



NAPA VALLEY TRANSPORTATION AUTHORITY TAC Agenda Letter

TO: Technical Advisory Committee
FROM: Kate Miller, Executive Director
REPORT BY: Rebecca Schenck – Senior Transportation Program Planner
(707) 259-8636 / Email: rschenck@nvta.ca.gov
SUBJECT: State Route 29 Comprehensive Multimodal Corridor Plan and Project Initiation Document for State Route 29 through American Canyon Update

RECOMMENDATION

That the TAC receive an update on the State Route 29 Comprehensive Multimodal Corridor Plan (CMCP) and Project Initiation Document (PID) for State Route 29 through City of American Canyon

EXECUTIVE SUMMARY

NVRTA issued Task Order No. E-09 on February 5, 2019 to Fifteen (15) qualified firms under the terms of Request for Qualifications (RFQ) 2015-03 On-Call Planning Services and RFQ 2017-07 On-Call Engineer/Architect and Project Delivery Services for the State Route 29 Comprehensive Multimodal Corridor Plan and Project Initiation Document (PID) for State Route 29 through American Canyon. Two proposals were received, from GHD and Fehr and Peers. The review team comprised of NVTA and City of American Canyon staff members. The NVTA Board awarded the contract to GHD Company at the April 17, 2019 NVTA Board Meeting.

The timeline to complete the CMCP is accelerated due to the SB 1 Solutions for Congested Corridor Program (SCCP) cycle 2 applications due in January-February 2020. To be eligible for the SCCP funds, Soscol Junction has to be part of an updated CMCP that meets the guidelines approved in December 2018. To streamline the work on the SR 29 CMCP staff has scheduled standing SR Staff Working Group meetings at 12:30 pm on the following days:

- June 6th 12:30pm
- July 11th 12:30pm
- August 1st 12:30pm

- September 5th 12:30pm
- October 3rd 12:30pm
- November 7th 12:30pm

The Staff Working group will be made up of a representative from City of American Canyon, City of Napa, County of Napa, NVTA and Caltrans staff.

FISCAL IMPACT

The consultant contract amount is \$645,000. The estimated Caltrans' cost to review the PID is \$180,000. The project is being funded with NVTA planning funds and a \$250,000 contribution from the City of American Canyon.

BACKGROUND AND DISCUSSION

In October 2014 NVTA, then Napa County Transportation and Planning Agency, completed the State Route (SR) 29 Gateway Corridor Improvement Plan. Meanwhile, the passage of Senate Bill (SB) 1 on April 28, 2017 created the Solutions for Congested Corridors Program (SCCP) that changed the funding parameters for corridor projects. The SCCP requires project sponsors to have completed a Comprehensive Multimodal Corridor Plan (CMCP) to be eligible for funding under the program. Funding will be prioritized to projects that make specific performance improvements and are part of a multimodal comprehensive corridor plan designed to reduce congestion in highly traveled corridors by providing more transportation choices while preserving the character of the local community. Therefore, NVTA must update the SR 29 Gateway Corridor Improvement Plan to comply with the guidelines of the Comprehensive Multimodal Corridor Plan (CMCP) funding requirements outlined in SB 1 and detailed specifically in the California Transportation Commission's new Comprehensive Multimodal Corridor Plan Guidelines adopted December 2018.

The first objective of this task order is the State Route 29 Comprehensive Multimodal Corridor Plan. When the firm completes this plan, NVTA will use the plan as the basis to apply in the next SCCP funding cycle tentatively scheduled for spring 2020. The plan will be completed approximately 12 months from award date and the funding applications will be due in the spring of 2020. The plan will update the 2014 plan by:

1. Analyzing intersection improvements in greater detail
2. Evaluating the impacts of parallel local road improvements for all modes
3. Evaluating technologies and traveler information
4. Modeling improvements through a micro-simulation model in accordance with Caltrans Corridor Planning Guidance and the principles of the federal Congestion Management Process

-
5. Provide Air Quality and Greenhouse Gas emissions reductions analysis
 6. Provide Economic Impact Analysis

The project limits for this study are Devlin Road to the west, Newell Drive and North/South Kelly Roads to the east, the intersection of SR 29/121 (Imola Avenue intersection) to the north, and SR 37/29 interchange to the south.

The second objective of this task order is the completion of a Project Initiation Document (PID) for State Route 29 through American Canyon between Napa Junction Road and American Canyon Road. The PID preparation will adhere to Caltrans' latest Project Development Procedures Manual and outline the scope, cost and schedule for this project. Once a PID document is completed and executed by Caltrans, NVTa can seek Regional Measure 3 and other funding sources for these improvements.

Staff will provide the TAC with periodic updates on the plan throughout the process as well as hold a number of public meetings to seek input from stakeholders and members of the public.

SUPPORTING DOCUMENTS

Attachment(s): Attachment 1: Task Order

DRAFT

ATTACHMENT 1
TAC Agenda Item 7.1
May 2, 2019

**PROJECT WORK ORDER NO. E-11
ON-CALL A/E & PROJECT DELIVERY SERVICES**

PROJECT NAME: State Route 29 Comprehensive Multimodal Corridor Plan and
Project Initiation Document for State Route 29 through American Canyon

PROJECT MANAGER: Rebecca Schenck, Senior Transportation Program Planner and Policy Analyst
rschenck@nvta.ca.gov or T 707.259.8636

CONSULTANT DESIGNATED TEAM MEMBERS:

- GHD COMPANY, Staff – see Exhibit A, pages 75 - 88
- Subconsultants: Elite Transportation Group (ETG) - see Exhibit A, pages 89 - 90
Regional Government Services (RGS) - see Exhibit A, page 91

SCOPE OF SERVICE: See Scope of Services/Proposal for Services dated March 4, 2019, with revision dated April 1, 2019, under EXHIBIT A. Fee Schedule (*revised April 1, 2019*) attached as EXHIBIT B.

START DATE: APRIL 17, 2019 **COMPLETION DATE:** JUNE 30, 2021

NOT-TO-EXCEED AMOUNT FOR THIS PROJECT: \$619,821

CHARGE NUMBER FOR PAYMENT: CMA/TDA 8301001 52310 CMA_PLAN_PRGMS SR29_AMCAN

TERMS AND CONDITIONS: This Project Work Order is issued and entered into as of the last date written below in accordance with the terms and conditions set forth in the Master Agreement with CONTRACTOR dated MARCH 21, 2018, which terms are hereby incorporated and made part of this Project Work Order.

NVTA

By: _____
KATE MILLER, Executive Director

Date: _____

Contractor

By: _____
KAMESH VEDULA, PE, TE
Principal in Charge

Date: _____

Approved as to Form	
By:	_____
	NVTA General Counsel
Date:	_____

TAX ID: 98-0425935

EXHIBIT A



April 1, 2019

Rebecca Schenck
Transportation Program Planner and Policy Analyst
Napa Valley Transportation Authority
625 Burnell Street
Napa, CA 94559

Original Sent Via Email

Re: State Route (SR) 29 Comprehensive Multimodal Corridor Plan and PID for SR 29 through American Canyon Scope & Fee Negotiations

Dear Rebecca:

We are excited to have been selected as the top ranked firm to provide the Planning and Project Initiation Document (PID) Services for SR 29 through American Canyon. As requested, we have reviewed our scope and fee and have made adjustments to reduce our overall fee. The following is a summary of the reductions made and attached are our revised scope and fee for both Objectives 1 and 2.

[Summary of Scope and Fee Modifications](#)

Objective 1: Corridor Plan

Based on input received from NVTA, the following scope reductions were made which reduced the overall cost of Objective 1 from \$350,000 to \$280,022. The reductions for Objective 1 were split amongst the GHD team as such: 1) GHD reduction of \$46,818; 2) ETG reduction of \$16,580; and, 3) RGS reduction of \$6,490. The following are specific reductions in scope that were made.

Task 2 Ongoing Stakeholder and Community Outreach and Project

Scope modifications were made primarily to Task 2. For Task 2.3 Committee meetings – GHD's time was reduced to physically attend 3 meetings and teleconference the other 3 meetings. For Task 2.4 Public meeting, GHD will participate in 2 public meetings. RGS will continue to provide support for this task. GHD's time was also slightly reduced for Task 2.2 Stakeholder/Jurisdictional Meetings based on the same premise. The following hours were reduced based on these scope revisions:

- GHD: Decrease hours from 260 to 140.
- RGS: Decreased hours from 316 to 278
- ETG: N/A

Task 3 Develop Plan Components

Based on our subsequent review of the models and analysis tools developed as part of the Broadway District Specific Plan and Watson Ranch EIR, GHD believes that additional efficiencies can be realized if



these tools are made available for this study. Based on this assumption, the following hours were reduced without compromising our submitted scope:

- GHD: Decrease hours from 992 to 854
- ETG: Decrease hours from 302 to 222
- RGS: N/A

GHD's direct expenses were also lowered from \$8,450 to \$6,955 commensurate with the scope modifications described above.

Objective 2: PID

The following scope reductions were made, which reduced the overall cost of Objective 2 from \$408,555 to \$339,798.

During the proposal process, we assumed the most conservative route, which assumed Objective 2 work would not begin until Objective 1 was completed. However, as discussed in the interview, it is our understanding this is not the intent and Objective 2 would begin when the planning efforts of Objective 1 have made enough progress to be able to identify potential alternatives. Therefore, Mr. Jim Damkowitz's time has been reduced for Objective 2 as both of the objectives will be completed concurrently and extra time is not anticipated to be needed.

The following are specific reductions in scope that were made:

Task 1: Project Management, Coordination and Quality Control

The scope of subtask 1.4, Project Presentations was revised to have GHD attend only one (1) meeting and the other two are to be completed by NVT/American Canyon staff with GHD materials.

Task 2: Preliminary Research/Data Collection and Base Mapping

Given the amount of information available for the existing environmental constraints, time was reduced in this task.

Task 4: Traffic Study: Intersection Control Evaluation (ICE) Step 1

The scope and fee were reduced based on the assumptions that NVT/A will provide GHD with a model and that no additional modeling work for forecasting efforts will be needed by GHD.

Task 5: Project Study Report/Project Development Support (PSR-PDS)

GHD reviewed the hours in the various subtasks made various reductions where feasible to reduce the costs.

Task 6: Project Study Report/Project Development Support (PSR-PDS)

The third review was eliminated from this task and it is assumed that only two reviews will be needed before the final PSR-PDS is submitted to Caltrans for signatures. GHD also reviewed the hours in the remaining tasks and made various reductions where feasible to reduce the costs.



It should be noted it is assumed that three (3) build alternatives will be analyzed as part of this process. There could be further cost savings if the number of alternatives analyzed are reduced.

We appreciate the opportunity to negotiate our scope and fee with you and look forward to delivering both the corridor plan and the completed PID Document for this exciting project.

Sincerely,

GHD

A handwritten signature in blue ink, appearing to read "K Vedula", written over a light blue rectangular background.

Kamesh Vedula, PE, TE
Principal In Charge

A handwritten signature in blue ink, appearing to read "Jim Damkowitz", written over a light blue rectangular background.

Jim Damkowitz
Objective 1 Project Manager

A handwritten signature in blue ink, appearing to read "Lindsey Van Parys", written over a light blue rectangular background.

Lindsey Van Parys, PE, QSD/P
Objective 1 Project Manager

Enclosures:

- Objective 1 Revised Scope (see separate WORD doc)
- Objective 1 Revised Fee (attached)
- Objective 2 Revised Scope (see separate WORD doc)
- Objective 2 Revised Fee (attached)

LVP/P8353LTR001

The GHD **team's** (Consultant) detailed scope of work is provided below.

Task 1 - Project Startup

1.1 - Project Management and Coordination

Consultant will perform project setup tasks for accounting and coordinate budget and scheduling factors.

Consultant will prepare monthly invoices and progress reports to Napa Valley Transportation Authority (NVTA). Consultant will provide an invoice format that is to acceptable to NVTA two weeks prior to the first invoice submittal.

Deliverables:

- Project Setup
- Submittal of up to 10 invoices and progress reports

1.2 - Project Kick-off Meeting

Key members of the Consultant team will attend the kickoff meeting (Location TBD by NVTA). The Consultant will coordinate with NVTA to develop an agenda for the meeting and provide a summary of Action Items of the meeting.

Deliverables:

- Kickoff meeting agenda
- Attendance at kickoff meeting by up to five Consultant team staff. No overnight stays or out of state travel are assumed
- Kickoff meeting short-term actions

1.3 - Bi-weekly Conference Calls

The Consultant and various Consultant team members will participate in up to 18 bi-weekly coordination calls with the SR 29 Staff Working Group (SWG) throughout the duration of the project (assumed March 2019 to December 31, 2019). Meetings are anticipated to last less than or equal to 1 hour. The Consultant will set up and lead/facilitate the meetings. The Consultant shall develop and maintain a Short-Term Action list to track: Action Items; Anticipated Delivery Date; Actual Delivery Date; Responsible Agency; and, Comments throughout the duration of the study. The Short-Term Action list will serve as both the agenda (in advance of the calls), and

minutes (prior week's check-in outcome). Only members of the Consultant team with relevant discussion items will participate.

Deliverables: Up to 18 bi-weekly conference calls and to 18 Short-Term Action lists.

1.4 - Data Retrieval/Processing/Review

The Consultant will retrieve the most recent available transportation data items of relevance to the SR 29 Comprehensive Multimodal Corridor Plan (CMCP). This includes available highway and roadway segment counts, intersection turn movement counts; pedestrian/bicycle counts, transit ridership data from appropriate local/regional/state agency sources and the five most recent years of SWITRS/TIMS collision data. The Consultant will provide an inventory listing of data retrieved for application in Task 3 for review by the SWG.

The following **"Big" data** sources will also be utilized.

Streetlite Data

The following data items will be retrieved using Streetlite cell and GPS data:

- 2018-19 observed OD patterns by mode (vehicle and ped/bike), period of the day, and day of the week, including weekends
- Speed data on non-NHS designated local parallel capacity roadways
- Estimated traffic volumes on relevant study corridor roadway segments by hour of the day, day of the week and season

Base year Streetlite network assignment (big-data OD pairs by trip purpose) will be performed for the study corridor. These OD based volume estimates will be compared to model volumes and traffic counts to gauge baseline travel demand model performance.

PeMS Data

The Consultant will retrieve available PeMS data for SR 29 from the PeMS website. Given the desire to reflect annual average conditions, spring months are preferred followed by fall months. Hourly PeMS traffic volume and speed data will be retrieved for both general purpose and managed lanes as applicable.

National Performance Monitoring Research Data Set

The primary objective for using NPMRDS data is to establish the requisite baseline speed profiles and baseline and future volume sets for validating and informing the freeway and arterial operational analysis tools.

The Consultant will retrieve the most recent 12 months of NPMRDS speed data for both passenger vehicles and heavy trucks on all study corridor roadways on the National Highway System (NHS) through the FHWA NPMRDS data website.

Consultant will coordinate with NVTa to confirm appropriate NPMRDS speed data timelines, data protocols and, data processing conventions to standardize the process of computing the performance metrics. Based on this input, Consultant will immediately structure and process the passenger car and truck speed data performance data for the following purposes:

- Passenger Vehicle and Truck Travel Time Reliability metrics
- Passenger Vehicle and Truck Congestion metrics
- Operational tool baseline and validation

Given the desire to reflect annual average conditions, spring months are preferred followed by fall months. NPMRDS speed data will be retrieved.

The Consultant team will determine the accuracy, representativeness, and utility of the retrieved data sets and **establish “Truth in Data” checks in all its data processing functions under this task.**

Solano Napa Activity Based Model (SNABM) Review

The Consultant will conduct a detailed review of the 2015/2040 SNABM within the SR 29 corridor study area. The model highway network and land use data assumptions in Napa County will be checked using existing references, such as, community circulation plans, , Vision **2040 (NVTa’s Countywide Transportation Plan)**, plus any other references by the SWG. Both the highway traffic and transit ridership along the SR 29 corridor will be validated to the existing conditions.

The Consultant will compare model volumes to counts identified in the City of American Canyon, City of Napa and County of Napa circulation studies and other recent studies in the project area and propose adjustments where appropriate for review and acceptance by the SWG. Conflicts will be identified and documented. Existing conditions and projected future year conditions (2040) for weekday peak hour traffic and weekend visitor peak hour multimodal demand will be summarized. Where weekend peak volumes are not available, the Consultant team will develop a methodology to factor from weekday data based on published peak hour data by Caltrans, Streetlight and NPMRDS data.

The model will be reviewed and accepted by the SWG. The validated 2015 and 2040 SNABM will be used to develop the travel demand growth projections for the SR 29 corridor.

Deliverables:

- Inventory listing of traffic count, ridership count and collision data inventory
- Streetlight Origin-Destination patterns by mode (vehicle and ped/bike), period of the day, and day of the week, including weekends
- Most recent 12 months of continuous NPMRDS speed data for corridor study roadways designated as part of the NHS
- Base year Streetlight network assignment for non-NHS roadways on interest
- Travel Demand Forecast Model Validation and Forecast Technical Memorandum

Task 2 - Ongoing Stakeholder and Community Outreach and Project Oversight

2.1 - Prepare a Draft and Final Public Outreach Plan

Consultant will develop a comprehensive Public Outreach Plan that allows for effective outreach with all planning partners and community stakeholders in developing the CMCP. This will include a broad range of stakeholders including those in the private, public, and non-profit sectors, the business community, environmental interest groups, public health advocates, technology and broadband stakeholders, as well as environmental justice and social-equity organizations.

The Outreach Plan will ensure the agency is meeting all Title VI and Environmental Justice requirements and engage communities impacted by the corridor, including strategies to engage disadvantaged communities.

Consultant will submit a draft CMCP Public Outreach Plan and, based on one set of consolidated comments from the SWG, submit the final Public Outreach Plan.

2.2 - Stakeholder/Jurisdictional Meetings

Consultant will coordinate with NVTa, County of Napa, Cities of Napa and American Canyon, and Caltrans D-4 to develop and finalize a complete listing of stakeholders.

The Consultant to participate in up to four (4) stakeholder meetings. The Consultant will coordinate with the SWG to develop an agenda for these meetings and provide a summary of key discussion and action items of the meeting.

2.3 - Committee Meetings

The Consultant will provide updates and/or materials for staff updates to **NVTa's** Citizen Advisory Committee (CAC) and Technical Advisory Committee (TAC) approximately four (4) times during the course of the project. These committees will review project progress and submit comments to the Staff Working Group (SWG) and the NVTa Board.

2.4 - Public Meetings

2.4.1 Consultant shall promote, advertise, and conduct up to two (2) public charrettes at different locations/times through a multi-media campaign (including, but not limited to, use of newspaper and radio broadcast) through the Citizen Advisory Committee and other stakeholders to gain public involvement and refine plan concepts. One (1) of the public charrettes will be held in the beginning of the process to gain initial input and feedback and one (1) charrette should be held later in the process to review the draft Corridor Plan and recommended improvement concepts.

Consultant will use a combination of group exercises, live polling, small breakout sessions, individual stations for discussion on specific topics, and/or visual preference activities. Meetings will be participant-driven and

engaging.

During live polling, the consultant will utilize small easy-to-use handheld keypads enabling audience members to immediately and anonymously respond to multiple-choice questions posed on-screen during staff presentations. Since social pressure is removed when audience responses are anonymous, we will have a more accurate idea of what issues are truly important.

2.4.2 Prepare presentation materiel for City Council and County Board of Supervisor meetings. Most presentations will be conducted by NVTa staff and/or City/County staff.

2.4.3 Prepare presentation materials and present at two (2) Napa Valley Transportation Authority Board (NVTa Board) meetings which will act as the steering committee for the CMCP.

2.4.4 Consultant shall meet with SWG approximately six (6) times over the course of the study (made up of NVTa staff, Caltrans staff, and members from the City of American Canyon, City of Napa, and County of Napa). Consultant will physically attend three (3) of these meetings and participate in the other three (3) by teleconference. Prior to publication of milestone documents, draft documents and supporting data will be reviewed by the SWG. This group is expected to meet approximately six (6) times at key points in the process: to review and accept the Vision, to review the existing corridor **study's** results; potential improvement programs, review the draft Corridor Implementation Plan. Day-to-day work on project documents and meetings will be carried out by the Consultant, with direct staff support from NVTa.

2.5 - Collateral Outreach Materials

2.5.1 Project Logo/Branding

Consultant will coordinate with the SWG to develop a brand for the study that will be used for all project related materials and deliverables. Project branding will give the CMCP process a unique identity and visual queue to the public. The SWG will be given several options to choose from and will have final approval of the overall theme.

2.5.2 Development of Interactive Web-based Tool

Consultant will develop an interactive web-based tool using on-line interactive map technology, Social Pinpoint. All content of the interactive web-based tool will be in English and Spanish.

The Social Pinpoint platform encourages engagement by allowing the community to provide feedback that can be directly linked to a geographical location, complete online surveys, and integrate the platform with their own social media platforms to create digital content that encourages them to share and post on the topic. Importantly, Social Pinpoint provides tools to categorize, collate, and analyze feedback and data in a meaningful way to allow for reliable and efficient data management. It also allows for the combining of geographic and other spatial information such as contour lines, natural hazard risk areas, and project areas.

The interactive web-based tool will allow the public to provide geo-referenced input on where issues or improvement needs are. This supplemental input will help inform study recommendations. After being live for 10 weeks, the logged input will be downloaded and summarized. This summary report will be shared with the SWG.

Consultant will develop and disseminate news releases on a regular basis promoting upcoming opportunities for engagement, workshops, and key milestones in the process. A key component of this effort will be coordination with public information officials at all member agencies as well as Caltrans and others.

Consultant will promote meetings, issues, and opportunities for engagement via a variety of social media channels including Facebook, Twitter, and NextDoor.

Consultant will encourage people to share photos and video locations relevant to the CMCP. These can be posted on the project website and shared via social media.

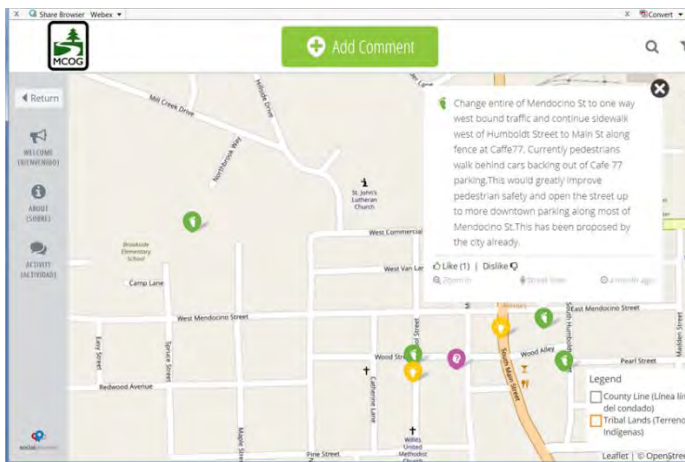
2.6 - Public Outreach Summary Report

Consultant will develop a comprehensive Public Outreach Summary Report that documents all outreach activities performed as part of the CMCP and summarizes the results of each outreach strategy/activity. The report will distinguish and document outreach activities that specifically targeted disadvantaged communities. The degree of disadvantaged community participation will also be documented.

The Public Outreach Summary Report will be included as part of the draft and final CMCP document review process described in Task 4.

Deliverables:

- Participate in four (4) Stakeholder Meetings
- Participate in four (4) CAC/TAC Committee Meetings
- Perform two (2) Public Charrettes.
- Assist NVTa and City/County of Napa staff with presentation materials on the CMCP
- Conduct up to six (6) meeting with the SWG
- Develop Project Logo
- Interactive bilingual web-based tool
- Public input Summaries
- Maintenance of Stakeholder Database
- Maintenance and presence on social media
- Collateral Materials (PPT, Fact Sheet, etc.)
- Draft and Final CMCP Public Outreach Summary Report



Once the CMCP improvement package is established, public outreach will be repurposed to informing the public of the proposed corridor improvement package and gauging the level of public support for it. All input received will be documented for inclusion in the CMCP final report.

