

San Joaquin Valley Interregional Goods Movement Plan



submitted to

Fresno Council of Governments

submitted by

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with

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**Kern Council
of Governments**



**CAMBRIDGE
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1.0 Overview

1.0 Overview

Goods movement has become an increasingly important transportation, economic, and environmental issue for the eight counties in the San Joaquin Valley (the Valley). In the Statewide Goods Movement Action Plan, the California Department of Transportation (Caltrans) designated the Valley as one of the State's four major international trade corridors. The Valley is the leading agricultural producer in the world, and it also supports major food processing industries. Portions of the Valley continue to be major oil and gas producers. Due to its central location, relatively inexpensive land, labor force, and multi-modal transportation system, the Valley also is becoming a major distribution point for international exports and consumer products. Prior to the recession, the Valley was the fastest growing population center in California and is poised to return to this position as the economy recovers.

This picture of the Valley can be achieved if the region effectively plans for efficient goods movement and successfully partners with the private sector, state and Federal agencies to make necessary investment. But a failure to effectively plan and invest could result in congested and poorly maintained highways, lost economic opportunities due to inadequate access to markets, land use conflicts between logistics-oriented business and growing communities, and poor air quality due to diesel emissions.

Fortunately, the San Joaquin Valley Councils of Government (COG) have recognized the opportunities and challenges associated with charting their freight transportation future. For over a decade, the Valley COGs have conducted a three phase Valley-wide goods movement study, have participated in numerous other studies of freight traffic patterns, and have identified a variety of innovative rail services and improvements. Most recently, this work led to the development of a Goods Movement Action Plan and award of funds under the California Trade Corridor Improvement Fund program.

This San Joaquin Valley Interregional Goods Movement Plan is intended to take the next steps to develop and implement the region's freight transportation vision. This effort, more than the prior phases of the Valley Goods Movement Study, is focused on developing actionable project recommendations and implementation plans. There are many project concepts that have been developed over the last decade that include strategies, such as short-haul intermodal rail services, short sea container barge services, mainline rail capacity projects, SR 99 capacity and operational improvements, east-west highway improvements, and a host of other innovative goods movement systems ideas. Not all of these can be funded, and not all are of the highest priority. At the conclusion of this planning effort, it is important that the Valley goods movement stakeholders prioritize this project list based on clear criteria that reflect the region's goals and objectives. The projects need to be market-based, and at least some need to demonstrate state and national benefits. This approach to building a portfolio of prioritized freight projects is

critical to attract the private, state, and Federal funds that will be needed to implement the plan. Freight projects tend to be expensive and institutionally complex, and this plan must provide a way to navigate these rough seas. While the future funding picture for freight transportation is murky today, the Valley COGs have already seen that regions that take steps to develop their project plans now will compete most effectively when funds do become available.

Cambridge Systematics has put together a team with the right blend of skills to prepare an effective San Joaquin Valley Interregional Goods Movement Plan. Cambridge Systematics has more than 25 years of experience in freight transportation planning for Federal, state, metropolitan planning organizations (MPO), and private-sector clients; and we have prepared goods movement plans for almost every major MPO region in California. We conducted all three phases of the San Joaquin Valley Goods Movement Study, and we have participated in other goods movement planning efforts in the Valley. We are joined for this study by The Tioga Group, Fehr & Peers, and Jock O'Connell. Tioga specializes in freight transportation planning for public and private clients; and like Cambridge Systematics, has a history of work on innovative freight projects in the Valley. Cambridge Systematics and Tioga have worked together on a number of freight projects in California. Fehr & Peers also brings goods movement planning experience, but just as important, they bring an intimate and current knowledge of the Valley transportation system and the plans for its growth and improvement. Jock O'Connell is an expert in air cargo and brings unique experience with agricultural exports and trade, a critical aspect of goods movement in the Valley.

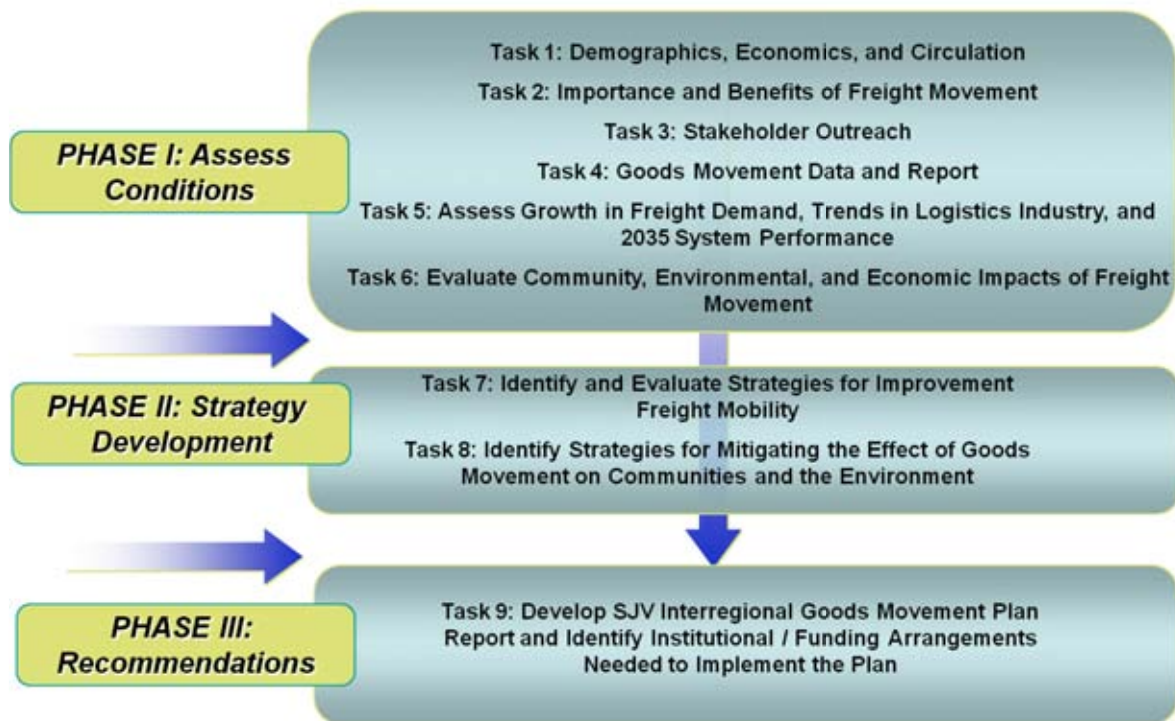
Our management team exploits the team's unique capabilities by bringing all of the key staff who represent the expertise described above. Our proposed Project Manager, Michael Fischer, is Director of Strategic Business Development for Cambridge Systematics' freight transportation practice; and has more than 30 years of experience managing freight projects. Mr. Fischer was the Manager of Phase I of the San Joaquin Valley Goods Movement Project, and he was Principal in Charge for Phases II and III. He managed the Metropolitan Transportation Commission's (MTC) Bay Area Regional Goods Movement Study, and currently is managing the Southern California Association of Governments (SCAG) Comprehensive Regional Goods Movement Plan. He will be assisted with management responsibilities for this project by Sophie Hartshorn, who has been a Deputy Project Manager for major freight transportation planning efforts in Southern California, Oregon, Texas, New Mexico, and Kansas. Rounding out the management team is Daniel Smith of Tioga Group, and Richard Lee of Fehr & Peers. Mr. Smith has more than 30 years of freight transportation planning experience with a focus on intermodal rail and port systems. He and Mr. Fischer have worked together for almost 15 years on various projects throughout California. Mr. Lee is a leader in travel demand forecasting, and has extensive experience with the Valley's transportation systems and plans. In addition to the management team, we have organized our technical team into six discipline groups: Goods Movement Trend/Industry Analysis, Freight Data and Forecasting, Stakeholder Outreach, Project Development and Evaluation, Funding and Institutional Analysis, and Community/Environmental Issues. In this way, we ensure that we have expertise in all the necessary technical areas required to deliver the project.

There are nine tasks contained in our Technical Approach grouped into three phases, as shown in Figure 1.1:

- **Phase 1 – Assess Conditions (Tasks 1 to 6).** This phase will assess existing goods movement conditions in the San Joaquin Valley. The Cambridge Systematics team’s efforts will build on the recently completed regional goods movement planning studies, and will be multimodal (truck, rail, air, and port) in scope. Topics covered in this phase will include San Joaquin Valley economic and demographic conditions; regional freight infrastructure and commodity flow profile; stakeholder goals and priorities; key issues impacting goods movement; and potential impacts from growing goods movement volumes on the region’s communities and environment. A major element of this phase will be to update the key data and forecasts of goods movement to reflect shifts in the Valley’s economy since the recent recession, and to understand how this affects goods movement patterns. This phase also will compile information about emerging trends in supply chain management and logistics and carriers, new technologies that create opportunities for managing goods movement, changes in the transportation system (including rail and highway investments), and changes in the funding picture for goods movement at the national and state level. Finally, this phase will include an extensive stakeholder involvement program to ensure that stakeholders are involved in all phases of the project and provide buy-in for the final recommendations. The stakeholder outreach program will include the convening of a stakeholder working group of public and private stakeholders, who will play key roles in making the strategies work. In addition, there will be one-on-one meetings with key stakeholders, especially during the information gathering activities of this phase of the project.
- **Phase 2 – Strategy Development (Tasks 7 to 8).** Working closely with San Joaquin Valley stakeholders, this phase will select and prioritize multimodal projects and strategies according to a regional goods movement vision and goals. The phase will culminate in a prioritized regional project list accepted by regional stakeholders. The strategy development process will start by considering existing project concepts developed over the last 5 to 10 years, but also will incorporate strategy concepts developed from a scan of goods movement activities in other regions with similar issues as those facing the Valley. The strategy prioritization effort will make use of the Valley-wide truck model developed in Phases II and III of the prior San Joaquin Valley Goods Movement Studies, but also will include market-based economic benefits analysis in formats similar to those that were successfully developed to select TIGER grant recipients. Other performance metrics, such as those used in the recent TCIF project selection process, will be considered. The prioritization process also will involve active participation (workshops) with the stakeholder group.
- **Phase 3 – Recommendations (Task 9).** This phase will summarize recommended projects and strategies to improve freight mobility in the SJV, as well as institutional, funding or management strategies. Material from Phase 1 will be used to build support for the potential impacts of the projects and strategies on the regional, statewide, and national economy. The objective will be to develop actionable strategies with roles of implementing agencies clearly defined. A compelling Executive Summary

will be developed suitable for use in presenting the recommendations to various decision-making bodies and funding agencies.

Figure 1.1 The San Joaquin Valley Interregional Goods Movement Plan



2.0 Detailed Work Plan

2.0 Detailed Work Plan

■ 2.1 Phase I. Assess Conditions

Task 1. San Joaquin Valley Demographics, Economics, and Circulation

Overview

The characteristics of a region's demography, economy and circulation are the key drivers of goods movement demand, determining not only what types of commodities and the volumes of traffic generated, but also the demand for particular modal services and the system performance requirements. Fortunately, there is a substantial amount of readily available existing information about the Valley's demographic, economic, and transportation characteristics. Cambridge Systematics went through a similar process of characterizing the Valley context at the beginning of Phase I of the San Joaquin Valley Goods Movement Study and our team member, the Tioga Group has also been a major participant in recent studies of truck circulation patterns that will provide critical input to this task. This will allow us to complete this task quickly and inexpensively. A major focus will be on understanding any emerging trends after the recent recession that might be changing economic and transportation patterns in the Valley from their prerecession trajectory.

Work Steps

This task will research and summarize existing (2011) and future (2035) conditions for the demographic, economic, and circulation characteristics of the SJV study region. The following key topics will be addressed.

Demographics

- The socioeconomic characteristics of the region;
- Other demographic trends, including personal income, education, age, immigration, and birth rate; and
- Implications of these trends for goods movement and passenger transport.

Economics

- Which industries are growing in the San Joaquin Valley? Which are declining?
- What is the region's export outlook?
- What are the associated goods movement needs?
- What is the economic contribution to the SJV economy of freight-dependent industries?

Circulation

- What multimodal infrastructure and facilities should be included in our assessment of the San Joaquin Valley's circulation system?
- What is the SJV's basic infrastructure profile?
- Documentation of the SJV's multimodal freight infrastructure and facilities, including highways, key arterials, inland ports, air cargo facilities, rail grade crossings, rail yards, major truck trip generators, truck stops, and intermodal terminals.
- Emphasis on describing the corridors that provides East-West connectivity, including I-580, SR 152, SR 58, etc.

To accomplish this, we will draw heavily on previously completed documents, reports and studies. Some of the documents that we will reference are included in Table 2.1.

Our work in this task will be assisted by the fact that Cambridge Systematics, Inc, or the Tioga Group participated as prime contractor or subcontractor in many of these relevant studies. Therefore, in addition to clear insights into the findings and implications of these studies, Cambridge Systematics and Tioga have access to underlying working papers, databases, spreadsheets, and contact files.

Ground-up familiarity with these previous efforts also provides the team with critical knowledge of study limitations. This knowledge will enable us to quickly identify where new data or analysis is needed, while making best use of existing data, analysis, and findings. Where new analysis is needed, we will turn to a variety of data and information sources that we have found to be useful in past efforts – using publicly available, free datasets wherever necessary. Some of these public data sets are summarized in Table 2.2 below.

This information will be summarized in a written document that clearly explains the trends and characteristics of the SJV region. A series of maps created in GIS will accompany this written documentation.

Table 2.1 Recent SJV Resources

• San Joaquin Valley Regional Goods Movement Action Plan 2007 • San Joaquin Valley Goods Movement Study (Phase III model input data will be most relevant) • SR 58 Origin-Destination Truck Study • SR 223, 166, 119, 46 and 65 Truck Origin and Destination Study • Central Stanislaus Freight Study • State Route 99 Business Plan • Contacts with county economic development agencies, chambers of commerce, and farm bureaus	• California Interregional Intermodal System Study, Phases I and II • SR 99/I-5 Origin-Destination Truck Study • SACOG Goods Movement Study and Goods Movement Action Plan (three phases) • East Side Business Plan (Short-Haul rail) • Recent and ongoing updates of the long-range transportation plans of each of the Valley COGs • Updated economic and demographic data from the California Department of Finance and Employment Development Division
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Table 2.2 Potential Data Sources

Category	Source	Type of Data
Demographic Data	U.S. Census	Economic census, County Business Patterns, Demographic Data
	Caltrans	Economic & Demographic Forecasts by County
	Department of Finance (DoF)	Demographic Data and Projections
Economic Data	Employment Development Department (EDD)	Industry Employment by County
	U.S. Bureau of Labor Statistics (BLS)	Employment & Demographic Forecasts by County
	U.S. Bureau of Economic Analysis (BEA)	Economic and Industry Data

Table 2.2 Potential Data Sources (continued)

Category	Source	Type of Data
Circulation: Infrastructure & Facility Data Types	Caltrans and FHWA	Highway Performance Monitoring System (HPMS) – Lane miles and functional classification
	Caltrans	Truck Routes: Caltrans Truck Network maps and info
	Federal Railroad Administration (FRA)	Rail Network: FRA’s National Rail Network Dataset
	Federal Aviation Administration (FAA)	FAA’s Public Use Airports dataset.
	U.S. Department of Agriculture (USDA)	Major Feed Lots and Grain Silos: USDA’s National Agricultural Statistics Service
	FRA and Caltrans	At-Grade Crossings

Task 1 Deliverables

- Written description of the SJV region, including demographic and economic profile, as well as a description of the SJV’s freight transportation infrastructure and facilities; and
- Maps to support the written description of demographic, economic, and circulation characteristics of the SJV.

Task 2. The Importance of Goods Movement to the SJV and the State**Overview**

Goods movement and freight transportation are essential to supporting the SJV region’s economy and quality of life. Industries such as agriculture, distribution, and petroleum production employ thousands of people, and contribute billions of dollars to the regional tax base. Freight movement – including trucks, rail, air cargo, inland ports, and pipeline – links the region’s residents and industries with each other, the nation, and the world. The SJV economy depends on reliable and efficient goods movement to keep its own economy moving, as well as contribute to the economic health of California and the Nation as a whole. In addition, the SJV is a cornerstone of the national effort to increase exports.

Work Steps

Describing and quantifying the benefits of goods movement is an essential step in developing a San Joaquin Valley Interregional Goods Movement Plan. We will create a concise summary document to quantify the importance of goods movement to the SJV region, California, and the nation, using easy-to-explain metrics. Work steps will include:

- Reviewing existing research efforts (such as those listed in Task 1 above) for the type of benefits that should be analyzed. Benefits are likely to include direct and indirect employment, tax revenue, and regional economic development synergies. The study team will also document the share of total U.S. production of key products (oil, agricultural products, etc.) that originates in the SJV region.
- Canvassing SJV stakeholder groups for other potential benefits to assess, summarize, and highlight.
- Reviewing recent successful grant applicants (TCIF, TIGER, etc.) from around the nation to see if there are other benefit categories that should be considered.
- Updating any benefit categories that do not have current or reliable estimates. Sources for this effort may include the economic and demographic data listed in Table 2.2, as well as other regional, statewide, and national data sources. We will also make use of the Task 4 commodity flow profile to highlight the value and nature of trade and commodity flows between the Valley and the rest of the state and the nation.
- Summarizing key information into a concise, yet compelling document. This material will serve as a stand-alone document, and will also be included as part of the Executive Summary and the SJV Interregional Goods Movement Plan.

Task 2 Deliverables

- Written description of the importance and benefits of goods movement to the SJV region, the state, and the Nation.

Task 3. Stakeholder Outreach

Overview

The number and diversity of stakeholders involved in SJV goods movement activities requires an in-depth public outreach process. We are suggesting a two-tiered approach summarized in Tasks 3.1 to 3.5 below.

- Identifying an all-inclusive master list of stakeholders for mailings, surveys, or invitations to “town hall” meetings; and

- Development of a smaller stakeholder working group representing the interests and perspectives of the larger group.

Both groups will provide the SJV planning agencies opportunities to build their own contacts and relationships for future stakeholder communications.

Work Steps

Task 3.1 Build List of Stakeholders

In this task, the team will create the master list and then work with the SJV COGs and Valleywide Project Manager to define the stakeholder working group. Tioga has developed stakeholder contact lists in several projects for STANCOG, SJCOG, Kern COG, and other regional planning agencies. Those lists have been used successfully in the past to contact more than 1,000 trucking firms, private fleet operators, distribution centers, and local businesses. Cambridge Systematics developed a similar stakeholder list for Phase I of the San Joaquin Valley Goods Movement Study, which included major industry associations such as the California Trucking Association, the county farm bureaus, and local chambers of commerce. Through their extensive work supporting regional transportation plan development of the Valley COGs, our team member Fehr & Peers has also developed good contacts and an understanding of most of the key public sector stakeholders who should be included in the outreach process. Some of the public and private stakeholders that we anticipate contacting are listed in Table 2.3.

Table 2.3 Sample of Potential SJV Stakeholders

• Modesto a Empire Traction Company	• California Trucking Association
• Burlington Northern Santa Fe	• Smaller trucking industry associations
• Union Pacific	• California Department of Agriculture
• San Joaquin Valley Railroad	• California Air Resources Board
• Port of Stockton	• California Highway Patrol
• Port of Sacramento	• SJV MPO Representatives
• Port of Oakland	• Caltrans District 6 and District 10
• U.S. DOT/FHWA	• Chambers of Commerce

Outreach to these various groups will be a team responsibility with Cambridge Systematics leading the outreach efforts but with major support from Tioga for outreach to the private sector and from Fehr & Peers for outreach to the public sector. We will all participate at different points in the project in staffing the stakeholder groups and in making presentations to COG boards and other significant stakeholder meetings.

The San Joaquin Valley COGs are comprised of all the cities and counties in the Valley. We will use the COGs as a forum and sounding board for local government issues. Using the collective knowledge of both the consultant team and the Valley COGs, we will also identify key local government representatives with interest and experience that qualify them for the stakeholder working group.

Task 3.2 Stakeholders Kickoff Meeting

The master stakeholders list would be used to invite the broadest range of stakeholders to the initial meeting. The team will also make a special effort to encourage attendance and participation by the core stakeholder working group.

To keep stakeholders informed, obtain input, and facilitate consensus building, the team will use efficient and effective on-line tools:

- Constant Contact, or equivalent to publicize meetings, announce the availability of drafts, or seek survey input;
- A web site (www.SJVCOGS.com or a separate project web site) to make schedules, drafts, and other information readily available; and
- Survey Monkey (or equivalent) to solicit specific input.

Task 3.3 Identify Stakeholder Roles

Understanding the roles played by private parties within the goods movement industry and by public agencies within the planning, funding, and implementation process is pivotal to a successful study.

- **Private Stakeholders.** The team will describe private-sector stakeholder functions, their interactions, and their concerns. Table 2.4 shows a sample matrix of role descriptions from the SJCOG CIRIS Study.
- **Public Stakeholders.** The relevant roles and responsibility of public stakeholders will be summarized in terms of their relationship to the SJVCOGs planning, project selection, funding, and implementation process.

The study team will also link the various freight sector roles to their infrastructure requirements to add value to this task and integrate it with Tasks 4, 7, and 8.

Table 2.4 Sample Private Stakeholder Roles Matrix

Role	Description	Potential Participants
Rail Shuttle Sponsor	Public, private, or public-private organization that develops and oversees the shuttle system	Caltrans, joint powers authority, councils of governments
Rail Shuttle Customer	Tenders container to railroad for line-haul movement, pays rail invoice	Shipper, consignee, ocean carrier, drayman, IMC
Manager	Supervises door-to-door service, handles problems	Shipper, consignee, ocean carrier, drayman, IMC, terminal operator
Railroad	Operates trains, receives containers in interchange	Railroad (BNSF or UP)

Task 3.4 Stakeholder Meetings and Teleconferences

The description of some stakeholder meetings are included in the technical task write-ups within this proposal. For example, Task 7 is proposing a stakeholder workshop to finalize the goods movement system's vision, goals, and objectives, as well as stakeholder meetings to discuss and finalize the prioritized project list. These workshops and meetings are described under Task 7 since they are vital to the technical work for that task.

For all meetings and workshops, conserving stakeholder time is a key factor in obtaining sustained attention and useful feedback. With this goal in mind, our approach to the stakeholder meetings will be guided by several concepts:

- The study team will review the quarterly meeting schedule with Fresno COG staff and compare it to expected deliverable dates. Whenever possible the dates will be aligned.
- Briefing materials will be distributed in advance of each workshop or teleconference.
- Presentations during the meetings will be brief and to the point, and will solicit feedback on specific issues rather than asking for unstructured comments.
- The study team will explore the use of Webinars and the video conferencing capabilities available in the Valley in place of teleconferences.
- Specific stakeholders may be approached for input for specific tasks, even if they are not part of the stakeholder working group. For example, port stakeholders will be approached for input on import and export flows and other port-related questions.

The study team views prompt and effective follow-up as an essential part of a successful outreach and collaboration effort. Stakeholder questions that cannot be answered on the

spot require follow-up contacts, as do stakeholder offers of information or site visits. Followup and feedback demonstrate to stakeholders that their time has been well used, and that their concerns and input are valued and communicated to the planning agencies.

Task 3.5 Quarterly Progress Reports

The quarterly progress reports will be structured similarly to the quarterly contacts with stakeholders. To maximize the effectiveness of the limited time slots typically available at committee and board meetings, briefing materials will be sent in advance. The content of these reports would be developed in consultation with Fresno COG staff.

Task 3 Deliverables¹

- Stakeholder matrix, including contact information for all stakeholders, and a description of how each stakeholder was involved in this process;
- Meeting agendas, circulated to the stakeholders in advance of each meeting;
- Meeting participation logs and notes;
- Meeting presentations and handouts; and
- Quarterly progress reports.

Task 4. Current Goods Movement Data

Overview

The goal of Task 4 is to understand the current (2010) volumes and types of commodities that are utilizing the SJV region's multimodal freight infrastructure system, and any constraints and deficiencies that are limiting system performance. The commodity flow profile will look at all types of freight traffic moving in the region. In addition, this task will identify the region's key freight facilities, their proximity to customer industries, and any specific bottlenecks and issues affecting those facilities and customers. As well as tying transportation functions to economic development goals, this knowledge will allow for easier identification of strategies and projects in Task 7.

Phase I of the San Joaquin Valley Goods Movement Study developed a similar profile of goods movement in the Valley just over a decade ago and the general content and format

¹ It should be noted that while we anticipate the need to meet directly with a variety of stakeholders during Task 4 and subsequently we will be conducting workshops with stakeholders during strategy development and prioritization in Task 7, we have included most of our travel resources for the project in the Task 3 budget. We intend to use these resources throughout the project to cover outreach, data collection, and stakeholder involvement in decision-making.

of this information (county and subcounty level commodity flows, shipper databases, information about modal usage) will provide a model for this study. However, we have learned much about the strengths and weaknesses of the available freight data sources over the last decade that can be tapped for this effort. We have also developed new techniques that can be used to map commodity flows on the transportation network by commodity/industry type. This is particularly useful in understanding which parts of the transportation network are used most intensively by key industries in the Valley. We will develop “supply chain maps” for key Valley industries, and will use these in Task 7 to help prioritize strategies based on their economic significance.

