TRANSPLAN Technical Advisory Committee

651 Pine Street, 4th Floor, North Wing, Martinez, CA 94553-0095

Participating entities: Cities of Antioch, Brentwood, Oakley and Pittsburg • Contra Costa County
Tri Delta Transit • 511 Contra Costa • Contra Costa Transportation Authority • Caltrans District 4 • BART
TRANSPLAN • State Route 4 Bypass Authority • East Contra Costa Regional Fee & Financing Authority

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Antioch City Hall, 3rd Floor Conference Room
Tuesday, February 21, 2012 from 1:30 to 2:30 p.m.

AGENDA

NOTE: The Technical Advisory Committee (TAC) agenda/packet is only distributed digitally, ***no paper copies will be sent.*** *If you need a printed copy please contact staff.*

Action/Discussion Items (see attachments where noted [♦])

1:30 Item 1: Regional Plans TAZ/Land Use Review for Countywide Model (Information Only): *CCTA has received limited feedback from east county jurisdictions on this. Please see attachments & respond to CCTA as needed.* ♦

1:40 Item 2: Receive Update on East Contra Costa Ramp Metering Study and Take Action As Appropriate Jack Hall from the Contra Costa Transportation Authority (CCTA) will review 1) a summary of available data for the subject study, and 2) draft analysis and methodologies. ♦

2:30 Item 3: Adjourn to Tuesday, March 20, 2012 at 1:30 p.m.

The Technical Advisory Committee (TAC) meets on the third Tuesday afternoon of each month, starting at 1:30 p.m. in the third floor conference room of the Antioch City Hall building. The TAC serves the TRANSPLAN Committee, the East Contra Costa Regional Fee & Financing Authority, and the State Route 4 Bypass Authority.

Persons needing a disability-related accommodation should contact John Cunningham, TRANSPLAN staff person, at least 48 hours prior to the starting time of the meeting: (925) 335-1243 or at john.cunningham@dcd.cccounty.us.

♦ *= An attachment has been included for this agenda item.*

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CONTRA COSTA
transportation
authority

MEMORANDUM

To:	Contra Costa Land Use Planners
cc:	Planning Directors
From:	Matt Kelly, CCTA Staff
Date:	January 20, 2012
Re:	Current Regional Plans TAZ-Level Land Use Review for Countywide Model

The Authority is currently updating its Countywide Travel Demand Forecasting Model. As part of the Decennial update of the Model, the Authority needs your help in reviewing the land use inputs, which contain households and jobs data for years 2000 through 2035. The model's land use database is organized by Traffic Analysis Zone (TAZ), with just over 3,100 zones in the entire model. Each zone contains households and jobs forecasts for each model scenario year (2000, 2010, 2020, 2030 and 2035). Having these zones reviewed by local "experts" for reasonableness allows the model to most accurately forecast future trip generation throughout the County.

Model land use review materials are available on the Authority's website at:

http://ccta.net/EN/main/planning/370/landuse.html - Decennial Model Land Use Section (lower half of page)

You will find that there are two methods of accessing review materials for the model land use review:

1. Google Earth KMZ File: Opening this file (or saving this file to your workstation and opening it) in Google Earth allows you to view the TAZ system, grouped by jurisdiction. Click on a zone, and a window opens that shows the households and jobs allocation for that zone for each scenario year. The user also has access to layers (on the left side of your screen) showing the Priority Development Areas (PDAs) and the Growth Opportunity Areas (GOAs) for added reference. Additionally, Google Earth allows you to view additional built-in layers and aerial photo history, showing historical images

dating back into the 1980's (depending on location). *Note: These files are most easily viewed in Mozilla Firefox)*

2. Hard-Copy Tables and Maps: These are avaiable for each jurisdiction in the County, and for the Tri-Valley portion of Alameda County. Each file contains a household forecast table (by TAZ), a jobs forecast table (by TAZ), and a map(s) showing the zone system, along with other reference data (PDAs, GOAs, rail stations, etc.).