2.5.3 Media

Task 3 - Develop Plan Components

3.1 - Evaluate Opportunities, Develop Corridor Plan Framework, and Literature Review

Consistent with the 2018 Comprehensive Multimodal Corridor Plan Guidelines (CTC, December 2018), the planning and analysis framework proposed for the CMCP will be based on the Smart Mobility Framework (SMF). The performance metrics selected for the CMCP will inform each of the six SMF objectives to ensure that the resulting improvement recommendations provide a balanced, sustainable, and multimodal assessment of current and forecast corridor conditions.

One of the six SMF objectives is Reliable Mobility. This SMF objective addresses congestion management as it relates to multimodal service quality, multimodal travel reliability, and multimodal travel mobility. A matrix framework will be established consistent with the Federal Congestion Management Process to serve as an evaluation tool for proposed CMCP roadway capacity and operational improvements including ITS improvements.

Each project will be evaluated relative to NVTAs CMP goals as well as RTP goals.

Based on these frameworks, the consultant team will **coordinate with the Project Management Team to “refresh”** the Purpose and Need Statement for the SR 29 corridor – expanding its breadth to include alternative modes and parallel facilities that serve both regional and local area traffic within the corridor.

The Consultant will prepare a literature review of like corridors that have similar characteristics and serve similar demand profiles as SR 29. This will include but not be limited to corridors that have been extensively studied by GHD including SR 68 (Monterey County), SR 227 (San Luis Obispo County, and SR 49 (Nevada and El Dorado Counties).

3.2 - Summarize Corridor Existing Studies and Plans

The Consultant will prepare a listing and brief summary of all planning documents of relevance to the SR 29 corridor. The Plan documents will include but will not be limited to the SR 29 Gateway Corridor Improvement Plan, the City of American Canyon Broadway Specific Plan, the Watson Ranch EIR, County of Napa and American Can-

yon Circulation Elements, the County of Napa Airport Industrial Specific Plan, City of Napa General and Specific Plans, NVTAs Countywide Transportation Plan Vision 2040, NVTAs Pedestrian and Bicycle Plans, NVTAs Express Bus Study and travel demand model development documents. The Consultant will prepare a matrix that reflects all policies germane to the SR 29 corridor from these prior planning efforts. This matrix will facilitate a qualitative determination of the degree of policy consistency of each of candidate improvements considered as part of the CMCP.

3.3 - Model Future Traffic Projections

3.3.1 Solano Napa Activity Based Model Review

The Consultant team will conduct a detailed review of the 2015 baseline and 2040 out-year forecast volume sets from Solano Napa Activity Based Model (SNABM) within the SR 29 corridor study area. The model highway network and land use data assumptions in Napa County will be checked using existing references, such as, **community circulation plans, Vision 2040 (NVTAs Countywide Transportation Plan)**, plus any other references by the SWG. Travel demand models and forecasts developed as part of the Broadway District Specific Plan and Watson Ranch EIR will also be provided and reviewed for repurposing as part of this study.

Both the highway traffic and transit ridership along the SR 29 corridor will be validated to the existing conditions. The Consultant team will compare model volumes to counts identified in the City of American Canyon, City of Napa and County of Napa circulation studies and other recent studies in the project area. Consultant will propose adjustments where appropriate for review and acceptance by the SWG. The validation check process will follow the latest industry standards, such as Model Validation and Reasonableness Check Manual, 2nd Edition (FHWA, September 2010). If there are conflicts with established State/Federal criteria, the Consultant team will identify and document them for review by the SWG.

Once “cleared” for application, all traffic demand forecasts will be prepared in accordance with the methodologies described in the NCHRP Report 765 - Analytical Travel Forecasting Approaches for Project-Level Plan-

ning and Design, NCHRP 716 - Travel Demand Forecasting Parameters and Techniques and California Transportation Commission (CTC) - California Regional Transportation Plan Guidelines.

The Consultant team will develop a report, which summarizes existing conditions and projected future year conditions (2040) for weekday peak hour traffic and weekend visitor peak hour multimodal demand within the SR 29 corridor. Where weekend peak volumes are not available, the project team will develop a methodology to factor from weekday data.

3.3.2 Baseline and Future Baseline Volume Sets

Based on the review of model performance, Consultant will consider the need to apply Dynamic Traffic Assignment (DTA) covering the study corridor, to produce realistic hourly volume sets that models queue spillbacks and peak spreading explicitly. If DTA is considered essential for developing accurate baseline and future volumes sets – Consultant will coordinate this option with the SWG. The coverage of the DTA model will be larger than the study corridor to capture the impacts of inbound queue spillbacks beyond the study corridor gateways.

Based on this process, a 2015 baseline and 2040 future volume sets will be finalized. These volumes sets will serve as inputs to the corridor-wide VISSIM micro-simulation model.

3.3.3 VISSIM Micro-simulation Model

The VISSIM models developed as part of the 2014 SR 29 Gateway Corridor Improvement Program and the Broadway District Specific Plan and Watson Ranch EIR will be the primary analysis tools for the CMCP. Consultant will review these models and make all requisite network modifications to accurately reflect SR 29 and applicable parallel facilities. Consultant will code the VISSIM network for the corridor segments using Google Earth aerial maps and street views for all the required geometric attributes.

The VISSIM micro-simulation model capacity assumptions by facility type (including reasonable ranges) will be established prior to the validation process. These will be shared with the SWG for review and comment.

The source of speed data needed for calibration will be PeMS and NPMRDS as processed in Task 1. Based on the PeMS and NPMRDS speed data, Consultant will adjust the default free-flow speed to reflect the local conditions along this corridor. If needed and justified, adjustments to the default capacity will also be performed but only within the specified ranges established with the SWG. Validating the VISSIM model will follow the procedures outlined in Guidelines for Applying Traffic Microsimulation Software (FHWA, 2004). Consultant will prepare a VISSIM validation memorandum describing the steps taken to calibrate/validate the VISSIM model. Once the VISSIM model is validated, the future year 2040 volume set will be input and the model executed to generate 2040 future baseline conditions.

3.4 - Program and Project Identification

In coordination with the SWG, Consultant will identify potential programs and projects to improve the corridor while considering California Streets and Highways Code – Sections 2390-2397 and focusing on the Solutions for Congested Corridors Program (SCCP) strategies to:

1. Reduce traffic congestion and address local access focusing primarily on operational improvements rather than capacity or facility expansion
2. Improve corridor safety, accessibility and crossings for all travel modes
3. Improve corridor circulation by evaluating pending connections/extension improvements of parallel roadways, improvements to existing main-line corridors, intersection improvements, or other congestion management strategies
4. Improve transit access and transit flow
5. Build upon aesthetic improvements identified in the SR 29 Gateway Corridor Plan to improve the appearance and cohesiveness of the corridor while ensuring that each jurisdiction remains visually distinct
6. Upgrade technologies that will improve corridor operations and provide travel information
7. Evaluate economic development, job creation and retention of the proposed projects/programs
8. Reduce greenhouse gas emissions and air pollution impacts with proposed projects/programs, and stimulate efficient land use.

3.4.1 Program and Project Identification

The key analysis tools proposed by the GHD team for the CMCP are presented in Table 1. The purpose for application, output or measure/s of effectiveness (MOE) and whether the MOE is amenable for monetization as a societal cost (i.e., benefit) is identified for each analysis tool. Application of these tools is described below.

SNABM Travel Demand Modeling

Unique volume sets that reflect the traffic diversion and AM/PM peak hour circulation characteristics will be developed to quantify the diversion of traffic onto parallel routes created by candidate roadway capacity improvements (i.e., roadway extensions, and improvements to existing parallel routes) and other operational improvements. These future year volume sets will serve as inputs to the VISSIM micro-simulation model.

VISSIM Roadway Operations Performance Summary

The following performance measures will be generated from VISSIM micro-simulation for existing, future baseline, and future with project.

- Person throughput
- Person Hours Of Delay (PHD)
- Travel Time Reliability – Travel Time Index/Buffer Time Index
- Vehicle Hours Of Delay (VHD)
- Vehicle Miles Travelled (VMT)

VISSIM, similar to other planning-level analysis tools, does not model trucks separately. However, NPMRDS data provides truck speeds. Consultant will use the NPMRDS (processed in Task 1) to calculate existing truck delay and build correlation between existing truck delay and regular vehicle delay. Using the same correlation, Consultant will estimate truck delay under baseline and future year conditions (with and without project).

Travel Time Reliability Analysis Results Performance Summary (passenger vehicles and trucks)

Consultant will use NPMRDS speed data for all roadways designated as part of the National Highway System (NHS) for baseline travel time reliability and congestion analysis. The retrieval and processing of this data is described under Task 1. Consultant will compute the following performance metrics for passenger vehicles in the study corridor:

- Buffer time
- Buffer Time Index
- Congestion and Operational Efficiency (Congestion Metric and LOTTR – passenger vehicles)
- Percent of Corridor Congested
- Percent of Corridor Reliable

Federal definitions from the National Performance Management Measures Rule will be used to define congestion and reliability. Consultant will apply both the **national rule's definition of reliability (based on the 80th percentile speed)** and the **Highway Capacity Manual's** definition of reliability (based on the 95th percentile speed).

Given that free flow speed is a key variable for calculating both Congestion Level and Level of Travel Time Reliability (LOTTR) free flow speed will be empirically estimated for each roadway segment using NPMRDS data between the hours of midnight and 3 AM. In instances where average free flow speed is lower than average peak hour speed – free flow speed will be set at peak hour speed. These and other conventions will be discussed with the SGW to determine the appropriate data protocols for analysis. Maps displaying AM/PM peak hour Congestion and LOTTR results for Passenger Vehicles will be developed.

To estimate the change in reliability (buffer time only) as a result of the CMCP improvement concepts, the Consultant will holistically project the change of travel time reliability (i.e., buffer time) for each CMCP alternative under future year conditions. This will be done by applying the relative change in the Travel Time Index (TTI) between baseline and future to adjust the empirically based NPMRDS baseline estimate of buffer time. This assumes that the effect of construction, weather, and incidents that is reflected in the most recent 12-months of NPMRDS data is reasonably reflective of like events in the future.

Buffer time will be the key Measure of Effectiveness from this analysis (versus Buffer Time Index) given that it can be monetized based on the Caltrans 2016 Eco-

nomic Parameters using the same societal cost as delay. These estimates will be annualized and expanded to reflect the 2040 design life horizon.

Interconnected Streets and Integrated Corridor Management

Consultant will provide an ITS benefit assessment. This could include validating the operational impacts of implementing Integrated Corridor Management (ICM) throughout the study corridor through active freeway management, active Transportation Demand Management strategies, active transit management, active arterial management, and traveler information systems in the corridor.

Vehicle Collision Reduction Analysis Performance Summary

Based on the data processed in Task 1 and contributing factors from the SWITRS/TIMS baseline collision assessment, the GHD team will apply Part C of the Highway Safety Manual (HSM) to estimate the safety performance for the CMCP improvements. Consultant will apply Crash Modification Factors (CMF) as appropriate. The estimated reduction in collisions will be distributed by severity (PDO, Serious Injury, Fatality) based on historical data. This analysis will inform following performance metrics:

- Number of vehicle collisions
- Rate of vehicle collisions per number of vehicle trips
- Consideration of policies that support public safety and security such as lighting and other crime prevention and safety measures

Pedestrian/Bicycle Collision Analysis Performance Summary

Based on the data processed in Task 1, Consultant will isolate all pedestrian/bicycle related collisions and associated reductions. Estimated reduction in collisions will be distributed by severity (PDO, Serious Injury, Fatality) based on historical data. This analysis will inform following performance metrics:

- Number of bicycle and pedestrian collisions
- Rate of bicycle and pedestrian collisions per number of bicycle and pedestrian trips

- Consideration of policies that support public safety and security such as lighting and other crime prevention and safety measures

Consultant will summarize both the vehicular and specific pedestrian/bicycle related collisions for input into either Cal-B/C, the HSIP Analyzer or like off-model excel Highway Safety Manual (HSM) compatible worksheets to compute monetized benefits. The basis for any of these options shall be the Caltrans 2016 Economic Parameters. Once monetized, this estimate will be expanded to reflect the design life horizon year.

For the Federal Performance Monitoring Rule PM(1) metrics that reflect rates, Consultant will compute segment specific VMT (AADT x segment length in miles). For freeway and local roadways, segment lengths will be computed within GIS or by post mile. The source of baseline and future daily traffic volumes with and without the CMCP improvements will be from SNABM output. The PM (1) metrics will be computed at the corridor scale of analysis and Targets checked to determine consistency with State/MPO safety targets.

Active Transportation LTS Connectivity Analysis

Consultant will examine the LTS connectivity assessment under future year conditions relative to each **corridor alternative's** active transportation improvement package. Consultant will use Census block scale of analysis to establish a geodatabase of demographic, income/poverty, language, and employment within the study corridor from the 2010 Census, American Community Survey (ACS), and Longitudinal Employment and Housing Data (LEHD) datasets. This data will be proportionately **"grown" to reflect future year conditions based** on the projected future growth resident in the SNABM land use database.

Based on roadway, bicycle, and pedestrian networks; transit network data; and Points of Interest (POI) data, Consultant will perform an LTS pedestrian and bicycle connectivity assessment of the CMCP active transportation improvements. The assessments will differentiate between advantaged and disadvantaged populations to assess the degree of connectivity of the low-stress network under future (2040) conditions for these demand markets.

Consultant will also examine the LTS accessibility characteristics to specific destination types (POI) across each CMCP improvements. POIs could include, but not limited to, schools, transit stops/hubs (including rail stations), hospitals, and commercial centers.

Active Transportation Mode Share Shift Analysis

Consultant will apply the NCHRP 552 Guidelines for Analysis of Bicycle Infrastructure Investments method to estimate mode share shifts, vehicle trip and VMT reductions of the active transportation improvements identified in each of the CMCP active transportation improvements. The analysis will be applied to three distance buffers (1/4, 1/2, and 1 mile) as proscribed in NCHRP 552.

This analysis will yield the following outputs for each of the CMCP pedestrian/bicycle improvement:

- Number of new bicycle riders (mode shift) for commuting and non-commuter trips
- Low, moderate, and high estimates of vehicle trip and associated VMT reductions
- Excel workbooks and GIS distance buffer maps.
- Monetized health benefit results

Transit Accessibility Analysis Performance

As described in the accessibility assessment, Consultant will apply the LTS analysis to determine the walking and biking connectivity to existing/future transit facilities; accessibility to transit facilities by all modes; and, other multimodal hub points of interest.

Bus transit mode shifts from autos will be based on mode split output from SNABM and GIS-based tools to assess the following:

- Transit station accessibility
- Bus transit mode shifts from autos on SR 29 and adjacent arterial system roadways

Air Quality and Climate Change Greenhouse Gas Emissions

Consultant will quantify the change in health-based criteria pollutants as well as climate change greenhouse gases (CO₂ and CO₂ equivalents). Based on the on-

road vehicle activity changes quantified, Consultant will use the SB-1 Emissions Calculator tool developed by the California Transportation Commission to calculate the change in these emissions as a result of the CMCP improvements. The emissions analysis will be informed based on the VMT and VMT by speed class distribution characteristics of each the CMCP improvements.

Climate Adaptation Summary

The Consultant will perform a qualitative assessment of climate preparedness and infrastructure asset protection/resilience and connectivity benefits of the CMCP improvements.

Consultant will evaluate the enhanced risk associated with not implementing the CMCP improvements for the **study corridor as well as the corridor's its overall use** and functionality on:

- Multimodal transportation infrastructure Assessment
- Network Connectivity Assessment
- Goods Movement Assessment
- Emergency Response Assessment

Consultant will use existing on-line mapping tools such as Caltrans Vulnerability Interactive Mapping Tool (District 1) and CalEnviroScreen 3.0 developed by the Office of Environmental Health Hazard Assessment, and other on-line tools to inform this assessment. Consultant will consider all applicable climate change events but will focus primarily on flood and wildfire events.

Benefit Burden Analysis Summary

Consultant will quantify the distribution of costs and benefits resulting from the implementation of the CMCP improvements on disadvantaged communities (low-income and minority individuals) within the study corridor. This **analysis will be based on NVTa's definitions of minority** and low income populations for Napa County.

Consultants will perform a select link and zone analysis for roadway improvements to identify the percent of motorists using the improved facilities who are from traffic analysis zones defined as disadvantaged.

As described under the Active Transportation Accessibility and Mode Shift Analysis, Consultant will perform LTS connectivity assessments to identify the degree of access to active transportation and transit improvements by disadvantaged communities versus non-disadvantaged communities.

Disproportionately high and adverse effects resulting from the implementation of the CMCP improvements on minority and low-income populations (i.e., EJ communities) will be examined. Additionally, the CMCP planning process itself will document the outreach opportunities provided to all segments of the population to give input into the CMCP.

Economic Development Assessment

The economic analysis of the mobility improvements along the study corridor will consist of two parts:

- Benefit-cost analysis comparing the user benefits of the improvement plan with the costs of implementation
- Economic impact analysis showing the regional impacts of the improvement plan in terms of gross regional product (GRP), jobs, and personal income

The benefit-cost analysis will be informed by deliverables previously described.

Consultant will conduct an economic impact analysis of the CMCP improvements. To inform this analysis of regional economic development, job retention strategies, and supporting activities, Consultant will review relevant economic development plans prepared by economic development and local planning agencies.

Consultant will conduct an economic impact analysis using IMPLAN economic multipliers (or other sources if desired). The analysis will consider the short-term construction benefits as well as the long-term transportation efficiencies generated by the project. Economic impacts will be reported in terms of Gross Regional Product, jobs, and personal income.

Consultant will combine this information with the truck performance information and the B/C analysis results of

the CMCP improvements and prepare a technical memorandum describing the assumptions and analyses used to develop the economic development and return on investment potential of the CMCP improvements.

Efficient Land Use

Consultant will analyze change in modal choice access relative to commercial and/or mixed-use POI based on the LTS pedestrian/bicycle connectivity analysis (See Active Transportation Connectivity LTS Analysis).

3.4.2 Benefit-Cost Analysis

Per the Smart Mobility Framework (SMF), Consultant will evaluate each CMCP corridor improvement across each performance metrics and establish a relationship with the following six SMF objectives:

1. Location Efficiency
2. Reliable Mobility
3. Health and Safety
4. Environmental Stewardship
5. Social Equity
6. Robust Economy

The Consultant will develop planning level cost estimates for each project or program, including costs to build facilities or acquire program materials, annual operation and maintenance costs.

The holistic metric will be Benefit-Cost (i.e., return on investment). The Benefit-Cost Assessment for the CMCP will include the following analyses:

- Monetized benefits for Benefit-Cost based on the 2016 Caltrans Parameters of Societal Costs. All MOEs amendable to benefit monetization will be incorporated into the Benefit-Cost assessment.
- Non-Monetized benefits for measures that are expressed as indices or rates that are not amendable to monetization. These include the National Performance Management Rule (PM1) metrics and accessibility indices/scores generated by the Level of Traffic Stress analyses.
- Non-Monetized benefits of other regional assessments that speak to state/federal transpor-

tation planning objectives. These include environmental justice; economic development; climate change vulnerability; and emerging technologies.

Benefits will be monetized based the societal cost information from Caltrans 2016 Economic Parameters. The latter information informs the Caltrans Cal-B/C analysis tool as well as other benefit-cost analysis tools including the HSIP Analyzer and the SB-1 Emissions Calculator. Monetized benefits will be combined with currently available planning level improvement cost opinions. Benefit-cost estimates will be computed for the CMCP improvements. All quantitative benefits will be annualized and projected to 2040 (reflects a 20-year design life).

Equal attention will be given to documenting the beneficial outcomes of measures not directly reflected in the Benefit-Cost assessment of the CMCP. These include: CMCP Consistency (with other existing plans and policies per products developed in Task 3); CMCP Policy Consistency (NVTa, Cities of Napa, American Canyon, County of Napa, and Caltrans); Environmental/Institutional Sensitivity (beyond air quality which will be reflected in the B-C); and, Community Acceptance (based on the community engagement process).

Based on the B-C results and plan/policy consistency assessments, projects will be selected for implementation and prioritized based on their ability to achieve a balanced set of transportation, environmental, and community access improvements and community input. This will form the basis of the preferred corridor concept.

The Consultant and SWG will develop, and the Stakeholders, TAC, and NVTa Board will review, a menu of proposed physical improvements and programs that can advance improvements in the corridor. The menu will include existing projects or programs that have not been fully implemented as well as near-term, mid-term and long-term projects.

The Consultant will develop a matrix to determine the ability of each existing or new project to advance the framework and to improve the corridor by advancing one or more of the SMF (6) objectives. The matrix will list short, mid and long-term projects, develop an optimized

order of delivery, and rate projects based on how well the project accomplishes the above stated goals.

3.5 - Corridor Improvement Implementation Plan

Consultant will develop a Corridor Improvement Implementation Plan, covering the following topics for recommended programs and projects:

- 1) Project Deliverability
- 2) Congestion Relief
- 3) Air Quality
- 4) Safety Improvements
- 5) Accessibility
- 6) Efficient Land Use

All these topics will be informed by the analysis and documentation developed as part of Task 3.4.

Consultant will also develop an assessment of funding options and strategies for implementation. This will entail identifying a list of potential funding sources that will match the recommended projects/programs to applicable funding sources. This will include an assessment of **NVTa's financially constrained** Regional Transportation Plan and what, if any, revenue capacity exists or can be reasonably assumed that could provide funding capacity for any of the proposed improvements of the preferred corridor concept.

The Consultant will identify opportunities for multi-jurisdictional programs or projects. This will include listing the affected jurisdictions and key agency stakeholders that should be consulted. Consultant will also identify implementation mechanisms, public/private partnerships, and additional project/program phasing strategies that should be considered together with the phased groupings of short-term (1-2 years) mid-term (3-5 years) and long-term (beyond 5 years) improvements.

Based on the information developed as part of Task 3.4, Consultant shall develop an Economic Impact Analysis of the proposed improvements. The economic impact analysis should include the following:

- 1) Use of construction cost estimates and projected gains in worker productivity and reduced delays/congestion and possible net tourism gains (such as transient occupancy tax revenue)

- 2) Impacts to goods movement and freight
- 3) Direct Impacts and estimated employment changes from budget dollars to be spent
- 4) Induced and indirect impacts on business revenues and employment
- 5) State and local tax gains

Consultant and SWG will prepare, and the Stakeholders, TAC, and NVTB Board will review, a draft implementation plan for corridor improvement projects and programs to address the study's varied objectives. The implementation plan will recommend steps for immediate, short-term (1 -2 years), mid-term (3-5 years) and long-term (beyond 5 years) implementation. The implementation plan will provide an estimated project delivery schedule for key improvements, evaluate project readiness, identify a funding strategy of existing and potential new funds available to initiate and operate the recommended programs and projects, and will recommend a governance option for the multijurisdictional projects or programs.

Deliverables:

- Model Forecast Technical Memorandum
- Baseline, Opening Day and Design Year Volume Sets
- VISSIM Model Baseline Validation Memorandum
- Electronic files of SNABM and VISSIM Modeling Runs
- VISSIM Micro-simulation Operations Model Calibration/Validation Memorandum
- Micro-simulation Results Roadway Performance Summary
- Travel Time Reliability Analysis Results Performance Summary
- Vehicle Collision Reduction Analysis Performance Summary
- Pedestrian/Bicycle Collision Analysis Performance Summary
- Active Transportation LTS Connectivity Analysis Summary
- Active Transportation Mode Share Shift Analysis Summary
- Transit Accessibility Analysis Performance Summary
- Emissions Analysis Performance Summary

- Benefit Burden Analysis Summary
- Freight Reliability Throughput Analysis Performance Summary
- Climate Adaptation Summary
- Planning Level Cost Estimates
- Benefit-Cost Assessment Summary
- List of Phased Improvements for Implementation
- Implementation
- Economic Analysis Memorandum
- Implementation Plan

Task 4 - Final Plan and Public Meeting

4.1 – Draft and Final Plan

Administrative Draft CMCP

Based on the data collected, public input received and technical analyses performed, Consultant will prepare an Administrative Draft of the CMCP for early internal review. Consultant will prepare the Draft CMCP based on one consolidated list of comments received on the Administrative Draft CMCP.

Draft CMCP

Consultant will develop the Draft CMCP for distribution to agencies, stakeholders and the public.

Final CMCP

Consultant will prepare the Final CMCP based on one consolidated list of comments received on the Draft CMCP.

