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COMMISSION

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Air Quality Conformity Task Force

Metropolitan Transportation Commission
Joseph P. Bort MetroCenter
Claremont Conference Room – 2nd Floor
101 Eighth Street, Oakland

Conference Call Number: 888-273-3658 (Access Code: 9427202)

Thursday, April 28, 2016
9:30 a.m. –11:00 a.m.

AGENDA

1. Welcome and Introductions

2. $PM_{2.5}$ Project Conformity Interagency Consultations

   a. Consultation to Determine Project of Air Quality Concern Status
      i. Laurel Access to Mills, Maxwell Park and Seminary Project
      ii. US 101 University Ave Interchange Improvements Project
      iii. Richmond-San Rafael Bridge Access Improvement Project

   b. Confirm Projects Are Exempt from $PM_{2.5}$ Conformity
      i. Projects Exempt Under 40 CFR 93.126 – Not of Air Quality Concern

3. Projects with Regional Air Quality Conformity Concerns

   a. Review of the Regional Conformity Status for New and Revised Projects us
      3a_Regional_AQ_Conformity_Review.pdf
      3a_Attachment-A_List_of_Proposed_New_Projects_4-28-16.pdf

4. Approach to Conformity Analysis for the 2017 Transportation Improvement Program and Plan Bay Area

5. Consent Calendar

   a. March 24, 2016 Air Quality Conformity Task Force Meeting Summary

6. Other Items

   Next Meeting: May 26, 2016

MTC Staff Liaison: Harold Brazil hbrazil@mtc.ca.gov

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Memorandum

TO: Air Quality Conformity Task Force DATE: April 15, 2016

FR: Harold Brazil W. I.

RE: $PM_{2.5}$ Project Conformity Interagency Consultation

Project sponsors representing three projects, seek interagency consultation from the Air Quality Conformity Task Force (AQCTF) at today's meeting and the projects are as follows:

No.	Project Sponsor	Project Title
1	City of Oakland	Laurel Access to Mills, Maxwell Park and Seminary Project
2	City of East Palo Alto	US 101 University Ave Interchange Improvements Project
3	Bay Area Toll Authority (BATA)	Richmond-San Rafael Bridge Access Improvements Project

2ai_Laurel_Access_to_Mills_Maxwell_Pk_and_Seminary_Project_Assessment_ Form.pdf (for the Laurel Access to Mills, Maxwell Park and Seminary project)

2aii_US101_University_Ave_Interchange_Improvements_Project_Assessment_ Form.pdf
And -
2aii_US101_University_Ave_Interchange_Improvements_Project_Assessment_ Form_Appendix.pdf (for the US 101 University Ave Interchange Improvements project)

2aiii_ Richmond-San Rafael_Bridge_Access_Improvements_Project_Assessment_ Form.pdf (for the Richmond-San Rafael Bridge Access Improvements project – Please note: HNTB staff prepared a summary of the **February 25, 2016** Task Force meeting and this summary is included at the end of the assessment form)

MTC also requests the review and concurrence from the Task Force on projects that project sponsors have identified as exempt and likely not to be a POAQC. **2b_Exempt List 041516.pdf** lists exempt projects under 40 CFR 93.126

Application of Criteria for a Project of Air Quality Concern

Project Title: Laurel Access to Mills, Maxwell Park and Seminary (LAMMPS) Streetscape Project

Project Summary for Air Quality Conformity Task Force Meeting: April 28th 2016

Description

- Project will reconfigure the existing traffic lanes along MacArthur Boulevard to add bicycle lanes and multi-use pathway/sidewalks to improve safety, appearance, and access for pedestrians, bicycles and vehicular traffic.
- There are minimal changes to the number of lanes; elimination only and with new traffic signals and signal timing optimization, the project will reduce vehicle delay compared to the no-build condition with the corridor operating better (less delay and same or better LOS) as the no build conditions

Background

- NEPA process for Categorical Exemption is almost complete
- No comments received on air quality thus far
- Seeking air quality conformity determination by April 30, 2016.
- Schedule based on deadline for ATP funding allocation through CT DLA/CTC

Not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

(i) New or expanded highway projects with significant number/increase in diesel vehicles?

- Not a new or expanded highway project
- AADT (20,832 opening year 2018 and 27,016 horizon year 2040) is well under the 125,000 threshold and truck traffic is relatively low (4%), and will not increase due to the project changes.

(ii) Affects intersections at LOS D, E, or F with a significant number of diesel vehicles?

- Diesel vehicles represent less than 4% of intersection traffic volume
- Intersections at LOS D, E, or F remain the same or improve, and delays decrease (2040)
- No project changes to land use that would affect diesel traffic percentage

(iii) New bus and rail terminals and transfer points?—Not Applicable

(iv) Expanded bus and rail terminals and transfer points?—Not Applicable

(v) Affects areas identified in PM_{10} or $PM_{2.5}$ implementation plan as site of violation?

- No state implementation plan for $PM_{2.5}$
- Therefore, not identified in plan as an area of potential violation

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

RTIP ID# *(required)* **240381**

TIP ID# *(required)* **ALA150012**

Air Quality Conformity Task Force Consideration Date
March 2016

Project Description *(clearly describe project)*

The objective of the Project is to improve safety, appearance, and access for pedestrian, bicycle, and vehicular traffic along a 0.6-mile segment of MacArthur Boulevard between High Street and Richards Road. The improvements will include the replacement of existing pavement, sidewalks, curbs, medians, islands, traffic signals, streetlights and crosswalks. Traffic lanes will be reconfigured and bike lanes and a multi-use path trail will be added. Two new traffic signals at the intersections of MacArthur Boulevard/Calaveras Avenue and MacArthur Boulevard/Pierson Street will be installed. Landscaping and streetscape improvements will also be included.

The project will not include additional traffic lanes. The project will not require any additional right-of-way or temporary construction easements.

Type of Project: **Local Roadway Safety/Access Improvements**

County	**Narrative Location/Route & Postmiles**
Alameda	**The project is located on MacArthur Blvd. in the City of Oakland, extending from High St. to just south of Richards Road, in approximately 0.6 mile in length, crossing under the I-580 freeway.** **Caltrans Projects – EA# None. The PE design work is funded by local funds**.

Lead Agency: City of Oakland

Contact Person	**Phone#**	**Fax#**	**Email**
Mohamed Alaoui	**510-238-3469**		**BAlaoui@oaklandnet.com**

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

X Categorical Exclusion (NEPA)	**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**

Scheduled Date of Federal Action:

NEPA Delegation – Project Type *(check appropriate box)*

	X Section 326 –Categorical Exclusion	**Section 327 – Non-Categorical Exclusion**

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	**February 2015**	**June 2015**	**August 2016**	**July 2017**
End	**August 8, 2016**	**September 2016**	**October 2016**	**May 2018**

$PM_{2.5}$ Project Assessment Form for Interagency Consultation

Project Purpose and Need (Summary): *(please be brief)*
The existing pedestrian paths and bike lanes are discontinuous, and street configurations at several locations are in conflict with pedestrians and bicyclists path of travel, creating unsafe conditions. The purpose of the project is to improve bicycle and pedestrian safety and encourage active transportation by providing continuous and safe paths of travel for vehicles, bicyclists, and pedestrians along the MacArthur corridor. The goal of the project is to provide safe access for pedestrians and bicyclists accessing Mills College, public transit and nearby destinations of variety of services; beautify the area; and, improve traffic flow for pedestrian, bicyclists, and vehicles. (City Project No.: C478810)

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*
The project is located on MacArthur Boulevard between High Street and Richards Road.
The surrounding area consists of mix land use including retail, services, residential, public transit, commercial, and school. MacArthur Boulevard provides access to and from I-580, and although trucks are not prohibited, it is not part of the City of Oakland's Truck Route network.

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

Brief summary of assumptions and methodology used for conducting analysis *(please keep this concise – specifics may include date of when traffic counts were conducted, studies where truck percentages were derived)*

The following is a summary of the assumptions and methodologies used for conducting a traffic analysis on the proposed streetscape project on MacArthur Boulevard:

- *Intersection turn movement counts were collected for the AM (7 – 9 AM) and PM (4 – 6 PM) peak periods in November 2015. A total of 7 intersections were selected for analysis.*
- *Vehicle classification and count data were collected at one location over a one week period, 24-hours per day in order to estimate AADT and truck percentages.*
- *Intersection LOS was analyzed using both microsimulation (implemented via SimTraffic) and the methodologies outlined in the 2000 Highway Capacity Manual (implemented via Synchro 8). LOS findings presented in this form are based on the microsimulation as it was better able to model the interaction between the closely spaced intersections within the project boundaries.*
- *Cumulative volumes were developed using incremental growth from the latest version of the Alameda County Travel Demand Model. For roadways not in the model, percent growth of the nearest centroid connector was used to estimate growth on the minor side street approaches.*
- *Truck percentages under cumulative conditions were assumed to stay the same as they are under existing conditions.*

$PM_{2.5}$ Project Assessment Form for Interagency Consultation

Opening Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Using 7 days of vehicle traffic count and classification data from MacArthur Boulevard in the vicinity of the project and the latest travel demand model for Alameda County, the table below presents the estimated AADT during opening year (2018).

Opening Year 2018			
Condition	AADT	Trucks (#)	Trucks (%)
No Build	20,832	790	4%
Build	No Change		

Calculated LOS findings for existing conditions at the seven intersections within the Project limits include:

AM Peak Hour							
#	Intersection	No Build Control	Build Control	No Build		Build	
				Delay	LOS	Delay	LOS
1	MacArthur Boulevard & Richards Road	Signalized	Signalized	35.4	D	36.0	D
2	MacArthur Boulevard & Pierson Street	Two-way stop	Signalized	339.3	F	8.9	A
3	MacArthur Boulevard & I-580 EB Ramp	Signalized	Signalized	37.2	D	18.8	B
4	Buell Street & Calaveras Avenue	All-way stop	All-way stop	35.6	E	24.3	C
5	MacArthur Boulevard & Calaveras Avenue	Two-way stop	Signalized	17.2	C	9.7	A
6	MacArthur Boulevard & Enos Avenue	Two-way stop	Two-way stop	14.6	B	13.5	B
7	MacArthur Boulevard & Green Acre Road	Two-way stop	Two-way stop	9.0	A	14.5	B
PM Peak Hour							
#	Intersection	No Build Control	Build Control	No Build		Build	
				Delay	LOS	Delay	LOS
1	MacArthur Boulevard & Richards Road	Signalized	Signalized	21.7	C	9.5	A
2	MacArthur Boulevard & Pierson Street	Two-way stop	Signalized	1421.5	F	7.7	A
3	MacArthur Boulevard & I-580 EB Ramp	Signalized	Signalized	22.1	C	14.5	B
4	Buell Street & Calaveras Avenue	All-way stop	All-way stop	25.1	D	18.6	C
5	MacArthur Boulevard & Calaveras Avenue	Two-way stop	Signalized	16.4	C	12.3	B
6	MacArthur Boulevard & Enos Avenue	Two-way stop	Two-way stop	9.8	A	13.1	B
7	MacArthur Boulevard & Green Acre Road	Two-way stop	Two-way stop	7.7	A	19.2	C

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

RTP Horizon Year / Design Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

Using 7 days of vehicle traffic count and classification data from MacArthur Boulevard in the vicinity of the project and the latest travel demand model for Alameda County, the table below presents the estimated AADT during the horizon year (2040).

Horizon Year 2040			
Condition	AADT	Trucks (#)	Trucks (%)
No Build	27,016	1,062	4%
Build	No Change		

Calculated LOS findings for existing conditions at the seven intersections within the Project limits include:

AM Peak Hour							
#	Intersection	No Build Control	Build Control	No Build		Build	
				Delay	LOS	Delay	LOS
1	MacArthur Boulevard & Richards Road	Signalized	Signalized	33.2	C	34.8	C
2	MacArthur Boulevard & Pierson Street	Two-way stop	Signalized	475.2	F	12.9	B
3	MacArthur Boulevard & I-580 EB Ramp	Signalized	Signalized	58.6	E	62.5	E
4	Buell Street & Calaveras Avenue	All-way stop	All-way stop	66.8	F	44.6	E
5	MacArthur Boulevard & Calaveras Avenue	Two-way stop	Signalized	17.0	C	10.6	B
6	MacArthur Boulevard & Enos Avenue	Two-way stop	Two-way stop	21.1	C	14.4	B
7	MacArthur Boulevard & Green Acre Road	Two-way stop	Two-way stop	7.8	A	14.0	B
PM Peak Hour							
#	Intersection	No Build Control	Build Control	No Build		Build	
				Delay	LOS	Delay	LOS
1	MacArthur Boulevard & Richards Road	Signalized	Signalized	33.8	C	31.8	C
2	MacArthur Boulevard & Pierson Street	Two-way stop	Signalized	1521.5	F	8.9	A
3	MacArthur Boulevard & I-580 EB Ramp	Signalized	Signalized	56.9	E	21.6	C
4	Buell Street & Calaveras Avenue	All-way stop	All-way stop	73.4	F	74.4	F
5	MacArthur Boulevard & Calaveras Avenue	Two-way stop	Signalized	34.9	D	9.4	A
6	MacArthur Boulevard & Enos Avenue	Two-way stop	Two-way stop	21.0	C	17.5	C
7	MacArthur Boulevard & Green Acre Road	Two-way stop	Two-way stop	10.8	B	16.3	C

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

See Above

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

See Above

$PM_{2.5}$ Project Assessment Form for Interagency Consultation

Opening Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses **N/A – Not a bus, rail or intermodal facility** **RTP Horizon Year / Design Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses** **N/A – Not a bus, rail or intermodal facility**
Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)* **This project is anticipated to have only minimal redistributive effects. There are minimal changes to the number of lanes; elimination only. The project will also substantially improve signal timing on the corridor reducing vehicle delay compared to the no build condition as shown above. Therefore, the corridor is expected to operate better than the no build condition reducing the probability of diversion.**

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

Comments/Explanation/Details *(please be brief)*
Section 93.116(a) of 40 Code of Federal Regulations (CFR) states that a Federal Highway Administration/Federal Transit Agency (FHWA/FTA) project must not cause or contribute to any new localized $PM_{2.5}$ violations or increase the frequency or severity of any existing PM_{10} and $PM_{2.5}$ violations in non-attainment or maintenance areas. The regulations further state that projects may satisfy this requirement without an analysis of their potential to create PM hot-spots provided they do not meet the following criteria:

> 1*) New or expanded highway projects that have a significant number of or significant increase in diesel vehicles (significant number is defined as greater than 125,000 Annual Average Daily Traffic (AADT) and 8% or more of such AADT is diesel truck traffic, or in practice 10,000 truck AADT or more regardless of total AADT; significant increase is defined in practice as a 10% increase in heavy duty truck traffic);*
>
> *2) Projects affecting intersections that are at a Level of Service D, E, F, with a significant number of diesel vehicles, or that that will change to Level of Service D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project;*
>
> *3) New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location;*
>
> *4) Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location; or*
>
> *5) Projects in or affecting locations, areas, or categories of sites which are identified in the $PM_{2.5}$ or PM_{10} implementation plan or implementation plan submission, as appropriate, as sites of possible violation.*

The project does not meet any of these criteria as outlined below:

The project is limited to the reconfiguration of the existing roadway and intersections and will not create additional vehicular travel lanes; bicycle and pedestrian facilities will be integrated, including Class II bicycle lanes, multi-use pathways and sidewalks. Parking will be removed and vehicular travel lanes will be reconfigured to include class II bicycle lanes. There will be no added or expanded bus or rail stations. No increase in truck traffic is anticipated due to the project changes. Based on available traffic data estimates, the project is below criteria for Project of Air Quality Concern (POAQC).

Traffic data has been assessed for existing and horizon years for the build and no-build condition for MacArthur Boulevard and the 7 study intersections. The traffic data shows that the project will not result in increased traffic based on the existing or horizon year models. Further, there will be no increase in the percentage of truck traffic and the delay and Level of Service (LOS) will improve within the project limits.

Criteria 1 is not met since this project does not involve a new or expanded highway. The truck traffic is relatively low (4%), and will not increase due to the project changes.

Although several intersections are projected to operate at LOS D, E, and F in the horizon year (2040) no-build and build conditions, the degraded LOS would not be the result of the project. In fact, in year 2040, the project will reduce delay and improve LOS along the corridor, as compared to no build conditions. Bottom line, **Criteria 2 is not met** since the project will not result in increased traffic volumes from a significant number of diesel vehicles.

Criteria 3 and 4 do not apply to this project since the project does not involve bus or rail terminals or transfer points that have a large number of diesel vehicles at one location.

Criteria 5 is not met since the project is not in, nor affecting locations, areas, or categories of sites identified in the PM 2.5 or PM 10 implementation plan or implementation plan submission. Further, the project would have no effect on the number of trucks using MacArthur Boulevard.

Since none of the criteria apply, the project is not a POAQC.

Neighborhoods

The project area extends from High Street that borders the Laurel Business District south to Seminary Avenue that borders the Millsmont Commercial Area.

Source: Google Maps, 2003

Legend

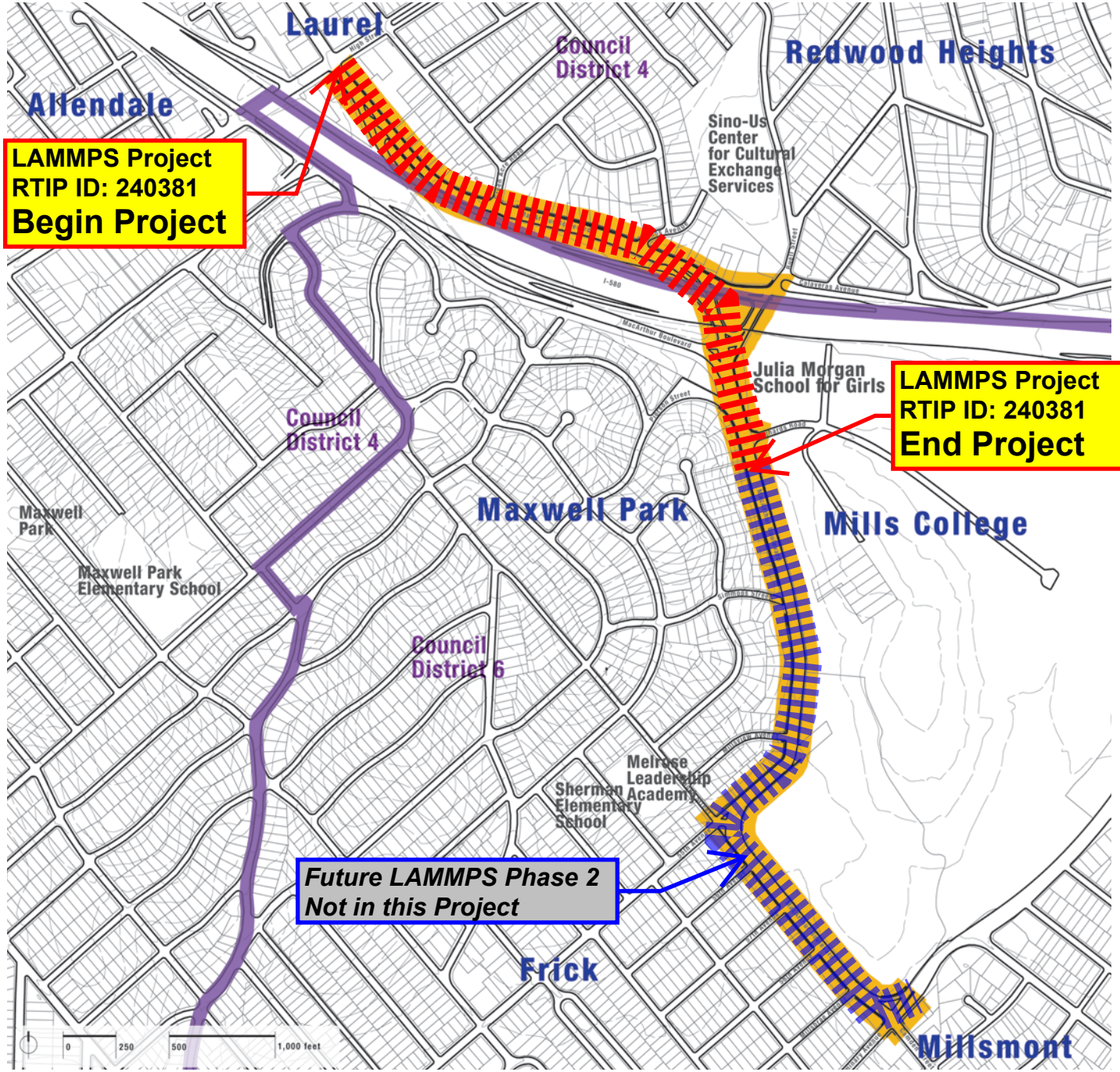
Project Area

Laurel Access to Mills, Maxwell Park, & Seminary (LAMMPS) Streetscape Project - City of Oakland, CA

Figure 1 - Project Site/Surrounding Land Use

1.01 Project Area

Many neighborhoods will benefit from the proposed improvements.

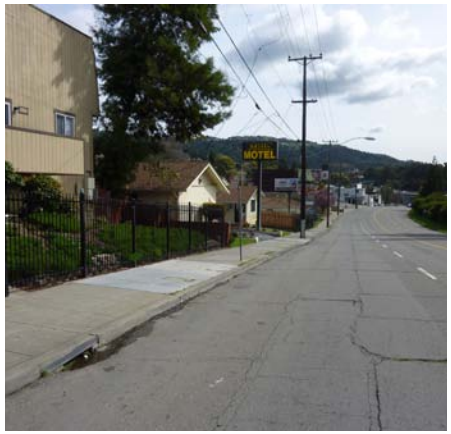


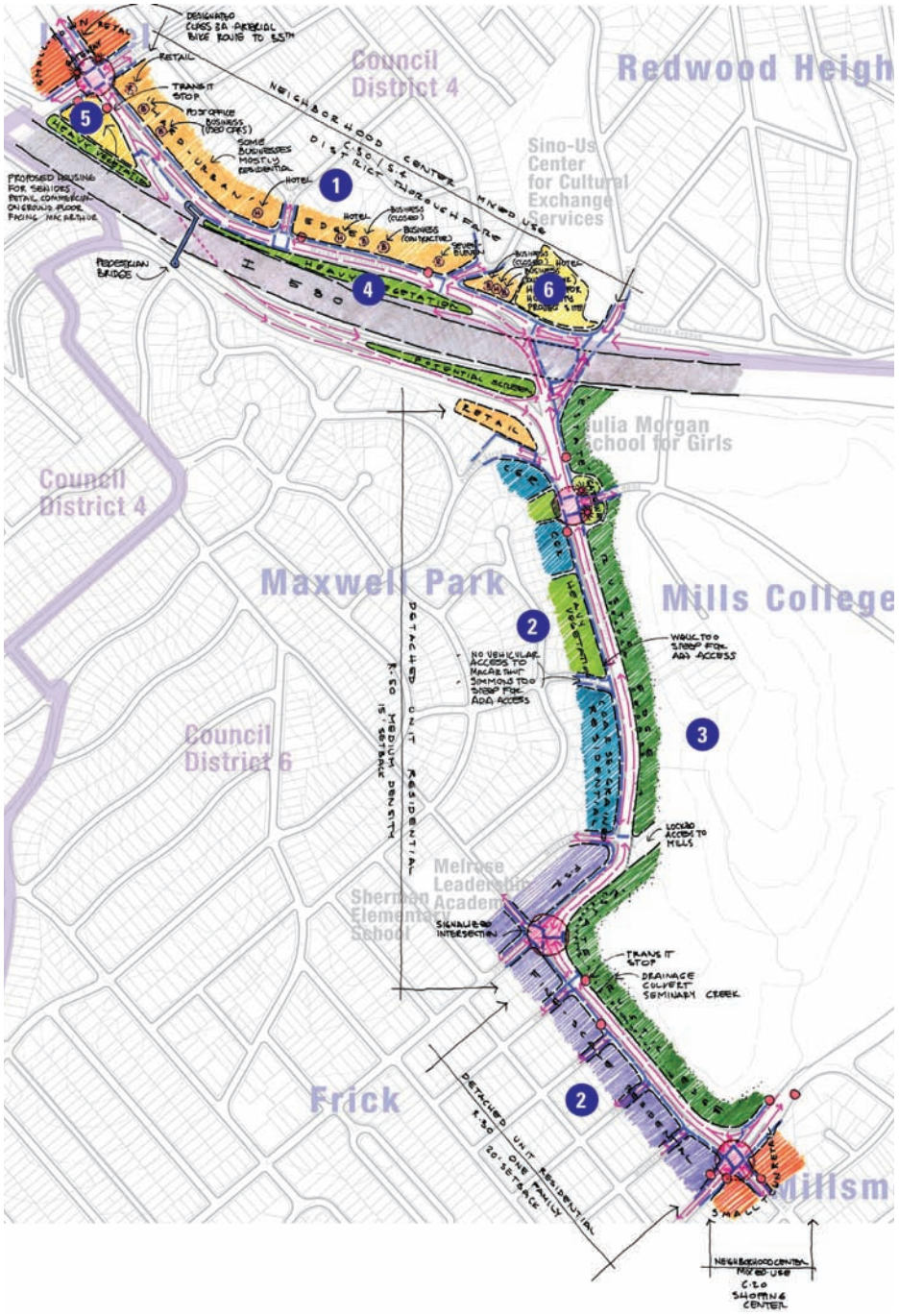
Legend

Project Area

Laurel Access to Mills, Maxwell Park, & Seminary (LAMMPS) Streetscape Project - City of Oakland, CA

Figure 2 - Project Site/Surrounding Land Use





2.04 Commercial Residential

(1) *A mix of commercial and residential uses borders the eastern edge of the corridor north of the freeway.*

2.05 Residential

(2) *Residential uses of varying densities frame the west edge of the corridor south of the freeway.*

2.06 Mills College

(3) *South of the freeway, the rustic landscape of Mills College dominates the eastern edge of MacArthur Boulevard.*

2.07 Planning Context

Four land uses border the corridor:

(1) *commercial-residential mix,*
(2) *residential of varying densities,*
(3) *institutional (Mills College), and*
(4) *freeway (Caltrans) supporting the recommendation of proposed mixed developed and "rustic" aesthetic. Several parcels are proposed for development projects:*
(5) *housing for seniors with ground floor commercial space, and*
(6) *housing by Habitat for Humanity.*

Laurel Access to Mills, Maxwell Park, & Seminary (LAMMPS) Streetscape Project - City of Oakland, CA
Figure 3 - Surrounding Land Use

Laurel Access to Mills, Maxwell Park & Seminary (LAMMPS) Streetscape Project – City of Oakland, CA

Traffic Information

Table 1: Existing Conditions (2016)

#	Intersection	No Build Control	Build Control	Existing Conditions (2016)								
				AADT Existing/ **Opening Year***	% Trucks Existing/ **Opening Year***	Trucks Existing/ **Opening Year**	AM				PM			
							No-Build		Build		No-Build		Build	
							Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	MacArthur Boulevard & Richards Road	Signalized	Signalized	19,844/ **20,832**	4%/ **4%**	753/ **790**	35.4	D	36.0	D	21.7	C	9.5	A
2	MacArthur Boulevard & Pierson Street	Two-way stop	Signalized				339.3	F	8.9	A	1421.5	F	7.7	A
3	MacArthur Boulevard & I-580 EB Ramp	Signalized	Signalized				37.2	D	18.8	B	22.1	C	14.5	B
4	Buell Street & Calaveras Avenue	All-way stop	All-way stop				35.6	E	24.3	C	25.1	D	18.6	C
5	MacArthur Boulevard & Calaveras Avenue	Two-way stop	Signalized				17.2	C	9.7	A	16.4	C	12.3	B
6	MacArthur Boulevard & Enos Avenue	Two-way stop	Two-way stop				14.6	B	13.5	B	9.8	A	13.1	B
7	MacArthur Boulevard & Green Acre Road	Two-way stop	Two-way stop				9.0	A	14.5	B	7.7	A	19.2	C

*** Opening Year is 2018**

Table 2: Horizon (Design) Year (2040)

#	Intersection	No Build Control	Build Control	Horizon (Design) Year (2040)								
				AADT	% Trucks	Trucks	AM				PM			
							No-Build		Build		No-Build		Build	
							Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1	MacArthur Boulevard & Richards Road	Signalized	Signalized	27,016	4%	1,062	33.2	C	34.8	C	33.8	C	31.8	C
2	MacArthur Boulevard & Pierson Street	Two-way stop	Signalized				475.2	F	12.9	B	1521.5	F	8.9	A
3	MacArthur Boulevard & I-580 EB Ramp	Signalized	Signalized				58.6	E	62.5	E	56.9	E	21.6	C
4	Buell Street & Calaveras Avenue	All-way stop	All-way stop				66.8	F	44.6	E	73.4	F	74.4	F
5	MacArthur Boulevard & Calaveras Avenue	Two-way stop	Signalized				17.0	C	10.6	B	34.9	D	9.4	A
6	MacArthur Boulevard & Enos Avenue	Two-way stop	Two-way stop				21.1	C	14.4	B	21.0	C	17.5	C
7	MacArthur Boulevard & Green Acre Road	Two-way stop	Two-way stop				7.8	A	14.0	B	10.8	B	16.3	C

Legend

- Reduction in LOS (due to slight increase in delay)
- No Change in LOS (no appreciable difference in delay)
- Improvement in LOS (due to slight to significant reduction in delay)

Application of Criteria for a Project of Air Quality Concern

Project Title: US 101/University Avenue Interchange Improvement

Project Summary for Air Quality Conformity Task Force Meeting: (April 2016)

Description

- Project will construct a bicyclist/pedestrian overcrossing, widen the southbound off-ramp to provide an additional right turn lane, and tighten the northbound loop off-ramp radius to improve merging while enhance safety for pedestrians and bicyclists in the city of East Palo Alto.
- No change to US 101 mainline
- Proposed overcrossing improves bicyclist and pedestrian connections between both sides off US 101
- New southbound ramp configuration will improve operations at the ramp termini intersection

Background

- NEPA process for CE/CE is underway
- No comments received on air quality thus far
- Seeking air quality conformity determination on or before (Insert Date)
- Schedule based on deadline for SMCTA Measure A funding allocation

Not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

(i) New or expanded highway projects with significant number/increase in diesel vehicles?