Work Steps

Task 4.1 Describe the Current Market Flow Patterns of Goods Movement

Create a Commodity Flow Profile for the San Joaquin Valley. We will establish a commodity flow profile for the SJV that includes, weight, value, and type of freight moving over each modal system. This profile will identify intra-region, national, and international flows for all commodities that originate, terminate, or pass through the SJV.

There are several primary sources for creating the commodity flow profile. Each of these primary sources is described below. In many regional freight studies that we have conducted, we have found that none of these datasets by themselves provides a complete and comprehensive database at the regional scale. To address this issue, Cambridge Systematics has developed techniques to adjust the commodity flow data using a variety of other published data sources and limited survey/outreach efforts to private business. This general approach to developing substate commodity flow data is being described in a guidebook by Cambridge Systematics for NCFRP 20, which will be completed in 2012. After describing the available primary sources, we will describe how this adjustment procedure could be applied in the current effort.

- **Publicly-available, cost-effective databases (disaggregated FAF2 or FAF3).** The FHWA’s Freight Analysis Framework (FAF) is one of the most comprehensive national commodity flow databases, built from the Commodity Flow Survey (CFS) (Bureau of the Census). Unfortunately, FAF only provides data for the major metropolitan areas and includes all of the rest of California (including the San Joaquin Valley counties) in a single zone. FHWA, in cooperation with Caltrans and CARB, contracted with Cambridge Systematics to develop a methodology to disaggregate the FAF2 data to the county-by-county level. The methodology drew on several additional sources of data, including the County Business Patterns (CBP) and the Census 2000 Public Use Microdata Sample (PUMS). Cambridge Systematics has tested this methodology in several States and regions, including Florida, New Mexico, the Texas Gulf Coast, and currently in California, and has found it to be an excellent data source to use at the county level. FAF2 has recently been updated to include the effects of the 2008 recession and it may be possible to apply the disaggregation methodology to the FAF3 dataset. If not, it should be possible to make adjustments to the disaggregated FAF2 dataset to reflect more recent conditions.

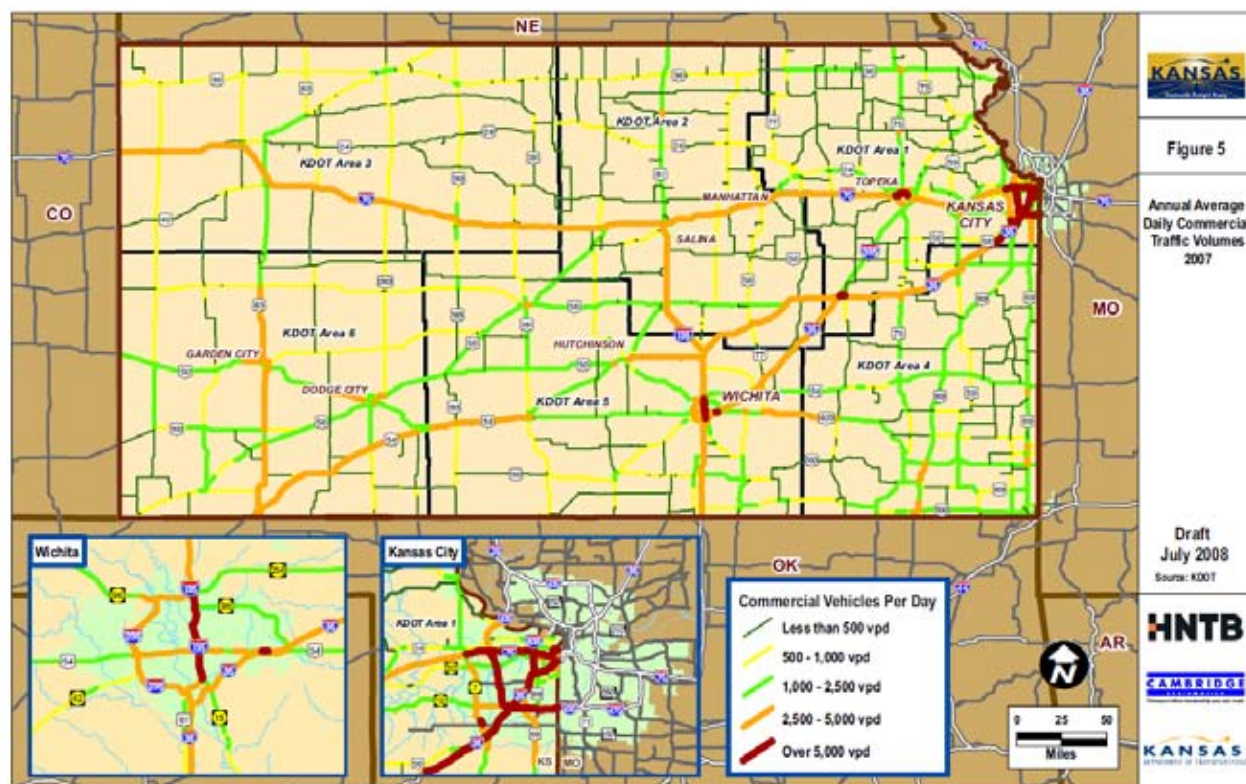
- **Proprietary database from UC Irvine/Caltrans.** Caltrans has contracted with UC Irvine to develop a Statewide Freight Model. Based on recent contacts with Caltrans staff, we understand that UC Irvine is evaluating an option to purchase county-level commodity flow data from IHS Global Insight for use in the model and these data might be purchased sometime in mid- to late-2011. The Global Insight data is a proprietary dataset called TRANSEARCH – previously marketed by Reebie Associates. Whether these data will be available in time for this study and whether MPOs will have access to the data is questionable but we will investigate this data source.
- **Modified ITMS dataset used to develop the San Joaquin Valley Truck Model.** To develop the SJV truck model, Cambridge Systematics used the 2002 Caltrans ITMS database (which is 1996 commodity data), modified using FAF2, the CFS, and other sources. ITMS was used at this time since there was no other commodity flow dataset that provided data at the county-to-county level. However, in the years since the truck model development, Cambridge Systematics has developed the disaggregated FAF2 dataset- using data that is much more recent than the ITMS 1996 data. If the ITMS option is pursued, there would be a need to forecast the 2002 database forwarded to 2010, most likely using the FAF3 forecasts.
- **Carload Waybill Sample dataset.** For the most detailed data on rail movements, the study team will request the confidential version of the STB Carload Waybill Sample for California through Caltrans. This annual 2.5 percent sample of rail movements contains much more detail than the “Public Use” version and is available at no cost to state DOTs for use by DOT and consultant staff in specific research projects. We have used this data source in previous studies to provide detailed views of rail movements in study regions. Theoretically, the Waybill Sample rail flow patterns should be the same as those reflected in FAF, but we have found that there can be differences.

Our recommendation is to use a disaggregated version of the FAF database that is adjusted to reflect the origin-destination patterns of the ITMS database for the most critical commodities in the region. In addition, we will compare the results with several other commodity flow sources, including the IMPLAN economic model, which is released with county level detail and has data on the output and consumption (in dollar value) of all commodities produced or consumed in the region. Another potential source is the County Agriculture Statistics from the U.S. Department of Agriculture. Cambridge Systematics will also use data from the truck O-D surveys mentioned in Task 1 to make further adjustments to the O-D patterns. Finally, through the outreach process, Tioga will seek to corroborate the resulting commodity flows with shippers and carriers who are knowledgeable about the commodity flow patterns of particular industries. This reality check will be important in order to establish the overall credibility of the data.

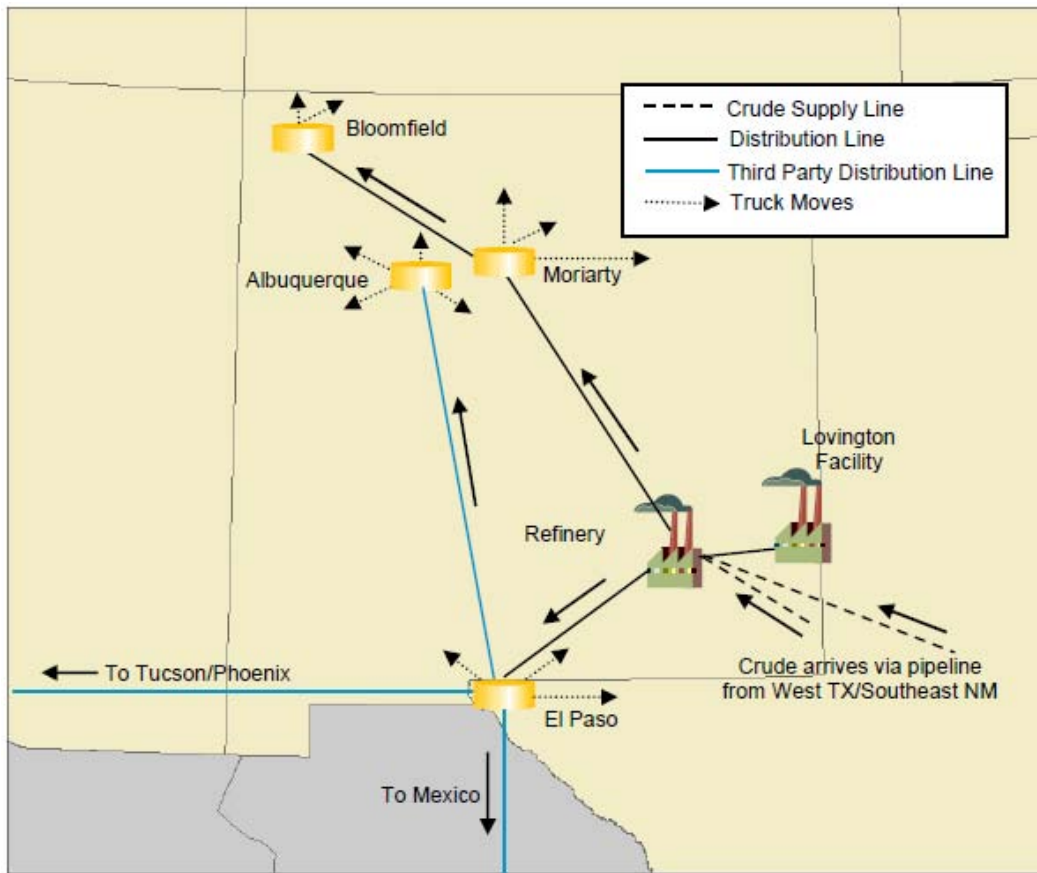
The data sources will be used to create a baseline commodity flow profile that can be fed into the San Joaquin Valley Truck mode. This will help us to translate commodity flows into actual impacts on the regional system. Use of the truck model will also allow for the creation of graphics to depict the type, volume, or value of goods moving on the regional freight network. We will depict flows in terms of tonnage, but will also display the information in truckload equivalents. We will focus on creating graphics that highlight

conditions on regionally important infrastructure, for example the east-west highway connectors that link the SJV to other regions and markets. Figure 2.1 below shows an example of a daily truck traffic volumes map from a commodity flow profile completed by Cambridge Systematics for the Kansas Statewide Freight Plan. Similar techniques will be used to “route” commodity flows on the rail network.

Figure 2.1 Mapping Commodity Flows and Traffic



- Describe the Importance of Transportation to Key Industries.** To better understand how key industries use the SJV region’s infrastructure, we will create selected “Industry Profiles”- an example of which is shown in Figure 2.2 below. Cambridge Systematics has used this approach to mapping supply chains in recent work for the New Mexico DOT, the Port of Portland (Oregon), and the Maine and Florida DOTs. This approach will allow us to identify major highway, rail, and air links in the regional network that are most heavily used by different industries. This is useful for prioritizing infrastructure investments to promote economic development.

Figure 2.2 Sample of an Industry Profile-Logistics Patterns, Oil Refinery**Tasks 4.2 and 4.3 Identify Current Constraints and Deficiencies**

Though listed as two different tasks in the Request for Proposals (RFP), we will discuss constraints (Task 4.2) and deficiencies (Task 4.3) as a combined effort. Constraints will be identified as:

- **Physical.** Relating to the physical condition or capacity of the transportation infrastructure;
- **Operational.** Relating to how the transportation system is being utilized; or
- **Institutional.** Relating to policies, regulations, procedures, or other factors that are affecting overall transportation efficiency within the SJV.

To identify constraints and deficiencies we will:

1. **Develop profiles of each of the freight modes** operating within the state (truck, rail, air and port), focusing on physical extent and key capacity issues. (This will build on

the infrastructure profile completed in Task 1, as well as work completed previously by the project team.)

2. Use existing volume/network data to **identify deficiencies** on the system, by pinpointing places where volume currently approaches or exceeds capacity. We will focus on the major interregional truck routes, or those with high truck volumes and high total traffic relative to capacity. Similar capacity analysis has been conducted for the freight rail system as part of the TCIF applications of the Class I railroads.
3. Supplement this data with **stakeholder consultation** (detailed in Task 3) with the owners, operators, and users of the system to understand system performance and capacity constraints, as well as any specific system bottlenecks or issues that impede the movement of freight.

The results of these modal profiles will allow us to identify the location and severity of key network deficiencies, as they are perceived by system users. It will also allow us to understand why some routes are chosen over others (i.e., minimize distance, avoid grade crossings along route, minimize traversing through small towns). These route choice factors will be identified through interviews with key freight stakeholders. For example, in the Central Stanislaus Freight Study, Tioga's interviews with trucking firms revealed that some prohibited their drivers from using SR 132 west of Modesto as it was considered too dangerous, and that wine movements from Fresno to the Gallo Winery had to use county roads for long distances to avoid an excessively sharp right turn from the nearest freeway exit to the destination.

Task 4 Deliverables

- Modeled output of current-year commodity flow profile using the San Joaquin Valley Truck model;
- List of key capacity constraints and system deficiencies; and
- Technical memorandum that compiles the current year (2010) commodity flow analysis, as well as key system constraints and deficiencies.

Task 5. Assess Growth in Freight Demand, Trends in the Logistics Industry, and 2035 System Performance

Overview

Understanding transportation system performance and needs in the future will allow the San Joaquin Valley MPOs to establish needs, priorities, and plans to address regional long-term system needs. Freight movements affecting the San Joaquin Valley are increasingly national and global in scope and are sensitive to market forces, as well as the decisions of supply chain and logistics professionals inside and outside the area. In addition, freight movements will be sensitive to macro level changes in transportation system

performance as a result of global forces. The impacts of these global forces, however, are often felt locally in the form of increased congestion at intermodal access points and gateways, increased volumes on highway and rail corridors, and worsening air quality in SJV nonattainment areas.

Work Steps

Task 5.1 Assess Trends in the Logistic Industry

Though this task was originally “Task 5.2” in the RFP, we feel that it should occur prior to the future-year commodity flow profile and modeling tasks, since some trends might impact the volume (and routing of) goods movement volumes in the future.

Global Trends. The SJV is very much a part of the global economy and is affected by global trade, transportation, and logistics trends. SJV agricultural products compete in markets worldwide. Fluctuating demand and supply in container shipping, the increased capacity and lower cost of the Panama Canal, the changing role of air cargo – all have implications for what is shipped to and from the SJV and how it travels. We will assess these global trends for their potential impacts on the SJV economy.

National and Regional Trends. We will assess more localized logistics changes – some of which are already occurring on the ground today. The team’s analysis will examine the reality behind the trends and the implications for the SJV. For example, in previous trucking studies Tioga established that “just in time” logistics strategies often resulted in truck parking problems because drivers arrived early to make sure they met scheduled delivery times.

Task 5.2 Project Future Goods Movement Demand

All of the commodity flow datasets (FAF2, TRANSEARCH, or ITMS) discussed in Task 4.1 include a future year forecast. Using this data source as the base data, we will create a commodity profile for the horizon year (2035), including the volume, weight, value, and type of freight moving over each modal system. If TRANSEARCH is not available, we will use the FAF3 forecasts to develop growth factors at a regional scale for each commodity flow and then to adjust these to reflect economic forecasts at the industry level by county for the short term (based on EDD forecasts) and to make the forecasts consistent with locally available economic growth projections at the county level. We will report the future year condition as tonnage, but also, using easily recognizable units such as truckloads and rail carloads. Intermediate years (such as 2015 or 2020) can also be used if deemed useful and necessary by the San Joaquin Valley MPOs.

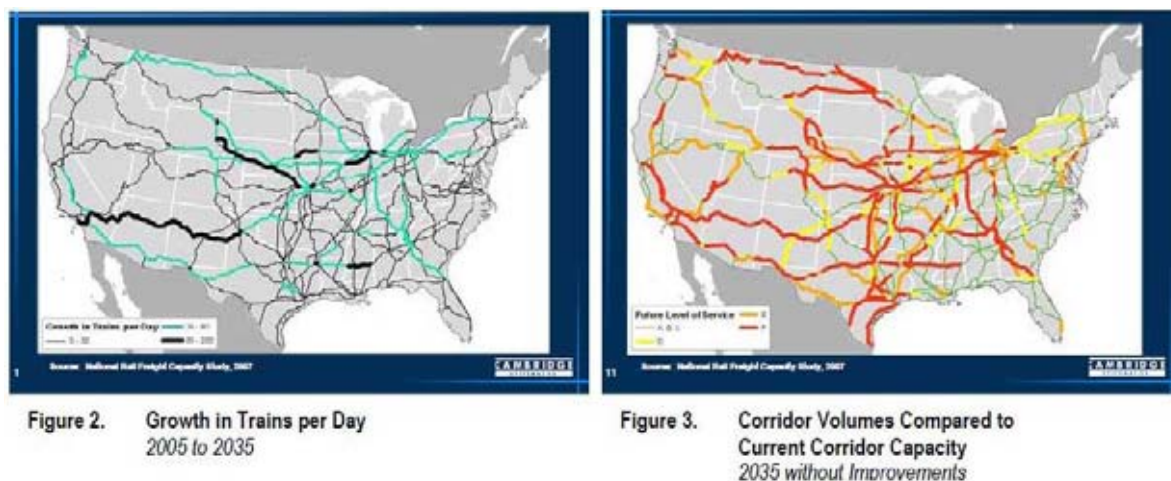
Task 5.3 Model Future (2035) Demand on the Existing System

Once the 2035 commodity flow forecast is established, we will use the San Joaquin Truck Model to produce future-year truck flows to show impacts on the highway system, and we will use the modal commodity flow data to show impacts on rail lines in the Valley and on air cargoes. Similar to Task 4, we will create graphics that highlight conditions on

regionally important infrastructure – for example, the east-west highway connectors that link the SJV to other regions and markets.

An example of how this modeled output might be used is included in Figure 2.3.

Figure 2.3 Displaying Future-Year Commodity and Capacity Data



Task 5.4 Identify Future Deficiencies

We will identify freight needs and deficiencies in major multimodal corridors in the forecast condition. Similar to Tasks 4.2 and 4.3, we will seek to identify physical, operational, and institutional needs and deficiencies. There will be two basic steps:

1. First, we will identify those facilities where freight is a contributing factor to an operational deficiency. These deficiencies could include capacity constraints along key east-west highway corridors, intermodal centers, or rail yards. Similar to Task 4.2, this will essentially involve a comparison of projected volume against projected capacity, in order to pinpoint likely deficiencies in the future year. These deficiencies will be “fact checked” with regional stakeholders.
2. Secondly, we will determine the impact of these deficiencies on the supply chain and distribution patterns of the industries they serve (and identified in Task 2).

This two-step analysis will effectively create a link between freight transportation and key industries, and feed into the methodology used in Task 7 to help more effectively target system investments.

Task 5 Deliverables

Technical memorandum to describe the 2035 “future case” goods movement scenario in the San Joaquin Valley. Items included in this memorandum include:

- Future year anticipated SJV commodity flow profile.
- Discussion of expected trends in logistics (supply chain management, fuel choice, modal choice, etc.) by 2035.
- Summary of potential constraints and deficiencies on the SJV system in 2035. This will be accomplished in written material and a series of maps.

Task 6. Evaluate the Community, Environmental, and Economic Impacts of Freight Movement

Overview

Increasing freight volumes, if not anticipated, may have serious impacts on the region’s communities and environment. Issues such as truck safety, Hazmat and truck parking concerns, air and water quality issues, noise, vibration, lighting from freight movements and freight industries, pavement deterioration, and land use conflicts can all negatively impact the communities and natural environment. In order to lessen these potential impacts, it is essential that the scope of the problem is fully understood.

Work Steps

The first step will be to identify current and potential impacts of freight movement on the region’s communities, economy, and environment. The starting point for this information will discussion with SJV stakeholders throughout the Task 3 effort. This insight will be supplemented with knowledge gained through a review of other recently completed planning studies, as well as the Cambridge Systematics team’s experience in other regions throughout the U.S. Some potential types of impacts are summarized in Table 2.5 below.

Table 2.5 Potential Categories of Impacts from Freight Movement

Category	Type of Data
Community Impacts	• Air quality concerns- impacts on public health • Light and noise pollution • Congestion and bottlenecks • Incompatible/encroaching land uses • Safety concerns – including crashes at rail grade crossings, truck crashes, and truck Hazmat issues
Economic Impacts	• Costs to maintain transportation infrastructure • Costs for increased law/traffic enforcement • Rising costs of goods/services due to “pass through” costs of rising energy prices • Economic impact from water and air pollution – including failed crops, damaged property, and potential impacts of global climate change
Impacts to the Natural Environment	• Loss of greenspace • Water pollution • Dwindling water supply • Air quality – impacts to the environment and global warming concerns

In past phases of the San Joaquin Goods Movement Study, the San Joaquin Valley Air Pollution Control District has been an active participant and we expect to meet with them to outline specific challenges that the Valley faces in meeting PM and Ozone attainment standards as goods movement modes are major emissions sources for PM and NO_x. In particular, we will document the air quality impacts of through truck and train movements.

Next, the team will determine the extent to which these impacts are felt within the SJV. Contact with municipal and regional public works directors has been a valuable tool in previous studies to understand the impacts felt in a community. Those responsible for building and maintaining roads are not only in a good position to describe the physical and economic impacts, but they are often the focal points for public concerns and complaints about truck parking, noise, rail operations, congestion, dust, debris, and other adverse impacts of goods movement. In addition, and depending on the limitation of any data gathered, we may create maps to show areas of conflict- for example where facilities with high truck volumes are in close proximity to areas of dense residential population.

Task 6 Deliverables

- Technical memorandum summarizing the impacts of goods movement on the region's communities, the economy, and the natural environment. This will be the first part of a two-part memorandum; the second portion will accompany Task 8 and will offer solutions to these goods movement challenges.

■ 2.2 Phase II. Strategy Development

Task 7. Identify and Evaluate Strategies for Improving Freight Mobility

Overview

Two products will be developed in this task:

1. **A process** that draws on data and criteria developed in Tasks 1 to 6 to make recommendations and select projects addressing the needs and deficiencies identified in Tasks 4 and 5. The summary of this process will serve as a template for future efforts to define and prioritize strategies and projects.
2. **A prioritized list of projects** developed hand-in-hand with SJV stakeholders and representing solutions to their goods movement concerns. Included in this list will be three types of improvements to the SJV region's truck, rail, air, and port system:
 - a. **Potential project/infrastructure recommendations**, including highway bottleneck relief, grade separations, shoulder improvements, enhancement of intermodal connectors, air cargo facility improvements, rail intermodal facilities, inland ports, Port of Stockton expansion, etc.
 - b. **Operational recommendations**, such as signal timing projects to improve truck flow, or Intelligent Transportation Systems (ITS) investments including traffic condition information dissemination and other improvements.
 - c. **Policy recommendations**, such as those that would address the region's willingness and ability to enter into Public-Private Partnerships (PPP), as well as the impact and unintended consequences of Smart Growth policies (such as SB 375 Sustainable Communities Strategies) on regional goods movement.

Work Steps

Task 7.1 Identify Initial System Strategies

Drawing on the data collected in Tasks 1 to 6, the Cambridge Systematics team will identify potential short-and long-term projects, strategies, and policies that address specific

freight needs and deficiencies in the San Joaquin Valley. Each transportation mode will be included in this strategy identification:

- **Rail: Short-and Long-Haul Strategies.** We will start with the 2007 San Joaquin Valley Goods Movement Action Plan which incorporates a set of identifies strategies and projects. From our prior work on goods movement issues in the Valley we know that there is a strong interest from many of the public agencies in expanding rail services, particularly if this can be done in ways that encourage industrial development and if the resulting projects shift truck traffic to. Members of our team have conducted studies of short-haul rail shuttles and inland port projects in the Valley. The obstacles facing these projects have been related to lack of interest from the Class I railroads, difficulty in meeting shipper service frequency and reliability needs, and the ongoing operating subsidies that might be required. However, the new emphasis on greenhouse gas emission reduction, rising fuel prices, and growing congestion, may mean that it is time to take a fresh look at which of these services have the greatest likelihood of coming to fruition and how they can best be implemented through public private partnerships. We would anticipate exploring these concepts further in Task 7.