The Authority is looking for local staff to review household and job allocations for each zone within their Sphere of Influence (SOI), and provide feedback. You may move households or jobs between zones within your SOI, but keep in mind that Countywide totals must stay consistent within 1% of the ABAG forecast.

Please direct any questions to Matt Kelly at (925) 256-4730 or mkelly@ccta.net. Feedback on the land use should be submitted in writing via email by February 29. One-on-one consultations with CCTA staff can also be arranged by contacting Matt at the above-listed number or email.

CCTA appreciates you taking the time for this important review of land use data for the Countywide Travel Demand Model.

CCTA Countywide Model Land Use Summary by Jurisdiction (Sphere of Influence)

Contra Costa County		HOUSEHOLDS					JOBS						
City (SOI)	Number of Zones in Model	2000	2010	2020	2030	2035	2000	2010	2020	2030	2035	CDPs Included in SOI (all or partial)	PDA(s) in SOI
Alamo-Blackhawk	20	6,925	7,358	7,522	7,865	8,050	3,541	3,285	3,467	3,698	3,808	-	-
Antioch	150	29,553	33,524	37,276	40,798	42,599	20,628	20,331	28,571	36,122	39,751	-	ANT1, ANT2, OAK1
Brentwood	97	7,979	19,141	21,399	22,836	23,583	7,803	7,034	8,313	8,969	9,166	-	-
Clayton	11	3,592	3,678	3,742	3,794	3,828	1,616	1,393	1,656	1,942	2,041	-	-
Concord	108	45,068	47,903	49,223	50,794	51,640	65,693	62,408	70,631	82,346	88,102	Bay Point	CON1
Danville	68	15,615	16,145	16,480	17,005	17,321	15,370	14,205	14,362	14,606	14,826	-	-
El Cerrito	48	13,096	13,403	13,909	14,439	14,707	6,864	6,492	7,416	8,606	9,264	Kensington, E. Richmond Heights	ELC1
Hercules	45	6,235	8,123	9,871	12,027	13,235	3,054	2,943	3,506	4,841	5,497	Rodeo	HER1, HER2, WCC1
Lafayette	37	11,058	11,560	11,815	12,283	12,567	10,665	10,006	10,289	10,651	10,976	-	LAF1
Martinez	54	16,564	17,317	17,442	17,568	17,631	21,890	20,785	21,070	21,666	21,930	Vine Hill, Mountain View	MAR1
Moraga	18	5,539	5,759	5,951	6,291	6,487	5,447	4,973	5,405	5,613	5,703	-	MOR1
Oakley	87	7,702	10,021	10,940	12,189	12,681	3,039	1,977	3,237	4,988	5,989	-	OAK1, OAK2, OAK3
Orinda	21	6,068	6,561	6,878	7,207	7,389	5,910	5,403	5,847	6,040	6,107	-	ORI1
Pinole	42	10,603	11,043	11,157	11,373	11,464	6,205	5,949	6,153	6,534	6,754	Bayview-Montalvin, El Sobrante, Tara Hills	PIN1, WCC1
Pittsburg	122	23,973	27,101	32,665	41,245	45,772	16,403	15,586	20,004	24,969	27,457	Bay Point	PIT1, PIT2, CCC3
Pleasant Hill	47	16,005	18,345	18,699	19,258	19,649	16,639	15,081	17,853	19,167	20,162	Pacheco	PLH1, PLH2
Richmond	161	41,411	45,384	50,887	56,335	58,670	42,273	40,042	47,437	55,617	59,501	E. Richmond Heights, El Sobrante, Rollingwood	RIC1, RIC2, CCC2, CCC4
Rodeo-Crockett	32	4,454	4,691	4,744	4,819	4,882	2,248	2,097	2,436	3,008	3,313	Port Costa	WCC1
Rural East Contra Costa	73	6,197	7,796	8,918	10,314	11,019	3,725	3,121	3,425	3,653	3,779	Bethel Island, Byron, Discovery Bay, Knightsen	-
San Pablo	38	8,886	9,852	10,319	11,028	11,412	6,133	5,568	5,650	7,341	8,150	-	WCC1
San Ramon	77	17,047	19,450	21,503	23,411	24,501	39,837	36,057	40,178	45,157	47,289	-	SAR1, SAR2
Walnut Creek	84	38,298	41,263	42,449	43,918	44,776	64,064	58,624	60,786	63,986	65,641	Alamo, Waldon	WAL1, CCC1
CCC Remainder	56	1,662	6,625	9,891	13,895	15,967	1,624	1,932	2,378	3,147	3,593	-	CON1
CONTRA COSTA TOTAL	**1496**	**343,530**	**392,043**	**423,680**	**460,692**	**479,830**	**370,671**	**345,292**	**390,070**	**442,667**	**468,799**		

