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TRANSPORTATION CONTROL MEASURE SUBSTITUTION

ORA110501 – Bus Rapid Transit (BRT) Line on Bristol Street/State College Boulevard

ORA120531 – BRT Line on Harbor Boulevard

ORA120532 – BRT Line on Westminster Avenue/17th Street

DRAFT REPORT

April 2010

DOCS#156455v2

The Regional Council is comprised of 83 elected officials representing 189 cities, six counties, six County Transportation Commissions and a Tribal Government representative within Southern California.

INTRODUCTION

Transportation Control Measures (TCMs) are defined as strategies that adjust trip patterns or otherwise modify vehicle use in ways that reduce air pollutant emissions. As applicable, TCMs are included in the most recently approved Air Quality Management Plan (AQMP)/State Implementation plan (SIP) as part of the overall control strategy to demonstrate a region's ability to come into attainment with the National Ambient Air Quality Standards (NAAQS). In the SCAG region, only two ozone nonattainment areas include TCMs in their AQMPs/SIPs: South Coast Air Basin and Ventura County portion of the South Central Coast Air Basin. TCM type projects in these nonattainment areas are considered committed once they have funds programmed for right-of-way or construction in the first two years of an approved SCAG Federal Transportation Improvement Program (FTIP). When a committed TCM project cannot be delivered or will be significantly delayed, the substitution of the TCM project follows the process specified in the Clean Air Act (CAA) §176(c).

The Orange County Transportation Authority (OCTA) has requested that SCAG substitute three planned bus rapid transit (BRT) line projects included as TCMs in the South Coast Ozone SIP with traffic signal synchronization on the same three corridors (see Appendix A). In response to SCAG's Transportation Conformity Working Group (TCWG) discussion on January 26, 2010, OCTA has sent SCAG a letter clarifying its legal implementation authority, funding commitment, and expected completion date for the substitute TCMs (see Appendix B). As documented herein, the proposed substitution is consistent with federal and state requirements, including the SAFETEA-LU planning requirements and the U.S. Environmental Protection Agency's (EPA) Transportation Conformity Rule.

TCM SUBSTITUTION PROCESS

The substitution process set forth in SAFETEA-LU and the Transportation Conformity Rule is included in the 2007 AQMP for the South Coast Air Basin and described in SCAG's 2011 FTIP Guidelines.

The County Transportation Commissions (CTCs) and/or project sponsors notify SCAG when a TCM project cannot be delivered or will be significantly delayed. SCAG and the CTCs then identify and evaluate possible replacement measures for individual substitutions with consultation of the TCWG, which includes members from all affected jurisdictions, federal, state and/or local air quality agencies and transportation agencies.

Substitution of individual TCMs is provided for by the CAA §176(c), under the following conditions:

> "(i) if the substitute measures achieve equivalent or greater emissions reductions than the control measure to be replaced, as demonstrated with an emissions impact analysis that is consistent with the current methodology used for evaluating the replaced control measure in the implementation plan;
> "(ii) if the substitute control measures are implemented-

"(I) in accordance with a schedule that is consistent with the schedule provided for control measures in the implementation plan; or

"(II) if the implementation plan date for implementation of the control measure to be replaced has passed, as soon as practicable after the implementation plan date but not later than the date on which emission reductions are necessary to achieve the purpose of the implementation plan;

"(iii) if the substitute and additional control measures are accompanied with evidence of adequate personnel and funding and authority under State or local law to implement, monitor, and enforce the control measures;

"(iv) if the substitute and additional control measures were developed through a collaborative process that included--

"(I) participation by representatives of all affected jurisdictions (including local air pollution control agencies, the State air pollution control agency, and State and local transportation agencies);

"(II) consultation with the Administrator; and

"(III) reasonable public notice and opportunity for comment; and

"(v) if the metropolitan planning organization, State air pollution control agency, and the Administrator concur with the equivalency of the substitute or additional control measures."

In addition to the conditions above, the 2007 South Coast AQMP states that the substitute project shall be in the same air basin and preferably be located in the same geographic area and preferably serve the same demographic subpopulation as the TCM being replaced.