- Not a new or expanded highway project
- Interchange replacement—no additional lanes on US 101
- No change in traffic volume or truck percentages on US 101
-

(ii) Affects intersections at LOS D, E, or F with a significant number of diesel vehicles?

- Project will only affect the southbound ramp termini intersection. The build and no-build intersection LOS will be at LOS C, with minor improvement is anticipated in delay (2040).
- No project changes to land use that would affect diesel traffic percentage
-

(iii) New bus and rail terminals and transfer points?—Not Applicable

(iv) Expanded bus and rail terminals and transfer points?—Not Applicable

(v) Affects areas identified in PM_{10} or $PM_{2.5}$ implementation plan as site of violation?

- No state implementation plan for $PM_{2.5}$ (due by December 2012)
- Therefore, not identified in plan as an area of potential violation
- Nearest PM_{10} or $PM_{2.5}$ violations in 2007 in Redwood City, 7 miles northwest

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

RTIP ID# *(required)* 21607

TIP ID# *(required)* SM-07006

Air Quality Conformity Task Force Consideration Date
April 2016

Project Description *(clearly describe project)*
The project will construct a bicycle/pedestrian overcrossing to improve non-motorized connectivity along University Avenue across US101 between both sides of the freeway; widen the southbound loop off-ramp to provide an additional right turn lane at the ramp termini intersection; and tighten the northbound loop off-ramp entry radius to provide improved merging for traffic onto westbound University Avenue while enhancing safety for pedestrians and bicyclists crossing the off-ramp.

Type of Project: Reconfigure existing interchange
Pick one project type: New State highway, Change to existing State highway, New regionally significant street, Change to existing regionally significant street, New interchange, Reconfigure existing interchange, Intersection Channelization, Intersection signalization, Roadway realignment, Bus, rail or intermodal facility/terminal/transfer point, Truck weight/inspection station

County	**Narrative Location/Route & Postmiles**
SM	**The project is locate at the US101/University Avenue interchange in the city of East Palo Alto in San Mateo County, Postmiles: 0.8/1.4** **Caltrans Projects – EA#** 04-272820

Lead Agency: City of East Palo Alto

Contact Person	**Phone#**	**Fax#**	**Email**
Kamal Fallaha	650-853-3189	650-853-3179	kfallaha@cityofepa.org

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

X **Categorical Exclusion (NEPA)**	**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**

Scheduled Date of Federal Action: 11/6/2015

NEPA Delegation – Project Type *(check appropriate box)*

	X **Section 326 –Categorical Exclusion**	**Section 327 – Non-Categorical Exclusion**

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	10/24/2014	7/25/2015	12/7/2015	9/23/2016
End	11/06/2015	7/8/2016	1/29/2016	10/15/2017

Project Purpose and Need (Summary): *(please be brief)*

1. To improve traffic operations at the US101/University Avenue interchange
2. To reduce existing pedestrian-bicyclist/vehicle conflicts at the interchange
3. To provide safe pedestrian and bicyclist connectivity across the freeway

$PM_{2.5}$ Project Assessment Form for Interagency Consultation

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*
The existing land uses surrounding the project comprise of office, hotel, and large retail centers as well as residential units.

Brief summary of assumptions and methodology used for conducting analysis *(please keep this concise – specifics may include date of when traffic counts were conducted, studies where truck percentages were derived)*

A Caltrans traffic operations analysis report has been prepared and is being reviewed by Caltrans. Traffic counts were taken in January 2015. Truck percentages were extracted from Caltrans published volumes for freeways.

Opening Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility
N/A

RTP Horizon Year / Design Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility
N/A

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
The 2020 AADT for the southbound off-ramp is projected at 13,600. Build and no-build will operate at LOS C. No truck count was obtained for the ramp intersection. The truck percentage for US101 is 4.23%.

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT
The 2040 AADT for the southbound off-ramp is projected at 16,800. Build and no-build will operate at LOS C. No information is available for truck traffic on the freeway nor the ramp for 2040.

Opening Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses
N/A

RTP Horizon Year / Design Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses
N/A

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*
N/A

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

Comments/Explanation/Details *(please be brief)*
None.

US 101 / UNIVERSITY AVENUE INTERCHANGE IMPROVEMENTS

BUILD ALTERNATIVE

AECOM

To San Francisco

Donohoe St

US 101

Manhattan Ave

IKEA

Four Seasons

University Ave

Capitol Ave

Woodland Ave

To San Jose

N

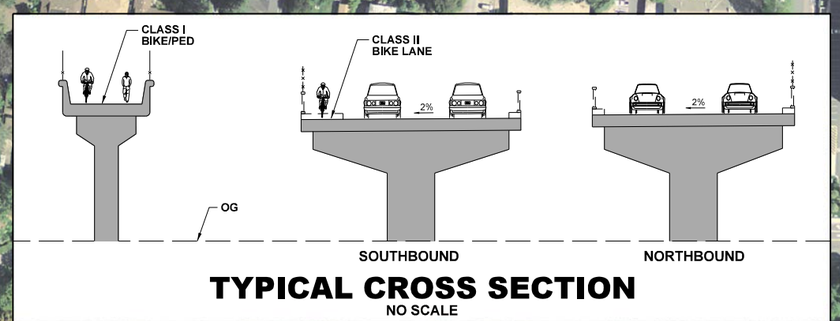
LEGEND:

Pavement Widening

Structure Widening

SCALE

0 75 150 225 300 Ft



TYPICAL CROSS SECTION

NO SCALE

June 2015

DATE=!DATE - FILE=!FILE

US 101 / UNIVERSITY AVENUE INTERCHANGE IMPROVEMENTS

BUILD ALTERNATIVE

AECOM

June 2015

Hexagon Transportation Consultants, Inc.

Memorandum

Date: May 14, 2015

To: Phillip Cox, Caltrans Travel Forecasting Branch
Lance Hall, Caltrans Traffic Operations Branch

Copies To: Ramsey Hissen, URS Corporation
Daniel Ho, URS Corporation
Kamal Fallaha, City Engineer East Palo Alto
Maziar Bozorginia, Senior Civil Engineer East Palo Alto

From: Jill Hough
Trisha Dudala

Subject: East Palo Alto US 101/University Avenue Interchange Improvement Project-Traffic Operations Analysis

Introduction

This report has been prepared to present the results of the traffic operations analysis for the East Palo Alto US 101/University Avenue Interchange Improvement Project.

The City of East Palo Alto is proposing to make improvements to the existing US 101/University Avenue interchange by modifying the US 101 southbound loop off-ramp and by constructing bicycle and pedestrian facilities across US 101 along University Avenue. The improvements would consist of widening the existing intersection of the southbound off-ramp at University Avenue to accommodate dual left-turn lanes and dual right-turn lanes. The number of lanes on the off-ramp exiting the freeway would remain the same. The improvements also include reconfiguring the northbound loop off-ramp to bring it closer to the intersection of University Avenue and Donohoe Street to enhance bicycle and pedestrian safety. Also, an acceleration lane measuring approximately 200 feet in length is proposed on University Avenue, just south of Donohoe Street so that vehicles from the northbound loop off-ramp can accelerate before merging into the through traffic on University Avenue. Currently, the northbound loop-off ramp merges with University Avenue approximately 100 feet south of the intersection of University Avenue and Donohoe Street without any acceleration lane.

An alternative design concept that includes "squaring" the northbound loop off-ramp intersection with University Avenue so that it would be controlled by the Donohoe Street signal, to enhance bicycle and pedestrian safety was also analyzed.

The traffic operations analyses were performed under existing conditions as well as with forecast traffic volumes. Future traffic operations were analyzed under the No Project scenario (No Build) and the scenario with the proposed interchange improvement (Build alternative).

Intersections

In coordination with Caltrans, the following intersections were selected for analysis:

1. US 101 NB Ramps and Donohoe Street,
2. University Avenue and Donohoe Street,
3. University Avenue and US 101 SB Ramps, and

4. University Avenue and Woodland Avenue.

Note:- Because of the orientation of University Avenue and Donohoe Street in the study area, University Avenue is referred to as a north/south roadway and Donohoe Street as an east/west roadway throughout this report.

The proposed interchange improvements were analyzed using Synchro/SimTraffic (Version 8) software developed by Trafficware.

Traffic operations analyses were conducted for the following scenarios:

Existing Conditions Analysis – A representation of the existing roadway network was prepared using Synchro. The Synchro model was calibrated to existing conditions based on existing AM and PM peak hour traffic volumes, existing lane geometries, existing signal timings/phasings and observed peak hour vehicular queues.

Year 2040 No Project Conditions – Year 2040 no project conditions were analyzed using existing lane configurations at the study intersections and using the Year 2040 AM and PM peak hour volumes. Year 2040 traffic forecasts were obtained from the Santa Clara Valley Transportation Authority (VTA). These forecasts were used in conjunction with the existing intersection counts to develop intersection turning movement forecasts for all study intersections.

Year 2040 Plus Project Conditions – The project conditions refer to the proposed roadway improvements at the US 101/University Avenue interchange. The proposed improvements include widening the US 101 southbound loop off-ramp to include dual left-turn lanes and dual-right turn lanes and reconfiguring the US 101 northbound loop-off ramp to bring it closer to the intersection of University Avenue and Donohoe Street to enhance bicycle and pedestrian safety. Year 2040 plus project conditions were analyzed using Year 2040 intersection turning movements with the proposed US 101/University Avenue interchange improvements. The 2040 traffic forecasts are the same with or without the project because the improvements are not enough to change the travel model network or to influence traffic patterns.

Project Opening Year Analysis – It is assumed that the proposed project would be completed by Year 2020. The opening year analysis was conducted for the No Project Alternative and Plus Project Alternative. Year 2020 traffic volumes were interpolated based on existing counts and Year 2040 forecasts derived from the model.

These scenarios are discussed in detail in the following sections of this report.

Existing Conditions

AM and PM peak hour field observations were conducted in January 2015. In general, during the AM peak hour, southbound University Avenue and westbound Donohoe Street are heavily congested. During the PM peak hour, northbound University Avenue and eastbound Donohoe Street (east of University Avenue) are congested.

US 101 NB Ramp/Donohoe Street – This is an unsignalized intersection, where the westbound left-turns should yield to the eastbound traffic. During the AM peak hour long queues develop in the westbound left-turn lane. During the AM peak hour, there is a demand of 800 to 900 vehicles on the US 101 northbound on-ramp from Donohoe Street and E. Bayshore Road. This ramp is metered during the AM peak hour, and occasionally vehicular queues from the ramp meter extend all the way to Donohoe Street. Since the westbound left-turning vehicles from Donohoe Street have to find gaps in the eastbound through traffic, queues are developed in the westbound left-turn lane on Donohoe Street that extend past the upstream intersection of University Avenue. Vehicles would frequently use the through lane adjacent to the left-turn lane to merge into the left-turn lane blocking the westbound through traffic. Also, long queues exist in the eastbound through lane. The long queues in the eastbound through lane develop because occasionally the right-turning traffic onto the US 101 northbound ramp blocks the through traffic. Occasionally the eastbound through traffic could not enter the intersection because of downstream queuing in the eastbound right-turn lane at the intersection of University Avenue and Donohoe Street that extends past the intersection of US 101 northbound ramp and Donohoe Street thus blocking the right-turn traffic.

During the PM peak hour, no significant traffic related issues occur at this intersection. The westbound left-turn traffic queue is contained within the left-turn lane and does not block the through traffic. The westbound left-turning traffic onto the US 101 northbound ramp can easily find gaps in the eastbound through traffic. During the PM peak hour, there is no ramp metering at the US 101 northbound ramps and as such there are no long queues on the ramp.

University Avenue/Donohoe Street– This is a signalized intersection that operates with split phasing for the eastbound and westbound approaches with a cycle length of 140 seconds during both the AM and PM peak hours. During the AM peak hour, long queues occur on southbound University Avenue that extend to Bell Street. Long queues also occur in the eastbound right-turn lane and in the westbound inner through lane, which is a trap lane for the downstream left-turn lane onto the US 101 northbound ramp. Although there is a "Do Not Block Intersection" sign posted on all approaches at this intersection, vehicles occasionally block the intersection as a result of queuing on downstream Donohoe Street to access the US 101 northbound ramp. Vehicles that block the intersection conflict with pedestrians during the ped-crossing phase of the west leg.

During the PM peak hour, the peak direction of traffic is northbound University Avenue. Vehicular queues on northbound University Avenue ocassionally extend back to the upstream intersection of University Avenue and US 101 southbound ramps.

University Avenue/US 101 SB Ramps – This intersection currently operates in close coordination with the intersection of University Avenue and Woodland Avenue with a cycle length of 120 seconds in the AM and PM peak hours. During the AM peak hour this intersection operates without any significant traffic related issues. Occasionally, long queues develop in the southbound left-turn lane towards the US 101 southbound on-ramp that spill into the inner through lane on University Avenue. However, most of the time, these queues are able to clear in one signal cycle length.

During the PM peak hour, vehicular queues on northbound University Avenue extend past the upstream intersection of Woodland Avenue. Vehicular queues on the US 101 southbound off-ramp are able to clear in one signal cycle.

University Avenue/Woodland Avenue - This intersection currently operates in close coordination with the intersection of University Avenue and US 101 southbound ramps with a cycle length of 120 seconds in the AM and PM peak hours. The eastbound and westbound approaches on Woodland Avenue operate with split phasing. During the AM peak hour this intersection operates without any significant traffic related issues. Occasionally the southbound traffic on University Avenue extends upstream up to the intersection of the US 101 southbound ramps.

During the PM peak hour, long vehicular queues occur on northbound University Avenue that extend all the way back to the upstream intersection of Lincoln Avenue.

Existing Conditions Calibration

A representation of the existing roadway network was prepared using Synchro/SimTraffic (Version 8) software developed by Trafficware. The study area included the following intersections:

- US 101 NB Ramps and Donohoe Street
- University Avenue and Donohoe Street
- University Avenue and US 101 SB Ramps
- University Avenue and Woodland Avenue

In addition, the intersection of University Avenue and Bell Street was coded in the network in order to include the queues on the University Avenue north approach (University Avenue between Donohoe Street and Bell Street) in the evaluation of traffic operations. Existing AM and PM peak hour volumes for the University Avenue and Bell Street intersection were based on a 2012 count that was conducted for a previous traffic study. The count was adjusted to reflect growth in traffic based on the new counts at the University Avenue & Donohoe Street intersection. Traffic operations were analyzed for a two hour duration during the morning peak (7:00 AM to 9:00 AM) and a two hour duration during the evening peak (4:00 PM to 6:00 PM) in order to

capture the total demand rather than only the demand served at the intersections. A seeding time of 45 minutes was assumed for each evaluation run so that the demand was taken into account before recording the runs for 2 hours. The existing network was calibrated to represent existing conditions based on existing AM and PM peak hour traffic volumes, existing lane geometries, existing signal timing/phasing and observed peak hour vehicular queues. The exising AM and PM peak hour traffic volumes at the study intersections are shown on Figure 1. At least 10 simulation runs were conducted for each scenario using SimTraffic. Table 1 below shows a comparison of input volume versus the served volume based on the SimTraffic performance report. As shown in Table 1, at all four study intersections the volume served is 97% or higher during both the AM and PM peak hour existing conditions. Also shown in the table is the Geoffrey E. Havers (GEH) statistic. The GEH Statistic is a formula used in traffic engineering and traffic modeling to compare two sets of traffic volumes. The input volume is compared against the served volume in the simulation model. A GEH value of less than 5.0 is considered a good match between the input volume and volume served. As shown in Table 1, the GEH statistic for all four intersections was calculated to be less than 2.0 indicating that the volume served at each intersection matched closely to the turning movement counts collected in the field.

Table 1
Existing Conditions Calibration

			Existing Conditions			
	Intersection	Peak Hour	Input Volume	Served Volume	% Volume Served	GEH Statistic
1	Donohoe Street/US 101 NB On-Ramp	AM	1632	1593	98%	0.97
		PM	1560	1558	100%	0.05
2	Donohoe Street/University Avenue	AM	3804	3712	98%	1.50
		PM	4206	4200	100%	0.09
3	US 101 SB Off-Ramp/University Avenue	AM	4326	4199	97%	1.95
		PM	3849	3835	100%	0.23
4	Woodland Avenue/University Avenue	AM	3452	3372	98%	1.37
		PM	3004	2990	100%	0.26

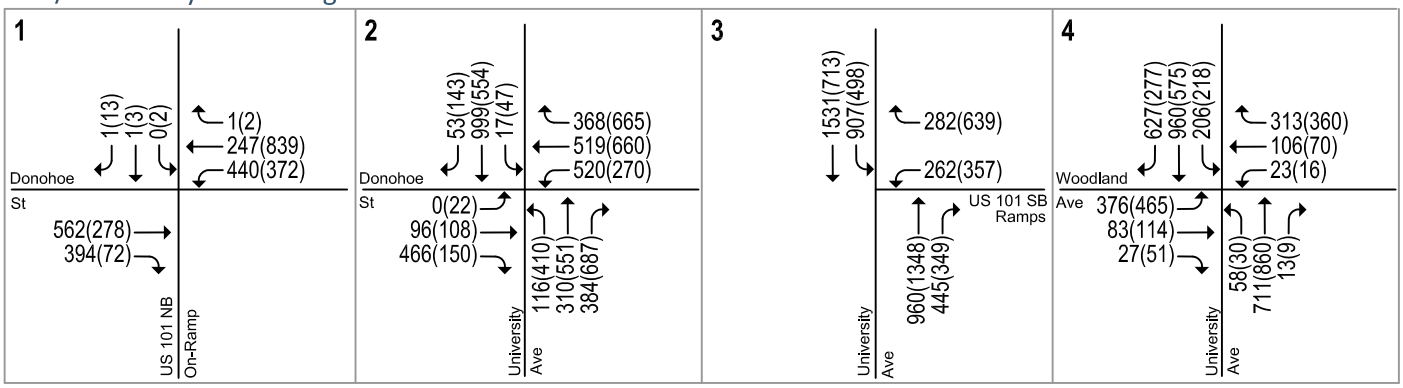
Note:
1. Based on SimTraffic simulation for a 2 hour duration.

In order to further validate existing conditions, the average queues on all approaches at each intersection were analyzed. In general, at all study intersections, the average queues based on the existing conditions Simtraffic model were found to match closely with the queues that were observed in the field.

Table 2 below shows the weighted average intersection delays at all four study intersections based on SimTraffic reports and also the delay based on HCM 2000 Methodology.

Based on the microscopic simulation model, the intersection of US 101 northbound ramp and Donohoe Street currently operates at LOS D during the AM peak hour and at LOS A during the PM peak hour period. The intersection of University Avenue and Donohoe Street currently operates at LOS F during the AM peak hour and LOS D during the PM peak hour. The poor LOS during the AM peak hour is attributed to the long vehicular queues on southbound University Avenue and westbound Donohoe Street. The intersection of University Avenue and US 101 southbound ramps currently operates at LOS D during the AM peak hour and LOS C during the PM peak hour. The intersection of University Avenue and Woodland Avenue currently operates at LOS D during the AM peak hour and LOS E during the PM peak hour. The poor LOS during the PM peak hour is attributed to the long vehicular queues on northbound University, along with traffic on Woodland Avenue heading towards northbound University Avenue.

101 / University Interchange



LEGEND

= Unsignalized Study Intersection

= Signalized Study Intersection

XX(XX) = AM(PM) Peak-Hour Volumes

Figure 1
Existing Traffic Volumes

HEXAGON

NORTH
Not to Scale

Table 2
Existing Conditions Intersection Delay (SimTraffic Report)

			Existing				
			SimTraffic [1]			Synchro (HCM 2000) [2]	
	Intersection	Peak Hour	Delay	LOS		Delay	LOS
1	Donohoe Street/US 101 NB On-Ramp [3]	AM	42.3	D		6.4	A
		PM	3.7	A		3.8	A
2	Donohoe Street/University Avenue	AM	107.3	F		63.6	E
		PM	54.1	D		48.1	D
3	US 101 SB Off-Ramp/University Avenue	AM	48.5	D		29.7	C
		PM	29.3	C		33.6	C
4	Woodland Avenue/University Avenue	AM	42.7	D		30.8	C
		PM	59	E		41.2	D

Note:

1. Delay based on SimTraffic simulation of individual vehicles and LOS correlated to Highway Capacity Manual (HCM) 2000 methodology.

2. Delay based on Highway Capacity Manual (HCM) 2000 methodology.

3. Delay reported from Synchro at this unsignalized intersection is the weighted average delay incurred by all vehicles at the intersection. The delay associated with the westbound left-turning vehicles is 23.0 seconds (LOS C) during the AM peak hour and 9.6 seconds (LOS A) during the PM peak hour.

Existing Plus Project Conditions

Project conditions refer to the following improvements at the interchange:

US 101 Northbound Off-ramp: The improvement is to reconfigure the US 101 northbound loop off-ramp to provide, an acceleration lane approximately 200 feet in length to southbound University Avenue. This would allow vehicular traffic coming from the northbound off-ramp to accelerate and merge onto southbound University Avenue and would provide much better visibility for vehicles to see and yield to pedestrians and bicycles. Currently, the northbound off-ramp merges at a 30 degree angle approximately 75 feet south of the Donohoe Street/University Avenue intersection with no acceleration lane.

Because this realigned ramp is a very subtle change to vehicular operations, it does not produce a change in the Simtraffic model. However, we believe that the realignment of the northbound off-ramp would allow vehicles coming from the US 101 northbound loop-off ramp to accelerate before merging onto southbound University Avenue. This would potentially reduce queuing on the northbound loop-off ramp.

US 101 Southbound Off-Ramp: The improvement consists of adding a fourth lane to the off-ramp as it approaches University Avenue such that there would be dual left turn lanes and dual right turn lanes at the intersection. Currently, the southbound off-ramp includes a left-turn lane, a shared left-right lane and a separate right turn lane. This improvement was evaluated under existing and future traffic volume conditions.

The project improvements are shown on Figure 2.

The proposed improvements were coded on top of the calibrated existing conditions AM and PM peak hour models and the traffic operations were analyzed using SimTraffic. The Simtraffic model was not able to show any significant changes in traffic operations within the system with the improvements. The improvements only affect the University Avenue/US 101 southbound off-ramp intersection, and this intersection is not really experiencing any problems under existing conditions.

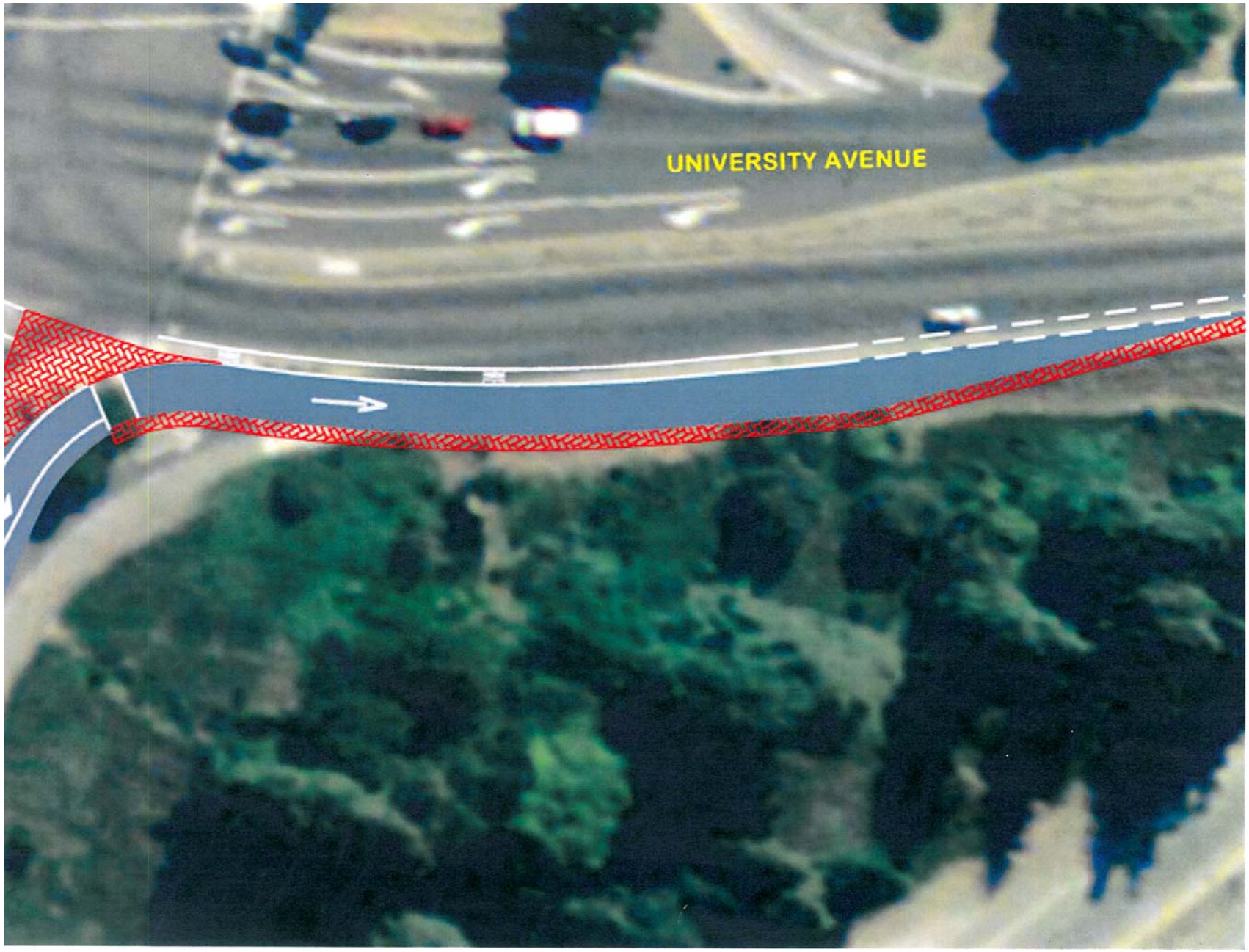


Figure 2A
Proposed Improvements - US 101 NB Loop-Off Ramp Realignment

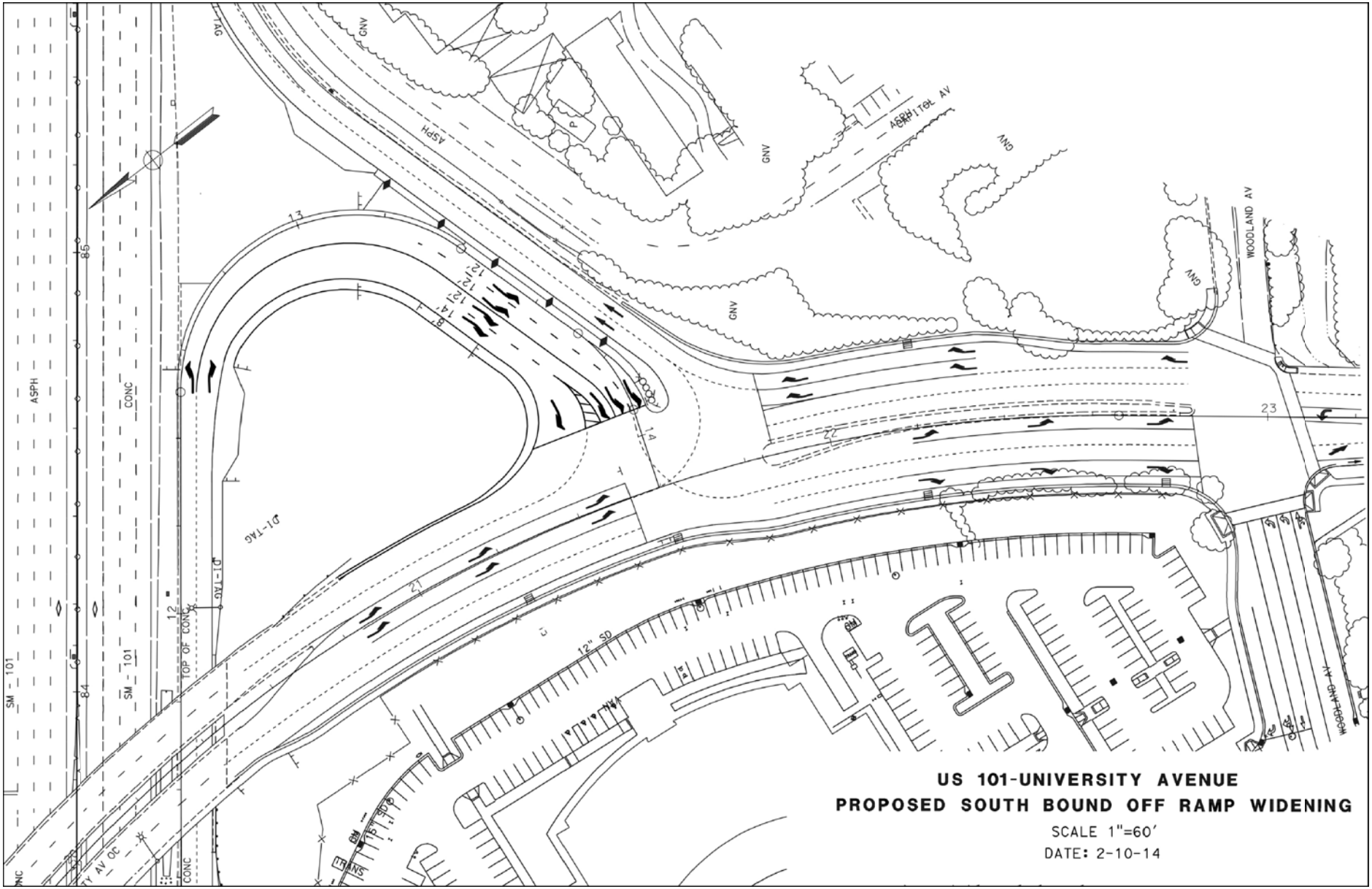


Figure 2B
Proposed Improvements - US 101 SB Off-Ramp

The intersection delay was analyzed using Synchro based on HCM 2000 methodology. Table 3 below shows a comparison of existing and existing plus project AM and PM peak hour weighted average delay and LOS at the US101 Southbound off-ramp intersection, which is the only intersection that would be affected by the improvement. There would be a slight improvement in average delay with the project.