Alameda County		HOUSEHOLDS					JOBS						
City (SOI)	Number of Zones in Model	2000	2010	2020	2030	2035	2000	2010	2020	2030	2035	CDPs Included in SOI (all or partial)	PDA(s) in SOI
Dublin	110	9,316	15,435	20,433	25,679	28,301	16,550	18,033	24,042	30,243	33,613	-	DUB1, DUB2, DUB3
Livermore	78	26,321	29,176	32,610	36,672	38,745	34,740	31,758	38,680	45,940	49,450	-	LIV1
Pleasanton	166	23,968	24,733	27,004	29,928	31,725	60,369	55,017	62,743	67,970	70,502	Sunol	PLEA1, PLEA2
AC Remainder	20	766	1,796	3,772	5,353	6,146	14,644	13,333	13,717	14,308	14,583	-	-
TRI-VALLEY-ALAMEDA TOTAL	**374**	**60,371**	**71,140**	**83,819**	**97,632**	**104,917**	**126,303**	**118,141**	**139,182**	**158,461**	**168,148**		

KITTELSON & ASSOCIATES, INC./DOWLING
TRANSPORTATION ENGINEERING / PLANNING
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MEMORANDUM

Date: February 8, 2012

Project #: P09033_005

To: Joy Lee, Raymond Odunlami
Metropolitan Transportation Commission
Alan Chow, Adrian Levy
Caltrans

From: Rick, Dowling, Kevin Chen

Project: State Route 242 Ramp Metering Studies and Implementation Plan

Subject: Existing Traffic Data Assessment on SR 242

This memo provides a summary of available traffic data along the SR 242 corridor, and our recommendations to proceed with the SR 242 FREQ model calibration.

Data Summary

We have conducted a thorough assessment of available traffic data from PeMS, Caltrans census counts and CCTA database. Here is a summary of the findings:

1. ***Ramp Volumes***: Caltrans census data provides hourly volumes for all on-ramps and off-ramps, dated as recent as 2009 (and available historically back to 2003, for some locations).
2. ***Mainline Volumes***: Caltrans census data provides hourly volumes for SR 242 mainline at the I-680 and SR 4 interchanges, dated in 2006 (and available historically back to 2002, for some locations).
3. ***Floating Car Run/Tach Run***: No data is available from Caltrans.
4. ***PeMS***: All PeMS data along SR 242 have "zero percentage" observed, indicating that the database does not have actual traffic data collected, and therefore are not applicable or valid for this study.
5. ***Field Observation***: Kittelson/Dowling staff conducted field observations in February 2012 to identify typical freeway conditions on SR 242. Limited floating car surveys were conducted during the field visits.
6. ***Additional Sources***:
    a. ***SR 242 Corridor Plan/Transportation Concept Report*** *(Caltrans District 4, 2011)*: provides a 2008 Congestion Map of the corridor.
    b. Kittelson/Dowling staff commutes regularly along SR 242 and have a reasonable assessment of traffic conditions on SR 242 in the recent years.

