Introduction

This Statement of Qualifications presents Cambridge Systematics, Inc.’s (CS) response to Scoring Criteria 1, 2, and 3 in the Request for Qualifications. Section 1.0 describes CS’ qualifications and expertise. Section 2.0 presents the qualifications of our Project Managers. Section 3.0 contains the technical expertise of the firm.

1.0 Qualifications of the Firms

A. Firm Expertise

Since 1972, CS has been providing management and planning consulting services and information systems to public transportation industries. As an independent, employee-owned company of 239 staff, we offer and deliver a comprehensive set of transportation planning and policy services that help our clients solve current, emerging, and future problems. We help our clients think creatively to improve performance and remain competitive in a wide range of project areas, as shown below.

Traffic Analyses and Modeling (Including Simulation Modeling Tools)

CS is experienced in advanced simulation and operations model applications, with core expertise in large-scale networks; integrating microscopic, mesoscopic, and macroscopic simulation models; and analyzing transportation alternatives, including multimodal and tolling solutions. CS developed a model system that combined regional travel demand and microscopic modeling to evaluate managed lanes strategies on the East Side Corridor (I-405/I-67) for the Washington State Department of Transportation (WSDOT) and the Washington State Transportation Commission (WSTC). For the Federal Highway Administration (FHWA), CS developed analytical tools to support analysis, modeling and simulation of U.S. DOT’s Integrated Corridor Management (ICM) pioneer sites in San Diego. In addition to developing and applying advanced simulation models, CS has provided guidance on advanced simulation practice for the U.S. DOT, FHWA, and California DOT (Caltrans). CS developed a comprehensive set of Traffic Simulation Guidelines for the FHWA Traffic Analysis Tools Program to aid practitioners in the selection, development, calibration, and application of simulation models.

Available Travel Models

CS develops creative, practical solutions for travel demand models, such as the estimation and implementation of tour- and activity-based models and the integration of land use and travel models. We also have developed software tools that facilitate the evaluation of transportation and land use alternatives impacts. CS offers technical services in the specialties of travel model development, training survey design and evaluation, freight forecasting, highway/multimodal corridor forecasting, transit/ridership forecasting, and
intercity/statewide forecasting impact assessment tools. We recently developed an improved version of the Amtrak Cascades Route Ridership Forecasting Model as part of the WSDOT State Rail Plan, and currently are performing a comprehensive update of the California Statewide Travel Demand Model.

**Freight Modeling and Logistics Studies**

CS has conducted intermodal freight policy, planning, and program development studies at the metropolitan, state, regional, and national levels. We have developed many statewide freight and rail planning studies in Washington State and Oregon. CS recently completed the WSDOT State Rail Plan that includes an inventory of the existing rail transportation system, an analysis of rail’s transportation, economic and environmental impacts in the State, and a long-range investment program for current and future freight and passenger infrastructure. CS also conducted a statewide rail capacity and systems needs study for the WSTC. This study included assessing the State’s rail infrastructure needs, and developing a rail asset management plan. We also recently developed the Oregon Statewide Freight Plan, and currently are developing the Oregon State Rail Plan. Outside of the Pacific Northwest, CS has developed regional goods movement strategies and modeling tools for evaluating the benefits of goods movements projects for the Southern California Association of Governments (SCAG) Regional Goods Movement Study.

**Economic Modeling and Studies (Including Cost-Benefit and Cost-Effectiveness Analysis)**

CS is experienced in evaluating the economic impacts and development implications of major transportation infrastructure investments. We pioneered the use of econometric models to assess the full economic impact of major transportation infrastructure investments, and have combined these techniques with traditional benefit-cost analysis to provide our clients with a clear understanding of the real costs and benefits of investments. For over 16 years, we have worked with the WSDOT, WSTC, and various other regional and state agencies in the assessment of economic impacts and potential of transportation systems. CS analyzed the role of interstate and international trade along the I-5 corridor for WSDOT and Oregon DOT, and advised WSDOT on its economic development strategy. Recently, CS summarized the economic benefits of the I-5 Columbia River Crossing for local, regional, and national freight transportation for WSDOT.

**Tolling Studies**

CS offers services related to forecasting traffic and revenue of tolled highways and transit systems. Our staff prepares forecasts at all levels of detail, from exploratory feasibility studies through “investment-grade” studies that are used to support bond financing. CS is experienced in constructing analytical models to assess the willingness of people to pay for transportation services. CS also develops transportation policy related to system and corridor toll feasibility; institutional and organizational issues; and finance, transportation operations, technology, and other topics related to traditional tolling, managed lanes, truck-only toll lanes, and congestion pricing. CS recently performed an independent review of previously published traffic and revenue forecasts for the proposed high-occupancy toll (HOT) lanes within the I-405 corridor east of the City of Seattle. CS also worked with the WSTC to develop a statewide toll policy study.
Writing and Documentation Skills

CS understands the needs for high-quality writing and visualization to convey information effectively to our target audience. We are experienced in developing documentation and reports for a wide range of audiences, including the U.S. DOT Report to Congress on Transportation’s Role in Reducing Greenhouse Gas (GHG) Emissions. CS also understands how to prepare documentation for agencies’ capacity building and outreach to various stakeholders. We have assembled numerous National Cooperative Highway Research Program (NCHRP) and FHWA manuals and guidebooks on a variety of subjects targeting different audiences. Currently, CS is developing two user guides for an FHWA roadway safety toolkit for local and tribal road agencies. CS supported the Florida DOT’s development of public communication materials for its future statewide transportation corridors.

Statistical Analysis

CS is experienced in developing and designing transportation surveys, including the design and use of stated- and revealed-preference surveys, and the development of sampling plans. We have broad program evaluation and statistical analysis experience based on more than 41 years of experience in behavioral choice models for transportation. For the FHWA, we authored the Travel Survey Manual, a reference manual covering all types of planning-related surveys; we have applied these techniques to transportation projects across the country. Our practice of discrete choice model estimation is based on travel surveys and statistical analyses, thus, ensuring reliable forecasts, particularly in the development of mode choice models for regions considering the introduction of new transit modes. For the California High-Speed Rail Authority, CS designed a traveler survey, and estimated new choice models that quantify the impact of pricing, travel times by competing modes, and on-time reliability of traveler mode choice.

Multimodal Corridor Planning

CS has worked with more than 35 states on statewide and regional planning, and offers a full range of services related to passenger and commercial vehicle travel and goods movement. Since 2003, we have developed multimodal transportation plans in more than 40 metropolitan areas that have focused on systemwide multimodal analysis. We have developed a suite of analytical tools designed to assess multimodal transportation impacts associated with regional transportation plans. For WSDOT, CS evaluated alternatives for the SR 167 corridor, and currently is leading the WSTC Washington State Transportation Policy Plan Update.

B. Other Areas of Expertise

Climate Adaptation

CS’ work with Federal and state agencies integrates climate change considerations into planning and investment decisions – helping to ensure that the investments we make today will result in reliable and robust transportation networks for decades to come. We have worked with state and regional agencies in Arizona and California to develop feasible, cost-effective response strategies that build capacity, prioritize critical assets, identify vulnerabilities, and quantify risks. CS currently is conducting a research study on climate
adaptation for Arizona’s statewide transportation system. This study provides a framework for Arizona DOT to incorporate the risks of climate change impacts into decision-making for infrastructure planning, design, operations, and maintenance.

**GHG, Energy, and Air Quality Analysis**

CS’ policy work with Federal, state, and regional agencies integrates GHG mitigation and air quality considerations into agencies’ strategic policy development, planning methods, and decision-making. Our knowledge of transportation data sources and analysis methods supports robust analysis of GHG impacts of transportation projects, policies, and programs – helping agencies identify the most effective strategies. We have led groundbreaking national research into GHG mitigation strategy effectiveness, such as the Moving Cooler study that analyzed the effectiveness of nearly 50 GHG reduction strategies on a national scale, and the U.S. DOT Report to Congress on Transportation’s Role in Reducing U.S. GHG Emissions. CS has developed transportation GHG emissions forecasts, reduction strategies, and implementation plans for agencies, including the Oregon DOT, various regional agencies in California, and others. We also are experienced in conducting technical work and research related to the implementation and evaluation of energy reduction transportation strategies. CS currently is working for the NCHRP to design a national research study to coordinate the needs of planners, utilities, and vehicle manufacturers for understanding travel behavior to support alternative fuel vehicles. CS also supported the National Renewable Energy Laboratory’s (NREL) Transportation Energy Futures Study by developing a sketch planning tool that addresses environment strategies’ potential influence on transportation energy use. We also have updated the California Energy Commission’s (CEC) Energy Aware Planning Guide for local and regional governments to develop, implement, and quantify the effectiveness of energy efficient strategies and policies.