Table 3
Existing Plus Project Conditions Intersection Delay (HCM 2000 Methodology)

			Existing		Existing + Project	
	Intersection	Peak Hour	Delay	LOS	Delay	LOS
3	US 101 SB Off-Ramp/University Avenue	AM	29.7	C	29.4	C
		PM	33.6	C	31.3	C
Note:						
1. Delay and LOS based on Highway Capacity Manual (HCM) 2000 methodology.						

Year 2040 Conditions

VTA provided traffic volume plots derived from their year 2040 travel demand model. The model plots displayed 4-hour morning and afternoon peak period volumes. Hexagon derived AM and PM peak-hour volumes from the plots using factors derived from the Palo Alto General Plan Study. The AM and PM peak hour volumes were used as the basis for intersection operations analyses for 2040 project and no project alternatives. Year 2040 AM and PM peak hour turning movement volumes are shown on Figure 3.

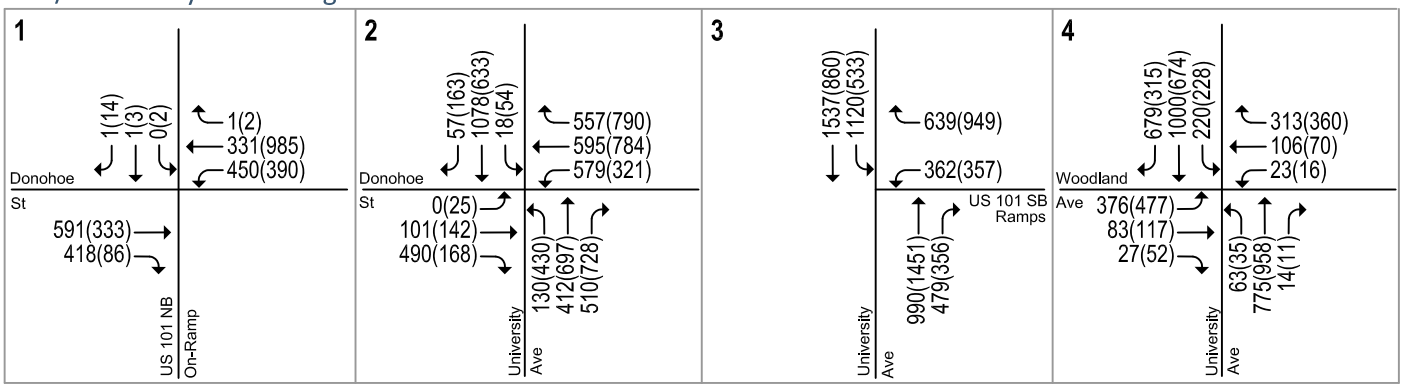
Table 4 below shows the average weighted intersection delay and level of service with and without the project based on HCM 2000 methodology using Synchro.

Table 4
Year 2040 Conditions Intersection Delay (HCM 2000 Methodology)

			Year 2040		Year 2040 + Project	
	Intersection	Peak Hour	Delay	LOS	Delay	LOS
3	US 101 SB Off-Ramp/University Avenue	AM	37.3	C	34.1	C
		PM	40.6	C	39.9	C
Note:						
1. Delay and LOS based on Highway Capacity Manual (HCM) 2000 methodology.						

With the proposed project the weighted average delay at the intersection of University Avenue and US 101 southbound off-ramp is expected to improve and the intersection would continue to operate at an acceptable LOS C during both the AM and PM peak hour period.

101 / University Interchange



LEGEND

= Unsignalized Study Intersection

= Signalized Study Intersection

XX(XX) = AM(PM) Peak-Hour Volumes

Figure 3
Year 2040 Future Volumes

HEXAGON

NORTH
Not to Scale

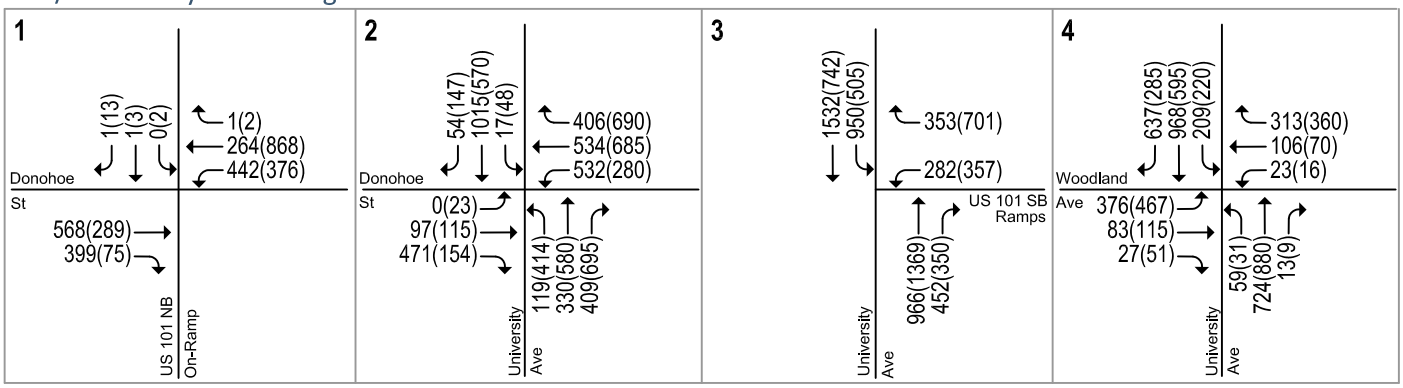
Project Opening Year Analysis (Year 2020)

It is assumed that the proposed project would be completed by Year 2020. The opening year analysis was conducted for the No Project Alternative and Plus Project Alternative. Year 2020 traffic volumes were interpolated based on existing counts and Year 2040 forecasts derived from the model. Year 2040 traffic volumes are shown on Figure 4. Year 2020 conditions were analyzed based on the existing signal timings and splits. Table 6 below shows the average weighted intersection delay and level of service for the project opening year analysis.

Table 5
Year 2020 Conditions Intersection Delay (HCM 2000 Methodology)

			Year 2020		Year 2020 + Project	
	Intersection	Peak Hour	Delay	LOS	Delay	LOS
3	US 101 SB Off-Ramp/University Avenue	AM	31.4	C	31	C
		PM	34.9	C	32.2	C
Note:						
1. Delay and LOS based on Highway Capacity Manual (HCM) 2000 methodology.						

With the proposed project, the weighted average delay at the intersection of University Avenue and US 101 southbound off-ramp is expected to improve in the AM and PM peak hour periods under project opening year conditions.



LEGEND

= Unsignalized Study Intersection

= Signalized Study Intersection

XX(XX) = AM(PM) Peak-Hour Volumes

Figure 4
Year 2020 Project Year Build Volumes

Alternative Design Concept

An alternative design concept that includes "squaring" the northbound loop off-ramp intersection with University Avenue so that it would be controlled by the Donohoe Street signal, to enhance bicycle and pedestrian safety was also analyzed with existing traffic volumes. With this design, by having the vehicles from the US 101 northbound loop-off ramp controlled by the signal at University Avenue and Donohoe Street, it was found that the traffic operations at the University Avenue/Donohoe Street intersection would further degrade, especially during the AM peak hour period. This would result in long vehicular queues on the off-ramp, extending onto the US 101 freeway mainline. Therefore this design concept was rejected and no further analysis was conducted.

Conclusions

Based on the traffic operations analysis presented in this report, the improvement at the intersection of University Avenue/US 101 southbound off-ramp intersection which includes dual left-turn lanes and dual right-turn lanes would result in a slight improvement in traffic operations in the study area. Although the improvements proposed for the northbound US 101 off-ramp, which include reconfiguring the northbound loop off-ramp to provide an acceleration lane could not be effectively evaluated with the Synchro/Simtraffic software, these improvements would enhance bicycle and pedestrian and safety and could potentially reduce queuing on the US 101 northbound loop off-ramp.

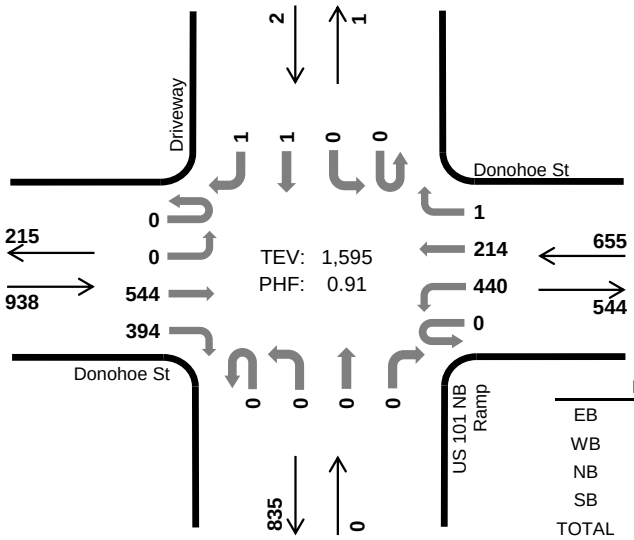
Appendix

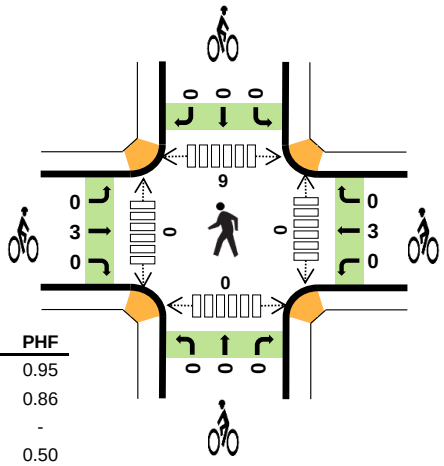
East Palo Alto US 101/University Avenue Interchange Improvement Project Traffic Operations Analysis

Driveway
Donohoe St

Peak Hour

Date: 01/13/2015
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	1.3%	0.95
WB	3.2%	0.86
NB	-	-
SB	0.0%	0.50
TOTAL	2.1%	0.91

Two-Hour Count Summaries

Interval Start		Donohoe St Eastbound				Donohoe St Westbound				US 101 NB Ramp Northbound				Driveway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	91	66	0	107	39	0	0	0	0	0	0	0	0	0	303	0
7:15 AM		**0**	**0**	**135**	**104**	**0**	**105**	**46**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**392**	0
7:30 AM		**0**	**0**	**147**	**96**	**0**	**113**	**40**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**397**	0
7:45 AM		**0**	**0**	**119**	**91**	**0**	**106**	**54**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**370**	1,462
8:00 AM		**0**	**0**	**143**	**103**	**0**	**116**	**74**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**436**	**1,595**
8:15 AM		0	0	138	46	0	97	60	2	0	0	0	0	0	0	0	0	343	1,546
8:30 AM		0	0	163	55	1	117	49	1	0	0	0	0	0	0	0	0	386	1,535
8:45 AM		0	0	133	42	0	94	43	2	0	0	0	0	0	0	0	0	314	1,479
Count Total		0	0	1,069	603	1	855	405	6	0	0	0	0	0	0	1	1	2,941	0
Peak Hour	**All**	**0**	**0**	**544**	**394**	**0**	**440**	**214**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1,595**	**0**
	HV	**0**	**0**	**8**	**4**	**0**	**14**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**0**
	HV%	**-**	**-**	**1%**	**1%**	**-**	**3%**	**3%**	**0%**	**-**	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	5	8	0	0	*13*	0	0	0	0	*0*	0	0	1	0	*1*
7:15 AM	**5**	**7**	**0**	**0**	***12***	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**1**	**0**	*1*
7:30 AM	**3**	**3**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**4**	**0**	*4*
7:45 AM	**4**	**4**	**0**	**0**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
8:00 AM	**0**	**7**	**0**	**0**	***7***	**3**	**0**	**0**	**0**	***3***	**0**	**0**	**3**	**0**	***3***
8:15 AM	0	2	0	0	*2*	0	0	0	0	*0*	0	0	4	0	*4*
8:30 AM	1	3	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	4	1	0	0	*5*	0	1	0	0	*1*	0	0	2	0	*2*
Count Total	22	35	0	0	*57*	3	4	0	0	*7*	0	0	16	0	*16*
Peak Hour	**12**	**21**	**0**	**0**	***33***	**3**	**3**	**0**	**0**	***6***	**0**	**0**	**9**	**0**	***9***

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Donohoe St				Donohoe St				US 101 NB Ramp				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	3	2	0	7	1	0	0	0	0	0	0	0	0	0	13	0
7:15 AM	**0**	**0**	**4**	**1**	**0**	**4**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	0
7:30 AM	**0**	**0**	**2**	**1**	**0**	**2**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	0
7:45 AM	**0**	**0**	**2**	**2**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	39
8:00 AM	**0**	**0**	**0**	**0**	**0**	**5**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**33**
8:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2	23
8:30 AM	0	0	0	1	0	2	1	0	0	0	0	0	0	0	0	0	4	21
8:45 AM	0	0	3	1	0	1	0	0	0	0	0	0	0	0	0	0	5	18
Count Total	0	0	14	8	0	24	11	0	0	0	0	0	0	0	0	0	57	0
Peak Hour	**0**	**0**	**8**	**4**	**0**	**14**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**0**

Two-Hour Count Summaries - Bikes

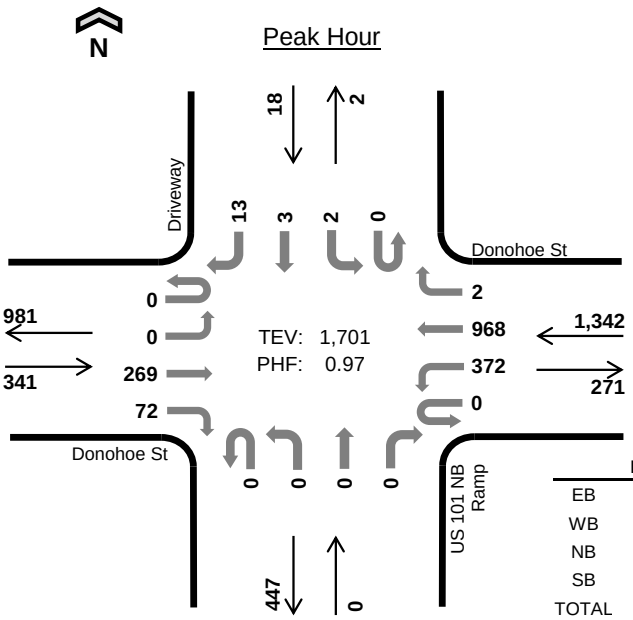
Interval Start	Donohoe St			Donohoe St			US 101 NB Ramp			Driveway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
8:00 AM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**6**
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	4
Count Total	0	3	0	0	4	0	0	0	0	0	0	0	7	0
Peak Hour	**0**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**

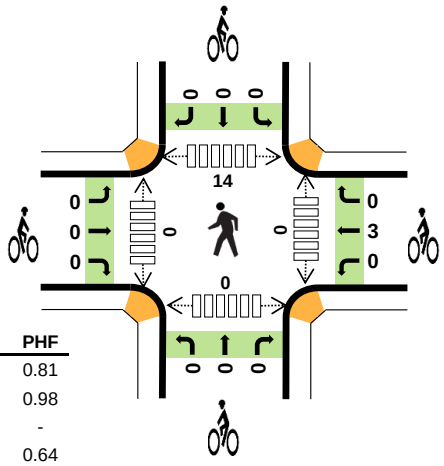
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Driveway
Donohoe St

Date: 01/13/2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	1.5%	0.81
WB	0.7%	0.98
NB	-	-
SB	0.0%	0.64
TOTAL	0.9%	0.97

Two-Hour Count Summaries

Interval Start		Donohoe St Eastbound				Donohoe St Westbound				US 101 NB Ramp Northbound				Driveway Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	72	16	0	100	174	2	0	0	0	1	0	0	0	2	367	0
4:15 PM		0	0	70	14	0	110	191	0	0	0	0	0	0	1	2	1	389	0
4:30 PM		0	0	68	14	0	108	212	0	0	0	0	0	0	0	1	1	404	0
4:45 PM		0	0	64	22	0	99	228	1	0	0	0	0	0	0	1	2	417	1,577
5:00 PM		**0**	**0**	**64**	**12**	**0**	**105**	**232**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**5**	**420**	1,630
5:15 PM		**0**	**0**	**63**	**21**	**0**	**95**	**234**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**417**	1,658
5:30 PM		**0**	**0**	**58**	**18**	**0**	**90**	**252**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**424**	1,678
5:45 PM		**0**	**0**	**84**	**21**	**0**	**82**	**250**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**440**	**1,701**
Count Total		0	0	543	138	0	789	1,773	5	0	0	0	1	0	3	7	19	3,278	0
Peak Hour	**All**	**0**	**0**	**269**	**72**	**0**	**372**	**968**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**13**	**1,701**	**0**
	HV	**0**	**0**	**3**	**2**	**0**	**2**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**0**
	HV%	**-**	**-**	**1%**	**3%**	**-**	**1%**	**1%**	**0%**	**-**	**-**	**-**	**-**	**-**	**0%**	**0%**	**0%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	6	0	0	*8*	0	2	0	0	*2*	0	0	5	0	*5*
4:15 PM	0	9	0	0	*9*	0	2	0	1	*3*	0	0	14	0	*14*
4:30 PM	0	6	0	0	*6*	0	0	0	0	*0*	0	0	8	0	*8*
4:45 PM	0	4	0	1	*5*	0	0	0	0	*0*	0	0	8	0	*8*
5:00 PM	**1**	**4**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**5**	**0**	*5*
5:15 PM	**0**	**4**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**0**	*2*
5:30 PM	**2**	**2**	**0**	**0**	***4***	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**7**	**0**	***7***
Count Total	7	35	0	1	*43*	0	7	0	1	*8*	0	0	49	0	*49*
Peak Hour	**5**	**10**	**0**	**0**	***15***	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**14**	**0**	***14***

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

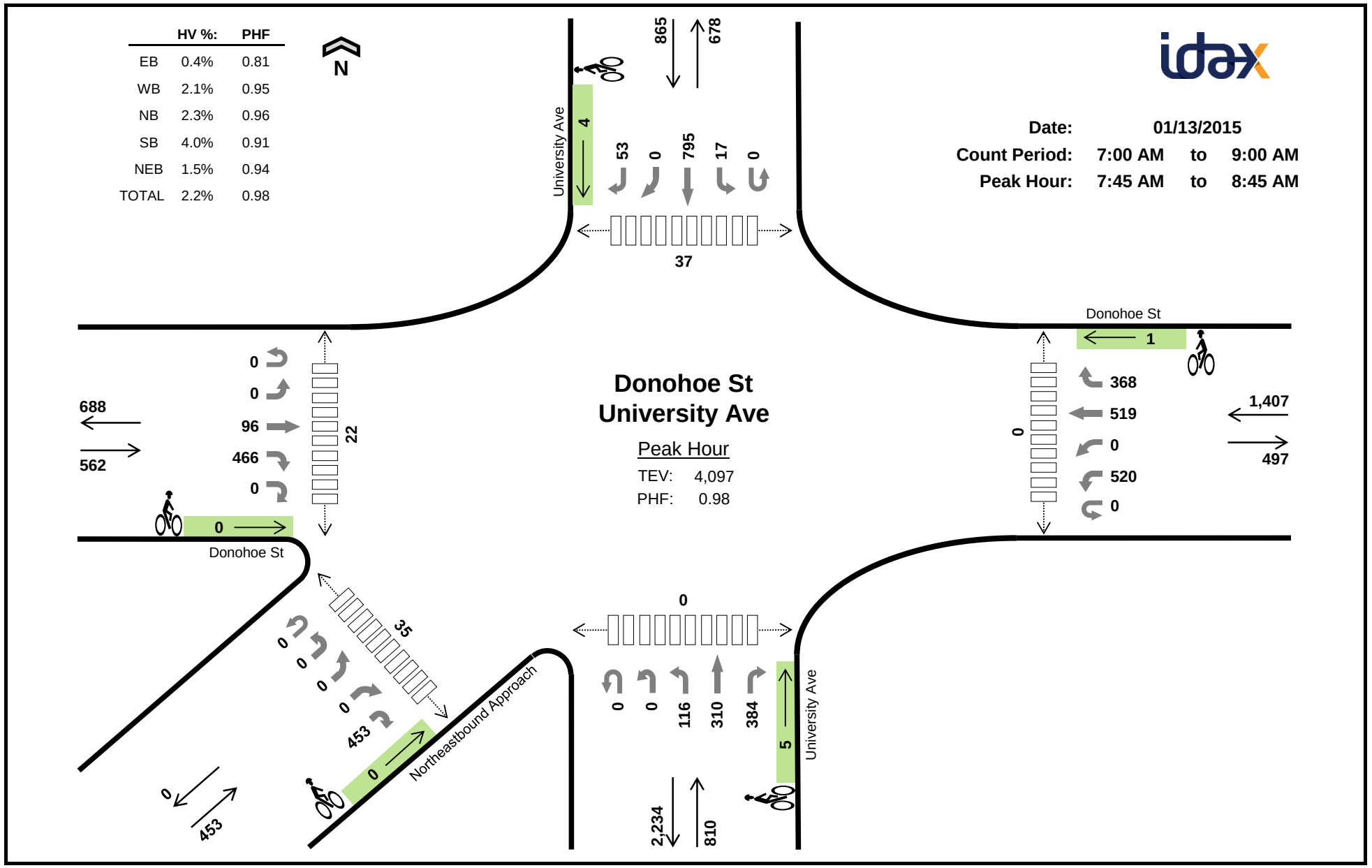
Interval Start	Donohoe St				Donohoe St				US 101 NB Ramp				Driveway				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	1	0	5	1	0	0	0	0	0	0	0	0	0	8	0
4:15 PM	0	0	0	0	0	6	3	0	0	0	0	0	0	0	0	0	9	0
4:30 PM	0	0	0	0	0	3	3	0	0	0	0	0	0	0	0	0	6	0
4:45 PM	0	0	0	0	0	1	3	0	0	0	0	0	0	0	0	1	5	28
5:00 PM	**0**	**0**	**1**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	25
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	20
5:30 PM	**0**	**0**	**1**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	18
5:45 PM	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**15**
Count Total	0	0	4	3	0	17	18	0	0	0	0	0	0	0	0	1	43	0
Peak Hour	**0**	**0**	**3**	**2**	**0**	**2**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Donohoe St			Donohoe St			US 101 NB Ramp			Driveway			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	2	0
4:15 PM	0	0	0	0	2	0	0	0	0	0	0	1	3	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:30 PM	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	3
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**
Count Total	0	0	0	0	7	0	0	0	0	0	0	1	8	0
Peak Hour	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com



Deon Fouche: 415 - 757 - 7714

deon.fouche@idaxdata.com

Six-Hour Count Summaries

Interval Start		Donohoe St Eastbound					Donohoe St Westbound					University Ave Northbound					University Ave Southbound					Northeastbound Approach Northeastbound					15-min Total	Rolling One Hour
		UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
7:00 AM		0	3	22	70	0	0	62	0	101	62	0	0	20	38	51	0	13	262	0	29	0	0	0	0	74	807	0
7:15 AM		0	4	21	102	0	0	101	0	120	72	0	0	13	51	72	0	10	260	0	19	0	0	0	0	79	924	0
7:30 AM		0	0	12	131	0	0	124	0	109	83	1	0	27	103	74	0	4	238	0	10	0	0	0	0	88	1,004	0
7:45 AM		**0**	**0**	**8**	**116**	**0**	**0**	**141**	**0**	**127**	**76**	**0**	**0**	**27**	**100**	**84**	**0**	**6**	**216**	**0**	**15**	**0**	**0**	**0**	**0**	**121**	**1,037**	3,772
8:00 AM		**0**	**0**	**20**	**118**	**0**	**0**	**141**	**0**	**128**	**81**	**0**	**0**	**41**	**80**	**85**	**0**	**2**	**215**	**0**	**17**	**0**	**0**	**0**	**0**	**121**	**1,049**	4,014
8:15 AM		**0**	**0**	**29**	**97**	**0**	**0**	**125**	**0**	**128**	**117**	**0**	**0**	**24**	**76**	**101**	**0**	**2**	**162**	**0**	**7**	**0**	**0**	**0**	**0**	**98**	**966**	4,056
8:30 AM		**0**	**0**	**39**	**135**	**0**	**0**	**113**	**0**	**136**	**94**	**0**	**0**	**24**	**54**	**114**	**0**	**7**	**202**	**0**	**14**	**0**	**0**	**0**	**0**	**113**	**1,045**	**4,097**
8:45 AM		0	1	30	105	0	0	99	0	105	113	0	0	28	53	76	0	8	231	0	11	0	0	0	0	91	951	4,011
Count Total		0	8	181	874	0	0	906	0	954	698	1	0	204	555	657	0	52	1,786	0	122	0	0	0	0	785	7,783	0
Peak Hour	**All**	**0**	**0**	**96**	**466**	**0**	**0**	**520**	**0**	**519**	**368**	**0**	**0**	**116**	**310**	**384**	**0**	**17**	**795**	**0**	**53**	**0**	**0**	**0**	**0**	**453**	**4,097**	**0**
	HV	**0**	**0**	**0**	**2**	**0**	**0**	**3**	**0**	**11**	**15**	**0**	**0**	**2**	**8**	**9**	**0**	**1**	**32**	**0**	**2**	**0**	**0**	**0**	**0**	**7**	**92**	**0**
	HV%	**-**	**-**	**0%**	**0%**	**-**	**-**	**1%**	**-**	**2%**	**4%**	**-**	**-**	**2%**	**3%**	**2%**	**-**	**6%**	**4%**	**-**	**4%**	**-**	**-**	**-**	**-**	**2%**	**2%**	**0**

Note: Six-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NEB	Total	EB	WB	NB	SB	NEB	Total	East	West	North	South	Southwest	Total
7:00 AM	3	9	10	9	0	*31*	0	0	0	0	0	*0*	0	3	3	0	6	*12*
7:15 AM	4	8	5	9	2	*28*	0	0	1	0	0	*1*	0	3	3	0	2	*8*
7:30 AM	3	9	6	8	1	*27*	0	0	2	0	0	*2*	0	5	5	0	7	*17*
7:45 AM	**2**	**11**	**2**	**8**	**2**	***25***	**0**	**0**	**3**	**0**	**0**	***3***	**0**	**4**	**3**	**0**	**6**	***13***
8:00 AM	**0**	**5**	**7**	**10**	**2**	***24***	**0**	**0**	**1**	**1**	**0**	***2***	**0**	**6**	**12**	**0**	**11**	***29***
8:15 AM	**0**	**6**	**7**	**8**	**0**	***21***	**0**	**1**	**1**	**1**	**0**	***3***	**0**	**6**	**16**	**0**	**7**	***29***
8:30 AM	**0**	**7**	**3**	**9**	**3**	***22***	**0**	**0**	**0**	**2**	**0**	***2***	**0**	**6**	**6**	**0**	**11**	***23***
8:45 AM	2	3	6	16	1	*28*	0	1	2	3	0	*6*	0	3	6	0	5	*14*
Count Total	14	58	46	77	11	*206*	0	2	10	7	0	*19*	0	36	54	0	55	*145*
Peak Hr	**2**	**29**	**19**	**35**	**7**	***92***	**0**	**1**	**5**	**4**	**0**	***10***	**0**	**22**	**37**	**0**	**35**	*94*

Deon Fouche: 415 - 757 - 7714

deon.fouche@idaxdata.com

Six-Hour Count Summaries - Heavy Vehicles

Interval Start	Donohoe St Eastbound					Donohoe St Westbound					University Ave Northbound					University Ave Southbound					Northeastbound Approach Northeastbound					15-min Total	Rolling One Hour
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	3	0	0	3	0	4	2	0	0	0	3	7	0	0	7	0	2	0	0	0	0	0	31	0
7:15 AM	0	0	0	4	0	0	0	0	5	3	0	0	2	1	2	0	0	9	0	0	0	0	0	0	2	28	0
7:30 AM	0	0	1	2	0	0	1	0	2	6	0	0	1	4	1	0	0	8	0	0	0	0	0	0	1	27	0
7:45 AM	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**4**	**6**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**6**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**25**	111
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**2**	**0**	**0**	**2**	**3**	**2**	**0**	**0**	**9**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**24**	104
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**3**	**0**	**0**	**0**	**3**	**4**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**21**	97
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**4**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**22**	**92**
8:45 AM	0	0	2	0	0	0	0	0	0	3	0	0	1	2	3	0	0	16	0	0	0	0	0	0	1	28	95
Count Total	0	0	3	11	0	0	7	0	22	29	0	0	6	18	22	0	1	72	0	4	0	0	0	0	11	206	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**0**	**3**	**0**	**11**	**15**	**0**	**0**	**2**	**8**	**9**	**0**	**1**	**32**	**0**	**2**	**0**	**0**	**0**	**0**	**7**	92	**0**