Additional **rail system improvements** will need to be identified and evaluated as part of this task. These would include mainline capacity improvements and shortline connections to the existing mainline system and the interaction that these improvements would have with improvements to the San Joaquin's Corridor intercity passenger service and ultimate development of the California High Speed Rail System. These projects will be the subject of planning work as part of the California Statewide Rail Plan update that will be going on in parallel with the San Joaquin Valley Interregional Goods Movement Plan. Coordination with Caltrans, the San Joaquin Valley Rail Committee, and the Class I railroads (particularly the BNSF) will be important as will be updating the status of TCIF projects.

- **Highway Strategies.** Major emphasis is likely to be on developing concepts for east-west highway connections and continued improvements to SR-99. Again, the improvement concepts and initial cost estimates for these projects are known. What needs to be revisited in this study is the regional priorities which should be placed on specific improvements based on likely truck traffic flows and the industries that these flows support.
- **Short Sea Shipping Strategies.** We will also evaluate the progress being made to implement a **short sea shipping service** as part of the M-580 Marine Highway container barge concept.
- **ITS and Other Operational Improvement Strategies.** The Cambridge Systematics team will also brainstorm new project concepts to address goods movement needs. One area that we will explore are operational improvements, including freight-targeted ITS programs. Cambridge Systematics is about to embark on a major project to implement freight-oriented ITS strategies in the Gateway Cities subregion of Los Angeles County where access to the Port of Long Beach and major intermodal facilities is an important feature. We have also been involved in evaluation of the Cross Town

Intermodal Program (CTIP) that is applying electronic supply chain information to manage intermodal flows in the Kansas City area. We will look for opportunities such as this to be applied in the Valley. Other operations strategies such as systems for managing truck parking reviewing truck route designations, will all be put on the table for consideration. We will also solicit input directly from stakeholders while we are conducting interviews.

- **Air Cargo Strategies.** We have included Jock O’Connell on our team specifically because to the experience he brings in **air cargo markets** and opportunities and his unique focus on agricultural exports by air. Mr. O’Connell will help identify any air-port or ancillary facility improvements related to air cargo needs.

The results of this process will be a comprehensive list of all potential project concepts that address issues raised in the analysis of current and future goods movement needs during Phase 1 of the project. This list will be screened down to a more manageable list during Task 7.2.

Task 7.2 Facilitate the Stakeholders’ Selection of Alternatives

We will work with the stakeholder groups to refine the list created in Task 7.1, and create a set of alternatives for the study, assessment, and analysis phase. The first step will be to establish regional goods movement vision, goals, and objectives with the stakeholder group. Though a general discussion of the region’s goals for the study will have occurred during an earlier stage of the study, this discussion will benefit from the updated analysis and findings from Tasks 1 to 6:

- **Define Freight System Vision, Goals, and Objectives.** Vision, goals, and objectives for the freight system will be defined in a day-long stakeholder workshop. Data from Tasks 1 to 6 will be used by the Cambridge Systematics team to create graphics and a presentation to communicate main findings to the stakeholder group. This process will also help stakeholders identify how regional goals fit with larger state and regional visions and goals. Outcomes of the workshop will include:
 - Vision. The long-term view of how freight should be accommodated and promoted in the SJV. *Example: A coordinated system that maximizes the benefits of goods movement activity and minimizes adverse impacts.*
 - Goals set the anticipated regional standard for regional system efficiency, traffic operations, environmental aspects (air, noise, etc.), economic, or any other category of the SJV goods movement system. *Example: A system that provides reliable transportation times.*
 - Objectives show specific steps by which goals can be reached. *Example: Severity of regional hotspots, measured by volume/capacity ratio.*
- **Tie the Vision, Goals and Objectives to Specific Strategies and Projects.** Once the regional vision, goals and objectives are determined, the workshop participants will select strategies and projects that support the region’s vision. This process will be

assisted by several of the activities performed in Tasks 1 to 6. For example, the modal profiles created in Task 4.1 will have already helped to tie specific industries to specific infrastructure. Now, the stakeholder group will be able to select strategies and projects to support specific industries.

Task 7.3 Determine Evaluation Criteria

Following the workshop, we will identify specific criteria to assess the ability of various strategies to achieve or impact system mobility goals. Each system goal should have multiple criteria. The evaluation criteria may include measures that are quantifiable, directly measureable, or evaluated through surrogate measures. However, they must all use available data or knowledge, and be usable as ongoing evaluation criteria. Sample evaluation criteria are included in Table 2.6. Stakeholder involvement will play an important role in identifying evaluation criteria. Issues identified during Task 3 will be quantified where possible and translated into evaluation criteria for this subtask.

Table 2.6 Potential Evaluation Criteria

Goal or Objectives	Potential Evaluation Criteria
Grade crossing safety	Accident rates at grade crossings
Air cargo capacity	Number of airports with sufficient runway length
Bottleneck relief	Traffic volumes, volume/capacity ratio of worst bottlenecks
Well-maintained pavement	Average pavement rating
Short-haul rail capacity	Percent of shortline track miles at or greater than FRA Class 2 standard (25 mph) and able to accommodate 286,000 -lb. weight

For highway projects or rail/inland port projects that have impacts on the highway system, we will use the Valley truck model as a principal source for generating input on quantitative performance measures. Metrics would include reductions in delay (regionally or by corridor), reductions in truck/freight delay, reductions in VMT and emissions, and reduction in travel time between key origins and destination. We will also attempt to develop basic benefits calculations for multimodal projects which would include changes in travel times, changes in costs to shippers or carriers, changes in costs of road or system maintenance. We have prepared these types of benefit assessments for a number of rail projects for comparison with highway alternatives in support of several successful TIGER grant applications.

In order to make the evaluation of alternatives manageable, alternatives will need to be identified and packaged with complementary projects.

Task 7.4 Prepare Alternatives Matrix

An Alternatives Matrix will be prepared to compile and summarize all of the potential strategies into one location. The matrix should be flexible enough to include the range of infrastructure, operational, and institutional/policy options, and should evaluate each potential project or strategy with standard criteria. This will allow for side-by-side comparison of all potential strategies and projects. This may require converting the quantitative information developed in Task 7.3 into a comparative rating (often described as the “Consumer Reports” style rating of relative performance against multiple criteria). All of the backup detailed quantitative data will be provided to the stakeholder group so that the rating process is completely transparent and subject to review. A master list of alternatives ratings will be created that will be refined in Tasks 7.5 and 7.6.

Task 7.5 Facilitate Stakeholder Review of Alternatives

Once the team has identified vision, goals, objectives, and evaluation criteria, it is much easier to review and gain consensus on alternatives. Since the lack of a unified vision is a typical stumbling block in gaining consensus, this step will not be attempted until regional stakeholders are satisfied with the outcomes of Tasks 7.2 and 7.3.

Once the Alternatives Matrix is in place and the appropriate evaluation criteria have been assessed, the Cambridge Systematics team and the stakeholder group will start the process to review and refine the list of strategies and projects. There are several tools available to the Cambridge Systematics team that will facilitate this process:

- **Creation of project Summary Fact Sheets** to summarize how a strategy or project contributes to fulfilling the SJV regional freight system’s vision and goals. The Fact Sheets will summarize relevant material from the Task 1 to 6 work to communicate which projects have easily identifiable benefits for the SJV region, the State, and the nation.
- **Stakeholder Interaction** and discussion will help to select which strategies and projects should be included in the preferred Alternatives Matrix. The Summary Fact Sheets will be used to facilitate the process of prioritization.

Task 7.6 Facilitate the Stakeholders’ Consensus for the Preferred Future System

This task will focus on ensuring that there is regional buy-in for the prioritized strategy/project matrix created in Task 7.5. The matrix will be circulated to all regional partners one final time, to gauge any last minute changes or comments. Lingering issues will be dealt with through one-on-one coordination with the affected party. Once a regional list is assembled, we will hold a special stakeholder meeting to accept the list. This meeting will also create goals to frame the Task 9 work (i.e., the work to present this final strategy/project list in an attractive manner that is compelling and easily digestible).

Task 7 Deliverables

Technical memorandum summarizing the work completed in Task 7, including:

- Identification of all potential strategies and projects;
- Summary of the strategy/project selection and prioritization process that will serve as a template for future efforts;
- Stakeholder – driven definitions of a SJV regional goods movement vision, goals, and objectives, as well as the evaluation criteria that can be used to assess them;
- “Alternatives Matrix” that lists the strategies and projects, along with evaluation criteria that allows for side-by-side comparison;
- “Summary Fact Sheets” that includes pertinent information to summarize the importance of each strategy/project; and
- Final recommendations for strategies and projects, with full consensus and buy-in from regional stakeholders.

Task 8. Identify Strategies for Mitigating the Effect of Goods Movement on Local Communities and the Environment

Overview

Task 6 will have highlighted some of the key potential impacts of goods movement of the San Joaquin Valley’s communities, economy, and natural environment. Task 8 will respond to those concerns, and show that, if carefully implemented, it is possible to maximize the benefits of the SJV’s freight industries, while limiting their negative impacts.

Work Steps

Cambridge Systematics has worked with several other regions dealing with the issue of integration of freight into urban and rural land uses, including the Seattle Area’s Puget Sound Regional Council and the Houston-Galveston Council of Governments. Though the San Joaquin Valley is a unique geographic and cultural entity, there are some shared concerns and lessons. For example, every region strives to move freight safely, be it by truck, rail, air or around intermodal facilities. Through research into best practices, it is possible to describe practices that can help to ensure that freight is moving as safely as possible. Some of these sample safety best practices are summarized in Table 2.7 below.

Table 2.7 Sample Strategies to Mitigate Safety Issues

Category	Description or Measure
Technological enhancement	• Install upgraded railroad crossing barriers where grade separations are not feasible or practical • Utilize Intelligent Transportation System (ITS) technology as a tool to warn drivers of upcoming traffic events or slow downs
Operational & educational	• Develop public education programs regarding freight safety and hazardous materials • Integrate commercial vehicle awareness into all driver training courses • Continue to limit the facilities that are open to truck travel • Ensure that communities have Hazmat response teams and knowledge
Planning & design	• Replace dangerous at-grade crossings with grade separated crossings to limit the potential for vehicle/train interaction. • Ensure adequate pedestrian buffers/walkways/barriers exist to create a separation between pedestrians and train tracks
Policy & regulatory	• Ensure adequate truck safety enforcement- in particular for poorly-maintained vehicles. • Study existing Hazmat routes to ensure that they are 1) Sufficient, and 2) Selected so that any Hazmat event would impact as few communities as possible

Using the stakeholder process described in Task 3, Cambridge Systematics will seek to link these best practices to specific concerns in the SJV. Where necessary, we will supplement our knowledge through additional interviews- for example with safety experts or local practitioners, to ensure that the scope of the issue in the SJV region is fully understood, and realistic solutions are being offered.

Task 8 Deliverables

- Technical memorandum summarizing methods to minimize the impact of goods movement on the region's communities, the economy, and the natural environment. This will be the second part of a two-part memorandum; the first portion will accompany Task 6 and will summarize the key issues and problems.

■ 2.3 Phase III. Recommendations

Task 9. Develop SJV Interregional Goods Movement Plan Report and Identify Institutional/Funding Arrangements Needed to Implement the Plan

Overview

The critical work of selecting strategies and projects, and organizing them into a prioritized list, will occur in Task 7. However, the work to present this information in a manner that is concise, easy-to-assimilate, and compelling is the focus of Task 9.

A major obstacle to implementing goods movement projects in the past has been lack of funding. Freight projects tend to be very expensive and they can be institutionally complex because they are often multijurisdictional and/or involve public-private cooperation. This phase will need to consider the funding and institutional needs unique to each type of project and propose strategies to address these needs. In some cases, there are likely to be significant funding gaps and we will examine user fee or other revenue-based strategies for funding improvements. However, it is also likely that there will be projects that will need to await funding opportunities that could emerge from Federal transportation bill reauthorization discussions. The current picture for new funding programs at the Federal level and fully funding programs such as the Prop 1B bonds at the state level is murky at best. But history shows that regions who get their project development work done are in a much better position to compete effectively for new funds when they do become available. That is a goal of this task.

The product of this phase will be material that presents the recommended strategies and projects to improve freight mobility in the SJV, as well as institutional, funding and management strategies. The emphasis will be on clarity and brevity. The result will be a variety of materials – including presentations, an executive summary, and a report – to communicate the goods movement strategies and projects to a variety of audiences.

Work Steps

Task 9.1 Identify Institutional and Funding Arrangements

- **Short- and Long-Term Institutional Strategy.** Drawing on our knowledge of what types of management structure work (and which do not), we will identify potential short-and long-term management strategies, as well as any institutional changes that would be necessary. A management strategy may include: a Joint Powers Authority (JPA); an operating authority such as the San Joaquin Regional Rail Commission; a multimodal corridor authority; or other type of regional or statewide coordination.
- **Short- and Long-Term Funding Strategies and Opportunities.** We will identify the possible range of sources for financing freight projects. This will include an

assessment of innovative financing methods, such as Public Private Partnerships, tax credit bonds, user fee concepts, and available State, regional, and Federal funding sources and programs. Some of these programs are summarized in Table 2.8 below.

Table 2.8 Sample Freight Transportation Funding Sources

Name	Modes
USDA Community Facilities Program	Truck, Rail
Economic Development Administration Grants	Truck, Rail
EPA Brownfield Revitalization Program	Intermodal Facilities
Airport Improvement Program	Air Cargo
Rail Rehabilitation and Improvement Financing (RRIF)	Rail
Congestion Mitigation and Air Quality (CMAQ)	Any mode within a nonattainment area
Transportation Infrastructure Finance and Innovation Act (TIFIA)	Highway and intermodal facilities

Task 9.2 Prepare Draft Plan

The draft SJV interregional Goods Movement Plan will be comprised of three separate pieces:

- An **executive summary** that can serve as a stand-alone, concise document. It will summarize the benefits of the SJV region's goods movement industries, and the multi-modal strategies and projects that can maximize these benefits for the SJV region, the State, and the Nation.
- A **full report** that summarizes the work completed in Tasks 1 to 8 of this study. Included in this report will be a description of how this work builds on, and related to, other SJV regional goods movement planning work.
- **Appendices** that include additional technical details, as well as a summary of the stakeholder process and feedback received throughout the study process.

Task 9.3 Present Draft Plan for Feedback/Responses

We will present the draft executive summary and full report to the range of SJV stakeholder groups for comment. This process will include:

- Presentation to the SJV Stakeholder group,
- Presentation to the committees and boards of regional transportation agencies, and
- Circulation to the wider “stakeholder” group for comment.

To facilitate comments during the presentations, the material will be distributed a week or more in advance to SJV stakeholders and the committee and board members. In addition, paper copies of the executive summary and full report will be available during the presentation of material. The material itself will be summarized into a presentation that allows ample time for comments and discussion.

Task 9.4 Prepare Final Plan

Comments received during Task 9.3 will be compiled and organized into a comment matrix. This will allow us to organize the comments into the appropriate response category, namely:

- Comments that we acknowledge receiving, but do not suggest changes.
- Comments that we acknowledge receiving, explaining why we will not be making changes to the plan, or pointing out how the plan satisfies the comment/question.
- Comments that we acknowledge receiving and explain how we have changed the plan to better address the comment/question.

This matrix will be presented to the SJV stakeholder group to ensure that comments are categorized correctly prior to any action or response to comments. Once the comment matrix has been approved, the Cambridge Systematics team will work the comments into the draft and final SJV Interregional Goods Movement Plan.

Task 9.5 Present Final Plan to the Stakeholders Group for Approval

We will present the final executive summary and full report to the SJV stakeholder groups for comment. This process will include:

- Presentation to the SJV Stakeholder group for approval, and
- Presentation to the committees and boards of regional transportation agencies.

Similar to the draft report process, the material will be distributed a week or more in advance to SJV stakeholders and the committee and board members. In addition, paper copies of the executive summary and full report will be available during the presentation of material. The material itself will be summarized into a presentation that allows ample time for comments and discussion.

Task 9.6 Present Final Plan for Approval

The purpose of this task will be to present the Final SJV Interregional Goods Movement Plan to the SJV Transportation Planning Agencies Directors' Group. At this time, it is anticipated that Plan will be approved and signed by the Directors' Group.

Task 9 Deliverables

Draft SJV Interregional Goods Movement Plan, including:

- Executive summary that includes the highlights from the draft plan in a concise, attractive, and easily-digestible format;
- Full report that summarizes the work completed in Tasks 1 to 8, as well as a write-up of existing and future funding sources;
- Draft appendices of necessary background data and technical work; and
- Presentations to Communicate Draft material to Stakeholder groups.

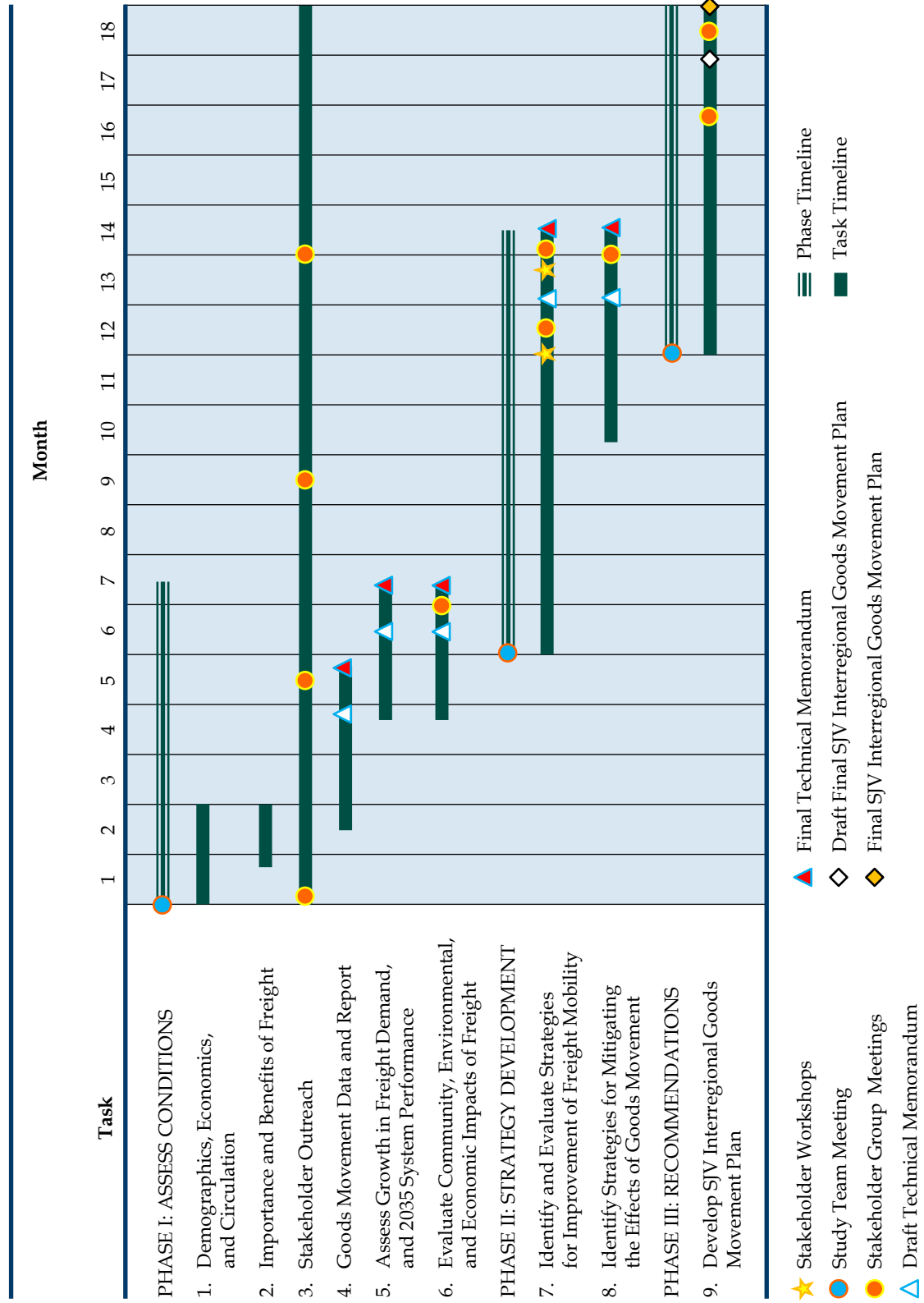
Final SJV Interregional Goods Movement Plan, including:

- Revised contents of the Draft plan and appendices; and
- Response to comments on draft plan.

■ 2.4 Schedule

We are proposing an 18-month schedule (Figure 2.4) for completion of this project, which is slightly shorter than the 24-months proposed in the RFP. We propose this based on our experience with other projects of a similar a scope, as well as to preserve the momentum of the project and the enthusiasm of the stakeholder groups. However, we understand that the schedule may be dictated by the completion timelines of other regional studies that will feed into, and complement, this effort.

Figure 2.4 Project Schedule



There are several types of stakeholder interaction summarized in this schedule:

- **Stakeholder Workshops** will be full or one-half-day interactive events with the main stakeholder group (SJV Valley COGS, Valleywide Project Manager, Caltrans staff, etc.). They are planned for the Task 7 development and prioritization of strategies and projects.
- **Study Team Meetings** refer to the smaller stakeholder group that will help to guide the consultant work on this project – likely the SJV Valley COGS, Valleywide Project Manager, Caltrans staff, etc.
- **Stakeholder Group Meetings** refer to the larger stakeholder group that will be formed after consultation with the study team. This may include shippers, carriers, industry group representatives, and other public and private freight stakeholders.

All meeting dates shown are estimated dates. In addition, though the ODC budget for all meetings is contained in our Task 3 budget, some important meetings are shown attached to other tasks since they are vital to the technical work in a certain task.

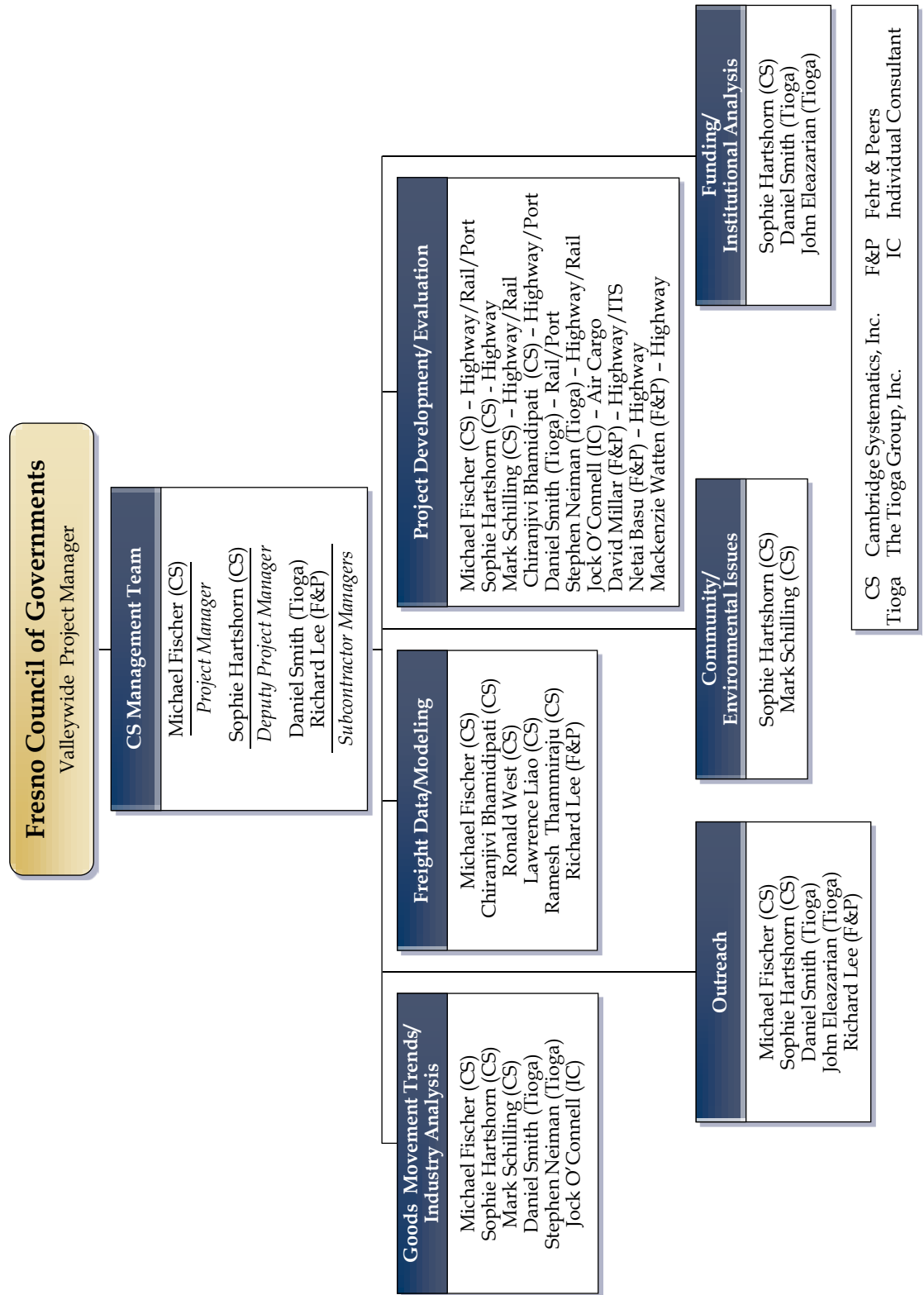
3.0 Management Approach

3.0 Management Approach

We have organized our team around the skills/disciplines required to accomplish the tasks that comprise our work plan. The staff who make up each discipline team are presented in Figure 3.1 and their biographical summaries provide their qualifications in these disciplines. Many of the tasks in the work plan will require a blending of the various discipline teams, and the overall coordination of the work effort and management of the tasks will be the responsibility of the project management team. As illustrated in Figure 3.1, this management team consists of Michael Fischer (Project Manager), Sophie Hartshorn (Deputy Project Manager), and the subcontractor managers, Daniel Smith (Tioga) and Richard Lee (Fehr & Peers). The roles and qualifications of this management team are described in Section 3.1. Full resumés for all staff can be found in Appendix A.