**Safety**

CS is deeply committed to improving the safety of our transportation system. For over a decade, we have conducted safety-related research; developed safety plans and programs for Federal, state, and regional agencies; and deployed information systems that make highways and other modes of transportation safer. Our safety work builds upon the core capabilities of the firm, including data collection and quantitative analysis, information systems, geographic information systems (GIS), commercial vehicle operations (CVO), freight analysis, and the development of statewide and regional transportation plans. Our work also includes developing Federal guidance through our work with the FHWA Office of Safety to establish state and regional methods to conduct safety planning, application of Highway Safety Manual (HSM) methods, and methods to build safety planning into the regional transportation planning process. For the Arizona DOT, CS currently is evaluating the State’s data needs to conduct HSM methodologies and implement the software SafetyAnalyst. CS also currently is working with the Oregon DOT to develop recommendations to enhance its safety corridor program. We have developed, updated, and implemented strategic highway safety plans (SHSP) in 15 states, including Alaska, California, Colorado, Montana, and Nevada.
Asset Management

In the area of transportation asset management, CS has assisted state and regional agencies in developing new approaches and processes for their resource allocation decisions, particularly in capital programming and maintenance of facilities. The recommended processes respond not only to the mandates of Federal legislation, but also to other Federal and state initiatives (e.g., compliance with Moving Ahead for Progress in the 21st Century (MAP-21), clean air, growth management, increased economic competitiveness, etc.). Often, this work must simultaneously address several dimensions of an agency’s capital budgeting and maintenance activities, including the technical characteristics (e.g., engineering, environmental, etc.) of an agency’s facilities, organizational relationships, institutional environment, financial resources and constraints, and needs for management system support. For the Alaska DOT, CS currently is developing a framework and vision for a comprehensive Transportation Asset Management Information System (TAMIS). For the Colorado DOT, CS is assisting with the development of a risk-based transportation asset management plan that will provide a blueprint for keeping Colorado’s state highway system in the best condition possible over the long term, using the least resources possible.

Transportation Operations

CS has a proven track record of helping our clients understand current system performance, providing operations support, and fine-tuning program execution. In addition to identifying and prioritizing transportation operations needs, we define and develop data collection and management systems and analytical tools. For the Gateway Cities Strategic Transportation Plan in Southern California, we are synthesizing recent freeway and arterial highway analysis already conducted in the region; developing an integrated three-tier micro-/meso-/macroscopic model to test the impact of improvement project scenarios; and creating an intelligent transportation systems (ITS) technology plan. CS recently completed a Traffic Operations System Equipment Management System for the San Francisco Bay Area’s Metropolitan Transportation Commission (MTC) that manages inventory, ensures the reliability and accuracy of data, and improves tracking of maintenance and operations.

Performance Evaluation

Performance monitoring and evaluation have become important aspects of doing business at the state and metropolitan levels. CS has developed and provided technical guidance, worked with state and regional agencies to improve their programs, and implemented practical solutions to these complex issues. For WSDOT, CS facilitated the development of a performance evaluation process for the proposed Columbia River Crossing. CS currently is working with the Oregon DOT to assess how the DOT’s current performance measures inform the agency’s decisions about managing the system and investment. CS also recommended performance measures to assist the Oregon DOT in identifying freight system improvement priorities, and creating a performance management system for the Highway Division.

Data Management

As policy and planning experts, as well as technicians, CS considers future needs in addition to immediate concerns when designing solutions for our clients. We are highly
experienced when using data relating to transportation planning, operations, freight logistics, archived ITS, CVO, and asset management. Our exclusive focus on transportation enables rapid, pragmatic, and state-of-the-art development. CS understands the importance of ensuring data are collected, analyzed, integrated, and organized in a way that enables optimum decision-making by our clients. For the Alaska DOT, CS developed performance measures and work program metrics for data business areas, and data business plan development and deployment.

C. Employees/Offices in Washington State

CS currently has 239 employees. While we currently do not have any employees based in Washington State, we have one employee located in Portland, Oregon, Elizabeth Wemple, P.E., who has expertise in the areas of safety planning, transportation policy, and traffic operations analysis.

D. Management Team

Figure 1.1 provides an overview of the CS team and shows the specific areas of expertise provided by CS staff. Steven M. Pickrell, P.E., is the proposed Project Manager. Mr. Pickrell will be responsible for the overall management and coordination of CS’ services. As the Manager of CS’ Transportation Planning Management (TPM) business line, he will ensure that the necessary resources are available to WSDOT.
Figure 1.1 Organizational Chart
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2.0 Qualifications of Proposed Project Manager

A. Project Manager

Steven Pickrell, P.E., is an Executive Vice President of CS and manages the firm’s TPM Business Line. Mr. Pickrell has more than 30 years of consulting experience in transportation planning and engineering at the national, state, and local levels. He has worked with numerous state DOTs, including both WSDOT and Oregon DOT, on projects including long-range planning and needs assessment, multimodal corridor analysis, funding strategies, and performance measurement. Mr. Pickrell serves as Contract Manager for several multiyear on-call contracting vehicles with state and local governments in California, Oregon, and Washington; and provides quality assurance for projects completed under those contracts. Mr. Pickrell received a Master’s degree in City and Regional Planning from the University of California at Berkeley, and a Bachelor’s degree in Urban Planning from Stanford University.

Relevant Project Experience

Washington Transportation Plan 2035; 10/2013 to Ongoing. Mr. Pickrell currently is serving as consultant team Project Manager for this project, which will update the existing state and regional transportation needs assessment, and develop recommended strategies and actions to implement statewide transportation policy. He is leading activities related to outreach to stakeholders, special interest groups, and the general public through a range of actions, including a standing Advisory Group, roundtable discussions, and the Voice of Washington Survey panel. After this first-phase Policy Plan is completed, Mr. Pickrell will lead the technical efforts to prepare a comprehensive, MAP-21-compliant statewide multimodal transportation plan update.

Oregon DOT Research Section Performance Measures Review; 8/2012 to 3/2014. Mr. Pickrell is Project Manager for a review of performance measures used by the Oregon DOT. He performed an assessment of current measures for alignment with MAP-21 performance goal areas, as well as an assessment of how different units within Oregon DOT use performance measures to support decision-making at various levels in the organization. Mr. Pickrell recommended modifications to key performance measures and performance reporting procedures, and provided Oregon DOT with a performance measure evaluation framework for future use in deciding when to update or add new measures.

Florida DOT Target Setting for Mobility Measures; January 2014 to Ongoing. Mr. Pickrell currently is assisting the Florida DOT Transportation Statistics Office with development of an approach to setting performance targets for multimodal mobility performance measures. He is developing this approach for use by the Florida DOT in setting the statewide and regional performance targets required by MAP-21 rulemaking. Mr. Pickrell’s initial analysis investigated the feasibility of setting targets that are linked to measures of economic output such as gross state product. Upcoming work will further develop the approach and identify methods for developing separate measures for multiple geographic regions within the State.
B. Familiarity with State/Federal Regulations/Procedures

Mr. Pickrell is familiar with state and Federal regulations and procedures. He has a track record of delivering successful projects for a number of state and regional planning agencies as both Project Manager and Principal-in-Charge/Quality Control Manager. He is very familiar with the transportation policy, planning and funding context in Washington State, as well as the specific function and roles of WSDOT, WSTC, and other state offices and commissions. Mr. Pickrell served as Facilitator for the Columbia River Crossing Performance Measures Advisory Group, leading a group of representatives from 10 stakeholder agencies, including WSDOT and Oregon DOT, in identification of objectives and performance measures for future operation and management of the multimodal bridge. Mr. Pickrell was Project Manager for an evaluation of long-term capital and operating funding needs and sources for the Washington State Ferry System.

C. Ability to Handle Schedule, Scope, and Budget Changes

Mr. Pickrell has more than 30 years of experience managing transportation planning consulting projects for Federal, state, and local agencies and private-sector companies. He is qualified to manage the contract and handle any schedule, scope, budget, and other changes that may be requested by WSDOT. As Manager of the firm’s largest business line, TPM, Mr. Pickrell has direct access to all of the firm’s transportation planning and policy talent at all professional levels. Therefore, Mr. Pickrell is in the position of providing WSDOT with the appropriate level of CS senior and technical staff talent required to successfully deliver high quality and on-time projects to the agency.

