Fuel Used (gal)	78.7	75.8	75.6	79.2

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1295	1266	1289	1287	1271	1293	1251
Vehs Exited	1315	1269	1272	1307	1275	1274	1253
Starting Vehs	124	133	101	127	105	111	103
Ending Vehs	104	130	118	107	101	130	101
Denied Entry Before	1	0	1	0	0	1	1
Travel Distance (mi)	432	419	431	420	429	420	433
Travel Time (hr)	31.3	27.2	27.9	27.9	29.1	28.3	27.2
Total Delay (hr)	15.5	11.8	12.1	12.5	13.4	12.9	11.4
Total Stops	1527	1375	1527	1463	1537	1509	1437
Fuel Used (gal)	20.9	19.4	20.0	19.8	20.2	19.6	19.8

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	1327	1226	1186	1266
Vehs Exited	1308	1246	1205	1272
Starting Vehs	110	110	103	106
Ending Vehs	129	90	84	100
Denied Entry Before	0	3	2	0
Travel Distance (mi)	451	400	404	424
Travel Time (hr)	29.3	26.6	25.6	28.1
Total Delay (hr)	12.9	11.9	10.8	12.5
Total Stops	1558	1368	1389	1466
Fuel Used (gal)	21.0	18.6	18.7	19.8

Interval #2 Information

Start Time 5:15
End Time 5:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1357	1290	1218	1245	1276	1332	1313
Vehs Exited	1332	1304	1233	1241	1271	1332	1291
Starting Vehs	104	130	118	107	101	130	131
Ending Vehs	129	116	103	111	106	130	133
Denied Entry Before	3	1	0	0	0	7	0
Travel Distance (mi)	449	440	419	431	419	457	430
Travel Time (hr)	29.6	31.5	26.9	28.1	27.5	32.8	28.8
Total Delay (hr)	13.2	15.4	11.6	12.5	12.1	16.1	13.0
Total Stops	1553	1568	1376	1433	1490	1663	1484
Fuel Used (gal)	20.9	21.0	19.0	20.0	19.5	21.6	20.1

Interval #2 Information

Start Time 5:15
End Time 5:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1264	1249	1338	1290
Vehs Exited	1261	1222	1291	1276
Starting Vehs	129	90	84	100
Ending Vehs	132	117	131	116
Denied Entry Before	2	2	0	1
Travel Distance (mi)	422	397	434	430
Travel Time (hr)	27.5	27.2	29.1	28.9
Total Delay (hr)	11.9	12.6	13.2	13.2
Total Stops	1459	1459	1507	1498
Fuel Used (gal)	19.4	18.7	20.4	20.1

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1255	1304	1235	1289	1296	1254	1223
Vehs Exited	1247	1307	1237	1282	1274	1272	1249
Starting Vehs	129	116	103	111	106	130	133
Ending Vehs	137	113	101	118	128	112	107
Denied Entry Before	0	4	0	0	3	1	7
Travel Distance (mi)	415	435	407	437	435	417	418
Travel Time (hr)	32.2	30.3	26.0	28.3	28.5	26.2	29.3
Total Delay (hr)	16.9	14.3	11.0	12.3	12.6	10.9	13.8
Total Stops	1556	1580	1400	1466	1504	1356	1485
Fuel Used (gal)	20.4	20.7	18.5	19.9	20.4	19.0	19.7

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	1269	1186	1173	1250
Vehs Exited	1306	1217	1201	1257
Starting Vehs	132	117	131	116
Ending Vehs	95	86	103	104
Denied Entry Before	9	10	4	2
Travel Distance (mi)	427	399	405	420
Travel Time (hr)	29.0	26.7	25.4	28.2
Total Delay (hr)	13.2	12.0	10.5	12.8
Total Stops	1458	1348	1299	1445
Fuel Used (gal)	20.0	18.5	18.5	19.6

Interval #4 Information Recording

Start Time 5:45
End Time 6:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1265	1340	1312	1291	1305	1193	1259
Vehs Exited	1297	1319	1287	1299	1332	1213	1272
Starting Vehs	137	113	101	118	128	112	107
Ending Vehs	105	134	126	110	101	92	94
Denied Entry Before	0	0	0	1	0	1	1
Travel Distance (mi)	435	445	443	437	440	398	430
Travel Time (hr)	31.9	30.9	31.4	29.1	28.7	25.4	27.1
Total Delay (hr)	15.9	14.5	15.1	13.1	12.6	10.8	11.4
Total Stops	1512	1625	1578	1497	1494	1349	1466
Fuel Used (gal)	21.1	21.3	20.9	20.4	20.4	18.3	19.6

Interval #4 Information Recording

Start Time 5:45
End Time 6:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	1195	1272	1177	1259
Vehs Exited	1217	1246	1174	1265
Starting Vehs	95	86	103	104
Ending Vehs	73	112	106	97
Denied Entry Before	0	0	0	0
Travel Distance (mi)	396	432	397	425
Travel Time (hr)	24.9	28.2	24.3	28.2
Total Delay (hr)	10.3	12.5	9.8	12.6
Total Stops	1315	1464	1307	1461
Fuel Used (gal)	18.3	19.9	18.1	19.8

22: Bayshore & Carroll & Thornton Performance by approach Interval #1 5:00

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.2	0.0
Total Delay (hr)	0.1	0.0	0.4	0.1	0.6
Total Del/Veh (s)	9.1	0.7	7.8	9.0	6.0
Stop Delay (hr)	0.1	0.0	0.2	0.1	0.4
Stop Del/Veh (s)	8.9	0.0	4.6	9.9	4.1

22: Bayshore & Carroll & Thornton Performance by approach Interval #2 5:15

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.3	0.0
Total Delay (hr)	0.1	0.0	0.5	0.1	0.7
Total Del/Veh (s)	12.0	0.7	8.6	9.3	6.8
Stop Delay (hr)	0.1	0.0	0.3	0.1	0.5
Stop Del/Veh (s)	11.8	0.0	5.0	10.4	4.7

22: Bayshore & Carroll & Thornton Performance by approach Interval #3 5:30

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.2	0.0
Total Delay (hr)	0.2	0.0	0.3	0.1	0.6
Total Del/Veh (s)	17.1	0.7	6.6	9.8	6.2
Stop Delay (hr)	0.2	0.0	0.2	0.1	0.4
Stop Del/Veh (s)	17.1	0.0	3.6	10.8	4.5

22: Bayshore & Carroll & Thornton Performance by approach Interval #4 5:45

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.8	0.0	0.0	0.2	0.1
Total Delay (hr)	0.1	0.0	0.4	0.1	0.6
Total Del/Veh (s)	11.7	0.7	7.8	9.3	6.2
Stop Delay (hr)	0.1	0.0	0.2	0.1	0.4
Stop Del/Veh (s)	11.6	0.0	4.3	10.3	4.2

22: Bayshore & Carroll & Thornton Performance by approach Entire Run

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.4	0.0	0.0	0.2	0.0
Total Delay (hr)	0.5	0.1	1.6	0.3	2.4
Total Del/Veh (s)	12.6	0.7	7.8	9.5	6.4
Stop Delay (hr)	0.4	0.0	0.9	0.3	1.7
Stop Del/Veh (s)	12.5	0.0	4.5	10.5	4.4

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (veh/h)	390	64	11	368	49	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	398	65	11	376	50	2
Pedestrians	100			100	100	
Lane Width (ft)	11.0			11.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	8			8	8	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	731			792		
pX, platoon unblocked						
vC, conflicting volume			563		841	432
vC1, stage 1 conf vol					531	
vC2, stage 2 conf vol					310	
vCu, unblocked vol			563		841	432
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		89	100
cM capacity (veh/h)			928		450	488

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SW 1
Volume Total	265	198	136	250	52
Volume Left	0	0	11	0	50
Volume Right	0	65	0	0	2
cSH	1700	1700	928	1700	451
Volume to Capacity	0.16	0.12	0.01	0.15	0.12
Queue Length 95th (ft)	0	0	1	0	10
Control Delay (s)	0.0	0.0	0.8	0.0	14.0
Lane LOS			A		B
Approach Delay (s)	0.0		0.3		14.0
Approach LOS					B

Intersection Summary				
Average Delay	0.9			
Intersection Capacity Utilization	30.1%	ICU Level of Service		A
Analysis Period (min)	15			

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑↱			↑↑	↰	
Volume (veh/h)	436	6	23	414	3	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	445	6	23	422	3	18
Pedestrians	100			100	100	
Lane Width (ft)	11.0			11.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	8			8	8	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	529			994		
pX, platoon unblocked						
vC, conflicting volume			551		906	426
vC1, stage 1 conf vol					548	
vC2, stage 2 conf vol					358	
vCu, unblocked vol			551		906	426
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		99	96
cM capacity (veh/h)			937		429	492

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	NW 1
Volume Total	297	154	164	282	21
Volume Left	0	0	23	0	3
Volume Right	0	6	0	0	18
cSH	1700	1700	937	1700	482
Volume to Capacity	0.17	0.09	0.03	0.17	0.04
Queue Length 95th (ft)	0	0	2	0	3
Control Delay (s)	0.0	0.0	1.5	0.0	12.8
Lane LOS			A		B
Approach Delay (s)	0.0		0.5		12.8
Approach LOS					B

Intersection Summary				
Average Delay	0.6			
Intersection Capacity Utilization	40.5%	ICU Level of Service	A	
Analysis Period (min)	15			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	19	545	2	7	450
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	6	19	556	2	7	459
Pedestrians	100		100			100
Lane Width (ft)	11.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	8		8			8
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1252			380
pX, platoon unblocked						
vC, conflicting volume	1001	479			658	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1001	479			658	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	96			99	
cM capacity (veh/h)	203	454			855	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	26	371	187	160	306
Volume Left	6	0	0	7	0
Volume Right	19	0	2	0	0
cSH	350	1700	1700	855	1700
Volume to Capacity	0.07	0.22	0.11	0.01	0.18
Queue Length 95th (ft)	6	0	0	1	0
Control Delay (s)	16.1	0.0	0.0	0.5	0.0
Lane LOS	C			A	
Approach Delay (s)	16.1	0.0		0.2	
Approach LOS	C				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	29.3%	ICU Level of Service	A
Analysis Period (min)	15		