Six-Hour Count Summaries - Bikes

Interval Start	Donohoe St Eastbound					Donohoe St Westbound					University Ave Northbound					University Ave Southbound					Northeastbound Approach Northeastbound					15-min Total	Rolling One Hour
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	6
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	8
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	10
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**10**
8:45 AM	0	0	0	0	0	0	0	0	1	0	0	0	0	2	0	0	0	3	0	0	0	0	0	0	0	6	13
Count Total	0	0	0	0	0	0	1	0	1	0	0	0	0	5	5	0	0	7	0	0	0	0	0	0	0	19	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	10	**0**

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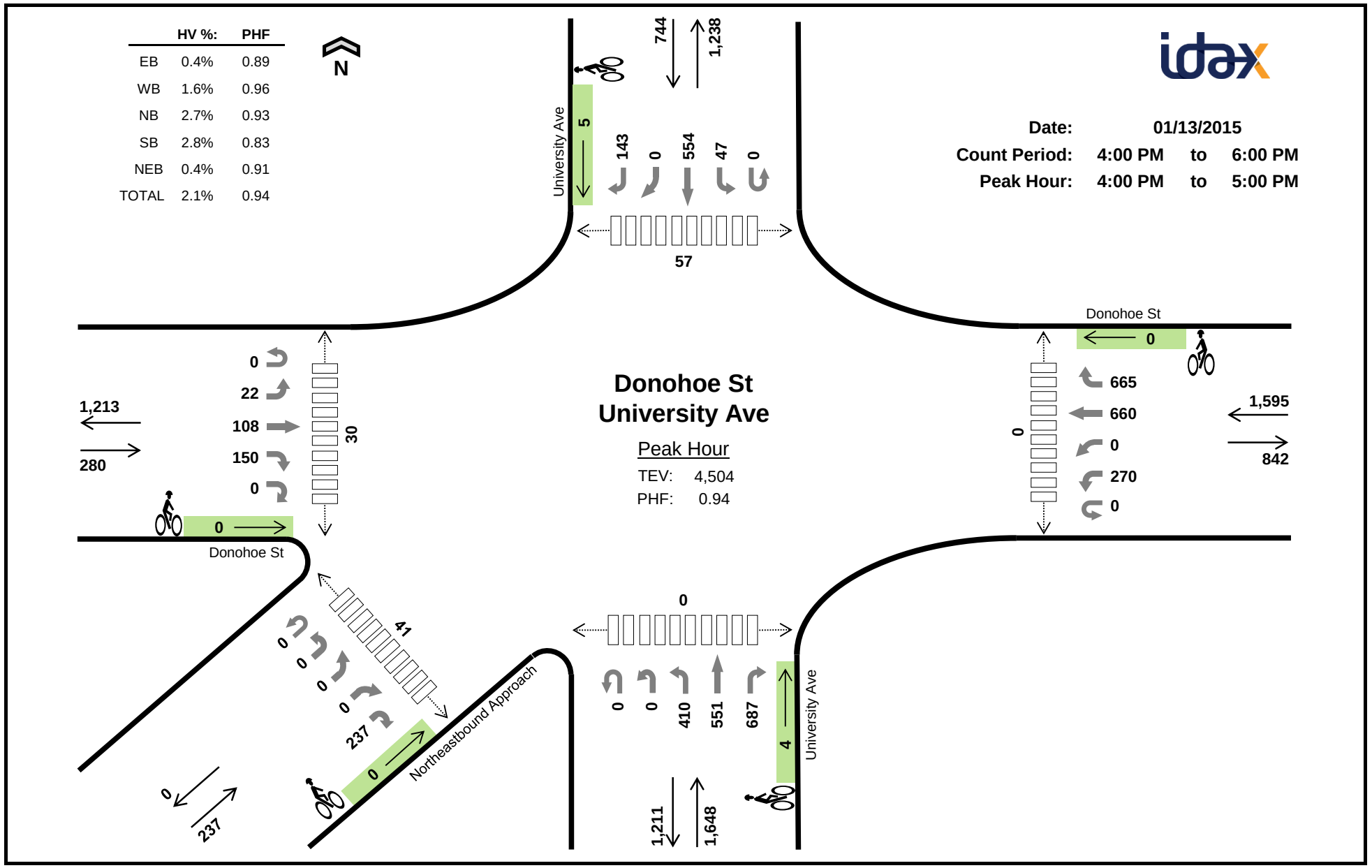

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Six-Hour Count Summaries

Interval Start	Donohoe St Eastbound					Donohoe St Westbound					University Ave Northbound					University Ave Southbound					Northeastbound Approach Northeastbound					15-min Total	Rolling One Hour
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
4:00 PM	**0**	**9**	**24**	**46**	**0**	**0**	**66**	**0**	**166**	**172**	**0**	**0**	**84**	**141**	**180**	**0**	**9**	**127**	**0**	**26**	**0**	**0**	**0**	**0**	**65**	**1,115**	0
4:15 PM	**0**	**6**	**31**	**36**	**0**	**0**	**73**	**0**	**157**	**185**	**0**	**0**	**95**	**120**	**147**	**0**	**14**	**115**	**0**	**44**	**0**	**0**	**0**	**0**	**51**	**1,074**	0
4:30 PM	**0**	**5**	**28**	**36**	**0**	**0**	**71**	**0**	**169**	**153**	**0**	**0**	**124**	**135**	**183**	**0**	**10**	**175**	**0**	**38**	**0**	**0**	**0**	**0**	**65**	**1,192**	0
4:45 PM	**0**	**2**	**25**	**32**	**0**	**0**	**60**	**0**	**168**	**155**	**0**	**0**	**107**	**155**	**177**	**0**	**14**	**137**	**0**	**35**	**0**	**0**	**0**	**0**	**56**	**1,123**	**4,504**
5:00 PM	**0**	**2**	**18**	**50**	**0**	**0**	**91**	**0**	**170**	**106**	**0**	**0**	**120**	**110**	**189**	**0**	**11**	**138**	**0**	**37**	**0**	**0**	**0**	**0**	**73**	**1,115**	4,504
5:15 PM	**0**	**2**	**21**	**44**	**0**	**0**	**65**	**0**	**162**	**84**	**0**	**0**	**123**	**88**	**174**	**0**	**13**	**125**	**0**	**35**	**0**	**0**	**0**	**0**	**62**	**998**	4,428
5:30 PM	**0**	**2**	**22**	**40**	**0**	**0**	**79**	**0**	**163**	**132**	**0**	**0**	**134**	**128**	**163**	**0**	**17**	**140**	**0**	**39**	**0**	**0**	**0**	**0**	**76**	**1,135**	**4,371**
5:45 PM	0	8	23	45	0	0	58	0	173	114	0	0	119	92	158	0	13	149	0	26	0	0	0	0	59	1,037	4,285
Count Total	0	36	192	329	0	0	563	0	1,328	1,101	0	0	906	969	1,371	0	101	1,106	0	280	0	0	0	0	507	8,789	0
Peak Hour All	**0**	**22**	**108**	**150**	**0**	**0**	**270**	**0**	**660**	**665**	**0**	**0**	**410**	**551**	**687**	**0**	**47**	**554**	**0**	**143**	**0**	**0**	**0**	**0**	**237**	**4,504**	**0**
Peak Hour HV	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**13**	**9**	**0**	**0**	**6**	**14**	**25**	**0**	**1**	**13**	**0**	**7**	**0**	**0**	**0**	**0**	**1**	**93**	**0**
Peak Hour HV%	**-**	**5%**	**0%**	**0%**	**-**	**-**	**1%**	**-**	**2%**	**1%**	**-**	**-**	**1%**	**3%**	**4%**	**-**	**2%**	**2%**	**-**	**5%**	**-**	**-**	**-**	**-**	**0%**	**2%**	**0**

Note: Six-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals						Bicycles						Pedestrians (Crossing Leg)					
	EB	WB	NB	SB	NEB	Total	EB	WB	NB	SB	NEB	Total	East	West	North	South	Southwest	Total
4:00 PM	**0**	**10**	**11**	**2**	**1**	***24***	**0**	**0**	**0**	**1**	**0**	***1***	**0**	**10**	**22**	**0**	**11**	***43***
4:15 PM	**1**	**6**	**6**	**10**	**0**	***23***	**0**	**0**	**3**	**2**	**0**	***5***	**0**	**8**	**13**	**0**	**9**	***30***
4:30 PM	**0**	**6**	**15**	**7**	**0**	***28***	**0**	**0**	**1**	**0**	**0**	***1***	**0**	**5**	**10**	**0**	**11**	***26***
4:45 PM	**0**	**3**	**13**	**2**	**0**	***18***	**0**	**0**	**0**	**2**	**0**	***2***	**0**	**7**	**12**	**0**	**10**	***29***
5:00 PM	1	6	5	2	1	*15*	0	2	0	1	0	*3*	0	9	10	0	10	*29*
5:15 PM	0	1	3	4	0	*8*	0	0	1	1	0	*2*	0	1	8	0	1	*10*
5:30 PM	1	5	5	2	1	*14*	0	0	1	2	0	*3*	0	4	4	0	4	*12*
5:45 PM	1	2	3	3	0	*9*	0	1	0	1	0	*2*	0	5	9	0	11	*25*
Count Total	4	39	61	32	3	*139*	0	3	6	10	0	*19*	0	49	88	0	67	*204*
Peak Hr	**1**	**25**	**45**	**21**	**1**	***93***	**0**	**0**	**4**	**5**	**0**	***9***	**0**	**30**	**57**	**0**	**41**	*128*

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Six-Hour Count Summaries - Heavy Vehicles

Interval Start	Donohoe St Eastbound					Donohoe St Westbound					University Ave Northbound					University Ave Southbound					Northeastbound Approach Northeastbound					15-min Total	Rolling One Hour
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**5**	**4**	**0**	**0**	**1**	**5**	**5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**24**	0
4:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**1**	**2**	**3**	**0**	**1**	**5**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**23**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**0**	**0**	**2**	**4**	**9**	**0**	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**28**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**2**	**3**	**8**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**18**	**93**
5:00 PM	0	0	1	0	0	0	4	0	1	1	0	0	2	0	3	0	0	2	0	0	0	0	0	0	1	15	84
5:15 PM	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0	1	3	0	0	0	0	0	0	0	8	69
5:30 PM	0	0	0	1	0	0	4	0	0	1	0	0	1	2	2	0	0	2	0	0	0	0	0	0	1	14	55
5:45 PM	0	0	0	1	0	0	1	0	0	1	0	0	0	3	0	0	0	3	0	0	0	0	0	0	0	9	46
Count Total	0	1	1	2	0	0	12	0	15	12	0	0	10	19	32	0	2	23	0	7	0	0	0	0	3	139	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**0**	**13**	**9**	**0**	**0**	**6**	**14**	**25**	**0**	**1**	**13**	**0**	**7**	**0**	**0**	**0**	**0**	**1**	93	**0**

Six-Hour Count Summaries - Bikes

Interval Start	Donohoe St Eastbound					Donohoe St Westbound					University Ave Northbound					University Ave Southbound					Northeastbound Approach Northeastbound					15-min Total	Rolling One Hour
	UT	LT	TH	RT	HR	UT	LT	BL	TH	RT	UT	HL	LT	TH	RT	UT	LT	TH	BR	RT	UT	HL	BL	BR	HR		
4:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	0
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**9**
5:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	3	11
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	2	8
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	0	0	0	0	0	3	10
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	10
Count Total	0	0	0	0	0	0	3	0	0	0	0	0	0	3	3	0	0	10	0	0	0	0	0	0	0	19	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	9	**0**

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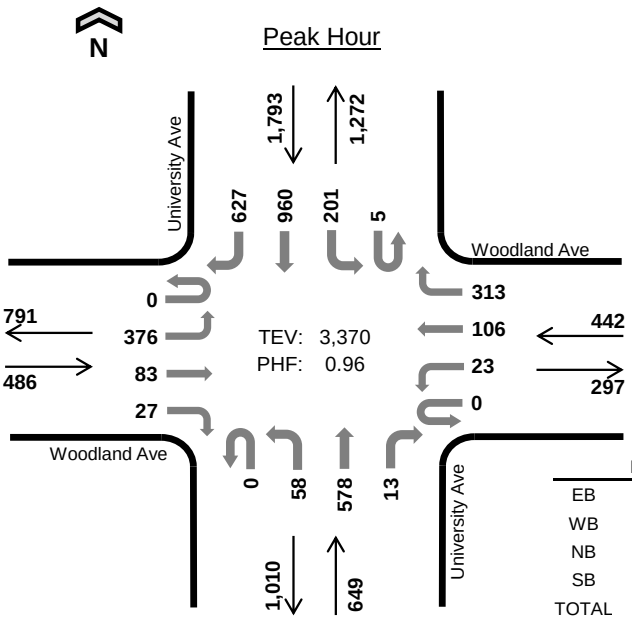
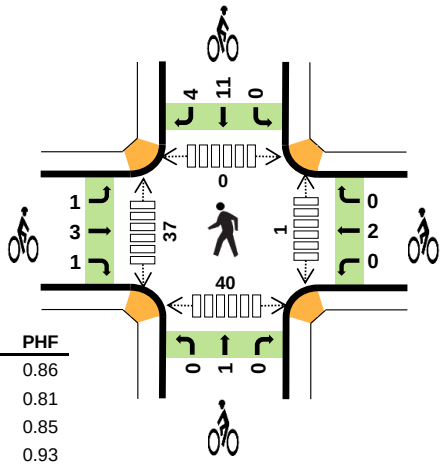
University Ave
Woodland Ave

Date: 01/13/2015
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour



	HV %	PHF
EB	2.5%	0.86
WB	2.3%	0.81
NB	2.0%	0.85
SB	2.2%	0.93
TOTAL	2.2%	0.96



Two-Hour Count Summaries

Interval Start		Woodland Ave Eastbound				Woodland Ave Westbound				University Ave Northbound				University Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	63	7	6	0	4	12	66	0	8	78	5	0	50	198	71	568	0
7:15 AM		0	63	16	10	0	11	21	90	0	10	118	2	2	47	230	90	710	0
7:30 AM		0	84	13	13	0	1	5	57	0	7	155	5	1	46	265	87	739	0
7:45 AM		**0**	**112**	**16**	**6**	**0**	**2**	**21**	**81**	**0**	**7**	**144**	**5**	**0**	**49**	**280**	**153**	**876**	2,893
8:00 AM		**0**	**80**	**19**	**6**	**0**	**8**	**31**	**98**	**0**	**19**	**144**	**3**	**2**	**44**	**212**	**157**	**823**	3,148
8:15 AM		**0**	**81**	**18**	**7**	**0**	**6**	**35**	**72**	**0**	**14**	**175**	**3**	**2**	**47**	**222**	**179**	**861**	3,299
8:30 AM		**0**	**103**	**30**	**8**	**0**	**7**	**19**	**62**	**0**	**18**	**115**	**2**	**1**	**61**	**246**	**138**	**810**	**3,370**
8:45 AM		0	74	18	15	0	6	17	47	0	20	143	5	1	65	226	102	739	3,233
Count Total		0	660	137	71	0	45	161	573	0	103	1,072	30	9	409	1,879	977	6,126	0
Peak Hour	**All**	**0**	**376**	**83**	**27**	**0**	**23**	**106**	**313**	**0**	**58**	**578**	**13**	**5**	**201**	**960**	**627**	**3,370**	**0**
	HV	**0**	**7**	**1**	**4**	**0**	**3**	**4**	**3**	**0**	**3**	**8**	**2**	**0**	**7**	**19**	**13**	**74**	**0**
	HV%	**-**	**2%**	**1%**	**15%**	**-**	**13%**	**4%**	**1%**	**-**	**5%**	**1%**	**15%**	**0%**	**3%**	**2%**	**2%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	7	2	4	8	*21*	1	0	0	4	*5*	0	6	0	10	*16*
7:15 AM	3	6	1	8	*18*	0	0	1	0	*1*	0	11	0	10	*21*
7:30 AM	1	2	2	9	*14*	1	0	3	1	*5*	2	5	0	7	*14*
7:45 AM	**3**	**0**	**4**	**13**	***20***	**3**	**0**	**0**	**3**	***6***	**0**	**17**	**0**	**17**	*34*
8:00 AM	**3**	**6**	**3**	**7**	***19***	**0**	**1**	**0**	**2**	***3***	**0**	**9**	**0**	**13**	*22*
8:15 AM	**4**	**2**	**4**	**11**	***21***	**1**	**1**	**1**	**5**	***8***	**1**	**6**	**0**	**7**	*14*
8:30 AM	**2**	**2**	**2**	**8**	***14***	**1**	**0**	**0**	**5**	***6***	**0**	**5**	**0**	**3**	***8***
8:45 AM	6	0	4	9	*19*	0	1	1	4	*6*	0	6	0	0	*6*
Count Total	29	20	24	73	*146*	7	3	6	24	*40*	3	65	0	67	*135*
Peak Hour	**12**	**10**	**13**	**39**	***74***	**5**	**2**	**1**	**15**	***23***	**1**	**37**	**0**	**40**	***78***

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Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Woodland Ave Eastbound				Woodland Ave Westbound				University Ave Northbound				University Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	3	2	2	0	0	0	2	0	1	2	1	0	1	4	3	21	0
7:15 AM	0	0	2	1	0	1	2	3	0	0	1	0	0	2	3	3	18	0
7:30 AM	0	1	0	0	0	0	0	2	0	0	2	0	0	1	6	2	14	0
7:45 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**4**	**5**	**4**	**20**	73
8:00 AM	**0**	**1**	**1**	**1**	**0**	**1**	**2**	**3**	**0**	**2**	**1**	**0**	**0**	**0**	**2**	**5**	**19**	71
8:15 AM	**0**	**4**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**1**	**0**	**3**	**7**	**1**	**21**	74
8:30 AM	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**5**	**3**	**14**	**74**
8:45 AM	0	4	1	1	0	0	0	0	0	0	4	0	0	2	5	2	19	73
Count Total	0	15	6	8	0	4	6	10	0	4	17	3	0	13	37	23	146	0
Peak Hour	**0**	**7**	**1**	**4**	**0**	**3**	**4**	**3**	**0**	**3**	**8**	**2**	**0**	**7**	**19**	**13**	**74**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Woodland Ave Eastbound			Woodland Ave Westbound			University Ave Northbound			University Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	0	0	0	4	0	5	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:30 AM	0	0	1	0	0	0	1	2	0	0	1	0	5	0
7:45 AM	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**6**	17
8:00 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	15
8:15 AM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**3**	**2**	**8**	22
8:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**6**	**23**
8:45 AM	0	0	0	0	0	1	0	1	0	0	4	0	6	23
Count Total	1	4	2	0	2	1	1	5	0	0	20	4	40	0
Peak Hour	**1**	**3**	**1**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**11**	**4**	**23**	**0**

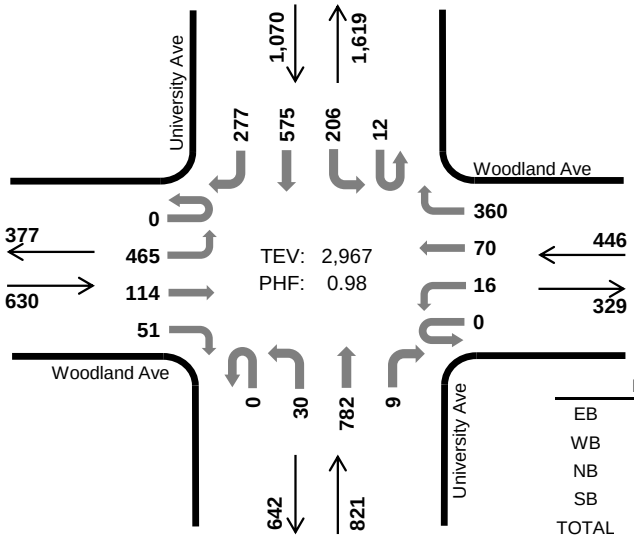
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

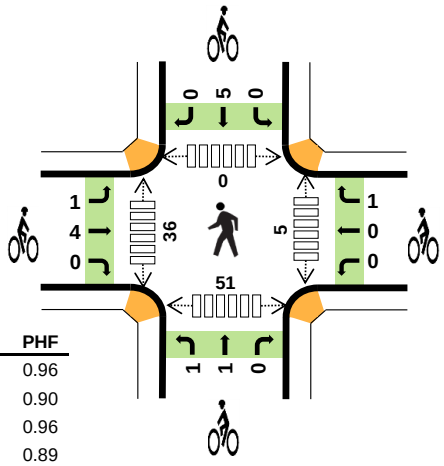
University Ave
Woodland Ave

Date: 01/13/2015
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 4:00 PM to 5:00 PM

Peak Hour



	HV %:	PHF
EB	1.6%	0.96
WB	2.0%	0.90
NB	2.1%	0.96
SB	1.2%	0.89
TOTAL	1.7%	0.98



Two-Hour Count Summaries

Interval Start	Woodland Ave Eastbound				Woodland Ave Westbound				University Ave Northbound				University Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**114**	**30**	**10**	**0**	**5**	**22**	**77**	**0**	**8**	**192**	**1**	**0**	**56**	**163**	**81**	**759**	0
4:15 PM	**0**	**106**	**30**	**18**	**0**	**5**	**21**	**98**	**0**	**9**	**203**	**1**	**3**	**48**	**125**	**68**	**735**	0
4:30 PM	**0**	**122**	**29**	**13**	**0**	**4**	**11**	**84**	**0**	**5**	**196**	**3**	**6**	**56**	**161**	**69**	**759**	0
4:45 PM	**0**	**123**	**25**	**10**	**0**	**2**	**16**	**101**	**0**	**8**	**191**	**4**	**3**	**46**	**126**	**59**	**714**	**2,967**
5:00 PM	0	114	33	19	0	5	12	80	0	8	197	1	4	46	155	78	752	2,960
5:15 PM	0	95	29	14	0	6	27	92	0	9	151	1	0	44	116	99	683	2,908
5:30 PM	0	86	13	16	0	5	23	93	0	10	167	4	2	35	143	96	693	2,842
5:45 PM	0	73	24	16	0	8	25	80	0	8	127	4	2	39	142	66	614	2,742
Count Total	0	833	213	116	0	40	157	705	0	65	1,424	19	20	370	1,131	616	5,709	0
Peak Hour All	**0**	**465**	**114**	**51**	**0**	**16**	**70**	**360**	**0**	**30**	**782**	**9**	**12**	**206**	**575**	**277**	**2,967**	**0**
Peak Hour HV	**0**	**7**	**2**	**1**	**0**	**1**	**1**	**7**	**0**	**3**	**13**	**1**	**0**	**3**	**5**	**5**	**49**	**0**
Peak Hour HV%	**-**	**2%**	**2%**	**2%**	**-**	**6%**	**1%**	**2%**	**-**	**10%**	**2%**	**11%**	**0%**	**1%**	**1%**	**2%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	**4**	**2**	**6**	**7**	***19***	**1**	**1**	**1**	**3**	***6***	**2**	**8**	**0**	**11**	*21*
4:15 PM	**4**	**2**	**4**	**3**	***13***	**1**	**0**	**0**	**1**	***2***	**2**	**7**	**0**	**18**	*27*
4:30 PM	**1**	**4**	**3**	**2**	***10***	**2**	**0**	**1**	**1**	***4***	**0**	**14**	**0**	**17**	*31*
4:45 PM	**1**	**1**	**4**	**1**	***7***	**1**	**0**	**0**	**0**	***1***	**1**	**7**	**0**	**5**	***13***
5:00 PM	4	1	4	5	*14*	3	0	1	0	*4*	0	22	0	15	*37*
5:15 PM	2	1	2	2	*7*	0	0	1	0	*1*	0	6	0	10	*16*
5:30 PM	1	0	8	4	*13*	2	0	0	4	*6*	0	9	0	6	*15*
5:45 PM	1	2	4	2	*9*	0	0	0	1	*1*	0	7	0	11	*18*
Count Total	18	13	35	26	*92*	10	1	4	10	*25*	5	80	0	93	*178*
Peak Hour	**10**	**9**	**17**	**13**	***49***	**5**	**1**	**2**	**5**	***13***	**5**	**36**	**0**	**51**	***92***

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Woodland Ave Eastbound				Woodland Ave Westbound				University Ave Northbound				University Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**5**	**0**	**0**	**3**	**2**	**2**	**19**	0
4:15 PM	**0**	**2**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**1**	**13**	0
4:30 PM	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**2**	**10**	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**1**	**0**	**7**	**49**
5:00 PM	0	2	0	2	0	1	0	0	0	1	2	1	0	0	4	1	14	44
5:15 PM	0	1	1	0	0	0	0	1	0	0	2	0	0	0	1	1	7	38
5:30 PM	0	1	0	0	0	0	0	0	0	0	7	1	0	0	4	0	13	41
5:45 PM	0	1	0	0	0	1	0	1	0	0	4	0	0	1	1	0	9	43
Count Total	0	12	3	3	0	3	1	9	0	4	28	3	0	4	15	7	92	0
Peak Hour	**0**	**7**	**2**	**1**	**0**	**1**	**1**	**7**	**0**	**3**	**13**	**1**	**0**	**3**	**5**	**5**	**49**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Woodland Ave Eastbound			Woodland Ave Westbound			University Ave Northbound			University Ave Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**3**	**0**	**6**	0
4:15 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	0
4:30 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**4**	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**13**
5:00 PM	0	0	3	0	0	0	1	0	0	0	0	0	4	11
5:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	10
5:30 PM	0	1	1	0	0	0	0	0	0	0	4	0	6	12
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	12
Count Total	1	5	4	0	0	1	3	1	0	0	9	1	25	0
Peak Hour	**1**	**4**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**5**	**0**	**13**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Deon Fouche: 415 - 757 - 7714 deon.fouche@idaxdata.com

1: US 101 NB On-Ramp & Donohoe Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	SBT	SBR	All
Denied Del/Veh (s)	1.0	1.0	1.2	0.2	0.0	0.1	0.1	0.9
Total Del/Veh (s)	36.5	34.9	75.4	9.8	9.9	344.5	12.0	42.3
Vehicles Entered	1095	766	843	492	3	1	3	3203
Vehicles Exited	1088	758	841	492	3	1	3	3186
Hourly Exit Rate	544	379	421	246	2	1	2	1593
Input Volume	552	387	432	256	1	1	1	1632
% of Volume	98	98	97	96	150	50	150	98
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

2: University Avenue & Donohoe Street Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	1.3	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	147.6	47.4	155.3	141.0	23.4	97.6	23.3	6.2	203.6	178.0	166.6	107.3
Vehicles Entered	211	899	985	996	701	217	598	746	33	1943	98	7427
Vehicles Exited	206	893	986	1000	704	217	595	745	33	1945	99	7423
Hourly Exit Rate	103	447	493	500	352	109	298	373	17	973	50	3712
Input Volume	105	459	512	512	362	115	306	379	17	985	52	3804
% of Volume	98	97	96	98	97	95	97	98	96	99	95	98
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

3: University Avenue & US 101 SB Ramps Performance by movement

Movement	WBL	WBT	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	106.4	58.8	24.4	38.6	12.0	92.7	34.4	48.5
Vehicles Entered	458	3	501	1901	868	1734	2964	8429
Vehicles Exited	451	3	502	1900	869	1721	2951	8397
Hourly Exit Rate	226	2	251	950	435	861	1476	4199
Input Volume	258	1	278	947	438	894	1509	4326
% of Volume	87	171	90	100	99	96	98	97
Denied Entry Before	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0

4: Woodland Avenue & University Avenue Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	49.6	49.2	41.0	107.4	104.9	73.3	77.6	26.6	26.1	72.3	68.7	47.8
Vehicles Entered	738	161	53	42	206	625	110	1399	28	9	374	1820
Vehicles Exited	738	161	53	41	206	624	110	1397	28	8	371	1809
Hourly Exit Rate	369	81	27	21	103	312	55	699	14	4	186	905
Input Volume	371	82	26	22	104	308	57	700	13	5	198	946
% of Volume	100	98	100	92	99	101	97	100	107	80	94	96
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: Woodland Avenue & University Avenue Performance by movement

Movement	SBR	All
Denied Del/Veh (s)	0.0	0.0
Total Del/Veh (s)	7.6	42.7
Vehicles Entered	1199	6764
Vehicles Exited	1198	6744
Hourly Exit Rate	599	3372
Input Volume	618	3452
% of Volume	97	98
Denied Entry Before	0	0
Denied Entry After	0	0

10: US 101 SB Ramps Performance by movement

Movement	NET	NER	SWT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	1.9	2.9	136.7	40.8
Vehicles Entered	2	2590	1017	3609
Vehicles Exited	2	2589	961	3552
Hourly Exit Rate	1	1295	481	1776
Input Volume	1	1333	536	1870
% of Volume	100	97	90	95
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	286.5
Vehicles Entered	12443
Vehicles Exited	12097
Hourly Exit Rate	6049
Input Volume	40218
% of Volume	15
Denied Entry Before	0
Denied Entry After	1

Intersection: 1: US 101 NB On-Ramp & Donohoe Street

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	LTR
Maximum Queue (ft)	1529	426	384	34
Average Queue (ft)	305	305	215	3
95th Queue (ft)	1105	421	473	17
Link Distance (ft)	2908	331	331	153
Upstream Blk Time (%)		20	12	
Queuing Penalty (veh)		67	42	
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: University Avenue & Donohoe Street

Movement	EB	EB	WB	WB	WB	WB	B23	B23	B5	B5	NB	NB
Directions Served	T	R	L	LT	TR	R	T	T	T	T	L	L
Maximum Queue (ft)	362	275	215	731	723	690	1518	1520	1774	1773	88	216
Average Queue (ft)	221	234	208	670	652	217	1128	1131	628	634	26	77
95th Queue (ft)	420	327	256	830	859	619	2009	2011	2065	2075	82	169
Link Distance (ft)	331			618	618	618	1409	1409	9410	9410	88	88
Upstream Blk Time (%)	12			69	47	0	47	49			1	16
Queuing Penalty (veh)	66			0	0	0	0	0			2	33
Storage Bay Dist (ft)		250	190									
Storage Blk Time (%)	21	21	32	59								
Queuing Penalty (veh)	96	20	161	151								