4.2 – Public Meeting

Public Meeting

Consultant will prepare a PPT presentation and present the Final CMCP to the NVTB Board as a Noticed Public Meeting.

Deliverables:

- Administrative Draft, Draft and Final CMCP
- Preparation and Presentation of the Final Plan to the NVTB Board

Task Description	Project Team Budget and Hours Summary							
	GHD Total Hours	GHD Total Cost	ETG Total Hours	ETG Total Cost	RGS Total Hours	RGS Total Cost	Total Project Hours	Total Project Cost
Task 1 Project Startup								
1.1 Project Management and Coordination	20	\$ 4,557	-	\$ -	-	\$ -	20	\$ 4,557
1.2 Project Kick-Off Meeting	18	\$ 4,065	-	\$ -	8	\$ 1,200	26	\$ 5,265
1.3 Bi-Weekly Conference Calls	12	\$ 2,734	-	\$ -	8	\$ 1,200	20	\$ 3,934
1.4 Data Retrieval / Processing / Review	96	\$ 11,531	4	\$ 620	4	\$ 480	104	\$ 12,631
Task 2 Ongoing Stakeholder and Community Outreach and Project Oversight								
2.1 Prepare a Draft and Final Public Outreach Plan	4	\$ 911	-	\$ -	28	\$ 3,560	32	\$ 4,471
2.2 Stakeholder/Jurisdictional Meetings	24	\$ 5,115	-	\$ -	36	\$ 4,800	60	\$ 9,915
2.3 Committee Meetings	24	\$ 5,468	-	\$ -	8	\$ 1,200	32	\$ 6,668
2.4 Public Meetings	28	\$ 5,492	-	\$ -	86	\$ 11,600	114	\$ 17,092
2.5 Collateral Outreach Materials	52	\$ 6,325	-	\$ -	68	\$ 8,600	120	\$ 14,925
2.6 Public Outreach Summary Report	8	\$ 1,646	-	\$ -	52	\$ 6,280	60	\$ 7,926
Task 3 Develop Plan Components								
3.1 Evaluate Opportunities, Develop Corridor Plan Framework and Literature Review	36	\$ 5,410	2	\$ 420	-	\$ -	38	\$ 5,830
3.2 Summarize Corridor Existing Studies and Plans	44	\$ 5,769	4	\$ 840	-	\$ -	48	\$ 6,609
3.3 Model Future Traffic Projections	104	\$ 14,574	112	\$ 21,760	-	\$ -	216	\$ 36,334
3.4 Program and Project identification	528	\$ 62,627	104	\$ 17,440	-	\$ -	632	\$ 80,067
3.5 Corridor improvement Implementation Plan	142	\$ 22,724	-	\$ -	-	\$ -	142	\$ 22,724
Task 4 Final Plan and Public Meeting								
4.1 Prepare Administrative Draft, Draft, and Final Plan	129	\$ 25,147	16	\$ 2,480	-	\$ -	145	\$ 27,627
4.2 Present Final Plan to NVTB Board	16	\$ 3,292	-	\$ -	8	\$ 1,200	24	\$ 4,492
Total Hours	1,285		242		306		1,833	\$ -
Social Pinpoint Direct Cost		\$ 2,500		\$ -		\$ -	-	\$ 2,500
Outreach Materials Direct Cost (Project Cards, Project Logo, Materials)		\$ 1,500		\$ -		\$ 2,000	-	\$ 3,500
Travel/Lodging Direct Cost		\$ 1,000		\$ -		\$ -	-	\$ 1,000
Economic Advisory Role by Urban Economics		\$ 1,955		\$ -		\$ -	-	\$ 1,955
	1,285	\$ 194,342	242	\$ 43,560	306	\$ 42,120	1,833	\$ 280,022

Task Description		GHD																
		Kamesh Vedula	Jim Damkowitz	Lindsey Van Parys	Rich Krumholz	Ross Ainsworth	Jerry Champa	Todd Tregenza	Heather Anderson	Dan Kehrer	Kenneth Isenhower	Erin Gibbs	Rosanna Southern	Vick Namsaly	Zach Stinger	Other Direct Costs	GHD Total Hours	GHD Total Cost
		Principal in Charge	Project Manager	Project Manager	Technical Advisor QA/QC	Technical Advisor QA/QC	Technical Advisor QA/QC	Senior Transportation Planner	Senior Transportation Engineer	Transportation Engineer	Traffic Operations	Transportation Planner	Transportation Planner	Transportation Design	Transportation Analyst			
Task 1	Project Startup																	
	1.1 Project Management and Coordination		20														20	\$ 4,557
	1.2 Project Kick-Off Meeting	6	6					6									18	\$ 4,065
	1.3 Bi-Weekly Conference Calls		12														12	\$ 2,734
	1.4 Data Retrieval / Processing / Review		4					16					22	30	24		96	\$ 11,531
Task 2	Ongoing Stakeholder and Community Outreach and Project Oversight																	
	2.1 Prepare a Draft and Final Public Outreach Plan		4														4	\$ 911
	2.2 Stakeholder/Jurisdictional Meetings		16					8									24	\$ 5,115
	2.3 Committee Meetings		24														24	\$ 5,468
	2.4 Public Meetings		16					8						4			28	\$ 5,492
	2.5 Collateral Outreach Materials		8					4						40			52	\$ 6,325
	2.6 Public Outreach Summary Report		4					4									8	\$ 1,646
Task 3	Develop Plan Components																	
	3.1 Evaluate Opportunities, Develop Corridor Plan Framework and Literature Review		8					8					10		10		36	\$ 5,410
	3.2 Summarize Corridor Existing Studies and Plans		4					8					16		16		44	\$ 5,769
	3.3 Model Future Traffic Projections	4	16					4			80						104	\$ 14,574
	3.4 Program and Project identification	4	20				24	20			60	100	100	100	100		528	\$ 62,627
	3.5 Corridor improvement Implementation Plan	4	20		4	10		24					30	20	30		142	\$ 22,724
Task 4	Final Plan and Public Meeting																	
	4.1 Prepare Administrative Draft, Draft, and Final Plan		40		8	12		24					40		5		129	\$ 25,147
	4.2 Present Final Plan to NVTA Board		8					8									16	\$ 3,292
	Total Hours	18	230	0	12	22	24	142	0	0	140	100	218	194	185			
	Social Pinpoint Direct Cost															\$ 2,500		\$ 2,500
	Outreach Materials Direct Cost (Project Cards, Project Logo, Materials)															\$ 1,500		\$ 1,500
	Travel/Lodging Direct Cost															\$ 1,000		\$ 1,000
	Economic Advisory Role by Urban Economics															\$ 1,955		\$ 1,955
		\$ 4,788	\$ 52,401	\$ -	\$ 4,585	\$ 6,444	\$ 5,878	\$ 26,083	\$ -	\$ -	\$ 15,978	\$ 10,008	\$ 24,887	\$ 18,275	\$ 18,062	\$ 6,955	1,285	\$ 194,342



SCOPE OF WORK: OBJECTIVE 2

The following Scope of work is for Object 2 of Napa Valley Transportation Authority's (NVTa) State Route (SR) 29 Comprehensive Multimodal Corridor Plan and Project Initiation Document (PID) for SR 29 through American Canyon. GHD will begin this phase of work upon written notice to proceed from NVTa. It is assumed this task will partially overlap with the work being performed in Object 1: the update to the SR 29 Gateway Corridor Plan. It is recommended this scope and fee be revisited to ensure it meets the needs of the findings of Objective 1 prior to that start of work.

Task 1: Project Management, Coordination and Quality Control

GHD Inc. (GHD) will provide project management, coordination with and between the County and key project stakeholders.

1.1 Project Management & Quality Control

GHD will perform the following duties:

- Provide Project Quality Control/Quality Assurance
- Supervise, coordinate and monitor procedures for preparation of the PID, and other supporting studies consistent with and in conformance to the guidelines published in Caltrans "Project Development Procedures Manual" (PDPM)
- Coordinate and monitor deliverables, project submittals to and reviews by the Project Development Team (PDT)
- On-going correspondence and communication with NVTa's and Caltrans's project managers.
- General correspondence, monthly progress reports, invoicing, and project schedule updates.

1.2 Project Meetings & Agency Coordination

Initial Project Meeting (Pre-PID Meeting)

GHD will coordinate the Pre-PID meeting with NVTa, City, County, and Caltrans staff in accordance with the PDPM. Among the purposes of the meeting will be to ensure mutual understanding of the intended process, its objectives, milestones, and products, and to refine the work program and project schedule where necessary. This meeting will also identify necessary members of the PDT, including all necessary stakeholders.

PDT Meetings

Up to four (4) PDT meetings are assumed through completion of the PID. GHD will lead each of these meetings and will provide all PDT meeting coordination and oversight, including the preparation of meeting minutes summarizing actions taken, actions to be taken, responsible party, and resolution date.

Agency Coordination

In addition to the four formal PDT meetings, the scope assumes ten (10) Webex or conference calls with the NVTa, Caltrans, and stakeholders as appropriate to ensure timely delivering of the PID.



1.3 - Public Information Open House (1)

GHD will conduct one (1) public information open house. This open house will be held as the project approaches completion, prior to the preparation of the Draft PID.

The purpose of this meeting is to present the project's Purpose and Need and the alternatives being considered. It is assumed NVTA and City/County staff will conduct the presentations; however, GHD will assist in the preparation of meeting presentation material. GHD will prepare and produce handouts, a meeting notice project fact sheets, agendas, comment sheets, and other print materials. Up to two (2) GHD staff will also attend the meeting.

GHD will take the input received at the public meeting and summarize it in the Draft PID as public comments.

It is assumed NVTA and/or the City will schedule the public open house and make arrangements for a facility.

GHD will assist in the preparation of public notifications, but it is assumed NVTA and/or the City/County will arrange to release the notices to the appropriate media channels and direct mail to the project database.

1.4 - Project Presentations (1)

GHD will be available to assist NVTA, County and/or City make up to one (1) public presentation appropriate. It is assumed NVTA and City/County staff will conduct presentations; however, GHD will assist in the preparation of meeting presentation material. For budgeting purposes, it is assumed that any other meetings or presentations given by NVTA, City or County staff will utilize materials and exhibits prepared as part of the other tasks associated with this the scope and fee and no additional exhibits or materials will be prepared by GHD.

Task 2: Preliminary Research/Data Collection and Base Mapping

2.1 Preliminary Research/Data Collection

Under this task, existing data and information for the project and project area will be assembled. The types of information collected will include (but not be limited to) existing mapping, as built plans, utility maps, record improvement drawings and reports, and existing data including County and Caltrans collision data, right of way information, records maps, title information, utility information, etc. The budget assumes all data will be provided by NVTA, Caltrans, City of American Canyon, and other stakeholders.

Under this task, GHD will mapping/as-built request letters for all utilities in the area for NVTA to place on letterhead and send to the utility purveyors.



2.2 Preliminary Base Mapping

For this preliminary phase of the project, topographic survey is not included in this scope of services. The base mapping will be comprised of a scaled (non ortho-rectified) aerial color photo mosaic obtained from readily available sources. **The base mapping will be prepared at a scale of 1"=500', with vertical information** developed from available sources including, but not limited to available GIS databases and InterMap.

Existing right of way and property information will also be developed from available sources including, but not limited to available GIS databases, right-of-way record maps and as-built plans. Utility information obtained from task 2.1 will be delineated on the base maps.

GHD will also prepare a Survey Mapping Needs for PSR-PDS Questionnaire and submit the questionnaire to Caltrans for review and comment. This scope assumes that no field surveys or fieldwork will be required.

2.3 Existing Study Area Environmental Constraints

GHD will review all existing documentation, including the Broadway District Specific Plan – Environmental Impact Analysis Section 03-00, Watson Ranch EIR and Napa Pipe EIR and will perform database reviews of the project corridor, and gather scoping level information on the following topics:

- Land use (including existing and future land uses; consistency with state, regional, trial, and local plans; parks and recreation; growth; farmlands; community character and cohesion; relocations; environmental justice issues; and utilities/emergency services/public facilities)
- Visual/aesthetics
- Historic/cultural resources
- Hydrology and floodplains
- Water quality and stormwater runoff
- Geology and soils
- Paleontology
- Hazardous waste/materials (a Phase I Initial Site Assessment (ISA) will be prepared by as part of determining the existing study area environmental constraints; the ISA study will be prepared to identify potential hazardous waste sites and that may have an impact along the study corridor quality within the project limits)
- Air quality, energy and climate change
- Noise and vibration
- Biological resources, section 4(f) properties
- Cumulative impacts
- Opportunities for context sensitive solutions

The draft ISA will be submitted to NVTa and Caltrans for review and comment. Comments will be incorporated into a final ISA that will be submitted to the County and Caltrans.

The environmental constraints and conditions data will be used in a subsequent task to develop the PEAR.



Task 3: Purpose and Need Project Information Form

GHD will prepare the Project Initiation Form (PIF) and ensure that all steps outlined in the Caltrans Pre-Project Initiation Document (PID) Check List are met. Specifically, GHD will provide the following services.

3.1 Develop Purpose and Need Statement

GHD will prepare a Draft "Purpose and Need" statement for the project. The "Purpose and Need" statement will be developed based on the study area deficiencies and constraints. A memorandum will be prepared that states the project's "Purpose and Need" and provided to the PDT for review, comment, and input.

3.2 Prepare Draft of the PIF

GHD will prepare the Draft PIF, which is to include details on:

- Project description
- Funding sources
- Project schedule
- Basic transportation deficiency
- Project background
- Project purpose and need
- Proposed solutions or range of alternatives
- Environmental issues/known concerns
- Right of way concerns
- System planning
- Traffic data, accident data, alternative sketches
- Preliminary contact list for Project Development Team members

Upon completion of the first draft of the PIF, GHD will submit it to NVTA's project manager and attend one (1) virtual meeting with the NVTA staff to review the draft PIF, to discuss the information provided, and other information that may be required from any of the stakeholders. Upon resolution of all comments and questions, we will then make changes to draft PIF and prepare a second draft to be circulated to Caltrans, County, and City prior to the official Pre-PID meeting.

3.3 - Prepare Final PIF

Following the Pre-PID meeting and upon receiving additional comments from the reviewing agencies, GHD will prepare the final PIF for final approval.

Task 4: Traffic Study: Intersection Control Evaluation (ICE) Step 1

Information from the corridor study will be summarized under this task.



4.1 Step 1 ICE Summary

GHD will summarize the following information from the Objective 1 scope:

- Existing Safety Deficiencies. Current 3-year collision records in the form of collision summary reports, Statewide Integrated Traffic Records System (SWITRS) reports, Traffic Accident Surveillance and Analysis System (TASAS) Tables, etc. will be reviewed within the study area by roadway segment and at primary study area intersection to identify and discuss current safety deficiencies.
- Existing Traffic Capacity and Level of Service. Traffic counts will be collected and the existing roadway and intersection LOS will be derived. The existing traffic conditions will be documented in a technical memorandum for review/comment by the PDT. Based on agency comments, the existing LOS conditions analysis will be prepared for approval by Caltrans. GHD will collect new intersection turn-movement counts, for the AM and PM peak hour periods, at all intersections within the project boundary.
- Transit/Pedestrian/Bicycle Facilities. Existing transit providers and pedestrian and bicycle facilities along the study corridor will be identified.

4.2 Traffic Modeling Forecasts

The regional travel demand model, with adjustments recommended by GHD and the PDT, will be used to derive construction year and design year forecasts. It is assumed that no additional forecasting will be required and an official forecast memorandum seeking Caltrans approval will not be needed and therefore, is not included in this scope.

4.3 Evaluate Construction Year and Design Year Traffic Operations

The “no build” traffic operations conditions will be derived. The alternatives selected for consideration in the PSR-PDS (in other phases in this scope) will be analyzed to determine the delays, LOS, and queues. It is assumed that a model will be provided by NVTA for GHD’s use and will be sufficient for developing the operations and not further modeling work will be required by GHD.

4.4 Intersection Control Evaluation (ICE) Step 1 and Traffic Operations Report

GHD will use the traffic safety and operations analysis developed under this phase, along with preliminary geometric designs and costs estimates developed in other phases in this scope, to complete an ICE Step 1 in accordance with the Caltrans TOPD. The ICE will address:

- Traffic capacity and operational modeling (Traffic Operations Report)
- Safety performance analysis
- Life-cycle economic analysis
- Service-life analysis



- Geometric design
- Costs

Task 5: Alternatives Development & Analysis

GHD will develop and evaluate up to three (3) “build” alternatives and a no build alternative. The “build” alternatives will be developed by GHD and in accordance with the findings of Object 1, the updated corridor plan, and will ultimately meet or reduce transportation deficiencies and address the project purpose and need. GHD will ensure the PDT is involved in the alternative development processes and will be consistent with the Caltrans ICE policy, TOPD 13-02.

5.1 Develop Project Build Alternatives

GHD will prepare one PID level geometric designs for each of the three “build” alternatives. The geometric designs will be developed in sufficient detail to evaluate costs, design standards, right of way impacts, utility impacts, and environmental impacts.

For budgeting purposes is assumed one (1) draft submittal of the each alternative will be provided to NVTa, comments will be reviewed and addressed. GHD will then prepare revised draft exhibits and submit those to the PDT for review a comment. Comments will be addressed and one set of final draft exhibits will be prepared for inclusion in the PID document.

It is assumed that electronic submittals of the geometric designs will be sufficient.

5.2 Preliminary Environmental Analysis Report (PEAR)

The PEAR that will be prepared for this project will include:

1. The Project Description, based on the conceptual alternatives being considered and developed within Task 5.1
2. An analysis of potential environmental issues associated with each of the identified alternatives. The analysis will include scope, schedule, and costs associated with the subsequent environmental compliance process, and document the assumptions and risks used to develop them. This information will be presented in a tabular format for easy comparison between the alternatives
3. A discussion of the anticipated environmental documentation and anticipated environmental commitments needed for each alternative to comply with CEQA and NEPA requirements
4. An analysis of regulatory and agency permits likely to be needed for each project alternative

The PEAR will also consider the following topics, consistent with guidance set out in Caltrans’s PEAR Handbook (2009) and the City’s preferred CEQA Checklist (based on Appendix G of the CEQA Guidelines):

- Land Use
 - Existing and Future Land Use
 - Consistency with State, Regional, and Local Plans



- - SR 29 through American Canyon PID

- Parks and Recreation
- Growth
- Farmlands/Timberlands
- Community Impacts
 - Community Character and Cohesion
 - Relocations
 - Environmental Justice
 - Utilities/Emergency Services/Public Facilities
- Visual and Aesthetic Resources
- Historic and Cultural Resources
- Hydrology and Floodplain
- Water Quality and Stormwater Runoff
- Geology, Soils, Seismic, and Topography
- Paleontology
- Hazardous Waste/Materials
- Air Quality
- Noise and Vibration
- Energy and Climate Change
- Biological Resources
- Section 4(f) and Section 6(f) Properties
- Cumulative Impacts
- Opportunities for Context Sensitive Solutions

The evaluation of these topics will be concise, yet will be discussed in sufficient detail to preliminarily assess the need for further studies, analyses, or permits that may be required. Environmental issues anticipated to require more in-depth review include biological resources and community impacts. Other issues (e.g., parks and recreation, Section 4(f) and 6(f) resources) are not expected to be implicated by the project; the PEAR will very briefly document why further environmental analysis of these resources is not necessary. The analysis will be based primarily on a review of existing documentation and databases. One (1) general field review of the project area will be conducted, documenting existing conditions of the project study area. This scope of work includes conducting a California Natural Diversity Database (CNDDB) search of the project area, requesting a special-status species list from the U.S. Fish and Wildlife Service (USFWS), and conducting a cultural resources records search at the California Historical Resources Information System's (CHRIS) Northwest Information Center.



The PEAR will include all required attachments, including the PEAR Environmental Studies Checklist, Estimated Resources by WBS Code, Schedule (Gantt Chart), and PEAR Environmental Commitments Cost Estimate.

5.3 Design Standards

GHD will reference the Caltrans Design Information Bulletin (DIB) 78 Design Checklist based on the level of detail developed for each build alternative to assist in identifying anticipated non-standard design features that may deviate for the Highway Design Manual (HDM) design standards. The resulting list of anticipated non-standard design features will be documented and discussed with the PDT. Caltrans will identify the likelihood of approval of non-standard features.

5.4 Storm water Data Report (SWDR)

Based on the project build alternatives, GHD will prepare the PID level SWDR's. The scope assumes that SWDR's will be required for one "build" alternative. Draft SWDR's will be submitted to Caltrans for review/comment. Comments will be incorporated and final SWDR's will be prepared and submitted.

5.5 Right of Way Estimates

GHD will complete the "Conceptual Cost Estimate – Right of Way Component" for the three "build" alternatives. The estimates will be completed using form 4-EX-8 of the Caltrans' Right of Way manual. It is assumed NVTa and/or other stakeholders will provide market values.

5.6 Develop Cost Estimates

GHD will develop PID level cost estimate for each "build" alternative per the PDPM. GHD will also develop the estimated support cost that will be needed to complete PA/ED.

5.7 Develop Schedules

GHD will develop a schedule for delivery of major milestones of the PA/ED phase.

5.8 Project Risks

GHD will prepare a project risk register in accordance with Caltrans requirements. The risk registered will be reviewed at each PDT meeting and updated as the project progresses. GHD will update and the Risk Register will be included in the PID.

5.9 Life Cycle Cost Analysis (LCCA)

GHD will prepare a LCCA in accordance with the Caltrans policy. It is assumed that one round of reviews will be sufficient to obtain approval of the LCCA.

Task 6: Project Study Report/Project Development Support (PSR-PDS)

For budgeting purposes, it is assumed the appropriate PID document is a PSR-PDS. This task consists of



preparing the draft and final PSR-PDS. The report preparation sequence will consist of preparing a draft PSR-PDS for review by PDT members; then a draft PSR-PDS for district wide distribution within Caltrans; then a draft final PSR-PDS for final review by the PDT; and then a final PSR-PDS submitted for Caltrans approval. The scope assumes that FHWA oversight is not required.

6.1 Draft PSR-PDS

GHD will prepare a First Draft PSR-PDS for initial review by the PDT. The First Draft PSR-PDS will, at a minimum, include all work completed in the previous project tasks. Up to fifteen (15) bound copies of the Draft Report will be prepared and provided to the PDT for their review and comment.

6.2 Review Comments on the Draft PSR-PDS

Comments received from the PDT will be reviewed and any identified issues or concerns will be addressed. It is assumed that a comment review meeting, if needed, will be conducted through a web-based meeting. GHD will prepare a written response to all comments received.

6.3 Final Draft PSR-PDS

The Final Draft PSR-PDS will incorporate any comments received from the PDT. Up to fifteen (15) bound copies of the Second Draft PSR-PDS will be prepared and provided for review and comment to the PDT and to Caltrans for district-wide and headquarters circulation.

During the Final Draft PSR-PDS review by Caltrans, the scope assumes Caltrans will conduct a joint Safety Review and Constructability Review meeting. GHD will attend the meeting to discuss the project with Caltrans' functional employees. Comments from the meeting will be summarized and a response will be prepared by GHD. The meeting response to comments will be distributed to the PDT and Caltrans.

6.4 Review Comments on the Final Draft PSR-PDS

Comments received on the Final Draft PSR-PDS will be reviewed and any identified issues or concerns will be addressed. It is assumed that a comment review meeting, if needed, will be conducted through a web-based meeting. GHD will prepare a written response to all comments received.

6.5 Final PSR-PDS

The Final PSR-PDS will be prepared upon resolution of all final comments and issues. One (1) copy of the Final PSR-PDS will be submitted to Caltrans for final approval and signatures. It is estimated at this time that GHD will be responsible for the reproduction of up to fifteen (15) bound copies of the approved PSR-PDS.