A TCM substitution does not require a new conformity determination or a formal SIP revision. SCAG adoption of the new TCM with concurrence of the U.S. EPA and California Air Resources Board (ARB) will rescind the original TCM and the new measures become effective.

PROJECT DESCRIPTION

The 2008 Regional Transportation Improvement Program (RTIP) includes three programmed BRT lines on Bristol Street/State College Boulevard (ORA110501) with a completion of June 15, 2010, on Harbor Boulevard (ORA120531), and on Westminster Avenue/17th Street (ORA120532), both with a completion date of June 30, 2011, in Orange County. Obstacles to the planning and implementation of these three BRT projects by the completion dates have been identified. Consequently, OCTA proposes to substitute traffic signal synchronization on the same three corridors for these three BRT projects. The $2.5 million traffic signal synchronization projects, expected to be complete by June 2011, are new projects and are not yet classified as committed TCMs.

COMPLIANCE WITH SUBSTIUTION REQUIREMENTS

Interagency Consultation. Interagency consultation on the proposed substitution occurred at SCAG's publicly noticed TCWG meeting on January 26, 2010. The TCM substitution request document will be released for a 30-day public review period.

Equivalent Emissions Reduction. OCTA has analyzed the countywide emissions impacts of the substitute projects and concluded that the replacement projects provide equal or greater emission reductions. SCAG staff has reviewed and concurred with the methodology OCTA used for the analysis.

Similar Geographic Area. Both the BRT projects and the traffic signal synchronization projects are located in the same corridors within the Orange County portion of the South Coast Air Basin.

Full Funding. OCTA has secured $2.5 million for the traffic signal synchronization projects.

Similar Time Frame. The proposed projects will be operational by June 2011, similar to the schedule of the BRT projects.

Timely Implementation. The proposed substitution is the means by which the obstacle to implementation of the three BRT projects TCM is being overcome. The replacement projects will be monitored through TCM Timely Implementation Reports that SCAG releases for public review and submits for federal approval.

Legal Authority. OCTA has legal authority to implement and operate the substitute projects.

Agency Review and Adoption. After the 30-day public review period, the substitution will presented to SCAG's Energy and Environment Committee (EEC) for approval. Upon EEC's approval, the substitution will be presented to SCAG's Regional Council for adoption. Concurrence from U.S. EPA and ARB will rescind the original TCM and the new measure will become effective.

Programming of the Substitute TCMs . After obtaining the concurrence from ARB and EPA, the substitute TCMs will be included into the conforming FTIP.

Appendix A

OCTA Substitution Request

OCTA

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CHIEF EXECUTIVE OFFICE

Will Kempton
Chief Executive Officer

December 31, 2009

Mr. Hasan Ikhrata
Executive Director
Southern California Association of Governments
818 W. 7th Street, 12th Floor
Los Angeles, CA 90017

Dear ~~Mr. Ikhrata~~ Hasan:

As you know, the current state budget crisis and economic downturn have significantly impacted the Orange County Transportation Authority's (OCTA) ability to absorb new bus transit operating costs. OCTA has three transportation control measures in the current Federal Transportation Improvement Program that must delayed in order to bring operating costs into balance with revenues. These three projects include bus rapid transit (BRT) lines on Bristol Street/ State College Boulevard (ORA110501), Harbor Boulevard (ORA120531), and Westminster Avenue/17th Street (ORA120532).

OCTA recognizes that substitute projects are required by air quality regulations, and OCTA requests the three above projects be substituted with traffic signal synchronization on the same three corridors. The signal synchronization projects offer equivalent air quality benefits and will be implemented on a similar schedule to the BRT projects. I have attached a technical report describing the air quality analysis results prepared by OCTA staff.

OCTA would like to proceed with the substitution process for the BRT projects at your earliest convenience. We understand the substitution process starts with the Southern California Association of Governments' recommendation to the Transportation Conformity Working Group (TCWG). The TCWG's next meeting is scheduled for January 26, 2010. We would greatly appreciate your assistance in preparing for this meeting and working through the substitution process with our state and federal partners on the TCWG.

Orange County Transportation Authority
550 South Main Street / P.O. Box 14184 / Orange / California 92863-1584 / (714) 560-OCTA (6282)

Please contact Anup Kulkarni, Section Manager, Regional Modeling, at (714) 560-5867 for next steps on the substitution process and follow-up on the attachment. Thank you for your assistance in this important matter.