Each of the firms that comprise the Cambridge Systematics team will play unique, but interconnected roles. Cambridge Systematics will be responsible for overall management of the project, direct client interface, and quality control. In addition, Cambridge Systematics provides the principal expertise in freight data, modeling, and forecasting; and provides critical skills in understanding national- and state-level goods movement trends, goods movement project prioritization, community/environmental impact analysis, freight financing strategy development, and stakeholder outreach. The Tioga Group will provide the goods movement “industry insider” expertise that is so critical to successful project development and stakeholder outreach. They also will lead the analysis of all rail projects and will contribute to funding and institutional analysis. Fehr & Peers will provide stakeholder coordination with the major transportation and other key public stakeholders, and will support project prioritization to ensure consistency with the overall transportation goals of the Valley Metropolitan Planning Organizations (MPO). Jock O’Connell will contribute to the analysis of agricultural industry trends, as well as expertise in the development of air cargo and agricultural export strategies.

Figure 3.1 Organizational Chart



■ 3.1 Project Management

The **Project Manager** for our team is responsible for day-to-day technical direction and management of the project. **Michael Fischer**, a Principal of Cambridge Systematics, is proposed for this role. Mr. Fischer will be responsible for regular interface with the client project manager, will work with the Deputy Project Manager and the subcontractor management team to lead all of the project tasks, and will perform quality control for the project. The **Deputy Project Manager** works closely with the Project Manager and client on all aspects of the technical work and helps to coordinate work with our subcontractors. **Sophie Hartshorn**, an Associate of Cambridge Systematics, is proposed for this role. Ms. Hartshorn will assist with the management of individual project tasks; and will coordinate project management reporting, staffing, and budgeting. The Cambridge Systematics management team will be assisted by Daniel Smith of The Tioga Group and Richard Lee of Fehr & Peers, who will work with Mr. Fischer and Ms. Hartshorn to define overall strategies for the project; and will be available to represent the team for stakeholder outreach in the event that Mr. Fischer or Ms. Hartshorn are not available.

Michael J. Fischer, P.E., is a Principal of Cambridge Systematics with more than 30 years of experience in freight transportation planning. Mr. Fischer is the Director of Strategic Business Development for Cambridge Systematics' Freight Transportation business line, and has conducted more than 70 freight and goods movement projects in North America, including more than 35 in California. He was Project Manager for Phase I of the San Joaquin Valley Goods Movement Study, and was Principal-in-Charge for Phases II and III. He was involved in three studies of short haul intermodal service options between the Port of Oakland and the San Joaquin Valley. Mr. Fischer has developed regional freight plans for the Association of Monterey Bay Area Governments, the Metropolitan Transportation Commission (MTC) (San Francisco), and the Puget Sound Regional Commission (PSRC); and state freight and rail plans for Washington, Oregon, and Texas. Currently, he is Project Manager for the Southern California Association of Governments (SCAG) Comprehensive Regional Goods Movement Plan. Major strategies being evaluated for this plan include a regional truck lane system; a system of rail improvements (on-dock and near-dock intermodal terminals, mainline capacity improvements, and grade separation projects); zero emission goods movement technology options; and public-private financing options.

Mr. Fischer has been a major contributor to freight planning efforts in California and throughout the nation. He is completing an assignment as the Goods Movement team leader for the I-710 environmental impact report (EIR)/environmental impact statement (EIS), and is Principal-in-Charge for a National Freight Cooperative Research Program (NCFRP) study to develop methods for estimating subnational commodity flow databases. He was recently Co-Principal Investigator for a NCFRP project that developed a framework for state departments of transportation (DOT) and metropolitan planning organizations (MPO) to use in evaluating investment decisions for freight transportation projects, and he was Project Manager for a U.S. DOT project that developed a guidebook

for conducting economic impact analysis of large-scale freight investments. Mr. Fischer is Principal-in-Charge for on-call transportation planning services to the Port of Long Beach (POLB) and on-call goods movement planning services to the Port of Los Angeles (POLA). He also has assisted the POLB and the POLA with evaluations of truck trip reductions strategies (including new on-dock and near-dock rail improvements, inland shuttle trains, extended gate hours, and empty container management strategies); and he has conducted economic impact analysis of improvements to the Gerald Desmond Bridge. Mr. Fischer recently managed a goods movement on-call contract for Riverside County Transportation Commission (RCTC), where he was responsible for evaluation of the PierPass program, and conducted a benefits analysis of the Colton Crossing rail project.

Sophie Hartshorn is an Associate of Cambridge Systematics, who is skilled in projects that involve intermodal freight systems planning, freight transportation economics, corridor planning, and freight system assessment. Ms. Hartshorn currently is serving as a member of the management team for the Southern California Regional Comprehensive Goods Movement Plan, where she is leading tasks on goods movement finance and development of goods movement land use strategies. She is completing an assignment as Deputy Project Manager to develop the Oregon DOT's first statewide Freight Mobility Plan. Recently, she was Project Manager for development of the freight element of the PSRC's Long-Range Transportation Plan (LRTP).

Ms. Hartshorn has experience with numerous projects that explored the relationship between freight transportation and economic development, including serving as the Deputy Project Manager on the New Mexico Statewide Multimodal Freight Study and the Kansas Statewide Freight Study. Both studies combined analysis of the States' industry, commodity, and demographic trends with an extensive stakeholder outreach process in order to establish a baseline freight conditions and needs assessment. In both efforts, a series of targeted recommendations were made for improving statewide freight transportation, as well as a framework that will more effectively integrate freight issues into the DOT's transportation planning and programming processes.

Daniel S. Smith, Project Manager/Principal in Charge (The Tioga Group), has more than 30 years of consulting experience in freight transportation policy, economics, and strategy across all surface modes. Mr. Smith's major clients have included ports, railroads, shippers, industry associations, and government agencies. His major relevant projects have included operational and economic feasibility and impact studies, modal shift and competition studies, cargo forecasts for major ports, goods movement and policy studies for regional planning agencies, and evaluation of public-private partnership proposals. He has testified before the House Judiciary Committee on antitrust issues and economic conditions in the world shipping industry. Mr. Smith was Project Manager for four different studies of short-haul intermodal rail services to link the San Joaquin Valley and the Port of Oakland, and was one of the original developers of the California Interregional Rail Intermodal Shuttle (CIRIS) concept. He also has recently completed a study of inland port concepts for SCAG. He was a major contributor to the development of truck and rail strategies in the Bay Area Regional Goods Movement Study for the MTC. Mr. Smith currently is Principal Investigator for a major NCFRP project evaluating a wide range of alternative revenue options for financing freight investments. He was Project Manager for

the Sacramento Area Council of Governments (SACOG) Regional Goods Movement Study, and he was Manager of the most recent marine cargo forecast for the San Pedro Bay ports (Los Angeles and Long Beach). Mr. Smith has previously been a Senior Associate in the Transportation Group of Mercer Management Consulting, and Manager of Rail and Intermodal Projects at Manalytics, Inc.

Richard W. Lee, Ph.D., AICP, is an Associate at Fehr & Peers and he has more than 25 years of experience as a transportation consultant and academic. Dr. Lee's consulting experience includes management of regional transportation plans, general plan studies, rail and transit projects, and smart growth transportation studies, as well as a wide variety of traffic impact analysis, travel demand management, and transportation policy studies.

The majority of Dr. Lee's recent work focuses on quantitative analysis of the transportation effects of the New Urbanism, including its efficacy in promoting transit and alternative modes. He works extensively with local, regional, and state agencies, as well as private developers to analyze the effects of infrastructure and land development projects, and to develop feasible alternatives that address issues of circulation and community needs.

Dr. Lee has taught transportation planning and led major transportation research projects at several universities, including Massey University in New Zealand, Cal Poly San Luis Obispo, UC-Berkeley, UC-Davis, and San José State University.

■ 3.2 Key Staff

Cambridge Systematics, Inc.

Martin S. Schilling is an Analyst at Cambridge Systematics. Mr. Schilling has been involved with various freight research projects at the local, regional, state, and Federal levels. For the SCAG Goods Movement Plan, he conducted research on West Coast port and trade transportation trends supporting the development of a port activity competitiveness tracker; prepared a policy white paper on regional freight rail investment strategies; and currently is preparing an analysis of rail electrification options and strategies for addressing trucking bottlenecks on the region's freeways. Mr. Schilling assisted the Port of Oakland and the Oakland Chamber of Commerce with the development of a brochure aimed at Congressional decision-makers that explains logistics-related redevelopment concepts for the Oakland Army Base. He is Lead Analyst and Researcher on the Association of Monterey Bay Area Governments (AMBAG) Central Coast California Commodity Flows Study, where a major focus has been on understanding commodity flows in the region's agricultural industries. Recently, he was Principal Analyst for the creation of the Oregon Freight Plan. For this project, Mr. Schilling analyzed the relationship between the economic structure of the State's industries, freight flow patterns, and infrastructure development needs.

Chiranjivi S. Bhamidipati is an Analyst at Cambridge Systematics. For the SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy, Mr. Bhamidipati conducted goods movement analysis and is assisting in evaluating the economic impacts of freight activities and facilities. He also is playing a key role in the assessment of current truck traffic conditions and truck-related safety issues, and evaluating a regional truck lane strategy. For the Texas DOT Waterborne Commerce Study Phase II, he is conducting an economic assessment of landside and waterside maintenance, capital, and strategic investment projects. For the Texas DOT West Texas Rail Feasibility Study, Mr. Bhamidipati conducted existing rail goods movement analysis, and is providing assistance in demand estimation of new rail service. For the Texas DOT Comprehensive Development Agreement – El Paso Regional Port of Entry Operations Plan, he conducted goods movement analysis and performed a technology assessment for U.S.-Mexico border crossing operations. For the POLB, on an on-call basis, Mr. Bhamidipati has provided assistance on the benefit/cost assessment of the Green Port Gateway project on Rail Realignment at Ocean Boulevard for a TIGER-II grant request.

Ronald West, AICP, is a Cambridge Systematics Principal with more than 24 years of professional experience in transit forecasting, travel demand model development, corridor studies, and regional analyses. Mr. West is the West Coast Regional Manager for the firm's travel demand forecasting business line, based in Oakland, California.

Mr. West is very active with statewide and regional modeling activities. He has been a facilitator for a series of technical meetings for Caltrans Office of Transportation System Information (TSI). He led the effort to develop new regional transportation guidelines that now reflect SB 375 requirements, and now leading the Caltrans Household Travel Survey (CHTS) Steering Committee.

Mr. West has led the Cambridge Systematics modeling team for on-call transportation planning services for the POLB and POLA, and has been a major contributor to the ongoing development of the port travel demand models. He has used these models to support numerous EIR/EIS and traffic studies of marine and on-dock rail terminal expansion projects. For the ports and SCAG, he supervised the most recent port gate truck origin-destination surveys, and prepared an update of the port's trip distribution models. Mr. West also was the Manager of travel demand modeling for the I-15 Comprehensive Corridor Study in San Bernardino County and the I-710 EIR/EIS. Both projects involved development of truck focused models and evaluating truck lane strategies.

Lawrence Liao, a Senior Associate of Cambridge Systematics, has more than 10 years of experience in travel demand forecasting, and has led or participated in the development and application of many travel demand models. Mr. Liao was responsible for completing Phase III of the San Joaquin Valley Goods Movement Study and conducting training on the Valleywide Truck Model. Mr. Liao played a major role in the development of the I-710 EIR/EIS model, which has a major focus on truck traffic on this major access road to the POLB and POLA.

Mr. Liao has extensive experience in model applications for a number of jurisdictions in California, including the San Joaquin Valley RTPAs, MTC, Santa Clara Valley Transportation Authority (VTA), SCAG, Contra Costa Transportation Authority, Alameda County

Congestion Management Agency, Solano Transportation Authority, and SACOG. He is experienced in all major travel demand modeling software packages, including Cube/Voyager/TP+, TRANPLAN, MINUTP, TransCAD, and EMME.

Ramesh Thammiraju, a Travel Demand Forecaster of Cambridge Systematics, has extensive experience in the development and application of truck travel demand models used in goods movement studies. Mr. Thammiraju provided the principal modeling support for traffic studies in the I-710 EIR/EIS and the evaluation of alternative truck lane concepts for this corridor. He has provided support to several truck-oriented impact studies for projects at the POLB, and was responsible for major improvements to the Port's truck trip generation model. Mr. Thammiraju currently is providing support to the SCAG Regional Comprehensive Goods Movement Study analyzing alternative alignments for a regional truck lane system. He developed improvements in the regional truck model to incorporate warehouse-to-warehouse trips associated with transloading of port cargo.

Fehr & Peers

David Millar, P.E., PTOE, has 26 years of traffic engineering experience both regionally and nationally, providing him with a broad perspective that is also sensitive to local issues. Mr. Millar's broad range of expertise includes traffic engineering, trucking industry and commercial vehicle operations (CVO) studies, intelligent transportation systems (ITS), transportation planning, project evaluations, signal and arterial optimization, access management, and safety studies and design. He routinely provides trucking operations perspective on transportation design and planning projects. His expertise in trucking includes routing, ITS, parking, operations, and management issues that are of concern to the trucking industry and affected governmental agencies. Mr. Millar has published several articles on topics, including signal timing, parking, and commercial vehicle operations.

Netai Basu, AICP, has more than 17 years of experience in transportation planning, including 11 years with Fehr & Peers. Mr. Basu has participated in and managed a broad range of traffic and parking studies for public and private clients in many parts of Southern California and in Hawaii. He has prepared consulting reports, including traffic impact studies in support of environmental documents, parking studies, master plan studies, operational studies, and special event plans. He has prepared numerous traffic impact studies for industrial, commercial, residential, and mixed-use developments and public facilities in many parts of Southern California, including the San Pedro Waterfront at the POLA, several community college master plan projects, numerous development projects in Santa Monica, and two new communities in Hawaii. As part of these studies, Mr. Basu supervised the preparation of visual simulations for the Pico-Olympic corridor in Los Angeles, Myrtle Avenue in Monrovia, and Vincent Avenue in West Covina. He has conducted master plan studies for major public and private projects, and prepared traffic and parking management plans for special events. Mr. Basu has conducted parking studies for downtown Santa Monica and the Santa Monica Civic Center, Caltech, and several hospitals, community colleges, and park-and-ride facilities.

The Tioga Group, Inc.

Stephen C. Nieman, Principal, has a wealth of experience in international and North American transportation management and strategic planning. Mr. Nieman formerly headed Mercer Management Consulting's motor carrier, 3PL, and intermodal practices. He has held executive positions in the trucking, intermodal, and railroad industries, including Consolidated Freightways, Leaseway Transportation, American President, and Burlington Northern; and has served as an Officer or Director of six industry associations. His long-standing private motor and rail carrier experience provides unique business and operational understanding that informs goods movement planning decisions by private-sector clients. Mr. Nieman was a major contributor to the studies of interregional rail shuttle services between the Port of Oakland and the San Joaquin Valley. He provided assistance to Cambridge Systematics in the development of MTC's Bay Area Regional Goods Movement Study. For this project, he identified a number of key freeway and parallel/connecting arterial street improvements targeted at improving trucking operations in the I-880 corridor. He also identified land use and access issues around air cargo areas at San Francisco International Airport. For the Los Angeles MTA, Mr. Nieman managed a project to develop a data compendium on trucking and goods movement in Los Angeles County, and contributed to the development of advanced concepts for modeling commercial vehicle flows in the County.

John Eleazarian, Associate, based in the Fresno, California area, has performed professional economic and financial analysis since 1973, with an emphasis on econometric analysis, industrial organization, and market segment forecasting. Mr. Eleazarian has worked with Tioga since 2007. His representative projects have included market forecasts and analysis; analysis of price, demand, supply, and yield trends for new California agricultural products; development of industry stakeholder and distribution center databases for multiple California trucking studies; and analysis of regional truck movements and trends.

Individual Consultant

Jock O'Connell is the foremost expert on California's nearly \$1 billion a year airborne agricultural trade, as well as a leading authority on the transportation infrastructure serving the State's international trade. Since 2003, Mr. O'Connell has conducted three studies for the California Department of Food and Agriculture (CDFA) on the logistics of the State's airborne shipments of perishable agricultural products to overseas markets (All three studies were published by the Center for Agricultural Business at Fresno State University.). In addition to these studies for CDFA, he also participated in the 2010 update of the air cargo portion of California's Goods Movement Action Plan. Mr. O'Connell's contribution to that project included an analysis of efforts over the past two decades to expand air freight services to airports in California's Central Valley.

Between 2006 and 2008, Mr. O'Connell participated in a comprehensive goods movement study for SACOG, in which he analyzed air cargo operations at Sacramento International

Airport and at Mather Field in nearby Rancho Cordova. Special attention was devoted to measuring the characteristics of the truck traffic associated with air cargo services at both airports.

In August 2008, Mr. O’Connell moderated a distinguished panel of aviation industry and academic experts on “The Future of Air Transport in California” at the University of California Center Sacramento. In 2009-2010, he was involved in producing the latest air cargo forecasts for San Francisco International and Miami International Airports.

Mr. O’Connell is a member of the Transportation Research Board’s (TRB) Committee on Intergovernmental Relations in Aviation. As a division of the National Research Council, the TRB advises Congress, executive-branch Federal agencies, the states, and other organizations on key transportation issues.

■ 3.3 Staff Hours By Task

Table 3.1 provides a summary of the staff hours by task.

Table 3.1 Staff Hours by Task

Staff	Task 1. Describe SJV Region	Task 2. Describe Importance of Goods Movement	Task 3. Outreach Assistance	Task 4. Compile & Collect Goods Movement Data	Task 5. Assess Growth in Freight Demand & Trends	Task 6. Evaluate Community, Environmental, Economic Impact	Task 7. Identify & Evaluate Strategies	Task 8. Mitigation Strategies	Task 9. Report & Institutional/ Funding Arrangements	Total
Cambridge Systematics										
Michael Fischer	18	8	70	32	40	20	110	50	60	408
Sophie Hartshorn	26	12	70	30	30	50	110	50	60	438
Martin Schilling	56	36	40	60	50	60	60	80	60	502
Chiru Bhamidipati	30	-	-	60	48	60	60	-	-	258
Ronald West	-	-	-	-	-	-	16	-	-	16
Lawrence Liao	-	-	-	-	8	-	24	-	-	32
Ramesh Thammiraju	-	-	-	-	40	-	80	-	-	120
Regina Speir	4	4	-	4	4	-	8	-	12	36
Independent Consultant										
Jock O'Connell	-	-	-	-	58	-	40	-	-	98
Tioga Group										
Daniel Smith	30	-	72	60	60	-	96	-	64	382
Stephen Nieman	16	-	24	36	24	-	64	-	24	188
John Eleazarian	16	-	80	24	16	-	24	-	16	176
M. Smith	4	-	12	4	4	-	10	-	8	42
Fehr and Peers										
David Millar	-	-	24	-	-	-	40	-	-	64
Richard Lee	-	-	40	-	-	-	24	-	-	64
Netai Basu	-	-	20	-	-	-	20	-	-	40
Mackenzie Watten	-	-	40	-	-	-	200	-	-	240
TOTAL	200	60	492	310	382	190	986	180	304	3,104

4.0 Budget and Billing Format

4.0 Budget and Billing Format

Our budget and cost proposal is presented in Table 4.1, which provides all of the requested information from the sample Tables 1 and 2 contained in the RFP. We note that Cambridge Systematics bills at Cost of Service (COS) rates that can be documented with actual payroll records. It should be noted that for Cambridge Systematics, all travel costs are allocated to Task 3, Stakeholder Outreach, although this outreach may involve data collection and one-on-one meetings with stakeholders that are associated with work in other tasks as well as outreach.

We request that payments be made using the actual cost plus fixed fee method. We will submit invoices on a monthly basis for progress payments based on costs incurred and documented work progress.

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Table 4.1 Cost Proposal

			Task 1 - Describe SJV Region		Task 2 - Describe Importance of Goods Movement		Task 3 - Outreach Assistance		Task 4 - Compile and Collect Goods Movement Data		Task 5 - Assess Growth in Freight Demand and Trends		Task 6 - Evaluate Community, Environmental, Econ Imp		Task 7 - Identify and Evaluate Strategies		Task 8 - Mitigation Strategies		Task 9 - Report and Institutional/Funding Arrangements		Total	
Name	Labor Category	Rate	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars
Direct Labor																						
Michael Fischer	Project Manager	\$ 94.69	18	\$ 1,704	8	\$ 758	70	\$ 6,628	32	\$ 3,030	40	\$ 3,788	20	\$ 1,894	110	\$ 10,416	50	\$ 4,735	60	\$ 5,681	408	\$ 38,634
Sophie Hartshorn	Deputy Project Manager	\$ 47.47	26	\$ 1,234	12	\$ 570	70	\$ 3,323	30	\$ 1,424	30	\$ 1,424	50	\$ 2,374	110	\$ 5,222	50	\$ 2,374	60	\$ 2,848	438	\$ 20,793
Martin Schilling	Freight Analyst	\$ 36.60	56	\$ 2,050	36	\$ 1,318	40	\$ 1,464	60	\$ 2,196	50	\$ 1,830	60	\$ 2,196	60	\$ 2,196	80	\$ 2,928	60	\$ 2,196	502	\$ 18,374
Chiru Bhamidipati	Freight Analyst	\$ 35.53	30	\$ 1,066	-	\$ -	-	\$ -	60	\$ 2,132	48	\$ 1,705	60	\$ 2,132	60	\$ 2,132	-	\$ -	-	\$ -	258	\$ 9,167
Ronald West	Sr. Travel Modeler	\$ 73.52	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	-	\$ -	16	\$ 1,176	-	\$ -	-	\$ -	16	\$ 1,176
Lawrence Liao	Sr. Travel Modeler	\$ 61.56	-	\$ -	-	\$ -	-	\$ -	-	\$ -	8	\$ 492	-	\$ -	24	\$ 1,477	-	\$ -	-	\$ -	32	\$ 1,969
Ramesh Thammiraju	Freight Modeler	\$ 44.57	-	\$ -	-	\$ -	-	\$ -	-	\$ -	40	\$ 1,783	-	\$ -	80	\$ 3,566	-	\$ -	-	\$ -	120	\$ 5,349
Regina Speir	Production	\$ 39.41	4	\$ 158	4	\$ 158	-	\$ -	4	\$ 158	4	\$ 158	-	\$ -	8	\$ 315	-	\$ -	12	\$ 473	36	\$ 1,420
Direct Labor Subtotal			134	\$ 6,212	60	\$ 2,804	180	\$ 11,415	186	\$ 8,940	220	\$ 11,180	190	\$ 8,596	468	\$ 26,500	180	\$ 10,037	192	\$ 11,198	1,810	\$ 96,882
Salary Increases Effective April 1			0.00%	\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -
Direct Labor Total				\$ 6,212		\$ 2,804		\$ 11,415		\$ 8,940		\$ 11,180		\$ 8,596		\$ 26,500		\$ 10,037		\$ 11,198		\$ 96,882
Overhead (on direct labor)			175.00%	\$ 10,871		\$ 4,907		\$ 19,976		\$ 15,645		\$ 19,565		\$ 15,043		\$ 46,375		\$ 17,565		\$ 19,597		\$ 169,544
Labor and Overhead Total				\$ 17,083		\$ 7,711		\$ 31,391		\$ 24,585		\$ 30,745		\$ 23,639		\$ 72,875		\$ 27,602		\$ 30,795		\$ 266,426
Direct Expenses																						
Travel				\$ -		\$ -		\$ 4,985		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ 4,985
Shipping				\$ -		\$ -		\$ 100		\$ -		\$ -		\$ -		\$ -		\$ -		\$ 100		\$ 200
Outside Graphics & Copying				\$ -		\$ -		\$ 500		\$ -		\$ -		\$ -		\$ -		\$ -		\$ 100		\$ 600
Teleconferencing				\$ 25		\$ -		\$ 450		\$ 25		\$ 50		\$ -		\$ 100		\$ 50		\$ 50		\$ 750
Other				\$ -		\$ -		\$ -		\$ 500		\$ 500		\$ -		\$ -		\$ -		\$ -		\$ 1,000
Total Direct Expenses				\$ 25		\$ -		\$ 6,035		\$ 525		\$ 550		\$ -		\$ 100		\$ 50		\$ 250		\$ 7,535
Consultants																						
Jock O'Connell		250.00	-	\$ -	-	\$ -	-	\$ -	-	\$ -	58	\$ 14,500	-	\$ -	40	\$ 10,000	-	\$ -	-	\$ -	98	\$ 24,500
Subtotal Consultants			-	\$ -	-	\$ -	-	\$ -	-	\$ -	58	\$ 14,500	-	\$ -	40	\$ 10,000	-	\$ -	-	\$ -	98	\$ 24,500