Task Description		GHD												GHD Total Hours	GHD Total Cost
		Kamesh Vedula	Jim Damkowitch	Lindsey Van Parys	Ross Ainsworth	Jay Walter	Heather Anderson	Trenton Hoffman	Kenneth Isenhower	Brian Howard	Brian Bacciarini	Ryan Crawford	Other Direct Costs		
		Principal in Charge	Project Advisor	Project Manager	Technical Advisor QA/QC	Caltrans Liason	Senior Transportation Engineer	Transportation Engineer	Traffic Engineer	Survey	Environmental	Environmental			
		\$ 266	\$ 228	\$ 204	\$ 293	\$ 245	\$ 180	\$ 125	\$ 114	\$ 191	\$ 195	\$ 150			
Task 1	Project Management, Coordination and Quality Control														
1.1	Project Management & Quality Control														
1.2	Project Meetings & Agency Coordination														
1.3	Public Information Open House (1)														
1.4	Project Presentations (1)														
Task 2	Preliminary Research/Data Collection and Base Mapping														
2.1	Preliminary Research/Data Collection														
2.2	Preliminary Base Mapping														
2.3	Existing Study Area Environmental Constraints														
Task 3	Purpose and Need Project Information Form														
3.1	Develop Purpose and Need Statement														
3.2	Prepare Draft of the PIF														
3.3	Prepare Final PIF														
Task 4	Traffic Study: Intersection Control Evaluation (ICE) Step 1														
4.1	Existing Transportation Conditions														
4.2	Traffic Modeling Forecasts														
4.3	Evaluate Construction Year and Design Year Traffic Operations														
4.4	Intersection Control Evaluation (ICE) Step 1 and Traffic Operations Report														
Task 5	Alternatives Development & Analysis														
5.1	Develop Project Build Alternatives														
5.2	Environmental Analysis - Preliminary Environmental Analysis Report (PEAR)														
5.3	Design Standards														
5.4	Storm Water Data Report (SWDR)														
5.5	Right of Way Estimates														
5.6	Develop Cost Estimates														
5.7	Develop Schedules														
5.8	Project Risks														
5.9	Life Cycle Cost Analysis (LCCA)														
Task 6	Project Study Report/Project Development Support (PSR-PDS)														
6.1	First Draft PSR-PDS														
6.2	Review Comments on the First Draft PSR-PDS														
6.3	Second Draft PDS-PDS														
6.4	Review Comments on the Second Draft PSR-PDS														
6.5	Final PSR-PDS														
	Total Hours														
	Printed/Pulished Material/Imagry Costs														
	Travel/Lodging Direct Cost														

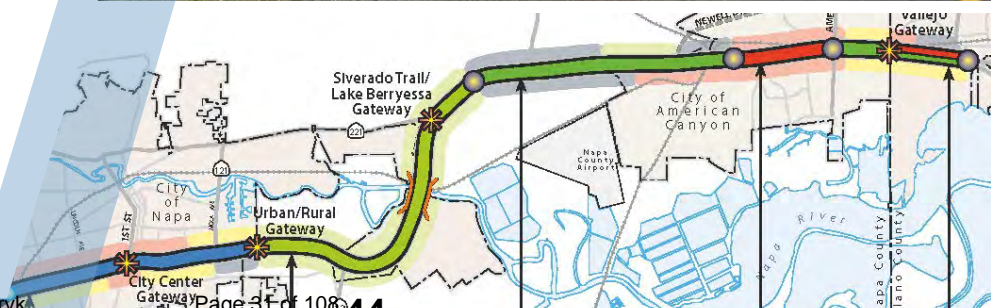


Proposal for
**SR 29 Comprehensive
 Multimodal Corridor
 Plan and Project
 Initiation Document
 for SR through
 American Canyon**

Napa Valley
 Transportation
 Authority



Jim Damkowitch
 Project Manager
 March 4, 2019





March 4, 2019

Ms. Rebecca Schenck
Transportation Planner
Napa Valley Transportation Authority
625 Burnell Street
Napa, CA 94559

RE: Proposal for SR 29 Comprehensive Multimodal Corridor Plan and Project Initiation Document for State Route 29 through American Canyon

GHD is a full service transportation engineering and planning firm engaged in multimodal planning and engineering, congestion management, transportation technology, and traffic modeling. GHD is intimately familiar with state and federal transportation funding programs and have existing working relationships with Caltrans District 4 and California Transportation Commission (CTC) staff. We have direct experience developing performance-based corridor analyses consistent with the Smart Mobility Framework and Senate Bill 1 (SB 1) Solutions for Congested Corridors Program (SCCP) requirements. Our approach to Objective 1 will yield a plan within 10 months that provides all the quantitative rubrics to holistically support an SCCP Cycle 2 grant application. It will also be scalable to allow individual improvements or packages of improvements to be seamlessly parsed out if pursuing other competitive grant programs (e.g., SB 1 SCP, SB 1 LPP, ATP, HSIP, etc.) is desired. GHD also brings ample experience with the Caltrans Project Approval Process and the development of a PID to address Objective 2 of this RFP.

GHD has strategically formed a multidisciplinary team comprised of Elite Transportation Group, and Regional Government Services. GHD has also procured Bob Spencer of Urban Economics for an as-needed advisory role for the economic analysis. Bob brings over 30 years of experience of macro-economic experience. This team approach has been used in other like-corridor studies by our Project **Manager Jim Damkowitch with exemplary success. Our team's key strengths include:**

- *Local Experience.* The GHD team has decades of direct experience working in the Napa region and is familiar with the participating agencies including Napa Valley Transportation Authority (NVTa), Caltrans District 4, the City, and County of Napa. GHD is currently developing the Imola Avenue Complete Street Improvement Plan and through our work with the City of American Canyon and Caltrans District 4 have completed two integrated corridor ITS improvement projects on other portions of SR 29 - all applicable studies to this effort. The GHD team will take full advantage of these and other studies of relevance specifically the collateral deliverables developed as part of the **existing 2014 Gateway Plan to update the Study Corridor "blueprint" for funding the highest-value improvements.**
- *Performance-Based Corridor Planning Experience.* GHD provides direct experience developing system and project-level performance metrics for supporting corridor plans. This includes successful application of the Smart Mobility Framework and all requisite analysis tools and software that inform competitive funding grants.



- *Strong Public Outreach.* The GHD team specializes in interagency consultation required to achieve consensus on selecting a transportation improvement program/package for funding and public outreach that supports the identified package. The GHD team has applied this expertise in developing priority transportation improvement packages for four Cycle I SCCP grant applications as well as expenditure plans for sales tax measures throughout the state.
- *Congestion Management Program/Process Expertise.* **Jim Damkowitz, GHD's Project Manager, is GHD's West Coast Congestion Management Process (CMP) Practice Leader.** He has more than 25 years of experience in developing/implementing/administering state and federal congestion management programs/processes. Prior to becoming a consultant, Jim served for 13 years (1992-2005) as Program/Project Manager for the Santa Barbara County Congestion Management Program. As a consultant he has managed over 10 state/federal CMP related studies/**updates for CMA's around the state.**
- *Proven Project Manager.* Project Manager Jim Damkowitz (a recent GHD hire) brings over 25 years of experience in multi-modal corridor planning. Jim has managed many high-profile corridor studies around the state including the US 101 in Santa Barbara and San Luis Obispo Counties, SR 68 in Monterey County and the I-580 in the Bay Area and, has either managed or provided direct technical support to four Cycle I SCCP grant applications.

GHD recognizes that developing a plan that addresses the key congestion relief and safety objectives of the SR 29 corridor while simultaneously engendering community support may be challenge. However, it is nothing compared to the challenge of procuring future funding to implement the plan once it has been completed. Both federal and state transportation funding is currently driven by performance based return-on-investment criteria. Our goal is to develop a plan that best positions NVTa and its member agencies for implementation. We understand that what gets measured gets funded and what gets funded gets implemented.

Sincerely,

GHD

Jim Damkowitz
Project Manager
jim.damkowitz@ghd.com

Kamesh Vedula, PE, TE
Principal-in-Charge
kamesh.vedula@ghd.com

Mr. Vedula, a firm Principal, has the authority to negotiate on behalf of and to contractually bind GHD for this proposal may be contacted during the period of proposal evaluation.

GHD is in receipt of the Q&A dated February 19, 2019 and Addendum 1 dated February 14, 2019.



Table of Contents

Project Understanding 7

Understanding7

Scope of Work Objective 113

Scope of Work Objective 224

Schedule Objective 129

Schedule Objective 230

Budgets Objective 1 & 2 *separate sealed envelope*

Experience and Qualifications 32

GHD32

Subconsultants34

Project Experience35

Project Team Organization..... 46

Organizational Chart.....46

Staff Resumes47

P8353pro001.pub

Project Understanding

The State Route 29 Comprehensive Multimodal Corridor Plan (CMCP) is a complex multimodal performance-based corridor planning effort, requiring consideration of every available travel mode currently in use along the State Route (SR) 29 corridor. The purpose of this effort is to prioritize currently planned/programmed improvements in the corridor and **“infuse” more multimodal improvements, parallel capacity improvements, and Integrated Corridor Management (ICM) strategies to develop a phased multimodal “package” of improvements that can be competitive when submitted for funding consideration under Solutions for Congested Corridor Program Cycle 2 grant application.** To be competitive, the CMCP must analyze and document the benefits of the preferred improvement package and translate these benefits into a quantified return on investment benefit-cost metric.

SR 29 connects the cities of Napa and American Canyon between its interchanges of Imola Avenue to the north and SR 37 to the south. The corridor covers approximately 11.5 miles with portions of parallel capacity provided by local roads including Delvin Road to the west and Newell Drive and Kelly Road to the east. This project area will be referred to the **“study corridor”** herein.

The Napa Valley Transportation Authority (NVTa), the cities of Napa, American Canyon and Vallejo, the County of Napa, and Caltrans District 4 are all key stakeholders of the CMCP. For the GHD team to properly coordinate our efforts with these agencies, we must understand the roles and responsibilities of each and how each will influence and provide guidance for the development and/or implementation of all or part of the project elements identified.

As the designated Congestion Management Agency (CMA) and Transportation Management Area (TMA) for Napa County, NVTa is responsible for addressing the State and Federal congestion management requirements for Napa County. NVTa also serves as the regional transportation planning agency for Napa County and is responsible for all **its’ multimodal transportation planning and programming** requirements. NVTa coordinates with the Metropolitan Transportation Commission (MTC) to address all Federal transportation planning/programming requirements including compliance with the Federal Congestion Management Process and Federal Performance Management Rule.

With voter approval of Measure T in 2017, NVTa now ad-

ministers funding generated by a 1/2 cent sales tax for local streets and roads. The cities of Napa and American Canyon and Napa County are among the recipients of Measure T funds. These jurisdictions are served and directly interface with SR 29 while also owning and maintaining local roadways that serve as parallel capacity to SR 29 within the corridor. MTC, as the designated Metropolitan Planning Organization for the nine-county Bay Area region that includes Napa County, is responsible for addressing the Federal transportation planning and programming requirements for Napa County. Lastly, Napa County is one of the nine counties within Caltrans District 4. Hence, Caltrans is responsible for addressing statewide planning initiatives, operating and maintaining the state highway, and programming state funds as part of the State Highway Operations and Protection Program and Interregional Improvement Program within Napa County.

Each of these agencies, represented through the Staff Working Group (SWG) have distinct roles for multimodal planning and programming within the SR 29 corridor. Hence, the full cooperation and involvement of each agency will be critical to the success of this effort.

Objective 1 of this Request for Proposal (RFP) is to update the 2014 SR 29 Gateway Plan to be consistent with and support a Cycle 2 Senate Bill 1 (SB 1) Solutions for Congested Corridor Program (SCCP) grant application. The application must be consistent with the *2018 Comprehensive Multimodal Corridor Plan Guidelines (California Transportation Commission, December 2018)* and the operative state and regional transportation planning goals objectives and policies of SWG.

Both federal and state transportation funding is currently driven by performance based return-on-investment criteria. It is also greatly influenced by federal/state objectives related to air quality/climate change as well as environmental justice and social equity. To be competitive for procuring limited discretionary transportation funding - the CMCP must document how the recommended CMCP capital improvements address these objectives/initiatives. Ultimately, the CMCP should also serve as the formal update to the SR 29 Transportation Corridor Concept Report (Caltrans System Planning) as well inform a Project Study Report (Project Approval Process Document) for future programming of the selected corridor improvements (Objective 2).

Developing a SCCP grant application that addresses the

Project Understanding

technical needs required by the grant/guidelines while simultaneously engendering stakeholder and community support is a typical challenge. However, given that SCCP Cycle 2 grant applications are due in spring of 2020, a more significant challenge will be to update the CMCP in under a 10-month timeframe. To address these challenges and specifically the schedule, GHD has strategically formed a multi-disciplinary team comprised of Elite Transportation Group and Regional Government Services.



GHD has also procured Bob Spencer of Urban Economics for an as-needed advisory role for the economic analysis. GHD will leverage the expertise and abilities of this complementary teaming arrangement to deliver this study on schedule and within budget.

This “Team” approach has been used successfully by GHD, including those by GHD Project Manager Jim Damkowitch. The process utilizes the overlapping expertise of the Team to allow more meaningful and effective internal QA/QC and peer review. Each firm on the GHD Team including key task leaders have history working successfully together in this context.

The GHD team understanding of the study requirements and our proposed approach for each phase of work is described below. The understanding is described in four project phases. For each phase, the GHD team lead and applicable Task number is provided. A detailed scope of work is provided in a later section of this proposal.

TECHNICAL APPROACH

Project Management (Lead: GHD)

Project Manager Jim Damkowitch draws on over 25 years of experience quantifying and monetizing project benefits for infrastructure improvement projects. Jim was an early champion of the Smart Mobility Framework (SMF) and has routinely applied the SMF to several high profile corridor studies he has managed. These include:



- SLOCOG US 101 Corridor Mobility Master Plan (2014)
- SLOCOG SR 227 Operations Study (2016)
- TAMC SR 68 Scenic Highway Plan (2017)
- SCCRTC SR 1 Unified Corridor Investment Study (2018)

Caltrans references the US 101 Corridor Mobility Master Plan as an outstanding example of the Smart Mobility Framework as applied to a corridor study. It is listed as a SMF resource document on Caltrans Smart Mobility Branch website at: <http://www.dot.ca.gov/hq/tpp/offices/ocp/snbr.html>

Location Efficiency	<ul style="list-style-type: none">• Support for Sustainable Growth• Transit Mode Share• Accessibility and Connectivity	Environmental Stewardship	<ul style="list-style-type: none">• Climate & Energy Conservation• Emissions Reduction
Reliable Mobility	<ul style="list-style-type: none">• Multimodal Travel Mobility• Multimodal Travel Reliability• Multimodal Service Quality	Social Equity	<ul style="list-style-type: none">• Equitable Distribution of Impacts• Equitable Distribution of Access and Mobility
Health and Safety	<ul style="list-style-type: none">• Multimodal Safety• Design and Speed Suitability• Pedestrian and Bicycle Mode Share	Robust Economy	<ul style="list-style-type: none">• Congestion Effects of Productivity• Efficient Use of System Resources• Network Performance Optimization• Return on Investment

These plans were successfully delivered on time and within budget using large multi-disciplinary teams similar to the one proposed (up to five firms). The plans were informed through extensive public outreach; strong interagency collaboration; and, a performance-based technical analysis approach consistent with *Caltrans 2010 Smart Mobility Framework (SMF), A Call to Action for the New Decade*. This same approach will be tailored and applied for the CMCP.

Quality Assurance Control/Narrative Development (Lead: GHD; Support: ETG)

GHD will assign two senior level staff to provide additional QA/QC for the CMCP. Rich Krumholz, former Caltrans Director, with extensive experience shepherding state funding programs and Ross Ainsworth, senior engineer at GHD, will perform this important role. Given that the project schedule cannot accommodate do-overs, additional QA/QC will be critical to the success of the study.

For schedule adherence, it is also proposed that text development occur immediately, before the final technical work is completed. In coordination with the SWG, GHD senior staff will immediately begin working with Jim Damkowitch to develop the text narratives for the CMCP document. The narratives will be specifically crafted to follow the SCCP document guidelines and application template. In this way, whole text sections of the completed CMCP can be seamlessly imported into an application with minimum need for additional editing.

The CMCP should also be developed to facilitate a seamless transition to the Caltrans project approval process (i.e., Objective 2), the CMCP should contain, to greatest extent possible, the requisite analyses and information listed in *Appendix S - Preparation Guidelines for Project Study Report-Project Development Support Project Initiation Document*. These secondary objectives and their associated narratives will be addressed early in the process.

Public Outreach (Lead: RGS; Support: GHD)

The Public Outreach Task Manager, Kendall Flint of Regional Government Services (RGS), brings over 25 years of community workshop facilitation experience. The GHD team will leverage all existing outreach materials germane **to the study corridor already performed as part of MTC's MTP/SCS (and ongoing update), NVTA's Regional Transportation Plan (RTP) (and ongoing update), regional bikeway plans, and other local agency planning efforts.** Public input summaries of these efforts will be used to inform/support the interagency consultation process for identifying the CMCP improvement package for analysis. RGS **will be supported by GHD's geo-spatial service line** to develop a web-based tool to allow the public to make site specific comments about barriers, connectivity gaps, safety issues, potential solutions, or other subject-specific needs in the comfort of their own homes. This process is facilitated by the latest on-line interactive map technology, Social Pinpoint.

Interagency Coordination (Lead: RGS; Support: GHD)

The GHD team will immediately begin working directly with all the participating agencies to identify candidate improvements that will define “the project”. This process is similar to developing components of a sales tax expenditure plan (i.e., package of regional projects developed by an aspiring self-help county). Kendal Flint of RGS has successfully facilitated this process for three counties. A key consideration is that the source of candidate improvements must flow from the financially constrained (Tier I) or unconstrained (Tier II) lists of MTC's MTP/SCS and/or NVTA's RTP. Candidate projects should also be distinguished by programming status (i.e., improvements currently listed in the FTIP/STIP should be prioritized). Other important planning/programming documents to be considered include, but are not limited to: the SR 29 Gateway Study; NVTA's CMP; MTC's ongoing Regional ITS Strategic Deployment Plan update; and other state/regional/local plans.

The GHD team will work with the SWG to facilitate a pro-

cess for qualitatively screening/prioritizing improvements. The improvement package simply cannot be viewed as a “wish list” by the participating agencies. Inclusion of too many “marginal” improvements will add cost without commensurate gains in monetized benefits resulting in diminishing returns on investment (i.e., lowering the ultimate benefit-cost ratio of the package as whole). The GHD team will manage expectations regarding the relative merit of projects. This winnowing process emphasizes the need for strong interagency consultation experience - especially given that this process must reach consensus to finalize the CMCP corridor package of improvements within a two-month window.

To be competitive, the CMCP improvement package must be multimodal and demonstrate buy-in from local agency participants. At a minimum, improvements are expected to include currently programmed/planned improvements including: SR 29 and local arterial operational improvements, high frequency bus service enhancements on lines that serve the corridor; pedestrian and bike improvements identified by NVTA and the Cities of Napa and American Canyon and the County; and Intelligent Transportation Systems (ITS) improvements including Integrated Corridor Management (ICM) strategies.

To allow the CMCP to serve as a resource for other grant funding programs, all project information and analysis results (i.e., benefit-cost information) will be scalable to allow components of the package to be easily extracted.

Data Retrieval (Lead: GHD)

The primary objective for acquiring data is to establish the requisite baseline speed profiles and volume sets for validating and informing the operational analysis tools. The GHD team proposes no “new” traditional data collection activities be performed for the CMCP. Instead, the CMCP will rely on existing data (passenger counts, traffic counts, etc.) and apply various state and federal web-based resources of data. These include: the federal National Performance Monitoring Research Data Set (NPMRDS) speed data; PeMS detector volume and speed data; and, Streetlite origin-destination data. GHD understands that NVTA's account with Streetlite will expire soon. It is recommended that this account be renewed or requisite information be retrieved prior to expiration to be used for this study.

To address safety, the primary data sources for collisions will be Transportation Injury Mapping System (TIMS) and

Project Understanding

Statewide Integrated Traffic Records System (SWITRS) data. Collision data for study corridor including all parallel local arterials will be processed. A minimum of five years of collision data will be processed for analysis.

Tool Development (Lead: ETG, GHD)

Key analysis tools proposed by the GHD team for the CMCP are presented in Table 1 below. The purpose for application, output or Measure/s of Effectiveness (MOE) and whether the MOE is amenable for monetization as a societal cost (i.e., benefit) is identified.

The following discussion of analysis tools will be limited to those elements that are unique to the GHD team and/or our approach.

The Napa County Travel Demand Model (TDM) is nested within the Solano Napa Activity Based Model. Task Leader Lawrence Liao of Elite Transportation Group (ETG) brings extensive modeling application experience. Given the importance of accurate corridor-specific link volume forecasts on all SR 29 on-ramps and off-ramps and local arterial parallel facilities, the GHD team will consider application of CUBE Avenue Dynamic Traffic Assignment (DTA) to allow queue spillback and peak spreading to be modeled explicitly. The key output of the Napa County TDM and the DTA process will be the requisite hourly volume sets for traffic operations analysis models, covering the study corridor under Opening Day and Design Year forecast conditions.

For roadway operations, GHD team recommends using the VISSIM micro-simulation model developed as part of the 2014 SR 29 Gateway Study. The existing VISSIM micro-simulation model will be updated and enhanced as appropriate without requiring extensive new data collection.

The proposed source of speed data for VISSIM calibration will be NPMRDS and PeMs speed data. The VISSIM SR 29 model will be validated consistent with the specifications outlined in the Guidelines for Applying Traffic Microsimulation Software (FHWA, 2004) and the Freeway Analysis Manual (Caltrans, June 2009). Once developed/calibrated, the

VISSIM micro-simulation model will be used to analyze freeway and local arterial operations under baseline and 2040 future baseline conditions. All travel demand modeling and associated roadway operational analyses associated with the baseline, and future baseline conditions will have already been completed prior to the initiation of the performance assessment.

Roadway Operations (Lead: GHD)

See discussion above.

Transit Improvements (Lead: GHD)

GHD will harvest all available Vine Transit System ridership data as well as ridership projections associated with proposed service expansions. This includes connections to regional transit services including Capital Corridor Joint Powers Authority (CCJPA) Capital Corridor (Fairfield/Suisun station) and Bay Area Rapid Transit (El Cerrito/del Norte Station). The GHD team will use available published ridership data and transit line ridership forecasts as generated through the Napa County TDM. These ridership projections and the associated vehicle and VMT reductions will be reflected in the future volume sets used for the roadway operations using the VISSIM micro-simulation model.

Active Transportation Improvements (Lead: GHD)

The GHD team will use the GIS-based Level of Traffic Stress (LTS) developed by Mineta Institute of Transporta-

Table 3. Key Analysis Tools

Analysis Purpose	Measure of Effectiveness	Model/Analysis Tool									Monetize for Benefit/Cost
		Solano-Napa ABM	Microsimulation	Level of Traffic Stress	NCHRP 552 Method	HSM Part C CMFs	SB-1 Emissions Calculator	GIS Analysis	Online Mapping Tools	Literature Review	
Baseline Travel Demand	Trips, Ridership, VMT										Yes
Future Travel Demand	Trips, Ridership, VMT										Yes
Roadway Operations	Delay and Buffer Time										Yes
Transit Ridership	Ridership, VMT										Yes
Pedestrian/Bike Connectivity	Access Indices										No
Pedestrian/Bike Mode Shift	Trips, VMT										Yes
Safety	Collision Reduction & Rates										Yes
Air Quality	Emissions (Criteria & GHG)										Yes
EJ/Social Equity	Access, Benefit/Burden										No
Economic Development	GRP, Jobs, Income										No
Health	Vehicle Miles Traveled										Yes
Adaptation	Network Vulnerability										No

Legend

Direct or Indirect Application

tion. LTS utilizes a geodatabase (census block or block group scale) of demographic and employment) to perform pedestrian/bicycle accessibility assessments. GHD will generate pedestrian/bicycle accessibility LTS scores by destination type to examine the accessibility changes to specific land uses such as schools, parks, hospitals, transit hubs etc. resulting from the CMCP.

Mode shift benefits resulting from the CMCP active transportation improvements will be quantified using analysis methods described in NCHRP 552 Guidelines for Analysis of Bicycle Infrastructure Investments. These benefits include the potential for mode share shifts, vehicle miles of travel (VMT) and vehicle trip reductions.

