

Final Emissions Outreach Plan

Economic and Air Quality/Climate Impacts of
Delays at the Border

San Diego, CA

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In Coordination with T. Kear Transportation
Planning and Management, Inc.



Contents

- 1. Introduction 1
- 2. Overview of Air Quality Impacts Work 1
- 3. Emissions Roundtable Goal and Suggested Topics 4
 - Goal 4
 - Topics 4
- 4. Logistics 5
 - Format 5
 - Proposed Roundtable Participants 6

1. Introduction

This document provides the framework for an emissions roundtable that will function as a peer review of proposed methods and data; it is one of several inter-related deliverables facilitating the emissions analysis portion of the Economic and Air Quality/Climate Impacts of Delays at the Border study (the project). A high-level overview of the work-flow for the emissions analysis (Figure 1) shows the interrelation between each portion of the emissions analysis. This document describes the structure, purpose, and schedule for the emissions outreach task and is represented by Task 2.4 in Figure 1. In addition to identifying each part of the analysis process, Figure 1 highlights where consultation with the Project Study Team (PST) is envisioned.

2. Overview of Air Quality Impacts Work

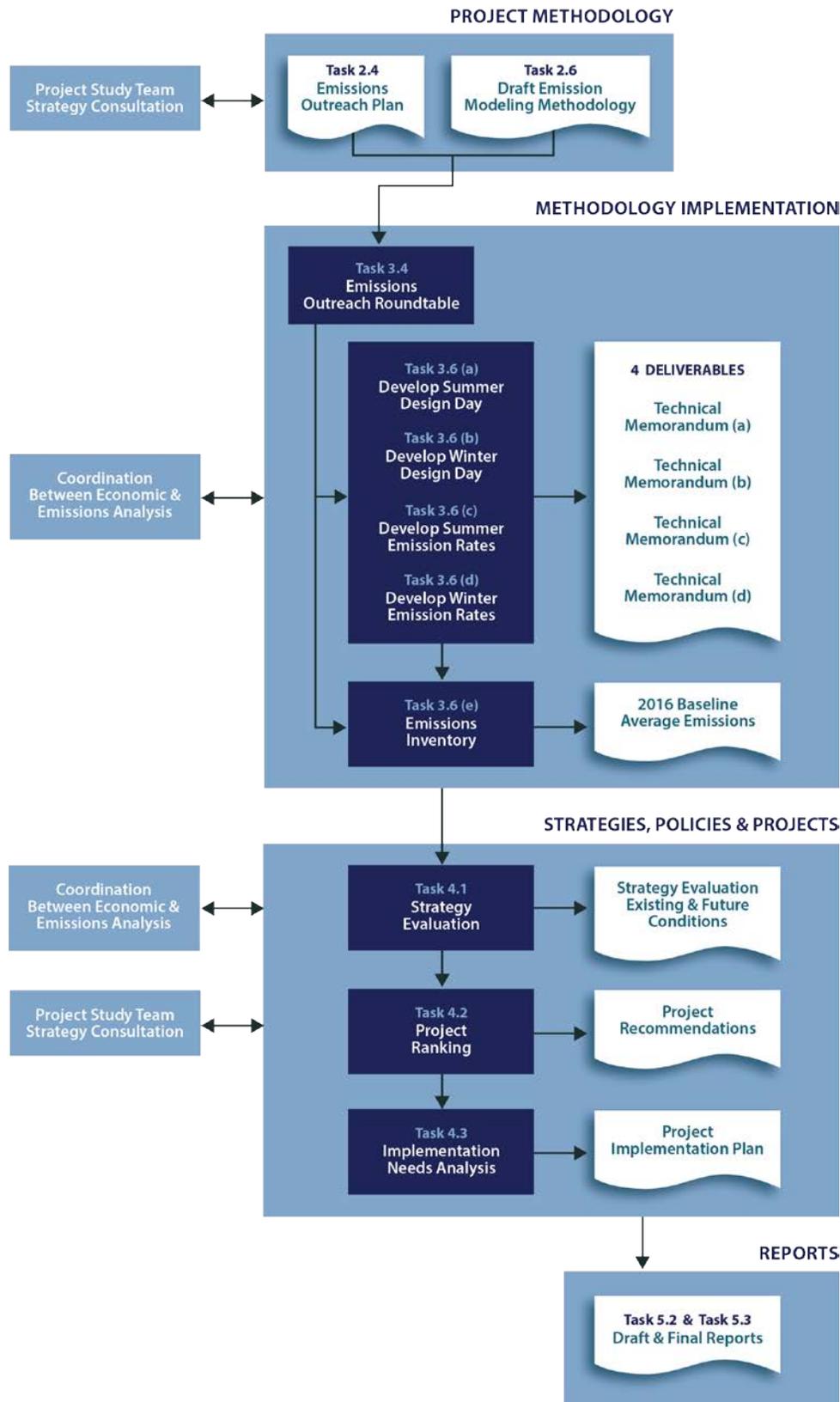
A description of the key tasks in the emissions analysis is presented below, followed by sections that detail the Emissions Roundtable Goal and Suggested Topics, and Logistics.