CS utilizes a management approach that is designed to ensure hands-on direction by an experienced Contract Manager who has authority to direct both the technical and financial aspects of the project. Mr. Pickrell will ensure quality control and financial accountability, and technical discipline leads to ensure that WSDOT has direct and instant access to Project Managers in each technical area. The key to our approach is that multiple individuals have access to project progress information, with the Contract Manager providing internal support and oversight to the Project Managers. This integrated management approach, which is supported by our internal accounting systems, provides timely information to allow a Project Manager to work with WSDOT to address budget and schedule issues when they first arise, and well before becoming problems for a project. In Section E below, we have included brief biographical summaries for our technical area Project Managers.

CS also has a task order management process that has been refined through years of experience. This process provides a very proactive means for identifying and managing work scope, as well as changes that arise through the life of the project. The proposed approach to responding to a Task Order Proposal Request (TOPR) is summarized in Figure 3.1. Upon receipt of a TOPR from the WSDOT, this information will be distributed immediately to Mr. Pickrell and the appropriate technical area Project Managers. After an initial review of the proposed Statement of Work, questions will be submitted to the WSDOT Task Order Manager.
This initial assessment normally will be completed within one or two days after a WSDOT TOPR is issued. Responsibility then will be assigned to one lead individual for preparation of the task order proposal containing a proposed staffing plan, qualifications and relevant previous work, proposed approach and work plan, time schedule, and itemized budget. It is recommended that the agreed-upon work plan also includes a proposed strategy for communicating the results of the requested work. A senior-level manager of the firm will participate in each task order, with responsibility for ensuring the delivery of high-quality products to WSDOT on time and within budget. Revisions to the work plan will be developed, as necessary, in response to WSDOT review comments.
Actual technical work will commence upon formal receipt of WSDOT approval and issuance of a task order contract. Once technical work is underway, the assigned task order manager will maintain regular communication with his or her WSDOT counterpart on a weekly basis. Substantial use of electronic reporting will be used for making a variety of contract and task order information available to WSDOT.

D. Professional Licenses/Accreditations

Mr. Pickrell is a registered Traffic Engineer in the State of California. His license number is TR1545.

E. Additional Project Managers

The CS team is organized around disciplines that parallel our firm’s key areas of expertise that correspond with WSDOT’s project interests. Our team’s roles are illustrated in the organizational chart (Figure 1.1).

Traffic Analyses and Modeling (Including Simulation Modeling Tools)

John Duesing, CS’ National Simulation Practice Leader, has more than 19 years of experience in dynamic microsimulation model and mesoscopic simulation model development, calibration, application, and the integration of regional travel demand for microsimulation models. Mr. Duesing is an expert in VISSIM, VISUM, TransCAD, TransModeler, Paramics, CUBE/Voyager, Dynasim, INTEGRATION, CORSIM, and Synchro/SimTraffic. He has provided simulation expertise, modeling guidelines for the development and application of microsimulation models, and practical application of these models to the FHWA, WSDOT, and the Colorado, California, New York, Connecticut, Wisconsin, Georgia, and Florida DOTs, as well as many other regional and city agencies nationwide. Mr. Duesing received a Master’s degree in Transportation from Polytechnic University, and a Bachelor’s degree in Business Administration from St. Thomas Aquinas College.

Relevant Project Experience

Washington State East Side Corridor (I-405/167) Managed Lane Simulation Modeling; 5/2011 to 3/2013. For the WSTC and WSDOT, Mr. Duesing developed the procedures to perform dynamic toll pricing directly within the simulation model being used to develop the traffic and revenue (T&R) forecasts. The simulation model allows for the reaction of drivers not only to price, but also to actual congestion and pricing that is reactive to operations in upcoming tolling zones. This innovative approach allows for more accurate T&R forecasts by addressing real-world traffic operations constraints, bottlenecks, and everyday recurring congestion that are not accounted for in traditional travel demand modeling approaches.

C-470 Corridor Managed Lanes Analysis; 11/2012 to 3/2014. For the Douglas County C-470 Corridor Coalition, Mr. Duesing is the Principal-in-Charge responsible for providing traffic modeling services and integrating Denver Regional Council of Governments’ Focus Model with Dynamic Traffic Assignment and simulation models to assess the feasibility of tolling alternatives for the C-470 Corridor, including managed lanes, all-lanes tolled, and
general purpose lanes. In addition, using this integrated modeling framework, CS will simulate the operations of the corridor under all three scenarios, including developing T&R estimates.

**FHWA Integrated Corridor Management (ICM) Simulation Modeling;** 9/2006 to 8/2013. For the FHWA, Mr. Duesing is assisting with the analysis, modeling, and simulation activities within Phases 2 and 3 of the initiative for the Pioneer Site in San Diego. As part of this effort, he is developing the analytical tools to support ICM analysis, including travel demand modeling, simulation modeling, and integrated performance analysis tools to evaluate HOT lanes, pricing schemes, bus rapid transit (BRT) operations, and incident scenarios.

**Available Travel Models**

**Ronald West** is a CS Principal with 28 years of professional experience in multimodal travel demand model development and application. Mr. West has extensive experience working with regional and state agencies throughout the western U.S. to evaluate, develop, and use travel demand models to assess important public policy issues. His recent project work has included developing rail ridership forecasts to support the Washington Statewide Rail Plan, developing the California Statewide Travel Demand Model (CSTDM) Update; and developing and applying a variety of local and regional models for freight and intermodal, multimodal corridor and system evaluations, long-range strategic plans, GHG impact assessments, and transit strategies in the San Diego, Los Angeles, San Francisco, and Sacramento regions. Mr. West has a Master’s degree in City and Regional Planning from Rutgers University.

**Relevant Project Experience**

**Washington State Rail Plan, Rail Forecasting Model Update;** 10/2012 to 7/2013. For WSDOT, Mr. West developed an improved version of the Amtrak Cascades Route Ridership Forecasting Model as part of the Washington State Rail Plan that CS managed. He produced a number of enhancements that improved the model’s functionality and usability. He also developed a station-level ridership forecasting tool, and provided instruction to WSDOT staff for future application and updates to this updated model.

**California Statewide Travel Demand Model Update;** 7/2013 to Ongoing. For Caltrans, Mr. West is managing the development of the CSTDM. He is conducting a comprehensive update of the CSTDM using the 2012/2013 California Household Travel Survey, and designing and implementing improvements of the statewide long- and short-distance passenger and commercial vehicle models. At the conclusion of this effort, he will deliver the first unified set of interregional travel forecasts throughout the State. As part of this process, Mr. West also will provide California’s metropolitan planning organizations (MPO) with external travel data need to meet Senate Bill (SB) 375 requirements for regional travel demand modeling and regional transportation planning.

**California State Rail Plan;** 9/2011 to 1/2013. Mr. West led CS’ ridership and revenue forecasting efforts, including market analyses conducted to assess the feasibility of blended service connections between proposed initial segments of the proposed California High-Speed Rail system with commuter and intercity rail. A key test included evaluation of rail
services running through Los Angeles Union Station as a method to provide direct rail connections between a high-speed rail terminus in the San Fernando Valley and destinations throughout Southern California.

**Freight Modeling and Logistics Studies**

**Michael Fischer** is a Principal of CS with more than 30 years of experience in transportation planning, with emphases in freight transportation planning, modeling, and data development. Mr. Fischer manages CS’ strategic initiative in freight planning, and directs efforts to expand the firm’s product and service offerings in this field. He has managed regional and state freight planning efforts for state, regional, and local transportation agencies throughout California; and at the state level for WSDOT, Oregon DOT, Colorado DOT, Arizona DOT, and Caltrans; and the Ministry of Transportation of Ontario, Canada. Mr. Fischer received a Master’s degree in City and Regional Planning from Harvard University, and a Bachelor’s degree in Mechanical Engineering from Brown University.

**Relevant Project Experience**

**Oregon DOT Statewide Freight/Multimodal Planning Initiative On-Call, 6/2008 to Ongoing.** For the Oregon DOT, Mr. Fischer has been managing a statewide freight/multimodal planning initiative on-call, in which CS has performed a variety of freight and intermodal task order projects. While Mr. Fischer is the overall Contract Manager for this effort, he also has managed the majority of task order projects generated under this on-call, including Oregon state freight plan; Oregon state rail plan; Federal, state, and local freight regulations assessment; critical and strategic freight infrastructure needs; support to Oregon’s freight planning task force; freight climate change strategy assessment; and freight performance measures. For the Oregon state freight plan, Mr. Fischer analyzed how future changes in the State’s economy impact freight transportation demand, and how improvements in the system affect freight transportation costs and competitiveness of the State’s industry. He also identified classes of investments needed to support the State’s economy, and developed a plan to develop performance measures to identify deficiencies in the system.