Table 4.1 Cost Proposal (continued)

			Task 1 - Describe SJV Region		Task 2 - Describe Importance of Goods Movement		Task 3 - Outreach Assistance		Task 4 - Compile and Collect Goods Movement Data		Task 5 - Assess Growth in Freight Demand and Trends		Task 6 - Evaluate Community, Enivronmental, Econ Imp		Task 7 - Identify and Evaluate Strategies		Task 8 - Mitigation Strategies		Task 9 - Report and Institutional/Fundi ng Arrangements		Total	
Name	Labor Category	Rate	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars	Hours	Dollars
Subcontractors																						
Tioga Group																						
Direct Labor :																						
D. Smith, Principal		180.00	30	\$ 5,400	-	\$ -	72	\$ 12,960	60	\$ 10,800	60	\$ 10,800	-	\$ -	96	\$ 17,280	-	\$ -	64	\$ 11,520	382	\$ 68,760
S. Nieman, Principal		180.00	16	\$ 2,880	-	\$ -	24	\$ 4,320	36	\$ 6,480	24	\$ 4,320	-	\$ -	64	\$ 11,520	-	\$ -	24	\$ 4,320	188	\$ 33,840
J. Eleazarian, Associate		108.00	16	\$ 1,728	-	\$ -	80	\$ 8,640	24	\$ 2,592	16	\$ 1,728	-	\$ -	24	\$ 2,592	-	\$ -	16	\$ 1,728	176	\$ 19,008
M. Smith, Admin		36.00	4	\$ 144	-	\$ -	12	\$ 432	4	\$ 144	4	\$ 144	-	\$ -	10	\$ 360	-	\$ -	8	\$ 288	42	\$ 1,512
Direct Labor Total			66	\$ 10,152	-	\$ -	188	\$ 26,352	124	\$ 20,016	104	\$ 16,992	-	\$ -	194	\$ 31,752	-	\$ -	112	\$ 17,856	788	\$ 123,120
Overhead		39%		\$ 3,959		\$ -		\$ 10,277		\$ 7,806		\$ 6,627		\$ -		\$ 12,383		\$ -		\$ 6,964		\$ 48,016
Direct Expenses:																						
Travel				\$ 300		\$ -		\$ 1,000		\$ 1,000		\$ -		\$ -		\$ 300		\$ -		\$ 200		\$ 2,800
Total Direct Expenses				\$ 300		\$ -		\$ 1,000		\$ 1,000		\$ -		\$ -		\$ 300		\$ -		\$ 200		\$ 2,800
Total Costs				\$ 14,411		\$ -		\$ 37,629		\$ 28,822		\$ 23,619		\$ -		\$ 44,435		\$ -		\$ 25,020		\$ 173,936
Fee		0%		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ -
Cost Plus Fee				\$ 14,411		\$ -		\$ 37,629		\$ 28,822		\$ 23,619		\$ -		\$ 44,435		\$ -		\$ 25,020		\$ 173,936
Fehr and Peers																						
Direct Labor :																						
Dave Millar, PIC		69.71	-	\$ -	-	\$ -	24	\$ 1,673	-	\$ -	-	\$ -	-	\$ -	40	\$ 2,788	-	\$ -	-	\$ -	64	\$ 4,461
Richard Lee, PM		48.56	-	\$ -	-	\$ -	40	\$ 1,942	-	\$ -	-	\$ -	-	\$ -	24	\$ 1,165	-	\$ -	-	\$ -	64	\$ 3,107
Netai Basu		52.40	-	\$ -	-	\$ -	20	\$ 1,048	-	\$ -	-	\$ -	-	\$ -	20	\$ 1,048	-	\$ -	-	\$ -	40	\$ 2,096
Mackenzie Watten		29.33	-	\$ -	-	\$ -	40	\$ 1,173	-	\$ -	-	\$ -	-	\$ -	200	\$ 5,866	-	\$ -	-	\$ -	240	\$ 7,039
Direct Labor Total			-	\$ -	-	\$ -	124	\$ 5,836	-	\$ -	-	\$ -	-	\$ -	284	\$ 10,867	-	\$ -	-	\$ -	408	\$ 16,703
Overhead:		165.33%		\$ -		\$ -		\$ 9,649		\$ -		\$ -		\$ -		\$ 17,966		\$ -		\$ -		\$ 27,615
Direct Expenses:																						
Other				\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ 1,250		\$ -		\$ -		\$ 1,250
Total Direct Expenses				\$ -		\$ -		\$ -		\$ -		\$ -		\$ -		\$ 1,250		\$ -		\$ -		\$ 1,250
Total Costs				\$ -		\$ -		\$ 15,485		\$ -		\$ -		\$ -		\$ 30,083		\$ -		\$ -		\$ 45,568
Fee		10%		\$ -		\$ -		\$ 1,549		\$ -		\$ -		\$ -		\$ 2,883		\$ -		\$ -		\$ 4,432
Cost Plus Fee				\$ -		\$ -		\$ 17,034		\$ -		\$ -		\$ -		\$ 32,966		\$ -		\$ -		\$ 50,000
Total Subcontractor Costs			66	\$ 14,411	-	\$ -	312	\$ 54,663	124	\$ 28,822	104	\$ 23,619	-	\$ -	478	\$ 77,401	-	\$ -	112	\$ 25,020	1,196	\$ 223,936
Total Costs				\$ 31,519		\$ 7,711		\$ 92,089		\$ 53,932		\$ 69,414		\$ 23,639		\$ 160,376		\$ 27,652		\$ 56,065		\$ 522,397
Fixed Fee		10.00%		\$ 1,711		\$ 771		\$ 3,743		\$ 2,511		\$ 3,130		\$ 2,364		\$ 7,298		\$ 2,765		\$ 3,105		\$ 27,398
LUMP SUM TOTAL			200	\$ 33,230	60	\$ 8,482	492	\$ 95,832	310	\$ 56,443	382	\$ 72,544	190	\$ 26,003	986	\$ 167,674	180	\$ 30,417	304	\$ 59,170	3,104	\$ 549,795

5.0 Insurance Requirements

5.0 Insurance Requirements

Cambridge Systematics will comply with the insurance terms outlined in the request for proposals.

6.0 Disadvantage Business Enterprise Certification

6.0 Disadvantage Business Enterprise Certification

It is the policy of Cambridge Systematics that small businesses, HUBZone small businesses, and small business concerns owned and controlled by socially and economically disadvantaged individuals shall have the maximum practicable opportunity to participate in all Federal, state, and local contracts. It is further the policy of Cambridge Systematics to ensure timely payment of the amounts due pursuant to the terms of the subcontracts with small business concerns and small business concerns owned and controlled by socially disadvantaged individuals.

After reviewing the request for interest and qualifications (RFIQ), Cambridge Systematics has decided not to include a disadvantaged business enterprise (DBE) firm in our proposal. This project required a unique set of qualifications that are generally available in a very limited number of firms. Further, Cambridge Systematics felt that local experience with these issues was particularly advantageous and this created additional limitations among firms that we felt were best suited to support our proposal. If the Fresno COG requests Cambridge Systematics to have a DBE on the team, Cambridge Systematics will add one to the team at that time based on particular requirements discussed with Fresno COG.

7.0 Conflicts of Interest

7.0 Conflicts of Interest

Cambridge Systematics and the members of our team have listed below projects that we are working on with the Fresno COG and other MPOs in the region. None of the projects listed below should be perceived as a conflict of interest for the San Joaquin Valley Interregional Goods Movement Plan project.

Cambridge Systematics, Inc.

Cambridge Systematics currently is a subconsultant on the following project:

- Fresno COG San Joaquin Valley Model Improvement Project.

Fehr & Peers

Fehr & Peers currently is under contract with the Fresno COG for two projects:

- The San Joaquin Valley Model Improvement Program; and
- The Yosemite, Sequoia, Kings Canyon National Park Transit Market Assessment and Feasibility Study.

Fehr & Peers also has two current contracts with other MPOs in the Valley:

- Metropolitan Bakersfield Long-Range Transit Plan (Kern COG); and
- Regional Smart Growth/TOD Plan (San Joaquin COG).

The Tioga Group, Inc.

The Tioga Group is a subconsultant on a current project for the San Joaquin COG Interregional Multimodal Corridor Study.

Jock O'Connell

None.

8.0 Summary of Qualifications

8.0 Summary of Qualifications

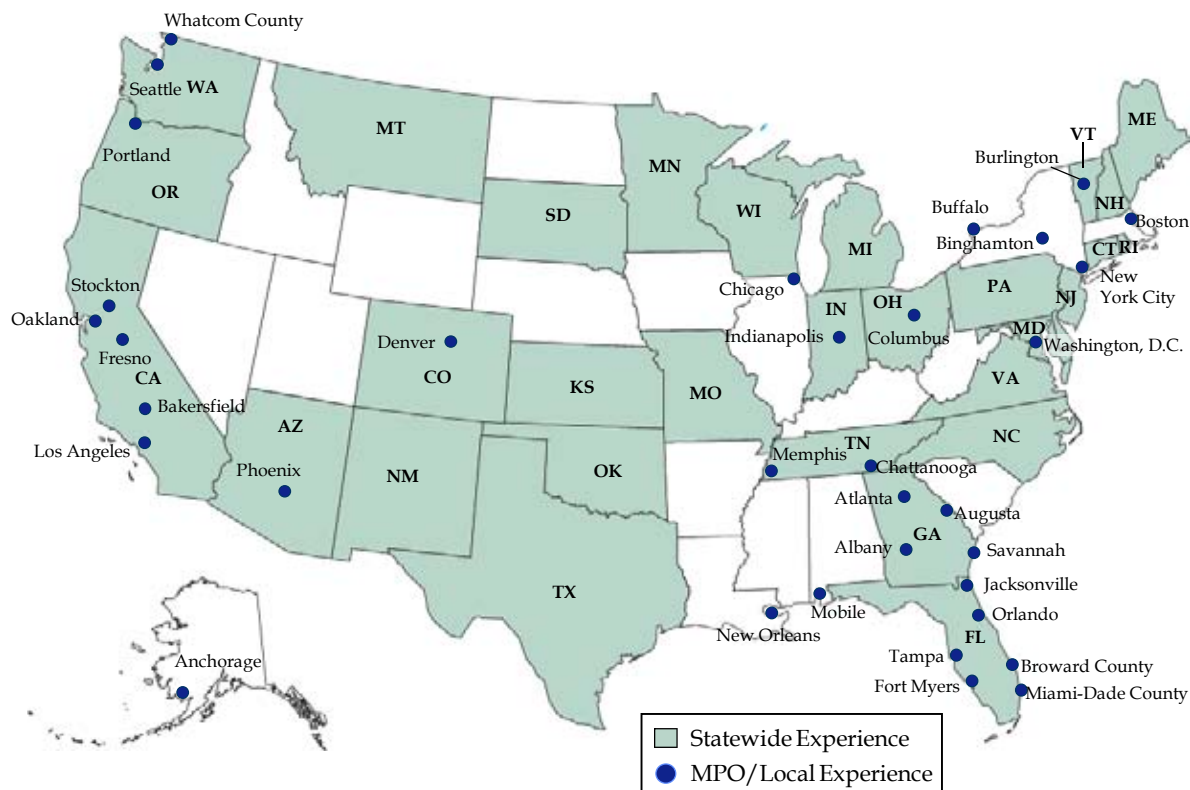
■ 8.1 Team Overview

Cambridge Systematics, Inc.

Cambridge Systematics, a national transportation planning firm, offers extensive experience in freight transportation planning, helping both public and private sector clients develop actionable strategies for meeting their goods movement needs and challenges. The firm is particularly well qualified to develop the San Joaquin Valley Interregional Goods Movement Plan based on our experience in the following areas:

- National freight research and innovation.** Cambridge Systematics has authored eight National Cooperative Highway Research Program (NCHRP) and National Cooperative Freight Research Program (NCFRP) reports and guidebooks on freight planning, including the *Guidebook for Freight Policy, Planning and Programming for Small and Mid-Sized Metropolitan Areas* (NCHRP Report 570), the *Guidebook for Integrating Freight into Transportation Planning, Programming, and Project Selection Processes* (NCHRP Report 594). We currently are leading the development of a *Framework and Tools for Estimating Benefits of Specific Freight Network Investment Needs* (NCFRP Project-05), as well as *Performance Measures for Freight Transportation* (NCFRP Project-03). We have developed Freight Financing and Freight and Air Quality Guidebooks for the Federal Highway Administration (FHWA), and currently are developing the Freight and Land Use Guidebook and a Cross-Cutting Resources Study to examine methods for integrating freight into every phase of the project development process from planning to environmental studies to operations for the FHWA. Cambridge Systematics developed the Freight Transportation Bottom Line Report series for the American Association of State Highway and Transportation Officials (AASHTO), and authored the first National Rail Freight Infrastructure Capacity and Investment Study for the Association of American Railroads (AAR).
- State and urban freight planning experience.** Cambridge Systematics has worked on freight plans and studies for more than 30 state departments of transportation (DOT) and more than 25 metropolitan planning organizations (MPO), as shown in Figure 8.1. We have managed and completed comprehensive regional freight studies in the largest MPO regions in the country: Los Angeles, New York City, Chicago, the San Francisco Bay Area, and Houston; and many other large and mid-sized MPO regions, including Austin, Seattle, Ft. Lauderdale, Indianapolis, and others. We understand MPO freight planning, the challenges associated with developing and implementing freight improvement strategies, and how to develop consensus among the many agencies, entities, and stakeholders involved in urban freight issues.

Figure 8.1 Cambridge Systematics Freight Experience
Statewide and Urban Projects



- Extensive experience with California good movement issues.** Cambridge Systematics is one of the most active freight planning firms in California. We have assisted the California Department of Transportation (Caltrans) with the development of commodity flow forecasts (the 2002 ITMS forecast updates), and conducted reviews of the benefits estimates for rail projects submitted under the TCIF program. Cambridge Systematics has developed goods movement plans for most of the major MPOs in the State, including the Southern California Association of Governments (SCAG), Metropolitan Transportation Commission (MTC), Association of Monterey Bay Area Governments (AMBAG), and San Diego Association of Governments (SANDAG); and has conducted goods movement planning for Los Angeles Metropolitan Transportation Authority (MTA), Riverside County Transportation Commission (RCTC), and the Alameda County Transportation Commission. We hold current contracts for on-call transportation planning and goods movement planning services for the Ports of Los Angeles and Long Beach.
- Freight planning for the San Joaquin Valley Council of Governments (COGs).** Cambridge Systematics was the prime contractor for the first three phases of the San Joaquin Valley Goods Movement Study. We conducted one of the earliest market

analyses of the potential for the California Interregional Intermodal Service (CIRIS) short-haul rail program, and participated in several more studies of inland port and rail shuttle feasibility and implementation issues for the San Joaquin County COG.

The Tioga Group, Inc.

The Tioga Group is a specialized freight transportation consulting firm with more 100 years of combined staff experience. The Tioga Group is headquartered in Philadelphia and maintains additional offices in the San Francisco and Jacksonville areas. Tioga has completed assignments of national, regional, and local scope, including numerous studies in California and the San Joaquin Valley.

Tioga serves public agencies, ports, freight transportation carriers, shippers, suppliers, and industry organizations. Tioga personnel have extensive qualifications and experience in trucking, rail, ports, intermodal, and supply chain projects for both the public and private sectors. The firm believes in close working relationships with clients; offers sound conclusions based on fact; and meets deadlines, budgets, and expectations.

The most important strength Tioga brings to this assignment is the firm's knowledge and credibility in the freight industry. Tioga has studied and modeled freight issues for organizations as diverse as the AAR and the U.S. Environmental Protection Agency (EPA).

- **Supporting Public-Sector Policy and Planning.** The critical information needed for public-sector planning and policy-making must often come from contract research and analysis. Tioga has the expertise, experience, and resources necessary to support public policy and planning, especially in goods movement. Tioga staff members have completed goods movement studies for numerous Federal, state, and regional planning agencies, as well as major ports, railroads, and trucking firms.
- **Delivering Freight Transportation Expertise.** Many public agencies are confronting unfamiliar logistics, rail, intermodal, and truck issues. The problem is especially severe in the highly complex field of multimodal freight transportation. Tioga brings many years of staff freight transportation expertise to public-sector assignments, including former trucking, rail, and intermodal executives with personal knowledge of industry practices, issues, and attitudes.
- **Providing the Analytic Infrastructure.** Strong knowledge and analytic resources in analyzing passenger transportation may still leave public agencies at a loss in dealing with freight transportation issues. Tioga has an extensive repertoire of analytic techniques, cost and operations models, and information resources that can be brought to bear on public sector freight issues.
- **Making the Public-Private Connection.** Tioga specializes in making the public-private connection, and has a record of success. Tioga brings industry representatives into the process through its long-standing relationships with freight transportation

industry leaders and trade associations. Tioga is a member of the American Trucking Associations, the California Trucking Association, and the Intermodal Association of North America. Tioga knows what is important to shippers, receivers, and carriers; and understands their priorities and their values. Tioga has the credibility to seek and present the industry perspective.

Fehr & Peers

Fehr & Peers specializes in providing transportation planning and traffic engineering services to public- and private-sector clients. The firm emphasizes the development of creative, cost-effective, and results-oriented solutions to planning and design problems associated with all modes of transportation.

Specialized Services

Rather than trying to offer a multidisciplined approach, Fehr & Peers chooses to focus on being the best traffic engineering and transportation planning consulting firm. The firm offers specialized expertise within transportation, including the following:

- Bicycle and pedestrian planning;
- Traffic engineering;
- Land use and transportation planning;
- Traffic operations and ITS;
- Sustainable transportation;
- Travel demand forecasting; and
- Transit planning.

Maintaining this singular focus on transportation enables Fehr & Peers to provide state-of-the-practice expertise to their clients. Fehr & Peers is nationally-recognized experts in these areas, as evidenced by the fact that the firm routinely publishes many professional papers, serves on national committees, and teaches courses to others in the industry.

■ 8.2 Relevant Experience

Table 8.1 presents a summary of the proposed team's relevant project experience. More detailed summaries of these projects are presented on the following pages

Table 8.1 Team's Experience

Project Name	Client Agency
Cambridge Systematics, Inc.	
San Joaquin Valley Goods Movement Study – Phases I, II, and III	Fresno COG
AMBAG Central Coast California Commercial Flows Study	AMBAG
CIRIS and Inland Container Yard	Fresno COG
San Joaquin COG Inland Port Feasibility Study	San Joaquin COG
San Joaquin COG CIRIS Implementation Study	San Joaquin COG
Caltrans Trade Corridor Improvement Program Rail Modeling and Economic Analysis	Caltrans
SCAG Comprehensive Regional Goods Movement Plan & Implementation Strategy	SCAG
MTC Regional Goods Movement Study for the San Francisco Bay Area	MTC
LAMTA I-710 Corridor Project EIR/EIS Engineering/Environmental Component	Los Angeles MTA
FHWA Operations Support 2006 – California Commodity Origin/Destination Database Based on FAF2	FHWA
Fehr & Peers	
San Joaquin Valley Model Improvement Implementation	Eight San Joaquin Valley MPOs
Stockton General Plan	City of Stockton
U.S.-199 STAA Truck & Traffic Study	Del Norte County
I-35 Trade Corridor Study, Innovative Technologies and Accommodating Larger Trucks	Texas DOT
Inland Goods Movement Corridor Study	SANBAG
The Tioga Group, Inc.	
Alameda County Congestion Management Agency (ACCMA) Truck Parking Feasibility Study	ACCMA
Inland Port Feasibility Study	SCAG
SACOG Goods Movement Study	SACOG
Inland Port Feasibility Study	San Joaquin COG
Port of Oakland Port Services Location Study	Port of Oakland
STANCOG Central Stanislaus Freight Study	Stanislaus COG
Jock O'Connell	
Caltrans Goods Movement Action Plan	Caltrans
California Agriculture Export Studies	CA Dept of Food & Ag
Sacramento Goods Movement Study	SACOG
Advising Central Valley Aviation Entrepreneurs	Private clients

Cambridge Systematics, Inc.

San Joaquin Valley Goods Movement Study – Phases I, II, and III. Phase I of the San Joaquin Valley Goods Movement Study included quantifying the level of goods movement in the region by commodity, identifying the flow of goods by geographic region and time of year, locating and quantifying the movement of combo trucks on non-designated routes, and quantifying traffic impacts of goods movement within the Valley. Major freight generators were identified and surveyed and critical transportation issues were documented.

Phase II included development of a valley-wide truck model and analytical tools used to forecast truck traffic and evaluated alternative goods movement strategies. Cambridge Systematics also evaluated representative alternative strategy packages to demonstrate how the modal and associated analytical tools could be used to select and prioritize projects. This evaluation provided guidance to regional transportation planners in the selection of high-priority projects. Examples of project packages that were evaluated included upgrading existing east-west highways to improve connectivity with the population centers of California's coastal regions and strategies, truck lane options for major east-west connectors (I-205/I-580), and potential impacts of clean truck strategies.

In Phase III, the truck model was updated. Other key Phase III objectives included creating tools to address analysis of air toxics emissions, congestion on major truck routes, land use conflicts between residential or commercial developments and truck intensive land uses, access to activity centers for heavy trucks, and a truck model maintenance plan for each of the eight Valley RTPAs and Caltrans.

AMBAG Central Coast California Commercial Flows Study. For AMBAG, Cambridge Systematics is developing a set of commodity flow and freight analyses that can support the future implementation of freight-related projects in the Central Coast region. A major purpose of the Central Coast Commercial Flows Study is to develop a system-level overview of freight movements in the region and to identify the existing and emerging freight transportation, industry, and logistics trends that are affecting goods movement into, out of, through, and within the Central Coast region. The three primary goals are the development of a commodity flow forecast to support regional travel demand models; identification of regional goods movement deficiencies, needs, and strategies to address those needs; and support for the multi-region FAST public-private task force, as it develops a freight infrastructure strategy.

The results of this study will provide the project team and the FAST task force with a definitive understanding of the freight profile, forecasts, needs, deficiencies, economics, performance criteria, and funding strategies that will support future enhancements to the regional freight transportation system.

CIRIS and Inland Container Yard. There is a growing transportation link between the San Joaquin Valley and the Port of Oakland due to the substantial growth in the Valley as a regional and national distribution center for importers and exporters. Unfortunately, this growth is contributing to significant inland transportation problems. As the primary

east-west link between the Valley and Bay Area, the I-580 and I-80 corridors are experiencing substantial congestion problems that impact the Valley-to-Port movement of people and goods. The Port of Oakland worked with Caltrans and the affected MPOs to pursue alternative solutions. The two alternatives investigated by Cambridge Systematics for this study were: 1) running a short-haul intermodal shuttle between the Valley and the Port; and 2) utilizing inland container yards/truck staging areas to allow carriers moving between the Port and the Valley to split their trip into two segments so they could take advantage of off-peak travel for at least a portion of this trip. This study included a market analysis to determine how much benefit (in terms of reduced truck traffic during peak periods) would result from each alternative. The market analysis included summarizing available information, identifying key freight market segments and conducting shipper interviews throughout the Valley. This project also included an assessment of potential public-private partnerships and project financing options for each alternative.

San Joaquin COG Inland Port Feasibility Study. For the San Joaquin COG, Cambridge Systematics, as part of a team, developed a detailed analysis of the feasibility of intermodal rail service between San Joaquin County and the Port of Oakland. The project built upon the Port of Stockton Rail Shuttle Study and the California Interregional Intermodal Service (CIRIS) project underway in the San Joaquin Valley. This project detailed operating scenarios and costing; economics and funding; and estimated impact analysis of various rail configurations. The Tioga Group was the prime contractor for this study.

San Joaquin COG CIRIS Implementation Study. For the San Joaquin COG, Cambridge Systematics, as part of a team, assisted with the CIRIS Implementation Planning Study. The Tioga Group was the prime contractor for this study.

Caltrans Trade Corridor Improvement Program Rail Modeling and Economic Analysis. For Caltrans, Cambridge Systematics identified and evaluated potential benefits (both public and private) of freight rail infrastructure improvements provided by the Union Pacific Railroad (UP) and Burlington Northern Santa Fe Railway (BNSF). The projects that were evaluated, including improvements over the Tehachapi Pass, were being submitted for funding under the TCIF program. By identifying both public- and private-sector benefits, the analysis conducted as part of this study provided data and information to help Caltrans determine where public funds could be appropriately invested in private railroad infrastructure. This information also was used by Caltrans to help develop equitable cost sharing strategies among various public-and private-sector stakeholders.