Task 2. Project Methodology includes the development of this outreach plan, and development the Emissions Model Methodology as a separate deliverable:

- **Task 2.4 Emissions Outreach Plan** (this document) identifies and builds consensus around the types of Land Port-of-Entry (LPOE) management and infrastructure strategies for which emissions analysis will be conducted during this study, the types of emissions data that ultimately needs to be produced, and how to conduct the analysis. Some of the new and novel strategies that Caltrans has expressed interest in need to be identified up front so that analytical methods are designed to accommodate those strategies. Consensus on the types of emissions reduction, operation, and infrastructure strategies that will be analyzed, needs to be assembled with input from the PST.¹
- **Task 2.6 Emissions Model Methodology** will leverage the approaches developed for the U.S. Federal Highway Administration (FHWA) and the U.S. – Mexico Joint Working Committee on Transportation Planning in the United States-Mexico LPOE Emissions and Border Wait-Time Analysis Template (the JWC template). That methodology considers all of the pollutants included in this study: carbon dioxide (CO₂), coarse particulate matter (PM₁₀), fine particulate matter (PM_{2.5}), carbon monoxide (CO), and oxides of nitrogen (NO_x). The JWC template does not address vehicle emissions beyond the area immediately influenced by the LPOE (off-site emissions). Where needed, the effect of off-site emissions will be incorporated into this analysis. There are specific adaptations that need to be made to the JWC analysis template for use in California. EMFAC does not account for the U.S. and Mexican registered vehicles at the LPOEs that run on Mexican fuels, and greenhouse gas (GHG) emission reductions attributable to California's low carbon fuel standard will need to be backed out for vehicles burning fuel purchased in Mexico. Making adjustments to better reflect the vehicle and fuel characteristics at the border requires detailed information about fuel purchases, vehicle classes and age distributions, obtained from intercept surveys.

¹ The PST includes representatives from SANDAG, Caltrans, ICTC, and SCAG.
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Figure 1. Overview of Emissions Analysis for California-Baja California Border Delays Study



Study team member TKTPM has experience making similar adjustments for hydrocarbon emissions at the Calexico East, Calexico West, and San Ysidro LPOEs, but will use the methodology document and emissions roundtable to vet proposed adaptations with technical experts from key agencies.

Task 3. Methodology Implementation executes the emissions outreach plan and then uses the expert feedback in development of key inputs to the emissions analysis for each LPOE and the estimation of the baseline emission inventory for each LPOE.