Intersection: 2: University Avenue & Donohoe Street

Movement	NB	NB	NB	SB	SB	SB
Directions Served	T	T	R	L	T	TR
Maximum Queue (ft)	229	232	88	260	994	1008
Average Queue (ft)	84	85	59	51	843	821
95th Queue (ft)	192	190	109	199	1214	1233
Link Distance (ft)	88	88			989	989
Upstream Blk Time (%)	8	5	2		16	13
Queuing Penalty (veh)	15	9	0		85	69
Storage Bay Dist (ft)			100	235		
Storage Blk Time (%)		5	2	0	67	
Queuing Penalty (veh)		18	3	0	12	

Intersection: 3: University Avenue & US 101 SB Ramps

Movement	WB	WB	WB	NB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LR	R	T	T	R	R	L	L	T	T
Maximum Queue (ft)	223	227	211	379	379	320	177	275	325	1196	1156
Average Queue (ft)	120	147	89	272	303	80	75	262	309	737	590
95th Queue (ft)	243	241	176	396	395	184	125	316	372	1367	1200
Link Distance (ft)	183	183	183	346	346	346				1034	1034
Upstream Blk Time (%)	25	26	1	2	4	0				11	2
Queuing Penalty (veh)	44	46	2	9	19	2				134	27
Storage Bay Dist (ft)							200	225	225		
Storage Blk Time (%)								23	39	7	
Queuing Penalty (veh)								173	293	63	

Intersection: 4: Woodland Avenue & University Avenue

Movement	EB	EB	EB	B20	B20	WB	WB	NB	NB	NB	B21	B22
Directions Served	L	L	TR	T	T	LT	R	L	T	TR	T	T
Maximum Queue (ft)	197	248	211	53	194	839	125	143	220	240	188	458
Average Queue (ft)	113	170	81	1	18	307	118	58	130	196	87	53
95th Queue (ft)	184	247	150	28	95	702	149	119	202	255	202	231
Link Distance (ft)	163	163	163	4548	4548	4712			146	146	88	2409
Upstream Blk Time (%)	2	16	1					0	5	27	12	
Queuing Penalty (veh)	0	0	0					0	18	104	95	
Storage Bay Dist (ft)							100	125				
Storage Blk Time (%)						25	41	1	8			
Queuing Penalty (veh)						76	52	3	4			

Intersection: 4: Woodland Avenue & University Avenue

Movement	SB	SB	SB	SB
Directions Served	UL	T	T	R
Maximum Queue (ft)	317	367	364	278
Average Queue (ft)	186	228	231	100
95th Queue (ft)	342	412	407	192
Link Distance (ft)		346	346	346
Upstream Blk Time (%)		12	11	0
Queuing Penalty (veh)		68	64	0
Storage Bay Dist (ft)	250			
Storage Blk Time (%)	3	25		
Queuing Penalty (veh)	14	49		

1: US 101 NB On-Ramp & Donohoe St Performance by movement

Movement	EBT	EBR	WBL	WBT	WBR	SBL	SBT	SBR	All
Denied Del/Veh (s)	0.3	0.3	0.0	0.0	0.0	0.1	0.1	0.1	0.1
Total Del/Veh (s)	2.5	1.8	7.1	2.5	2.2	26.8	20.7	9.9	3.7
Vehicles Entered	546	147	737	1637	5	4	7	27	3110
Vehicles Exited	546	148	739	1639	5	4	7	27	3115
Hourly Exit Rate	273	74	370	820	3	2	4	14	1558
Input Volume	274	71	366	828	2	2	3	13	1560
% of Volume	100	104	101	99	125	100	117	103	100
Denied Entry Before	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0

2: University Ave & Donohoe St Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Total Del/Veh (s)	58.5	63.6	12.5	45.5	61.8	27.7	69.9	38.3	11.8	107.8	119.7	128.6
Vehicles Entered	41	209	299	525	1287	1301	807	1099	1342	96	1100	286
Vehicles Exited	41	208	299	525	1285	1302	804	1098	1342	98	1109	288
Hourly Exit Rate	21	104	150	263	643	651	402	549	671	49	555	144
Input Volume	21	107	148	266	650	656	404	543	677	47	546	141
% of Volume	96	98	101	99	99	99	100	101	99	105	102	102
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

2: University Ave & Donohoe St Performance by movement

Movement	All
Denied Del/Veh (s)	0.0
Total Del/Veh (s)	54.1
Vehicles Entered	8392
Vehicles Exited	8399
Hourly Exit Rate	4200
Input Volume	4206
% of Volume	100
Denied Entry Before	0
Denied Entry After	0

3: University Ave & US 101 SB Off-Ramp Performance by movement

Movement	WBL	WBR	NBT	NBR	SBL	SBT	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	47.0	34.4	31.9	6.0	48.7	8.8	29.3
Vehicles Entered	700	1256	2647	685	982	1410	7680
Vehicles Exited	702	1257	2646	685	979	1401	7670
Hourly Exit Rate	351	629	1323	343	490	701	3835
Input Volume	352	629	1329	344	491	703	3849
% of Volume	100	100	100	100	100	100	100
Denied Entry Before	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0

4: University Ave & Woodland Ave Performance by movement

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Denied Del/Veh (s)	0.0	0.0	0.0	0.3	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Total Del/Veh (s)	80.5	61.0	48.0	155.7	143.3	131.4	69.8	47.7	45.9	55.4	52.6	25.1
Vehicles Entered	908	219	99	31	142	710	53	1692	18	23	404	1127
Vehicles Exited	908	218	99	32	143	709	53	1692	18	23	405	1127
Hourly Exit Rate	454	109	50	16	72	355	27	846	9	12	203	564
Input Volume	459	113	51	16	69	355	30	848	9	12	203	567
% of Volume	99	97	98	99	104	100	90	100	99	95	100	99
Denied Entry Before	0	0	0	0	0	0	0	0	0	0	0	0
Denied Entry After	0	0	0	0	0	0	0	0	0	0	0	0

4: University Ave & Woodland Ave Performance by movement

Movement	SBR	All
Denied Del/Veh (s)	0.0	0.0
Total Del/Veh (s)	6.4	59.0
Vehicles Entered	552	5978
Vehicles Exited	552	5979
Hourly Exit Rate	276	2990
Input Volume	273	3004
% of Volume	101	100
Denied Entry Before	0	0
Denied Entry After	0	0

Total Network Performance

Denied Del/Veh (s)	0.5
Total Del/Veh (s)	155.8
Vehicles Entered	12165
Vehicles Exited	12181
Hourly Exit Rate	6091
Input Volume	37459
% of Volume	16
Denied Entry Before	1
Denied Entry After	0

Intersection: 1: US 101 NB On-Ramp & Donohoe St

Movement	EB	WB	WB	SB
Directions Served	LTR	L	TR	LTR
Maximum Queue (ft)	25	222	7	54
Average Queue (ft)	2	70	0	15
95th Queue (ft)	13	140	5	42
Link Distance (ft)	2232	331	331	150
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		0		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 2: University Ave & Donohoe St

Movement	EB	EB	EB	WB	WB	WB	WB	B23	B23	B25	B25	NB
Directions Served	L	T	R	L	LT	TR	R	T	T	T	T	L
Maximum Queue (ft)	79	205	143	215	627	633	556	75	82	4	10	246
Average Queue (ft)	19	87	49	140	313	326	228	3	4	0	0	100
95th Queue (ft)	52	157	98	260	539	531	443	58	64	3	5	186
Link Distance (ft)		331			612	612	612	1338	1338	10847	10847	115
Upstream Blk Time (%)					1	1	0					10
Queuing Penalty (veh)					0	0	0					40
Storage Bay Dist (ft)	175		250	190								
Storage Blk Time (%)		1		1	19							
Queuing Penalty (veh)		2		4	25							

Intersection: 2: University Ave & Donohoe St

Movement	NB	NB	NB	NB	SB	SB	SB
Directions Served	L	T	T	R	L	T	TR
Maximum Queue (ft)	262	266	281	115	260	698	688
Average Queue (ft)	183	176	216	110	105	425	421
95th Queue (ft)	267	292	317	134	278	761	757
Link Distance (ft)	115	115	115			994	994
Upstream Blk Time (%)	45	20	21	7		0	0
Queuing Penalty (veh)	185	83	84	0		1	1
Storage Bay Dist (ft)				100	235		
Storage Blk Time (%)			24	10	0	45	
Queuing Penalty (veh)			162	28	0	21	

Intersection: 3: University Ave & US 101 SB Off-Ramp

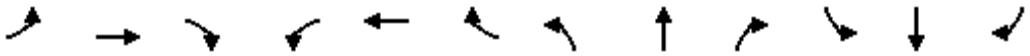
Movement	WB	WB	WB	NB	NB	NB	SB	SB	SB	SB
Directions Served	L	LR	R	T	T	R	L	L	T	T
Maximum Queue (ft)	229	238	235	378	382	362	274	317	404	299
Average Queue (ft)	136	192	185	327	343	113	159	179	81	101
95th Queue (ft)	217	245	247	393	392	263	250	273	208	212
Link Distance (ft)	166	166	166	346	346	346			1008	1008
Upstream Blk Time (%)	6	26	20	7	12	1				
Queuing Penalty (veh)	21	86	67	39	68	6				
Storage Bay Dist (ft)							225	225		
Storage Blk Time (%)							2	5	0	
Queuing Penalty (veh)							7	18	1	

Intersection: 4: University Ave & Woodland Ave

Movement	EB	EB	EB	B20	B20	WB	WB	NB	NB	NB	B21	B22
Directions Served	L	L	TR	T	T	LT	R	L	T	TR	T	T
Maximum Queue (ft)	253	259	240	692	784	1039	75	150	289	298	284	1426
Average Queue (ft)	178	203	117	204	279	519	74	37	219	261	209	569
95th Queue (ft)	273	273	227	982	1061	1296	78	113	292	314	353	1620
Link Distance (ft)	160	160	160	16130	16130	6518			203	203	181	17674
Upstream Blk Time (%)	31	49	9						19	42	33	
Queuing Penalty (veh)	0	0	0						0	0	0	
Storage Bay Dist (ft)							50	125				
Storage Blk Time (%)						25	64	0	39			
Queuing Penalty (veh)						90	54	0	11			

Intersection: 4: University Ave & Woodland Ave

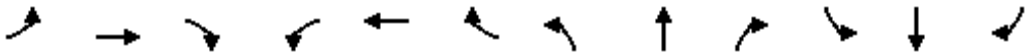
Movement	SB	SB	SB	SB
Directions Served	UL	T	T	R
Maximum Queue (ft)	315	330	309	170
Average Queue (ft)	173	158	167	65
95th Queue (ft)	278	263	258	118
Link Distance (ft)		346	346	346
Upstream Blk Time (%)		0	0	
Queuing Penalty (veh)		1	0	
Storage Bay Dist (ft)	250			
Storage Blk Time (%)	3	1		
Queuing Penalty (veh)	8	1		



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	562	394	440	247	1	0	0	0	0	1	1
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Hourly flow rate (vph)	0	618	433	484	271	1	0	0	0	0	1	1
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					410							
pX, platoon unblocked												
vC, conflicting volume	273			1051			2074	2074	834	2073	2290	272
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	273			1051			2074	2074	834	2073	2290	272
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			28			100	100	100	100	90	100
cM capacity (veh/h)	1302			670			15	15	371	17	11	772

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	1051	484	273	2
Volume Left	0	484	0	0
Volume Right	433	0	1	1
cSH	1302	670	1700	22
Volume to Capacity	0.00	0.72	0.16	0.10
Queue Length 95th (ft)	0	154	0	7
Control Delay (s)	0.0	23.0	0.0	187.3
Lane LOS		C		F
Approach Delay (s)	0.0	14.7		187.3
Approach LOS				F

Intersection Summary			
Average Delay	6.4		
Intersection Capacity Utilization	91.3%	ICU Level of Service	F
Analysis Period (min)	15		



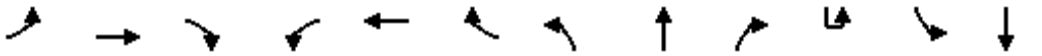
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	96	466	520	519	368	116	310	384	17	999	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor		1.00	1.00	0.91	0.86	0.91	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes		1.00	1.00	1.00	0.99	0.89	1.00	1.00	0.99	1.00	0.99	
Flpb, ped/bikes		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt		1.00	0.85	1.00	0.99	0.85	1.00	1.00	0.85	1.00	0.99	
Flt Protected		1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1863	1583	1610	3114	1277	3433	3539	1566	1770	3482	
Flt Permitted		1.00	1.00	0.95	0.99	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)		1863	1583	1610	3114	1277	3433	3539	1566	1770	3482	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	104	507	565	564	400	126	337	417	18	1086	58
RTOR Reduction (vph)	0	0	53	0	3	229	0	0	55	0	3	0
Lane Group Flow (vph)	0	104	454	384	794	119	126	337	362	18	1141	0
Confl. Peds. (#/hr)						57			4			87
Turn Type	Split	NA	pm+ov	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)		9.0	27.6	48.0	48.0	48.0	18.6	65.0	113.0	2.0	48.4	
Effective Green, g (s)		9.0	27.6	48.0	48.0	48.0	18.6	65.0	113.0	2.0	48.4	
Actuated g/C Ratio		0.06	0.20	0.34	0.34	0.34	0.13	0.46	0.81	0.01	0.35	
Clearance Time (s)		4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		119	357	552	1067	437	456	1643	1308	25	1203	
v/s Ratio Prot		0.06	c0.17	0.24	c0.25		0.04	0.10	0.09	0.01	c0.33	
v/s Ratio Perm			0.12			0.09			0.14			
v/c Ratio		0.87	1.27	0.70	0.74	0.27	0.28	0.21	0.28	0.72	0.95	
Uniform Delay, d1		64.9	56.2	39.7	40.6	33.4	54.6	22.2	3.4	68.7	44.6	
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		53.8	142.5	7.1	4.7	1.5	1.5	0.1	0.1	67.0	15.1	
Delay (s)		118.8	198.7	46.8	45.3	34.9	56.1	22.3	3.5	135.7	59.7	
Level of Service		F	F	D	D	C	E	C	A	F	E	
Approach Delay (s)		185.1			43.3			18.2			60.9	
Approach LOS		F			D			B			E	

Intersection Summary			
HCM 2000 Control Delay	63.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	262	282	960	445	907	1531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	0.88	0.97	0.95
Frt	0.96	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3336	1441	3539	2787	3433	3539
Flt Permitted	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3336	1441	3539	2787	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	285	307	1043	484	986	1664
RTOR Reduction (vph)	40	143	0	11	0	0
Lane Group Flow (vph)	365	44	1043	473	986	1664
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	28.0	28.0	39.8	67.8	38.0	81.8
Effective Green, g (s)	28.0	28.0	39.8	67.8	38.0	81.8
Actuated g/C Ratio	0.24	0.24	0.34	0.58	0.32	0.69
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	792	342	1195	1698	1107	2457
v/s Ratio Prot	c0.11		c0.29	0.07	c0.29	0.47
v/s Ratio Perm		0.03		0.10		
v/c Ratio	0.46	0.13	0.87	0.28	0.89	0.68
Uniform Delay, d1	38.4	35.3	36.6	12.6	37.9	10.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.8	7.3	0.1	10.9	0.8
Delay (s)	40.4	36.1	43.9	12.7	48.8	11.1
Level of Service	D	D	D	B	D	B
Approach Delay (s)	39.0		34.0			25.1
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	117.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

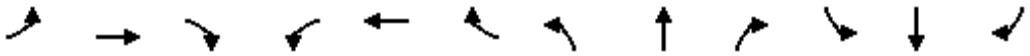


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	376	83	27	23	106	313	58	711	13	5	201	960
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00	1.00	1.00	0.95			1.00	0.95
Frpb, ped/bikes	1.00	0.96			1.00	0.98	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	1.00
Frt	1.00	0.96			1.00	0.85	1.00	1.00			1.00	1.00
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	3433	1731			2092	1751	1770	3520			1770	3539
Flt Permitted	0.95	1.00			0.99	1.00	0.95	1.00			0.95	1.00
Satd. Flow (perm)	3433	1731			2092	1751	1770	3520			1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	409	90	29	25	115	340	63	773	14	5	218	1043
RTOR Reduction (vph)	0	10	0	0	0	260	0	1	0	0	0	0
Lane Group Flow (vph)	409	109	0	0	140	80	63	786	0	0	223	1043
Confl. Peds. (#/hr)			87			5			57			
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	Prot	NA
Protected Phases	4	4		8	8		5	2		1	1	6
Permitted Phases						8						
Actuated Green, G (s)	20.8	20.8			12.3	12.3	4.6	38.0			17.1	50.5
Effective Green, g (s)	20.8	20.8			12.3	12.3	4.6	38.0			17.1	50.5
Actuated g/C Ratio	0.20	0.20			0.12	0.12	0.04	0.36			0.16	0.48
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	685	345			246	206	78	1283			290	1715
v/s Ratio Prot	c0.12	0.06			c0.07		0.04	c0.22			c0.13	c0.29
v/s Ratio Perm						0.05						
v/c Ratio	0.60	0.32			0.57	0.39	0.81	0.61			0.77	0.61
Uniform Delay, d1	37.9	35.6			43.4	42.5	49.4	27.1			41.7	19.6
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	1.4	0.5			9.2	5.4	43.8	0.9			11.6	0.6
Delay (s)	39.3	36.2			52.7	47.9	93.1	27.9			53.3	20.2
Level of Service	D	D			D	D	F	C			D	C
Approach Delay (s)		38.6			49.3			32.8				23.3
Approach LOS		D			D			C				C

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	104.2	Sum of lost time (s)	16.0
Intersection Capacity Utilization	81.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	627
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.94
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1485
Flt Permitted	1.00
Satd. Flow (perm)	1485
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	682
RTOR Reduction (vph)	351
Lane Group Flow (vph)	331
Confl. Peds. (#/hr)	36
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	50.5
Effective Green, g (s)	50.5
Actuated g/C Ratio	0.48
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	719
v/s Ratio Prot	
v/s Ratio Perm	0.22
v/c Ratio	0.46
Uniform Delay, d1	17.8
Progression Factor	1.00
Incremental Delay, d2	0.5
Delay (s)	18.3
Level of Service	B
Approach Delay (s)	
Approach LOS	

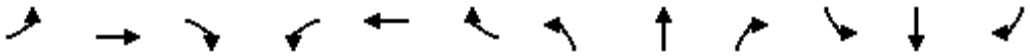
Intersection Summary



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	278	72	372	839	2	0	0	0	2	3	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	302	78	404	912	2	0	0	0	2	3	14
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)					410							
pX, platoon unblocked	0.67						0.67	0.67		0.67	0.67	0.67
vC, conflicting volume	914			380			2078	2064	341	2063	2102	913
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	631			380			2357	2336	341	2335	2393	630
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			66			100	100	100	83	78	96
cM capacity (veh/h)	642			1178			10	16	701	13	15	325

Direction, Lane #	EB 1	WB 1	WB 2	SB 1
Volume Total	380	404	914	20
Volume Left	0	404	0	2
Volume Right	78	0	2	14
cSH	642	1178	1700	45
Volume to Capacity	0.00	0.34	0.54	0.43
Queue Length 95th (ft)	0	39	0	39
Control Delay (s)	0.0	9.6	0.0	135.3
Lane LOS		A		F
Approach Delay (s)	0.0	3.0		135.3
Approach LOS				F

Intersection Summary			
Average Delay	3.8		
Intersection Capacity Utilization	76.6%	ICU Level of Service	D
Analysis Period (min)	15		



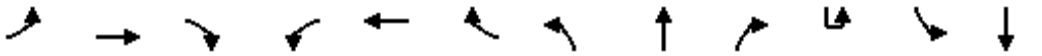
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	22	108	150	270	660	665	410	551	687	47	554	143
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.86	0.91	0.97	0.95	1.00	1.00	0.95	
Frpb, ped/bikes	1.00	1.00	0.99	1.00	0.96	0.84	1.00	1.00	0.99	1.00	0.95	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.96	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	1863	1561	1610	2944	1212	3433	3539	1568	1770	3265	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1770	1863	1561	1610	2944	1212	3433	3539	1568	1770	3265	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	24	117	163	293	717	723	446	599	747	51	602	155
RTOR Reduction (vph)	0	0	116	0	21	258	0	0	82	0	16	0
Lane Group Flow (vph)	24	117	47	264	993	197	446	599	665	51	741	0
Confl. Peds. (#/hr)			30			57			4			87
Turn Type	Split	NA	pm+ov	Split	NA	Perm	Prot	NA	pm+ov	Prot	NA	
Protected Phases	4	4	5	8	8		5	2	8	1	6	
Permitted Phases			4			8			2			
Actuated Green, G (s)	13.4	13.4	40.2	50.0	50.0	50.0	26.8	39.8	89.8	20.8	33.8	
Effective Green, g (s)	13.4	13.4	40.2	50.0	50.0	50.0	26.8	39.8	89.8	20.8	33.8	
Actuated g/C Ratio	0.10	0.10	0.29	0.36	0.36	0.36	0.19	0.28	0.64	0.15	0.24	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	169	178	492	575	1051	432	657	1006	1005	262	788	
v/s Ratio Prot	0.01	c0.06	0.02	0.16	c0.34		0.13	0.17	c0.24	0.03	c0.23	
v/s Ratio Perm			0.01			0.16			0.19			
v/c Ratio	0.14	0.66	0.10	0.46	0.94	0.46	0.68	0.60	0.66	0.19	0.94	
Uniform Delay, d1	58.0	61.1	36.6	34.6	43.7	34.5	52.6	43.2	15.6	52.3	52.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.4	8.5	0.1	0.6	16.1	0.8	5.6	1.0	1.6	0.4	19.1	
Delay (s)	58.4	69.5	36.7	35.2	59.7	35.3	58.2	44.1	17.3	52.6	71.2	
Level of Service	E	E	D	D	E	D	E	D	B	D	E	
Approach Delay (s)		51.0			49.6			36.4			70.0	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	357	639	1348	349	498	713
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	1.00	0.97	0.95
Frt	0.93	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3271	1441	3539	1583	3433	3539
Flt Permitted	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3271	1441	3539	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	695	1465	379	541	775
RTOR Reduction (vph)	135	271	0	12	0	0
Lane Group Flow (vph)	601	76	1465	367	541	775
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	26.0	26.0	54.5	80.5	26.0	84.5
Effective Green, g (s)	26.0	26.0	54.5	80.5	26.0	84.5
Actuated g/C Ratio	0.22	0.22	0.46	0.68	0.22	0.71
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	717	316	1627	1128	753	2523
v/s Ratio Prot	c0.18		c0.41	0.07	c0.16	0.22
v/s Ratio Perm		0.05		0.16		
v/c Ratio	0.84	0.24	0.90	0.33	0.72	0.31
Uniform Delay, d1	44.2	38.1	29.5	7.8	42.9	6.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.3	1.8	7.2	0.2	5.8	0.1
Delay (s)	55.5	39.9	36.7	8.0	48.7	6.3
Level of Service	E	D	D	A	D	A
Approach Delay (s)	50.5		30.8			23.7
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBU	SBL	SBT
Lane Configurations												
Volume (vph)	465	114	51	16	70	360	30	860	9	12	206	575
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	16	16	16	12	12	12	12	12	12
Total Lost time (s)	4.0	4.0			4.0	4.0	4.0	4.0			4.0	4.0
Lane Util. Factor	0.97	1.00			1.00	1.00	1.00	0.95			1.00	0.95
Frpb, ped/bikes	1.00	0.95			1.00	0.98	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	1.00
Frt	1.00	0.95			1.00	0.85	1.00	1.00			1.00	1.00
Flt Protected	0.95	1.00			0.99	1.00	0.95	1.00			0.95	1.00
Satd. Flow (prot)	3433	1689			2092	1760	1770	3527			1770	3539
Flt Permitted	0.95	1.00			0.99	1.00	0.95	1.00			0.95	1.00
Satd. Flow (perm)	3433	1689			2092	1760	1770	3527			1770	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	505	124	55	17	76	391	33	935	10	13	224	625
RTOR Reduction (vph)	0	14	0	0	0	189	0	1	0	0	0	0
Lane Group Flow (vph)	505	165	0	0	93	202	33	944	0	0	237	625
Confl. Peds. (#/hr)			87			5			57			
Turn Type	Split	NA		Split	NA	Perm	Prot	NA		Prot	Prot	NA
Protected Phases	4	4		8	8		5	2		1	1	6
Permitted Phases						8						
Actuated Green, G (s)	22.5	22.5			23.1	23.1	3.5	36.4			18.8	51.7
Effective Green, g (s)	22.5	22.5			23.1	23.1	3.5	36.4			18.8	51.7
Actuated g/C Ratio	0.19	0.19			0.20	0.20	0.03	0.31			0.16	0.44
Clearance Time (s)	4.0	4.0			4.0	4.0	4.0	4.0			4.0	4.0
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	661	325			413	348	53	1099			284	1566
v/s Ratio Prot	c0.15	0.10			0.04		0.02	c0.27			c0.13	0.18
v/s Ratio Perm						c0.12						
v/c Ratio	0.76	0.51			0.23	0.58	0.62	0.86			0.83	0.40
Uniform Delay, d1	44.6	42.2			39.3	42.5	56.0	37.8			47.5	22.0
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00			1.00	1.00
Incremental Delay, d2	5.2	1.3			1.3	6.9	20.6	6.9			18.6	0.2
Delay (s)	49.9	43.5			40.6	49.4	76.6	44.6			66.1	22.2
Level of Service	D	D			D	D	E	D			E	C
Approach Delay (s)		48.2			47.7			45.7				30.6
Approach LOS		D			D			D				C

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	116.8	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SBR
Lane Configurations	
Volume (vph)	277
Ideal Flow (vphpl)	1900
Lane Width	12
Total Lost time (s)	4.0
Lane Util. Factor	1.00
Frpb, ped/bikes	0.93
Flpb, ped/bikes	1.00
Frt	0.85
Flt Protected	1.00
Satd. Flow (prot)	1475
Flt Permitted	1.00
Satd. Flow (perm)	1475
Peak-hour factor, PHF	0.92
Adj. Flow (vph)	301
RTOR Reduction (vph)	168
Lane Group Flow (vph)	133
Confl. Peds. (#/hr)	36
Turn Type	Perm
Protected Phases	
Permitted Phases	6
Actuated Green, G (s)	51.7
Effective Green, g (s)	51.7
Actuated g/C Ratio	0.44
Clearance Time (s)	4.0
Vehicle Extension (s)	3.0
Lane Grp Cap (vph)	652
v/s Ratio Prot	
v/s Ratio Perm	0.09
v/c Ratio	0.20
Uniform Delay, d1	19.9
Progression Factor	1.00
Incremental Delay, d2	0.2
Delay (s)	20.1
Level of Service	C
Approach Delay (s)	
Approach LOS	