Existing + Project

Bayshore Blvd. Road Diet
9: Bayshore & Silver

6/7/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	343	227	27	251	38	282	1050	92	39	382	97
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	10	10	10	10	12	12	10	13	12
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes		0.98			0.99		1.00	1.00		1.00	1.00	0.89
Flpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.95			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3115			2865		1486	2943		1486	1732	1266
Flt Permitted		0.83			0.82		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		2605			2361		1486	2943		1486	1732	1266
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	88	350	232	28	256	39	288	1071	94	40	390	99
RTOR Reduction (vph)	0	92	0	0	14	0	0	6	0	0	0	66
Lane Group Flow (vph)	0	578	0	0	309	0	288	1159	0	40	390	33
Confl. Peds. (#/hr)	100		20	20		100	100		20	20		100
Bus Blockages (#/hr)	5	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)								5	5			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)		20.7			20.7		17.1	40.1		2.3	25.3	25.3
Effective Green, g (s)		21.7			21.7		18.1	41.1		3.3	26.3	26.3
Actuated g/C Ratio		0.28			0.28		0.23	0.53		0.04	0.34	0.34
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		723			656		344	1548		62	583	426
v/s Ratio Prot							c0.19	c0.39		0.03	0.23	
v/s Ratio Perm		c0.22			0.13							0.03
v/c Ratio		0.80			0.47		0.84	0.75		0.65	0.67	0.08
Uniform Delay, d1		26.2			23.4		28.6	14.5		36.8	22.2	17.6
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		5.8			0.2		15.4	3.4		15.9	6.0	0.4
Delay (s)		31.9			23.6		44.0	17.8		52.6	28.2	18.0
Level of Service		C			C		D	B		D	C	B
Approach Delay (s)		31.9			23.6			23.0			28.1	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	78.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	277	3	63	3	0	2	0	615	5	3	668	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		3.0	5.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		1.00		0.95	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1597	1425	1593		1425		3178		1513	1675	
Flt Permitted		0.95	1.00	0.46		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1597	1425	769		1425		3178		1513	1675	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	283	3	64	3	0	2	0	628	5	3	682	0
RTOR Reduction (vph)	0	0	49	0	0	2	0	1	0	0	0	0
Lane Group Flow (vph)	0	286	15	3	0	0	0	632	0	3	682	0
Confl. Peds. (#/hr)							100		100	100		100
Parking (#/hr)									5			
Turn Type	Split	NA	Perm	custom		custom		NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4	8		8						
Actuated Green, G (s)		10.3	10.3	10.3		10.3		21.0		0.9	24.9	
Effective Green, g (s)		10.3	10.3	10.3		10.3		21.0		0.9	23.9	
Actuated g/C Ratio		0.24	0.24	0.24		0.24		0.49		0.02	0.55	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		3.0	4.0	
Vehicle Extension (s)		4.0	4.0	4.0		4.0		4.0		3.0	4.0	
Lane Grp Cap (vph)		380	339	183		339		1544		31	927	
v/s Ratio Prot		c0.18						0.20		0.00	c0.41	
v/s Ratio Perm			0.01	0.00		0.00						
v/c Ratio		0.75	0.05	0.02		0.00		0.41		0.10	0.74	
Uniform Delay, d1		15.3	12.7	12.6		12.5		7.1		20.8	7.3	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		8.7	0.1	0.0		0.0		0.2		1.4	3.3	
Delay (s)		24.0	12.7	12.6		12.5		7.4		22.1	10.5	
Level of Service		C	B	B		B		A		C	B	
Approach Delay (s)		21.9			12.6			7.4			10.6	
Approach LOS		C			B			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	43.2	Sum of lost time (s)	11.0
Intersection Capacity Utilization	70.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	70	192	60	97	122	41	100	300	106	16	279	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	11	16	10	11	12
Total Lost time (s)	4.0	4.0			4.0	4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.97			1.00	0.85	1.00	0.97		1.00	0.97	
Flpb, ped/bikes	0.91	1.00			0.96	1.00	0.95	1.00		0.95	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	0.96		1.00	0.95	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1451	1366			1580	1065	1415	1326		1418	1512	
Flt Permitted	0.52	1.00			0.63	1.00	0.50	1.00		0.48	1.00	
Satd. Flow (perm)	801	1366			1015	1065	739	1326		712	1512	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	71	196	61	99	124	42	102	306	108	16	285	105
RTOR Reduction (vph)	0	17	0	0	0	0	0	0	0	0	15	0
Lane Group Flow (vph)	71	240	0	0	223	42	102	414	0	16	375	0
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Parking (#/hr)		5				5		5	5			
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	17.5	17.5			17.5	17.5	38.3	38.3		38.3	38.3	
Effective Green, g (s)	18.5	18.5			18.5	18.5	39.3	39.3		39.3	39.3	
Actuated g/C Ratio	0.28	0.28			0.28	0.28	0.59	0.59		0.59	0.59	
Clearance Time (s)	5.0	5.0			5.0	5.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	221	378			281	294	434	780		418	889	
v/s Ratio Prot		0.18						c0.31			0.25	
v/s Ratio Perm	0.09				c0.22	0.04	0.14			0.02		
v/c Ratio	0.32	0.64			0.79	0.14	0.24	0.53		0.04	0.42	
Uniform Delay, d1	19.2	21.2			22.4	18.2	6.6	8.2		5.8	7.5	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	3.5			14.2	0.2	1.3	2.6		0.2	1.5	
Delay (s)	20.0	24.7			36.6	18.4	7.8	10.8		6.0	9.0	
Level of Service	C	C			D	B	A	B		A	A	
Approach Delay (s)		23.7			33.7			10.2			8.9	
Approach LOS		C			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	122.1%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	71	165	226	16	204	76	246	346	20	84	274	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	10	11	12
Total Lost time (s)		3.0	3.0		3.0	4.0	3.0	3.0	5.0	3.0	3.0	5.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	0.85		1.00	0.91	1.00	1.00	0.88	1.00	1.00	0.88
Flpb, ped/bikes		0.98	1.00		0.99	1.00	0.94	1.00	1.00	0.95	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1805	1181		1845	1228	1660	1630	1394	1561	1801	1394
Flt Permitted		0.86	1.00		0.97	1.00	0.54	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)		1570	1181		1803	1228	945	1630	1394	782	1801	1394
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	72	168	231	16	208	78	251	353	20	86	280	83
RTOR Reduction (vph)	0	0	142	0	0	49	0	0	10	0	0	42
Lane Group Flow (vph)	0	240	89	0	224	29	251	353	10	86	280	41
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Bus Blockages (#/hr)	0	0	0	0	0	6	0	0	0	0	0	0
Parking (#/hr)			5			5		5				
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)		23.0	23.0		23.0	23.0	31.0	31.0	31.0	31.0	31.0	31.0
Effective Green, g (s)		25.0	25.0		25.0	24.0	34.0	34.0	32.0	34.0	34.0	32.0
Actuated g/C Ratio		0.38	0.38		0.38	0.37	0.52	0.52	0.49	0.52	0.52	0.49
Clearance Time (s)		5.0	5.0		5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)		603	454		693	453	494	852	686	409	942	686
v/s Ratio Prot								0.22			0.16	
v/s Ratio Perm		c0.15	0.08		0.12	0.02	c0.27		0.01	0.11		0.03
v/c Ratio		0.40	0.20		0.32	0.06	0.51	0.41	0.01	0.21	0.30	0.06
Uniform Delay, d1		14.5	13.3		14.1	13.2	10.1	9.4	8.4	8.3	8.8	8.6
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		2.0	1.0		1.2	0.3	3.7	1.5	0.0	1.2	0.8	0.2
Delay (s)		16.5	14.3		15.3	13.5	13.8	10.9	8.5	9.5	9.6	8.8
Level of Service		B	B		B	B	B	B	A	A	A	A
Approach Delay (s)		15.4			14.8			12.0			9.4	
Approach LOS		B			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	65.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

EXISTING PLUS PROJECT

SimTraffic Simulation Summary
SB and NB Lane Removal 6/7/2013

Summary of All Intervals

Run Number	11	10	2	3	4	5	6
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded mScheduledIntervals	4	4	4	4	4	4	4
Vehs Entered	5092	5099	5199	5178	4971	4978	5081
Vehs Exited	5114	5121	5161	5176	4962	4962	5111
Starting Vehs	148	123	110	126	105	125	127
Ending Vehs	126	101	148	128	114	141	97
Denied Entry Before	2	1	4	1	0	0	3
Travel Distance (mi)	1711	1727	1752	1738	1649	1663	1699
Travel Time (hr)	128.5	125.1	131.7	144.3	114.3	118.3	123.6
Total Delay (hr)	65.8	61.8	67.5	80.8	53.7	57.6	61.4
Total Stops	6473	6476	6657	6393	5879	6099	6401
Fuel Used (gal)	82.9	82.4	84.4	87.3	77.5	78.9	81.3