ITS Improvements (Lead: ETG; Support GHD)

Freeway management ITS improvements (managed lanes, ramp metering etc.) will be addressed. Adaptive signal control improvements on local parallel arterials will be addressed by optimizing signal timings within VISSIM. Integrated Corridor Management strategies that inter-link operations on freeway with the parallel arterials will be addressed though post-processing or qualitatively. GHD has recently completed two ITS improvement projects on other portions of SR 29. Similar ITS improvement applications developed as part of an integrated corridor management strategy within the study corridor, including parallel facilities, will serve to compound the operational benefits of these past ITS investments.

Safety Analysis (Lead: GHD)

Based on the contributing factors from the SWITRS/TIMS baseline collision assessment performed in Phase 1, Part C of the Highway Safety Manual (HSM) will be applied to estimate the potential safety performance of the CMCP improvement package. Crash Modification Factors (CMF) will be applied to estimate reduction in collisions. The reduced collisions will be distributed by severity (PDO, Serious Injury, Fatality) based on historical data of pedestrian/bicycle collisions experienced in the study corridor.

Air Quality Analysis (Lead: GHD)

Air quality benefits (i.e., criteria pollutants and greenhouse gases) will be estimated using the Emissions Calculator or Cal-B/C. All requisite on-road activity inputs for this analysis will be generated by the VISSIM micro-simulation model and the NCHRP 552 analysis.

Environmental Justice/Social Equity Assessment (Lead: GHD)

NVTA or MTC's definition for disadvantaged communities will be used to differentiate the degree of improved accessibility between advantaged vs. disadvantaged communities resulting from the CMCP improvement package. This analysis will use a combination of Napa County TDM select link analysis for roadway improvements, LTS assessments for active transportation and GIS analysis for transit. This analysis will also determine the degree to which disadvantaged communities benefit from the proposed investments in the CMCP.

Economic Development Assessment (Lead: GHD)

GHD will perform an economic impact analysis showing the regional impacts of the CMCP improvement package in terms of Gross Regional Product (GRP), jobs, and personal income will be developed. National multipliers will be applied to provide a macro-assessment of economic development potential of CMCP improvement package. The GHD team will also tie in the National Performance Management Rule (NPMR) performance metric results as they relate to truck movement operations and reliability on the SR 29.

Adaptation Assessment (Lead: GHD)

A qualitative assessment of climate preparedness and infrastructure asset protection/resilience will be developed. The GHD team will take full advantage of existing on-line mapping tools such as Caltrans Vulnerability Interactive Mapping Tool (District 3) and CalEnviroScreen 3.0 developed by the Office of Environmental Health Hazard Assessment, and other on-line tools to inform this discussion. Key assessments will include flood and wildfire events.

Emerging Technologies Assessment (Lead: GHD)

A qualitative assessment of the implications of the greater market penetration of Connected/Autonomous vehicles on corridor operations will be developed. The assessment will focus on travel demand/ridership, economic, congestion, air quality, and performance-based models and tools that can be used in a later phase.

The performance assessment for the CMCP as mapped in Table 1 (presented earlier) will include the following analyses:

- Monetized benefits for Benefit-Cost (B/C) based to Cal-B/C based on the 2016 Caltrans Parameters of Societal Costs. All MOEs amendable to benefit monetization will

Project Understanding

- be incorporated into the Benefit-Cost assessment.
- Non-Monetized benefits for measures that are expressed as indices or rates that are not amenable to monetization. These include the National Performance Management Rule (PM1) metrics and accessibility indices/scores generated by the LTS analysis.
- Non-Monetized benefits of other regional assessments that speak to state/federal transportation planning objectives. These include: environmental justice; economic development; climate change vulnerability; and emerging technologies.

Equal attention will be given to documenting the beneficial outcomes of measures not directly reflected in the Benefit-Cost assessment of the CMCP. These include: CMCP Consistency (with other existing plans and policies); CMCP Policy Consistency (MTC, NVT, Caltrans, and local agencies); Environmental/Institutional Sensitivity (beyond air quality which will be reflected in the B/C); and, Community Acceptance (based on the community engagement process).

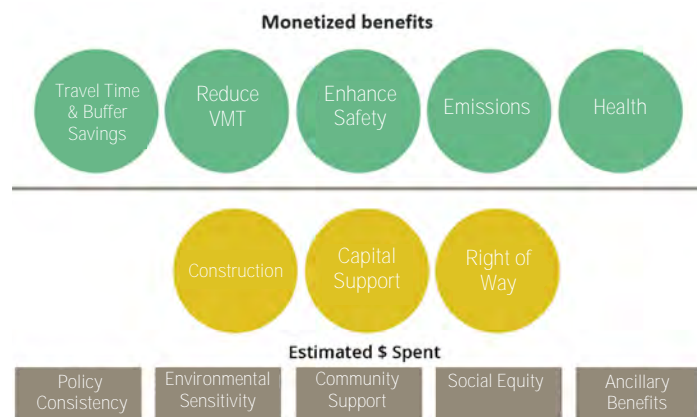
Benefit-Cost (Lead: GHD)

Benefits will be monetized based the societal cost information from Caltrans 2016 Economic Parameters. The latter information informs the Caltrans Cal-B/C analysis tool. These will be combined with currently available planning level improvement cost opinions. Benefit-cost estimates will be computed for each improvement category. All quantitative benefits will be annualized and projected to 2040 reflect a 20-year design year condition. Some key differentiators for the GHD team are described below.

Leading the safety assessment is Jerry Champa of GHD. Prior to joining GHD in 2017, Mr. Champa worked for Caltrans providing transportation safety management and engineering services from the Headquarters Design and Traffic Operations offices. For the national rule PM(3) measures, GHD staff has developed first-cut analyses for Congestion and Level of Travel Time Reliability using the NPMRDS for seven MPO/RTPAs. As such, GHD brings invaluable experience with these technical requirements.

Documentation (Lead: GHD)

To increase its competitiveness for selection of the SCCP and other competitive grant programs, the GHD team will demonstrate consistency of the CMCP with Federal and State Congestion Management Programs. Explicitly incorporating the CMCP into the State/Federal CMP provides an opportunity to strengthen the federal importance of the CMCP improvements that can elevate their grant competi-



tiveness. Similarly, the GHD team will also demonstrate the **CMCP's consistency with other performance based legislative programs** (SB 375, AB 1358, SB 743, SB 99, AB 101, SB 1,000, PDA, Presidential Executive Order 12898, and the US Department of Transportation (DOT) Order 5610.2 (A).

Ostensibly, all text other than results and summary descriptions of the results will be completed prior to the development of the draft CMCP. The final outreach summary will be developed at the conclusion of the public draft review and inserted to the final draft for NVT board approval.

Scope of Work for Objective 1

The GHD team's detailed scope of work is provided below.

Task 1 - Project Startup

1.1 - Project Management and Coordination

GHD will perform project setup tasks for accounting and coordinate budget and scheduling factors.

GHD will prepare monthly invoices and progress reports to Napa Valley Transportation Authority (NVTa). GHD will provide an invoice format that is to acceptable to NVTa two weeks prior to the first invoice submittal.

Deliverables:

- Project Setup
- Submittal of up to 10 invoices and progress reports

1.2 - Project Kick-off Meeting

Key members of the GHD team will attend the kickoff meeting (Location TBD by NVTa). GHD will coordinate with NVTa to develop an agenda for the meeting and provide a summary of Action Items of the meeting.

Deliverables:

- Kickoff meeting agenda
- Attendance at kickoff meeting by up to five GHD team staff. No overnight stays or out of state travel are assumed
- Kickoff meeting short-term actions

1.3 - Bi-weekly Conference Calls

GHD and various GHD team members will participate in up to 18 bi-weekly coordination calls with the SR 29 Staff Working Group (SWG) throughout the duration of the project (assumed March 2019 to December 31, 2019). Meetings are anticipated to last less than or equal to 1 hour. GHD will set up and lead/facilitate the meetings. GHD shall develop and maintain a Short-Term Action list to track: Action Items; Anticipated Delivery Date; Actual Delivery Date; Responsible Agency; and, Comments throughout the duration of the study. The Short-Term Action list will serve as both the agenda (in advance of the calls), and minutes (**prior week's check-in** outcome). Only members of GHD-team with relevant discussion items will participate.

Deliverables: Up to 18 bi-weekly conference calls and up to 18 Short-Term Action lists.

1.4 - Data Retrieval/Processing/Review

GHD will retrieve the most recent available transportation data items of relevance to the SR 29 Comprehensive Multimodal Corridor Plan (CMCP). This includes available highway and roadway segment counts, intersection turn movement counts; pedestrian/bicycle counts, transit ridership data from appropriate local/regional/state agency sources and the five most recent years of SWITRS/TIMS collision data. GHD will provide an inventory listing of data retrieved for application in Task 3 for review by the SWG.

The following "Big" data sources will also be utilized.

Streetlite Data

The following data items will be retrieved using Streetlite cell and GPS data:

- 2018-19 observed OD patterns by mode (vehicle and ped/bike), period of the day, and day of the week, including weekends
- Speed data on non-NHS designated local parallel capacity roadways

Estimated traffic volumes on relevant study corridor roadway segments by hour of the day, day of the week and season

Base year Streetlite network assignment (big-data OD pairs by trip purpose) will be performed for the study corridor. These OD based volume estimates will be compared to model volumes and traffic counts to gauge baseline travel demand model performance.

PeMS Data

GHD will retrieve available PeMS data for SR 29 from the PeMS website. Given the desire to reflect annual average conditions, spring months are preferred followed by fall months. Hourly PeMS traffic volume and speed data will be retrieved for both general purpose and managed lanes as applicable.

National Performance Monitoring Research Data Set

The primary objective for using NPMRDS data is to establish the requisite baseline speed profiles and baseline and future volume sets for validating and informing the freeway and arterial operational analysis tools.

GHD will retrieve the most recent 12 months of NPMRDS speed data for both passenger vehicles and heavy trucks on all study corridor roadways on the National Highway

System (NHS) through the FHWA NPMRDS data website. GHD will coordinate with NVTa to confirm appropriate NPMRDS speed data timelines, data protocols and, data processing conventions to standardize the process of computing the performance metrics. Based on this input, GHD will immediately structure and process the passenger car and truck speed data performance data for the following purposes:

- Passenger Vehicle and Truck Travel Time Reliability metrics
- Passenger Vehicle and Truck Congestion metrics
- Operational tool baseline and validation

Given the desire to reflect annual average conditions, spring months are preferred followed by fall months. NPMRDS speed data will be retrieved.

The GHD team will determine the accuracy, representativeness, and utility of the retrieved data sets and **establish “Truth in Data” checks in all its data processing functions** under this task.

Solano Napa Activity Based Model (SNABM) Review

GHD will conduct a detailed review of the 2015/2040 SNABM within the SR 29 corridor study area. The model highway network and land use data assumptions in Napa County will be checked using existing references, such as, **community circulation plans, Vision 2040 (NVTa’s Countywide Transportation Plan)**, plus any other references by the SWG. Both the highway traffic and transit ridership along the SR 29 corridor will be validated to the existing conditions.

GHD will compare model volumes to counts identified in the City of American Canyon, City of Napa and County of Napa circulation studies and other recent studies in the project area and propose adjustments where appropriate for review and acceptance by the SWG. Conflicts will be identified and documented. Existing conditions and projected future year conditions (2040) for weekday peak hour traffic and weekend visitor peak hour multimodal demand will be summarized. Where weekend peak volumes are not available, The GHD team will develop a methodology to factor from weekday data based on published peak hour data by Caltrans, Streetlight and NPMRDS data. The model will be reviewed and accepted by the SWG. The validated 2015 and 2040 SNABM will be used to develop the travel demand growth projections for the SR 29 corridor.

Deliverables:

- Inventory listing of traffic count, ridership count and collision data inventory
- Streetlight Origin-Destination patterns by mode (vehicle and ped/bike), period of the day, and day of the week, including weekends
- Most recent 12 months of continuous NPMRDS speed data for corridor study roadways designated as part of the NHS
- Base year Streetlight network assignment for non-NHS roadways on interest
- Travel Demand Forecast Model Validation and Forecast Technical Memorandum

Task 2 - Ongoing Stakeholder and Community Outreach and Project Oversight

2.1 - Prepare a Draft and Final Public Outreach Plan

GHD will develop a comprehensive Public Outreach Plan that allows for effective outreach with all planning partners and community stakeholders in developing the CMCP. This will include a broad range of stakeholders including those in the private, public, and non-profit sectors, the business community, environmental interest groups, public health advocates, technology and broadband stakeholders, as well as environmental justice and social-equity organizations.

The Outreach Plan will ensure the agency is meeting all Title VI and Environmental Justice requirements and engage communities impacted by the corridor, including strategies to engage disadvantaged communities.

GHD will submit a draft CMCP Public Outreach Plan and, based on one set of consolidated comments from the SWG, submit the final Public Outreach Plan.

2.2 - Stakeholder/Jurisdictional Meetings

GHD will coordinate with NVTa, County of Napa, Cities of Napa and American Canyon, and Caltrans District 4 to develop and finalize a complete listing of stakeholders. GHD to participate in up to four (4) stakeholder meetings. GHD will coordinate with the SWG to develop an agenda for these meetings and provide a summary of key discussion and action items of the meeting.

2.3 - Committee Meetings

GHD will provide updates and/or materials for staff updates to NVTA's Citizen Advisory Committee (CAC) and Technical Advisory Committee (TAC) approximately four (4) times during the course of the project. These committees will review project progress and submit comments to the Staff Working Group (SWG) and the NVTA Board.

2.4 - Public Meetings

2.4.1 - GHD shall promote, advertise, and conduct up to two (2) public charrettes at different locations/times through a multi-media campaign (including, but not limited to, use of newspaper and radio broadcast) through the Citizen Advisory Committee and other stakeholders to gain public involvement and refine plan concepts. One (1) of the public charrettes will be held in the beginning of the process to gain initial input and feedback and one (1) charrette should be held later in the process to review the draft Corridor Plan and recommended improvement concepts.

GHD will use a combination of group exercises, live polling, small breakout sessions, individual stations for discussion on specific topics, and/or visual preference activities. Meetings will be participant-driven and engaging.

During live polling, GHD will utilize small easy-to-use handheld keypads enabling audience members to immediately and anonymously respond to multiple-choice questions posed on-screen during staff presentations. Since social pressure is removed when audience responses are anonymous, we will have a more accurate idea of what issues are truly important.

2.4.2 - Prepare presentation materiel for City Council and County Board of Supervisor meetings. Most presentations will be conducted by NVTA staff and/or City/County staff.

2.4.3 - Prepare presentation materials and present no more than three times to the Napa Valley Transportation Authority Board (NVTA Board) which will act as the steering committee for the CMCP.

2.4.4 - GHD shall meet with SWG approximately six (6) times over the course of the study (made up of NVTA staff, Caltrans staff, and members from the City of American Canyon, City of Napa, and County of Napa). Prior to publication of milestone documents, draft documents and supporting data will be reviewed by the SWG. This group is

expected to meet approximately six (6) times at key points in the process: to review and accept the Vision, to review **the existing corridor study's results; potential improvement programs**, review the draft Corridor Implementation Plan. Day-to-day work on project documents and meetings will be carried out by GHD, with direct staff support from NVTA.

2.5 - Collateral Outreach Materials

2.5.1 - Project Logo/Branding

GHD will coordinate with the SWG to develop a brand for the study that will be used for all project related materials and deliverables. Project branding will give the CMCP process a unique identity and visual queue to the public. The SWG will be given several options to choose from and will be have final approval of the overall theme.

2.5.2 - Development of Interactive Web-Based Tool

GHD will develop an interactive web-based tool using on-line interactive map technology, Social Pinpoint. All content of the interactive web-based tool will be in English and Spanish.

The Social Pinpoint platform encourages engagement by allowing the community to provide feedback that can be directly linked to a geographical location, complete online surveys, and integrate the platform with their own social media platforms to create digital content that encourages them to share and post on the topic. Importantly, Social Pinpoint provides tools to categorize, collate, and analyze feedback and data in a meaningful way to allow for reliable and efficient data management. It also allows for the combining of geographic and other spatial information such as contour lines, natural hazard risk areas, and project areas.

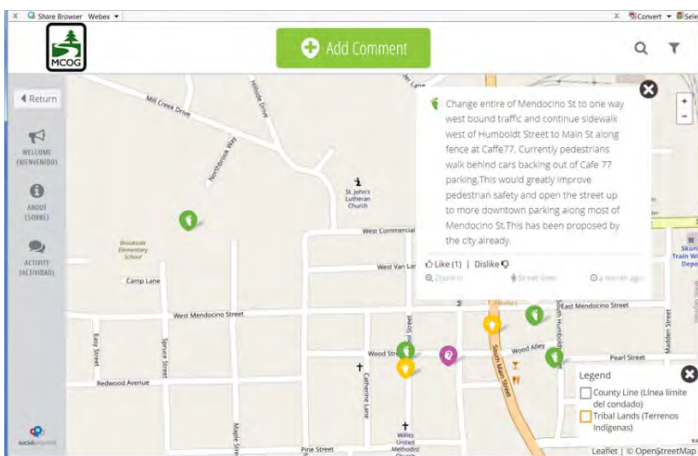
The interactive web-based tool will allow the public to provide geo-referenced input on where issues or improvement needs are. This supplemental input will help inform study recommendations. After being live for 10 weeks, the logged input will be downloaded and summarized. This summary report will be shared with the SWG.

Once the CMCP improvement package is established, public outreach will be repurposed to informing the public of the proposed corridor improvement package and gauging the level of public support for it. All input received will be documented for inclusion in the CMCP final report.

2.5.3 - Media

GHD will develop and disseminate news releases on a regular basis promoting upcoming opportunities for engagement, workshops, and key milestones in the process. A key component of this effort will be coordination with public information officials at all member agencies as well as Caltrans and others.

GHD will promote meetings, issues, and opportunities for engagement via a variety of social media channels including Facebook, Twitter, and NextDoor.



GHD will encourage people to share photos and video locations relevant to the CMCP. These can be posted on the project website and shared via social media.

2.6 - Public Outreach Summary Report

GHD will develop a comprehensive Public Outreach Summary Report that documents all outreach activities performed as part of the CMCP and summarizes the results of each outreach strategy/activity. The report will distinguish and document outreach activities that specifically targeted disadvantaged communities. The degree of disadvantaged community participation will also be documented.

The Public Outreach Summary Report will be included as part of the draft and final CMCP document review process described in Task 4.

Deliverables:

- Participate in four (4) Stakeholder Meetings
- Participate in four (4) CAC/TAC Committee Meetings
- Perform two (2) Public Charrettes.
- Assist NVTa and City/County of Napa staff with presentation materials on the CMCP
- Conduct up to six (6) meeting with the SWG

- Develop Project Logo
- Interactive bilingual web-based tool
- Public input Summaries
- Maintenance of Stakeholder Database
- Maintenance and presence on social media
- Collateral Materials (PPT, Fact Sheet, etc.)
- Draft and Final CMCP Public Outreach Summary Report

Task 3 - Develop Plan Components

3.1 - Evaluate Opportunities, Develop Corridor Plan Framework, and Literature Review

Consistent with the 2018 Comprehensive Multimodal Corridor Plan Guidelines (CTC, December 2018), the planning and analysis framework proposed for the CMCP will be based on the Smart Mobility Framework (SMF). The performance metrics selected for the CMCP will inform each of the six SMF objectives to ensure that the resulting improvement recommendations provide a balanced, sustainable, and multimodal assessment of current and forecast corridor conditions.

One of the six SMF objectives is Reliable Mobility. This SMF objective addresses congestion management as it relates to multimodal service quality, multimodal travel reliability, and multimodal travel mobility. A matrix framework will be established consistent with the Federal Congestion Management Process to serve as an evaluation tool for proposed CMCP roadway capacity and operational improvements including ITS improvements. Each project **will be evaluated relative to NVTa's CMP goals as well as RTP goals.**

Based on these frameworks, the GHD team will coordinate **with the Project Management Team to "refresh" the Purpose and Need Statement** for the SR 29 corridor - expanding its breadth to include alternative modes and parallel facilities that serve both regional and local area traffic within the corridor.

GHD will prepare a literature review of like corridors that have similar characteristics and serve similar demand profiles as SR 29. This will include but not be limited to corridors that have been extensively studied by GHD including SR 68 (Monterey County), SR 227 (San Luis Obispo County), and SR 49 (Nevada and El Dorado Counties).

3.2 - Summarize Corridor Existing Studies and Plans

GHD will prepare a listing and brief summary of all planning documents of relevance to the SR 29 corridor. The Plan documents will include but will not be limited to the SR 29 Gateway Corridor Improvement Plan, the City of American Canyon Broadway Specific Plan, the Watson Ranch EIR, County of Napa and American Canyon Circulation Elements, the County of Napa Airport Industrial Specific Plan, City of Napa General and Specific Plans, NVTAs Countywide Transportation Plan Vision 2040, NVTAs Pedestrian and Bicycle Plans, NVTAs Express Bus Study and travel demand model development documents. GHD will prepare a matrix that reflects all policies germane to the SR 29 corridor from these prior planning efforts. This matrix will facilitate a qualitative determination of the degree of policy consistency of each of candidate improvements considered as part of the CMCP.

3.3 - Model Future Traffic Projections

3.3.1 - Solano Napa Activity Based Model Review

The GHD team will conduct a detailed review of the 2015 baseline and 2040 out-year forecast volume sets from Solano Napa Activity Based Model (SNABM) within the SR 29 corridor study area. The model highway network and land use data assumptions in Napa County will be checked using existing references, such as, community circulation plans, Vision 2040 (NVTAs Countywide Transportation Plan), plus any other references by the SWG.

Both the highway traffic and transit ridership along the SR 29 corridor will be validated to the existing conditions. The GHD team will compare model volumes to counts identified in the City of American Canyon, City of Napa and County of Napa circulation studies and other recent studies in the project area. GHD will propose adjustments where appropriate for review and acceptance by the SWG. The validation check process will follow the latest industry standards, such as Model Validation and Reasonableness Check Manual, 2nd Edition (FHWA, September 2010). If there are conflicts with established State/Federal criteria, The GHD team will identify and document them for review by the SWG.

Once “cleared” for application, all traffic demand forecasts will be prepared in accordance with the methodologies described in the NCHRP Report 765 - Analytical Travel Forecasting Approaches for Project-Level Planning and

Design, NCHRP 716 - Travel Demand Forecasting Parameters and Techniques and California Transportation Commission (CTC) - California Regional Transportation Plan Guidelines.

The GHD team will develop a report, which summarizes existing conditions and projected future year conditions (2040) for weekday peak hour traffic and weekend visitor peak hour multimodal demand within the SR 29 corridor. Where weekend peak volumes are not available, the project team will develop a methodology to factor from weekday data.

3.3.2 - Baseline and Future Baseline Volume Sets

Based on the review of model performance, GHD will consider the need to apply Dynamic Traffic Assignment (DTA - optional task) covering the study corridor, to produce realistic hourly volume sets that models queue spillbacks and peak spreading explicitly. If DTA is considered essential for developing accurate baseline and future volumes sets - GHD will coordinate this option with the SWG. The coverage of the DTA model will be larger than the study corridor to capture the impacts of inbound queue spillbacks beyond the study corridor gateways.

Based on this process, a 2015 baseline and 2040 future volume sets will be finalized. These volume sets will serve as inputs to the corridor-wide VISSIM micro-simulation model.

3.3.3 - VISSIM Micro-simulation Model

The VISSIM model developed as part of the 2014 SR 29 Gateway Corridor Improvement Program will be the primary analysis tool for the CMCP. GHD will review this model and make all requisite network modifications to accurately reflect SR 29 and applicable parallel facilities. GHD will be code the VISSIM network for the corridor segments using Google Earth aerial maps and street views for all the required geometric attributes.

The VISSIM micro-simulation model capacity assumptions by facility type (including reasonable ranges) will be established prior to the validation process. These will be shared with the SWG for review and comment.

The source of speed data needed for calibration will be PeMS and NPMRDS as processed in Task 1. Based on the PeMS and NPMRDS speed data, GHD will adjust the default free-flow speed to reflect the local conditions along this corridor. If needed and justified, adjustments to the

default capacity will also be performed but only within the specified ranges established with the SWG. Validating the VISSIM model will follow the procedures outlined in Guidelines for Applying Traffic Microsimulation Software (FHWA, 2004). GHD will prepare a VISSIM validation memorandum describing the steps taken to calibrate/validate the VISSIM model.