SCAG Comprehensive Regional Goods Movement Plan & Implementation Strategy. For SCAG, Cambridge Systematics is developing a comprehensive and fully-integrated regional goods movement plan for Southern California, including an implementation strategy. The overall purpose of the project is to develop a comprehensive regional goods movement plan for Southern California that refines the goods movement portion of the agency's 2012 Regional Transportation Plan (RTP). This is being done through an extensive public and freight stakeholder outreach process, as well as a quantitative data-gathering process that included new shipper and carrier surveys, electronic data capture of truck origin-destinations (O/D), and improvements to the SCAG Heavy Duty Truck (HDT) Model. In addition, this study enhances the performance of the new regional

goods movement system through the application of new, alternative technologies, including zero-emission freight conveyance methods. Overall, the study is developing a prioritized project list and phasing plan that serves to enhance the goods movement capabilities of the SCAG region and optimize transportation system performance as efficiently as possible.

MTC Regional Goods Movement Study for the San Francisco Bay Area. For the MTC, Cambridge Systematics conducted a two-phase study of regional goods movement issues in the San Francisco bay area. The study had three major objectives: 1) to help local decision-makers better understand the economic significance of the goods movement industry and goods movement activities to the bay area economy; 2) to help the MTC, the regional MPO, identify critical infrastructure investment opportunities to enhance goods movement efficiency; and 3) to provide a common goods movement platform for the region for Federal surface transportation act reauthorization discussions. The first phase of the study focused on gathering necessary information and developing a profile of the economic clusters that comprise the goods movement industry and rely heavily on efficient goods movement. In addition, this phase identified critical land use and environmental issues related to goods movement. This phase was conducted by developing a database and information resources which described the goods movement system in terms of key economic relationships, description of the regional logistics systems, an inventory of the transportation elements of the goods movement system (roadway and rail networks, airports, seaports, rail, and intermodal terminals), compilation of data on goods movement traffic volumes and commodity flows, and characterization of the critical policy and regulatory programs that affect goods movement in the region at all levels of government. An industry cluster analysis also was conducted focusing on the goods movement industry and critical economy sectors that are particularly dependent on goods movement efficiency. The second phase of the study focused on identifying the critical goods movement issues and problems and ultimately establishing a regional goods movement strategy and action plan. This phase relied heavily on stakeholders and the critical transportation decision-makers in the region.

LAMTA I-710 Corridor Project EIR/EIS Engineering/Environmental Component. For the Los Angeles County MTA, Cambridge Systematics, as part of a team, is preparing a comprehensive joint engineering project report and EIR/EIS or I-710 Environmental Document for the I-710 Major Corridor Project. CS had previously participated in the Major Corridor Study for this corridor and was responsible for developing the goods movement analyses and performance measures that were used to compare alternatives and select the locally preferred strategy. In the EIR/EIS, Cambridge Systematics has lead responsibilities for travel demand forecasting and all goods movement tasks. Cambridge Systematics was responsible for critically evaluating and recommending future marine cargo forecasts for the POLA and POLA that were used in the study. As part of this analysis, Cambridge Systematics developed an off-model spreadsheet tool for analyzing potential capacity needs on the freeway based on alternative assumptions about future cargo volumes. Cambridge Systematics also led the development of a Railroad Goods Movement Study to evaluate alternative forecasts and capacity constraints for rail cargo movements in the I-710 study area. The purpose of this study was to critically evaluate how much cargo could move by on-dock or off-dock intermodal carriage and what

constraints exist in the rail system (both terminal and mainline capacity) to realizing maximum goods movement by rail.

Cambridge Systematics developed a study area model for analyzing all of the final alternatives in the EIR/EIS. The model was based on the SCAG 2008 Regional Transportation Travel Demand Model. The I-710 Corridor model also incorporated an extensive post-processor system to make local level adjustments to the model outputs on the freeway mainline, ramps, and intersecting freeways in order to ensure consistency with base year traffic counts. Cambridge Systematics used the model to develop traffic forecasts that were inputs to the EIR/EIS traffic and air quality studies.

FHWA Operations Support 2006 - California Commodity Origin/Destination Database Based on FAF2. For the FHWA, Cambridge Systematics developed a California Commodity Origin/Destination (O/D) Database based on FAF-Version 2 (FAF2). The database used a disaggregation technique developed previously by CS for Florida DOT and produces county-to-county commodity flows. The resulting database was “ground checked” against a variety of local data sources to improve the quality of the results.

Fehr & Peers

San Joaquin Valley Model Improvement Implementation (Eight San Joaquin Valley MPOs). Fehr & Peers is providing consulting services to update and improve each of the eight San Joaquin Valley MPO traffic models to meet near term needs and address continued maintenance and improvements, as defined under SB 375. Fehr & Peers assembled a team that is thoroughly knowledgeable and experienced with the unique characteristics and modeling capabilities of Fresno, Kern, San Joaquin, Stanislaus, Merced, Madera, Kings, and Tulare Counties; and with all aspects of the mandated model improvements. Through Fehr & Peers’ experience as a leading innovator in model enhancements prescribed by the new state laws and its highly qualified partners, the team is preparing the categorical improvements to each MPO model as prescribed by the new RTP guidelines and requested in Fehr & Peers interviews with MPO staff, as well as the following advanced modeling projects:

- A new three-county activity based model and O/D travel survey for San Joaquin, Stanislaus, and Merced Counties;
- A parcel-based activity model for Fresno County;
- A CUBE Land use allocation model for Kern County;
- Model sensitivities to 4D land use and Best Management Practices, as described in SB 375;
- Static and dynamic model validation and air quality conformity checking; and
- Updated interregional and truck trip models for the Valley, and other improvements.

Stockton General Plan. As the major urban area in the northern San Joaquin Valley, Stockton is a hub for many modes of transportation, from highways and transit services, to freight and passenger rail lines, to container ships using the deep-water port. The City has experienced tremendous growth in the past decade, and significant population increases are expected over the next 20 years and beyond. Fehr & Peers led the transportation analysis for the City's recent General Plan update, including development of a new citywide traffic model using the TP+/Cube software system. This model was calibrated to recent conditions, achieving measures for model accuracy that exceeded Caltrans standards, and was then used to forecast traffic conditions for the land use alternatives studied as part of the General Plan process. Development of the General Plan Circulation Element involved extensive public outreach to identify transportation issues of greatest importance to City residents, as well as research into state-of-the-practice transportation policies that would achieve the City's goals for a balanced transportation system that supports a variety of development patterns with efficient, multimodal connections. In addition, Fehr & Peers developed a new Bicycle Master Plan for the City that presents a recommended bikeway network, supporting infrastructure and services, and a funding and prioritization plan for new bicycle facilities

U.S. 199 STAA Truck and Traffic Study. Fehr & Peers is part of a multidisciplinary team conducting an environmental analysis of proposed improvements to U.S. 199 in the Redwood country of northern California. This was a unique project in that Fehr & Peers had to develop and apply new methodology to understand the latent demand impacts of the improvements. Specifically, if the improvements allowed for full-size STAA length trucks, then how many new trucks would use the route and what would the impact be? The project involved an extensive phone interview survey of producers and shippers to understand their current and future needs, as well as Global Positioning System (GPS) travel time and traffic studies of current uses along this amazingly scenic corridor.

I-35 Trade Corridor Study, Innovative Technologies and Accommodating Larger Trucks - Texas, Oklahoma, Kansas, Missouri, and Iowa. Fehr & Peers staff served as task manager responsible for the researching potential corridor strategies in the areas of Commercial Vehicle Operations (CVO), general ITS applications, and dedicated super truckways. The purpose of the study was to assess the need for improved local, intrastate, interstate, and international service on I-35; and to clearly define a general feasible improvement plan to address those needs. Duties included review of current trucking conditions, including size and weight regulations; review of policy issues associated with changing size and weight laws; study of potential impacts of allowing alternative truck configurations; and the assessment of safety, cost, and travel efficiency issues. Dedicated truckways and larger vehicle sizes provisions were included in the final recommendations.

Inland Goods Movement Corridor Study. Fehr & Peers worked with SANBAG on this goods movement study in the Inland Empire. The study, which dealt mostly with goods movement by trucks, intended to:

- Maintain or improve truck access between the major intermodal facilities and the regional system while minimizing the impacts of increased truck movements; and
- Minimize or eliminate conflicts between vehicular traffic and trains.

Fehr & Peers collected data and both analyzed and managed the comprehensive database (in GIS format).

The Tioga Group, Inc.

ACCMA Truck Parking Feasibility Study. Tioga was the prime contractor for this study of Alameda County truck parking needs and facility feasibility by preparing truck flow maps, identifying existing and potential truck parking in Alameda County, and conducting an extensive truck driver survey.

SCAG Inland Port Feasibility Study. Tioga was the prime contractor for a feasibility study of inland ports linked to the POLB and POLA. The study entailed market and transportation evaluations of alternative sites and operations, including drayage cost estimates. The Tioga team provided a detailed analysis of rail capacity and operational potential, cargo diversion potential, and truck traffic impacts.

SACOG Goods Movement Study. For SACOG, Tioga led a multidisciplinary team, including EPS and Jock O'Connell, in a three-phase goods movement study. This study is addressing a broad range of freight issues facing the region, and providing a sound basis for future freight transportation policy and investment. The third phase culminated in the first Goods Movement Action Plan for the region.

Inland Port Feasibility Study. For the San Joaquin COG, Tioga led a team analyzing the feasibility of inland port and intermodal rail operations linking California's Central Valley with the Port of Oakland. This Caltrans-funded study analyzed the accessible market for multiple existing and potential rail intermodal facilities, examined total intermodal operating costs versus prevailing truck rates, and explored the establishment of "inland port" functions at Central Valley locations. This work was cited by the Caltrans representative as an example of professional excellence.

Port of Oakland Port Services Location Study. This pioneering study examined the operations, land requirements, truck traffic flows, and public policy issues of ancillary container port services, including trucking, cargo handling and transloading, and equipment repair and storage. Tioga led a multifirm team addressing cargo movements, land use, facility engineering, and traffic impacts. Tioga developed forecasts of truck activity and acreage requirements for truck parking and ancillary services based on port traffic projection. In the course of this study, Tioga team members conducted more than 50 stakeholder interviews, with regional competitiveness a major issue throughout. Tioga staff succeeded in establishing common ground and the acceptance of study findings by Port staff, City staff, and local port critics.

STANCOG Central Stanislaus Freight Study. This innovative study, on behalf of the Stanislaus COG, examined the freight movement's access issues for Northern California's largest industrial park. Tioga assisted in numerous in-person interviews with freight industry and shipping community stakeholders, and contributed to the analysis and project reports. A key step was the design and implementation of two surveys, one to trucking companies and one to industrial shippers and receivers.

Jock O'Connell

Caltrans Goods Movement Action Plan. Mr. O'Connell participated in a 2009 to 2010 project updating the air cargo element in California's Goods Movement Action Plan. His primary contribution to that project was a critical review of air cargo planning and forecasting in California since the late 1990s. Mr. O'Connell also was engaged in the developing the project's outlook for air cargo operations in the State over the next 20 years.

California Department of Food and Agriculture. Since 2003, Mr. O'Connell has conducted three studies for the California Department of Food and Agriculture on the logistics of the State's airborne shipments of perishable agricultural products to overseas markets. (All three studies were published by the Center for Agricultural Business at Fresno State University.)

The first two studies documented the generally unacknowledged dimensions of California's airborne agricultural export trade and described how air freight operations have helped boost the state's farm export trade. Those studies were:

- "The Role of Air Cargo in California's Agricultural Export Trade" (http://cati.csufresno.edu/cab/PDF/Mason_Role-of-Air-Cargo.pdf) in May 2005; and
- "The Role of Air Cargo in California's Agricultural Export Trade: A 2007 Update" (http://cati.csufresno.edu/cab/PDF/Mason_Role-of-Air-Cargo-2007.pdf) in August 2007.

The third study examined the logistical issues involved in transporting perishable farm products from California to some 15 rapidly developing municipalities throughout China.

- "Taking the Fast Plane to China: An Expanded Role for Air Freight in Increasing California's Fresh Fruit and Vegetable Exports" ([http://cati.csufresno.edu/cab/PDF/Taking%20the%20Fast%20Plane%20to%20China%20\(4-08\).pdf](http://cati.csufresno.edu/cab/PDF/Taking%20the%20Fast%20Plane%20to%20China%20(4-08).pdf)) in April 2008.

The initial study in the series also dealt with the issue of why airports proximate to California's primary growing regions have been unsuccessful in securing international air cargo service.

Sacramento Air Council of Governments. From 2006 through 2008, Mr. O'Connell participated as a subcontractor to The Tioga Group in a comprehensive goods movement study for the SACOG. He was specifically responsible for the analysis of air cargo operations at Sacramento International Airport and at Mather Airport in nearby Rancho Cordova.

Particular attention was devoted to measuring the volume and characteristics of the truck traffic associated with air cargo services at both airports.

In August 2008, Mr. O'Connell moderated a distinguished panel of aviation industry and academic experts on "The Future of Air Transport in California" at the University of California Center Sacramento.

Miscellaneous Advising of Central Valley Aviation Entrepreneurs. Over the past several years, Mr. O'Connell has periodically provided advice to entrepreneurs seeking to establish international air cargo services at airports through the Central Valley, including at Fresno-Yosemite International, Bakersfield's Meadows Field and Castle Airport in Atwater.

Appendix A

Resumés

Cambridge Systematics, Inc.

MICHAEL J. FISCHER, P.E.

Principal

Cambridge Systematics, Inc.

PROFESSIONAL EXPERIENCE

MPO and Local Freight Transportation Planning. Mr. Fischer has extensive experience with goods movement issues in California. He currently is managing the Southern California Association of Governments (SCAG) Comprehensive Regional Goods Movement Study to develop goods movement strategies and project concepts for the 2012 Regional Transportation Plan. He also is the Goods Movement Task Leader for the I-710 Environmental Impact Statement (EIS). This corridor is the primary access routes to the Ports of Long Beach and Los Angeles. Mr. Fischer managed a goods movement on-call contract for the Riverside County Transportation Commission (RCTC), in which he has developed a county freight profile, reviewed the region's Multi-County Goods Movement Action Plan, and conducted a benefit analysis of the Colton Crossing rail project. He was the Project Manager for the San Joaquin Valley Goods Movement Phase I, which inventoried goods movement flows and documented goods movement needs and issues throughout the Valley, and Phase II, which developed the first version of the San Joaquin Valley truck model. He subsequently was Principal-in-Charge of the Phase III update of the model. Mr. Fischer managed or participated in three different studies of a regional shortline shuttle and inland port concept that would connect the Port of Oakland and the Central Valley. These studies were conducted for the Fresno COG, the Port of Stockton, and San Joaquin COG. He was manager of the Metropolitan Transportation Commission's (MTC) 2004 Regional Goods Movement Study and participated in two follow up studies addressing the potential implications of regional land development patterns on goods movement corridors in the East Bay. Mr. Fischer also provided analysis of the I-80 and I-880 trade corridors to support Northern California applications for TCIF funding. Mr. Fischer has conducted several major projects related to regional freight issues in the Portland Metropolitan area. He recently managed a major freight data collection program in the region and he previously prepared the base year commodity flow database for the region. Recently, Mr. Fischer managed the Greater Vancouver Goods Movement Study to evaluate critical system elements and needs and deficiencies. Mr. Fischer also has conducted regional freight studies for the Ministry of Transportation of Ontario (Toronto), the Association of Monterey Bay Area Governments (Monterey/Santa Cruz Counties, California), the San Joaquin Valley (California), and the Puget Sound Regional Commission. These studies have included development of freight elements of regional transportation plans as well as the identification and evaluation of freight project programming procedures.

EDUCATION

Sc.B., Mechanical Engineering, Brown University, 1976

M.C.R.P., Environmental Planning, Harvard University, 1979

AREAS OF EXPERTISE

Freight Transportation Planning
Freight Environmental Analysis
Freight Transportation and Truck Modeling and Data Development
Transportation Finance and Economics

PROFESSIONAL AFFILIATIONS

Registered Professional Engineer,
Commonwealth of Virginia

MICHAEL J. FISCHER, P.E.

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National Freight Transportation Policy and Planning. Mr. Fischer has managed and participated in numerous national-level freight planning and policy studies. For the National Cooperative Highway Research Program (NCHRP), he recently completed an evaluation of Truck-Only Lane opportunities for both long-haul and urban corridors and he has managed projects, including a Synthesis of Truck Trip Generation Data; Best Practices in State Freight Planning; and Multistate Corridor Planning; and he has acted as Principal-in-Charge for NCHRP projects on Incorporating Freight in the Planning and Programming Process and Freight Planning for Small- and Medium-Sized MPOs. Mr. Fischer managed development of the National Highway Institute course on Freight Forecasting and is an instructor for this course and the NHI course on Freight Planning. For the U.S. Department of Transportation Office of the Secretary, he developed a guidebook for evaluating Economic Impacts of Large Scale Freight Investments and recently delivered a “Talking Freight” seminar on this topic for the Federal Highway Administration (FHWA).

State and Multistate Freight Transportation Planning. Mr. Fischer managed policy and technical analysis support to the West Coast Corridor Coalition, including a West Coast transportation systems analysis project. Mr. Fischer currently is preparing the Oregon DOT statewide freight plan. Previously for the Oregon DOT, he managed Cambridge Systematics’ contribution to the development of the statewide commodity flow database. Recently, Mr. Fischer was Manager of the Washington Transportation Commission’s Statewide Rail Capacity and Needs Study. He also was task leader for data and modeling in a recent Texas DOT study of the impacts of NAFTA trade on the State’s highway and rail systems. Mr. Fischer had previously been responsible for developing modal chapters on freight and passenger rail, intermodal, and marine systems for the Texas Statewide Transportation Plan. For the Arizona DOT, Mr. Fischer prepared an analysis of freight systems and needs that was incorporated in the State’s long-range transportation plan.

SOPHIE HARTSHORN

Senior Freight Analyst
Cambridge Systematics, Inc.

PROFESSIONAL EXPERIENCE

Ms. Hartshorn is a senior freight analyst skilled in projects that involve intermodal freight systems planning, freight transportation finance, and freight and economic development. Many of her projects focus on the rail system's role in providing coordinated, statewide, or regional goods movement capabilities in areas, including: the San Francisco Bay Area, Washington State, Kansas, New Mexico, Texas, and Southern California.

Washington Statewide Rail Capacity and Systems Needs Study. Ms. Hartshorn served as Deputy Project Manager to assess the freight and passenger rail infrastructure needs for the Washington State Transportation Commission. She reviewed the current powers and interests the State has in both passenger and freight rail, and recommended public policies for state participation and ownership in rail infrastructure. She also evaluated system governance issues; and developed a methodology by which to measure the public impact and public benefit of rail infrastructure projects. Finally, she reviewed how Federal, state, and private funding sources can be leveraged to support the economic development of the State's rail-dependent industries.

Southern California Association of Governments (SCAG) Regional Goods Movement Study and Implementation Plan. Ms. Hartshorn is serving as Deputy Project Manager on this effort to evaluate the proposed rail and highway plans in the current Regional Transportation Plan (RTP), compare them to existing and developing goods movement needs, and recommend a multimodal approach (and financing strategy) to their implementation. The study also will quantify the impacts of goods movement system improvement projects on the economy, and to prioritize them into a coherent goods movement strategy for the Southern California Region.

Texas Department of Transportation (TxDOT) Involvement in Rail Issues Policy Papers. Ms. Hartshorn served as a lead planner for TxDOT to recommend an approach to rail planning to the Texas State Legislature. Ms. Hartshorn established a policy position for issues, including HazMat rerouting and pre-reporting requirements, governance of Rural Rail Transportation Districts, and the State's role in Public Private Partnerships within the freight rail industry.

EDUCATION

M.S., City and Regional Planning, Rutgers University, 2004

B.S., Geology, Cornell University, College of Arts and Sciences, 1999

AREAS OF EXPERTISE

Freight and Intermodal Planning
Intermodal Transit System Planning
Land Use and Transportation Coordination
Regional and Urban Transportation Planning
Economic Development

SOPHIE HARTSHORN

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AASHTO Freight Bottom Line Report. Ms. Hartshorn researched existing and emerging national funding opportunities and initiatives for freight rail infrastructure projects; including grant and loan programs tax credit programs, Public Private Partnerships (PPP) and user fee programs.

Oregon DOT Statewide Freight Plan. Ms. Hartshorn currently is serving as Deputy Project Manager on this Oregon DOT (ODOT) statewide freight plan. The study will begin by assessing statewide economic, logistics, industry, income, and population trends, as well as the transportation system needs of key goods dependent industries. This trends analysis will be followed by an assessment of Oregon's existing freight system, including the physical infrastructure, public policy arrangements, and operational characteristics that make up the strategic freight system. The study will result in a set of targeted recommendations to support the efficient movement of freight throughout the State, as well as a framework to assist ODOT to develop and integrate freight planning into their planning process.

Kansas DOT Statewide Freight Plan. Ms. Hartshorn served as the Cambridge Systematics Deputy Project Manager on the first statewide freight planning effort for the Kansas DOT (KDOT). This study included a systems-level overview of freight movements into, out of, through, and within the State, including an analysis of all transportation modal systems and the commodities that are moving across them. It also identified the existing and emerging freight transportation, industry, land use, and logistics trends that are affecting goods movement into, out of, through, and within Kansas. The end result was set of strategic infrastructure, institutional, and policy recommendations that can integrate within the KDOT long-range planning process.

CHIRANJIVI S. BHAMIDIPATI, E.I.T.

Analyst

Cambridge Systematics, Inc.

PROFESSIONAL EXPERIENCE

SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy. For the Southern California Association of Governments (SCAG), Cambridge Systematics is developing a comprehensive and fully integrated regional goods movement plan for Southern California, including an implementation strategy. Overall, the study will result in a prioritized project list and phasing plan that serves to enhance the goods movement capabilities of the SCAG region and optimize transportation system performance as efficiently as possible. As part of the effort, Mr. Bhamidipati conducted goods movement analysis and is assisting in evaluating the economic impacts of freight activities and facilities. Mr. Bhamidipati also is playing a key role in the assessment of current truck traffic conditions and truck related safety, and evaluating truck lane strategy.

Texas DOT – Waterborne Commerce Study Phase II. For the Texas Department of Transportation (DOT), Cambridge Systematics is leading a Waterborne Freight Corridor Study to develop an understanding of the regional, national, and global trends driving freight demand at Texas ports and waterways; identify key chokepoints impacting the efficiency of the state's waterborne and surface freight system; describe the key mobility, economic, and community/environmental impacts being caused (or exacerbated) by these growth patterns and chokepoints; and identify infrastructure, operational, and institutional recommendations to help the DOT and its local partners better address these issues. The overall study is being conducted in two Phases. Phase I, which described current and future conditions at the State's marine terminals, navigable waterways, inland highway and rail connections, and identified critical bottlenecks and needs across the entire system, was completed in June, 2010. This phase will develop infrastructure, operational, and policy solutions to these bottlenecks and needs, describe the costs of benefits of these solutions, and develop a phased implementation strategy for consideration by the DOT and other stakeholders. For this study, Mr. Bhamidipati is conducting an economic assessment of landside and waterside maintenance, capital and strategic investment projects.

Texas DOT – West Texas Rail Feasibility Study. For the Texas DOT, Cambridge Systematics, as part of a team, is conducting a study to determine the feasibility of developing a north-south rail linkage between Del Rio and Seagraves, Texas. Study activities are oriented to determine, if the rail line is used, who will use the rail line and how much they will use it. Corridor alignment will be a determining factor in answering the questions. Construction, maintenance, and operating costs will be estimated for the line, as well as potential revenue

EDUCATION

M.S., Civil Engineering, University of Virginia, 2007

M.Tech, Civil Engineering, Indian Institute of Technology, 2004

B.Tech, Civil Engineering, Indian Institute of Technology, 2004

AREAS OF EXPERTISE

Freight and Intermodal Analysis and Planning
Traffic Operations

PROFESSIONAL REGISTRATIONS

Engineer-in-Training, Virginia, 2007

CHIRANJIVI S. BHAMIDIPATI, E.I.T.

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generated from diverted truck traffic and one or more potential new “mega-shippers.” Economic benefits of the rail line will be estimated and a determination will be made of whether or not sufficient freight revenues will be available to cover operating and construction costs. For this study, Mr. Bhamidipati conducted existing rail goods movement analysis, and is providing assistance in demand estimation of new rail service and feasibility assessment.

Texas DOT CDA – El Paso Regional Port of Entry Operations Plan. For the Texas DOT and the City of El Paso, Cambridge Systematics, as part of a team, is developing a Regional Port of Entry (POE) Operations Plan for the El Paso Metropolitan region. The overall purpose of this El Paso Regional POE Operations Plan is to review all existing ports of entries within the El Paso region, analyze how the ports currently function, and develop funding, financing, and other implementation recommendations to improve cross-border mobility in the region. As a part of the Plan, Mr. Bhamidipati conducted goods movement analysis and performed a technology assessment for U.S.-Mexico border crossing operations.