Summary of All Intervals

Run Number	7	8	9	Avg
Start Time	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70
Time Recorded (min)	60	60	60	60
# of Intervals	5	5	5	5
# of Recorded mScheduledIntervals	4	4	4	4
Vehs Entered	5113	5061	5002	5079
Vehs Exited	5101	5030	5003	5075
Starting Vehs	107	110	119	116
Ending Vehs	119	141	118	115
Denied Entry Before	0	4	1	1
Travel Distance (mi)	1689	1667	1681	1698
Travel Time (hr)	125.1	116.0	134.1	126.1
Total Delay (hr)	63.1	54.8	72.6	63.9
Total Stops	6426	6067	6417	6329
Fuel Used (gal)	81.4	78.5	83.1	81.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1210	1248	1266	1243	1202	1167	1316
Vehs Exited	1252	1242	1245	1222	1191	1182	1320
Starting Vehs	148	123	110	126	105	125	127
Ending Vehs	106	129	131	147	116	110	123
Denied Entry Before	2	1	4	1	0	0	8
Travel Distance (mi)	422	410	424	420	397	407	443
Travel Time (hr)	29.2	28.2	29.3	28.7	26.6	28.0	30.9
Total Delay (hr)	13.8	13.0	13.8	13.4	12.0	13.2	14.7
Total Stops	1473	1486	1505	1483	1352	1421	1631
Fuel Used (gal)	19.6	19.2	19.8	19.5	18.5	19.0	21.0

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	1231	1241	1207	1226
Vehs Exited	1228	1246	1215	1236
Starting Vehs	107	110	119	116
Ending Vehs	110	105	111	116
Denied Entry Before	0	4	1	1
Travel Distance (mi)	417	411	401	415
Travel Time (hr)	30.1	28.2	27.0	28.6
Total Delay (hr)	14.8	13.2	12.2	13.4
Total Stops	1538	1474	1430	1477
Fuel Used (gal)	19.9	19.3	18.8	19.5

Interval #2 Information

Start Time 5:15
End Time 5:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1355	1321	1259	1314	1262	1263	1257
Vehs Exited	1304	1302	1273	1303	1265	1263	1246
Starting Vehs	106	129	131	147	116	110	123
Ending Vehs	157	148	117	158	113	110	134
Denied Entry Before	0	3	1	1	0	0	0
Travel Distance (mi)	433	457	426	436	417	417	412
Travel Time (hr)	31.1	37.7	32.0	39.4	29.5	28.4	31.6
Total Delay (hr)	15.2	21.1	16.4	23.5	14.2	13.1	16.4
Total Stops	1618	1896	1661	1713	1522	1476	1637
Fuel Used (gal)	20.8	22.9	20.5	22.7	19.6	19.5	20.0

Interval #2 Information

Start Time 5:15
End Time 5:30
Total Time (min) 15
Volumes adjusted by PHF, Growth Factors.

Run Number	7	8	9	Avg
Vehs Entered	1298	1308	1309	1298
Vehs Exited	1288	1272	1271	1277
Starting Vehs	110	105	111	116
Ending Vehs	120	141	149	130
Denied Entry Before	0	0	0	0
Travel Distance (mi)	434	422	438	429
Travel Time (hr)	31.6	28.3	33.6	32.3
Total Delay (hr)	15.7	12.8	17.7	16.6
Total Stops	1699	1494	1720	1647
Fuel Used (gal)	20.6	19.6	21.2	20.7

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1281	1268	1322	1311	1292	1274	1261
Vehs Exited	1290	1306	1305	1322	1311	1239	1269
Starting Vehs	157	148	117	158	113	110	134
Ending Vehs	148	110	134	147	94	145	126
Denied Entry Before	2	1	7	7	1	2	1
Travel Distance (mi)	422	432	445	431	435	417	419
Travel Time (hr)	35.0	29.9	33.5	40.3	31.6	29.4	30.8
Total Delay (hr)	19.5	14.0	17.2	24.5	15.7	14.2	15.4
Total Stops	1725	1553	1657	1586	1582	1559	1575
Fuel Used (gal)	21.3	20.2	21.5	23.1	20.9	19.7	20.1

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	1314	1204	1294	1283
Vehs Exited	1334	1238	1301	1291
Starting Vehs	120	141	149	130
Ending Vehs	100	107	142	124
Denied Entry Before	0	2	1	1
Travel Distance (mi)	427	407	432	427
Travel Time (hr)	32.7	28.0	40.2	33.1
Total Delay (hr)	17.0	13.1	24.4	17.5
Total Stops	1654	1438	1753	1606
Fuel Used (gal)	21.1	18.9	22.9	21.0

Interval #4 Information Recording

Start Time 5:45
End Time 6:00
Total Time (min) 15
Volumes acjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	6
Vehs Entered	1246	1262	1352	1310	1215	1274	1247
Vehs Exited	1268	1271	1336	1329	1195	1278	1276
Starting Vehs	148	110	134	147	94	145	126
Ending Vehs	126	101	148	128	114	141	97
Denied Entry Before	2	0	1	4	0	0	1
Travel Distance (mi)	434	427	457	451	401	421	425
Travel Time (hr)	33.1	29.4	36.9	35.9	26.6	32.5	30.3
Total Delay (hr)	17.3	13.8	20.2	19.4	11.9	17.1	14.8
Total Stops	1657	1541	1834	1611	1423	1643	1558
Fuel Used (gal)	21.1	20.1	22.6	22.1	18.6	20.8	20.2

Interval #4 Information Recording

Start Time 5:45
End Time 6:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	7	8	9	Avg
Vehs Entered	1270	1308	1192	1267
Vehs Exited	1251	1274	1216	1269
Starting Vehs	100	107	142	124
Ending Vehs	119	141	118	116
Denied Entry Before	1	2	7	1
Travel Distance (mi)	412	426	410	426
Travel Time (hr)	30.7	31.5	33.2	32.0
Total Delay (hr)	15.6	15.8	18.2	16.4
Total Stops	1535	1661	1514	1599
Fuel Used (gal)	19.8	20.7	20.3	20.6

22: Bayshore & Carroll & Thornton Performance by approach Interval #1 5:00

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.3	0.0	0.0	0.2	0.0
Total Delay (hr)	0.1	0.0	0.2	0.1	0.5
Total Del/Veh (s)	18.4	1.5	4.7	10.1	5.3
Stop Delay (hr)	0.1	0.0	0.2	0.1	0.4
Stop Del/Veh (s)	18.7	0.0	3.5	10.7	4.3

22: Bayshore & Carroll & Thornton Performance by approach Interval #2 5:15

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.2	0.0
Total Delay (hr)	0.2	0.0	0.2	0.1	0.5
Total Del/Veh (s)	17.6	1.5	4.3	12.1	5.4
Stop Delay (hr)	0.2	0.0	0.2	0.1	0.4
Stop Del/Veh (s)	17.9	0.0	3.1	12.8	4.5

22: Bayshore & Carroll & Thornton Performance by approach Interval #3 5:30

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	2.7	0.0	0.0	0.2	0.3
Total Delay (hr)	0.3	0.0	0.2	0.1	0.7
Total Del/Veh (s)	28.7	1.6	4.8	12.1	6.9
Stop Delay (hr)	0.3	0.0	0.2	0.1	0.6
Stop Del/Veh (s)	29.6	0.1	3.6	12.9	6.0

22: Bayshore & Carroll & Thornton Performance by approach Interval #4 5:45

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.2	0.0	0.0	0.2	0.0
Total Delay (hr)	0.2	0.0	0.2	0.1	0.6
Total Del/Veh (s)	22.3	1.4	4.7	14.4	6.4
Stop Delay (hr)	0.2	0.0	0.2	0.1	0.5
Stop Del/Veh (s)	22.7	0.0	3.5	15.1	5.5

22: Bayshore & Carroll & Thornton Performance by approach Entire Run

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.0	0.0	0.0	0.0	0.0
Denied Del/Veh (s)	0.9	0.0	0.0	0.2	0.1
Total Delay (hr)	0.8	0.2	0.9	0.4	2.3
Total Del/Veh (s)	22.3	1.5	4.6	12.4	6.0
Stop Delay (hr)	0.8	0.0	0.7	0.4	1.9
Stop Del/Veh (s)	22.8	0.0	3.4	13.1	5.1

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (veh/h)	390	64	11	368	49	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	398	65	11	376	50	2
Pedestrians	100			100	100	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	8			8	8	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	731			793		
pX, platoon unblocked						
vC, conflicting volume			563		1029	631
vC1, stage 1 conf vol					531	
vC2, stage 2 conf vol					498	
vCu, unblocked vol			563		1029	631
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			99		88	99
cM capacity (veh/h)			924		428	407

Direction, Lane #	NB 1	SB 1	SW 1
Volume Total	463	387	52
Volume Left	0	11	50
Volume Right	65	0	2
cSH	1700	924	427
Volume to Capacity	0.27	0.01	0.12
Queue Length 95th (ft)	0	1	10
Control Delay (s)	0.0	0.4	14.6
Lane LOS		A	B
Approach Delay (s)	0.0	0.4	14.6
Approach LOS			B

Intersection Summary			
Average Delay	1.0		
Intersection Capacity Utilization	38.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	436	6	23	414	3	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	445	6	23	422	3	18
Pedestrians	100			100	100	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	8			8	8	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	529			995		
pX, platoon unblocked						
vC, conflicting volume			551		1117	648
vC1, stage 1 conf vol					548	
vC2, stage 2 conf vol					569	
vCu, unblocked vol			551		1117	648
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			97		99	95
cM capacity (veh/h)			934		400	398

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	451	446	21
Volume Left	0	23	3
Volume Right	6	0	18
cSH	1700	934	399
Volume to Capacity	0.27	0.03	0.05
Queue Length 95th (ft)	0	2	4
Control Delay (s)	0.0	0.8	14.5
Lane LOS		A	B
Approach Delay (s)	0.0	0.8	14.5
Approach LOS			B

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	19	545	2	7	450
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	6	19	556	2	7	459
Pedestrians	100		100			100
Lane Width (ft)	12.0		12.0			16.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	8		8			11
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			1252			380
pX, platoon unblocked	0.96	0.99			0.99	
vC, conflicting volume	1231	757			658	
vC1, stage 1 conf vol	657					
vC2, stage 2 conf vol	573					
vCu, unblocked vol	1195	749			649	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	94			99	
cM capacity (veh/h)	373	332			850	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	558	466
Volume Left	6	0	7
Volume Right	19	2	0
cSH	341	1700	850
Volume to Capacity	0.07	0.33	0.01
Queue Length 95th (ft)	6	0	1
Control Delay (s)	16.4	0.0	0.2
Lane LOS	C		A
Approach Delay (s)	16.4	0.0	0.2
Approach LOS	C		