Once the VISSIM model is validated, the future year 2040 volume set will be input and the model executed to generate 2040 future baseline conditions.

3.4 - Program and Project Identification

In coordination with the SWG, GHD will identify potential programs and projects to improve the corridor while considering California Streets and Highways Code - Sections 2390-2397 and focusing on the Solutions for Congested Corridors Program (SCCP) strategies to:

- Reduce traffic congestion and address local access focusing primarily on operational improvements rather than capacity or facility expansion
- Improve corridor safety, accessibility and crossings for all travel modes
- Improve corridor circulation by evaluating pending connections/extension improvements of parallel roadways, improvements to existing mainline corridors, intersection improvements, or other congestion management strategies
- Improve transit access and transit flow
- Build upon aesthetic improvements identified in the SR 29 Gateway Corridor Plan to improve the appearance and cohesiveness of the corridor while ensuring that each jurisdiction remains visually distinct
- Upgrade technologies that will improve corridor operations and provide travel information
- Evaluate economic development, job creation and retention of the proposed projects/programs
- Reduce greenhouse gas emissions and air pollution impacts with proposed projects/programs, and stimulate efficient land use

3.4.1 - Program and Project Identification

The key analysis tools proposed by the GHD team for the CMCP are presented in Table 1. The purpose for application, output or measure/s of effectiveness (MOE) and whether the MOE is amenable for monetization as a societal cost (i.e., benefit) is identified for each analysis tool. Application of these tools is described below.

SNABM Travel Demand Modeling

Unique volume sets that reflect the traffic diversion and AM/PM peak hour circulation characteristics will be developed to quantify the diversion of traffic onto parallel routes created by candidate roadway capacity improvements (i.e., roadway extensions, and improvements to existing parallel routes) and other operational improvements. These future year volume sets will serve as inputs to the VISSIM micro-simulation model.

VISSIM Roadway Operations Performance Summary

The following performance measures will be generated from VISSIM micro-simulation for existing, future baseline, and future with project.

- Person throughput
- Person Hours Of Delay (PHD)
- Travel Time Reliability - Travel Time Index/Buffer Time Index
- Vehicle Hours Of Delay (VHD)
- Vehicle Miles Travelled (VMT)

VISSIM, similar to other planning-level analysis tools, does not model trucks separately. However, NPMRDS data provides truck speeds. GHD will use the NPMRDS (processed in Task 1) to calculate existing truck delay and build correlation between existing truck delay and regular vehicle delay. Using the same correlation, GHD will estimate truck delay under baseline and future year conditions (with and without project).

Travel Time Reliability Analysis Results Performance Summary (passenger vehicles and trucks)

GHD will use NPMRDS speed data for all roadways designated as part of the National Highway System (NHS) for baseline travel time reliability and congestion analysis. The retrieval and processing of this data is described under Task 1. GHD will compute the following performance metrics for passenger vehicles in the study corridor:

- Buffer time
- Buffer Time Index
- Congestion and Operational Efficiency (Congestion Metric and LOTTR - passenger vehicles)
- Percent of Corridor Congested
- Percent of Corridor Reliable

Federal definitions from the National Performance Management Measures Rule will be used to define congestion and reliability. GHD will apply both the national

rule's definition of reliability (based on the 80th percentile speed) and the Highway Capacity Manual's definition of reliability (based on the 95th percentile speed).

Given that free flow speed is a key variable for calculating both Congestion Level and Level of Travel Time Reliability (LOTTR) free flow speed will be empirically estimated for each roadway segment using NPMRDS data between the hours of midnight and 3 AM. In instances where average free flow speed is lower than average peak hour speed - free flow speed will be set at peak hour speed. These and other conventions will be discussed with the SWG to determine the appropriate data protocols for analysis. Maps displaying AM/PM peak hour Congestion and LOTTR results for Passenger Vehicles will be developed.

To estimate the change in reliability (buffer time only) as a result of the CMCP improvement concepts, GHD will holistically project the change of travel time reliability (i.e., buffer time) for each CMCP alternative under future year conditions. This will be done by applying the relative change in the Travel Time Index (TTI) between baseline and future to adjust the empirically based NPMRDS baseline estimate of buffer time. This assumes that the effect of construction, weather, and incidents that is reflected in the most recent 12-months of NPMRDS data is reasonably reflective of like events in the future.

Buffer time will be the key Measure of Effectiveness from this analysis (versus Buffer Time Index) given that it can be monetized based on the Caltrans 2016 Economic Parameters using the same societal cost as delay. These estimates will be annualized and expanded to reflect the 2040 design life horizon.

Interconnected Streets and Integrated Corridor Management

GHD and ETG will provide an ITS benefit assessment. This could include validating the operational impacts of implementing Integrated Corridor Management (ICM) throughout the study corridor through active freeway management, active Transportation Demand Management strategies, active transit management, active arterial management, and traveler information systems in the corridor.

Vehicle Collision Reduction Analysis Performance Summary

Based on the data processed in Task 1 and contributing factors from the SWITRS/TIMS baseline collision

assessment, the GHD team will apply Part C of the Highway Safety Manual (HSM) to estimate the safety performance for the CMCP improvements. GHD will apply Crash Modification Factors (CMF) as appropriate. The estimated reduction in collisions will be distributed by severity (PDO, Serious Injury, Fatality) based on historical data. This analysis will inform following performance metrics:

- Number of vehicle collisions
- Rate of vehicle collisions per number of vehicle trips
- Consideration of policies that support public safety and security such as lighting and other crime prevention and safety measures

Pedestrian/Bicycle Collision Analysis Performance Summary

Based on the data processed in Task 1, GHD will isolate all pedestrian/bicycle related collisions and associated reductions. Estimated reduction in collisions will be distributed by severity (PDO, Serious Injury, Fatality) based on historical data. This analysis will inform following performance metrics:

- Number of bicycle and pedestrian collisions
- Rate of bicycle and pedestrian collisions per number of bicycle and pedestrian trips
- Consideration of policies that support public safety and security such as lighting and other crime prevention and safety measures

GHD will summarize both the vehicular and specific pedestrian/bicycle related collisions for input into either Cal-B/C, the HSIP Analyzer or like off-model excel Highway Safety Manual (HSM) compatible worksheets to compute monetized benefits. The basis for any of these options shall be the Caltrans 2016 Economic Parameters. Once monetized, this estimate will be expanded to reflect the design life horizon year.

For the Federal Performance Monitoring Rule PM(1) metrics that reflect rates, GHD will compute segment specific VMT (AADT x segment length in miles). For freeway and local roadways, segment lengths will be computed within GIS or by post mile. The source of baseline and future daily traffic volumes with and without the CMCP improvements will be from SNABM output The PM (1) metrics will be computed at the corridor scale of analysis and Targets checked to determine consistency with State/MPO safety targets.

Active Transportation LTS Connectivity Analysis

GHD will examine the LTS connectivity assessment under **future year conditions relative to each corridor alternative's** active transportation improvement package. GHD will use Census block scale of analysis to establish a geodatabase of demographic, income/poverty, language, and employment within the study corridor from the 2010 Census, American Community Survey (ACS), and Longitudinal Employment and Housing Data (LEHD) **datasets. This data will be proportionately "grown" to reflect** future year conditions based on the projected future growth resident in the SNABM land use database.

Based on roadway, bicycle, and pedestrian networks; transit network data; and Points of Interest (POI) data, GHD will perform an LTS pedestrian and bicycle connectivity assessment of the CMCP active transportation improvements. The assessments will differentiate between advantaged and disadvantaged populations to assess the degree of connectivity of the low-stress network under future (2040) conditions for these demand markets.

GHD will also examine the LTS accessibility characteristics to specific destination types (POI) across each CMCP improvements. POIs could include, but not limited to, schools, transit stops/hubs (including rail stations), hospitals, and commercial centers.

Active Transportation Mode Share Shift Analysis

GHD will apply the NCHRP 552 Guidelines for Analysis of Bicycle Infrastructure Investments method to estimate mode share shifts, vehicle trip and VMT reductions of the active transportation improvements identified in each of the CMCP active transportation improvements. The analysis will be applied to three distance buffers (1/4, 1/2, and 1 mile) as proscribed in NCHRP 552.

This analysis will yield the following outputs for each of the CMCP pedestrian/bicycle improvement:

-
- Number of new bicycle riders (mode shift) for commuting and non-commuter trips
- Low, moderate, and high estimates of vehicle trip and associated VMT reductions
- Excel workbooks and GIS distance buffer maps.
- Monetized health benefit results

Transit Accessibility Analysis Performance

As described in the accessibility assessment, GHD will apply the LTS analysis to determine the walking and biking

connectivity to existing/future transit facilities; accessibility to transit facilities by all modes; and, other multimodal hub points of interest.

Bus transit mode shifts from autos will be based on mode split output from SNABM and GIS-based tools to assess the following:

- Transit station accessibility
- Bus transit mode shifts from autos on SR 29 and adjacent arterial system roadways

Air Quality and Climate Change Greenhouse Gas Emissions

GHD will quantify the change in health-based criteria pollutants as well as climate change greenhouse gases (CO₂ and CO₂ equivalents). Based on the on-road vehicle activity changes quantified, GHD will use the SB-1 Emissions Calculator tool developed by the California Transportation Commission to calculate the change in these emissions as a result of the CMCP improvements. The emissions analysis will be inform based on the VMT and VMT by speed class distribution characteristics of each the CMCP improvements.

Climate Adaptation Summary

GHD will perform a qualitative assessment of climate preparedness and infrastructure asset protection/resilience and connectivity benefits of the CMCP improvements.

GHD will evaluate the enhanced risk associated with not implementing the CMCP improvements for the study **corridor as well as the corridor's its overall use and** functionality on:

- Multimodal transportation infrastructure Assessment
- Network Connectivity Assessment
- Goods Movement Assessment
- Emergency Response Assessment

GHD will use existing on-line mapping tools such as Caltrans Vulnerability Interactive Mapping Tool (District 1) and CalEnviroScreen 3.0 developed by the Office of Environmental Health Hazard Assessment, and other on-line tools to inform this assessment. GHD will consider all applicable climate change events but will focus primarily on flood and wildfire events.

Benefit Burden Analysis Summary

GHD will quantify the distribution of costs and benefits resulting from the implementation of the CMCP

improvements on disadvantaged communities (low-income and minority individuals) within the study corridor. This **analysis will be based on NVTa's definitions of minority and low income populations** for Napa County.

GHD will perform a select link and zone analysis for roadway improvements to identify the percent of motorists using the improved facilities who are from traffic analysis zones defined as disadvantaged.

As described under the Active Transportation Accessibility and Mode Shift Analysis, GHD will perform LTS connectivity assessments to identify the degree of access to active transportation and transit improvements by disadvantaged communities versus non-disadvantaged communities.

Disproportionately high and adverse effects resulting from the implementation of the CMCP improvements on minority and low-income populations (i.e., EJ communities) will be examined. Additionally, the CMCP planning process itself will document the outreach opportunities provided to all segments of the population to give input into the CMCP.

Economic Development Assessment

The economic analysis of the mobility improvements along the study corridor will consist of two parts:

- Benefit-cost analysis comparing the user benefits of the improvement plan with the costs of implementation
- Economic impact analysis showing the regional impacts of the improvement plan in terms of gross regional product (GRP), jobs, and personal income

The benefit-cost analysis will be informed by deliverables previously described.

GHD will conduct an economic impact analysis of the CMCP improvements. To inform this analysis of regional economic development, job retention strategies, and supporting activities, GHD will review relevant economic development plans prepared by economic development and local planning agencies.

GHD will conduct an economic impact analysis using IMPLAN economic multipliers (or other sources if desired). The analysis will consider the short-term construction benefits as well as the long-term transportation efficiencies generated by the project. Economic impacts will be reported in terms of Gross Regional Product, jobs, and personal income.

GHD will combine this information with the truck performance information and the B/C analysis results of the CMCP improvements and prepare a technical memorandum describing the assumptions and analyses used to develop the economic development and return on investment potential of the CMCP improvements.

Efficient Land Use

GHD will analyze change in modal choice access relative to commercial and/or mixed-use POI based on the LTS pedestrian/bicycle connectivity analysis (See Active Transportation Connectivity LTS Analysis).

3.4.2 - Benefit-Cost Analysis

Per the Smart Mobility Framework (SMF), GHD will evaluate each CMCP corridor improvement across each performance metrics and establish a relationship with the following six SMF objectives:

- Location Efficiency
- Reliable Mobility
- Health and Safety
- Environmental Stewardship
- Social Equity
- Robust Economy

GHD will develop planning level cost estimates for each project or program, including costs to build facilities or acquire program materials, annual operation and maintenance costs.

The holistic metric will be Benefit-Cost (i.e., return on investment). The Benefit-Cost Assessment for the CMCP will include the following analyses:

- Monetized benefits for Benefit-Cost based on the 2016 Caltrans Parameters of Societal Costs. All MOEs amendable to benefit monetization will be incorporated into the Benefit-Cost assessment.
- Non-Monetized benefits for measures that are expressed as indices or rates that are not amendable to monetization. These include the National Performance Management Rule (PM1) metrics and accessibility indices/scores generated by the LTS analyses.
- Non-Monetized benefits of other regional assessments that speak to state/federal transportation planning objectives. These include environmental justice; economic development; climate change vulnerability; and emerging technologies.

Benefits will be monetized based the societal cost information from Caltrans 2016 Economic Parameters. The latter information informs the Caltrans Cal-B/C analysis tool as well as other benefit-cost analysis tools including the HSIP Analyzer and the SB-1 Emissions Calculator. Monetized benefits will be combined with currently available planning level improvement cost opinions. Benefit-cost estimates will be computed for the CMCP improvements. All quantitative benefits will be annualized and projected to 2040 (reflects a 20-year design life).

Equal attention will be given to documenting the beneficial outcomes of measures not directly reflected in the Benefit-Cost assessment of the CMCP. These include: CMCP Consistency (with other existing plans and policies per products developed in Task 3); CMCP Policy Consistency (NVTa, Cities of Napa, American Canyon, County of Napa, and Caltrans); Environmental/Institutional Sensitivity (beyond air quality which will be reflected in the B-C); and, Community Acceptance (based on the community engagement process).

Based on the B-C results and plan/policy consistency assessments, projects will be selected for implementation and prioritized based on their ability to achieve a balanced set of transportation, environmental, and community access improvements and community input. This will form the basis of the preferred corridor concept.

GHD and SWG will develop, and the Stakeholders, TAC, and NVTa Board will review, a menu of proposed physical improvements and programs that can advance improvements in the corridor. The menu will include existing projects or programs that have not been fully implemented as well as near-term, mid-term and long-term projects.

GHD will develop a matrix to determine the ability of each existing or new project to advance the framework and to improve the corridor by advancing one or more of the SMF (6) objectives. The matrix will list short, mid and long-term projects, develop an optimized order of delivery, and rate projects based on how well the project accomplishes the above stated goals.

3.5 - Corridor Improvement Implementation Plan

GHD will develop a Corridor Improvement Implementation Plan, covering the following topics for recommended programs and projects:

- Project Deliverability
- Congestion Relief
- Air Quality
- Safety Improvements
- Accessibility
- Efficient Land Use

All these topics will be informed by the analysis and documentation developed as part of Task 3.4.

GHD will also develop an assessment of funding options and strategies for implementation. This will entail identifying a list of potential funding sources that will match the recommended projects/programs to applicable funding **sources. This will include an assessment of NVTa's** financially constrained Regional Transportation Plan and what, if any, revenue capacity exists or can be reasonably assumed that could provide funding capacity for any of the proposed improvements of the preferred corridor concept.

GHD will identify opportunities for multi-jurisdictional programs or projects. This will include listing the affected jurisdictions and key agency stakeholders that should be consulted. GHD will also identify implementation mechanisms, public/private partnerships, and additional project/program phasing strategies that should be considered together with the phased groupings of short-term (1-2 years) mid-term (3-5 years) and long-term (beyond 5 years) improvements.

Based on the information developed as part of Task 3.4, GHD shall develop an Economic Impact Analysis of the proposed improvements. The economic impact analysis should include the following:

- Use of construction cost estimates and projected gains in worker productivity and reduced delays/congestion and possible net tourism gains (such as transient occupancy tax revenue)
- Impacts to goods movement and freight
- Direct Impacts and estimated employment changes from budget dollars to be spent
- Induced and indirect impacts on business revenues and employment
- State and local tax gains

GHD and SWG will prepare, and the Stakeholders, TAC, and NVTa Board will review, a draft implementation plan for corridor improvement projects and programs to address the

study's varied objectives. The implementation plan will recommend steps for immediate, short-term (1 -2 years), mid-term (3-5 years) and long-term (beyond 5 years) implementation. The implementation plan will provide an estimated project delivery schedule for key improvements, evaluate project readiness, identify a funding strategy of existing and potential new funds available to initiate and operate the recommended programs and projects, and will recommend a governance option for the multijurisdictional projects or programs.

Deliverables:

- Model Forecast Technical Memorandum
- Baseline, Opening Day and Design Year Volume Sets
- VISSIM Model Baseline Validation Memorandum
- Electronic files of SNABM and VISSIM Modeling Runs
- VISSIM Micro-simulation Operations Model Calibration/ Validation Memorandum
- Micro-simulation Results Roadway Performance Summary
- Travel Time Reliability Analysis Results Performance Summary
- Vehicle Collision Reduction Analysis Performance Summary
- Pedestrian/Bicycle Collision Analysis Performance Summary
- Active Transportation LTS Connectivity Analysis Summary
- Active Transportation Mode Share Shift Analysis Summary
- Transit Accessibility Analysis Performance Summary
- Emissions Analysis Performance Summary
- Benefit Burden Analysis Summary
- Freight Reliability Throughput Analysis Performance Summary
- Climate Adaptation Summary
- Planning Level Cost Estimates
- Benefit-Cost Assessment Summary
- List of Phased Improvements for Implementation
- Implementation
- Economic Analysis Memorandum
- Implementation Plan

Task 4 - Final Plan and Public Meeting

4.1 - Draft and Final Plan

Administrative Draft CMCP

Based on the data collected, public input received and technical analyses performed, GHD will prepare an Administrative Draft of the CMCP for early internal review. GHD will prepare the Draft CMCP based on one consolidated list of comments received on the Administrative Draft CMCP.

Draft CMCP

GHD will develop the Draft CMCP for distribution to agencies, stakeholders and the public.

Final CMCP

GHD will prepare the Final CMCP based on one consolidated list of comments received on the Draft CMCP.

4.2 - Public Meeting

Public Meeting

GHD will prepare a PPT presentation and present the Final CMCP to the NVTA Board as a Noticed Public Meeting.

Deliverables:

- Administrative Draft, Draft and Final CMCP
- Preparation and Presentation of the Final Plan to the NVTA Board

Scope of Work - Objective 2

The following Scope of work is for Object 2 of Napa Valley **Transportation Authority's (NVTa) State Route (SR) 29** Comprehensive Multimodal Corridor Plan and Project Initiation Document (PID) for SR 29 through American Canyon. GHD will begin this phase of work upon written notice to proceed from NVTa and after the approval of the Object 1: the update to the SR 29 Gateway Corridor Plan. It is recommended this scope and fee be revisited to ensure it meets the needs of the findings of Object prior to that start of work.

Task 1: Project Management, Coordination and Quality Control

GHD Inc. (GHD) will provide project management, coordination with and between the County and key project stakeholders.

1.1 - Project Management & Quality Control

GHD will perform the following duties:

- Provide Project Quality Control/Quality Assurance
- Supervise, coordinate and monitor procedures for preparation of the PID, and other supporting studies consistent with and in conformance to the guidelines **published in Caltrans "Project Development Procedures Manual" (PDPM)**
- Coordinate and monitor deliverables, project submittals to and reviews by the Project Development Team (PDT)
- Ongoing correspondence and communication with **NVTa's and Caltrans project managers.**
- General correspondence, monthly progress reports, invoicing, and project schedule updates.

1.2 - Project Meetings & Agency Coordination

Initial Project Meeting (Pre-PID Meeting)

GHD will coordinate the Pre-PID meeting with NVTa, City, County, and Caltrans staff in accordance with the PDPM. Among the purposes of the meeting will be to ensure mutual understanding of the intended process, its objectives, milestones, and products, and to refine the work program and project schedule where necessary. This meeting will also identify necessary members of the PDT, including all necessary stakeholders.

PDT Meetings

Up to four (4) PDT meetings are assumed through

completion of the PID. GHD will lead each of these meetings and will provide all PDT meeting coordination and oversight, including the preparation of meeting minutes summarizing actions taken, actions to be taken, responsible party, and resolution date.

Agency Coordination

In addition to the four formal PDT meetings, the scope assumes ten (10) Webex or conference calls with the NVTa, Caltrans, and stakeholders as appropriate to ensure timely delivering of the PID.

1.3 - Public Information Open House (1)

GHD will conduct one (1) public information open house. This open house will be held as the project approaches completion, prior to the preparation of the Draft PID.

The purpose of this meeting is to present the project's

Purpose and Need and the alternatives being considered. It is assumed NVTa and City/County staff will conduct the presentations; however, GHD will assist in the preparation of meeting presentation material. GHD will prepare and produce handouts, a meeting notice project fact sheets, agendas, comment sheets, and other print materials. Up to two (2) GHD staff will also attend the meeting.

GHD will take the input received at the public meeting and summarize it in the Draft PID as public comments. It is assumed NVTa and/or the City will schedule the public open house and make arrangements for a facility.

GHD will assist in the preparation of public notifications, but it is assumed NVTa and/or the City/County will arrange to release the notices to the appropriate media channels and direct mail to the project database.

1.4 - Project Presentations (3)

GHD will available to assist NVTa, Country and/or City make up to three (3) presentation to the City Council, County Board of Supervisors, and NVTa Board as appropriate. It is assumed NVTa and City/County staff will conduct presentations; however, GHD will assist in the preparation of meeting presentation material.

Task 2: Preliminary Research/Data Collection and Base Mapping

2.1 - Preliminary Research/Data Collection

Under this task, existing data and information for the project and project area will be assembled. The types of

information collected will include (but not be limited to) existing mapping, as built plans, utility maps, record improvement drawings and reports, and existing data including County and Caltrans collision data, right of way information, records maps, title information, utility information, etc. The budget assumes all data will be provided by NVTa, Caltrans, City of American Canyon, and other stakeholders.

Under this task, GHD will mapping/as-built request letters for all utilities in the area for NVTa to place on letterhead and send to the utility purveyors.

2.2 - Preliminary Base Mapping

For this preliminary phase of the project, topographic survey is not included in this scope of services. The base mapping will be comprised of a scaled (non ortho-rectified) aerial color photo mosaic obtained from readily available sources. The base mapping will be prepared at a scale of **1"=500'**, with vertical information developed from available sources including, but not limited available GIS databases and InterMap.

Existing right of way and property information will also be developed from available sources including, but not limited available GIS databases, right-of-way record maps and as-built plans. Utility information obtained from task 2.1 will be delineated on the base maps.

GHD will also prepare a Survey Mapping Needs for PSR-PDS Questionnaire and submit the questionnaire to Caltrans for review and comment. This scope assumes that no field surveys or fieldwork will be required.

2.3 - Existing Study Area Environmental Constraints

GHD will review all existing documentation, perform database reviews of the project corridor, and gather scoping level information on the following topics:

- Land use (including existing and future land uses; consistency with state, regional, trial, and local plans; parks and recreation; growth; farmlands; community character and cohesion; relocations; environmental justice issues; and utilities/emergency services/public facilities)
- Visual/aesthetics
- Historic/cultural resources
- Hydrology and floodplains
- Water quality and stormwater runoff

- Geology and soils
- Paleontology
- Hazardous waste/materials (a Phase I Initial Site Assessment (ISA) will be prepared by as part of determining the existing study area environmental constraints; the ISA study will be prepared to identify potential hazardous waste sites and that may have an impact along the study corridor quality within the project limits)
- Air quality, energy and climate change
- Noise and vibration
- Biological resources, section 4(f) properties
- Cumulative impacts
- Opportunities for context sensitive solutions

The draft ISA will be submitted to NVTa and Caltrans for review and comment. Comments will be incorporated into a final ISA that will be submitted to the County and Caltrans. The environmental constraints and conditions data will be used in a subsequent task to develop the PEAR.