**SCAG Comprehensive Regional Goods Movement Study; 10/2008 to 12/2012.** For SCAG, Mr. Fischer served as the Project Manager for this study. He assessed the rail freight and rail passenger infrastructure needs in the State; reviewed the current powers, authorities, and interests that the State had in both passenger and freight rail; recommended public policies for state participation and ownership in rail infrastructure and service delivery,

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*Cambridge Systematics, Inc.*
including but not limited to, planning and governance issues; and developed a rail asset management plan.

**Economic Modeling and Studies (Including Cost Benefit and Cost Effectiveness Analysis)**

Christopher Wornum, a Principal of CS, has more than 30 years of consulting experience in economic impact analysis, economic development, transportation funding, and fiscal analysis. Mr. Wornum has conducted over half a dozen economic impact analyses and transportation funding studies in Washington State, including two for the Joint Transportation Committee, an economic development strategy, and two I-5 trade corridor studies for WSDOT. He has analyzed the economic impacts of transportation investments for dozens of regions nationally, including economic analysis of major trade corridors throughout the Pacific Northwest, New York, Colorado, Utah, Arizona, Illinois, Indiana, Georgia, Virginia, and California. Mr. Wornum received two graduate degrees from the Massachusetts Institute of Technology; one in Management Science from the Sloan School of Management, and the other in Urban Planning.

**Relevant Project Experience**

**San Francisco Bay Area RTP Economic Assessment;** 6/2012 to 11/2013. For the San Francisco MTC and the Association of Bay Area Governments, Mr. Wornum assisted with the development of the Bay Area’s Sustainable Communities Strategy (SCS) and Regional Transportation Plan (RTP). He developed a performance-based approach to inform land use policies, and transportation policy and specific transportation investments. He prepared quantitative economic assessment to measure the RTP/SCS land use policies and transportation investments, including roadway pricing, land use agglomeration, state of good repair, goods movement, housing policies, and GHG emissions targets.

**LACMTA Congestion Mitigation Fee Phases I, II and III;** 3/2005 to Ongoing. Mr. Wornum worked with the Los Angeles County Metropolitan Transportation Authority (LACMTA) to prepare a countywide development impact fee program designed to fund hundreds of millions of dollars toward regional transportation improvements. The program, the largest and most complicated ever attempted, provides a new source of revenue for multimodal transportation improvements throughout Los Angeles County. Mr. Wornum has led each phase of the effort, including consensus-building among the 89 jurisdictions; preparation of a nexus study including forecasted land use growth; project priority lists; stakeholder outreach; detailed implementation strategies; and new development impact analysis, and development of a capital program for mitigating these impacts. To facilitate this program, Mr. Wornum also oversaw the development of a state-of-the-art web-based project database and fee calculation system accessible to all jurisdictions.

**San Francisco County Transportation Planning Services On-Call;** 12/2009 to Ongoing. For the San Francisco County Transportation Authority, Mr. Wornum, as the Contract Manager for this transportation planning services on-call, is responsible for providing technical and policy support on the development of the City and County’s Countywide Transportation Plan (CTP) and other policy initiatives. He evaluated the economic and financial analysis of taxi medallions and restructured the City’s taxi system; identified top-priority transportation investments to address existing transportation needs and future
proposed land use development for a bicounty study with San Mateo; developed a performance-based process to screen and prioritize projects for the CTP update; and currently is developing a parking pricing strategy for the City of San Francisco as part of its overall congestion pricing program.

**Tolling Studies**

Jeffrey Buxbaum has 32 years of experience in transportation planning and policy analysis. Mr. Buxbaum’s specialties include finance and tolling policy, as well as T&R studies. He has conducted statewide evaluations of options for transportation funding sources and financing; and statewide evaluations of tolling policy for Washington, Oregon, and Connecticut. Mr. Buxbaum’s traffic and revenue studies have been used to inform financial transactions for numerous toll roads around the U.S., including corridors in California, Colorado, Connecticut, Massachusetts, Minnesota, Texas, and Washington, as well as worldwide. He served on a special Transportation Research Board (TRB) committee to explore the Equity Implications of Evolving Transportation Finance Mechanisms, and is a member of the TRB’s Congestion Pricing Committee. Mr. Buxbaum received a Bachelor’s degree in Civil Engineering from the Massachusetts Institute of Technology.

**Relevant Project Experience**

**Washington State Comprehensive Tolling Study; 9/2005 to 3/2008.** For the WSTC, Mr. Buxbaum managed this study to guide policy decisions on if, where, when, and how to toll in Washington. The study aimed to bring the perspective of national trends to bear on highway infrastructure development issues in Washington State, considering near-, mid-, and long-term needs and solutions. He prepared supporting topical studies in technology, organizational structures, social equity considerations, and public attitudes. Mr. Buxbaum also defined and evaluated illustrative examples of potential tolling projects in the State to show the revenue potential and transportation system effectiveness, including tolling existing bridges. The result was a set of eight policy statements that were used to craft legislation regarding the future use of tolling in the State.

**Washington State East Side Corridor Independent Traffic and Revenue Study; 5/2011 to 3/2013.** Mr. Buxbaum led this study for the WSTC to provide a new independent study of traffic and revenue of a proposed 40-mile tolled managed lane corridor. The work was requested by the Legislature to aid the State in making its own investment decisions. Mr. Buxbaum performed a detailed investigation into the performance of the existing SR 167 HOT lane project, designed and implemented a new stated-preference survey, and created a simulation model with the capability to model pricing built in – a major methodological advancement. He also incorporated important risk factors into the forecast, rather than as separate sensitivity studies, using more than 80 unique scenarios; and prepared updated T&R forecasts for the facility.

**Ohio River Bridges Investment-Grade Traffic and Revenue Study; 4/2012 to 12/2012.** For the Indiana Finance Authority (IFA), Mr. Buxbaum was Principal-in-Charge of an independent T&R forecast to better understand the revenue generation potential and risks associated with major elements of the Louisville-Southern Indiana Ohio River Bridges project in Indiana and Kentucky. He helped assemble existing project data and forecasts; supplement existing information with new traffic data collected using cellular phone
technology and Internet survey panels; conduct an independent assessment of regional growth patterns; refine existing traffic forecasting models; and develop and apply a revenue forecasting model based on a risk assessment protocol. CS’ products have helped the IFA and its partners better assess a probable range of tolling revenue from project elements, as well as potential underlying factors contributing to upside and downside risks.

**Writing and Documentation Skills**

**Evan Enarson-Hering** is an Associate of CS with seven years of experience in integrated transportation planning, regional visioning, economic analysis, and policy. Mr. Enarson-Hering has significant experience supporting state, regional, and private organizations in efforts to integrate concepts of economic competitiveness, sustainability, and livability into strategic plans. He currently is managing CS’ involvement in the Colorado DOT’s Statewide and Local Transit Plan, and is Deputy Project Manager for CS’ development of the Colorado SHSP. For the Florida DOT, Mr. Enarson-Hering provided guidance and support for the update of the Florida Transportation Plan, the Florida Future Corridors Plan, and the State of Florida’s five-year Economic Development Plan. He also assisted several regional visioning efforts within Florida, including support of the Central Florida Regional Planning Council’s efforts to convene a stakeholder-based process in a seven-county rural area to address issues of land use, transportation, economic development, environmental stewardship, and community livability. Mr. Enarson-Hering received a Master’s degree in Public Policy from the University of Michigan, and a Bachelor’s degree in International Political Economy from Colorado College.

**Relevant Project Experience**

**Florida DOT Future Statewide Transportation Corridors;** 6/2013 to Ongoing. In support of the Florida DOT’s Strategic Intermodal System, Mr. Enarson-Hering is providing policy and technical support to the future corridor initiative. He is refining the policy framework for new statewide corridors, developing policy guidance for feasibility studies; coordinating with partners; and developing public communication materials.