Recommendations on Counts:

Based on our assessment of these available data, we recommend the following:

A. ***Ramp Volumes***: Existing 2009 ramp volumes should reflect a reasonable representation of existing conditions as traffic volumes have been relatively steady in the past several years throughout the Bay Area. No adjustments to ramp volumes.
B. ***Mainline Volumes***: Traffic volumes were generally higher in 2006 than 2009, as the economic downtown occurred between these years. Adjust 2006 mainline volumes, based on 2009/2006 ratio to be determined based on freeway mainline volumes in the vicinity – such as SR 4 or I-680 mainline volumes nearby.

Existing Freeway Operations:

Based on our observations, existing SR 242 operational constraints are identified as follows:

- SR 242 Southbound: During AM peak period, bottleneck occurs at the merge of SR 242 SB at I-680 SB. Queues would typically extend to the vicinity between Willow Pass Road and Concord Avenue underpasses. I-680 SB at the SR 242 merge is typically in queue, from further downstream bottleneck(s). During PM peak period, SR 242 southbound is the off-peak direction, no operational constraints were observed.
- SR 242 Northbound: During PM peak period, the merge of SR 242 NB at SR 4 EB is a minor bottleneck. Queues are sporadic during the peak, and are typically short near the SR 242/SR4 EB merge, and would occasionally extend to north of the Port Chicago Highway off-ramp vicinity. SR 4 EB at the SR 242 NB merge is typically in queue, from further downstream bottleneck at Port Chicago Highway and Willow Pass Road. During AM peak period, northbound is the off-peak direction, no operational constraints were observed.

These observations are also consistent with the congestions described in the *SR 242 Corridor Plan/Transportation Concept Report*, which represented 2008 conditions.

Data for FREQ Model Calibration

A set of balanced freeway volume will be created for 2009, which should reasonably represent existing conditions. This volume set will be used as a starting point for FREQ model calibration. Freeway bottleneck, queues, and travel times in the FREQ model will be calibrated to represent conditions described above. Consultant's field observed travel times will serve as the basis to compare FREQ travel times for reasonableness. The off-peak direction of travel on SR 242 (southbound PM and northbound AM) will not be modeled or analyzed in FREQ.

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MEMORANDUM

Date: January 27, 2012

Project #: P09033_005

To: Joy Lee, Raymond Odunlami
Metropolitan Transportation Commission
Alan Chow, Adrian Levy
Caltrans

From: Rick, Dowling, Kevin Chen, Allen Huang

Project: State Route 4 and State Route 242 Ramp Metering Studies and Implementation Plan

Subject: Deliv. 3.2A - Draft Analysis Methodologies Memo

1. INTRODUCTION

This memorandum provides a summary of recommended travel demand forecasting and traffic operations analysis methodologies that will be used to develop the State Route 4 and State Route 242 Ramp Metering Studies and Implementation Plan. The study limits, as well as a list of approved or financially committed projects within the study area are also described.

1.1 STUDY LIMITS

This study will evaluate ramp metering on the SR 4 and SR 242 freeways in the Contra Costa County. Exhibit 1 illustrates a map of the study corridors and vicinity area. In addition to evaluating the ramp meter corridors; additional adjacent freeway segments, arterial segments, and intersections will be analyzed to determine potential ramp metering effects on those facilities as well. The ramp meter study limits and additional facilities to be evaluated are listed below:

Ramp Meter Corridors Limits:

- SR 4 - between Alhambra Avenue and SR 160/SR 4 Bypass Interchange (Post mile: CC 8.00 to 31.5 – approximately 23.5 miles), inclusive
- SR 242 - I-680 to SR-4 interchanges (approximately 3.4 miles), inclusive

Other Freeways:

- I-680 (SR 242 to Pacheco Blvd.)
- SR 160 (SR 4 to Wilbur Ave)
- State Route 4 Bypass (Rte 160) from SR 4 to Laurel Road

Arterials in East County

- Bailey Road
- Buchanan Road
- East 10th Street/ Harbor Street.
- A Street/East 18th Street.
- Hillcrest Avenue.
- James Donlon Boulevard and Extension
- Kirker Pass Road/Railroad Avenue
- Leland Road and Extension/Delta Fair Boulevard
- Lone Tree Way
- Ninth Street/Tenth Street
- Pittsburg-Antioch Highway
- Somersville Road
- Willow Pass Road