Sincerely,

Will Kempton
Chief Executive Officer

WK:kb
Attachment

c: Huasha Liu, SCAG
Rongsheng Luo, SCAG
Jonathan Nadler, SCAG
Kia Mortazavi, OCTA
Kurt Brotcke, OCTA
Anup Kulkarni, OCTA

Emissions Analysis of the Replacement of the Bus Rapid Traffic Transportation Control Measures with Signal Synchronization Transportation Control Measures

Introduction

This report documents the emissions analysis performed for the replacement of the Bus Rapid Traffic (BRT) Transportation Control Measures (TCM) with Signal Synchronization TCM. The findings demonstrate that the Signal Synchronization replacements meet the following substitution standards: provide an equivalent or greater emissions reduction, serve a similar geographic area, have a similar implementation schedule, and include a demonstrated financial commitment to complete the project on time. The Orange County Transportation Authority Board of Directors has authorized staff to work with the Southern California Association of Governments on this substitution effort and the approved staff report is available on request.

A map of the BRT TCM and proposed signal synchronization TCM is attached.

Methodology for Analyzing Original Project and Replacement

The air quality impacts of the three BRT TCMs were compared with the proposed TCM Signal Synchronization Replacement projects using a multi-step method based on the Southern California Association of Government's (SCAG) emissions methodology focused on Orange County.

The following process was employed to produce the air quality analysis:

Step 1: Obtain daily vehicle miles traveled (VMT) and speed data for freeways, arterials and transit bus from Orange County Transportation Analysis Model (OCTAM) version 3.3. OCTAM 3.3 is a conventional transportation model used to forecast travel demand with base and horizon years of 2005 and 2035. It is consistent with SCAG's regional model. Each alternative was modeled separately using OCTAM 3.3 and post-processed using the NCHRP 255 process. This process provides a standard methodology to refine forecasted volumes on links based on a combination of base year traffic counts, base year model estimates, and forecasted model estimates using incremental adjustments. The output of the travel demand model and post-processing included travel information on both the BRT TCM and Replacement TCM. Loaded link information, intrazonal travel speeds, and intrazonal travel volumes were extracted for all modeled time periods for each alternative.

For the baseline run, BRT was coded as mode 16 (express bus) in OCTAM with a limited number of stops (an average of about one per mile, as the plans at the time indicated). The mode choice program that is part of OCTAM was used to then estimate ridership on the BRT.

On local streets and roads, OCTAM includes freeflow speeds that reflect a combination of the classification of the roadway along with delays associated with traffic signals, driveways and other impediments. To reflect the implementation of the Signal Synchronization, these freeflow travel speeds are increased by 5% to represent the impact of signal coordination on that roadway.

Step 2: Run the SCAG emissions program using the extracted information from Step 1 as input to obtain vehicle starts, VMT, and vehicle population data. The program automatically updates all required inputs to reflect the OCTAM runs and produces input files that are run by the California Air Resources Board Emission FACtors 2007 (EMFAC) model. The results of the two EMFAC 2007 runs are emissions analysis for Orange County. This program outputs emissions exhaust for ROG and NOx.

Step 3: Using the output from the SCAG emissions program, identify the impacts of the BRT and Signal Synchronization replacement project.

Summary of Findings

The results of this process provide a summary of total daily emissions for reactive organic gases (ROG) and nitrogen oxides (NOx). Table 1 provides is a summary of the total daily air quality of the BRT TCM were compared with the proposed Signal Synchronization TCM:

Table 1: 2035 Comparison of BRT TCM and Signal Synchronization TCM (total daily tons)

	BRT TCM	Signal Synchronization TCM
ROG	15.35	15.35
NOx	20.16	20.15

The results indicate that the BRT TCM and proposed Signal Synchronization TCM will have equivalent or greater air quality benefits in Orange County. The full EMFAC output for the BRT TCM and proposed Signal Synchronization TCM is provided in Tables 2 and 3.