**The Florida Scorecard;** 7/2010 to 9/2011. For the Florida Chamber of Commerce Foundation, Mr. Enarson-Hering has provided strategic planning and economic research support since 2007 on a wide variety of efforts, including the SixPillars™ strategic effort and the Foundation’s 20-Year Strategic Plan for Florida’s Future. He worked with the Foundation to produce the on-line “Florida Scorecard,” which tracks progress on core indicators within six critical areas. Mr. Enarson-Hering was Project Manager and primary researcher for this effort, which involved the analysis and communication of written and documentation of technical material across a range of subject areas and audiences.

**Gulf Coast Community Foundation, Regional Workforce Solutions;** 9/2011 to 4/2012. Mr. Enarson-Hering conducted a research study examining the Federally funded, state-implemented workforce investment system in Florida. He conducted in-depth national research on workforce trends and conditions, coordinated with an advisory council of business and civic leaders, and interviewed workforce practitioners and employers. Mr. Enarson-Hering managed and led major research tasks, including developing a white paper identifying future opportunities to implement a demand-driven workforce system that meets regional employers’ needs.
Statistical Analysis

Kimon Proussaloglou, Ph.D., is leading CS’ activities in travel demand modeling, statistical analysis, and market research; and serves as the Manager of CS’ Travel Demand Forecasting practice. Dr. Proussaloglou has 25 years of experience working with state DOTs, regional planning agencies, public transportation agencies, and private-sector transportation companies. He has developed and analyzed surveys and applied multivariate techniques to understand traveler needs and develop models of travel choice and policy initiatives for a wide range of activities. In his model development work, he has analyzed the impact of travel-time reliability on passenger and freight transportation. He used market research and statistical modeling approaches to quantify the impact of on-time performance on transit market share and air carrier choice. Dr. Proussaloglou received both a Doctorate and a Master’s degree in Civil Engineering from Northwestern University; and a Bachelor’s degree in Civil Engineering from the Aristotelian University, Greece.

Relevant Project Experience

Wisconsin Statewide Model; 12/2002 to 10/2004. For the Wisconsin DOT, Dr. Proussaloglou led the development of a policy-sensitive model system of interregional passenger and freight flows for the State. The model was based on the 2001 National Household Travel Survey and input data from the Wisconsin Department of Administration. For the truck flows, a Commodity Flow Survey was analyzed to provide the DOT with interregional goods movements.

2010 Travel Behavior Inventory; 3/2010 to Ongoing. Dr. Proussaloglou currently is leading the Metropolitan Council’s data collection and modeling effort in the Twin Cities. A major survey effort currently is under way, including the design, fielding, and analysis of a travel diary survey of 12,000 households; an on-board survey of 15,000 transit riders; and a supplementary global positioning system survey of 300 households. Data efforts also include origin-destination external surveys and innovative web-based intercept surveys of airport travelers and Mall of America visitors.

California High-Speed Rail Forecasts; 10/2007 to Ongoing. For the California High-Speed Rail Authority, Dr. Proussaloglou reviewed the properties of the model system developed by CS. He responded to a review by a panel of University of California faculty and presented his findings to an Authority Board meeting and a hearing at the California State Assembly. He is leading the discussion with the Authority’s Peer Review Panel. Dr. Proussaloglou designed a new traveler survey and estimated new mode choice models that quantify the impact of pricing, travel times by competing modes, and on-time reliability on traveler mode choice behavior.

Multimodal Corridor Planning

George Mazur, P.E., a Principal of CS, has 23 years of experience in transportation planning and policy, transportation economics, travel demand model development and application, and environmental analysis for corridors and systems. Mr. Mazur has analyzed the operational performance, ridership, and financial feasibility of multimodal services and facilities under a variety of local, state, and Federal evaluation protocols. He has a Master’s degree in Engineering from the University of California at Berkeley, and a Bachelor’s
degree in Civil Engineering from Purdue University. Mr. Mazur also is a registered Professional Engineer in Georgia, and a registered Traffic Engineer in California.

**Relevant Project Experience**

**California State Rail Plan;** 8/2011 to 5/2013. Mr. Mazur managed all statewide and corridor-specific transportation planning and forecasting activities for the 2013 California State Rail Plan and four companion Service Development Plans. He oversaw drafting, vetting, revisions, and finalizing of the 2013 State Rail Plan; and was the Principal Author for policy integration and system benefit sections.


**LOSSAN Corridor Project Prioritization Analysis;** 8/2008 to 7/2009. Mr. Mazur was Project Manager for an analysis and prioritization of rail trackage and station improvement projects in the San Diego County portion of the Los Angeles-San Diego Rail Corridor Agency (LOSSAN) rail corridor. His team developed an integrated investment program that links rail service increases and rail performance in the corridor by way of future operating plans, track capacity increases, and station improvements.

**Climate Adaptation**

Joshua DeFlorio is an Associate of CS with expertise in climate vulnerability, risk, and resiliency assessments. Mr. DeFlorio recently managed the climate change vulnerability and risk assessment of New Jersey transportation infrastructure, an FHWA-sponsored pilot project, and currently is involved in second-round pilot projects for the Capital Area MPO/ City of Austin, Hillsborough County MPO, Arizona DOT, Bay Area MTC, and the Tennessee DOT. Mr. DeFlorio also is managing the FHWA’s tristate (New Jersey, New York, and Connecticut) transportation vulnerability and adaptation assessment, a key agency initiative to address climate change resiliency in the Northeastern U.S. in the wake of Hurricane Sandy. Prior to joining CS, Mr. DeFlorio worked for the City of New York, where he served on the Mayor’s interagency climate change task force. Mr. DeFlorio received a Master’s degree in City Planning from Massachusetts Institute of Technology, and a Bachelor’s degree in English and American Literature from Brandeis University.

**Relevant Project Experience**

**Hurricane Sandy Follow-Up and Vulnerability Assessment and Adaptation Analysis;** 7/2013 to Ongoing. For the FHWA, Mr. DeFlorio is Project Manager and co-Principal Investigator for a tristate (New Jersey, New York, and Connecticut) study on the impacts of Hurricane Sandy on the region’s multimodal transportation system. The effort includes a related analysis of regional climate change and extreme weather potential vulnerabilities and impacts, as well as an assessment of feasible, cost-effective adaptation strategies to enhance resiliency. Project principals include the Port Authority of New York and New Jersey; New Jersey, New York, and Connecticut DOTs; the Metropolitan Transportation Authority; and MPOs in northern New Jersey (North Jersey Transportation Planning Authority), the New York metropolitan region (New York Metropolitan Transportation Authority), and other stakeholders.
Council), and southwestern coastal Connecticut (South Western Regional Planning Agency and Greater Bridgeport Regional Council).

**Climate Change Vulnerability and Risk Assessment of New Jersey Transportation Infrastructure;** 4/2011 to 12/2011. Mr. DeFlorio was Project Manager for an FHWA-sponsored resiliency pilot project, covering two multimodal transportation corridors in coastal and inland New Jersey. The project was co-led by New Jersey DOT, along with the State’s three MPOs, New Jersey Transit, and the Department of Environmental Protection.

**Arizona DOT Preliminary Study of Climate Adaptation for the Statewide Transportation System in Arizona;** 10/2013 to 6/2014. Mr. DeFlorio is conducting a research study on climate adaptation for the statewide transportation system in Arizona. This effort is providing a framework for the Arizona DOT to help departments responsible for infrastructure planning, design, operations, and maintenance effectively incorporate the risks of climate change impacts into their decision-making processes.

**GHG, Energy, and Air Quality Analysis**

**Christopher Porter** is a Principal of CS with 17 years of experience in transportation and land use; air quality, energy, and GHG analysis; and travel demand management. Mr. Porter manages projects and directs technical work related to the implementation and evaluation of air quality, energy, and GHG reduction strategies. He has led projects for Federal, state, and regional agencies on best practices in integrating transportation and land use planning, transportation and health, and nonmotorized travel. Mr. Porter received both a Master’s degree in Transportation and a Master’s degree in City Planning from the University of California at Berkeley, and a Bachelor’s degree in Civil Engineering from the University of Minnesota.

**Relevant Project Experience**

**Oregon Department of Energy GHG Marginal Abatement Cost Curves;** 6/2013 to 12/2013. For the Oregon Department of Energy, Mr. Porter developed inputs to marginal abatement cost curves for transportation fuels and vehicle technology strategies. He estimated the potential GHG benefits and cost-effectiveness in the State of each strategy through the year 2035 under various deployment scenarios.

**NREL Transportation Energy Futures Study;** 7/2011 to 12/2012. For NREL, Mr. Porter supported the Transportation Energy Futures study by developing issue papers about the influence of the built environment on travel, and the effects of travel reduction and efficient driving strategies. He also developed a sketch planning tool that addressed the potential for built environment strategies to influence energy use for transportation.