Arterials in Central County

- Alhambra Avenue
- Contra Costa Boulevard
- Pacheco Boulevard
- Treat Boulevard
- Ygnacio Valley Road
- Kirker Pass Road

Optional Arterials (pending on inputs from local agencies)

- Loveridge Road in Pittsburg
- Willow Pass Road/Evora Road in Concord/Bay Point
- Imhoff/Arnold Industrial Pkwy in Concord

Intersections

On-Ramp Intersections

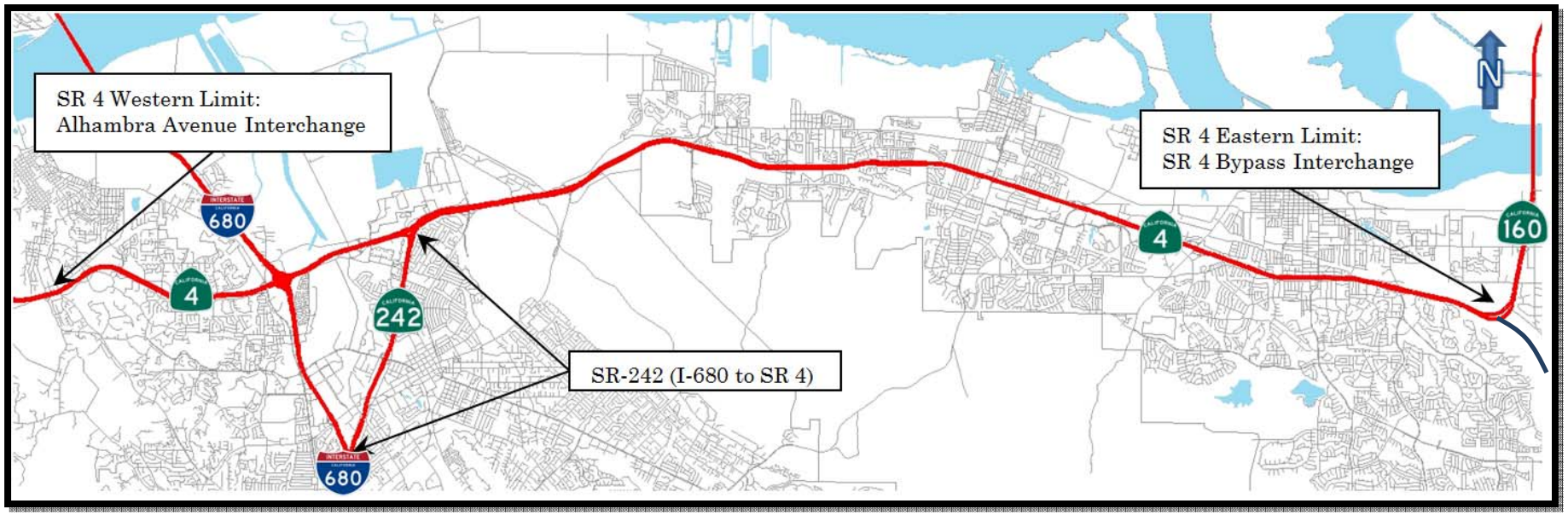
1. SR 4 WB On-Ramp & Alhambra Ave North
2. SR 4 EB On-Ramp & Alhambra Ave South
3. SR 4 WB On-Ramp & Pine St North
4. SR 4 EB On-Ramp & Center Ave South
5. SR 4 WB On-Ramp & Morello Ave North
6. SR 4 EB On-Ramp & Morello Ave South
7. SR 4 WB On-Ramp & Pacheco Blvd North
8. SR 4 EB On-Ramp & Port Chicago Hwy South
9. SR 4 WB On-Ramp & Willow Pass Rd North