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	39.3%	ICU Level of Service	A
Analysis Period (min)	15		

Cumulative

Bayshore Blvd. Road Diet
9: Bayshore & Silver

6/7/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	92	369	244	32	297	45	330	1227	108	60	586	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	10	10	10	10	10	10	10	11	11
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	0.95	1.00
Frpb, ped/bikes		0.99			0.99		1.00	1.00		1.00	1.00	0.89
Flpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.95			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3142			2866		1486	2747		1486	3079	1225
Flt Permitted		0.80			0.81		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		2545			2319		1486	2747		1486	3079	1225
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	94	377	249	33	303	46	337	1252	110	61	598	152
RTOR Reduction (vph)	0	89	0	0	14	0	0	6	0	0	0	101
Lane Group Flow (vph)	0	631	0	0	368	0	337	1356	0	61	598	51
Confl. Peds. (#/hr)	100		20	20		100	100		20	20		100
Bus Blockages (#/hr)	5	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)								5	5			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)		22.4			22.4		17.3	36.9		3.1	22.7	22.7
Effective Green, g (s)		23.4			23.4		18.3	37.9		4.1	23.7	23.7
Actuated g/C Ratio		0.30			0.30		0.24	0.49		0.05	0.31	0.31
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		789			701		351	1345		78	942	375
v/s Ratio Prot							c0.23	c0.49		0.04	0.19	
v/s Ratio Perm		c0.25			0.16							0.04
v/c Ratio		0.82			0.53		0.96	1.01		0.78	0.63	0.14
Uniform Delay, d1		25.0			22.4		29.2	19.8		36.2	23.1	19.4
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		6.7			0.3		38.9	26.5		36.3	1.0	0.1
Delay (s)		31.7			22.7		68.1	46.3		72.5	24.2	19.5
Level of Service		C			C		E	D		E	C	B
Approach Delay (s)		31.7			22.7			50.6			26.9	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	77.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	101.3%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	245	3	56	3	0	2	0	863	7	5	1008	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		3.0	5.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	0.95	
Frpb, ped/bikes		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1544	1378	1540		1378		3072		1540	3079	
Flt Permitted		0.95	1.00	0.52		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1544	1378	841		1378		3072		1540	3079	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	250	3	57	3	0	2	0	881	7	5	1029	0
RTOR Reduction (vph)	0	0	44	0	0	2	0	1	0	0	0	0
Lane Group Flow (vph)	0	253	13	3	0	0	0	887	0	5	1029	0
Confl. Peds. (#/hr)							100		100	100		100
Parking (#/hr)									5			
Turn Type	Split	NA	Perm	custom		custom		NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4	8		8						
Actuated Green, G (s)		10.2	10.2	10.2		10.2		21.1		1.0	25.1	
Effective Green, g (s)		10.2	10.2	10.2		10.2		21.1		1.0	24.1	
Actuated g/C Ratio		0.24	0.24	0.24		0.24		0.49		0.02	0.56	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		3.0	4.0	
Vehicle Extension (s)		4.0	4.0	4.0		4.0		4.0		3.0	4.0	
Lane Grp Cap (vph)		363	324	198		324		1496		35	1713	
v/s Ratio Prot		c0.16						0.29		0.00	c0.33	
v/s Ratio Perm			0.01	0.00		0.00						
v/c Ratio		0.70	0.04	0.02		0.00		0.59		0.14	0.60	
Uniform Delay, d1		15.1	12.8	12.7		12.7		8.0		20.7	6.4	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		6.2	0.1	0.0		0.0		0.7		1.9	0.7	
Delay (s)		21.3	12.8	12.7		12.7		8.7		22.6	7.1	
Level of Service		C	B	B		B		A		C	A	
Approach Delay (s)		19.8			12.7			8.7			7.2	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	9.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	43.3	Sum of lost time (s)	11.0
Intersection Capacity Utilization	60.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	274	86	139	175	59	163	489	173	26	448	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0			4.0	4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	0.98			1.00	0.90	1.00	0.97		1.00	0.97	
Flpb, ped/bikes	0.92	1.00			0.98	1.00	0.96	1.00		0.96	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1415	1336			1555	1089	1480	2690		1485	2864	
Flt Permitted	0.43	1.00			0.50	1.00	0.38	1.00		0.36	1.00	
Satd. Flow (perm)	643	1336			802	1089	596	2690		556	2864	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	102	280	88	142	179	60	166	499	177	27	457	168
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	50	0
Lane Group Flow (vph)	102	353	0	0	321	60	166	676	0	27	575	0
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Parking (#/hr)		5				5		5	5			
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	26.0	26.0			26.0	26.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	27.0	27.0			27.0	27.0	39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.36	0.36			0.36	0.36	0.52	0.52		0.52	0.52	
Clearance Time (s)	5.0	5.0			5.0	5.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	231	480			288	392	309	1398		289	1489	
v/s Ratio Prot		0.26						0.25			0.20	
v/s Ratio Perm	0.16				c0.40	0.06	c0.28			0.05		
v/c Ratio	0.44	0.73			1.11	0.15	0.54	0.48		0.09	0.39	
Uniform Delay, d1	18.3	20.9			24.0	16.3	12.0	11.5		9.1	10.8	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.3	5.8			87.4	0.2	6.6	1.2		0.6	0.8	
Delay (s)	19.6	26.6			111.4	16.4	18.5	12.7		9.7	11.6	
Level of Service	B	C			F	B	B	B		A	B	
Approach Delay (s)		25.1			96.5			13.9			11.5	
Approach LOS		C			F			B			B	

Intersection Summary

HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	120.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	200	274	24	309	115	371	522	30	143	466	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	3.0	3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Util. Factor	1.00	1.00	1.00		0.95		1.00	0.95		1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.91		0.98		1.00	0.99		1.00	0.98	
Flpb, ped/bikes	0.96	1.00	1.00		1.00		0.98	1.00		0.96	1.00	
Frt	1.00	1.00	0.85		0.96		1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1480	1621	1099		2877		1504	2845		1475	2927	
Flt Permitted	0.43	1.00	1.00		0.94		0.37	1.00		0.40	1.00	
Satd. Flow (perm)	666	1621	1099		2698		588	2845		621	2927	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	88	204	280	24	315	117	379	533	31	146	476	141
RTOR Reduction (vph)	0	0	118	0	53	0	0	7	0	0	42	0
Lane Group Flow (vph)	88	204	162	0	403	0	379	557	0	146	575	0
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Parking (#/hr)			5			5		5				
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	23.0	23.0	23.0		23.0		31.0	31.0		31.0	31.0	
Effective Green, g (s)	25.0	25.0	25.0		25.0		34.0	34.0		34.0	34.0	
Actuated g/C Ratio	0.38	0.38	0.38		0.38		0.52	0.52		0.52	0.52	
Clearance Time (s)	5.0	5.0	5.0		5.0		6.0	6.0		6.0	6.0	
Lane Grp Cap (vph)	256	623	422		1037		307	1488		324	1531	
v/s Ratio Prot		0.13						0.20			0.20	
v/s Ratio Perm	0.13		0.15		c0.15		c0.65			0.24		
v/c Ratio	0.34	0.33	0.38		0.39		1.23	0.37		0.45	0.38	
Uniform Delay, d1	14.2	14.1	14.4		14.5		15.5	9.2		9.7	9.2	
Progression Factor	1.00	1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.6	1.4	2.6		1.1		130.5	0.7		4.5	0.7	
Delay (s)	17.8	15.5	17.1		15.6		146.0	9.9		14.1	9.9	
Level of Service	B	B	B		B		F	A		B	A	
Approach Delay (s)		16.6			15.6			64.6			10.7	
Approach LOS		B			B			E			B	

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	10	2	3	4	5	8
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded mScheduledIntervals	4	4	4	4	4	4	4
Vehs Entered	6417	6453	6603	6599	6496	6428	6527
Vehs Exited	6418	6431	6553	6520	6432	6371	6517
Starting Vehs	189	181	214	175	202	190	188
Ending Vehs	188	203	264	254	266	247	198
Denied Entry Before	6	0	14	9	9	15	9
Travel Distance (mi)	2258	2209	2266	2284	2308	2230	2290
Travel Time (hr)	337.9	382.2	391.6	303.5	322.8	340.4	299.9
Total Delay (hr)	255.8	301.7	309.4	220.6	239.3	259.3	216.8
Total Stops	9079	8723	9249	9052	9268	8554	9112
Fuel Used (gal)	148.0	157.1	161.2	140.9	145.8	148.0	140.6

Summary of All Intervals

Run Number	Avg
Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded mScheduledIntervals	4
Vehs Entered	6503
Vehs Exited	6462
Starting Vehs	188
Ending Vehs	230
Denied Entry Before	8
Travel Distance (mi)	2264
Travel Time (hr)	339.8
Total Delay (hr)	257.5
Total Stops	9003
Fuel Used (gal)	148.8

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time 5:00
End Time 5:15
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	8
Vehs Entered	1534	1656	1642	1673	1655	1567	1615
Vehs Exited	1520	1616	1609	1625	1616	1539	1599
Starting Vehs	189	181	214	175	202	190	188
Ending Vehs	203	221	247	223	241	218	204
Denied Entry Before	6	0	14	9	9	15	9
Travel Distance (mi)	565	545	570	570	601	536	554
Travel Time (hr)	63.3	55.3	69.5	53.0	57.4	57.3	54.0
Total Delay (hr)	42.8	35.4	48.8	32.2	35.7	37.6	33.8
Total Stops	2173	2072	2406	2212	2394	2007	2232
Fuel Used (gal)	32.0	30.2	33.9	30.0	32.1	30.0	29.6