- **Task 3.4 Conduct Emissions Outreach** will convene a peer review roundtable discussion to perform a technical review of the emissions analysis goals, potential study strategies, and procedures at Caltrans or SANDAG’s offices, with follow-up calls and webinars as appropriate. The roundtable is to facilitate peer review of the proposed methods and data for the overall emissions analysis. A draft of proposed emissions inventory analysis methodologies, and the menu of potential LPOE strategies to be analyzed as part of this study, will be circulated to the participants prior to the peer review roundtable. The purpose of the roundtable discussion will be to identify strategies and time periods that will be analyzed as part of this study, and to build consensus regarding off-model calculations. Areas of agreement and disagreement will be documented and reviewed with the Project Study Team. Interpretation services will be available.
- **Task 3.6 Implementation of Emissions Model** at the LPOEs. Emission estimation will be done by combining vehicle activity data from queuing and delay models with emission rates generated by EMFAC, following the procedures specified in the JWC Template. Where necessary, off-site emissions will be quantified using vehicle miles traveled (VMT) estimates from origin-destination surveys and county average emission rates. Calculation details will be refined through the emissions outreach roundtable conducted under Task 3.4. Activity data and emissions rates representing summer and winter “design day” conditions will be documented for discussion with the PST. The traffic volume and delay estimates used in the analysis will be developed in coordination with the concurrent economic analysis. Queuing and delay models developed and calibrated during this task will be used to develop and analyze study recommendations in Tasks 4.1 through 4.3.

Task 4. Strategies, Policies and Projects will focus on expanding the analysis of baseline conditions to future study years and analysis of strategies that may improve mobility at the LPOE, reduce delays, and/or reduce emissions.

- **4.1 Emission Reduction Policies & Strategies.** Queuing and delay models developed and calibrated under Task 3.6 will be used to generate vehicle activity profiles for each emission control and infrastructure scenario being studied, and the resulting emissions inventories for each LPOE estimated. The specific scenarios and key assumptions will be determined in coordination with the PST. The marginal impact of each strategy on the emissions will be determined for input into the development of specific recommendations under Task 4.2
- **4.2 Project Recommendations.** The marginal emission impacts of different strategies developed above will be used to evaluate and recommend specific projects. Once

projects and policies are identified, they will be ranked using a multi-criteria approach, with an emphasis on identifying those that provide emission reduction benefits. The specific criteria to be used in the ranking of projects, and the projects to be evaluated, will both be discussed with the PST.

- **4.3 Implementation Strategy.** After a list of recommended policies and projects to reduce emissions has been generated, this task will draft a high-level implementation plan. This plan will include an overview for the execution of the recommendations as well as the anticipated time required to complete them, and, identify key stakeholders and the agencies that would be responsible. The plan will also identify key prerequisites that need to be fulfilled before the recommendations can actually be implemented such as legal and policy approvals, where information is available, and discuss funding strategies. Descriptions will utilize plausible assumptions for funding when available, or note that the timing and source of funds needs to be identified.

Task 5. Reports includes preparation of draft and final reports, drawing on all of the preceding tasks along with feedback from the PST.

3. Emissions Roundtable Goal and Suggested Topics

Goal

The goal of the emissions peer review roundtable is to develop and vet, in collaboration with SANDAG, Caltrans, and ICTC, strategies to determine the necessary emission data and methodology to estimate particulate matter (PM), oxides of nitrogen (NO_x), reactive organic gases (ROG), carbon monoxide (CO), and greenhouse gas (GHG) emissions at the LPOEs due to cross-border passenger vehicle and truck northbound and southbound delays. TKTPM will convene a peer review roundtable discussion with vehicle emissions and border crossing experts to address issues related to emissions from wait-times at LPOEs with participation of stakeholders from the United States (U.S.) and Mexico.

Topics

The following topics will be covered as part of the roundtable agenda. The Draft Emission Modeling Methodology (Task 2.6) will provide appropriate background material to support the discussion.

- Scope of the analysis (annual average PM, NO_x, ROG, CO, and GHG emissions).
- Overview of northbound and southbound border crossing process at each LPOE for both privately owned vehicles (POV) and commercial vehicles (trucks).
- The seasonal and daily variability of volumes and delay at each LPOE, seasonal effects (including fuel and temperature effects) on emission rates, and the identification of “design day” characteristics to estimate annual average emissions.
- Overview of the JWC analysis template.