10. SR 4 EB On-Ramp & San Marco Blvd South
11. SR 4 WB On-Ramp & Bailey Rd North
12. SR 4 EB On-Ramp & Bailey Rd South
13. SR 4 WB On-Ramp & Railroad Ave North
14. SR 4 EB On-Ramp & Railroad Ave South
15. SR 4 WB On-Ramp & California Ave North
16. SR 4 EB On-Ramp & Loveridge Rd South
17. SR 4 WB On-Ramp & Somersville Rd North
18. SR 4 EB On-Ramp & Somersville Rd South On-Ramp
19. SR 4 WB On-Ramp & A St North
20. SR 4 EB On-Ramp & Lone Tree Way South
21. SR 4 WB On-Ramp & Hillcrest Ave North
22. SR 4 EB On-Ramp & Hillcrest Ave South
23. SR 242 SB On-Ramp & Solano Way
24. SR 242 SB On-Ramp & Concord Ave West
25. SR 242 NB On-Ramp & Concord Ave East
26. SR 242 SB On-Ramp & Clayton Rd

Other Intersections Away from SR 4 and SR 242

1. Pacheco Blvd & Morello Ave
2. Pacheco Blvd & Arthur Rd
3. Contra Costa Blvd & Chilpancingo Parkway
4. Concord Ave & Diamond Blvd
5. Diamond Blvd & Willow Pass Rd
6. Contra Costa Blvd & Sunvalley Blvd
7. Bailey Rd & Concord Blvd
8. Willow Pass Rd & Market St
9. I-680 On-Ramp & Willow Pass Rd
10. Port Chicago Hwy & Olivera Rd
11. Port Chicago Hwy & Willow Pass Rd South
12. Port Chicago Hwy & Willow Pass Rd North
13. Willow Pass Rd North & Bailey Rd
14. Bailey Rd & W Leland Rd
15. Tenth St & Railroad Ave
16. Railroad Ave & Buchanan Rd
17. Buchanan Rd & Somersville Rd
18. Auto Center Dr & W 10th St
19. Lone Tree Way & Ridgerock Dr
20. E 18th St & Route 160 On-Ramp

Exhibit 1 – Study Limits and Vicinity Map



2. TRAVEL DEMAND FORECASTING METHODOLOGY

The current official version of the Contra Costa Countywide Travel Demand Model (the 2000 CCTA Decennial Model) will be used to develop travel forecast for this study, for 2015 and 2030 conditions.

Dowling Associates is currently working with CCTA to update the Decennial model. During this process, it was found that at a majority of the locations, 2010 observed traffic volumes are either similar or lower than 2000 traffic volumes collected previously. So it was determined to apply the 2000 base year model to reflect 2010 conditions.

In order to develop forecast for 2015 (since there are no socio economic data set associated with this horizon year), we suggest to interpolate the forecast results between the 2000 base year and future 2030 forecast volumes, assuming 2000 base year is equivalent to 2010 base year. Thus 2015 would be estimated by taking the model 2000 volumes (assuming they are also true for 2010 volumes) and increasing them by 5/20 of the model forecasted growth in traffic between 2000 and 2030.

3. RECOMMENDED ANALYSIS TIME PERIODS

Based on an examination of the SR 4 CSMP and data, it is recommended for evaluation of ramp metering on SR 4 and SR 242, that the analysis time periods be defined as follows, in order to fully capture the congestion period, and dissipation of freeway queues:

- Typical weekday AM peak 4-hour (6:00 AM to 10:00 AM) of the SR 4 Westbound and SR 242 Southbound
- Typical weekday PM peak 4-hour (3:00 PM to 7:00 PM) of the SR 4 Eastbound and SR 242 Northbound

Evaluation of other facilities, including other freeways, arterials, and intersections will be conducted for typical AM and PM peak hours.

4. EXISTING DATA SOURCES

Existing traffic data will be gathered from various resources available as described below. New data collection will not be needed given the many recent studies recently completed in the corridor and given the stability of traffic volumes in Contra Costa between 2000 and 2010.