Table 2: Bus Rapid Transit TCM Scenario - EMFAC 2007 Output

Title : Bus Rapid Transit TCM Scenario
Version : Emfac2007 V2.3 Nov 1 2006 ** WIS Enabled **
Run Date : 2009/10/13 16:53:30
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Summer
I/M Stat : Enhanced Interim (2005)
Emissions: Tons Per Period

ON-ROAD EMISSIONS

VRIABLE	L & MDV	HDV	OTHER	ALL VEHICLE
Vehicle	2673607	102643	41968	2818218
Starts	16092391	2803799	65668	18961856
VMT	88076821	5626076	746361	94449285
ROG Exh	3.401	1.158	0.161	4.719
ROG Total	13.251	1.916	0.180	15.346
CO	97.108	10.964	1.495	109.567
NOx	6.278	11.405	2.472	20.155
CO2	42542.140	7342.518	893.975	50778.640
PM10 Exh	1.887	0.354	0.081	2.322
TireWear	0.748	0.116	0.009	0.874
BrakeWare	1.173	0.105	0.010	1.289
PM10 Total	3.807	0.576	0.101	4.484
SOX	0.410	0.070	0.009	0.489
Gasoline	4371.770	181.078	35.726	4588.574
Diesel	0.388	502.699	49.184	552.271

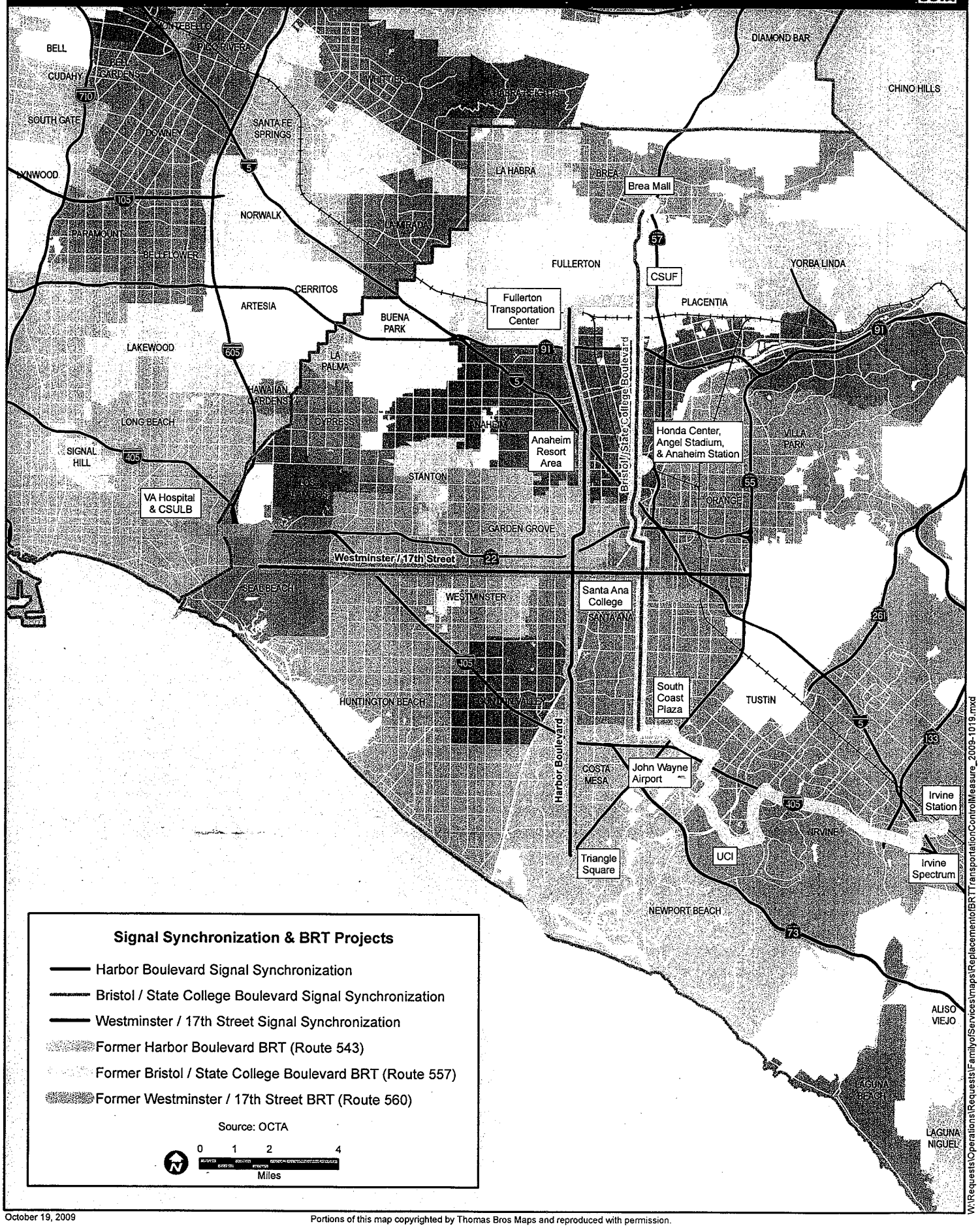
Table 3: Signal Synchronization TCM Scenario - EMFAC 2007 Output