Intersection Summary

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	262	282	960	445	907	1531
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	0.88	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	2787	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	2787	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	285	307	1043	484	986	1664
RTOR Reduction (vph)	0	234	0	11	0	0
Lane Group Flow (vph)	285	73	1043	473	986	1664
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	28.0	28.0	39.8	67.8	38.0	81.8
Effective Green, g (s)	28.0	28.0	39.8	67.8	38.0	81.8
Actuated g/C Ratio	0.24	0.24	0.34	0.58	0.32	0.69
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	815	662	1195	1698	1107	2457
v/s Ratio Prot	c0.08		c0.29	0.07	c0.29	0.47
v/s Ratio Perm		0.03		0.10		
v/c Ratio	0.35	0.11	0.87	0.28	0.89	0.68
Uniform Delay, d1	37.3	35.1	36.6	12.6	37.9	10.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.3	7.3	0.1	10.9	0.8
Delay (s)	38.5	35.5	43.9	12.7	48.8	11.1
Level of Service	D	D	D	B	D	B
Approach Delay (s)	36.9		34.0			25.1
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	29.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	117.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	357	639	1348	349	498	713
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	695	1465	379	541	775
RTOR Reduction (vph)	0	489	0	12	0	0
Lane Group Flow (vph)	388	206	1465	367	541	775
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	26.0	26.0	54.5	80.5	26.0	84.5
Effective Green, g (s)	26.0	26.0	54.5	80.5	26.0	84.5
Actuated g/C Ratio	0.22	0.22	0.46	0.68	0.22	0.71
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	753	611	1627	1128	753	2523
v/s Ratio Prot	c0.11		c0.41	0.07	c0.16	0.22
v/s Ratio Perm		0.07		0.16		
v/c Ratio	0.52	0.34	0.90	0.33	0.72	0.31
Uniform Delay, d1	40.7	39.0	29.5	7.8	42.9	6.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	1.5	7.2	0.2	5.8	0.1
Delay (s)	43.2	40.5	36.7	8.0	48.7	6.3
Level of Service	D	D	D	A	D	A
Approach Delay (s)	41.5		30.8			23.7
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	118.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	282	353	966	452	950	1532
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	0.88	0.97	0.95
Frt	0.95	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3316	1441	3539	2787	3433	3539
Flt Permitted	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3316	1441	3539	2787	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	307	384	1050	491	1033	1665
RTOR Reduction (vph)	63	167	0	9	0	0
Lane Group Flow (vph)	409	52	1050	482	1033	1665
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	28.0	28.0	40.0	68.0	38.0	82.0
Effective Green, g (s)	28.0	28.0	40.0	68.0	38.0	82.0
Actuated g/C Ratio	0.24	0.24	0.34	0.58	0.32	0.69
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	786	341	1199	1700	1105	2459
v/s Ratio Prot	c0.12		c0.30	0.07	c0.30	0.47
v/s Ratio Perm		0.04		0.11		
v/c Ratio	0.52	0.15	0.88	0.28	0.93	0.68
Uniform Delay, d1	39.2	35.6	36.7	12.7	38.8	10.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	0.9	7.4	0.1	15.3	0.8
Delay (s)	41.6	36.6	44.1	12.8	54.1	11.1
Level of Service	D	D	D	B	D	B
Approach Delay (s)	40.0		34.1			27.6
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	75.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	357	701	1369	350	505	742
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	1.00	0.97	0.95
Frt	0.93	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.98	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3263	1441	3539	1583	3433	3539
Flt Permitted	0.98	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3263	1441	3539	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	762	1488	380	549	807
RTOR Reduction (vph)	148	277	0	12	0	0
Lane Group Flow (vph)	621	104	1488	368	549	807
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	26.0	26.0	54.9	80.9	26.0	84.9
Effective Green, g (s)	26.0	26.0	54.9	80.9	26.0	84.9
Actuated g/C Ratio	0.22	0.22	0.46	0.68	0.22	0.71
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	713	315	1634	1130	750	2527
v/s Ratio Prot	c0.19		c0.42	0.07	c0.16	0.23
v/s Ratio Perm		0.07		0.16		
v/c Ratio	0.87	0.33	0.91	0.33	0.73	0.32
Uniform Delay, d1	44.8	39.1	29.7	7.8	43.2	6.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	13.8	2.8	8.0	0.2	6.2	0.1
Delay (s)	58.6	41.9	37.7	8.0	49.4	6.4
Level of Service	E	D	D	A	D	A
Approach Delay (s)	53.1		31.7			23.8
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	34.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	118.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	282	353	966	452	950	1532
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	0.88	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	2787	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	2787	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	307	384	1050	491	1033	1665
RTOR Reduction (vph)	0	293	0	9	0	0
Lane Group Flow (vph)	307	91	1050	482	1033	1665
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	28.0	28.0	40.0	68.0	38.0	82.0
Effective Green, g (s)	28.0	28.0	40.0	68.0	38.0	82.0
Actuated g/C Ratio	0.24	0.24	0.34	0.58	0.32	0.69
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	814	661	1199	1700	1105	2459
v/s Ratio Prot	c0.09		c0.30	0.07	c0.30	0.47
v/s Ratio Perm		0.03		0.11		
v/c Ratio	0.38	0.14	0.88	0.28	0.93	0.68
Uniform Delay, d1	37.7	35.5	36.7	12.7	38.8	10.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.4	7.4	0.1	15.3	0.8
Delay (s)	39.0	35.9	44.1	12.8	54.1	11.1
Level of Service	D	D	D	B	D	B
Approach Delay (s)	37.3		34.1			27.6
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	118.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	357	701	1369	350	505	742
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	762	1488	380	549	807
RTOR Reduction (vph)	0	488	0	12	0	0
Lane Group Flow (vph)	388	274	1488	368	549	807
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	26.0	26.0	54.9	80.9	26.0	84.9
Effective Green, g (s)	26.0	26.0	54.9	80.9	26.0	84.9
Actuated g/C Ratio	0.22	0.22	0.46	0.68	0.22	0.71
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	750	609	1634	1130	750	2527
v/s Ratio Prot	c0.11		c0.42	0.07	c0.16	0.23
v/s Ratio Perm		0.10		0.16		
v/c Ratio	0.52	0.45	0.91	0.33	0.73	0.32
Uniform Delay, d1	40.9	40.2	29.7	7.8	43.2	6.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.5	2.4	8.0	0.2	6.2	0.1
Delay (s)	43.5	42.6	37.7	8.0	49.4	6.4
Level of Service	D	D	D	A	D	A
Approach Delay (s)	42.9		31.7			23.8
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	118.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	362	639	990	479	1120	1537
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	0.88	0.97	0.95
Frt	0.93	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3272	1441	3539	2787	3433	3539
Flt Permitted	0.97	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3272	1441	3539	2787	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	393	695	1076	521	1217	1671
RTOR Reduction (vph)	134	278	0	10	0	0
Lane Group Flow (vph)	607	69	1076	511	1217	1671
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	24.0	24.0	38.9	62.9	45.0	87.9
Effective Green, g (s)	24.0	24.0	38.9	62.9	45.0	87.9
Actuated g/C Ratio	0.20	0.20	0.32	0.52	0.38	0.73
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	654	288	1148	1555	1288	2594
v/s Ratio Prot	c0.19		c0.30	0.07	c0.35	0.47
v/s Ratio Perm		0.05		0.12		
v/c Ratio	0.93	0.24	0.94	0.33	0.94	0.64
Uniform Delay, d1	47.1	40.3	39.3	16.4	36.2	8.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.5	2.0	13.9	0.1	14.9	0.6
Delay (s)	68.6	42.3	53.2	16.5	51.2	8.6
Level of Service	E	D	D	B	D	A
Approach Delay (s)	60.2		41.3			26.6
Approach LOS	E		D			C

Intersection Summary			
HCM 2000 Control Delay	37.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	119.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	357	949	1451	356	533	860
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.91	0.95	1.00	0.97	0.95
Frt	0.91	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.98	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3235	1441	3539	1583	3433	3539
Flt Permitted	0.98	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3235	1441	3539	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	1032	1577	387	579	935
RTOR Reduction (vph)	201	236	0	4	0	0
Lane Group Flow (vph)	703	280	1577	383	579	935
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	30.0	30.0	56.0	86.0	22.0	82.0
Effective Green, g (s)	30.0	30.0	56.0	86.0	22.0	82.0
Actuated g/C Ratio	0.25	0.25	0.47	0.72	0.18	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	808	360	1651	1187	629	2418
v/s Ratio Prot	c0.22		c0.45	0.08	c0.17	0.26
v/s Ratio Perm		0.19		0.16		
v/c Ratio	0.87	0.78	0.96	0.32	0.92	0.39
Uniform Delay, d1	43.1	41.9	30.8	6.3	48.1	8.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	12.3	15.1	13.0	0.2	20.9	0.1
Delay (s)	55.5	57.0	43.8	6.4	69.1	8.3
Level of Service	E	E	D	A	E	A
Approach Delay (s)	56.0		36.4			31.5
Approach LOS	E		D			C

Intersection Summary			
HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	362	639	990	479	1120	1537
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	0.88	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	2787	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	2787	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	393	695	1076	521	1217	1671
RTOR Reduction (vph)	0	556	0	10	0	0
Lane Group Flow (vph)	393	139	1076	511	1217	1671
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	24.0	24.0	38.9	62.9	45.0	87.9
Effective Green, g (s)	24.0	24.0	38.9	62.9	45.0	87.9
Actuated g/C Ratio	0.20	0.20	0.32	0.52	0.38	0.73
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	687	557	1148	1555	1288	2594
v/s Ratio Prot	c0.11		c0.30	0.07	c0.35	0.47
v/s Ratio Perm		0.05		0.12		
v/c Ratio	0.57	0.25	0.94	0.33	0.94	0.64
Uniform Delay, d1	43.3	40.4	39.3	16.4	36.2	8.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.4	1.1	13.9	0.1	14.9	0.6
Delay (s)	46.8	41.4	53.2	16.5	51.2	8.6
Level of Service	D	D	D	B	D	A
Approach Delay (s)	43.4		41.3			26.6
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	119.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Volume (vph)	357	949	1451	356	533	860
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Lane Util. Factor	0.97	0.88	0.95	1.00	0.97	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	3433	2787	3539	1583	3433	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	3433	2787	3539	1583	3433	3539
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	1032	1577	387	579	935
RTOR Reduction (vph)	0	416	0	4	0	0
Lane Group Flow (vph)	388	616	1577	383	579	935
Turn Type	Prot	Perm	NA	pm+ov	Prot	NA
Protected Phases	8		2	8	1	6
Permitted Phases		8		2		
Actuated Green, G (s)	30.0	30.0	56.0	86.0	22.0	82.0
Effective Green, g (s)	30.0	30.0	56.0	86.0	22.0	82.0
Actuated g/C Ratio	0.25	0.25	0.47	0.72	0.18	0.68
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	858	696	1651	1187	629	2418
v/s Ratio Prot	0.11		c0.45	0.08	c0.17	0.26
v/s Ratio Perm		c0.22		0.16		
v/c Ratio	0.45	0.88	0.96	0.32	0.92	0.39
Uniform Delay, d1	38.1	43.3	30.8	6.3	48.1	8.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.7	15.3	13.0	0.2	20.9	0.1
Delay (s)	39.8	58.7	43.8	6.4	69.1	8.3
Level of Service	D	E	D	A	E	A
Approach Delay (s)	53.5		36.4			31.5
Approach LOS	D		D			C

Intersection Summary			
HCM 2000 Control Delay	39.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Application of Criteria for a Project of Air Quality Concern

Project Title: Richmond-San Rafael Bridge Access Improvement Project
Project Summary for Air Quality Conformity Task Force Meeting: (February 25, 2016)

Description

The project would:

- Construct a new peak period use lane (PPUL) on the Richmond-San Rafael Bridge by converting the existing shoulder of the eastbound lower deck to a third travel lane
- Construct a Class I bi-directional bicycle and pedestrian path on the Richmond-San Rafael Bridge with adjoining segments in Contra Costa and Marin Counties

The project will:

- Improve congestion and delay on eastbound I-580 during evening commute periods
- Provide access for bicyclists and pedestrians across the Richmond-San Rafael Bridge with connections to regional bicycle trails adjoining the bridge on both sides

Background

- Added to the 2015 TIP (September 2015)
- Seeking air quality conformity determination on or before (February 2016)
- CEQA/NEPA process for Categorical Exemption/Categorical Exclusion (CE/CE) to be completed in June 2016
- No public outreach or review required under a CE/CE
- Anticipated construction start date - September 2016

Not a Project of Air Quality Concern (40 CFR 93.123(b)(1))

(i) New or expanded highway projects with significant number/increase in diesel vehicles?

- Not a new or expanded highway project – existing shoulder lane conversion
- No change in percentage of diesel truck AADT as a result of the project
- Diesel truck AADT (5,244) well below significance threshold of 10,000

(ii) The maximum percentage of diesel vehicles in the project area would not increase as a result of the project?

- Diesel vehicles represent less than 7% of intersection traffic volume
- The project would not result in substantial redistribution of traffic or changes in the percentage of truck trips through the site

(iii) New bus and rail terminals and transfer points?—Not Applicable

(iv) Expanded bus and rail terminals and transfer points?—Not Applicable

(v) Affects areas identified in PM_{10} or $PM_{2.5}$ implementation plan as site of violation?

- U.S. EPA final rule established the San Francisco Bay Area as an attainment area for the 2.5 National Ambient Air Quality Standard (NAAQS) (January 2013)
- Therefore, the federal State Implementation Plan (SIP) is suspended; no attainment plan is required
- The project would not create a new, or worsen an existing, PM 2.5 violation and meets the Clean Air Act requirements and 40 CFR 9.116

$PM_{2.5}$ Project Assessment Form for Interagency Consultation

RTIP ID# 240758

TIP ID# MRN-15009

Air Quality Conformity Task Force Consideration Date
February 25, 2016

Project Description

The total length of the project is approximately 6 miles [Contra Costa County post mile (PM) R4.98 to Marin County PM 3.16]. Within the project limits there are six existing structures; San Quentin Undercrossing (Main Street) (Br. No. 27-0070), the RSR Bridge (Br. No. 28-0100), Western Drive Undercrossing (Stenmark Drive) (Br. No. 28-0141R), Scofield Avenue Undercrossing (Br. No. 28-0140 L/R), Marine Street Undercrossing (Br. No. 28-0139), and the Castro Street Undercrossing (Br. No. 28-0290 L/R/S). All proposed improvements are anticipated to be within existing highway and local street rights-of-way, except as noted below in Project Element 3.

The project consists of three major components that are interrelated:

- Project Element 1: EB I-580 travel lane between Marin County and Contra Costa County
- Project Element 2: Bicycle/Pedestrian Path in Contra Costa County
- Project Element 3: Bicycle/Pedestrian Path on the RSR Bridge and connections to the RSR Bridge
-

Project Element 1 – Eastbound I-580 Third Lane (including RSR Bridge Pilot Project)
Project Element 1 of the proposed project would construct a new third travel lane by converting the existing shoulder of the eastbound lower deck of the RSR Bridge to a travel lane. The new lane will begin immediately downstream from the Main Street EB off-ramp in Marin County and terminate on the Contra Costa County side of the RSR Bridge, slightly downstream of the Marine Street/East Standard Avenue EB off-ramp in Richmond. The Bridge portion of the third lane on the lower deck will operate during peak hours only (as part of the pilot project). The exact hours of operation of the lane will be outlined in the Project Report. The off-Bridge portion of the third lane will operate 24 hours a day, 7 days per week. Electronic and static signs will be used to operate and manage the lane during the hours of operations and are included in the project description below. The third travel lane on the RSR Bridge is part of a pilot project with Project Element 3, which will run for the duration of four years and is intended to test and evaluate the performance and use of the third travel lane. After four years, the third lane on the RSR Bridge will be evaluated to determine if it is to remain a peak period use lane (PPUL), be converted to a full-time use lane, or return to function as a shoulder. All other constructed components of Project Element 1 would be permanent.

Project Element 2 – Bicycle/Pedestrian Path in Contra Costa County
The proposed Class I bi-directional bicycle and pedestrian path in Contra Costa County would be constructed along the north side of westbound (WB) I-580 from the Marine Street interchange in Contra Costa County to Stenmark Drive (formerly Western Drive) and the Toll Plaza where it would then connect to Project Element 3. The Class I bi-directional bicycle and pedestrian path would be implemented along the existing WB I-580 and Stenmark Drive shoulders and would replace the existing one-way Class III bicycle lanes on both EB and WB I-580 between Marine Street and the Toll Plaza. The proposed bi-directional bicycle and pedestrian path would be separated from vehicle traffic by a continuous concrete barrier.

Project Element 3 – Bicycle/Pedestrian Path on RSR Bridge and Related Connections to RSR Bridge (Pilot Project)
Project Element 3 includes the continuation of the proposed Class I bi-directional bicycle and pedestrian path from the Stenmark Drive off-ramp to East Francisco Boulevard. The portion of the bi-directional bicycle and pedestrian path from Stenmark Drive to the Main Street off-ramp would be part of the pilot project that would run for four years, intended to evaluate the performance and use of a bicycle and pedestrian path on the RSR Bridge. After four years, the bi-directional bicycle and pedestrian path on the RSR Bridge may be made permanent, or may return to functioning as a shoulder. All other portions of the bike path would be permanent. Bicycle and pedestrian access improvements are also included in this project element to improve multimodal circulation and connections to the RSR Bridge.

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

Type of Project: Bridge Expansion

County	**Narrative Location/Route & Post miles**
Contra Costa and Marin	Contra Costa PM 4.98/7.79; Marin PM 0.0/3.16 **Caltrans Projects – EA#** 04-2J6800

Lead Agency: Bay Area Toll Authority (BATA)

Contact Person	**Phone#**	**Fax#**	**Email**
Chris Lillie	(510) 817-5737	(510) 817-5848	CLillie@mtc.ca.gov

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

X **Categorical Exclusion (NEPA)**	**EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**

Scheduled Date of Federal Action: 04/20/2016

NEPA Delegation – Project Type *(check appropriate box)*

Section 326 – Categorical Exclusion	**X Section 327 – Non-Categorical Exclusion**

Current Programming Dates

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	05/2014	05/2015	05/2014	10/2016
End	08/2016	09/2016	06/2017	10/2017

Project Purpose and Need (Summary):

Purpose:

- Reduce congestion and travel time on eastbound (EB) Interstate 580 (I-580)/Richmond-San Rafael (RSR) Bridge;
- Provide pedestrian and bicycle travel along the I-580/RSR Bridge corridor.

Need:

Congestion and Delay – Regional growth and local development in Marin County has resulted in significant traffic increases on eastbound I-580 and the RSR Bridge approach during evening peak commute periods. During evening peak periods, this results in significant traffic delays along eastbound Sir Francis Drake Boulevard, and US 101 northbound (NB) south of Sir Francis Drake exit, with unacceptable level of service conditions occurring at the intersections of Bellam Boulevard/I-580 eastbound ramps, US 101 northbound ramps/Sir Francis Drake Boulevard, Larkspur Landing Circle (west)/Sir Francis Drake Boulevard, Larkspur Landing Circle (east)/Sir Francis Drake Boulevard, San Quentin Gates/Sir Francis Drake Boulevard, Anderson Drive/Sir Francis Drake Boulevard, and Main Street/I-580 EB ramps. Because substantial growth is projected to occur in this region, there is a need to improve and expand eastbound bridge capacity to reduce and avoid additional traffic congestion and delay during peak commute hours.

Accessibility for Bicyclists and Pedestrians – The current lack of bicycle and pedestrian facilities across the RSR Bridge represents a major gap in the planned 500-mile Bay Trail, with sections of the Bay Trail adjoining the bridge on both sides. Overall, an estimated 37.9 million annual trips were made on the existing Bay Trail in 2005, making it one of the most heavily used recreational and non-motorized transportation corridors in the region; however, there is currently no access available over the RSR Bridge.

$PM_{2.5}$ Project Assessment Form for Interagency Consultation

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*

I-580 is a 4-lane separated freeway. The Richmond-San Rafael Bridge is a combined bridge with a portion of the bridge a double deck design. The surrounding area is a mixture of open land, bay, residential, industrial and commercial land uses. At the east end of the project is the Chevron docks and refinery, at the west end of the project, there is a mixture of residential, commercial and open land. The primary traffic through the project area is commuters traveling to and from Contra Costa and Marin Counties.

Project Assessment Form for $PM_{2.5}$ Interagency Consultation

Brief summary of assumptions and methodology used for conducting analysis

The Annual Growth calculations were derived from the Contra Costa Transportation Authority Travel Demand Model Volumes. The AADT and truck percentages are taken from the 2014 Caltrans Traffic Volumes Book.

Opening Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

2020: I-580 Richmond San Rafael Bridge			
Scenario	**AADT**	**Truck AADT**	**LOS (Peak Period)**
No Build	**76,792**	**5,506 (6.9%)**	**LOS F**
Build	**76,792**	**5,506 (6.9%)**	**LOS C**

RTP Horizon Year / Design Year: If facility is a highway or street, Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

2040: I-580 Richmond San Rafael Bridge			
Scenario	**AADT**	**Truck AADT**	**LOS (Peak Period)**
No Build	**90,911**	**6,273 (6.9%)**	**LOS F**
Build	**90,911**	**6,273 (6.9%)**	**LOS D**

ADT forecasts provide by Fehr & Peers and were based on the Contra Costa Transportation Authority Travel Demand Model Volumes.

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

N/A

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

N/A

Opening Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses

Not Applicable; see above for highway facility

RTP Horizon Year / Design Year: If facility is a bus, rail or intermodal facility/terminal/transfer point, # of bus arrivals for Build and No Build, % and # of bus arrivals will be diesel buses

Not Applicable; see above for highway facility

Describe potential traffic redistribution effects of congestion relief

By converting the existing shoulders to a third lane that will be open during the peak period, traffic will be allowed to move through the project area with less delay.

$PM_{2.5}$ Project Assessment Form for Interagency Consultation

Comments/Explanation/Details

The proposed project is within a nonattainment area for federal PM2.5 standards. According to 40 CFR Part 93, a hot spot analysis is required for conformity purposes. EPA only requires a qualitative hot spot analyses for all projects that are listed in Section 93.123(b) (1). There are five types or categories of projects qualify as a Project of Air Quality Concern (POAQC). The following discussion evaluates whether the proposed project falls into any of these five POAQC categories.

The project does qualify as a POAQC for the following reasons:

1. *The project would not have a significant number of or increase in the number of diesel vehicles (40 CFR Section 93.123(b)(1)*.

- Transportation conformity guidance coauthored by the EPA and FHWA define a significant volume of diesel truck traffic as facilities within greater than 125,000 annual average daily traffic (AADT) and 8 percent or more of such AADT as diesel truck traffic or approximately 10,000 trucks. This is not a hard rule but rather a relative guidance; projects should be evaluated on a case by case basis. The latest truck counts for I-580 in the project vicinity show that truck traffic constitutes 6.9 percent of the total AADT, which is 76,000 AADT[1]. The average daily number of trucks would be 5,244, well below the approximate 10,000 trucks stated above.
- The percentage of trucks will remain the same with the project as without the project. The traffic volumes will increase due growth in the area, but there will be no change in the truck percentages, and therefore, would not result in a significant increase in the number of diesel vehicles.

2. *The maximum percentage of diesel vehicles in the project area is 5 percent and would not increase as a result of the project (40 CFR 93.123(b)(1)(ii)*.

- As described above under "Describe potential traffic redistribution effects of congestion relief," the project would improve operations during the peak periods and would reduce congestion and delay at on the bridge within the project alignment, however, the project would not result in substantial redistribution of traffic or changes in the percentage of truck trips through the site.[1]

3. *The project is not a new bus or rail terminal or transfer point (40 CFR Section 93.123(b)(1)(iii)*.

4. *The project is not an expansion of an existing bus or rail terminal or transfer point (40 CFR Section 93.123(b)(1)(iv)*.

5. *There is no state implementation plan for PM2.5, and therefore, the project is not identified in an implementation plan as an area of potential violation (40 CFR Section 93.123(b)(1)(v)*.

- On January 9, 2013, EPA issued a final rule to determine that the Bay Area attains the 24-hour PM2.5 national standard. This EPA rule suspends key SIP requirements as long as monitoring data continues to show that the Bay Area attains the standard. Despite this EPA action, the Bay Area will continue to be designated as "non-attainment" for the national 24-hour PM2.5 standard until such time as the Air District submits a "redesignation request" and a "maintenance plan" to EPA and EPA approves the proposed redesignation.

The proposed project is in a PM 2.5 Non-Attainment Area and is subject to review project-level conformity review by the Air Quality Task Force.

References Cited:

[1]2014 annual Average Daily Truck Traffic on the California State Highway System and the 2014 Traffic Volumes on California State Highway,(http://Traffic-counts.dot.ca.gov

Figure 1: Richmond-San Rafael Bridge Concrete Trestle section, facing west.

Figure 2: Eastbound I-580 in Contra Costa County, facing west.

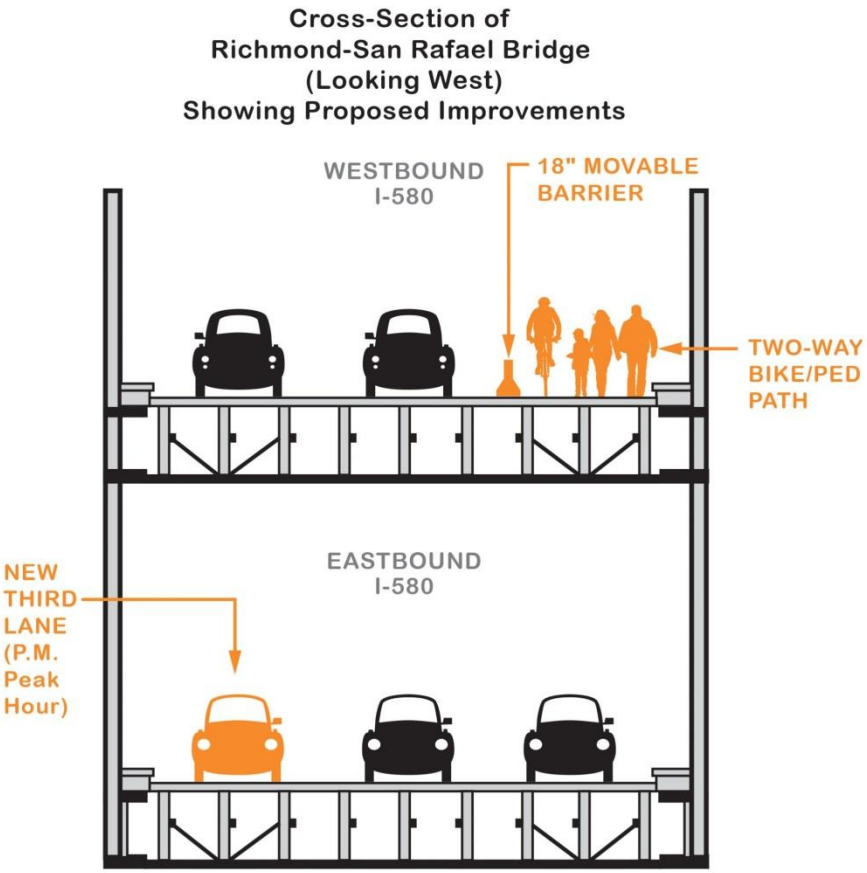


Figure 3: Richmond-San Rafael Bridge Cross Section after improvements, facing west.

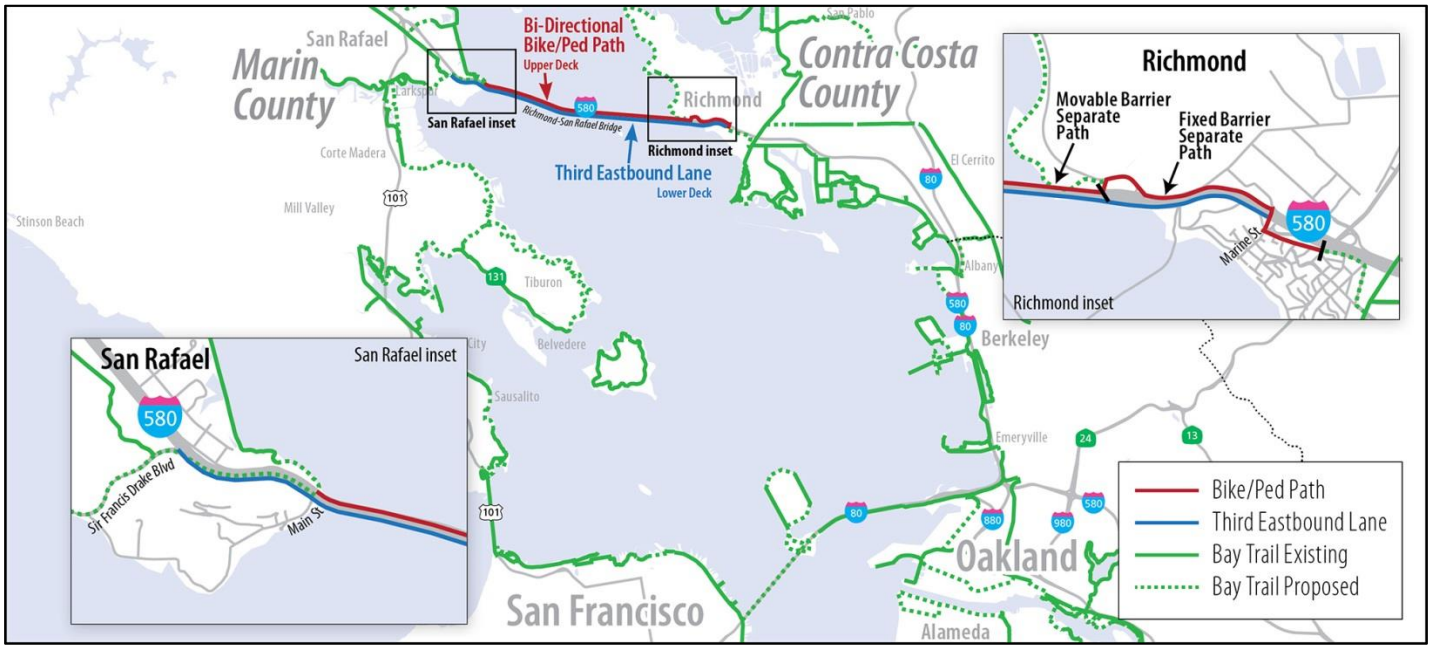
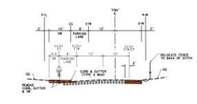


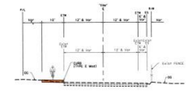
Figure 4: Project Area Map

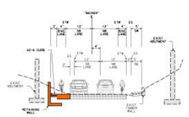
Project Assessment Form for $PM_{2.5}$ Interagency Consultation

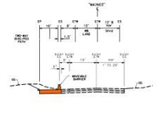
RICHMOND-SAN RAFAEL ACCESS IMPROVEMENT PROJECT OVERVIEW

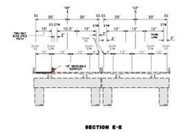
PRELIMINARY
FOR DISCUSSION ONLY
JANUARY 2016

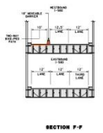


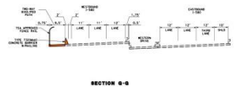


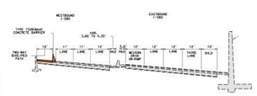


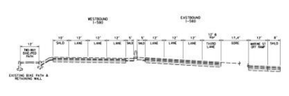


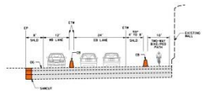












HNTB

Air Quality Conformity Task Force Meeting
February 25, 2016

Claremont Conference Room, 2nd Floor, MTC
11:00am-12:30pm

1. Introductions
   Kristen Johnson – HNTB
   Chadi Chazbek – HNTB
   Chris Lillie – BATA
   Scott Lane – MTC Policy Advisory Council
   Dick Fahey – Caltrans
   Darryl Yip – MTC
   Adam Crenshaw – MTC
   Harold Brazil – MTC

   On the phone:
   Amir Fanai – BAAQMD
   Andrea Gordon – BAAQMD
   Ginger Vagenas – EPA
   Rodney Tavitas – Caltrans
   Ted Mately – FTA

2. Presentation of Richmond-San Rafael Bridge Access Improvement Project (Chadi Chazbek, HNTB)

3. Task Force Questions/Comments
   1) Dick Fahey, MTC
      i. **Project Assessment Form: Surrounding Land Use, Traffic Generators –** Revise "The primary traffic through the project area is commuters traveling to and from San Francisco" to "…to and from Marin and Contra Costa Counties".
      ii. ***HNTB agreed to incorporate these comments.*** Comment misstated. Main traffic is from Marin to Contra Costa Counties. Traffic from San Francisco represents less than 10% of traffic over the Richmond-San Rafael Bridge.