**CEC Update of the Energy Aware Planning Guide;** 9/2008 to 9/2009. For the CEC, Mr. Porter managed a project to update the Energy Aware Planning Guide for California. The guide focuses on methods that local and regional governments can use to develop, implement, and quantify the benefits of relevant strategies and policies to promote sustainable, energy-efficient communities.
Safety

Elizabeth Wemple, P.E., is a Portland, Oregon-based Senior Associate of CS with expertise in road safety, transportation planning, and traffic engineering. Ms. Wemple was Project Manager on the NCHRP 17-36, Production of the First Edition HSM. She has worked with state DOTs to implement safety analysis methods and concepts from the HSM and the Crash Modification Factor Clearinghouse. She also has worked with MPOs and communities within MPOs to develop long range transportation plans, subarea plans, and corridor studies to meet community, regional, and statewide goals. These projects have included multimodal considerations, safety, and funding. Ms. Wemple received a Master’s degree in City Planning, a Master’s degree in Transportation Engineering, and a Bachelor’s degree in Civil Engineering from the University of California at Berkeley. She is a registered Professional Engineer in Oregon.

Relevant Project Experience

FHWA Toolkit for Rural Local and Tribal Road Safety Practitioners; 9/2013 to ongoing. For the FHWA, CS is developing a Toolkit and two user guides targeted at rural, local, and tribal road safety practitioners. The purpose of the toolkit is to provide practitioners with a simple guide to key road safety resources. The user guides will provide step-by-step application of the resources. Ms. Wemple is the Project Manager on this project.

Louisiana DOTD – HSM Implementation and Data Readiness Evaluation; 10/2012 to ongoing. For the Louisiana DOT and Development (DOTD), CS developed an HSM Implementation Strategy for application across the DOTD. The implementation strategy provides plans, programs, and policies for preparing DOTD staff to implement the HSM at the central office and districts, and measure the success of the implementation. Ms. Wemple is the Project Manager.

Arizona DOT Highway Safety Manual and SafetyAnalyst Data Integration; 5/2012 to ongoing. For the Arizona DOT, CS is evaluating data needs for the DOT to implement the software SafetyAnalyst. The project evaluates existing state data, data needed to conduct HSM methodologies, and data needed to implement SafetyAnalyst. The final product will be a business plan for converting existing practices to the SafetyAnalyst software. Ms. Wemple is the Project Manager on this project.

Asset Management

Joseph Guerre, P.E., PMP, a Principal of CS, is an expert in transportation asset management, performance-based planning, and project and program prioritization. Mr. Guerre has been at the forefront of transportation asset management for more than 12 years. He coauthored the original American Association of State Highway and Transportation Officials (AASHTO) Transportation Asset Management Guide, and served as lead instructor for the National Highway Institute’s training course on asset management for 5 years. Currently, Mr. Guerre is serving a Principal Investigator for an FHWA project to develop a model state transportation asset management plan and oversee the development of these plans in Minnesota, Louisiana, and New York. Separately, Mr. Guerre is assisting the Colorado and Florida DOTs with the development of their asset management plans, and evaluating options for an asset management information system of the Alaska DOT. Mr. Guerre
received a Master’s degree in Civil Engineering from the Massachusetts Institute of Technology, and a Bachelor’s degree in Civil Engineering from Purdue University. He is a registered Professional Engineer in Massachusetts.

**Relevant Project Experience**

**Georgia DOT Project Prioritization;** 11/2010 to 9/2012. For the Georgia DOT, Mr. Guerre developed a quantifiable methodology to prioritize transportation projects; and is documenting how projects will progress through the Georgia DOT’s long-range programs, construction work program, and the State Transportation Improvement Program (STIP). Mr. Guerre developed a performance-based project prioritization process, and application of the process to the DOT’s backlog of projects, to link the investment emphasis areas defined in the long-range transportation plan (LRTP) with the potential projects to be implemented in the STIP.

**Alaska DOT TAMIS and Data Research Project;** 2/2013 to Ongoing. Mr. Guerre is serving as the Principal-in-Charge to assess existing systems, data, and business practices related to asset management. He is supporting the development of a framework and vision for a comprehensive TAMIS. The TAMIS will be a collection of hardware, software, data, and processes. Based on a gap analysis that compares the current situation to the vision, Mr. Guerre is supporting the development of an implementation plan for the TAMIS.

**Florida DOT Asset Management Implementation Plan;** 4/2008 to 7/2011. For the Florida DOT, Mr. Guerre led an effort to assess current resource allocation practices, develop an agencywide vision of transportation asset management, and develop an implementation plan for achieving this vision. He designed this plan to provide a road map for the DOT to use as it moves forward, and addresses critical process and system issues related to asset management. He managed this project by conducting a comprehensive review of the Florida DOT’s asset management practices, comparing them to the state of the art, conducting a gap analysis to identify opportunities for improvement, and developing an implementation plan to address the gaps. Mr. Guerre has worked on similar efforts for the Arizona, Colorado, Georgia, Massachusetts, Pennsylvania, and Vermont DOTs.

**Transportation Operations**

**Christopher Hedden** is a Principal of CS with 24 years of experience in the areas of ITS and operations planning, and design. Mr. Hedden’s primary technical focus is on state and local ITS planning and operations. He is one of CS’ most experienced Project Managers with a proven track record of managing technically complex multidisciplinary ITS projects. He managed a major smart corridor project for the LACMTA in Southern California; a region with over 2,300 signalized intersections. Mr. Hedden also recently served as the Project Manager for the Traffic Operations Infrastructure Plan for the Wisconsin DOT. Mr. Hedden received a Bachelor’s degree in Business from George Mason University.

**Relevant Project Experience**

**Gateway Cities Strategic Transportation Plan;** 1/2013 to Ongoing. Mr. Hedden currently is serving as the Principal-in-Charge for this mega planning project for LACMTA and their partner, the Gateway Cities Council of Governments. This plan will create, for the first time, a multimodal strategy for this diverse region, which is critical to the state and
country. Mr. Hedden is overseeing the technology tasks, which include a zero emissions truck business case study, and developing a test bed for a connected truck program in the region, as well as furthering the development of some of the key first projects from the Gateway Cities Technology Plan for Goods Movement.

San Francisco Bay Area Transportation Systems Management and Operations Institutional Structure; 2/2012 to Ongoing. Mr. Hedden currently is supporting the San Francisco Bay Area’s MTC as it explores the most effective approach for managing transportation operations within the region. The project is looking at best practice operations models from around the country and the world, and assessing how successful elements could be implemented in the Bay Area. As part of this effort, Mr. Hedden has worked with MTC’s 511 system, exploring how this system could operationally best interface with the region’s other operating system, such as Caltrans’ Advanced Transportation Management System and the region’s growing HOT lane deployment.

KC Scout Data Portal/Performance Measures; 8/2007 to 8/2009. As part of the Kansas City Scout (KC Scout) operations support contract, Mr. Hedden served as the Project Manager for the design of an archive traffic data portal for the KC Scout program and its partners. He was responsible for developing the user and functional requirements, in addition to the overall system architecture. CS also supported elements of the design that included overall database design. Mr. Hedden developed the data visualization and format for the monthly and annual reports.

Performance Evaluation

Hugh Louch, a Principal of CS, has 15 years of experience in state and regional transportation planning, policy, and performance management. Mr. Louch serves as Program Manager for CS’ Performance Management Indefinite Delivery/Indefinite Quantity (IDIQ) contract for the FHWA. He has led or supported numerous research efforts in the area of performance management for the FHWA, the NCHRP, and the Second Strategic Highway Research Program (SHRP) 2. Mr. Louch also has helped numerous MPOs and states implement performance management; and has led workshops across the country helping state DOTs, MPOs, and transit agencies address how to collaborate on performance-based planning. Mr. Louch received a Master’s degree in Sociology from Princeton University, and a Bachelor’s degree in Sociology from the University of California at Santa Barbara.