Task 3: Purpose and Need Project Information Form

GHD will prepare the Project Initiation Form (PIF) and ensure that all steps outlined in the Caltrans Pre-Project Initiation Document (PID) Check List are met. Specifically, GHD will provide the following services.

3.1 - Develop Purpose and Need Statement

GHD will prepare a Draft "Purpose and Need" statement for the project. The "Purpose and Need" statement will be developed based on the study area deficiencies and constraints. A memorandum will be prepared that states the project's "Purpose and Need" and provided to the PDT for review, comment, and input.

3.2 - Prepare Draft of the PIF

GHD will prepare the Draft PIF, which is to include details on:

- Project description
- Funding sources
- Project schedule
- Basic transportation deficiency
- Project background
- Project purpose and need
- Proposed solutions or range of alternatives
- Environmental issues/known concerns
- Right of way concerns
- System planning

- Traffic data, accident data, alternative sketches
- Preliminary contact list for Project Development Team members

Upon completion of the first draft of the PIF, GHD will **submit it to NVTAs project manager and attend one (1) virtual meeting with the NVTAs staff to review the draft PIF, to discuss the information provided, and other information that may be required from any of the stakeholders.** Upon resolution of all comments and questions, we will then make changes to draft PIF and prepare a second draft to be circulated to Caltrans, County, and City prior to the official Pre-PID meeting.

3.3 - Prepare Final PIF

Following the Pre-PID meeting and upon receiving additional comments from the reviewing agencies, GHD will prepare the final PIF for final approval.

Task 4: Traffic Study: Intersection Control Evaluation (ICE) Step 1

Information from the corridor study will be summarized under this task.

4.1 - Step 1 ICE Summary

GHD will summarize the following information from the Objective 1 scope:

- Existing Safety Deficiencies. Traffic Accident Surveillance and Analysis System (TASAS) Tables, etc. will be reviewed within the study area by roadway segment and at primary study area intersection to identify and discuss current safety deficiencies.
- Existing Traffic Capacity and Level of Service. Traffic counts will be collected and the existing roadway and intersection LOS will be derived. The existing traffic conditions will be documented in a technical memorandum. the existing LOS conditions analysis will be prepared for approval by Caltrans. GHD will collect new intersection turn-movement counts, for the AM and PM peak hour periods, at all intersections within the project boundary.
- Transit/Pedestrian/Bicycle Facilities. Existing transit providers and pedestrian and bicycle facilities along the study corridor will be identified.

4.2 - Traffic Modeling Forecasts

The regional travel demand model, with adjustments recommended by GHD and the PDT, will be used to derive

construction year and design year forecasts. A forecast memorandum will be prepared in draft for review/comment by the PDT. Based on agency comments, the final forecasts will be prepared for approval by Caltrans.

4.3 - Evaluate Construction Year and Design Year Traffic Operations

The “no build” traffic operations conditions will be derived.

The alternatives selected for consideration in the PSR-PDS (in other phases in this scope) will be analyzed to determine the delays, LOS, and queues.

4.4 - Intersection Control Evaluation (ICE) Step 1 and Traffic Operations Report

GHD will use the traffic safety and operations analysis developed under this phase, along with preliminary geometric designs and costs estimates developed in other phases in this scope, to complete an ICE Step 1 in accordance with the Caltrans TOPD. The ICE will address:

- Traffic capacity and operational modeling (Traffic Operations Report)
- Safety performance analysis
- Life-cycle economic analysis
- Service-life analysis
- Geometric design
- Costs

Task 5: Alternatives Development & Analysis

GHD will develop and evaluate up to three (3) “build” alternatives and a no build alternative. The “build”

alternatives will be developed by GHD and in accordance with the findings of Object 1, the updated corridor plan, and will ultimately meet or reduce transportation deficiencies and address the project purpose and need. GHD will ensure the PDT is involved in the alternative development processes and will be consistent with the Caltrans ICE policy, TOPD 13-02.

5.1 - Develop Project Build Alternatives

GHD will prepare one PID level geometric designs for each **of the three “build” alternatives. The geometric designs will** be developed in sufficient detail to evaluate costs, design standards, right of way impacts, utility impacts, and environmental impacts. For budgeting purposes is assumed one (1) draft submittal of the each alternative will be provided to NVTAs, comments will be reviewed and addressed. GHD will then prepare revised draft exhibits

and submit those to the PDT for review a comment. Comments will be addressed and one set of final draft exhibits will be prepared for inclusion in the PID document.

It is assumed that electronic submittals of the geometric designs will be sufficient.

5.2 - Preliminary Environmental Analysis Report (PEAR)

The PEAR that will be prepared for this project will include:

1. The Project Description, based on the conceptual alternatives being considered and developed within Task 5.1
2. An analysis of potential environmental issues associated with each of the identified alternatives. The analysis will include scope, schedule, and costs associated with the subsequent environmental compliance process, and document the assumptions and risks used to develop them. This information will be presented in a tabular format for easy comparison between the alternatives
3. A discussion of the anticipated environmental documentation and anticipated environmental commitments needed for each alternative to comply with CEQA and NEPA requirements
4. An analysis of regulatory and agency permits likely to be needed for each project alternative

The PEAR will also consider the following topics, **consistent with guidance set out in Caltrans's PEAR Handbook (2009) and the City's preferred CEQA Checklist** (based on Appendix G of the CEQA Guidelines):

- Land Use
 - Existing and Future Land Use
 - Consistency with State, Regional, and Local Plans
 - Parks and Recreation
- Growth
- Farmlands/Timberlands
- Community Impacts
 - Community Character and Cohesion
 - Relocations
 - Environmental Justice
 - Utilities/Emergency Services/Public Facilities
- Visual and Aesthetic Resources
- Historic and Cultural Resources
- Hydrology and Floodplain
- Water Quality and Stormwater Runoff
- Geology, Soils, Seismic, and Topography

- Paleontology
- Hazardous Waste/Materials
- Air Quality
- Noise and Vibration
- Energy and Climate Change
- Biological Resources
- Section 4(f) and Section 6(f) Properties
- Cumulative Impacts
- Opportunities for Context Sensitive Solutions

The evaluation of these topics will be concise, yet will be discussed in sufficient detail to preliminarily assess the need for further studies, analyses, or permits that may be required. Environmental issues anticipated to require more in-depth review include biological resources and community impacts. Other issues (e.g., parks and recreation, Section 4(f) and 6(f) resources) are not expected to be implicated by the project; the PEAR will very briefly document why further environmental analysis of these resources is not necessary. The analysis will be based primarily on a review of existing documentation and databases. One (1) general field review of the project area will be conducted, documenting existing conditions of the project study area. This scope of work includes conducting a California Natural Diversity Database (CNDDDB) search of the project area, requesting a special-status species list from the U.S. Fish and Wildlife Service (USFWS), and conducting a cultural resources records search at the **California Historical Resources Information System's (CHRIS) Central Coast Information Center (CCIC)**.

The PEAR will include all required attachments, including the PEAR Environmental Studies Checklist, Estimated Resources by WBS Code, Schedule (Gantt Chart), and PEAR Environmental Commitments Cost Estimate.

5.3 - Design Standards

GHD will reference the Caltrans Design Information Bulletin (DIB) 78 Design Checklist based on the level of detail developed for each build alternative to assist in identifying anticipated non-standard design features that may deviate for the Highway Design Manual (HDM) design standards. The resulting list of anticipated non-standard design features will be documented and discussed with the PDT. Caltrans will identify the likelihood of approval of non-standard features.

5.4 - Storm Water Data Report (SWDR)

Based on the project build alternatives, GHD will prepare **the PID level SWDR's. The scope assumes that SWDR's**

will be required for one “build” alternative. Draft SWDR’s will be submitted to Caltrans for review/comment.

Comments will be incorporated and final SWDR’s will be prepared and submitted.

5.5 - Right of Way Estimates

GHD will complete the “Conceptual Cost Estimate - Right of Way Component” for the three “build” alternatives. The estimates will be completed using form 4-EX-8 of the Caltrans’ Right of Way manual. It is assumed NVTA and/or other stakeholders will provide market values.

5.6 - Develop Cost Estimates

GHD will develop PID level cost estimate for each “build” alternative per PDPM. GHD will also develop the estimated support cost that will be needed to complete PA/ED.

5.7 - Develop Schedules

GHD will develop a schedule for delivery of major milestones of the PA/ED phase.

5.8 - Project Risks

GHD will prepare a project risk register in accordance with Caltrans requirements. The risk registered will be reviewed at each PDT meeting and updated as the project progresses. GHD will update and the Risk Register will be included in the PID.

5.9 - Life Cycle Cost Analysis (LCCA)

GHD will prepare a LCCA in accordance with the Caltrans policy.

Task 6: Project Study Report/Project Development Support (PSR-PDS)

For budgeting purposes, it is assumed the appropriate PID document is a PSR-PDS. This task consists of preparing the draft and final PSR-PDS. The report preparation sequence will consist of preparing a draft PSR-PDS for review by PDT members; then a draft PSR-PDS for district wide distribution within Caltrans; then a draft final PSR-PDS for final review by the PDT; and then a final PSR-PDS submitted for Caltrans approval. The scope assumes that FHWA oversight is not required.

6.1 - First Draft PSR-PDS

GHD will prepare a First Draft PSR-PDS for initial review by the PDT. The First Draft PSR-PDS will, at a minimum, include all work completed in the previous project tasks. Up

to fifteen (15) bound copies of the Draft Report will be prepared and provided to the PDT for their review and comment.

6.2 - Review Comments on First Draft PSR-PDS

Comments received from the PDT will be reviewed and any identified issues or concerns will be addressed. It is assumed that a comment review meeting, if needed, will be conducted through a web-based meeting. GHD will prepare a written response to all comments received.

6.3 - Second Draft PSR-PDS

The second Draft PSR-PDS will incorporate any comments received from the PDT. Up to fifteen (15) bound copies of the Second Draft PSR-PDS will be prepared and provided for review and comment to the PDT and to Caltrans for district-wide and headquarters circulation.

During the Second Draft PSR-PDS review by Caltrans, the scope assumes Caltrans will conduct a joint Safety Review and Constructability Review meeting. Comments from the meeting will be summarized and a response will be prepared by GHD. The meeting response to comments will be distributed to the PDT and Caltrans.

6.4 - Review Comments on the Second Draft PSR-PDS

Comments received on the Second Draft PSR-PDS will be reviewed and any identified issues or concerns will be addressed. It is assumed that a comment review meeting, if needed, will be conducted through a web-based meeting. GHD will prepare a written response to all comments received.

6.5 - Third Draft PSR-PDS

Upon addressing all comments on the Second Draft PSR-PDS, GHD will then prepare the Third Draft PSR-PDS. Fifteen (15) bound copies of the Third Draft PSR-PDS will be prepared and provided to the PDT and Caltrans for their review and comment.

6.6 - Final PSR-PDS

The Final PSR-PDS will be prepared upon resolution of all final comments and issues. One (1) copy of the Final PSR-PDS will be submitted to Caltrans for final approval and signatures. It is estimated at this time that GHD will be responsible for the reproduction of up to fifteen (15) bound copies of the approved PSR-PDS.

Schedule - Objective 1


PROJECT SCHEDULE

M Meeting (CAC/TAC/SWG)
 C Charrette
 D Deliverable
 ☞ Check-In


#	Task Description Objective 1	Mar-19	Apr-19	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20
Task 1 Project Startup												
1.1	Project Management and Coordination											
1.2	Project Kick-Off Meeting		M									
1.3	Bi-Weekly Conference Calls	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞	☞
1.4	Data Retrieval / Processing / Review			D								
Task 2 Ongoing Stakeholder and Community Outreach and Project Oversight												
2.1	Prepare a Draft and Final Public Outreach Plan		D									
2.2	Stakeholder/Jurisdictional Meetings		M			M		M		M		
2.3	Committee Meetings		M			M		M		M		
2.4	Public Meetings	M	C	M		M		M	C		M	
2.5	Collateral Outreach Materials											
2.6	Public Outreach Plan and Summary Report		D						D		D	
Task 3 Develop Plan Components												
3.1	Evaluate Opportunities, Develop Corridor Plan Framework and Literature Review		D									
3.2	Summarize Corridor Existing Studies and Plans		D									
3.3	Model Future Traffic Projections				D							
3.4	Program and Project identification						D					
3.5	Corridor improvement Implementation Plan							D				
Task 4 Final Plan and Public Meeting												
4.1	Prepare Administrative Draft, Draft, and Final Plan											D
4.2	Present Final Plan to NVTB Board											M
Note: Schedule is preliminary, and will be finalized at the Project Kick-Off Meeting												

Schedule - Objective 2

PROJECT SCHEDULE

 Meeting (PDT)

 Deliverable

 Check-In

#	Task Description Objective 2	Feb-20	Mar-20	Apr-20	May-20	Jun-20	Jul-20	Aug-20	Sep-20	Oct-20	Nov-20	Dec-20	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21
Task 1	Project Management, Coordination and Quality Control																		
1.1	Project Management & Quality Control																		
1.2	Project Meetings & Agency Coordination																		
1.3	Public Information Open House (1)																		
1.4	Project Presentations																		
Task 2	Preliminary Research/Data Collection and Base Mapping																		
2.1	Preliminary Research/Data Collection																		
2.2	Preliminary Base Mapping																		
2.3	Existing Study Area Environmental Constraints																		
Task 3	Develop Plan Components																		
3.1	Develop Purpose and Need Statement																		
3.2	Prepare Draft of the PIF																		
3.3	Prepare Final PIF																		
Task 4	Final Plan and Public Meeting																		
4.1	Existing Transportation Conditions																		
4.2	Traffic Modeling Forecasts																		
4.3	Evaluate Construction Year and Design Year Traffic Operations																		
4.4	Intersection Control Evaluation (ICE) Step 1 and Traffic Operations Report																		
Task 5	Alternatives Development & Analysis																		
5.1	Develop Project Build Alternatives																		
5.2	Preliminary Environmental Analysis Report (PEAR)																		
5.3	Design Standards																		
5.4	Storm Water Data Report (SWDR)																		
5.5	Right of Way Estimates																		
5.6	Develop Cost Estimates																		
5.7	Develop Schedules																		
5.8	Project Risks																		
5.9	Life Cycle Cost Analysis (LCCA)																		
Task 6	Project Study Report/Project Development Support (PSR-PDS)																		
6.1	First Draft PSR-PDS																		
	Agency Review																		
6.2	Review Comments on the First Draft PSR-PDS																		
6.3	Second Draft PDS-PDS																		
	Agency Review																		
6.4	Review Comments on the Second Draft PSR-PDS																		
6.5	Third Draft PSR-PDS																		
	Agency Review																		
6.6	Final PSR-PDS																		

Note: Schedule is preliminary, and will be finalized at the Project Kick-Off Meeting

Budgets

The Budgets for Objective 1 and Objective 2 are in separate sealed envelopes

Experience and Qualifications



943 Reserve Drive, Suite 100
Roseville, CA 95678
P: 916 782 8688/F: 916 782 8689

Project Manager

Todd Tregenza, 916 782 8688
Todd.Tregenza@ghd.com

Services Include

- Complete Streets
- Roundabout Planning and Design
- Traffic Engineering
- Transportation Planning/Design
- Landscape Architecture/Wayfinding
- Civil Engineering
- Land/Construction Surveying
- Geographic Information Systems

Organization Type

Corporation

Certifications

DIR Number: #1000018754

About GHD

Established in 1928, GHD is a wholly-owned subsidiary - a privately held international engineering firm owned by our people and operates across five continents. Our people can offer decades of knowledge, as well as a deep understanding of the challenges facing businesses and communities today. Globally, we employ more than 9,000 people in 200 offices and have delivered projects in more than 90 countries. In North America, our resources include 4,000 people with more than 130 locations across the region. Our business model is to work internationally and deliver locally - put simply, we work where our clients work. GHD merged with Omni-Means in 2017. This merger has bolstered our ability to provide services to clients from 14 locations throughout California. We are confident that our skill-set will match your needs.

Experience in the Napa Area

Knowing the full range of transportation services GHD can offer NVTa, the City, and the County, they have been able to take advantage of our transportation planning, traffic operations, simulation, and roundabout expertise and capabilities for years. We started working with the City of Napa in 2010 performing the Streets West of Downtown Area Traffic Operations Study, identifying potential improvements at 1st, 2nd, 3rd, and Clay Streets - extending from SR 29 easterly, to Jefferson Avenue and how they would function with the adjacent freeway ramp intersections. Also in 2010, we prepared the 1st Street/California Boulevard Roundabout Feasibility Study that concluded a roundabout at 1st Street/California Boulevard, in conjunction with a signal at the SR 29/1st Street ramps, would create acceptable operations and eliminate the congestion issues.



SR 29/SR 221 Roundabout Interchange Initial Feasibility Evaluation



First Street/California Boulevard Roundabout Feasibility Study



Imola Avenue Gateway Enhancement

The First and Second Street Roundabouts along California Boulevard (PS&E) project (2013) is at intersections in the downtown area. We are now preparing the roundabouts PS&E for the closely-spaced streets at California Boulevard, 1st Street, and 2nd Street, as well as the SR 29 ramp intersection with 1st Street. The 5-Way Intersection Improvements project (2014) is a high-profile intersection located on SR 121/Silverado Trail east needing to improve operations. The preferred alternative we are developing is two closely-spaced roundabouts. In 2015, we developed the Citywide Travel Demand Model using Cube software to accurately forecast local traffic conditions and help City Staff and the City Council to properly size and prioritize capital improvements.

For the City of Napa and the Napa Valley Transportation Agency in 2015, we prepared the SR 29/SR 221 Roundabout Interchange Initial Feasibility Evaluation for the potential use of roundabouts to improve the location without aesthetic impacts and to maintain pedestrian and bicycle continuity. The following year (2016) we were awarded two On-Call projects: the Measure T Infrastructure Evaluation and the Civil Engineering Services and we performed an Automated Red Light Enforcement Study that included the intersection of SR 221/Imola Avenue. In 2017, our team designed the Imola Avenue Gateway Enhancement Project to set the tone for future landscape enhancement projects in the area and as a gateway corridor to the City. The design needed to reflect the environmental values of the community and visually enhance the Imola Avenue corridor between South Coombs Street and SR 29. Specifically, the enhancement en-

Familiarity with State and Federal Procedures

It is critical for the NVTa to leverage its local funding with both State and Federal sources and it is critical to know the requirements of the granting entity, which in many cases, is Caltrans.

We are well-versed in projects with funding and their requirements, and understand the requirements **regarding proprietary items. GHD' staff are experts at** compliance with the Caltrans Local Assistance funding, paperwork and FHWA requirements. We have successfully provided management for Local Assistance projects for many California cities. We have been very effective in assisting agencies secure funding through various grant programs including, but not limited to:

- Active Transportation Plan
- Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- Highway Safety Improvement Program (HSIP/HR3)
- Federal and State Safe Routes to School (SRTS/ SR2S).

GHD has gathered a team with the experience and knowledge of:

- **Caltrans' Project Development and Procedures Manual**
- the Local Assistance Procedures Manual and Funding Criteria
- Caltrans Highway Design Manual
- AASHTO Policy Manual
- Manual on Uniform Traffic Control Devices (CA MUTCD),
- California Disabled accessibility Guidebook (CalDAG)
- Title 24 Reports

We can successfully manage projects with minimal support from County staff and will fulfill all Caltrans, County, and Federal Highway Administration (FHWA) requirements for funding and documentation.

We are on a first-name basis with the Caltrans Local Assistance staff and will do everything possible to help you receive timely and full reimbursements. We even provide invoicing services for several small agencies and intimately know the changing Caltrans expectations for consultant management and invoicing. We thoroughly understand the Local Assistance Procedures Manual, Caltrans standard plans, and standard specifications and manuals and have the ability to complete the necessary exhibits from the Caltrans LAPM.

Our familiarity with the Caltrans process saves time and we look forward to the advantage this brings to your projects. All of the proposed staff for this task are thoroughly familiar with the Caltrans Project Development and Procedures Manual and the Local Assistance Procedures Manual and Funding Criteria.

tailed a landscape treatment in the medians that is attractive and welcoming to visitors of the City of Napa. In 2018 we were awarded the contract for the Imola Avenue Corridor Complete Streets Improvement Plan.

Subconsultants



Role: Community Outreach
PO Box 1350
Carmel Valley, CA 93924
1 650 587 7300



Role: Tool Development/Data
Collection
25672 Crestfield Circle
Castro Valley, CA 94552
1 510 320 0680
Registration: DBE #45726/
SBE #2011002

Regional Government Services (RGS) is a Joint Powers Authority established in 2001 to serve the needs of cities, counties, special districts, and other governmental entities throughout California. RGS offers comprehensive communications and strategic planning services to municipal agencies. The RGS team has developed and implemented a broad range of communications efforts for cities, counties, special districts and regional planning agencies throughout California. Public agencies have a unique responsibility to serve. RGS works exclusively with public agencies, providing consulting services to meet the needs of its partner agencies. Services include communications, human resources, planning, payroll, strategic planning, municipal finance, training, and project management. Their staff are experienced, knowledgeable and dedicated to public service.

Elite Transportation Group, Inc. (ETG) is a transportation consulting firm based in the San Francisco Bay Area. Their core values are “Integrity”, “Quality”, and “Reliability”. ETG specializes in travel demand modeling, big data analytics, traffic operations, traffic analysis and modeling, and Intelligent Transportation Systems (ITS). ETG’s co-founders have over 30 years of combined experience in the areas of travel demand modeling, traffic forecasting, transportation planning, traffic operations, corridor studies, toll operations, managed lanes, congestion pricing, traffic simulation and modeling, traffic signal systems, traffic impact studies, traffic safety, ITS, statistical data analysis, performance measurement, and benefit/cost analysis. The firm serves a full-range of clients, including Caltrans, metropolitan planning organizations (MPOs), congestion management agencies (CMAs), Transportation Authorities (TAs), municipalities, private developers, and other consulting firms. **ETG’s mission is to assist clients to meet their transportation needs by providing customized optimal solutions leveraging latest technologies.**

Project Experience

State Route (SR) 68 Scenic Highway Plan, Transportation Agency for Monterey County (TAMC)

Funded by a Caltrans Sustainable Communities Planning grant, Mr. Damkowitch managed a comprehensive analysis of the SR 68 corridor for the TAMC. Both existing and future conditions were analyzed along 15 miles of corridor (Monterey to Salinas). Using performance metrics from the Smart Mobility Framework combined with an aggressive public outreach effort, three corridor concepts were developed for further analysis. The development of the concepts was informed by various multimodal analyses including ICE of 11 corridor intersections. A VISSIM micro-simulation model was developed and validated to analyze each for the concepts under future year conditions. The micro-simulation results were combined with the static ICE and safety analysis (HSM Predictive Method) results and applied to the 2016 Caltrans Cal/BC model parameters to yield monetized benefits for each corridor concept. These monetized benefits were then combined with the planning level cost opinions of each Corridor Concept to yield a holistic benefit-cost ratio for each concept. The preferred corridor concept also included capital improvements to facilitate safe passage of wildlife that must routinely cross SR 68. The study was adopted by the SLOCOG Board in August of 2017. The study received a Northern California APA Excellence award in 2018.

Start/End Date:	2017	Cost/Schedule Performance:	On time/within budget
Team:	Jim Damkowitch	Subconsultants:	Flint Strategies
Total Project Cost:	\$250,000	Total Cost of Services:	\$250,000
Reference:	Grant Leonard, Associate Transportation Planner, TAMC, 55 B Plaza Circle, Salinas, CA 93901, 1 831 775 4402		

Federal Congestion Management Plan (CMP) Technical Support, County and City Sacramento

Mr. Damkowitch managed the traffic support services for the development of a federal compliant CMP for the Sacramento Area Council of Governments (SACOG) region. This entailed developing improvement strategies and projects for 18 CMP **deficient corridors and a process (tasks and schedules) for integrating the CMP into SACOG's other regional planning and programming responsibilities.** He participated in SACOG's CMP Committee meetings and facilitated meetings with Federal Highway Administration (FHWA) during development of the CMP. He supported SACOG to document the CMP for submittal to FHWA and approval.