Interval #1 Information Recording

Start Time 5:00
End Time 5:15
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	Avg
Vehs Entered	1621
Vehs Exited	1589
Starting Vehs	188
Ending Vehs	221
Denied Entry Before	8
Travel Distance (mi)	563
Travel Time (hr)	58.5
Total Delay (hr)	38.1
Total Stops	2215
Fuel Used (gal)	31.1

Interval #2 Information

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	10	2	3	4	5	8
Vehs Entered	1700	1655	1709	1650	1617	1619	1659
Vehs Exited	1695	1646	1735	1650	1612	1623	1625
Starting Vehs	203	221	247	223	241	218	204
Ending Vehs	208	230	221	223	246	214	238
Denied Entry Before	95	67	107	21	6	25	33
Travel Distance (mi)	578	564	575	573	571	556	579
Travel Time (hr)	86.9	87.2	88.0	63.6	64.6	74.5	74.4
Total Delay (hr)	65.8	66.6	67.1	42.7	43.9	54.4	53.4
Total Stops	2334	2415	2405	2247	2190	2164	2491
Fuel Used (gal)	38.2	37.7	38.5	32.6	32.4	34.5	35.3

Interval #2 Information

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	Avg
Vehs Entered	1658
Vehs Exited	1657
Starting Vehs	221
Ending Vehs	221
Denied Entry Before	50
Travel Distance (mi)	571
Travel Time (hr)	77.0
Total Delay (hr)	56.3
Total Stops	2321
Fuel Used (gal)	35.6

Interval #3 Information

Start Time 5:30
End Time 5:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	8
Vehs Entered	1635	1569	1589	1622	1580	1615	1660
Vehs Exited	1654	1586	1561	1605	1562	1569	1662
Starting Vehs	208	230	221	223	246	214	238
Ending Vehs	189	213	249	240	264	260	236
Denied Entry Before	162	190	174	53	55	116	93
Travel Distance (mi)	578	543	551	550	555	552	580
Travel Time (hr)	89.5	111.8	105.5	81.1	87.7	92.5	83.6
Total Delay (hr)	68.3	92.0	85.6	61.0	67.5	72.3	62.5
Total Stops	2480	1977	2040	2155	2274	2040	2258
Fuel Used (gal)	38.4	42.7	41.7	35.8	37.2	38.8	37.4

Interval #3 Information

Start Time 5:30
End Time 5:45
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	Avg
Vehs Entered	1611
Vehs Exited	1598
Starting Vehs	221
Ending Vehs	233
Denied Entry Before	119
Travel Distance (mi)	558
Travel Time (hr)	93.1
Total Delay (hr)	72.8
Total Stops	2171
Fuel Used (gal)	38.9

Interval #4 Information

Start Time 5:45
End Time 6:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	10	2	3	4	5	8
Vehs Entered	1548	1573	1663	1654	1644	1627	1593
Vehs Exited	1549	1583	1648	1640	1642	1640	1631
Starting Vehs	189	213	249	240	264	260	236
Ending Vehs	188	203	264	254	266	247	198
Denied Entry Before	175	277	254	111	149	207	100
Travel Distance (mi)	537	556	570	591	581	585	578
Travel Time (hr)	98.3	127.8	128.6	105.9	113.1	116.1	88.0
Total Delay (hr)	78.7	107.7	107.9	84.6	92.0	95.0	67.1
Total Stops	2092	2259	2398	2438	2410	2343	2131
Fuel Used (gal)	39.4	46.6	47.1	42.6	44.1	44.8	38.4

Interval #4 Information

Start Time 5:45
End Time 6:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	Avg
Vehs Entered	1613
Vehs Exited	1621
Starting Vehs	233
Ending Vehs	230
Denied Entry Before	181
Travel Distance (mi)	571
Travel Time (hr)	111.1
Total Delay (hr)	90.4
Total Stops	2295
Fuel Used (gal)	43.3

22: Bayshore & Carroll & Thornton Performance by approach Interval #1 5:00

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.7	0.0	0.0	0.0	0.7
Denied Del/Veh (s)	81.6	0.0	0.0	1.7	5.2
Total Delay (hr)	0.8	0.0	1.5	0.4	2.7
Total Del/Veh (s)	115.6	1.0	19.8	33.2	20.6
Stop Delay (hr)	0.8	0.0	1.1	0.4	2.4
Stop Del/Veh (s)	117.3	0.0	15.1	35.1	18.0

22: Bayshore & Carroll & Thornton Performance by approach Interval #2 5:15

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	2.1	0.0	0.0	0.0	2.1
Denied Del/Veh (s)	227.0	0.0	0.0	1.7	15.3
Total Delay (hr)	1.0	0.0	2.0	0.5	3.5
Total Del/Veh (s)	160.5	1.0	25.5	39.6	25.5
Stop Delay (hr)	1.0	0.0	1.6	0.5	3.1
Stop Del/Veh (s)	161.8	0.0	20.5	41.8	22.7

22: Bayshore & Carroll & Thornton Performance by approach Interval #3 5:30

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	4.2	0.0	0.0	0.0	4.3
Denied Del/Veh (s)	371.3	0.0	0.0	2.1	31.9
Total Delay (hr)	1.4	0.0	1.6	0.5	3.6
Total Del/Veh (s)	159.5	1.0	19.8	44.5	26.1
Stop Delay (hr)	1.5	0.0	1.2	0.6	3.2
Stop Del/Veh (s)	163.9	0.0	15.5	46.6	23.8

22: Bayshore & Carroll & Thornton Performance by approach Interval #4 5:45

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	4.4	0.0	0.0	0.1	4.5
Denied Del/Veh (s)	421.5	0.0	0.0	4.3	32.5
Total Delay (hr)	1.2	0.0	1.8	0.5	3.6
Total Del/Veh (s)	162.4	1.1	23.6	41.3	25.7
Stop Delay (hr)	1.2	0.0	1.5	0.5	3.2
Stop Del/Veh (s)	165.1	0.0	18.9	43.3	23.1

22: Bayshore & Carroll & Thornton Performance by approach Entire Run

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	11.4	0.0	0.0	0.1	11.5
Denied Del/Veh (s)	384.1	0.0	0.0	2.5	21.8
Total Delay (hr)	4.4	0.2	6.9	1.9	13.3
Total Del/Veh (s)	174.3	1.0	22.9	41.8	25.3
Stop Delay (hr)	4.5	0.0	5.4	2.0	11.9
Stop Del/Veh (s)	177.5	0.0	18.0	44.0	22.6

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (veh/h)	608	100	18	598	53	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	620	102	18	610	54	2
Pedestrians	100			100	100	
Lane Width (ft)	11.0			11.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	8			8	8	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	731			792		
pX, platoon unblocked						
vC, conflicting volume			822		1213	561
vC1, stage 1 conf vol					771	
vC2, stage 2 conf vol					442	
vCu, unblocked vol			822		1213	561
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			96		84	99
cM capacity (veh/h)			742		334	402

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	SW 1
Volume Total	414	309	222	407	56
Volume Left	0	0	18	0	54
Volume Right	0	102	0	0	2
cSH	1700	1700	742	1700	336
Volume to Capacity	0.24	0.18	0.02	0.24	0.17
Queue Length 95th (ft)	0	0	2	0	15
Control Delay (s)	0.0	0.0	1.1	0.0	17.8
Lane LOS			A		C
Approach Delay (s)	0.0		0.4		17.8
Approach LOS					C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	42.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	686	9	36	643	3	18
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	700	9	37	656	3	18
Pedestrians	100			100	100	
Lane Width (ft)	11.0			11.0	11.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	8			8	8	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	529			994		
pX, platoon unblocked						
vC, conflicting volume			809		1306	555
vC1, stage 1 conf vol					805	
vC2, stage 2 conf vol					502	
vCu, unblocked vol			809		1306	555
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)					5.8	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		99	95
cM capacity (veh/h)			750		312	406

Direction, Lane #	NB 1	NB 2	SB 1	SB 2	NW 1
Volume Total	467	243	255	437	21
Volume Left	0	0	37	0	3
Volume Right	0	9	0	0	18
cSH	1700	1700	750	1700	389
Volume to Capacity	0.27	0.14	0.05	0.26	0.06
Queue Length 95th (ft)	0	0	4	0	4
Control Delay (s)	0.0	0.0	1.9	0.0	14.8
Lane LOS			A		B
Approach Delay (s)	0.0		0.7		14.8
Approach LOS					B

Intersection Summary			
Average Delay	0.6		
Intersection Capacity Utilization	55.7%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	19	863	3	12	753
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	6	19	881	3	12	768
Pedestrians	100		100			100
Lane Width (ft)	11.0		11.0			11.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	8		8			8
Right turn flare (veh)						
Median type			None			None
Median storage veh)						
Upstream signal (ft)			1252			380
pX, platoon unblocked						
vC, conflicting volume	1491	642			984	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1491	642			984	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	94	95			98	
cM capacity (veh/h)	96	356			645	

Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2
Volume Total	26	587	297	268	512
Volume Left	6	0	0	12	0
Volume Right	19	0	3	0	0
cSH	215	1700	1700	645	1700
Volume to Capacity	0.12	0.35	0.17	0.02	0.30
Queue Length 95th (ft)	10	0	0	1	0
Control Delay (s)	24.0	0.0	0.0	0.7	0.0
Lane LOS	C			A	
Approach Delay (s)	24.0	0.0		0.2	
Approach LOS	C				

Intersection Summary			
Average Delay	0.5		
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		