Port of Long Beach Planning On-Call 2010 – TIGER II Benefit/Cost Analysis. For the Port of Long Beach, Cambridge Systematics prepared the benefit/cost assessment for a TIGER-II grant request for the Green Port Gateway: Rail Realignment Project at Ocean Boulevard and reviewed the complete application. The project improves efficiency and capacity of on-dock rail operations, allowing a reduction in container truck traffic to and from Port. The project also improves the efficiency of bulk cargo rail operations to and from the bulk loader on Pier G. Mr. Bhamidipati assisted in the benefit/cost assessment and interacted with the client.

Oregon DOT Statewide Freight Planning – Oregon’s Freight Plan. For the Oregon DOT, Cambridge Systematics is leading the effort to develop the Oregon Statewide Freight Plan. The Plan will build on background work currently underway to profile the infrastructure, commodity, economic, industry, public policy, and regulatory landscape of Oregon. The Oregon Freight Plan will identify institutional and organization barriers that limit the development of an efficient and effective freight transportation system in Oregon, as well as a prioritized strategy for overcoming the barriers. In addition, the Plan will establish a process to identify, prioritize, and facilitate investments in Oregon’s multimodal infrastructure in order to further the goal of creating a safe, seamless, and interconnected freight system. For the Plan, Mr. Bhamidipati conducted goods movement analysis, and collected demographic and economic data customized to the client requirements.

FHWA Freight and Land Use. For the Federal Highway Administration (FHWA), Cambridge Systematics is creating a freight and land use guidebook and an accompanying series of freight and land use scenario planning workshops. Designed for a broad audience of public and private stakeholders, these tools will give a clear, comprehensive overview of the considerations that must be taken into account when factoring freight transportation and land use into the planning process. In particular, the guidebook will identify freight related land use issues, key considerations, and available resources to help planners and the freight community to better consider freight issues into the transportation planning process. Mr. Bhamidipati provided assistance on the section that discusses the needs and constraints of freight operations.

FHWA Exploratory Advanced Research Program Project. While serving as a Graduate Research Assistant at the University of Virginia Center for Transportation Studies, Mr. Bhamidipati developed IntelliDrive-based freeway merge assistance algorithms to improve safety and efficiency. He developed preliminary application programming interfaces for VISSIM traffic simulation software. He also performed the integration of a communication latency model in the VISSIM traffic simulation environment. Conducting safety analysis using surrogate safety measures, mobility analysis using congestion measures, and fuel consumption and emissions analysis using microscopic estimation models.

LAWRENCE LIAO

Senior Associate

Cambridge Systematics, Inc.

PROFESSIONAL EXPERIENCE

Lawrence Liao is a Senior Associate of Cambridge Systematics with more than 10 years of experience in the areas of travel demand forecasting and software development. Mr. Liao has developed and updated travel demand models at various levels, from cities to metropolitan planning organizations (MPO). He has provided modeling support for various projects, including general plan, environmental impact reports/environmental impact statements (EIR/EIS), impact fee studies, corridor studies, transit-oriented development (TOD), the California blueprint process, campus master plans, parking studies, and toll road modeling. He has implemented advanced modeling techniques, such as peak spreading, mode choice, and feedback loop. Mr. Liao converted eight San Joaquin Valley MPO models from MINUTP to TP+. Highlights of Mr. Liao's professional experience are provided below.

San Joaquin Valley Goods Movement Study – Phase III. For the Council of Fresno County Governments, Cambridge Systematics led the third phase of the San Joaquin Valley Goods Movement Study. The eight state-designated regional transportation planning agencies and Federally designated metropolitan planning organizations (MPO) within the central San Joaquin Valley, in conjunction with the Caltrans Districts 6 and 10 and headquarters, undertook a joint goods movement study to improve the understanding of truck transportation within and through the San Joaquin Valley. A valley-wide truck model was developed. Mr. Liao was Key Staff for this project.

California High-Speed Rail Model Development. For the California High-Speed Rail Authority (HSRA) and the Metropolitan Transportation Commission (MTC), Cambridge Systematics developed a travel model system based on the California statewide model, and prepared ridership and revenue forecasts for the proposed California High-Speed Rail system. The resulting model system separately predicts intra-urban and intercity demand, and high-speed rail ridership and revenue at various geographic and market levels. Mr. Liao provided Voyager scripting support and QA/QC for this project.

On-Call Modeling Support for the Community Planning Association (COMPASS) of Southwest Idaho. Cambridge Systematics provided professional services to assist the MPO with its regional travel demand model update. The services included identifying and implementing short-term quick fixes from various reports/technical memorandums, and performing minor script changes as specified by COMPASS staff. Mr. Liao was the Project Manager and Key Staff for this project.

EDUCATION

M.Eng., Transportation,
University of California, Berkeley, 1997

M.S., Operations Research,
University of New Haven, 1993

B.S., Industrial Engineering,
Tunghai University, Taiwan, 1989

AREAS OF EXPERTISE

Travel Demand Model Development
Travel Demand Model Application
Cube Software Support and Training

COMPUTER EXPERIENCE

CUBE Voyager, Cube Analyst, Cube Avenue,
Cube Cluster, TP+/VIPER, MINUTP,
TRANPLAN, EMME/2, TransCAD,
Dynameq, MS Access, Excel VBA

LAWRENCE LIAO

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SFCTA On-Call Modeling Services. Cambridge Systematics is supporting the San Francisco County Transportation Authority (SFCTA) On-Call Modeling Services Contract for years 2010 and 2011. Cambridge Systematics will assist the SFCTA complete various tasks that include updating the regional activity-based model, in which Cambridge Systematics developed SF-CHAMP; support the Countywide Transportation Plan Update; support the potential implementation and development of Urbanism; and provide model applications for a variety of other projects to be performed by the SFCTA. Mr. Liao is the key demand modeling staff for this project.

PRIOR PROFESSIONAL EXPERIENCE

Arup. Mr. Liao was the Chief Modeler for Arup's toll road group in the Americas region. The group served as the Traffic and Revenue Advisor for different players, such as government agencies, consortia, and investment bankers, in the Public-Private Partnership (PPP) process. He was responsible for forecasting annual traffic volumes and revenue, based on different tolling schemes, for the life of the PPP contract using regional travel demand models. Mr. Liao applied the EMME/2 Origin-Destination Matrix Estimation macro for the LBJ-635 Corridor toll road investment grade study in Dallas, Texas.

Fehr and Peers. Mr. Liao provided modeling support for various projects, such as general plan, EIR/EIS, impact fee study, corridor study, TOD, California blueprint process, campus master plan, and parking study. He developed the Hercules City TransCAD Model; devised numerous travel demand modeling updates and enhancements in Voyager, TP+, and TransCAD; developed TravelCast – a construction scenario management tool, developed software tools for simulation data post-processing, and data format conversion using MS Access and Excel VBA; and implemented Confluence wiki as the knowledge base management system and Intranet.

Citilabs. Mr. Liao was in charge of technical support and training for TP+ and Viper. He has delivered numerous software and model training sessions. In addition, Mr. Liao provided consulting services to convert demand models from legacy software, such as MINUTP and TRANPLAN into TP+; set up a quality control program for TP+ using its scripting language; and developed key software modules for TP+ and Viper.

MARTIN S. SCHILLING

Transportation Analyst
Cambridge Systematics, Inc.

PROFESSIONAL EXPERIENCE

SCAG Comprehensive Regional Goods Movement Plan and Implementation Strategy. For the Southern California Association of Governments (SCAG), Mr. Schilling is actively involved in several tasks on this project. First, he was the lead analyst for the Port Competitiveness Tracker, which compared various key indicators and data to assess the competitiveness of the Los Angeles area ports. Mr. Schilling also currently is writing a technical memorandum that analyzes the effectiveness of the SCAG Region 2008 Regional Transportation Plan (RTP) goods movement strategies.

AMBAG Central Coast California Commercial Flows Study. For the Association of Monterey Bay Area Governments (AMBAG) in California, Mr. Schilling is participating in a study that is developing a set of commodity flow and freight analyses that can support the future implementation of freight-related projects in the Central Coast region. A major purpose of the study is to develop a system-level overview of freight movements in the region and to identify the existing and emerging freight transportation, industry, and logistics trends that are affecting goods movement into, out of, through, and within the Central Coast region. Mr. Schilling is the lead analyst on this project and is responsible for collecting and analyzing data necessary to create an overview of freight movement in the study area.

Oregon DOT Statewide Freight Planning – Oregon’s Freight Plan. Under an on-call freight planning contract with the Oregon Department of Transportation (DOT), Mr. Schilling is assisting in the effort to develop the Oregon Statewide Freight Plan. The Plan will build on background work currently underway to profile the infrastructure, commodity, economic, industry, public policy, and regulatory landscape of Oregon. Capitalizing on this extensive background information, the Plan will identify institutional and organization barriers that limit the development of an efficient and effective freight transportation system in Oregon, as well as a prioritized strategy for overcoming the barriers. Mr. Schilling is performing research and analysis for project and is writing many of the chapters.

Port of Long Beach Planning On-Call 2010 – TIGER II Benefit/Cost Analysis. Mr. Schilling was an analyst on this project and was involved in researching data and policy to prepare the grant application. He also was involved in preparing the spreadsheet and documentation in support of the application.

EDUCATION

M.S., Urban Planning, University of Wisconsin-Madison, 2009

Certificate, Transportation Management and Policy, University of Wisconsin-Madison, 2009

B.S., Business Administration, Washington University in St. Louis, 2004

AREAS OF EXPERTISE

Transportation Analysis
Transportation Planning
Freight and Intermodal Planning

MARTIN S. SCHILLING

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Oakland Trade and Industry Center Promotional Brochure. For the Oakland Metropolitan Chamber of Commerce, the Port of Oakland, and the City of Oakland, Cambridge Systematics is preparing the text for a promotional brochure for the proposed Oakland Trade and Industry Center, an \$891 million redevelopment of the former Oakland Army Base. This project includes a new container terminal, an on-dock rail yard, the 7th Street Grade Separation, and other roadway and railroad improvements at the Port of Oakland.

Oregon DOT Statewide Freight Planning – Freight and Climate Change Strategies. For the Oregon Department of Transportation (DOT), Cambridge Systematics is investigating freight-related strategies to mitigate and prepare for the impacts of climate change. Strategies to be investigated include freight transportation demand management (e.g., tolling), intelligent freight technology, mode shifts, infrastructure selection practices, hours of operation regulations, alternative energy sources, and others. Cambridge Systematics is preparing technical memorandums on each topic area, and the results will be used to inform the selection of priority strategies for inclusion in the freight plan. Mr. Schilling is writing a technical memorandum that focuses on freight operations and education strategies that can be employed in Oregon to achieve a reduction in GHG emissions.

World Bank Freight Policy Toolkit. For World Bank Group, Cambridge Systematics, as part of a team, is conducting a series of case studies that will support the development of a “Freight Policy Toolkit” for the World Bank and its client countries. The Freight Policy Toolkit will serve as a resource for World Bank client countries by providing examples of how innovative freight policies, supply chain practices, and investments can improve the safety and efficiency of freight transportation. Mr. Schilling is working as an analyst to complete the research and writing of two case studies focusing on intermodal supply chain examples.

FHWA Operations 2006 – Freight and Land Use. For the Federal Highway Administration (FHWA), Mr. Schilling is providing assistance for the development of freight and land use guidebook and an accompanying series of freight and land use scenario planning workshops. Designed for a broad audience of public and private stakeholders, these tools will give a clear, comprehensive overview of the considerations that must be taken into account when factoring freight transportation and land use into the planning process. As the lead analyst and planner on this project, Mr. Schilling is responsible for researching background information and drafting the final product.

Wisconsin DOT Truck Size and Weight Study. Cambridge Systematics, as part of a team, helped the Wisconsin DOT assess potential changes to state truck size and weight law and assisted in formulating a response to inquiries from state legislature regarding truck size and weight changes. Mr. Schilling, while interning, assisted in researching existing state statutes in order to compile a detailed summary of current Wisconsin truck size and weight regulations. The study included a detailed benefit-to-cost analysis which estimated the impacts of truck size and weight law changes on roadway safety and infrastructure preservation. These costs were balanced with the potential economic development gains and greater employment that accompany increased trucking productivity.

Wisconsin Transportation Center. While completing his Master’s degree program, Mr. Schilling served as a Project Assistant for transportation and freight research at the Wisconsin Transportation Center at the University of Wisconsin-Madison. In this role, he conducted research for the Wisconsin DOT on policy and impacts of international freight container weight limits in the State. He also assisted in the development of both text and visual products for the Wisconsin Truck Size and Weight Study. In addition, he developed project research summaries, updated the Center’s web site, and assisted with research on several other freight projects.

RAMESH K. THAMMIRAJU

Transportation Planner/Modeler
Cambridge Systematics, Inc.

PROFESSIONAL EXPERIENCE

LAMTA I-710 Corridor EIS/EIR – Engineering/Environmental Component. Transportation Planner. For the Los Angeles County Metropolitan Transportation Authority (LAMTA), Cambridge Systematics, as part of a team, is preparing a comprehensive joint engineering project report and Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the I-710 Major Corridor Project. Mr. Thammiraju is providing travel demand modeling assistance for alternatives analyses. He has developed methods, processes, and TransCAD GISDK tools which will automate the labor intensive model development, calibration, validation, and application processes. Mr. Thammiraju also is assisting with technical report writing, and the results presentation.

I-5 Corridor Study– Traffic Component. Transportation Planner. For the California Department of Transportation (Caltrans), Cambridge Systematics, as part of a team, prepared a comprehensive joint engineering project report for the I-5 Project. Mr. Thammiraju provided travel demand modeling assistance for alternatives analyses.

SCAG Goods Movement/HDT Model Update– Regional Model Update Component. Transportation Planner. For the Southern California Association of Governments (SCAG), Cambridge Systematics is updating the regional travel demand model. Mr. Thammiraju is providing technical assistance for this project and developing mission critical modules for the model update.

North I-25 EIS, Loveland, Colorado Project. Transportation Planner. While with Carter & Burgess, Inc., Mr. Thammiraju played a key role in forecasting highway and transit travel demand for the evaluation of multimodal EIS alternatives for Colorado Department of Transportation (DOT). He used TransCAD, ArcGIS, computer programming, and relational databases skillfully for North I-25 Combined Model update, calibration, validation, and application. He developed numerous custom tools using TransCAD/GISDK and MS Excel/VBA.

Texas SH 201, Texas. Transportation Planner. While with Carter & Burgess, for the Texas DOT, Mr. Thammiraju participated in model development, validation, and application to analyze proposed alternative alignments for the extension of SH 201. Model network area was extended to include the study area. New traffic analysis zones (TAZs) were added to the existing model structure. Specifically, he developed socioeconomic variables for the new TAZs and

EDUCATION

M.C.R.P., City and Regional Planning,
University of Texas at Arlington, 2004

B.Arch, Architecture, Jawaharlal Nehru
Technological University, 1998

Certificate, Geographic Information Systems,
University of Texas at Arlington, 2002

AREAS OF EXPERTISE

Travel Demand Modeling and Forecasting
Geographic Information Systems (GIS)
NEPA EIS/EIR/EA, Alternatives Analyses
Highway, Transit, and Freight
Corridor and System Analyses
Model Development, Calibration, Validation,
and Application
Data Analysis and Results Presentation

SOFTWARE SKILLS

Analyses Software – TransCAD, ArcGIS
Desktop, Microsoft Excel, ArcView 3.2,
ArcInfo 8.1, VISSIM, SYNCHRO, SPSS,
EMIT/MOBILE6, TEAPAC

Programming Languages – GISDK, VBA, C,
C++, JAVA

Databases – SQL Server 2005, Microsoft
Access, ArcGIS Geodatabase

Others – MS Office Suite, Photoshop,
MS Streets, SketchUp, AutoDeskMap,
AutoCAD

RAMESH K. THAMMIRAJU

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created new model networks and input files, utilized FORTRAN-based modeling applications and TransCAD software to perform model runs, and developed customization tools using GISDK programming to process multiple matrices and model data extraction.

Texas Freight Mobility Study. Transportation Planner. While with Carter & Burgess, Mr. Thammiraju assisted in an analysis of rail freight flows for districts in Texas. He used the Statewide Analysis Model and an ASCII flat file to extract rail freight information by commodity group, region, and distance for two districts. The database task involved extensive query writing, data manipulation, and analysis.

RTC I-15 Resort Corridor Study. Transportation Planner. While with Carter & Burgess, Mr. Thammiraju was the Transportation Planner/Modeler responsible for analyzing resort corridor travel patterns and developing circulation and access alternatives. He analyzed travel patterns using the Regional Transportation Commission of Southern Nevada (RTC) regional travel model, conducted demographic analysis using ArcScene, performed select link analysis and prepared informative graphics using the data, and prepared circulation and access conceptual maps using ArcGIS and Photoshop.

Ivanpah Airport Access Master Plan. Transportation Planner. While with Carter & Burgess, Mr. Thammiraju conducted travel demand forecasting and developed transit options for the Ivanpah Airport in Las Vegas, Nevada. Specifically, he forecasted travel demand for different alternatives using the RTC regional travel model, conducted research on existing airports and their mode of public transportation access, and analyzed the new RTC mode-choice and transit regional model. He also performed the reasonability analysis checks on the Ivanpah trip distribution of RTC Model.

RONALD C. WEST, AICP

Principal

Cambridge Systematics, Inc.

PROFESSIONAL EXPERIENCE

ACCMA Freight/Truck Model. For the Alameda County Congestion Management Agency (ACCMA), Cambridge Systematics completed a new truck and freight model system. The project included a model visioning exercise, new data collection, validation and calibration of updated trip generation, distribution and assignment procedures, and the creation of a special generator model for the Port of Oakland. Mr. West was the Project Manager.

California High-Speed Rail Ridership and Revenue Forecasting Study. Cambridge Systematics was the lead contractor to develop a new statewide travel demand model for evaluation of alternative high-speed rail alignments between the Bay Area and the Central Valley. Key project tasks included new survey data collection of interregional travelers, demographic forecasts to the Year 2050, new model development, model application, and induced travel demand – all overseen by an expert peer review panel. Mr. West played key roles in survey data collection, network development, socioeconomic data development, and reporting to the peer review panel.

MTC Transportation 2035 Performance Analysis. Cambridge Systematics developed an analysis framework to evaluate potential projects for the Metropolitan Transportation Commission's (MTC) Regional Transportation Plan (RTP). A variety of roadway and transit projects were evaluated, and included considerations of trucking/goods movement. Cambridge Systematics developed a benefit/cost workbook, and worked with MTC modeling staff on the development of a series of performance measures. Cambridge Systematics also developed travel model postprocessors to evaluate air quality impacts and to quantify nonrecurrent delays on area freeways. Mr. West was the Project Manager.

San Francisco County Transportation Authority Modeling On-Call. Cambridge Systematics is providing modeling services for the San Francisco County Transportation Authority's (SFCTA) Chained Activity Modeling Process (CHAMP) activity-based travel model system. For the Geary Boulevard bus rapid transit (BRT) Small Starts project, Cambridge Systematics has conducted Year 2009 model validation, and is preparing forecasts for all project Alternatives. Mr. West is the Cambridge Systematics' Project Manager.

San Joaquin Valley Express Transit Study. As a subcontractor, Cambridge Systematics led an evaluation of the market demand for regional express transit services between the eight-county San

EDUCATION

M.C.R.P., City and Regional Planning,
Rutgers University, 1986

B.A., Environmental Studies,
Ramapo College of New Jersey, 1984

AREAS OF EXPERTISE

Multimodal Forecasting and Analysis
Travel Demand Model Development
Regional and Urban Transportation Planning

RONALD C. WEST, AICP

(continued)

Joaquin Valley, and activity and employment centers in the Bay Area, Sacramento, and Los Angeles Regions. Two Cambridge Systematics initiatives were used – traveler information from the new statewide travel model for high-speed rail and transit competitiveness factors initially developed for Cambridge Systematics’ transit market research efforts in the San Francisco Bay Area and other urban areas throughout the United States. Mr. West was the Project Manager.

MTC Regional Express Bus Study. Cambridge Systematics created a regional express bus plan as part of a regional visioning process for the 2009 RTP. The plan built upon previous efforts completed over the prior seven years and included new interviews with key transit planners. Cambridge Systematics also prepared ridership and revenue forecasts, and other measures of effectiveness on plan performance. Mr. West was the Project Manager.

Caltrans Technical Meetings Facilitation. For the California Department of Transportation (Caltrans) Office of Transportation Systems Information, Cambridge Systematics manages a series of statewide technical initiatives. Mr. West is the Project Manager. Initiatives covered include the following:

- **California Statewide Household Travel Survey (HTS)** – Cambridge Systematics leads regular technical meetings designed to implement the 2010/2012 California HTS. The survey emphasizes collecting interregional surveys – of prime importance due to SB 375 requirements.
- **New Travel Model Guidelines for RTPs** – These new guidelines array requirements and recommendations according to metropolitan planning organization (MPO) size, recognizing that agencies cannot fully implement full SB 375 requirements until they have had time to implement model improvements.
- **California Interagency Modeling Forum** – Cambridge Systematics has guided this group over the last four years. Each meeting has a technical theme, ensuring that presentations complement each other and are tailored for a portion of the modeling community. Past meetings have focused on statewide modeling tools, SB 375, traffic microsimulation, and data collection.

Strategic Highway Research Program (SHRP 2) Project C10 – Partnership to Develop an Integrated, Advanced Travel Demand Model and a Fine-Grained, Time-Sensitive Network. Cambridge Systematics is developing the first true integrated travel model that combines an activity-based demand model with a traffic microsimulation model using a fine grained, time-sensitive network. Cambridge Systematics is integrating the Sacramento Area Council of Governments (SACOG) state-of-the-art activity-based model (SACSIM) with the DynusT traffic microsimulation model and with the U.S. Environmental Protection Agency’s (EPA) The Motor Vehicle Emission Simulator (MOVES) program for air quality analysis. Mr. West is the Deputy Principal Investigator.

Caltrain Downtown San Francisco Extension to Transbay Transit Center. Using the new travel demand model system developed for the Transbay Mode Choice Project, Cambridge Systematics expanded the model coverage to include both the San Francisco West Bay and Transbay Corridors. For this project, ridership forecasting of the Caltrain extension to downtown San Francisco was tested for different service options, and for some sensitivity tests (increased gasoline costs and an alternative land use scenario). Mr. West was the Project Manager.

The Tioga Group, Inc.

DANIEL S. SMITH – PROJECT MANAGER/PRINCIPAL IN CHARGE

Principal, The Tioga Group, Inc.

Daniel Smith has over 30 years of consulting experience in freight transportation strategy, policy, and planning, with particular emphasis on truck, rail, and marine intermodal transportation. His major clients have included ports, railroads, shippers, leasing companies, industry associations, and government agencies. Major relevant projects have included:

- **Goods Movement Studies** – Mr. Smith has led multiple good movement studies for SACOG, SCAG, and other agencies.
- **Regional Trucking Studies** – Mr. Smith has led or assisted with regional trucking studies for multiple California planning agencies including KernCOG, Gateway Cities COG, SCAG, and ACCMA.
- **Port Drayage Studies** – Mr. Smith has led port and intermodal drayage studies for the U.S. EPA, The Port Authority of New York/New Jersey, the Association of American Railroads, and other public and private organizations.
- **Inland Port Feasibility Studies** – Mr. Smith has led teams analyzing the feasibility of inland port and intermodal rail operations in Southern California, Northern California, and Arizona.
- **San Pedro Bay Long-Term Forecast** – Mr. Smith has been the project manager and primary author for the 1998, 2001, and 2008 long-term cargo forecasts for the Ports of Los Angeles and Long Beach.
- **Rail Intermodal Line and Terminal Capacity** – Mr. Smith has analyzed the ability of rail lines and terminals to support traffic growth for FRA/MARAD, AAR, BN, SP, the Port of Oakland, and the Panama Canal Authority.
- **Alameda Corridor Evaluation** – Mr. Smith has analyzed the operations, economics, and impacts of the Alameda Corridor for Southern Pacific, SCAG, the Ports of Los Angeles and Long Beach, and regional transportation authorities.

Mr. Smith has been a frequent contributor to trade journals and industry conferences, and is often quoted in industry publications. In March of 2000, he testified before the House Judiciary Committee on anti-trust issues and economic conditions in the world shipping industry. Mr. Smith has previously been a Senior Associate in the Transportation Group of Mercer Management Consulting, and Manager of Rail and Intermodal projects at Manalytics, Inc. He holds a BA in Mathematics from the University of California at Berkeley. He received his master's degree from the Graduate School of Public Policy at U.C. Berkeley, and did further postgraduate work in transportation economics and policy. He is a former Adjunct Professor at Golden Gate University in San Francisco, where he taught introductory courses in transportation.

STEPHEN C. NIEMAN

Principal, The Tioga Group, Inc.

Mr. Nieman has a wealth of experience in international and North American transportation and distribution including general management, strategic planning, and marketing. He formerly headed Mercer Management Consulting's motor carrier, logistics service provider, and intermodal practices.

Mr. Nieman has achieved a unique record of success as a leader in many sectors of transportation using a pragmatic combination of applying analysis, understanding issues, and motivating human resources. Over the last 30 years, Mr. Nieman has held executive positions with major companies in the trucking, intermodal and railroad industries, including Consolidated Freightways, Leaseway Transportation, American President, and Burlington Northern. He has been Chief Executive Officer, Chief Operating Officer, or General Manager of five companies or divisions, and has served as an officer or director of six industry associations.