Relevant Project Experience

New Mexico DOT 2040 Statewide Long-Range Multimodal Transportation Plan; 11/2013 to Ongoing. For the New Mexico DOT, Mr. Louch is developing a 2040 Statewide Long-Range Multimodal Transportation Plan to comply with Federal requirements. A key feature of the plan development process involves participation by a robust structure of statewide and regional working groups, coordinating committees, and public outreach to ensure that all interested parties in the State have a forum to work together to establish common performance measures, targets, goals, and objectives. Using a four-phased approach, Mr. Louch is evaluating existing conditions to document statewide transportation needs and issues.
Oregon DOT Performance Management System Development; 4/2005 to 1/2006. Mr. Louch supported the Oregon DOT’s Highway Division in developing a comprehensive performance management program based on industry best practice that provided a means to assess how the division was performing across all of its functional areas (project delivery, finance, support services, and others) through a set of leading and lagging indicators that capture both fundamental outcomes (lagging indicators), and the interim steps that the Oregon DOT is taking to improve those steps (leading indicators).

FHWA Performance-Based Planning and Programming Informational/Instructional Workshops and Webinars; 4/2013 to Ongoing. For the FHWA, Mr. Louch is designing and implementing a framework for performance-based planning and programming and leading workshops to engage with state DOTs, MPOs, and transit agencies on this topic.

Data Management

Anita Vandervalk, P.E., PMP, a Principal of CS, has more than 20 years of experience in transportation engineering and planning with a unique combination of technical, data management, strategic planning, policy analysis, and operational planning skills. Ms. Vandervalk has extensive knowledge of national, statewide, and metropolitan traffic data, operations, and planning programs. She is nationally recognized for her work in the traffic, roadway, and safety data arenas. She has a broad range of experience providing research and consulting services in the area of transportation planning and operations for several MPOs, state DOTs, the FHWA, NCHRP, and SHRP. Ms. Vandervalk received a Bachelor’s degree in Civil Engineering from Queen’s University in Ontario. She is a registered Professional Engineer in Florida, Kansas, Michigan, and Wisconsin.

Relevant Project Experience

Alaska DOT TAMIS and Data Research Project; 2/2013 to Ongoing. Ms. Vandervalk is serving as the Project Manager to assess existing systems, data, and business practices related to asset management for the Alaska DOT. She is developing a framework and vision for a comprehensive TAMIS that will be a collection of hardware, software, data, and processes. Based on a gap analysis that compares the current situation to the vision, Ms. Vandervalk will develop an implementation plan for the TAMIS.

Colorado DOT Traffic Analysis Business Process and Integrated Software Recommendations Project; 4/2011 to 4/2012. Ms. Vandervalk led this project that included a business review of the Colorado DOT’s existing Travel Monitoring Program Business Process Documentation, and provision of recommendations with regard to gaps and improvements. She also led Phase 2 of the project recommending the traffic portal concept.

3.0 Firm’s Technical Expertise

This section presents the relevant experience of the firm in the area of Transportation Studies.

Oregon DOT On-Call Transportation, Engineering, Planning and Environmental (TEPE). Since 2009, CS has been leading a TEPE on-call contract for all Oregon DOT divisions and regions across the State. CS assembled a comprehensive team designed to address state planning and policy; regional and local transportation planning and policy; transportation economics, finance, and pricing; performance evaluations; local and regional traffic analysis and corridor studies; multimodal, transit, and nonmotorized analysis and evaluations; planning-level engineering; and the full range of environmental services, among other topical areas. CS also will support this effort by providing travel demand modeling and forecasting, microsimulation, benefit/cost, least/cost planning, and performance-based decision-support tools and technical analysis. Selected task orders through this contract have included the development of a mileage fee pilot program grant application; a stakeholder involvement best practices report in transportation decision-making; a statewide transportation strategy to support GHG reductions over the long-term; GHG emission reduction toolkit for regional and local agencies; transportation performance measures for outcome-based management and systems monitoring; and safety corridor program HSM methods enhancements.

Maryland DOT On-Call Transportation Policy and Planning Consulting Services. Since 2001, for the Maryland DOT, CS has been providing a range of on-call services across 13 different categories. These categories include Maryland transportation plan and transportation vision planning; performance measurement, evaluation, and reporting, including the Annual Attainment Report and Managing for Results Report; trends and issues analysis; long-range planning technical assistance; alternative capital funding analysis; policy evaluation and transportation and land use development; statewide multimodal systems planning; market assessment and evaluation; corridor studies; environmental policy and planning; air quality-transportation conformity and climate change assessment; communication and stakeholder outreach; and procurement and minority business enterprise technical support.

Oregon DOT Statewide Freight/Multimodal Planning Initiative On-Call. Since 2008, for the Oregon DOT, CS has been managing the statewide freight/multimodal planning initiative on-call. CS led the development of a variety of freight-oriented task order projects through this contract, including the Oregon State Freight Plan and Oregon State Rail Plan. Through this contract, CS also has prepared task order projects related to Federal, state, and local freight regulations assessment; critical and strategic freight infrastructure needs; sup-
port to Oregon’s freight planning task force; freight climate change strategy assessment; and freight performance measures.

**Arizona DOT Transportation Planning Services On-Call.** For the Arizona DOT, since the late 1990s, CS has led the Arizona Transportation Planning On-Call Services Contract. CS has prepared several projects through this contract, including (previous cycle) Arizona long-range transportation plans, Arizona transit needs study, Arizona truck port of entry feasibility study, Arizona strategic safety plan, Arizona SHSP, and the Arizona transportation asset management plan, among other corridor, system, and policy projects.

**2060 Florida DOT Transportation Plan On-Call Services Contract.** In 2009, CS was awarded an on-call contract to lead development of the 2060 Florida Transportation Plan (FTP). This was the first 50-year plan developed in Florida and established a focused vision and strategic goals to guide future investments. Key issues included the emergence of integrated mega regions, growth in freight and trade, and economic diversification and development. CS led all aspects of the 2060 FTP development, including supporting a steering committee of external partners; coordinating extensive public involvement activities and regional workshops; and developing baseline inventory and alternative scenarios.

**Montana LRTP Update through the MTD Planning On-Call.** Since 2006, CS has been prime consultant for the Montana Transportation Department’s (MTD) Planning On-Call, with responsibilities for state long-range transportation planning, system and corridor planning, and transportation finance and economics analysis. Through this on-call, CS updated the 2008 Montana LRTP (TRANPLAN 21) to be compliant with Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) planning requirements. CS conducted a detailed review and analysis of SAFETEA-LU planning provisions and TRANPLAN 21 elements to identify those requiring updating and public and stakeholder outreach.

**Georgia DOT Statewide and Regional Project Prioritization.** For the Georgia DOT, CS developed a process for project prioritization to link planning to programming through the use of performance-based planning. CS developed a quantifiable method to prioritize transportation projects using performance measures across all systems and modes; and documented how these projects will progress through the DOT’s long-range programs, construction work program, and the STIP. CS developed a prototype of an automated system to manage the prioritization process, applied the prototype to the prioritization of current projects, and developed a road map for a fully automated project data management and prioritization system. This process, while developed for Georgia DOT, also was applied to...
each MPO in the State to prioritize projects on the state system in each region, and also to provide a consistent methodology for state and regional project prioritization.

**Texas DOT Policy Research Services On-Call Contract.** From 2006 to 2012, CS provided research and support services to the Texas DOT, Government and Public Affairs Division, Texas Transportation Commission, and other internal Texas DOT divisions to guide the development of appropriate programs, policies, and strategies for the State. CS identified the impacts of the Panama Canal expansion on Texas ports/highways; described how innovative finance strategies could be applied to rural areas; evaluated economic activity generated by Texas DOT historical and future spending; developed methods to forecast motor fuel tax revenue; revised the fee structure for the Vehicle Titles and Registration Division; identified the transportation system needs and funding gap in Texas; and prepared the 2011 to 2015 Texas Strategic Plan; among another 20 task order projects delivered by CS for this contract.

**California On-Call Corridor System Management Planning.** Through this on-call contract, CS worked with Caltrans to perform traffic engineering and planning evaluations of Corridor System Management Plans (CSMP) across California. CS designed the CSMP guidelines to provide regions with comprehensive evaluations of multimodal project improvements and consistent methods to prioritize future transportation projects (tolling, transit, highway, operations). CS implemented CSMPs for I-5 and SR 99; I-80/SR 51; and U.S. 50 in the Sacramento region; I-805, I-5, and I-15 in the San Diego region; and I-210 in the Los Angeles region. The corridors ranged in length from 20 to 65 miles, considered comprehensive stakeholder agency outreach, and integrated microsimulation, travel demand, cost/benefit, and sketch planning tools to identify, test, and report performance.