Cumulative + Project

HCM Signalized Intersection Capacity Analysis
9: Bayshore & Silver

6/7/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰↑↑↱			↰↑↑↱		↰	↑↑↱		↰	↑	↱
Volume (vph)	92	369	244	32	297	45	330	1227	108	60	586	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	14	12	10	10	10	10	12	12	10	13	12
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		0.95			0.95		1.00	0.95		1.00	1.00	1.00
Frpb, ped/bikes		0.98			0.99		1.00	1.00		1.00	1.00	0.89
Flpb, ped/bikes		0.99			1.00		1.00	1.00		1.00	1.00	1.00
Frt		0.95			0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected		0.99			1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		3118			2865		1486	2943		1486	1732	1263
Flt Permitted		0.80			0.80		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)		2516			2310		1486	2943		1486	1732	1263
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	94	377	249	33	303	46	337	1252	110	61	598	152
RTOR Reduction (vph)	0	89	0	0	14	0	0	6	0	0	0	99
Lane Group Flow (vph)	0	631	0	0	368	0	337	1356	0	61	598	53
Confl. Peds. (#/hr)	100		20	20		100	100		20	20		100
Bus Blockages (#/hr)	5	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)								5	5			
Turn Type	Perm	NA		Perm	NA		Prot	NA		Prot	NA	Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8								6
Actuated Green, G (s)		23.0			23.0		17.1	38.3		3.1	24.3	24.3
Effective Green, g (s)		24.0			24.0		18.1	39.3		4.1	25.3	25.3
Actuated g/C Ratio		0.30			0.30		0.23	0.49		0.05	0.32	0.32
Clearance Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	5.0
Vehicle Extension (s)		2.0			2.0		2.0	2.0		2.0	2.0	2.0
Lane Grp Cap (vph)		760			698		338	1456		76	551	402
v/s Ratio Prot							c0.23	0.46		0.04	c0.35	
v/s Ratio Perm		c0.25			0.16							0.04
v/c Ratio		0.83			0.53		1.00	0.93		0.80	1.09	0.13
Uniform Delay, d1		25.8			23.0		30.6	18.8		37.2	27.1	19.2
Progression Factor		1.00			1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2		7.1			0.3		47.8	12.1		41.9	63.5	0.7
Delay (s)		32.9			23.3		78.4	30.8		79.1	90.6	19.9
Level of Service		C			C		E	C		E	F	B
Approach Delay (s)		32.9			23.3			40.3			76.5	
Approach LOS		C			C			D			E	

Intersection Summary			
HCM 2000 Control Delay	45.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	79.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	110.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
1: Bayshore & US 101 Off Ramp/Gas Station

6/7/2013

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	245	3	56	3	0	2	0	863	7	5	1008	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	12	12	12
Total Lost time (s)		4.0	4.0	4.0		4.0		4.0		3.0	5.0	
Lane Util. Factor		1.00	1.00	1.00		1.00		0.95		1.00	1.00	
Frpb, ped/bikes		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Flpb, ped/bikes		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Frt		1.00	0.85	1.00		0.85		1.00		1.00	1.00	
Flt Protected		0.95	1.00	0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1598	1425	1593		1425		3177		1593	1676	
Flt Permitted		0.95	1.00	0.41		1.00		1.00		0.95	1.00	
Satd. Flow (perm)		1598	1425	684		1425		3177		1593	1676	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	250	3	57	3	0	2	0	881	7	5	1029	0
RTOR Reduction (vph)	0	0	46	0	0	2	0	1	0	0	0	0
Lane Group Flow (vph)	0	253	11	3	0	0	0	887	0	5	1029	0
Confl. Peds. (#/hr)							100		100	100		100
Parking (#/hr)									5			
Turn Type	Split	NA	Perm	custom		custom		NA		Prot	NA	
Protected Phases	4	4						2		1	6	
Permitted Phases			4	8		8						
Actuated Green, G (s)		10.0	10.0	10.0		10.0		32.0		1.2	36.2	
Effective Green, g (s)		10.0	10.0	10.0		10.0		32.0		1.2	35.2	
Actuated g/C Ratio		0.18	0.18	0.18		0.18		0.59		0.02	0.65	
Clearance Time (s)		4.0	4.0	4.0		4.0		4.0		3.0	4.0	
Vehicle Extension (s)		4.0	4.0	4.0		4.0		4.0		3.0	4.0	
Lane Grp Cap (vph)		294	262	126		262		1875		35	1088	
v/s Ratio Prot		c0.16						0.28		0.00	c0.61	
v/s Ratio Perm			0.01	0.00		0.00						
v/c Ratio		0.86	0.04	0.02		0.00		0.47		0.14	0.95	
Uniform Delay, d1		21.4	18.2	18.1		18.0		6.3		26.0	8.6	
Progression Factor		1.00	1.00	1.00		1.00		1.00		1.00	1.00	
Incremental Delay, d2		22.4	0.1	0.1		0.0		0.3		1.9	16.0	
Delay (s)		43.8	18.2	18.2		18.0		6.6		27.9	24.6	
Level of Service		D	B	B		B		A		C	C	
Approach Delay (s)		39.1			18.1			6.6			24.6	
Approach LOS		D			B			A			C	

Intersection Summary				
HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B	
HCM 2000 Volume to Capacity ratio	0.97			
Actuated Cycle Length (s)	54.2	Sum of lost time (s)	11.0	
Intersection Capacity Utilization	88.4%	ICU Level of Service	E	
Analysis Period (min)	15			

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	86	200	274	24	309	115	371	522	30	143	466	138
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	12	12	12	10	11	12
Total Lost time (s)		3.0	3.0		3.0	4.0	3.0	3.0	5.0	3.0	3.0	5.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frpb, ped/bikes		1.00	0.85		1.00	0.91	1.00	1.00	0.88	1.00	1.00	0.88
Flpb, ped/bikes		0.99	1.00		0.99	1.00	0.96	1.00	1.00	0.96	1.00	1.00
Frt		1.00	0.85		1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected		0.99	1.00		1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)		1812	1181		1846	1258	1693	1630	1394	1587	1801	1394
Flt Permitted		0.75	1.00		0.97	1.00	0.37	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)		1383	1181		1792	1258	665	1630	1394	548	1801	1394
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	88	204	280	24	315	117	379	533	31	146	476	141
RTOR Reduction (vph)	0	0	118	0	0	74	0	0	16	0	0	72
Lane Group Flow (vph)	0	292	162	0	339	43	379	533	15	146	476	69
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Parking (#/hr)			5			5		5				
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm	Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Actuated Green, G (s)		23.0	23.0		23.0	23.0	31.0	31.0	31.0	31.0	31.0	31.0
Effective Green, g (s)		25.0	25.0		25.0	24.0	34.0	34.0	32.0	34.0	34.0	32.0
Actuated g/C Ratio		0.38	0.38		0.38	0.37	0.52	0.52	0.49	0.52	0.52	0.49
Clearance Time (s)		5.0	5.0		5.0	5.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)		531	454		689	464	347	852	686	286	942	686
v/s Ratio Prot								0.33			0.26	
v/s Ratio Perm		c0.21	0.14		0.19	0.03	c0.57		0.01	0.27		0.05
v/c Ratio		0.55	0.36		0.49	0.09	1.09	0.63	0.02	0.51	0.51	0.10
Uniform Delay, d1		15.6	14.3		15.2	13.4	15.5	11.0	8.5	10.1	10.0	8.8
Progression Factor		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2		4.1	2.2		2.5	0.4	75.3	3.5	0.1	6.4	1.9	0.3
Delay (s)		19.7	16.5		17.7	13.8	90.8	14.4	8.5	16.5	12.0	9.1
Level of Service		B	B		B	B	F	B	A	B	B	A
Approach Delay (s)		18.1			16.7			45.0			12.3	
Approach LOS		B			B			D			B	

Intersection Summary			
HCM 2000 Control Delay	25.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	6.0
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	100	274	86	139	175	59	163	489	173	26	448	165
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	12	12	10	11	16	10	11	12
Total Lost time (s)	4.0	4.0			4.0	4.0	5.0	5.0		5.0	5.0	
Lane Util. Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	0.96			1.00	0.84	1.00	0.97		1.00	0.97	
Flpb, ped/bikes	0.92	1.00			0.97	1.00	0.97	1.00		0.97	1.00	
Frt	1.00	0.96			1.00	0.85	1.00	0.96		1.00	0.96	
Flt Protected	0.95	1.00			0.98	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1464	1360			1587	1046	1437	1322		1443	1507	
Flt Permitted	0.43	1.00			0.50	1.00	0.27	1.00		0.23	1.00	
Satd. Flow (perm)	665	1360			819	1046	412	1322		355	1507	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	102	280	88	142	179	60	166	499	177	27	457	168
RTOR Reduction (vph)	0	15	0	0	0	0	0	0	0	0	18	0
Lane Group Flow (vph)	102	353	0	0	321	60	166	676	0	27	607	0
Confl. Peds. (#/hr)	100		100	100		100	100		100	100		100
Parking (#/hr)		5				5		5	5			
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	26.0	26.0			26.0	26.0	38.0	38.0		38.0	38.0	
Effective Green, g (s)	27.0	27.0			27.0	27.0	39.0	39.0		39.0	39.0	
Actuated g/C Ratio	0.36	0.36			0.36	0.36	0.52	0.52		0.52	0.52	
Clearance Time (s)	5.0	5.0			5.0	5.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	239	489			294	376	214	687		184	783	
v/s Ratio Prot		0.26						c0.51			0.40	
v/s Ratio Perm	0.15				c0.39	0.06	0.40			0.08		
v/c Ratio	0.43	0.72			1.09	0.16	0.78	0.98		0.15	0.78	
Uniform Delay, d1	18.1	20.7			24.0	16.3	14.5	17.7		9.4	14.5	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	5.2			79.3	0.2	23.6	30.6		1.7	7.4	
Delay (s)	19.4	25.9			103.3	16.5	38.1	48.3		11.0	21.9	
Level of Service	B	C			F	B	D	D		B	C	
Approach Delay (s)		24.5			89.6			46.3			21.4	
Approach LOS		C			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	42.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	139.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Summary of All Intervals