SR 4 Freeway

Existing conditions data will be extracted from the SR 4 Corridor System Management Plan, the SR 4 Freeway Performance Initiative, and the on-going CCTA SR4 Integrated Corridor Analysis Study.

SR 242 Freeway

Existing data for SR-242 will be obtained from the PeMS database, Caltrans census counts, and any available MTC and/or CCTA databases.

Other Freeways and Arterials

Counts for the other freeways and arterials will be extracted from the prior and on-going SR 4 studies (CSMP, FPI, and Corridor Management Plan – CMP), and from data provided by local stakeholders or already contained in the CCTA model.

Intersections

CCTA or local agencies will be contacted to provide intersection counts from their files for any intersections they wish to include in the analysis of the effects of ramp metering that are not already covered in prior SR 4 CSMP, FPI, or CMP work.

5. TRAFFIC OPERATIONS ANALYSIS METHODOLOGIES AND TOOLS

SR 4 and SR 242 Ramp Meter Corridors

FREQ12 is the recommended analysis tool for these two corridors to evaluate freeway operations, as well as to develop optimized ramp metering rates. This is the tool that Caltrans typically uses for all ramp metering studies, and it is also the tool used for the SR 4 CSMP study.

Other Freeways and Arterials

The segment analyses of other freeways and surface streets will be based on AM and PM peak hour volumes, v/c, and mean speed by segment (as applicable).

Intersections

A Traffix file will be setup to analyze study intersections. Intersection LOS will be evaluated and reported using the CCTA LOS methodology.

System-Wide Performance

The CCTA model will be used to compute appropriate system-wide performance statistics (VMT, VHT, mean speed, PMT, PHT) for 2015 and 2030, reflecting the countywide effects of ramp metering or not metering.

6. FUTURE APPROVED OR FUNDED PROJECTS IN THE STUDY AREA

Based on information provided in the SR4 CSMP document, several approved or funded projects were identified in the study area that would significantly affect 2015 and 2030 traffic operations on SR 4. These projects will be incorporated when developing future conditions. This information is also consistent with the Contra Costa Countywide Comprehensive Transportation Plan (Adopted May 2004).

The SR 4 East Widening Project (Loveridge Road to SR 160) – is a proposed freeway widening project that will widen SR 4 from the existing four lanes to eight lanes. The widened freeway would generally consist of one HOV lane and three mixed-flow lanes in each direction. However, the HOV lanes would not extend for the entire length of the project; the westbound HOV lane would begin and the eastbound HOV lane would terminate in the vicinity of Hillcrest Avenue. This project will reserve sufficient width in the SR 4 median to accommodate future public transportation investments (i.e., eBART) and will reconstruct and/or partially reconstruct interchanges at Loveridge Road, Somersville Road, Contra Loma Boulevard/L Street, Lone Tree Way/A Street, and Hillcrest Avenue.

SR 4 Bypass – The SR 4 Bypass connects the communities of Oakley and Brentwood to SR 4 and includes segments described below. Although these improvements are included in the CCTA regional demand model for the purpose of forecasting future travel demands for the project, only the freeway portion of the SR 4 Bypass that is already complete or planned for completion by the year 2015 (Segment 1 and the portion of Segment 2 from Lone Tree Way to Sand Creek Road) will be assumed for years 2015 and 2030.

a. Segment 1 of this facility was completed in 2008; it is a four- to six-lane freeway located between the SR 4/SR 160 Interchange and Lone Tree Way. Apart from the two interchanges at the segment's termini, there is one interchange located at Laurel Road.

b. Segment 2 of the SR 4 Bypass, completed in 2002, is a two-lane expressway located between Lone Tree Way and Balfour Road. There are plans to upgrade the segment from Lone Tree Way to Sand Creek Road to a four lane freeway with an interchange at Sand Creek Road by 2012. This entire segment is planned to eventually be upgraded to a four-lane freeway facility all the way to Balfour Road, with an interchange at Balfour Road.

We will update the projects description to include the latest recommendations of the SR4/I-680 interchange study by Atkins.