   2) Scott Lane, MTC Policy Advisory Council
      i. Has the project team evaluated the possibility of converting the third-lane to an HOV/carpool lane? If not, could the project team still evaluate the potential for a carpool lane during the evaluation of the pilot project? Induced demand may be a potential impact from adding additional capacity. Carpool lanes address regional goals for reduction in single-occupancy vehicle trips.
      ii. Are there other shoulder running lane pilot projects in the state?
      iii. HNTB noted that there is one other similar project on I-805. MTC stated that early discussions considered HOV lanes, but the relatively short segment is not substantial enough to contribute to a large shift in driver behavior. Revisiting high occupancy vehicle lanes may be a consideration. HNTB added that HOV lane infrastructure should be connected a larger network.

3) Darrell Yip, MTC
    i. What are the on-ramp and off-ramp access points?
    ii. HNTB described on-ramp access at Sir Francis Drake and Main Street.

4) Ginger Vagenas, EPA
    i. **Project Assessment Form: Comments/Explanations/Details –** Revise Section 1 to reflect that the EPA/FHWA truck AADT threshold is not a hard line rule for truck volumes. Truck volumes relative to the threshold are evaluated on a case-by-case basis.
    ii. **Project Assessment Form: Comments/Explanations/Details –** Revise Section 5 to reflect that the Bay Area is still non-attainment zone for PM2.5, despite the 2013 EPA final rule. The project is still subject to regional air conformity review processes including Task Force consultation. The word therefore should be removed.
    iii. ***HNTB agreed to incorporate these comments.***

5) Rodney Tavitas, Caltrans
    i. **Project Assessment Form -** Language in Sections 1-5 should be revised to reflect 2015 EPA PM2.25 Guidance. Current language reflects 2006 EPA Guidance.
    ii. ***HNTB agreed to incorporate these comments.***

6) Harold Brazil, MTC
    i. Please comment on preparation of Air Quality Report and findings. Was a PM2.5 analysis conducted for the report?
    ii. HNTB confirmed that PM2.5 and CO analyses were conducted, and traffic analyses were used to determine the air quality impacts. Caltrans District 4 completed a first round review of the Draft Air Quality Report in February 2016 with minor comments.

Final Action:

1. **Richmond-San Rafael Bridge Access Improvement Project is not a project of air quality concern, by unanimous agreement.**
2. **HTNB to provide revised PM2.5 Project Assessment Form for record.**

40 CFR 93.126 Exempt Projects List

County	TIP ID	Sponsor	Project Name	Project Description	Expanded Description	Project Type under 40 CFR 93.126
ALA	ALA110136	Union City	Traffic Signal Improvements HSIP7-04-027	HSIP7-04-027: Traffic signal upgrades at the intersections of Decoto Road/Perry Road and Whipple Road/Central Avenue.	Upgrade visibility and safety of existing traffic signals by removal of pedestal mounted signal heads, install new mast arms to accommodate additional signal head installation, install new street lights on the mast arm poles and related improvements	Safety - Safety improvement program
CC	CC-110111	CC County	Marsh Creek Road Traffic Safety Improvements	Project ID: HSIP7-04-007 Installl centerline rumble strips/stripes along Marsh Creek Road; Add lighting at the Deer Valley Road and Marsh Creek Road Intersection.	Project ID: HSIP7-04-007 Construct Marsh Creek Road Traffic Safety Improvements: Install centerline rumble strips/stripes along approximately 14 miles of Marsh Creek Road from the City of Clayton to the City of Brentwood; Add street lighting and flashers at Deer Valley Road and Marsh Creek Road Intersection; Also upgrade regulatory and warning signs with the new fluorescent sheeting	Safety - Safety improvement program
SF	SF-070010	Port of SF	San Francisco Downtown Ferry Terminal	San Francisco: Downtown Ferry Terminal; Transit improvements including new intermodal transfer areas, ferry facilities, bike/ped improvements, passenger amenities and P.I. provisions.	Improvements to transit terminal facilities including structural improvements and constructing new intermodal transfer areas, ferry facilities, bike and pedestrian improvements, passenger amenities, public information, provision of emergency service areas, and historic preservation. Also to include adjacent connection improvements to other transit options and major destinations.	Mass Transit - Reconstruction or renovation of transit buildings and structures (e.g. rail or bus buildings, storage and maintenance facilities, stations, terminals, and ancillary structures)
SF	SF-150017	SFDPH	SF Safe Routes to School 2017-2019 Non-Infrastruct	San Francisco: Citywide: Implement a pilot proposal that includes innovative educational, encouragement, and evaluation activities and deliverables to increase safe walking and biking by schoolchildren and their families for school years 2017-2019.	San Francisco: Citywide: SFDPH will provide leadership on behalf of a SF Safe Routes to School Partnership to implement a pilot project over two years that includes education, encouragement, and evaluation. The overall purpose of the SF Safe Routes to School (SF SRTS) program is to increase safe walking and biking by schoolchildren and their families to and from school. The purpose of the new project is to implement new pilot projects, including SRTS neighborhood task forces, neighborhood skills building and outreach events, Safe Passage corner captains program, City Streets Investigators curricula, bike physical education in middle and high schools, and staff at SFUSD to implement SRTS districtwide.	Other - Specific activities which do not involve or lead directly to construction, such as: Planning and technical studies; Grants for training and research programs; Planning activities conducted pursuant to Titles 23 and 49 U.S.C. Federal-aid systems revisions
SOL	SOL050009	Dixon	Parkway Blvd/UPRR Grade Separation	In Dixon: Parkway Blvd; New roadway Overcrossing of UPRR & Porter Rd (4 lanes)	In Dixon: Parkway Blvd; New roadway Overcrossing of UPRR & Porter Rd (4 lanes)	Safety - Railroad/highway crossing

METROPOLITAN
TRANSPORTATION
COMMISSION

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Memorandum

TO: Air Quality Conformity Task Force DATE: April 28, 2016

FR: Adam Crenshaw

RE: Review of the Regional Conformity Status for New Projects

Staff has prepared the following information in an effort to streamline the review of the regional air quality conformity implications of projects that staff proposes to revise or add into the 2015 TIP through current or future revisions. This item is for advisory purposes only. The inclusion of these projects and project changes in a proposed revision to the TIP is subject to Commission approval in the case of amendments and MTC's Executive Director or Deputy Executive Director in the case of administrative modifications. The final determination of the regional air quality conformity status of these projects will be made by the Federal Highway Administration, the Federal Transit Administration and the Environmental Protection Agency as part of their review of proposed final TIP amendments and by the Executive Director or Deputy Executive Director as part of their review for TIP administrative modifications.

Projects Staff is Proposing to Include in the 2015 TIP

Staff has received requests from sponsors to add six new individually listed projects and 75 new group listed projects to the 2015 TIP. Attachment A includes a list of these 81 projects along with the regional air quality category that staff believes best describes the projects.

MTC staff is not seeking a determination on the status of these projects for project-level conformity purposes with this item.

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Item 3a - Attachment A						
County	**TIP ID/FMS ID**	**Sponsor**	**Project Name**	**Project Description**	**Project Expanded Description**	**Project Type**
Proposed New Individually Listed Projects for Regional Air Quality Conformity Status Review						
Alameda	6328	LAVTA	Wheels Individualized Marketing Program	LAVTA: Systemwide: Implement a multi-pronged marketing program directed at key subsets of the riding public with the goal of converting non-users to public transit passengers	The plan has three parts - Indivdiualized Marketing on the 10, Route 580X and at Las Positas College. The plan includes two frequent service bus routes in three key corridor areas that directly serve the Dublin/Pleasanton BART Station. The corridors have 51,000 households within a 5 minute walk of a bus stop. To reach these potential riders, Wheels will promote transit and other commute alternatives through targeted, customized marketing methods called Individualized Marketing. Wheels and Las Positas College plan to launch a new semester pass. The semester pass offers students and staff free rides on Wheels services during the semester. The pass will initially be a photo ID flash pass that will be shown to the driver upon boarding. To market to the 8000+ targeted riders, Wheels will be developing a direct mailer, Las Positas Express advertising and targeted digital marketing. Wheels and Las Positas College plan to launch a new semester pass. The semester pass offers students and staff free rides on Wheels services during the semester. The pass will initially be a photo ID flash pass that will be shown to the driver upon boarding. To market to the 8000+ targeted riders, Wheels will be developing a direct mailer, Las Positas Express advertising and targeted digital marketing. On the 580X, to promote the new line, a direct mailing with an incentive will be sent to residents within ¼ mile of the new route. In addition targeted advertising will run in the Independent and at the East and West Dublin BART Stations.	EXEMPT (40 CFR 93.126) - Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities)
Alameda	6319	Union City Transit	Union City Transit: Single Point Login Terminals	Union City Transit: Systemwide Revenue Transit Vehicles: Implement Single Point Login Terminals, Including Equipment and Programming for Clipper Card.	Union City Transit will receive Clipper Card in late calendar year 2016 or early calendar year 2017. The Clipper Card transponders that will be installed on the vehicles have new capabilities that previous versions have not had, including integration with an operator single point login terminal. The East Bay operators added to Clipper Card in 2015, the 101 corridor operators added to Clipper Card in 2016, and VTA have the same version that Union City Transit will receive and they have expressed an interest in integrating the Clipper Card as part of the operator login process as well. Union City Transit would be contributing to this joint effort to fund the additional equipment installation and programming by Cubic to make this happen.	EXEMPT (40 CFR 93.126) - Perchase of operating equipment for vehicles (e.g., radios, fareboxes, lifts, etc.)
Contra Costa	6309	BART	Concord Yard Wheel Truing Facility	BART: Concord Yard: Construct a wheel truing facility which will house a dual-guage wheel truing machine to service both BART and eBART vehicle wheels.	Currently BART has the capacbility to re-true wheels at three different locations, Daly City Yard, Richmond Yard, and the Hayward Yard. These three locations have a wheel-truing machine located on site to resurface flat and worn spots of the existing Revenue Vehicle wheels. This project will construct and provide wheel truing functionality at the Concord Yard to service BART and eBART vehicle wheels.	EXEMPT (40 CFR 93.126) - Purchase of office, shop and operating equipment for existing facilities
Contra Costa	6312	ECCTA	Non-ADA Paratransit to FR Incentive Program	ECCTA: Systemwide: Use outreach, travel training and fare incentives to move non-ADA paratransit users to FR service	Staff proposes to program these TPI funds to uses that would inform, train and incentivize the non-ADA Dial-a-Ride user population to take fixed route instead. This would increase the service efficiency for both this subset of Tri Delta Transit patrons as well as for ECCTA itself and reduce the demand for more costly, specialized service. Every passenger trip transferred from the Dial-a-Ride service to the fixed route system saves the passenger time and money and saves Tri Delta Transit money as well. And, it utilizes available, unused capacity on the fixed route system.	EXEMPT (40 CFR 93.126) - Transportation enhancement activities (except rehabilitation and operation of historic transportation buildings, structures, or facilities)

Item 3a - Attachment A						
County	**TIP ID/FMS ID**	**Sponsor**	**Project Name**	**Project Description**	**Project Expanded Description**	**Project Type**
Marin	6081	Novato	Vineyard Rd Improvements	Novato: Vineyard Road from Wilson Avenue to Sutro Avenue: Perform pavement maintenance, install bicycle lanes, and property owner-funded frontage improvements.	Novato: Vineyard Road from Wilson Avenue to Sutro Avenue: Perform pavement maintenance, install bicycle lanes, and property owner-funded frontage improvements. ADA improvements, including accessible curb ramps will be included within the project limits.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Sonoma	6308	Santa Rosa CityBus	Implementation of Reimagining CityBus	Santa Rosa CityBus: Systemwide: Operating Assistance for implementing Reimagining CityBus	The Reimagining CityBus project began with a system wide assessment and analysis to evaluate current efficiencies and traffic routes. A massive community outreach component was executed as well so we could hear from our riders. Both of these parts of the project resulted in the presentation to the Santa Rosa City Council of three possible scenarios for new or expanded service in Santa Rosa. The public hearing approving the final selection of new routes and service goes before City Council in May 2016. Full implementation will be completed by September 2016.	EXEMPT (40 CFR 93.126) - Operating assistance to transit agencies
Proposed New Group Listed Projects for Regional Air Quality Conformity Status Review						
Alameda	VAR110001	Caltrans	SHOPP Mobility	In Hayward, at 500 feet north of Industrial Parkway West. Install weigh-in-motion system in both directions. (G13 Contingency Project)	In Hayward, at 500 feet north of Industrial Parkway West. Install weigh-in-motion system in both directions. (G13 Contingency Project)	EXEMPT (40 CFR 93.126) - Traffic control devices and operating assistance other than signalization projects
Alameda	VAR110001	Caltrans	SHOPP Mobility	In Emeryville and Oakland, from San Francisco-Oakland Bay Bridge Toll Plaza to north of Powell Street; also in Oakland on Routes 580 and 880, at various locations. Upgrade/replace Transportation Management System elements.	In Emeryville and Oakland, from San Francisco-Oakland Bay Bridge Toll Plaza to north of Powell Street; also in Oakland on Routes 580 and 880, at various locations. Upgrade/replace Transportation Management System elements.	EXEMPT (40 CFR 93.126) - Traffic control devices and operating assistance other than signalization projects
Alameda	VAR110001	Caltrans	SHOPP Mobility	In and near Oakland and San Leandro, from Route 238 to Route 80. Install and upgrade Transportation Management System elements.	In and near Oakland and San Leandro, from Route 238 to Route 80. Install and upgrade Transportation Management System elements.	EXEMPT (40 CFR 93.126) - Traffic control devices and operating assistance other than signalization projects
San Francisco	VAR110001	Caltrans	SHOPP Mobility	In the City and County of San Francisco, from Junipero Serra Boulevard to Lake Street. Upgrade and interconnect traffic signals.	In the City and County of San Francisco, from Junipero Serra Boulevard to Lake Street. Upgrade and interconnect traffic signals.	EXEMPT (40 CFR 93.128) - Traffic signal synchronization projects
Sonoma	VAR110001	Caltrans	SHOPP Mobility	Near Vallejo, at east of Route 121. Replace Weigh In Motion (WIM) systems.	Near Vallejo, at east of Route 121. Replace Weigh In Motion (WIM) systems.	EXEMPT (40 CFR 93.126) - Traffic control devices and operating assistance other than signalization projects
Various	VAR110001	Caltrans	SHOPP Mobility	In various counties, on various routes, at various locations. On-call service contract to restore non-operational Transportation Management System elements.	In various counties, on various routes, at various locations. On-call service contract to restore non-operational Transportation Management System elements.	EXEMPT (40 CFR 93.126) - Traffic control devices and operating assistance other than signalization projects
Alameda	VAR110003	Caltrans	SHOPP Roadway Preservation	In Fremont, from south of Scott Creek Road to Auto Mall Parkway. Rehabilitate roadway.	In Fremont, from south of Scott Creek Road to Auto Mall Parkway. Rehabilitate roadway.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Alameda	VAR110003	Caltrans	SHOPP Roadway Preservation	In and near Fremont, from Auto Mall Parkway to Koopman Road. Rehabilitate roadway.	In and near Fremont, from Auto Mall Parkway to Koopman Road. Rehabilitate roadway.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation

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County	**TIP ID/FMS ID**	**Sponsor**	**Project Name**	**Project Description**	**Project Expanded Description**	**Project Type**
Alameda	VAR110003	Caltrans	SHOPP Roadway Preservation	Near Livermore, from San Joaquin county line to east of Greenville overcrossing; also on Route 205 (PM 0.0/1.0) from San Joaquin county line to Midway Road undercrossing. Environmental mitigation for EA 3G590.	Near Livermore, from San Joaquin county line to east of Greenville overcrossing; also on Route 205 (PM 0.0/1.0) from San Joaquin county line to Midway Road undercrossing. Environmental mitigation for EA 3G590.	EXEMPT (40 CFR 93.126) - Planting, Landscaping, etc.
Alameda	VAR110003	Caltrans	SHOPP Roadway Preservation	In and near Pleasanton and Dublin, from north of Route 84 to Alcosta Boulevard. Roadway rehabilitation.	In and near Pleasanton and Dublin, from north of Route 84 to Alcosta Boulevard. Roadway rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Contra Costa	VAR110003	Caltrans	SHOPP Roadway Preservation	In Concord, from Route 680 to Route 4. Pavement rehabilitation.	In Concord, from Route 680 to Route 4. Pavement rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Marin	VAR110003	Caltrans	SHOPP Roadway Preservation	Near Point Reyes Station and Olema, from Olema Creek Bridge to north of Cypress Road; also, near Tomales, from south of Tomales-Petaluma Road to south of Valley Ford Road (PM 45.0/50.5). Pavement rehabilitation.	Near Point Reyes Station and Olema, from Olema Creek Bridge to north of Cypress Road; also, near Tomales, from south of Tomales-Petaluma Road to south of Valley Ford Road (PM 45.0/50.5). Pavement rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
San Francisco	VAR110003	Caltrans	SHOPP Roadway Preservation	In the City and County of San Francisco, from north of Lake Street to south of Route 101 at the McArthur Tunnel. Replace existing lighting system with LED lighting system.	In the City and County of San Francisco, from north of Lake Street to south of Route 101 at the McArthur Tunnel. Replace existing lighting system with LED lighting system.	EXEMPT (40 CFR 93.126) - Lighting Improvements
San Mateo	VAR110003	Caltrans	SHOPP Roadway Preservation	Near Pescadero, from Santa Cruz County Line to south of Bean Hollow Road. Pavement rehabilitation.	Near Pescadero, from Santa Cruz County Line to south of Bean Hollow Road. Pavement rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
San Mateo	VAR110003	Caltrans	SHOPP Roadway Preservation	In the cities of Burlingame, Millbrae, San Bruno and South San Francisco, from Broadway to Oyster Point Boulevard. Pavement rehabilitation.	In the cities of Burlingame, Millbrae, San Bruno and South San Francisco, from Broadway to Oyster Point Boulevard. Pavement rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Santa Clara	VAR110003	Caltrans	SHOPP Roadway Preservation	In San Jose, from McKendrie Street to Lawrence Expressway. Pavement rehabilitation.	In San Jose, from McKendrie Street to Lawrence Expressway. Pavement rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Santa Clara	VAR110003	Caltrans	SHOPP Roadway Preservation	In and Near Los Altos, Los Altos Hills, and Palo Alto, from Foothill Boulevard to north of Sand Hill Road (also, in San Mateo County PM R0.0/R2.1). Pavement rehabilitation.	In and Near Los Altos, Los Altos Hills, and Palo Alto, from Foothill Boulevard to north of Sand Hill Road (also, in San Mateo County PM R0.0/R2.1). Pavement rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Santa Clara	VAR110003	Caltrans	SHOPP Roadway Preservation	In and near Los Gatos, Campbell and San Jose, from Hebard Way to Route 280. Pavement rehabilitation. (G13 Contingency Project)	In and near Los Gatos, Campbell and San Jose, from Hebard Way to Route 280. Pavement rehabilitation. (G13 Contingency Project)	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Sonoma	VAR110003	Caltrans	SHOPP Roadway Preservation	In and near Windsor, Healdsburg, and Cloverdale, from Old Redwood Highway to 2 miles south of Mendocino County line. Roadway rehabilitation.	In and near Windsor, Healdsburg, and Cloverdale, from Old Redwood Highway to 2 miles south of Mendocino County line. Roadway rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Sonoma	VAR110003	Caltrans	SHOPP Roadway Preservation	In and near Sonoma, from Vallejo Avenue to east of Leveroni Road/Napa Road. Pavement rehabilitation.	In and near Sonoma, from Vallejo Avenue to east of Leveroni Road/Napa Road. Pavement rehabilitation.	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation

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County	**TIP ID/FMS ID**	**Sponsor**	**Project Name**	**Project Description**	**Project Expanded Description**	**Project Type**
Alameda	VAR110004	Caltrans	SHOPP Collision	In various cities, on Routes 13, 61, and 123 at various locations; also in Contra Costa County, on Route 123, at Eureka Avenue. Crosswalk safety enhancements.	In various cities, on Routes 13, 61, and 123 at various locations; also in Contra Costa County, on Route 123, at Eureka Avenue. Crosswalk safety enhancements.	EXEMPT (40 CFR 93.126) - Pavement Markings
Alameda	VAR110004	Caltrans	SHOPP Collision	In various cities, on various routes, at various locations. Crosswalk safety enhancements.	In various cities, on various routes, at various locations. Crosswalk safety enhancements.	EXEMPT (40 CFR 93.126) - Pavement Markings
Alameda	VAR110004	Caltrans	SHOPP Collision	In Oakland, San Leandro, Hayward and Fremont on Routes 84, 92, 112, 185 and 238 at various locations. Crosswalk safety enhancements.	In Oakland, San Leandro, Hayward and Fremont on Routes 84, 92, 112, 185 and 238 at various locations. Crosswalk safety enhancements.	EXEMPT (40 CFR 93.126) - Pavement Markings
Alameda	VAR110004	Caltrans	SHOPP Collision	In Oakland, San Leandro, Hayward, Union City and Fremont on Routes 185, 238, and 262 at various locations. Crosswalk safety enhancements.	In Oakland, San Leandro, Hayward, Union City and Fremont on Routes 185, 238, and 262 at various locations. Crosswalk safety enhancements.	EXEMPT (40 CFR 93.126) - Pavement Markings
Alameda	VAR110004	Caltrans	SHOPP Collision	In Fremont, from north of Auto Mall Parkway to south of Fremont Boulevard at various locations. Highway worker safety improvements.	In Fremont, from north of Auto Mall Parkway to south of Fremont Boulevard at various locations. Highway worker safety improvements.	EXEMPT (40 CFR 93.126) - Shoulder Improvements
Contra Costa	VAR110004	Caltrans	SHOPP Collision	In and near Walnut Creek, Pleasant Hill, and Concord, from Olympic Boulevard to Arthur Road. Install safety lighting.	In and near Walnut Creek, Pleasant Hill, and Concord, from Olympic Boulevard to Arthur Road. Install safety lighting.	EXEMPT (40 CFR 93.126) - Lighting Improvements
Contra Costa	VAR110004	Caltrans	SHOPP Collision	In various cities from the Alameda County line to the Solano County line; also on Route 242, 580, and 680 at various locations. Construct maintenance worker safety improvements	In various cities from the Alameda County line to the Solano County line; also on Route 242, 580, and 680 at various locations. Construct maintenance worker safety improvements	EXEMPT (40 CFR 93.126) - Shoulder Improvements
San Francisco	VAR110004	Caltrans	SHOPP Collision	In the City of San Francisco, on Routes 1, 35, 80, 101 and 280 at various locations. Crosswalk safety enhancements.	In the City of San Francisco, on Routes 1, 35, 80, 101 and 280 at various locations. Crosswalk safety enhancements.	EXEMPT (40 CFR 93.126) - Pavement Markings
San Mateo	VAR110004	Caltrans	SHOPP Collision	In and near Woodside, at various locations (also Santa Clara County PM 20.4); also in the City and County of San Francisco on Route 101 at San Bruno Avenue off-ramp (PM 1.7). Construct maintenance worker safety improvements.	In and near Woodside, at various locations (also Santa Clara County PM 20.4); also in the City and County of San Francisco on Route 101 at San Bruno Avenue off-ramp (PM 1.7). Construct maintenance worker safety improvements.	EXEMPT (40 CFR 93.126) - Shoulder Improvements
Santa Clara	VAR110004	Caltrans	SHOPP Collision	In San Jose and Milpitas, from Route 101 to Scott Creek Road at various locations. Construct maintenance worker safety improvements.	In San Jose and Milpitas, from Route 101 to Scott Creek Road at various locations. Construct maintenance worker safety improvements.	EXEMPT (40 CFR 93.126) - Shoulder Improvements
Santa Clara	VAR110004	Caltrans	SHOPP Collision	Near Gilroy, from east of Dunne Street/San Felipe Road to the Merced County line. Place median barrier.	Near Gilroy, from east of Dunne Street/San Felipe Road to the Merced County line. Place median barrier.	EXEMPT (40 CFR 93.126) - Guardrails, median barriers, crash cushions
Sonoma	VAR110004	Caltrans	SHOPP Collision	In Sonoma County on Routes 12, 101, 116 and 121 at various locations; also, in Napa County on Route 128 near Calistoga from PM 0.5 to 1.0. Place high friction surface treatment.	In Sonoma County on Routes 12, 101, 116 and 121 at various locations; also, in Napa County on Route 128 near Calistoga from PM 0.5 to 1.0. Place high friction surface treatment.	EXEMPT (40 CFR 93.126) - Skid treatments

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County	**TIP ID/FMS ID**	**Sponsor**	**Project Name**	**Project Description**	**Project Expanded Description**	**Project Type**
Sonoma	VAR110004	Caltrans	SHOPP Collision	In various cities on Routes 12, 101, and 116 at various locations; also in Marin County on Route 101 at various locations. Highway worker safety improvements.	In various cities on Routes 12, 101, and 116 at various locations; also in Marin County on Route 101 at various locations. Highway worker safety improvements.	EXEMPT (40 CFR 93.126) - Shoulder Improvements
Alameda	VAR110005	Caltrans	SHOPP Emergency Response	Near Castro Valley, at Route 238 Separation (Bridge No. 33-0214L). Repair joint seal assemblies.	Near Castro Valley, at Route 238 Separation (Bridge No. 33-0214L). Repair joint seal assemblies.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Alameda	VAR110005	Caltrans	SHOPP Emergency Response	In Oakland, at 23rd Avenue Overcrossing South and North (Bridge No. 33-0139 and 33-0149). Replace bridge railings and fence.	In Oakland, at 23rd Avenue Overcrossing South and North (Bridge No. 33-0139 and 33-0149). Replace bridge railings and fence.	EXEMPT (40 CFR 93.126) - Guardrails, median barriers, crash cushions
Alameda	VAR110005	Caltrans	SHOPP Emergency Response	In Alameda, Contra Costa, Marin, Napa, Solano and Sonoma Counties, on Routes 1, 4, 12, 80, 101, 242, 580, 680, and 880 at various locations. Drought conservation improvements.	In Alameda, Contra Costa, Marin, Napa, Solano and Sonoma Counties, on Routes 1, 4, 12, 80, 101, 242, 580, 680, and 880 at various locations. Drought conservation improvements.	EXEMPT (40 CFR 93.126) - Planting, Landscaping, etc.
Contra Costa	VAR110005	Caltrans	SHOPP Emergency Response	In Pittsburg, at Railroad Avenue. Drought conservation improvements.	In Pittsburg, at Railroad Avenue. Drought conservation improvements.	EXEMPT (40 CFR 93.126) - Planting, Landscaping, etc.
Napa	VAR110005	Caltrans	SHOPP Emergency Response	Near Winters, from 1.4 miles west to 0.5 mile east of the Solano County line; also in Solono County (PM 0.0/0.5). Clear mudslide.	Near Winters, from 1.4 miles west to 0.5 mile east of the Solano County line; also in Solono County (PM 0.0/0.5). Clear mudslide.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
San Francisco	VAR110005	Caltrans	SHOPP Emergency Response	In San Francisco, San Mateo, and Santa Clara Counties, on various routes at various locations. Drought conservation improvements.	In San Francisco, San Mateo, and Santa Clara Counties, on various routes at various locations. Drought conservation improvements.	EXEMPT (40 CFR 93.126) - Planting, Landscaping, etc.
San Mateo	VAR110005	Caltrans	SHOPP Emergency Response	In Daly City, at Clarinada Avenue. Repair slope washout and drainage system.	In Daly City, at Clarinada Avenue. Repair slope washout and drainage system.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Santa Clara	VAR110005	Caltrans	SHOPP Emergency Response	Near Los Gatos, at Chemeketa Park 1.6 miles north of the Santa Cruz County line. Repair embankment erosion with rock buttress and drainage improvements.	Near Los Gatos, at Chemeketa Park 1.6 miles north of the Santa Cruz County line. Repair embankment erosion with rock buttress and drainage improvements.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Santa Clara	VAR110005	Caltrans	SHOPP Emergency Response	In San Jose, at 0.2 mile north of Canoas Creek Bridge. Repair culvert and sinkhole.	In San Jose, at 0.2 mile north of Canoas Creek Bridge. Repair culvert and sinkhole.	EXEMPT (40 CFR 93.126) - Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functiona, locational or capacity changes.
Santa Clara	VAR110005	Caltrans	SHOPP Emergency Response	In San Jose, at southbound Route 280 to southbound Route 87. Restore soundwall facilities damaged by fire.	In San Jose, at southbound Route 280 to southbound Route 87. Restore soundwall facilities damaged by fire.	EXEMPT (40 CFR 93.126) - Repair of damage caused by natural disasters, civil unrest, or terrorist acts, except projects involving substantial functiona, locational or capacity changes.
Santa Clara	VAR110005	Caltrans	SHOPP Emergency Response	In San Jose, at Route 101 separation; also on Route 101 (PM 37.9/38.5). Drought conservation improvements.	In San Jose, at Route 101 separation; also on Route 101 (PM 37.9/38.5). Drought conservation improvements.	EXEMPT (40 CFR 93.126) - Planting, Landscaping, etc.
Solano	VAR110005	Caltrans	SHOPP Emergency Response	In Fairfield, at Green Valley Creek Bridge No. 23-0004. Repair abutment erosion.	In Fairfield, at Green Valley Creek Bridge No. 23-0004. Repair abutment erosion.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Alameda	VAR110042	Caltrans	SHOPP Mandates	In Berkeley, from Shattuck Avenue to 7th Street. Upgrade curb ramps and sidewalks.	In Berkeley, from Shattuck Avenue to 7th Street. Upgrade curb ramps and sidewalks.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature

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County	**TIP ID/FMS ID**	**Sponsor**	**Project Name**	**Project Description**	**Project Expanded Description**	**Project Type**
Alameda	VAR110042	Caltrans	SHOPP Mandates	In Oakland and Berkeley, from Hiller Drive to Claremont Avenue at various locations. Upgrade ADA facilities. (G13 Contingency Project)	In Oakland and Berkeley, from Hiller Drive to Claremont Avenue at various locations. Upgrade ADA facilities. (G13 Contingency Project)	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Alameda	VAR110042	Caltrans	SHOPP Mandates	In Berkeley, from Claremont Avenue to west of Shattuck Avenue. Upgrade curb ramps and repair sidewalks to meet ADA standards.	In Berkeley, from Claremont Avenue to west of Shattuck Avenue. Upgrade curb ramps and repair sidewalks to meet ADA standards.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Alameda	VAR110042	Caltrans	SHOPP Mandates	In Oakland and San Leandro, from Plaza Drive to 55th Avenue; also in Contra Costa County, in El Cerrito on Route 123 (PM 0.18/0.29) and in Pleasant Hill on Route 680 (PM 16.85), at various locations. Reinstall and/or upgrade existing curb ramps and sidewalks to ADA standards.	In Oakland and San Leandro, from Plaza Drive to 55th Avenue; also in Contra Costa County, in El Cerrito on Route 123 (PM 0.18/0.29) and in Pleasant Hill on Route 680 (PM 16.85), at various locations. Reinstall and/or upgrade existing curb ramps and sidewalks to ADA standards.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
San Mateo	VAR110042	Caltrans	SHOPP Mandates	Near Redwood City, north of Edgewood Road; also on Route 84 from Hildebrand Road to north of La Honda Creek Bridge (PM 9.4/10.0). Stabilize soil and erosion control to mitigate for storm water quality.	Near Redwood City, north of Edgewood Road; also on Route 84 from Hildebrand Road to north of La Honda Creek Bridge (PM 9.4/10.0). Stabilize soil and erosion control to mitigate for storm water quality.	EXEMPT (40 CFR 93.126) - Planting, Landscaping, etc.
Santa Clara	VAR110042	Caltrans	SHOPP Mandates	In Cupertino, Sunnyvale and Mountain View, from Stevens Creek Boulevard to Route 101; also in various cities, on Route 80 (PM 2.5/8.0), at various locations. Install and/or upgrade existing curb ramps and pedestrian facilities to ADA standards.	In Cupertino, Sunnyvale and Mountain View, from Stevens Creek Boulevard to Route 101; also in various cities, on Route 80 (PM 2.5/8.0), at various locations. Install and/or upgrade existing curb ramps and pedestrian facilities to ADA standards.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Sonoma	VAR110042	Caltrans	SHOPP Mandates	Near Monte Rio and Cloverdale, on Routes 116 and 128; also in Marin County, on Route 101, at 0.4 mile north of Sir Francis Drake Boulevard (PM 9.25). Stabilized soil and erosion control to mitigate for storm water quality.	Near Monte Rio and Cloverdale, on Routes 116 and 128; also in Marin County, on Route 101, at 0.4 mile north of Sir Francis Drake Boulevard (PM 9.25). Stabilized soil and erosion control to mitigate for storm water quality.	EXEMPT (40 CFR 93.126) - Planting, Landscaping, etc.
Alameda	VAR110044	Caltrans	SHOPP Bridge Preservation	Near Livermore, near Greenville Road at Greenville Overhead Bridge No. 33-0121R. Rehabilitate westbound structure.	Near Livermore, near Greenville Road at Greenville Overhead Bridge No. 33-0121R. Rehabilitate westbound structure.	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Alameda	VAR110044	Caltrans	SHOPP Bridge Preservation	In Fremont, from 0.5 mile south to 0.5 mile north of Patterson Slough Bridge No. 33-0250 (PM 11.8). Bridge rehabilitation. (G13 Contingency Project)	In Fremont, from 0.5 mile south to 0.5 mile north of Patterson Slough Bridge No. 33-0250 (PM 11.8). Bridge rehabilitation. (G13 Contingency Project)	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Alameda	VAR110044	Caltrans	SHOPP Bridge Preservation	Near Sunol, at Arroyo De La Laguna Bridge No. 33-0043. Bridge scour mitigation and bridge rail upgrade.	Near Sunol, at Arroyo De La Laguna Bridge No. 33-0043. Bridge scour mitigation and bridge rail upgrade.	EXEMPT (40 CFR 93.126) - Guardrails, median barriers, crash cushions
Contra Costa	VAR110044	Caltrans	SHOPP Bridge Preservation	In Richmond, at Stege Drain Bridge No. 28-0091. Bridge rehabilitation.	In Richmond, at Stege Drain Bridge No. 28-0091. Bridge rehabilitation.	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)

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County	**TIP ID/FMS ID**	**Sponsor**	**Project Name**	**Project Description**	**Project Expanded Description**	**Project Type**
Napa	VAR110044	Caltrans	SHOPP Bridge Preservation	Near Napa, at Capell Creek Bridge No. 21-0064. Bridge rehabilitation.	Near Napa, at Capell Creek Bridge No. 21-0064. Bridge rehabilitation.	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Napa	VAR110044	Caltrans	SHOPP Bridge Preservation	Near Calistoga, at Garnett Creek Bridge No. 21-0005. Bridge preventative maintenance.	Near Calistoga, at Garnett Creek Bridge No. 21-0005. Bridge preventative maintenance.	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Napa	VAR110044	Caltrans	SHOPP Bridge Preservation	In and near Saint Helena and Calistoga, at Mill Creek Bridge No. 21-0056, Garnett Creek Branch Bridge No. 21-0111, and No Name Creek Bridge No. 21-0100. Bridge preventive maintenance.	In and near Saint Helena and Calistoga, at Mill Creek Bridge No. 21-0056, Garnett Creek Branch Bridge No. 21-0111, and No Name Creek Bridge No. 21-0100. Bridge preventive maintenance.	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
San Francisco	VAR110044	Caltrans	SHOPP Bridge Preservation	In the City and County of San Francisco, at the Central Viaduct (No. 34-0077) from south of 17th Street to S. Van Ness Avenue ; also, on Route 80 at the Bayshore Viaduct (No. 34-0088) from Route 101 to 4th Street (PM 3.9/4.8). Paint superstructure steel members.	In the City and County of San Francisco, at the Central Viaduct (No. 34-0077) from south of 17th Street to S. Van Ness Avenue ; also, on Route 80 at the Bayshore Viaduct (No. 34-0088) from Route 101 to 4th Street (PM 3.9/4.8). Paint superstructure steel members.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Santa Clara	VAR110044	Caltrans	SHOPP Bridge Preservation	In various cities, on Routes 101 and 237 at various locations. Bridge rail upgrade at 8 locations. (G13 Contingency Project)	In various cities, on Routes 101 and 237 at various locations. Bridge rail upgrade at 8 locations. (G13 Contingency Project)	EXEMPT (40 CFR 93.126) - Guardrails, median barriers, crash cushions
Santa Clara	VAR110044	Caltrans	SHOPP Bridge Preservation	In San Jose, at Bird Avenue Overcrossing Bridge No. 37-0267 (PM R2.78); also in Los Altos Hills at Arastradero Road Undercrossing Bridge No. 37-0251 L/R (PM 17.8). Bridge seismic restoration.	In San Jose, at Bird Avenue Overcrossing Bridge No. 37-0267 (PM R2.78); also in Los Altos Hills at Arastradero Road Undercrossing Bridge No. 37-0251 L/R (PM 17.8). Bridge seismic restoration.	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Santa Clara	VAR110044	Caltrans	SHOPP Bridge Preservation	In various cities on various routes at Saratoga Creek Bridge, Carnadero Creek Bridge, San Francisco Creek Bridge, San Tomas Aquino Creek Bridge, and Bodfish Creek Bridge. Bridge preventative maintenance.	In various cities on various routes at Saratoga Creek Bridge, Carnadero Creek Bridge, San Francisco Creek Bridge, San Tomas Aquino Creek Bridge, and Bodfish Creek Bridge. Bridge preventative maintenance.	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Solano	VAR110044	Caltrans	SHOPP Bridge Preservation	In Vallejo, from Magazine Street Overcrossing (No. 23-0066) to Redwood Street Overcrossing (No. 23-0114). Increase vertical clearance at six overcrossing structures.	In Vallejo, from Magazine Street Overcrossing (No. 23-0066) to Redwood Street Overcrossing (No. 23-0114). Increase vertical clearance at six overcrossing structures.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Solano	VAR110044	Caltrans	SHOPP Bridge Preservation	Near Fairfield, at Suisun Creek Bridge No. 23-0007. Scour mitigation.	Near Fairfield, at Suisun Creek Bridge No. 23-0007. Scour mitigation.	EXEMPT (40 CFR 93.126) - Projects that correct, improve, or eliminate a hazardous location or feature
Solano	VAR110044	Caltrans	SHOPP Bridge Preservation	In and near Vallejo, Dixon and Vacaville, at Route 80/29 Separation Bridge No. 23-0087, McCune Creek Bridge No. 23-0084 L/R and Horse Creek Bridge No. 23-0077 L. Bridge preventative maintenance.	In and near Vallejo, Dixon and Vacaville, at Route 80/29 Separation Bridge No. 23-0087, McCune Creek Bridge No. 23-0084 L/R and Horse Creek Bridge No. 23-0077 L. Bridge preventative maintenance.	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)

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Contra Costa	VAR110045	Pinole	BRIDGE NO. 28C0062, SAN PABLO AVE, OVER BNSF RY AND AMTRAK, JUST W/O HERCULES AVE	Replace existing four-lane bridge with a new four-lane bridge	Replace existing four-lane bridge with a new four-lane bridge	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Contra Costa	VAR110045	Pleasant Hill	BRIDGE NO. PM00141, Bridge Preventive Maintenance Program (BPMP) various bridges in the City of Pleasant Hill	See Caltrans Local Assistance HBP website for backup list of projects	See Caltrans Local Assistance HBP website for backup list of projects	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Contra Costa	VAR110045	San Pablo	BRIDGE NO. 28C0057, SAN PABLO AVE OVER SAN PABLO CREEK, AT ROAD 20	Replace existing 6-lane bridge with a new 6-lane bridge	Replace existing 6-lane bridge with a new 6-lane bridge	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Contra Costa	VAR110045	San Pablo	BRIDGE NO. 28C0326, GIANT HWY OVER SAN PABLO CREEK, AT PARR BLVD	Preventive maintenance to include deck methacrylate and joint replacement work	Preventive maintenance to include deck methacrylate and joint replacement work	EXEMPT (40 CFR 93.126) - Pavement Resurfacing and/or rehabilitation
Marin	VAR110045	Ross	BRIDGE NO. 27C0050, SIR FRANCIS DRAKE, OVER CORTE MADERA CREEK, 3.0 MI E OF SR 101	Bridge Rehabilitation. Widen existing two-lane bridge to current standards (non-capacity increasing)	Bridge Rehabilitation. Widen existing two-lane bridge to current standards (non-capacity increasing)	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Marin	VAR110045	Ross	BRIDGE NO. 27C0072, GLENWOOD AVE, OVER ROSS CREEK, IN THE CITY OF ROSS	Bridge rehabilitation Widen existing two-lane bridge to current standards (non-capacity increasing)	Bridge rehabilitation Widen existing two-lane bridge to current standards (non-capacity increasing)	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Marin	VAR110045	Ross	BRIDGE NO. 27C0078, SHADY LANE, OVER ROSS CREEK, NEAR LOCUST ST	Bridge Rehabilitation. Widen existing two-lane bridge to current standards (non-capacity increasing)	Bridge Rehabilitation. Widen existing two-lane bridge to current standards (non-capacity increasing)	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Marin	VAR110045	Ross	BRIDGE NO. 27C0149, NORWOOD AVE, OVER ROSS CREEK, 0.1 MI N SHADY LN IN ROSS	Bridge Rehabilitation. Widen existing two-lane bridge to current standards (non-capacity increasing)	Bridge Rehabilitation. Widen existing two-lane bridge to current standards (non-capacity increasing)	EXEMPT (40 CFR 93.126) - Widening narrow pavements or reconstructing bridges (no additional tavel lanes)
Various	VAR130001	Caltrans	SHOPP Roadside Preservation	In various cities, from Route 1 to Route 101; also in Alameda, Marin, Napa, and Sonoma counties, on various routes, at various locations. Advance banking credits for environmental mitigation. Financial Contribution Only (FCO).	In various cities, from Route 1 to Route 101; also in Alameda, Marin, Napa, and Sonoma counties, on various routes, at various locations. Advance banking credits for environmental mitigation. Financial Contribution Only (FCO).	EXEMPT (40 CFR 93.126) - Planting, Landscaping, etc.

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Memorandum

TO: Air Quality Conformity Task Force DATE: April 15, 2016

FR: Harold Brazil W.I.:

RE: Approach to Conformity Analysis for the Draft 2017 Transportation Improvement Program and Plan Bay Area

MTC staff is developing the draft 2017 Transportation Improvement Program (TIP) and Plan Bay Area (Plan) conformity analysis and seeks the Air Quality Conformity Task Force's review of the proposed approach to adhere to federal conformity regulations. MTC is scheduled to release the Draft Transportation Air Quality Conformity Analysis for the 2017 TIP and *Plan Bay Area* on Wednesday, June 15, 2016. Attachment A includes a full schedule for review and approval of the conformity analysis for the draft 2017 TIP and Plan Bay Area. Staff anticipates the revisions requiring a new conformity analysis are primarily minor changes related to changes in project schedules that result in changes to the analysis years.

Background

The federally required TIP is a comprehensive listing of Bay Area surface transportation projects that receive federal funds or are subject to a federally required action or are regionally significant. MTC, as the federally designated Metropolitan Planning Organization (MPO) for the nine-county San Francisco Bay Area region, prepares and adopts the TIP at least once every four years. The TIP covers a four-year period and must be financially constrained by year, meaning that the amount of dollars committed/programmed to the projects must not exceed the amount of dollars estimated to be available. The TIP must include a financial plan that demonstrates that programmed projects can be implemented.

Transportation conformity is required under CAA section 176(c) (42 U.S.C. 7506(c)) to ensure that federally funded or approved highway and transit activities are consistent with ("conform to") the purpose of the state air quality implementation plan (SIP). Conformity to the purpose of the SIP means that transportation activities will not cause or contribute to new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones. EPA's transportation conformity rule (40 CFR Parts 51 and 93) establishes the criteria and procedures for determining whether metropolitan transportation plans, TIPs, and federally supported highway and transit projects conform to the SIP. Transportation conformity applies to designated nonattainment and maintenance areas[1] for transportation-related criteria pollutants: ozone, $PM_{2.5}$, PM_{10}, carbon monoxide, and nitrogen dioxide.[2]

[1] "Maintenance areas" are those areas that were initially designated nonattainment for a criteria pollutant and subsequently redesignated to attainment after 1990. Maintenance areas have SIPs developed under CAA section 175A.

[2] See "Transportation Conformity Guidance for 2008 OzoneNonattainment Areas"; https://www3.epa.gov/otaq/stateresources/transconf/regs/420b12045.pdf.

MTC is currently developing the draft 2017 TIP (FY 2016-17 through FY 2019-20), which includes both a financial constraint analysis and an air quality conformity analysis. The draft 2017 TIP addresses the requirements under the Fixing America's Surface Transportation Act (FAST).

Ozone Requirements

On February 13, 2015, the U.S. Environmental Protection Agency (EPA) issued a final rule that addresses a range of implementation requirements for the 2008 National Ambient Air Quality Standards (NAAQS) for ground-level ozone. The EPA set the final primary and secondary standards at 0.075 ppm on March 12, 2008.

This final rule addresses a range of nonattainment area state implementation plan (SIP) requirements for the 2008 ozone NAAQS, including requirements pertaining to attainment demonstrations, reasonable further progress (RFP), reasonably available control technology (RACT), reasonably available control measures (RACM), major new source review (NSR), emission inventories, and the timing of SIP submissions and of compliance with emission control measures in the SIP

On Oct. 1, 2015, the U.S. Environmental Protection Agency (EPA) strengthened the National Ambient Air Quality Standards (NAAQS) for ground-level ozone to 70 parts per billion (ppb), based on extensive scientific evidence about ozone's effects on public health and welfare. The updated standards will improve public health protection, particularly for at-risk groups including children, older adults, people of all ages who have lung diseases such as asthma, and people who are active outdoors, especially outdoor workers. They also will improve the health of trees, plants and ecosystems.

EPA will make recommendations on attainment designations by October 1, 2016, and issue final designations October 1, 2017. Nonattainment areas will have until 2020 to late 2037 to meet the health standard, with attainment dates varying based on the ozone level in the area.

$PM_{2.5}$ Requirements

The Bay Area's designation as nonattainment was published in the Federal Register on November 13, 2009 and the designation became effective on December 14, 2009. Nonattainment areas were required to meet the standard by 2014 and transportation conformity requirements began to apply to the Bay Area on December 14, 2010.

On February 8, 2013, EPA took final action and determined that the San Francisco Bay Area nonattainment area attained the 2006 24-hour $PM_{2.5}$ National Ambient Air Quality Standard (NAAQS). This determination was based upon complete, quality-assured, and certified ambient air monitoring data showing that this area has monitored attainment of the 2006 24-hour $PM_{2.5}$ NAAQS based on the 2009–2011 monitoring period. Based on the above determination, the requirements for the San Francisco Bay Area nonattainment area to submit an attainment demonstration (including transportation conformity emission budgets), together with reasonably available control measures (RACM), a reasonable further progress (RFP) plan, and contingency measures for failure to meet RFP and attainment deadlines were suspended for as long as the Bay Area continues to attain the 2006 24-hour $PM_{2.5}$ NAAQS.

Therefore, since approved motor vehicle emissions budgets for $PM_{2.5}$ are not available for use in this conformity analysis, MTC must complete one of the two interim emissions tests:

1. "Baseline Year Test". Emissions for each analysis year for the "Action" are less than or equal to the level of emissions in the year 2008[3]; or
2. "Build/No-Build Test". Emissions for each analysis year in the "Action" scenario are less than or equal to emissions from the "Baseline" scenario.

[3] See 40 CFR 93.119; http://www.epa.gov/otaq/stateresources/transconf/baseline.htm

Analysis Approach
MTC will review the proposed conformity approach at this April 28th Conformity Task Force meeting. MTC will review the approach with the Conformity Task Force again when we present the draft conformity analysis in May 2016. Key aspects of the conformity analysis are as follows:

1. Regional Emissions Analysis: MTC will conduct a new regional emissions analysis to conform the draft 2017 TIP and the Plan.

2. Latest Planning Assumptions: MTC will use the latest planning assumptions, including:

    - The socio-economic/land use forecast *Jobs/Housing Connection* developed by the Association of Bay Area Governments (ABAG). ABAG staff prepares master databases at the 1,405 census tract-level, and MTC staff then disaggregates these tract-level forecasts to MTC's 1,454 travel analysis zone system.
    - Updated travel demand forecasts using MTC's *Travel Model One* (version 0.5), released in winter 2016, calibrated to a 2000 base year, and calibrated and validated against both year 2005 and year 2010 observed conditions with the most up to date highway and transit networks.
    - VMT estimates used in the newly federally approved EMFAC2014 emission model will be consistent with the California Air Resources Board's (CARB) recommended adjustment methods.

3. Latest Emissions Model: MTC will apply EMFAC2014 model system to produce emission estimates.

4. Emissions Budget/Interim Emissions:

    - **Ozone:** MTC will use the 1-hour motor vehicle emissions budget from the *2001 Ozone Attainment Plan* as the 8-hour motor vehicle emissions budget to demonstrate conformity with the 8-hour ozone standard. The ozone budget for ROG and NOx was compared to quantified emissions for analysis years **2020, 2030 and 2040**.
    - **Carbon Monoxide (CO):** MTC will use the CO motor vehicle emissions budget from the 2004 Revision to the *California State Implementation Plan for Carbon Monoxide, Updated Maintenance Plan for Ten Federal Planning Areas* to determine conformity with the CO standard. The CO budget will be compared to projected emissions for analysis years **2018** (the CO Maintenance Plan horizon year), **2020, 2030 and 2040**.
    - **$PM_{2.5}$**: MTC will use the "Baseline Year Test" interim emission test to demonstrate conformity with the 24-hour $PM_{2.5}$ standard. Consistent with EPA's Transportation Conformity Rule $PM_{2.5}$ and PM_{10} Amendments; Final Rule published in the federal register in March 2010. MTC will quantify emissions for both directly emitted $PM_{2.5}$ and NOx (as the precursor to $PM_{2.5}$ emissions) and for the baseline year test, emissions from the planned transportation system are compared to emissions that occurred in the baseline year for analysis years **2020, 2030 and 2040**. The analysis will be carried out using inputs for the winter season, during which the Bay Area experiences its highest levels of $PM_{2.5}$ concentrations. MTC will present documentation regarding the projects proposed for inclusion in the Build scenarios.

5. Transportation Control Measure (TCM) Implementation: The motor vehicle emissions estimates for ROG and NOx will include the effects of TCMs A-E in the 2001 Ozone Attainment Plan. These TCMs are now fully implemented.

6. Financial Constraint: The TIP must be financially constrained by year, meaning that the amount of dollars committed to the projects (also referred as "programmed") must not exceed the amount of dollars estimated to be available. The draft 2017 TIP includes the fiscal constraint analysis. No financial changes are proposed for the Plan, so the Plan remains financially constrained in accordance with federal requirements.

7. Interagency and Public Consultation: MTC will conduct the appropriate agency and public consultation for the Draft Transportation Air Quality Conformity Analysis for the draft 2017 TIP and Plan Bay Area.

Attachment A: Draft Transportation Air Quality Conformity Analysis for the Draft 2017 Transportation Improvement Program (TIP) and Plan Bay Area

Activity	Timeline
Conformity Task Force Reviews Proposed Conformity Approach	April 28, 2016
MTC Staff Conducts Technical Analysis & Report Preparation	April-May 2016
Discuss Draft Conformity Analysis with AQCTF	June 26, 2016
Authorize Release for Public Review and Begin Public Comment Period	June 15, 2016
End of Public Comment Period	July 20, 2016
AQCTF Briefing on Responses to Comments	July 28, 2016
Committee Approval	September 14, 2016
Commission Approval	September 28, 2016
Expected FHWA/FTA Final Approval of 2017 TIP and AQ Conformity Analysis	December 16, 2016

Air Quality Conformity Task Force
Summary Meeting Notes
March 24, 2016

Participants:
Mohammad Barati – City of Oakland
Jennifer Schulte – ERM
Shalanda Christian – Caltrans
Kevin Nguyendo – Caltrans
Marilee Mortenson – Caltrans
Ken Wheeler – Wheeler Consulting
Liz Ellis – Town of Windsor
Mona Ibrahim – Town of Windsor
Ginger Vagenas – EPA
Chris Barney – Sonoma County Transportation Authority
Ted Mately – FTA
Stew Sonnenberg – FHWA
Dick Fahey – Caltrans
Darryl Yip – MTC
Adam Crenshaw – MTC
Harold Brazil – MTC

1. **Welcome and Self Introductions**: Harold Brazil (MTC) called the meeting to order at 9:35 am.

2. $PM_{2.5}$ Project Conformity Interagency Consultations

a. Consultation to Determine Project of Air Quality Concern Status

i. Conde Lane/Johnson Street Pedestrian Improvement Project

Liz Ellis (Town of Windsor) began her presentation of Conde Lane/Johnson Street Pedestrian Improvement project by stating that the project will realign the all-way stop-controlled intersections to eliminate the need for intersection controls, as well as install sidewalks and new crosswalks. Ms. Ellis went on to say that the project improves the level of service (from the existing level of service D to level of service A) and decreases delay.

Ms. Ellis also mentioned that the project's improvements will include:

- Enhanced crosswalk
- Pedestrian safety improvements
- Rectangular Rapid Flashing Beacon (RRFB) at one crosswalk

Ms. Ellis also mentioned that the Conde Lane/Johnson Street Pedestrian Improvement project is located within the Windsor Priority Development Area (PDA) and the project being constructed in this location allows operational improvements and safety at the crosswalk.

Ms. Ellis said the project background status and schedule as follows:

- Project currently out to bid for design
- Final plans PSE to Town in September 2016
- E-76CON submitted to Caltrans October 2016
- E-76CON approved by Caltrans December 2016

- Construction anticipated in Spring of 2017

Ms. Ellis completed her presentation by indicating that the project will provide pedestrian safety enhancements which will have positive impacts for (particularly) the Windsor Elementary School students walking in the area.

The Task Force did not have any questions or comments for Ms. Ellis and Dick Fahey (Caltrans) felt that, because of the low traffic levels in the project area, the Conde Lane/Johnson Street Pedestrian Improvement project was not of air quality concern.

Final Determination: With input from FTA, EPA, Caltrans and FHWA, the Task Force concluded that the Conde Lane/Johnson Street Pedestrian Improvement project was not of air quality concern.

ii. 7th Street West Oakland Transit Village Phase II Project

Mohammad Barati (City of Oakland) began his description of the 7th Street West Oakland Transit Village Phase II project by stating that the project would promote a roadway diet and reduce the number of travel lanes on 7th Street in each direction from 2 lanes to one lane. Mr. Barati added that the project will install class II bike lanes in both directions, widen the sidewalks on the north side, construct bulbouts and upgrade all ADA ramps to new standards at all street crossings. Mr. Barati indicated that there will be no change in traffic volume and no change in LOS and the project will connect the neighborhoods on the west side of 7th Street to West Oakland BART Station.

Mr. Barati went on to say the 7th Street Phase II project is the extension of 7th Street West Oakland Transit Village project which constructed improvements in front of West Oakland BART Station and that this project includes construction of safety improvements to benefit the pedestrian and bicyclists on neighborhood streets in West Oakland.

Dick Fahey (Caltrans) asked how trucks access the Port of Oakland and Mr. Barati answered by saying that trucks use Adeline for port access. Mr. Fahey then asked why the horizon year truck traffic dropped in the build scenario (when compared to the no-build) and Jennifer Schulte (ERM) answered by suggested that there might have been some truck re-route shift when data was inputted in the traffic model. Shalanda Christian (Caltrans) asked which traffic model was used to do the analysis and Ms. Schulte thought it was the Traffix modeling software. Ms. Christian also asked what the opening year of the project was and Mr. Barati answered either year 2017 or 2018.

Mr. Fahey and Ms. Christian asked Mr. Barati and Ms. Christian to check into drop in traffic and possible the traffic diversion modeling data (to feel more comfortable that the drop in traffic shown was not a result of traffic being diverted. Ted Mately (FTA) and Ginger Vagenas (EPA) agreed that this follow up step sounded good

Final Determination: With input from EPA and Caltrans, the Task Force will defer final project-level conformity determination on 7th Street West Oakland Transit Village Phase II project until receipt of the traffic modeling data.

b. Confirm Projects Are Exempt from $PM_{2.5}$ Conformity

i. Confirmation of the list of exempt projects from $PM_{2.5}$ conformity (2b_Exempt List 031016.pdf)

Ginger Vagenas (EPA) and Dick Fahey (Caltrans) stated that TIP ID number ***CC-150017*** the Rumrill Blvd Complete Streets Improvements project needed to be removed from the 2b_Exempt List 031016.pdf list of exempt projects due to the due to the road diet component of the project. Ms. Vagenas also asked about the exemption code/type under 40 CFR 93.126 for ***SM-110080*** the Alpine Road Drainage and Road Restoration project and Adam Crenshaw (MTC) indicated that the existing code ("repair of damage caused by natural disasters,…..") is applicable due the project's Emergency Relief Program source of funding, but Mr. Crenshaw said that he would follow-up and make a confirmation of this.

> ***Final Determination:*** With input from FHWA (via email), FTA, EPA, Caltrans and MTC, the Task Force agreed, with the exclusion of projects ***CC-150017***, that the rest of the projects on the exempt list (**2b_Exempt List 031016.pdf**) were exempt from $PM_{2.5}$ project level analysis.

3. Projects with Regional Air Quality Conformity Concerns

a. Review of the Regional Conformity Status for New and Revised Projects

<u>Projects Staff Proposing to Include in the 2015 TIP</u>
Adam Crenshaw (MTC) stated that MTC staff has received requests from sponsors to add three new individually listed projects and four new group listed projects to the 2015 TIP. Mr. Crenshaw stated that two of the proposed new individually listed projects include elements that may not be treated as exempt from regional-level conformity under 40 CFR 93.126 or 40 CFR 93.127. However, staff believes that the addition of these projects to the 2015 TIP would not require an update to the air quality conformity analysis for *Plan Bay Area* and the 2015 TIP. The projects are as follows:

1. **Rumrill Blvd Complete Streets Improvements (TIP ID: CC-150017)**
2. **US 101 HOV/HOT from Santa Clara to I-380 (FMS ID: 6205.00)**

Mr. Crenshaw requested Task Force's concurrence that the projects above may be deemed Non-Exempt, Not Regionally Significant for regional conformity purposes and that the addition of these projects to the 2015 TIP would not require an update to the Air Quality Conformity Analysis as they would not affect the regional transportation model used in analyzing regional air quality conformity.

On the US 101 HOV/HOT from Santa Clara to I-380 project, Shalanda Christian (Caltrans) asked if there was currently an auxiliary lane in place and Mr. Crenshaw replied that auxiliary lanes existing in most of the project area. Ms. Christian followed up by asking if this project served to connect existing auxiliary lanes throughout the project and Mr. Crenshaw indicated that that was his understanding and the project is still in the developmental phase and these exact design of the project will be determined through the environmental process.

Mr. Crenshaw received no other questions or comments and the Task Force concurred on this agenda item.

4. Consent Calendar

a. February 25, 2016 Air Quality Conformity Task Force Meeting Summary

Final Determination: With input from all members, the Task Force concluded that the consent calendar was approved.