Run Number	1	3	5	6	7	8	9
Start Time	4:50	4:50	4:50	4:50	4:50	4:50	4:50
End Time	6:00	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	70	70	70	70	70	70	70
Time Recorded (min)	60	60	60	60	60	60	60
# of Intervals	5	5	5	5	5	5	5
# of Recorded mScheduledIntervals	4	4	4	4	4	4	4
Vehs Entered	5861	6051	5987	6028	6072	5974	5966
Vehs Exited	5848	6030	5973	5935	6059	5840	5893
Starting Vehs	250	246	247	239	229	226	208
Ending Vehs	263	267	261	332	242	360	280
Denied Entry Before	31	15	62	48	32	28	31
Travel Distance (mi)	1970	2017	2032	2041	2025	2006	2001
Travel Time (hr)	671.0	592.9	736.2	768.5	616.6	658.0	666.5
Total Delay (hr)	599.2	519.4	662.2	694.3	543.0	584.9	593.5
Total Stops	8529	9139	8765	9647	8449	9825	9162
Fuel Used (gal)	215.9	199.6	232.0	239.2	205.3	213.3	215.6

Summary of All Intervals

Run Number	Avg
Start Time	4:50
End Time	6:00
Total Time (min)	70
Time Recorded (min)	60
# of Intervals	5
# of Recorded mScheduledIntervals	4
Vehs Entered	5994
Vehs Exited	5939
Starting Vehs	233
Ending Vehs	285
Denied Entry Before	35
Travel Distance (mi)	2013
Travel Time (hr)	672.8
Total Delay (hr)	599.5
Total Stops	9074
Fuel Used (gal)	217.3

Interval #0 Information Seeding

Start Time	4:50
End Time	5:00
Total Time (min)	10

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	3	5	6	7	8	9
Vehs Entered	1484	1514	1404	1577	1530	1546	1512
Vehs Exited	1480	1495	1432	1493	1531	1493	1471
Starting Vehs	250	246	247	239	229	226	208
Ending Vehs	254	265	219	323	228	279	249
Denied Entry Before	31	15	62	48	32	28	31
Travel Distance (mi)	498	519	482	526	512	508	511
Travel Time (hr)	88.3	79.7	96.1	109.4	85.1	86.4	80.3
Total Delay (hr)	70.1	61.0	78.6	90.2	66.3	68.0	61.7
Total Stops	2181	2507	1925	2716	2189	2259	2325
Fuel Used (gal)	36.2	34.6	37.1	41.2	35.8	35.8	34.5

Interval #1 Information

Start Time	5:00
End Time	5:15
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	Avg
Vehs Entered	1509
Vehs Exited	1483
Starting Vehs	233
Ending Vehs	257
Denied Entry Before	35
Travel Distance (mi)	508
Travel Time (hr)	89.3
Total Delay (hr)	70.8
Total Stops	2298
Fuel Used (gal)	36.5

Interval #2 Information

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	1	3	5	6	7	8	9
Vehs Entered	1465	1553	1502	1441	1534	1524	1476
Vehs Exited	1451	1533	1490	1469	1482	1490	1458
Starting Vehs	254	265	219	323	228	279	249
Ending Vehs	268	285	231	295	280	323	267
Denied Entry Before	150	134	291	205	182	196	160
Travel Distance (mi)	485	512	501	506	504	507	476
Travel Time (hr)	131.8	120.7	159.3	159.8	132.4	141.0	141.4
Total Delay (hr)	114.2	101.9	141.0	141.4	114.1	122.6	124.0
Total Stops	2033	2411	1963	2278	2080	2509	2216
Fuel Used (gal)	45.5	43.8	52.1	52.3	46.1	47.9	47.5

Interval #2 Information

Start Time	5:15
End Time	5:30
Total Time (min)	15

Volumes adjusted by PHF, Growth Factors.

Run Number	Avg
Vehs Entered	1500
Vehs Exited	1481
Starting Vehs	257
Ending Vehs	279
Denied Entry Before	187
Travel Distance (mi)	498
Travel Time (hr)	140.9
Total Delay (hr)	122.8
Total Stops	2211
Fuel Used (gal)	47.9

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	3	5	6	7	8	9
Vehs Entered	1450	1449	1571	1530	1533	1529	1499
Vehs Exited	1433	1487	1505	1523	1540	1540	1471
Starting Vehs	268	285	231	295	280	323	267
Ending Vehs	285	247	297	302	273	312	295
Denied Entry Before	384	292	497	494	374	367	431
Travel Distance (mi)	482	477	524	513	516	531	511
Travel Time (hr)	198.2	169.8	220.8	229.2	180.0	190.2	201.1
Total Delay (hr)	180.7	152.3	201.8	210.6	161.3	170.8	182.5
Total Stops	2156	2148	2474	2297	2168	2635	2396
Fuel Used (gal)	60.5	54.1	66.9	68.4	57.7	60.1	62.0

Interval #3 Information

Start Time	5:30
End Time	5:45
Total Time (min)	15

Volumes adjusted by Growth Factors, Anti PHF.

Run Number	Avg
Vehs Entered	1509
Vehs Exited	1500
Starting Vehs	279
Ending Vehs	287
Denied Entry Before	406
Travel Distance (mi)	508
Travel Time (hr)	198.5
Total Delay (hr)	180.0
Total Stops	2323
Fuel Used (gal)	61.4

Interval #4 Information Recording

Start Time 5:45
End Time 6:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	1	3	5	6	7	8	9
Vehs Entered	1462	1535	1510	1480	1475	1375	1478
Vehs Exited	1484	1515	1546	1450	1506	1327	1493
Starting Vehs	285	247	297	302	273	312	295
Ending Vehs	263	267	261	332	242	360	280
Denied Entry Before	638	484	666	685	524	522	594
Travel Distance (mi)	506	508	526	497	493	460	503
Travel Time (hr)	252.6	222.7	260.0	270.1	219.1	240.3	243.7
Total Delay (hr)	234.1	204.2	240.8	252.0	201.2	223.4	225.4
Total Stops	2159	2073	2403	2356	2012	2422	2225
Fuel Used (gal)	73.7	67.1	75.9	77.3	65.7	69.5	71.7

Interval #4 Information Recording

Start Time 5:45
End Time 6:00
Total Time (min) 15
Volumes adjusted by Growth Factors, Anti PHF.

Run Number	Avg
Vehs Entered	1473
Vehs Exited	1475
Starting Vehs	287
Ending Vehs	285
Denied Entry Before	589
Travel Distance (mi)	499
Travel Time (hr)	244.1
Total Delay (hr)	225.9
Total Stops	2232
Fuel Used (gal)	71.6

22: Bayshore & Carroll & Thornton Performance by approach Interval #1 5:00

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.1	0.0	0.0	0.1	0.1
Denied Del/Veh (s)	7.1	0.0	0.0	6.1	1.0
Total Delay (hr)	0.3	0.1	0.5	0.4	1.3
Total Del/Veh (s)	43.5	2.3	7.6	38.8	11.1
Stop Delay (hr)	0.3	0.0	0.4	0.5	1.2
Stop Del/Veh (s)	44.2	0.3	6.3	40.6	10.0

22: Bayshore & Carroll & Thornton Performance by approach Interval #2 5:15

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.3	0.0	0.0	0.3	0.6
Denied Del/Veh (s)	35.4	0.0	0.0	26.4	5.0
Total Delay (hr)	0.9	0.1	0.5	0.5	2.0
Total Del/Veh (s)	131.4	2.6	7.4	42.1	17.1
Stop Delay (hr)	1.0	0.0	0.4	0.5	1.8
Stop Del/Veh (s)	133.8	0.4	6.2	43.8	16.0

22: Bayshore & Carroll & Thornton Performance by approach Interval #3 5:30

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.9	0.0	0.0	0.2	1.1
Denied Del/Veh (s)	96.9	0.0	0.0	16.7	9.5
Total Delay (hr)	1.1	0.1	0.5	0.5	2.2
Total Del/Veh (s)	117.0	2.1	8.9	46.0	19.1
Stop Delay (hr)	1.1	0.0	0.5	0.6	2.1
Stop Del/Veh (s)	120.3	0.0	7.7	48.1	18.3

22: Bayshore & Carroll & Thornton Performance by approach Interval #4 5:45

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	0.4	0.0	0.0	0.1	0.5
Denied Del/Veh (s)	45.5	0.0	0.0	9.7	4.3
Total Delay (hr)	0.6	0.2	0.6	0.4	1.8
Total Del/Veh (s)	69.2	5.1	9.4	39.3	15.6
Stop Delay (hr)	0.6	0.1	0.5	0.5	1.7
Stop Del/Veh (s)	71.6	2.7	8.1	40.8	14.5

22: Bayshore & Carroll & Thornton Performance by approach Entire Run

Approach	WB	NB	SB	NW	All
Denied Delay (hr)	1.6	0.0	0.0	0.6	2.3
Denied Del/Veh (s)	53.4	0.0	0.0	14.7	5.0
Total Delay (hr)	3.0	0.4	2.0	1.9	7.3
Total Del/Veh (s)	97.0	3.0	8.4	43.8	16.0
Stop Delay (hr)	3.0	0.1	1.7	2.0	6.8
Stop Del/Veh (s)	99.4	0.9	7.1	45.6	15.0

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations						
Volume (veh/h)	608	100	18	598	53	2
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	620	102	18	610	54	2
Pedestrians	100			100	100	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	8			8	8	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	731			793		
pX, platoon unblocked						
vC, conflicting volume			822		1518	871
vC1, stage 1 conf vol					771	
vC2, stage 2 conf vol					747	
vCu, unblocked vol			822		1518	871
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			98		82	99
cM capacity (veh/h)			740		308	297