Title : Signal Synchronization TCM Scenario
Version : Emfac2007 V2.3 Nov 1 2006 ** WIS Enabled **
Run Date : 2009/10/15 08:03:26
Scen Year: 2035 -- All model years in the range 1991 to 2035 selected
Season : Summer
I/M Stat : Enhanced Interim (2005)
Emissions: Tons Per Period

ON-ROAD EMISSIONS

VRIABLE	L & MDV	HDV	OTHER	ALL VEHICLE
Vehicle	2673607	102643	41968	2818218
Starts	16092391	2803799	65668	18961856
VMT	88160418	5626076	746361	94532855
ROG Exh	3.400	1.158	0.161	4.719
ROG Total	13.250	1.916	0.180	15.346
CO	97.075	10.964	1.495	109.534
NOx	6.278	11.405	2.472	20.154
CO2	42533.176	7342.518	893.975	50769.670
PM10 Exh	1.886	0.354	0.081	2.321
TireWear	0.748	0.116	0.009	0.874
BrakeWare	1.173	0.105	0.010	1.289
PM10 Total	3.806	0.576	0.101	4.484
SOX	0.410	0.070	0.009	0.489
Gasoline	4370.847	181.078	35.726	4587.651
Diesel	0.388	502.699	49.184	552.271

Replacement of Bus Rapid Transit Transportation Control Measure



October 19, 2009

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Appendix B

OCTA Clarification Letter

OCTA

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CHIEF EXECUTIVE OFFICE

Will Kempton
Chief Executive Officer

March 3, 2010

Mr. Hasan Ikhrata
Executive Director
Southern California Association of Governments
818 W. 7th Street, 12th Floor
Los Angeles, CA 90017

Dear Mr. Ikhrata:

The Orange County Transportation Authority (OCTA) is in the process of replacing three transportation control measures in the current Federal Transportation Improvement Program (FTIP). These three projects include bus rapid transit (BRT) lines on Bristol Street/State College Boulevard (ORA110501), Harbor Boulevard (ORA120531), and Westminster Avenue/17th Street (ORA120532). OCTA has proposed replacing these three projects with traffic signal synchronization on the same three corridors.

As part of the interagency consultation process, OCTA made a presentation to the Transportation Conformity Working Group (TCWG) on January 26, 2010, regarding the substitution request. Members of the TCWG expressed general support for the substitution request and asked that OCTA provide additional information on OCTA's authority to implement the projects, as well as funding commitment.

OCTA has authority to implement the three signal synchronization projects under provisions of the California Public Utilities Code. OCTA has successfully implemented similar signal synchronization projects on other corridors in the past several years. OCTA has secured $2.5 million for signal synchronization implementation on the three corridors. We expect all three corridors to be complete by June 2011, and we request that the Southern California Association of Governments proceed with Regional Transportation Plan and FTIP amendments as necessary for the substitution projects.

Please contact Anup Kulkarni, Section Manager, Regional Modeling, at (714) 560-5867 for follow-up on the letter. Thank you for your assistance in this important matter.

Sincerely,

Kia Mortazavi
Executive Director, Development

KM:kb

c: Huasha Liu, SCAG
Rongsheng Luo, SCAG
Jonathan Nadler, SCAG
Kurt Brotcke, OCTA

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