**Colorado DOT Transportation Planning On-Call Contract.** From 1999 to 2012, CS supported the Colorado DOT on a transportation planning on-call contract covering a variety of state and regional planning, policy, and research needs defined by the agency. Selected project task orders on which CS delivered through this contract included mobility performance measures assessment and recommendation; transportation asset management implementation plan; state freight roadmap; traffic data management business plan and software; and the state travel demand model feasibility assessment and recommendation; among several others.

**NCHRP 8-36 – Research for the AASHTO Standing Committee on Planning On-Call.** Since 1999, for the NCHRP, CS has provided flexible, ongoing, quick-response research to the AASHTO Standing Committee on Planning. The contract is designed to develop improvements to analytical methods, decision support tools, procedures, and techniques employed by practitioners to support state and metropolitan transportation planning, programming, and development. CS provides support in three areas: 1) transportation planning, programming, and project development; 2) environmental issues related to transportation planning; and 3) economics, finance, and institutional issues related to transportation. CS has conducted tasks under this contract ranging from elderly issues in the transportation planning process to best practices in statewide freight planning to a study of the positive impacts of investments in the nation’s transportation systems.
**FHWA IDIQ Contracts.** CS has a long and successful track record of managing the FHWA IDIQ contracts. Currently, we are managing support contracts for the FHWA’s Offices of Planning, Environment, Operations, Policy, Freight, Safety, and Asset Management.

- **Planning** – Since 2004, CS has provided on-call support in metropolitan planning, statewide planning, multistate planning, capital programming, travel demand forecasting, freight, land use, census data, GIS, sustainability and livability, stewardship, environmental justice, congestion, safety, planning oversight, capacity building, national highway systems, economic development, planning methods, communication, and outreach.

- **Environment** – Since 2011, CS has supported the FHWA with highway and water resources planning, historic and archeological preservation, bicycle and pedestrian programs, transportation air quality and noise research, climate change and sustainability research, along with marketing and outreach.

- **Operations** – Since 2001, CS has been providing technical support and assistance to the FHWA’s Office of Operations, including policy, programs, and projects that advance operations; communications activities; technical tools; technology transfer and assistance programs; and project evaluation, performance measurement, and process improvement.

- **Policy** – CS has been supporting the FHWA Office of Policy since 1998, covering a variety of transportation policy topics and technical issues.

- **Freight** – Since 2011, CS has been leading a team that is providing on-call support to the Office of Freight Management and Operations.

- **Safety** – Since 2005, CS has been providing program and technology support for the Office of Safety in its mission to improve highway safety.

- **Asset Management** – Since 2007, CS has been working with the FHWA to develop approaches for assessing the performance and health of highways in the U.S.

**Strategic Highway Safety Planning.** CS has developed, updated, and implemented SHSPs as the lead consultant in 15 states, including Alaska, Arizona, California, Colorado, Florida, Iowa, Louisiana, Maryland, Massachusetts, Montana, New Mexico, Nevada, Ohio, Oklahoma, Rhode Island, and Virginia. CS’ expertise includes conducting crash data analysis, identifying proven safety countermeasures, developing safety summits, facilitating leadership and executive team meetings, leading development of regional safety action plans and priorities to support implementation of the state SHSP, evaluating SHSP effectiveness, and developing user-friendly documentation.

**Washington State Road User Charge Assessment.** CS is leading a feasibility study for the WSTC to determine whether road user charging makes sense for Washington, and, if so, make recommendations about what further study is necessary before any decisions are reached. The work plan is built around six Steering Committee meetings with representatives appointed by the WSTC. Work activities include reviewing relevant reports and data related to models of road user assessments and methods of transitioning to a road user
assessment system; analyzing issues for policy decisions in Washington; developing a plan to assess public perspectives and educate the public on the current transportation funding system and options for a new system; and assessing the operational feasibility of a road user assessment, including technology, agency administration, multistate, and Federal standards, and others. CS also is identifying the next steps for legislative consideration, including a research and development plan and proposed budget for examining the issue in more depth and/or experimenting with such a system through technology demonstrations, pilot projects, or system trials.

**WSDOT East-Side Corridor Independent Traffic and Revenue Review.** For the WSDOT and the WSTC, CS is performing an independent review of previously published T&R forecasts for the proposed HOT lanes within the I-405 corridor east of the City of Seattle. Beyond reviewing the previous work in the corridor, this work includes conducting new T&R forecasts using a new methodological platform. CS’ T&R forecasts will serve as input into the DOT’s financial plan for funding the I-405 corridor, and also serve to inform the Washington State legislature’s decision-making process on whether or not to fund the project.

**Washington Statewide Rail Plan.** For WSDOT, CS is conducting a State Rail Plan. The plan satisfies all of the requirements of the Passenger Rail Investment and Improvement Act of 2008, including setting policy involving freight and passenger (intercity and commuter) rail transportation within the State; establishing priorities and implementation strategies to enhance rail service in the public interest; and serving as the basis for Federal and state rail investments within the State. In addition, the plan is being coordinated with efforts in Oregon State; Province of British Columbia, Canada; and Idaho State to further the concept of long-term corridor service and investment needs and requirements.

**Connecting Washington Task Force.** For the WSDOT, CS developed and presented an overview of global, national, and regional forces shaping current and future transportation systems for the Washington State Governor’s Connecting Washington Task Force initial meeting. Key points from the presentation included:

- Congestion is increasing and surface transport reliability is decreasing in large part because of the growing mismatch between transportation supply and growing demand due to increases in population, maritime trade and domestic freight movement, transit ridership, aging infrastructure, and increased material costs; and

- Gas tax revenue per mile is declining due to the economy and technological changes.

**Oregon Statewide Transportation Strategy for GHG Reductions.** For the Oregon DOT and its partners, Department of Environmental Quality, Oregon Department of Energy, and the State’s MPOs, CS developed a statewide transportation strategy to achieve future targets of GHG emissions for light (cars), heavy-duty (trucks), and long-distance vehicles. CS determined a new course of action to reduce transportation-related GHG emissions necessary to avoid disastrous climate changes. CS identified GHG reduction targets for the transportation sector; defining a vision for the transportation system to accomplish the adopted targets; identifying key problems and associated risks that need to be addressed to achieve the vision; and determining critical actions required to meet the State’s vision. CS developed the State’s Transportation Strategy by coordinating with a variety of concurrent
GHG planning activities, including the State’s communications plan, public education campaign, scenario planning (land use) program, and GHG toolkit.

**Alaska DOT TAMIS and Data Research Project.** CS is assisting with information technology related to its asset management efforts. As part of this project, CS is assessing existing systems, data, and business practices related to asset management. CS will then develop a framework and vision for a comprehensive TAMIS that will be a collection of hardware, software, data, and processes. Based on a gap analysis that compares the current situation to the vision, CS will develop an implementation plan for the TAMIS.

**Caltrans CSTDM.** For Caltrans, CS is the lead contractor for a comprehensive update of the CSTDM, which is comprised of long- and short-distance travel demand models for both personal travel and commercial trucks. A fifth model, covering external travel, also is included. The personal travel models use advanced disaggregate tour-based travel model for all California residents. Key elements of the CSTDM include updating the base year model to year 2010 conditions, using both the 2010 U.S. Census and the 2012/2013 California Household Travel Survey, as well as other observed data sources, including traffic counts and transit surveys. The CSTDM is a critical analytic foundation for Caltrans Department of Transportation Planning to meet SB 391 and SB 375 requirements, and to address rural California’s modeling needs.

**Virginia Program Guidance and State of Good Repair System.** For the Virginia Department of Rail and Public Transportation (VDRPT), CS developed and implemented the Program Guidance and Grant Evaluation System (PROGGRES) to establish the Department’s annual capital plan. PROGGRES forecasts capital needs for all transit agencies operating in the State, applies asset management principles to evaluate capital projects in the context of needs, and enables VDRPT staff to test and evaluate the impacts of different funding scenarios and policy choices on the resulting capital plan. CS wrote a grant proposal to enhance this system, renamed TRANS AM, which was one of five winning grant proposals under the Federal Transit Administration’s asset management pilot program. CS currently is developing the full implementation of TRANS AM for VDRPT and another pilot state.

**Colorado DOT Transportation Asset Management Plan.** CS is assisting with the development of a risk-based transportation asset management plan. The plan will provide a blueprint for keeping Colorado’s state highway system in the best condition possible over the long term, with the least resources possible. The plan will be consistent with the asset management requirements in MAP-21, but beyond them. It will provide a financial plan for the highway system, define work strategies, and identify opportunities for subsequent improvements to the DOT’s asset management program.