Mr. Nieman has extensive experience as a manager in the intermodal drayage industry. He has been an officer of five for-hire trucking companies conducting port drayage operations. Four of these used both company employee drivers and independent contractors. He has studied business models for port drayage operations in North America and much of Europe and the Middle East, and analyzed employee and independent contractor operations in six subsectors of the trucking industry.

Mr. Nieman has commissioned, conducted, and supervised numerous qualitative and quantitative market research studies. A key ingredient in the success of these studies has been a careful pairing of research method and technology with the business questions to be answered.

His logistics assignments have covered the reengineering of the order fulfillment process, load building and scheduling, local and intercity delivery, utilizing drivers as company ambassadors, and reconfiguring modes of transport and enroute handling. As a profit center general manager, Mr. Nieman has a history of successful implementation in a full range of business circumstances, ranging from start-ups through growth and maturity to orderly disposition of selected businesses. His strategic planning and business development activities have included trucking, freight forwarding, airfreight, assembly and distribution, ocean shipping, and energy supply.

Mr. Nieman holds a BA in Mathematics and Economics from Beloit College and an MBA from Stanford University.

JOHN P. ELEAZARIAN

Associate, The Tioga Group, Inc.

John P. Eleazarian has performed professional economic and financial analysis since 1973, with an emphasis on econometric analysis, industrial organization, and market segment forecasting. He has worked with Tioga since 2007.

Based in the Fresno area, Mr. Eleazarian has consulted in many financial reorganizations for businesses including those in manufacturing, construction, education, entertainment, agriculture, mining and retailing. He has also represented and consulted with major creditors in corporate reorganizations. His clients have ranged from individual businesses to agencies of the Federal government.

Representative projects have included:

- Forecasts and analysis of the national market for Class 8 diesel trucks
- Forecasts of truck traffic on Alameda County Interstate Highways
- Development of distribution center databases for the South Bay and Gateway Cities of Southern California
- Analysis of truck traffic on SR-58 from Bakersfield to Barstow
- Forecasts and analysis of railroad traffic
- Analysis of price, demand, supply and yield trends for new California agricultural products
- Forecasts of California agricultural gypsum sales
- Estimation of price elasticities of demand for recreational facilities
- Forecasts of worldwide economic trends for use in international freight forecasts

Mr. Eleazarian has been a frequent lecturer in matters involving economics, financial and organizational issues. He received his BA in Mathematics and Economics from the University of California at Berkeley. He holds a Master's Degree in Economics from UCLA, and a J.D. from UCLA Law School. He has served on the faculty of San Joaquin College of Law since 1985, and on the faculty of Fresno City College since 2006.

Fehr & Peers

NETAI BASU, AICP

Associate



Mr. Basu has over 17 years of experience in transportation planning including 11 years with Fehr & Peers. He has participated in and managed a broad range of traffic and parking studies for public and private clients in many parts of Southern California and in Hawaii. He has prepared consulting reports including traffic impact studies in support of environmental documents, parking studies, master plan studies, operational studies and special event plans. He has prepared numerous traffic impact studies for industrial, commercial, residential, and mixed-use developments and public facilities in many parts of Southern California, including the San Pedro Waterfront at the Port of Los Angeles, several community college master plan projects, numerous development projects in Santa Monica, and two new communities in Hawaii. As part of these studies, he supervised the preparation of visual simulations for the Pico-Olympic corridor in Los Angeles, Myrtle Avenue in Monrovia and Vincent Avenue in West Covina. He has conducted master plan studies for major public and private projects, and prepared traffic and parking

management plans for special events. He has conducted parking studies for downtown Santa Monica and the Santa Monica Civic Center, Caltech, and several hospitals, community colleges and park & ride facilities.

EDUCATION

Master of Urban and Regional Planning, San José State University, San José, California 1994
Bachelor of Arts in History, Oberlin College, Oberlin, Ohio 1985

PROFESSIONAL AFFILIATIONS

American Planning Association (APA)

PROFESSIONAL REGISTRATION

American Institute of Certified Planners (013655)

AREAS OF EXPERTISE

Traffic Impact Analysis • Transportation Planning • Parking Studies

PROJECT EXPERIENCE

San Pedro Waterfront (Bridge to Breakwater) Project EIS/EIR Traffic Impact Study

Mr. Basu served as Project Manager for this effort, which analyzed the potential traffic and parking impacts of the San Pedro Waterfront (formerly known as the Bridge to Breakwater) project. The project redeveloped the entire west side of the Port of Los Angeles' Main Channel, adjacent to the San Pedro community, with publicly-accessible uses. Among the components of the project was a major expansion of the existing Ports O' Call retail development and additional passenger cruise terminals. As part of the study, new studies were conducted at the existing World Cruise Terminal to identify the trip generation characteristics of that unique generator. He was involved with planning for the project since 2002, serving as the transportation planner on a multidisciplinary team that prepared a preliminary planning study for the potential redevelopment of the approximately 400-acre project site.

Cabrillo Marina - Phase II SEIR Traffic Study

Mr. Basu prepared a traffic study as part of the SEIR for the proposed development of Phase II of the Cabrillo Marina. This project included boat slips, boat storage, retail space, restaurants, and offices. The traffic study evaluated the potential for traffic, parking, and access impacts associated with the proposed project. In addition, the site plan was reviewed for on-site circulation and pedestrian access issues. Mitigation measures were identified where feasible.

PROJECT EXPERIENCE (CONTINUED)

Wilmington Waterfront Development Project

Mr. Basu served as the transportation planner on a multi-disciplinary team that prepared a plan for the conversion of approximately 90 acres of industrial land to public-serving uses in the Wilmington area of the Port of Los Angeles. The project, initiated by the Los Angeles Harbor Department, developed detailed plans for approximately 32 acres of passive open space north of Harry Bridges Boulevard and established a framework for future development along the Avalon Boulevard corridor south of C Street. Planning for this project required an understanding of several major planned cargo terminal and street improvement projects in the immediate vicinity, which entailed coordination with adjacent terminal operators and business owners, the Los Angeles County Metropolitan Transportation Authority, the Los Angeles Department of City Planning and the Los Angeles Department of Transportation. The closure or relocation of several streets was planned as part of the project to improve the development potential of the area. His role was to assist the planning team to ensure that these changes would not negatively affect the ability of the local circulation system to accommodate projected future traffic volumes and to provide recommendations regarding the amount, nature and location of parking and pedestrian facilities in the project area. Mr. Basu subsequently served as Associate-in-Charge for the traffic impact study prepared as part of the EIS/EIR for the project.

Traffic Study for the Pasha Marine Terminal Improvements Project

Mr. Basu prepared a traffic study as part of the EIR for the proposed consolidation and expansion of the Pasha Marine Terminal in the Port of Los Angeles. Pasha operates an omni terminal within the Port of Los Angeles, handling all types of cargo, including steel, break bulk, newsprint and containers. The Port's San Pedro Waterfront project will develop publicly accessible uses where Pasha's satellite facilities were located, leading to their relocation to the primary Pasha site. The traffic study evaluated the potential for traffic, parking, and grade crossing impacts associated with the proposed project.

Traffic Study for the Matson Terminal Reuse Project

Mr. Basu conducted traffic impact analysis as part of the EIR for the proposed interim reuse of the former Matson/SSAT Container Terminal at the Berths 206-209 container terminal on Terminal Island in the Port of Los Angeles. The project would have allowed the use of the site as a container terminal for five years, linked operationally to a nearby intermodal yard, and made improvements to the site and adjacent portions of New Dock Street. The traffic study evaluated the potential for traffic and access impacts in the vicinity associated with the proposed project.

Port of Long Beach Cembra and Polaris Projects

Mr. Basu managed the initial stages of a traffic impact analysis in support of an EIR for the proposed development of a terminal to store and distribute sand, gravel and aggregate and to operate a ready-mix concrete plant on a 12.6-acre site at Berths 82 and 83 on Pier B Street within the Port of Long Beach. The project was projected to generate substantial truck trips at full operation, potentially triggering significant impacts on the surrounding street and freeway system. The study was never completed, however, because the project application was withdrawn. A similar project, without the ready-mix concrete plant, is now under study at location on Pier D Street within the Port of Long Beach.

Traffic Study for the Matson Terminal Reuse Project

Mr. Basu conducted traffic impact analysis as part of the EIR for the proposed interim reuse of the former Matson/SSAT Container Terminal at the Berths 206-209 container terminal on Terminal Island in the Port of Los Angeles. The project would have allowed the use of the site as a container terminal for five years, linked operationally to a nearby intermodal yard, and made improvements to the site and adjacent portions of New Dock Street. The traffic study evaluated the potential for traffic and access impacts in the vicinity associated with the proposed project.

RICHARD W. LEE, Ph.D., AICP

Associate



Richard is an Associate at Fehr & Peers in Walnut Creek, California. He has over 25 years of experience as a transportation consultant and academic and has been with Fehr & Peers since 2002. His consulting experience includes management of Regional Transportation Plans, General Plan studies, rail and transit projects and smart growth transportation studies, as well as a wide variety of traffic impact analysis, travel demand management, and transportation policy studies.

The majority of his recent work focuses on quantitative analysis of the transportation effects of the New Urbanism, including its efficacy in promoting transit and alternative modes. Richard works extensively with local, regional and state agencies as well as private developers to analyze the effects of infrastructure and land development projects and to develop feasible alternatives that address issues of circulation and community needs.

Richard has taught transportation planning and led major transportation research projects at several universities, including Massey University in New Zealand, Cal Poly San Luis Obispo, UC-Berkeley, UC-Davis and San José State University.

EDUCATION

Ph.D., City and Regional Planning, University of California, Berkeley, 1995

Master of City and Regional Planning, University of California, Berkeley, 1986

Master of Science in Civil Engineering (Transportation), University of California, Berkeley, 1984

Bachelor of Arts in History, Carleton College, Minnesota, 1978

PROFESSIONAL AFFILIATIONS

Institute of Transportation Engineers (ITE), Member

American Planning Association

Mineta Transportation Institute, Research Associate

PROFESSIONAL REGISTRATION

American Institute of Certified Planners

AREAS OF EXPERTISE

Regional Transportation and Land Use Planning • Environmental Review • Traffic Engineering •
Traffic Impact Analysis • Smart Growth Planning • Travel Demand Forecasting • Transit Planning •
Transportation Research and Education

PUBLICATIONS (SELECTED)

The California General Plan Process and Sustainable Transportation Planning (lead author), Mineta Institute for Surface Transportation Policy Studies, 2002.

Sustainable Transportation Indicators for California (lead author), Mineta Institute for Surface Transportation Policy Studies, 2004.

Connecting Transportation Decision Making with Responsible Land Use: State and Regional Policies, Programs and Incentives (co-authored with Gary Binger et al), Mineta Institute for Surface Transportation Policy Studies, 2008.

Community Bikes: From Concept to Practice: The Palmerston North Green Bike Scheme, Proceedings of the Symposium on Planning for and Promoting Cycling in Urban Areas, Waikato University, Hamilton, New Zealand, October 1997.

PROJECT EXPERIENCE

San Joaquin Valley Model Improvement Plan – Model Evaluation Scoping and Implementation

Richard led the Fehr & Peers team that compiled information for enhancing the modeling capabilities of the eight MPOs in the San Joaquin Valley: Fresno, Kern, San Joaquin, Stanislaus, Merced, Madera, Kings and Tulare to meet the mandates and goals of SB 375 and related policies. The Fehr & Peers team prepared a detailed Short Term Model Improvement Plan and cost estimate for an RFP to implement the model improvements outlined in the Valley's successful 2009 grant application to the California Strategic Growth Council. The same core team is now implementing model improvements, with Richard serving as Deputy Project Manager.

Fresno Blueprint 4D Analysis

Under a subcontract to the University of California Davis, and in support of UC Davis' State Agency Blueprint Support Activities, Fehr & Peers worked closely with the staff of the Council of Fresno County Governments (COG) to improve the capacity of the Fresno COG's travel model to respond to observed travel elasticities reflecting the effect of changes in density and land use diversity, as well as urban design to improve walkability (the 3Ds). A fourth D variable, regional destinations, was deemed to be adequately accounted for by the COG's travel demand model. Spreadsheet files for applying the first 3Ds were developed and an in-line processor for adjusting vehicle trip generation within the full Fresno COG 4-step model was developed. The enhanced model was applied to four land use/transportation scenarios being examined as part of the San Joaquin Valley wide Blueprint.

San Joaquin Council of Governments Regional Transit Systems Plan

Richard led a consulting team headed by Fehr & Peers that created a long-range strategic plan aimed at organizing and prioritizing transit infrastructure projects and services in San Joaquin County, with an emphasis on interurban and interregional transit. The plan established procedures for coordinated provision of transit infrastructure and operations among the County's eight jurisdictions and seven transit providers. SJCOG intends to use the Regional Transit Systems Plan (RTSP) for future updates to the Measure K Strategic Plan Transit Element, Regional Transportation Plan, Congestion Management Plan, Blueprint Plan, and Measure K Smart Growth Incentive Program. The plan was developed based on current plans, GIS analysis of potential TOD sites, and key staff interviews, as well as modeling of potential future transit demand.

Fresno Public Transportation Infrastructure Study (Phase I)

In 2005 -2006, the Council of Fresno County Governments (COFCG) sponsored a unique, award-winning regional transit planning exercise known as the Public Transportation Infrastructure Study (PTIS). The PTIS consultant team was led by Fehr & Peers, with key roles played by CD+A, Nelson\Nygaard, and VRPA. Richard served as consultant project manager for this multidisciplinary team.

The PTIS evaluated transportation needs throughout Fresno County and identified ways and means for transit to play an effective role in serving the region's growth. This study was a first step toward a transit blueprint for the Fresno region. The PTIS both informs and will be informed by the San Joaquin Valley Blueprint Planning Process. It has been presented as a model for transit planning elsewhere in the Valley.

Land uses and infrastructure (existing and planned) were studied using GIS and findings compiled on maps at a countywide level. Corridors throughout the county were identified and examined for transit compatibility. In the selected corridors, transit supportive infrastructure improvements were delineated. Extensive public outreach was undertaken and public workshops were held to inform the public and stakeholders of study findings. Key PTIS documents were widely distributed via CD and the web.

DAVID MILLAR, P.E., PTOE

Principal



parking, and commercial vehicle operations.

Mr. Millar has 26 years of traffic engineering experience both regionally and nationally, providing him with a broad perspective that is also sensitive to local issues. His broad range of expertise includes traffic engineering, trucking industry and commercial vehicle operations (CVO) studies, Intelligent Transportation Systems (ITS), transportation planning, project evaluations, signal and arterial optimization, access management, and safety studies and design. Mr. Millar routinely provides trucking operations perspective on transportation design and planning projects. His expertise in trucking includes routing, ITS, parking, operations, and management issues that are of concern to the trucking industry and affected governmental agencies. Dave has published several articles on topics including signal timing,

EDUCATION

Bachelor of Science, Civil Engineering, University of Texas, Austin, TX, 1983

Four Semesters Continuing Education in Traffic Engineering, University of Texas, Austin, 1984-1985

PROFESSIONAL AFFILIATIONS

Institute of Transportation Engineers: Member

Intelligent Transportation Society of America: Member

Transportation Research Board: Member, Friend of the Traffic Signal Operations Committee, Friend of the Freeway Operations Committee

PROFESSIONAL REGISTRATION

Professional Engineer

Wyoming, 2004 (10308)

Colorado, 2002 (36122)

Arizona, 2005 (44326)

Montana, 2002 (15500)

Nevada, 2003 (015928)

Virginia, 1997 (0402 030682)

Professional Traffic Operations Engineer, 2003 (1091)

AREAS OF EXPERTISE

Trucking Industry Studies • Traffic Engineering • Transportation Planning • Signal Operations • Traffic Impact Studies • Signal and Arterial Optimization • Signal Design • Transportation Operations Analysis • Project Evaluations • Access Management • Incident Management • Safety Studies and Design • Transportation Planning • Intelligent Transportation Systems (ITS) • Commercial Vehicle Operations (CVO)

PUBLICATIONS AND PRESENTATIONS

- *Offtracking of the Larger, Longer Combination Commercial Vehicles*, Transportation Research Record, 1984
- *Evaluation of the Spatial Distribution of Activity Center Parking Facilities*, Transportation Research Record, 1993
- *Multijurisdictional Traffic Signal Timing Using Nominal Group Techniques*, ITE Annual Technical Conference, 2005
- *Traffic Signal Timing: Providing Appropriate Pedestrian Treatment and Motor Vehicle Operations*, ITE Annual Conference, 2005
- *Contacts to Contracts, Positioning for Work with CDOT*, Colorado Transportation Conference, 2007
- *Staged Closures for Traffic Incident Management*, ITE District 6 Conference, 2009

PROJECT EXPERIENCE

Northern Colorado Truck Mobility/SH 14 Relocation Study, City of Fort Collins, Larimer County, Colorado

Project manager and engineer tasked with evaluating non-route based strategies and alternate routes for long-haul truck traffic in Northern Colorado. The study analyzed opportunities to encourage long-haul truck traffic to use the existing Interstate system rather than the designated truck route along State Highway 14 in Fort Collins. Mr. Millar was a liaison for the motor carrier industry representatives. Mr. Millar also developed methods for determining truck origins and destinations to determine pass-through traffic. A comprehensive stakeholder involvement process used a stakeholder committee, diverse PM team, policy advisory committee, and numerous public open houses and elected official updates.

Electronic Toll Collection for Commercial Vehicle Operations Feasibility Study, Federal Highway Administration (FHWA), New York and Washington D.C.

This study furthered the “National Toll System Interoperability for Commercial Vehicles” concept by investigating the integration of transponders and accounts for CVISN and electronic toll applications. Mr. Millar conducted the case study documenting the rules and procedures for how the New York State Motor Truck Association (NYSMTA) serves as a processing center for E-Zpass, thus facilitating motor carriers’ participation. The operations of the NYSMTA and the New York State Thruway Authority were detailed in the study. Technical requirements that would enable motor carrier participation in other similar toll authority programs were developed.

I-35 Trade Corridor Study, Innovative Technologies and Accommodating Larger Trucks, Texas Department of Transportation (TxDOT), Texas, Oklahoma, Kansas, Missouri, and Iowa

Dave was the task manager responsible for the researching potential corridor strategies in the areas of Commercial Vehicle Operations (CVO), general ITS applications, and dedicated super truckways. The purpose of the study was to assess the need for improved local, intrastate, interstate, and international service on I-35 and to clearly define a general feasible improvement plan to address those needs. Duties included review of current trucking conditions including size and weight regulations, review of policy issues associated with changing size and weight laws, study of potential impacts of allowing alternative truck configurations, and the assessment of safety, cost, and travel efficiency issues. Dedicated truckways and larger vehicle sizes were provisions included in the final recommendations.

ITS Operational Test and Evaluation Program, Federal Highway Administration (FHWA), Washington, D.C.

Lead traffic representative on a team supporting FHWA in monitoring, guiding, and conducting evaluations of over 70 Federally funded ITS operational tests deploying advanced technologies and management methodologies. Dave’s focus was on the testing of trucking and commercial vehicle operations concepts. His oversight led to evaluations which are impartial, consistent in content and rigor, and address National ITS goals and missions. Developed, coordinated, and facilitated an evaluation workshop for three vital operational tests of commercial vehicle one-stop shopping concepts, resulting in improved evaluations for each. This format was adopted by future workshops for the remaining 67 operational tests. Provided direct support to over 17 tests including the North Seattle ATMS, San Antonio’s TransGuide, Detroit’s FAST-TRAC, Downhill Truck Speed Warning System at the Eisenhower Tunnel, Idaho Out-of-Service Verification for Commercial Vehicles, Colorado MAYDAY, and Tranzit XPress Commercial Vehicle Hazardous Material Monitoring System.

ITS Institutional Barriers Study, California Department of Transportation (CalTrans)

Dave was the lead engineer for this study for the CalTrans. He coordinated and facilitated meetings of seven state agencies and multiple private industry groups. His work included the identification of current CVO conditions and processes and development the recommended strategies and actions to overcome barriers to the use of advanced technologies and management techniques.

Tranzit XPress I, Federal Highway Administration (FHWA), Pennsylvania

Dave managed the evaluation process of this test of technologies and systems to monitor the location and status of Hazardous Material (HazMat) shipments, on both trucks and trains. In the event of an incident involving a HazMat carrier the system allowed incident responders to have access to cargo information quickly and accurately, speeding and enhancing the safety of the response to the incident.

Individual Consultant

Jock O'Connell

Jock O'Connell is the foremost expert on California's nearly \$1 billion a year airborne agricultural trade as well as a leading authority on the transportation infrastructure serving the state's international trade.

Since 2003, he has conducted three studies for the California Department of Food and Agriculture on the logistics of the state's airborne shipments of perishable agricultural products to overseas markets. (All three studies were published by the **Center for Agricultural Business at Fresno State University**).

The first two studies documented the generally unacknowledged dimensions of California's airborne agricultural export trade and described how air freight operations have helped boost the state's farm export trade. Those studies were:

“The Role of Air Cargo in California's Agricultural Export Trade”

(http://cati.csufresno.edu/cab/PDF/Mason_Role-of-Air-Cargo.pdf) in May 2005; and

“The Role of Air Cargo in California's Agricultural Export Trade: A 2007 Update”

(http://cati.csufresno.edu/cab/PDF/Mason_Role-of-Air-Cargo-2007.pdf) in August 2007.

The third study examined the logistical issues involved in transporting perishable farm products from California to some fifteen rapidly developing municipalities throughout China.

“Taking the Fast Plane to China: An Expanded Role for Air Freight in Increasing California's Fresh Fruit and Vegetable Exports”

([http://cati.csufresno.edu/cab/PDF/Taking%20the%20Fast%20Plane%20to%20China%20\(4-08\).pdf](http://cati.csufresno.edu/cab/PDF/Taking%20the%20Fast%20Plane%20to%20China%20(4-08).pdf)) in April 2008.

In addition to these studies for CDFA, Mr. O'Connell also participated in the 2010 update of the air cargo portion of **California's Goods Movement Action Plan**. His contribution to that project included an analysis of efforts over the past two decades to expand air freight services to airports in California's Central Valley.

Between 2006 and 2008, he participated in a comprehensive goods movement study for the **Sacramento Area Council of Governments** in which he analyzed air cargo operations at Sacramento International Airport and at Mather Field in nearby Rancho Cordova. Special attention was devoted to measuring the characteristics of the truck traffic associated with air cargo services at both airports.

In August 2008, he moderated a distinguished panel of aviation industry and academic experts on “The Future of Air Transport in California” at the University of California Center Sacramento.

In 2009-2010, he was involved in producing the latest air cargo forecasts for **San Francisco International** and **Miami International** Airports.

Mr. O'Connell is a member of the **Transportation Research Board's Committee on Intergovernmental Relations in Aviation**. As a division of the National Research Council, the Transportation Research Board advises Congress, executive-branch Federal agencies, the states, and other organizations on key transportation issues.

He is a former staff advisor to the **California Commission for Economic Development** and a current member of the **California Economic Strategy Panel's Technical Advisory Group**.

He also serves as the International Trade Adviser to **Beacon Economics**, a prominent research and consulting firm with offices in Los Angeles and in the San Francisco Bay Area.

Mr. O'Connell received his B.A. from the College of the Holy Cross in Worcester, Massachusetts in 1970 before pursuing a doctoral degree in international relations at the University of California at Davis. He has also studied at the University of Vienna (Institute of European Studies) and at the London School of Economics, where he was a Fulbright Scholar.

Mr. O'Connell has addressed several conferences on air cargo issues. These include: a talk on the "Air Transport of High-Value Agricultural Products" at the Transportation Research Board's 2006 Annual Meeting; a discussion of regional air cargo issues at the ACI-NA's March 2006 Air Cargo Symposium in Oakland, California; remarks on air cargo forecasting deficiencies at the ACI-NA's 2006 Annual Conference in Reno, Nevada; a luncheon speech at the Ontario Aviation Summit in Ontario California in 2007; and talks presented at the San Diego World Trade Center's Logistics Symposiums in 2005 and 2006.

He has also spoken before many international organizations over the past 30 years. Among the more prominent audiences he has addressed have been: Russia's Institute for USA and Canada Studies in Moscow; Japan's Keidanren in Tokyo; the Confederation of British Industry in London; the Foreign Trade Association of Southern California in Los Angeles; and the Commonwealth Club of California in San Francisco.

He is the author of numerous articles on economic, political and trade issues that have appeared in *The New York Times*, *Los Angeles Times*, *San Francisco Chronicle*, *San Jose Mercury-News*, *Sacramento Bee*, the *California Journal*, and Salon.Com.

He has been a lecturer at the University of California at Davis and at California State University, Sacramento. Until recently stepping down, he held the position of International Trade and Economics Advisor at the University of California Center in Sacramento, where he lectured and organized workshops and seminars designed to keep California's policy-makers informed of the latest developments in world trade and their effect on California's economy.

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