- Discussion of the types of strategies that are anticipated and data being collected to address them.
- Current understanding of Baja California and California fuel formulations and impact on emissions.
- Current Mexican and US inspection and maintenance programs and their effect on emissions.
- Comparison of Mexican mileage accrual to assumptions in EMFAC 2014.

Consensus on the types of emissions reduction, operation, and infrastructure strategies that will be analyzed needs to be assembled with input from stakeholders to frame some of these topics. The Draft Emission Modeling Methodology (Task 2.6) will initiate this process for the PST. Note that this will be a preliminary list of categories, not a detailed list of the specific strategies.

4. Logistics

Format

Roundtable discussion and webinar hosted at SANDAG's offices. The date of February 16, 2017 has been selected for the peer review roundtable. A briefing package will be distributed on February 8th. The meeting will include a webcast for remote participants. Expected duration of the roundtable meeting is about two to four hours, and is being scheduled from 10 AM to 2 PM. The emphasis of the roundtable will be to reach consensus over technical and data issues, rather than detailing the specific strategies for analysis. Spanish-English translation services will be provided.

Proposed Agenda

The agenda is anticipated to include:

- Introductions;
- Background on the study and goals of the peer review roundtable;
- Review of Task 2.6 Emissions Modeling Methodology;
- Discussion of strengths and weaknesses of proposed approach;
- Identification of next steps in review and/or solicitation of concurrence with approach.

The Task 2.6 Draft Emissions Modeling Methodology will be reviewed by the PST in advance of the peer review roundtable meeting.

Proposed Roundtable Participants

| Category | Agency/Organization | Participant Name |
|---------------------------------|-------------------------------------------------------------------------------------|---------------------------------------|
| U.S. Local | Imperial County Air Pollution Control District (ICAPCD) | Matt Dessert |
| | | Belen Lopez |
| | San Diego County Air Pollution Control District (SDAPCD) | Nick Cormier |
| | | David Shina |
| | | Laura Shield |
| | U.S. State | California Air Resources Board (CARB) |
| U.S. Federal | FHWA Office of Planning | Sylvia Grijalva |
| | U.S. Customs and Border Protection (CBP) | Sally Carrillo |
| | | Charmaine Rodriguez |
| | | Toby Don Sosbee |
| | | Amy Archibald |
| | Carlos Rodriguez | |
| U. S. EPA Border Liaison Office | Jeremy Bauer | |
| U.S. Academic | San Diego State University - Graduate School of Public Health | Jenny Quintana |
| | San Diego State University – Institute for Regional Studies of the Californias | Paul Ganster |
| | University of California, Davis - Department of Civil and Environmental Engineering | Deb Niemeier |
| México Local | Ayuntamiento de Tijuana | Ing. Juan Eduardo Perez Gutierrez |
| | | Arq. Alejandro Lomelin Clapera |
| México State | Consejo de Desarrollo Económico de Mexicali, A.C. (CDEM) | Rene Acuña |

| Category | Agency/Organization | Participant Name |
|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------|-----------------------------------------|
| | Secretaría de Protección al Ambiente de Baja California (SPA) | Margarito Quintero Nuñez |
| | | Saúl Guzmán |
| | Secretaría de Infraestructura y Desarrollo Urbano del Estado (SIDUE) | Carlos López Rodríguez |
| | | Karlo Limón |
| | | Victor Rangel |
| | México Federal | Consulate General of Mexico (San Diego) |
| Secretaría de Hacienda y Crédito Público (Aduanas) | | Lic. Héctor Romero |
| Secretaria de Medio Ambiente y Recursos Naturales (SEMARNAT) | | Alfonso Blancafort |
| | | Daniel López Vicuña |
| | | Judith Trujillo Machado |
| México Academic | El Colegio de la Frontera Norte (COLEF) – Departamento de Estudios Urbanos y del Medio Ambiente. | Tito Alegría Olazábal |
| | Universidad Autónoma de Baja California (UABC) - Instituto de Ingeniería | Marco Antonio Reyna Carranza |