Direction, Lane #	NB 1	SB 1	SW 1
Volume Total	722	629	56
Volume Left	0	18	54
Volume Right	102	0	2
cSH	1700	740	308
Volume to Capacity	0.42	0.02	0.18
Queue Length 95th (ft)	0	2	16
Control Delay (s)	0.0	0.7	19.3
Lane LOS		A	C
Approach Delay (s)	0.0	0.7	19.3
Approach LOS			C

Intersection Summary			
Average Delay	1.1		
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

Movement	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (veh/h)	686	9	36	643	3	16
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.96	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	700	9	37	656	3	16
Pedestrians	100			100	100	
Lane Width (ft)	11.0			11.0	12.0	
Walking Speed (ft/s)	4.0			4.0	4.0	
Percent Blockage	8			8	8	
Right turn flare (veh)						
Median type	TWLTL			TWLTL		
Median storage veh)	2			2		
Upstream signal (ft)	529			995		
pX, platoon unblocked						
vC, conflicting volume			809		1634	905
vC1, stage 1 conf vol					805	
vC2, stage 2 conf vol					830	
vCu, unblocked vol			809		1634	905
tC, single (s)			4.1		6.4	6.2
tC, 2 stage (s)					5.4	
tF (s)			2.2		3.5	3.3
p0 queue free %			95		99	94
cM capacity (veh/h)			748		282	284

Direction, Lane #	NB 1	SB 1	NW 1
Volume Total	709	693	21
Volume Left	0	37	3
Volume Right	9	0	18
cSH	1700	748	284
Volume to Capacity	0.42	0.05	0.08
Queue Length 95th (ft)	0	4	6
Control Delay (s)	0.0	1.3	18.7
Lane LOS		A	C
Approach Delay (s)	0.0	1.3	18.7
Approach LOS			C

Intersection Summary			
Average Delay	0.9		
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

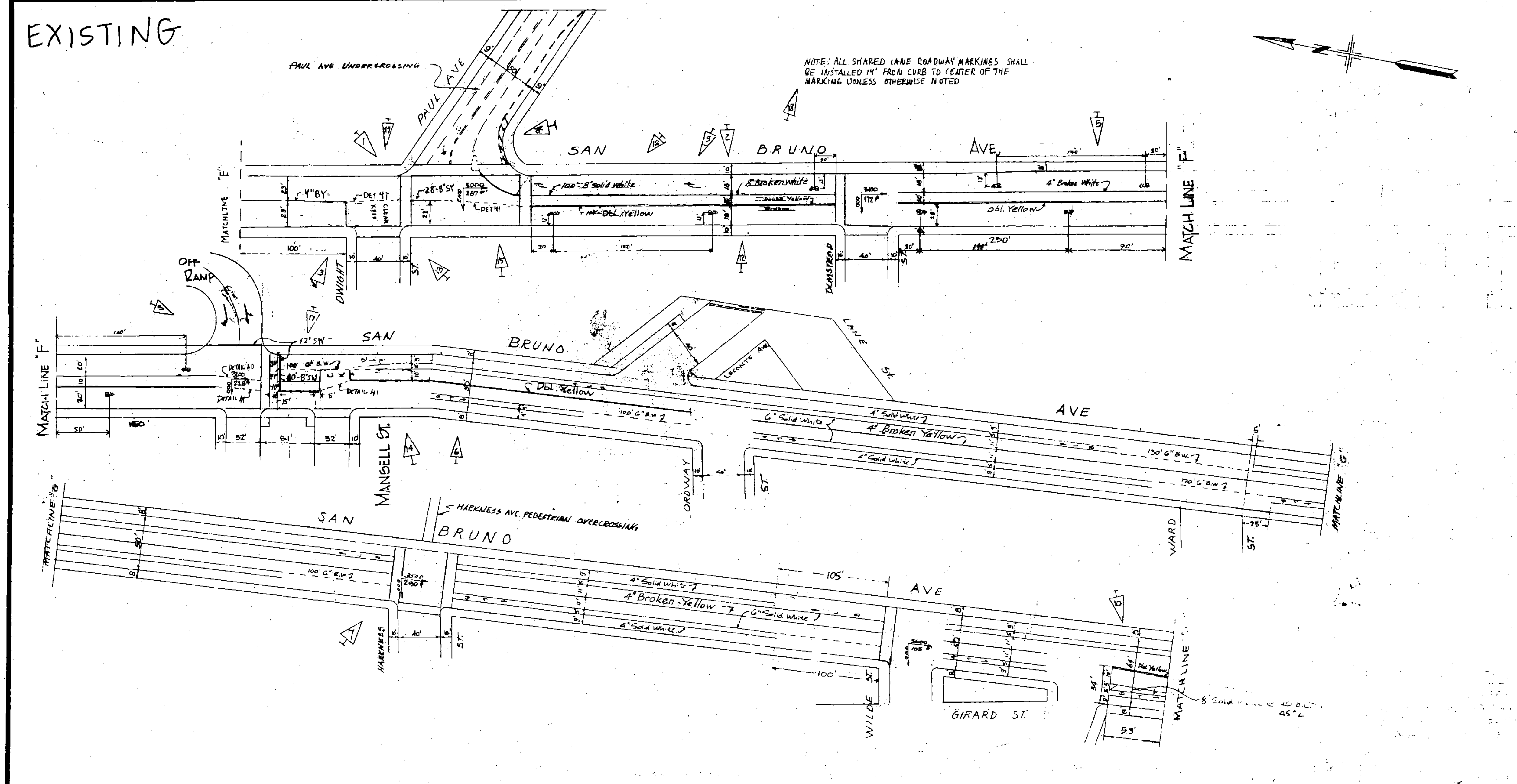
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (veh/h)	6	19	863	3	12	753
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	6	19	881	3	12	768
Pedestrians	100		100			100
Lane Width (ft)	12.0		12.0			16.0
Walking Speed (ft/s)	4.0		4.0			4.0
Percent Blockage	8		8			11
Right turn flare (veh)						
Median type			TWLTL			TWLTL
Median storage veh)			2			2
Upstream signal (ft)			1252			380
pX, platoon unblocked	0.84	0.82			0.82	
vC, conflicting volume	1875	1082			984	
vC1, stage 1 conf vol	982					
vC2, stage 2 conf vol	893					
vCu, unblocked vol	1467	991			871	
tC, single (s)	6.4	6.2			4.1	
tC, 2 stage (s)	5.4					
tF (s)	3.5	3.3			2.2	
p0 queue free %	97	90			98	
cM capacity (veh/h)	240	200			582	

Direction, Lane #	WB 1	NB 1	SB 1
Volume Total	26	884	781
Volume Left	6	0	12
Volume Right	19	3	0
cSH	208	1700	582
Volume to Capacity	0.12	0.52	0.02
Queue Length 95th (ft)	10	0	2
Control Delay (s)	24.7	0.0	0.6
Lane LOS	C		A
Approach Delay (s)	24.7	0.0	0.6
Approach LOS	C		

Intersection Summary			
Average Delay	0.7		
Intersection Capacity Utilization	59.2%	ICU Level of Service	B
Analysis Period (min)	15		

SEGMENT 11

EXISTING



* AS PER FIELD CHECK

No.	Date	Description		
19	1-18-12	Added Det 41 ... & 8" SY @ Paul/Dwight		DY
18	2-3-12	Added sharrows Paul to Mansell	DRC	CA
17	4-9-10	Added storage lane, keep clear ... advanced stop bar	[illegible]	[illegible]
16	[illegible]	"Keep Clear" [illegible]	[illegible]	[illegible]
15	[illegible]	[illegible]	[illegible]	[illegible]
14	6-22-00	Added Bike Lanes, Campbell - Mansell	[illegible]	[illegible]
* 13	[illegible]	Added X-walk ... [illegible]	[illegible]	[illegible]
* 12	4-22-93	Changed 4" Broken White to 100'-8" Solid White & 8" Broken White w/Olmstead. Changed title block. Street [illegible]	AH	T.K.
11	8-29-78	Realigned Striping from Campbell to Girard	[illegible]	EFG
10	2-17-77	Realigned striping ... from Campbell to Girard	NW	RMG
9	5-12-76	As Per Field Check (Added ...)	NW	KK
8	[illegible]	Changed to 4" Yellow & Stripe	[illegible]	[illegible]
7	[illegible]	Changed ... per Field Check	[illegible]	[illegible]
	9-11-71	Added Xings N & W sides at Harkness St.	[illegible]	[illegible]
6	12-15-70	Corrected ℄ Mansel to Dwight	MEB	[illegible]
[illegible]	[illegible]	Moved Off Ramp, Chng'd Strip. Paul Ave to Mansell	MEC	[illegible]
[illegible]	10/1/[illegible]	[illegible]	[illegible]	L.S.
[illegible]	[illegible]	Offset portion of 4" ℄ at Dwight St	[illegible]	G.D.K.
[illegible]	[illegible]	Revised striping Paul Ave to Salinas Ave.	[illegible]	G.D.K.
5	4-29-[illegible]	Revised striping ℄ X/W at Paul Ave & Dwight	CK	G.D.K.

TABLE OF CHANGES
CAUTION: CHECK WITH TRACING TO SEE IF YOU HAVE LATEST REVISION

REFERENCES
INSERT FILE NO'S OF SURVEYS, PLANS, ETC., USED

STATE HIGHWAY DRAWING
[illegible] (B)
STR. 1548.1

DESIGNED BY
DRAWN BY [illegible] 6-25-68
TRACED BY
CHECKED BY
APPROVED CWK
SECTION HEAD
DIVISION ENG.

CITY AND COUNTY OF SAN FRANCISCO
DEPARTMENT OF PARKING AND TRAFFIC

TRAFFIC STRIPING
SAN BRUNO AVE
ALEMANY BLVD. TO BAYSHORE BLVD.

SCALE 1" = 50'
SHEET 3 OF 4 SHEETS

APPROVED
DATE
CITY TRAFFIC ENGINEER

FILE STR-2898.2