Start/End Date:	2017	Cost/Schedule Performance:	On time/within budget
Team:	Jim Damkowitch	Subconsultants:	NA
Total Project Cost:	\$25,000	Total Cost of Services:	\$20,000
Reference:	Binu Abraham, Senior Analyst, SACOG, 1415 L Street, Suite 300, Sacramento, CA 95814, 1 916 340 6242		

2018 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) & EIR, MCAG

Managed the comprehensive update to Merced County Association of Governments (MCAG) RTP and SCS per SB 375. This entailed the following tasks; developed revenue projections from local, state and federal sources anticipated over the 25 year planning horizon, assisted MCAG in developing financially constrained Tier I CIP list relative to project revenues, **developed/refined MCAG's RTP/SCS performance measures, developed four alternative land use scenarios using EnvisionTomorrow™** software, assisted translating the EnvisionTomorrow™ land use scenarios into the tri-county CUBE regional transportation model, processed travel forecasts for each land use scenario, performed a comparative analysis of each land use scenario relative to the RTP/SCS performance measures, including an environmental justice analysis, assisted with the air quality conformity analysis, applied NPMRDS data to quantify several federal performance measures, and provide technical support for EIR traffic section. Both the RTP/SCS and EIR were approved by MCAG in August 2018.

Start/End Date:	June 2017 to August 2018	Cost/Schedule Performance:	On time/within budget
Team:	Jim Damkowitch	Subconsultants:	Mintier-Harnish; Encina Advisors; Regional Government Services
Total Project Cost:	299,960	Total Cost of Services:	299,960
Reference:	Matt Fell, Senior Transportation Planner, MCAG, 369 West 18th Street, Merced, CA 95340, 1 209 723 3153		



Experience and Qualifications

SR 49 Corridor System Management Plan (CSMP), Nevada County Transportation Commission (NCTC)

GHD was selected by Nevada County Transportation Commission (NCTC) to update the State Route 49 (SR 49) Corridor System Management Plan (CSMP). The plan is a multimodal evaluation of existing corridor performance, planned and programmed improvements, and identification of measures that would improve SR 49 corridor performance today and into the future. GHD worked with NCTC and Caltrans to select performance measures for the analysis, including and beyond those in the prior CSMP prepared by Caltrans. Corridor conditions, including non-standard designs, geometric factors, environmental factors, access management, and intersection control and lighting were reviewed in the field and digitally in an attempt to correlate poor performance or increased collision rates. GHD utilized buffer time and travel time reliability indices, established through NPMRDS data, congested travel speed and levels of service, collision history, established through SWITRS and PeMS data, and bicycle and pedestrian connectivity and levels of traffic stress as the primary performance metrics for seven zones along SR 49.

Start/End Date: 2017- Ongoing

Cost/Schedule Performance: On time/within budget

Team: Jim Damkowitch, Kamesh Vedula, Todd Tregenza, Charuni Kurumbalapitiya, Heather Anderson, Rosanna Southern, Kenneth Isenhower, Zachary Stinger

Subconsultants: National Data and Surveying Services

Total Project Cost: \$67,321

Total Cost of Services: \$74,970

Reference: Daniel Landon, Executive Director, NCTC, 101 Providence Mine Road, #102, Nevada City, CA 95959, 1 530 265 3202

Southbound US 101 PA/ED Traffic Analysis, Pismo Beach/San Luis Obispo Council of Governments (SLOCOG)

GHD was selected by San Luis Obispo Council of Governments (SLOCOG) to prepare the traffic analysis in support of the Southbound US 101 PA/ED in Pismo Beach. The analysis includes preparation of a macroscopic model in FREQ to simulate freeway operations under existing and future conditions, and under various improvement scenarios. The model development involved collection of a variety of data sources in order to validate and calibrate the FREQ model, including traffic volume data, NPMRDS historical average congested and uncongested travel speeds, and floating car mainline travel time runs. The model will be utilized to test operational benefits of a variety of geometric improvements proposed in the PSR/PDS, including part time use of left shoulder during peak hours, extension of truck climbing lane, and a variety of other mainline and ramp terminal improvement options. The macroscopic model outputs will include comparative travel time between alternatives, average speed, travel time index, travel delay, vehicle miles and vehicle hours travelled, levels of service and density, and vehicle and person trips served.

Start/End Date: 2017- Ongoing

Cost/Schedule Performance: On time/within budget

Team: Todd Tregenza, Jim Damkowitch, Richard Krumholz, Kamesh Vedula, Heather Anderson, Kenneth Isenhower

Subconsultants: N/A

Total Project Cost: \$32,932 to date

Total Cost of Services: \$175,00 Est.

Reference: Richard Murphy, Program Director, SLOCOG, 1114 Marsh St., San Luis Obispo, CA 93401, 1 805 781 5754



Reference

Rich Deal, PE, TE, PTOE
Principal Engineer (Former City of
Monterey Traffic Engineer)
Transportation Agency for Monterey
County
1 831 775 4413
rich@tamcmonterey.org

Date

2014-2017

Awards

- 2017 American Council of Engineering Companies California Engineering Excellence Honor Award
- 2017 Transportation Agency for Monterey County Transportation Excellence Award
- 2018 League of California Cities Outstanding Local Streets and Roads Project Awards Program category
- 2018 APWA Monterey Bay Chapter Public Works Project of the Year Award of Merit, Transportation, \$5 million but less than \$25 million

17 Mile Drive/Holman Highway 68/Highway 1 Roundabout Intersection ICE - Monterey

Along the coast in the Monterey Peninsula, GHD prepared plans for a roundabout solution for the Holman Highway 68 and Highway 1 intersection. The location serves as a gateway for the communities of Pacific Grove, Pebble Beach, and the famous 17 Mile Drive. GHD worked with a community partnership including the City of Monterey, Caltrans, the Pebble Beach Company, and Monterey County, to improve the intersection at Holman Highway 68 and Highway 1, including access to 17 Mile Drive.

The selected improvements feature two closely-spaced roundabouts, one of **which is a “midi” roundabout as an improvement to the current “T” intersection at the access point to 17 Mile Drive.** The end result is a solution that addresses all of the unique characteristics of the area. Reduced idling times for travelers due to eliminating traffic signals and stop signs will improve traffic flow and reduce Greenhouse Gas Emissions, providing an environmentally-friendly improvement in an area prized for its natural environment. The clearly marked approaches into and out of the roundabout will allow the many visitors to the area to easily navigate to any of the several tourist destinations served by this access point. The project was advertised for bidding late 2015, with Granite Construction as the low bidder at approximately \$6.3 million. Construction was completed in 2017.



Experience and Qualifications

Reference

Jason Behrmann
City Manager
City of Galt
1 209 366 7100
jbehrmann@ci.ga.ca.us

Date

2004-2013

Awards

- 2015 ASCE Sacramento Region, Community Improvement PY
- 2015 CMAA Northern California Chapter, Transportation \$5 to \$15 Million



SR 99/Central Galt Interchange Modification - Galt

The Central Galt Interchange is the primary access into the City of Galt's downtown area. The urban growth and future growth projected by the General Plan necessitated a solution be found for the congested area. The approved design utilized a split-diamond design to provide access via two main cross-town roadways. However, the enlarged interchange required the careful mitigation for a number of key issues including:

- Impacts to an existing residential area
- Channelization of drainage through the area
- Future linkage to growth areas east of SR 99
- Impacts to existing vegetation of significant visual quality
- Relocation of major utilities
- Buffering existing residential areas and commercial areas

In response to the many key issues, GHD provided 15 alternative design solutions for the selection committee to consider. The resulting design includes the reconstruction of all four interchange ramps, auxiliary lanes on SR 99 to the adjacent interchanges, and two new overcrossing structures.

GHD prepared the PS&E and provided construction support, as well as a phased landscape master plan allowing the City to implement the landscape design as funding becomes available.



Reference

Mike Pitcock, PE
City Engineer
City of Turlock, Engineering Division
1 209 668 5520
engineering@turlock.ca.us

Date

2007-Ongoing

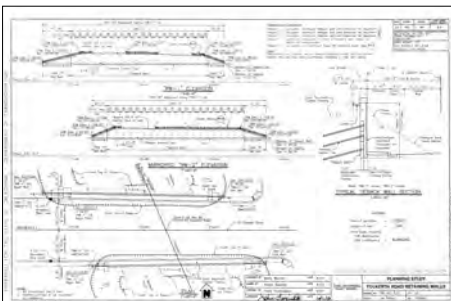


SR 99/Fulkerth Road Interchange Reconstruction PSR, PA/ED, and PS&E - Turlock

The SR 99/Fulkerth Road interchange in central Turlock is surrounded by rapidly developing industrial, commercial, and residential areas. In 2007, driven by talk of large-scale development proposals, the City retained GHD to develop interchange improvement alternatives, and prepare a Project Study Report, secure environmental approvals, prepare a Project Report and prepare the PS&E.

GHD prepared detailed traffic modeling, traffic operations analysis, and preliminary design alternatives. The design alternatives analysis, performed by GHD, resulted in the City and Caltrans approvals through the PSR, environmental, and Project Report phases. GHD is currently in the PS&E phase of the project delivery.

GHD has the lead role for all Caltrans coordination and approvals, including schedule management, project development team meetings, submittals and approvals. In addition, GHD is providing all utility coordination and right of way engineering. The City has secured a combination of local and state funds for construction that is complete.



Experience and Qualifications

Reference

Steve Hughes
Design Manager
Caltrans North Region
1 707 445 6418
steve.hughes@dot.ca.gov

Date

2013-Ongoing



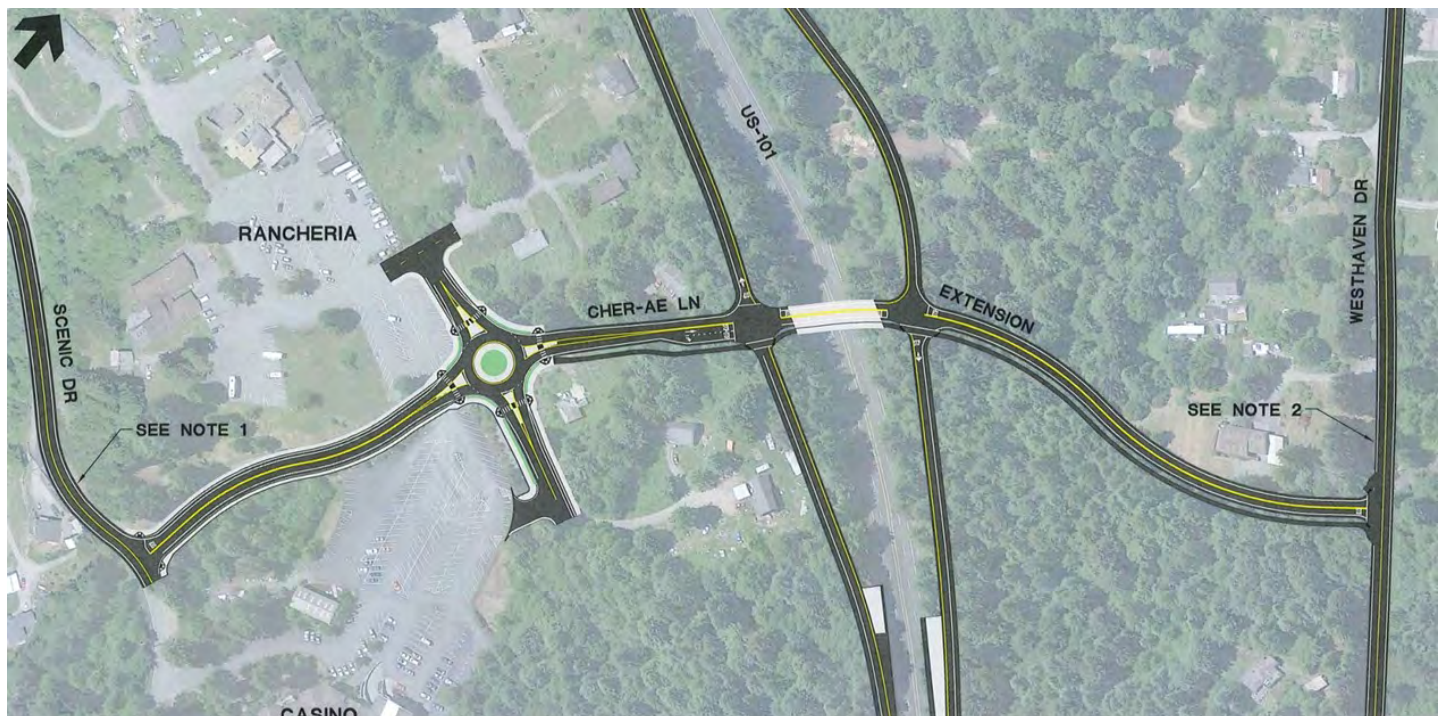
US 101/Trinidad Interchange PSR-PDS - Trinidad

GHD was retained by the Trinidad Rancheria in 2013 to study access alternatives for the greater Rancheria and City of Trinidad area. The first step was to prepare a freeway master plan traffic analysis that demonstrated to the Rancheria, the City, the County and Caltrans, the impacts of future growth. The traffic study was approved by Caltrans in 2014, leading to the formation of a Project Development Team and commencement of the Project Study Report - Project Development Support (PSR-PDS) phase.

GHD prepared studies for 12 alternatives that ranged from improving existing roads, interchange reconstruction, and new interchanges. In support of the alternatives analysis, base mapping was prepared, right of way impacts were identified, cost estimates were prepared and an Intersection Control Evaluation (ICE), in accordance with Caltrans policies, was prepared.

In addition, extensive supporting documentation was prepared, along with a Design Exception Fact Sheet, for new interchange spacing less than two miles.

The freeway interchange design exception was approved in 2016 and the PSR-PDS was approved in 2017. The approval of the PSR-PDS made it possible for the Rancheria to receive STIP funding to begin PA/ED in the 2018/19 FY.



Reference

Nancy McWilliams
Senior Civil Engineer
City of American Canyon
1 707 647 4579
nmcwilliams@cityofamericancanyon.org

Date

2016-2018



SR 29 Signal Interconnect & Adaptive Corridor Control - American Canyon

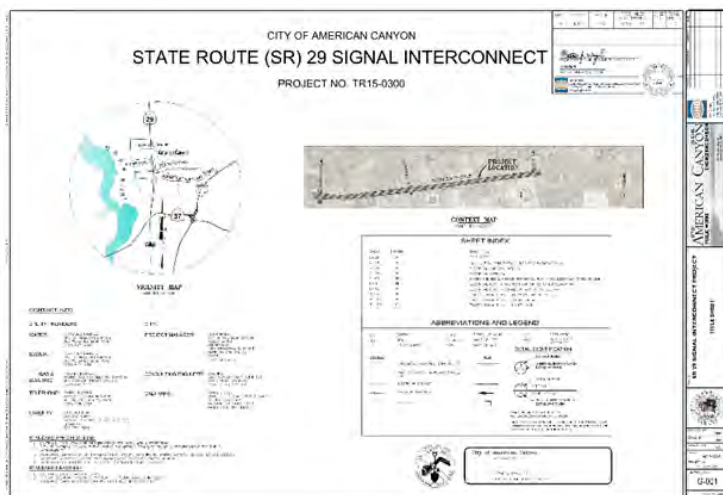
The City's General Plan documents improving SR 29 to serve intra- and inter-regional traffic and goods movement as a priority for the City. While the City, Napa County Transportation & Planning Agency (NCTPA), and Caltrans have partnered to create a vision for the SR 29 Corridor, there is a need to review, document, and understand the traffic patterns and their impact at the over time. Considering that a portion of the City of American Canyon is designated as a Priority Development Area (PDA), the SR 29 corridor, and that the City is bisected by this corridor, reviewing the intersections for growth and traffic pattern changes is critical to planning for the future.

GHD provided traffic engineering and consulting services to assist the City in preparing for future observation and traffic data count stations, potential interconnected signal corridor routed to a centralized traffic management data center and potential change to an adaptive traffic control system. GHD initially completed an existing inventory of State-owned and operated traffic signals along SR 29 within the City, which included six signalized intersections, documented existing communication data rates between signals where existing interconnect was present and not present, and documented bandwidth along existing signal interconnect.

In locations with broken or missing twisted pair signal interconnect, GHD prepared PS&E for construction. This work included obtaining Caltrans encroachment permit for the work.

Additionally, the City was considering implementation of Rhythm Engineering In|Sync adaptive control system. GHD coordinated with the manufacture and Caltrans to facilitate discussions about implementation of this system for the corridor with Caltrans District 4 Traffic Operations. Adaptive control is currently being considered.

The City completed installation or repair of traffic signal interconnect (twisted pair) throughout the corridor and is currently working with Caltrans for future implementation of adaptive control for the corridor.



Experience and Qualifications

Reference

Jason Holly
City Manager
City of American Canyon
1 707 647 5323
jholly@cityofamericancanyon.org

Date

2013-2015



Traffic Signal Synchronization - American Canyon

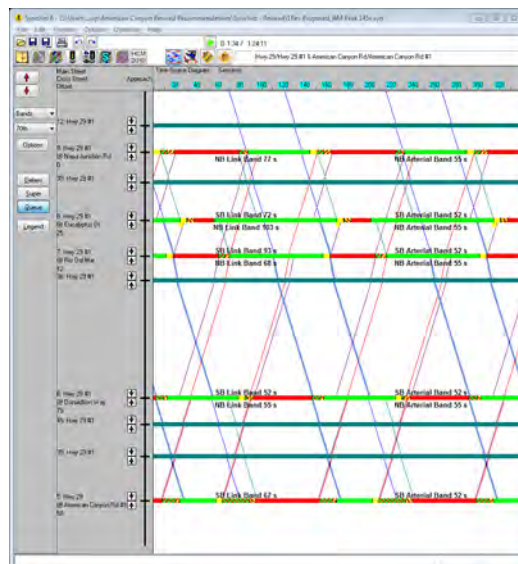
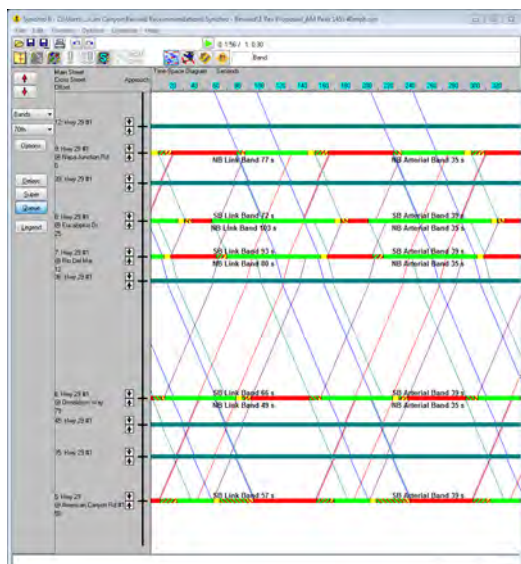
GHD provided traffic engineering services for the synchronization and coordination of existing traffic signals along three arterial corridors within the City. These corridors included SR 29, American Canyon Road, and Flosden Road, which included a total of nine signalized intersections.

GHD developed the project approach, which included collection of peak hour intersection turning movement counts, seven day 24-hour machine counts to determine periods of coordination and field review of all study intersections, including travel time runs and field calculated saturation flow rates. The project included work within the State right of way, requiring Caltrans coordination and project approvals. Existing conditions were modeled using Synchro with SimTraffic software and calibrated utilizing data gathered. Traffic signal timing and coordination recommendations were developed for optimal initial and actuated settings, including provisions for pedestrian and bicycle needs, time-of-day coordination plans, and hours of coordinated operation. Signal timing sheets were prepared and provided to Caltrans to input timing. GHD assisted with the implementation of recommendations. This work was completed under the sponsorship of the Transportation for Clean Air (TFCA) grant awarded to the City.

A separate geometric and operational needs study was completed for Donaldson Way East to reduce vehicle queuing and improve operations. This study and recommendations were subsequently developed into PS&E for construction. The City installed improvements, including removal of on-street parking and addition of right-turn pocket on Donaldson Way East. This work included coordination with Caltrans District 4.

Signal coordination and timing recommendations were provided in 2013 and implemented and refined with the assistance of Caltrans Staff.

Donaldson Way East reconfiguration recommendations were studied and implemented in 2014. Operations and queuing improved as a result of the project.



Reference

Debbie Hale, Executive Director,
TAMC, 55-B Plaza Circle, Salinas,
CA 93901, 1 831 775 0903

Date

2017

SR 68 Scenic Corridor Study - Transportation Agency of Monterey County

Mrs. Flint managed a comprehensive outreach program for the Transportation Agency for Monterey County (TAMC) as part of its SR 68 Scenic Corridor Study. The study reviewed how SR 68 operates today, and what can be done to ensure that it operates as safely and acceptably as possible for all users in the future. Work included numerous community presentations, a dedicated website and a series of workshops.

Reference

Rosa de Leon
Executive Director
Stanislaus Council of Governments
1 209 525 4642

Date

2016

Stanislaus Council of Governments, Measure L Education Campaign - Stanislaus County

RGS successfully developed an expenditure plan and ballot measure, Measure L, for a transportation sales tax in 2016 after the failure of two previous efforts in 2006 and 2008. RGS managed a methodical process that included focus groups, polling and more than 100 meetings with local agencies, stakeholder groups and advisory bodies. This all-inclusive approach resulted in a markedly **different plan that previous set before voters. The focus was on "Local Roads First"** - a mantra that resonated with voters and stakeholders regardless of party affiliation

As part of our education process, the RGS team developed a project website, www.Stanislaus-LocalRoadsFirst.com. RGS worked closely with each member agency to develop a specific project list for every jurisdiction - right down the names of local streets which would be resurfaced. In addition, the team developed a list of more than 16 regional projects with benefits in all areas of the County to ensure that no one geographic area would be left out. They also established that there would be a Citizens Oversight Committee to make sure that the projects promised would be delivered.

This information was shared via more than 200 presentations to local community groups, Municipal Advisory Councils across the County, local chambers of commerce, seniors, students and local news media throughout 2016. Measure L passed with 71.95% of the vote in favor of the proposed sales tax measure. This was the highest win percentage by a first-time transportation measure in 2016 election and the highest in California since 1989. This success of a measure in the conservative Central Valley is particularly notable in the crazy election year of 2016, where similar transportation sales taxes in more liberal metropolitan areas like San Diego, Sacramento, and Contra Costa County failed.

Reference

Rosa de Leon
Executive Director
Stanislaus Council of Governments
1 209 525 4642

Date

2013-2014

Regional Transportation Plan & Sustainable Communities Strategy, Community Outreach - Stanislaus County
RGS served as task manager for the public outreach component of StanCOG's 2035 and its current Regional Transportation Plan, Valley Vision Stanislaus. RGS efforts included coordination with all nine cities and the County to plan individual workshops, outreach to stakeholder groups, media relations and bilingual outreach. Valley Vision Stanislaus also incorporates the MPO's Sustainable Communi-



Experience and Qualifications



ties Strategy and Regional Housing Needs Assessment. The effort resulted in:

- A website with an average of 1,000 visits monthly,
- 22 email blasts to a total of 20,000+ addresses,
- Vision Survey completed by 323 respondents, 9% of which were Hispanic,
- Workshop-Based Survey completed by 160+ respondents,
- Media Relations resulting in 12 separate articles and 1.8 million impressions,
- 20+ presentations and workshops countywide, and
- Coordination with local jurisdictions.

Stanislaus County residents supported a trend toward moderately more compact development however, a number of residents actively engaged in the process expressed concerns about their perceived connection between this effort and the United Nations Agenda 21. RGS facilitated all 20 meetings and ensured that all viewpoints are heard but that no one group or individual dominates the meetings.

US 101 Mobility Study/2035 Regional Transportation Plan & Sustainable Communities Strategy, Community Outreach - San Luis Obispo County

One of the most critical elements contributing quality of life is San Luis Obispo County is how they move people and goods through the County. The first phase of this effort took a closer look at US 101, identifying specific areas that should be improved or enhanced. The outreach effort was largely focused on anecdotal, qualitative views and opinions expressed by the public.

The project website, www.SLOCOGConnectingCommunities.com was launched in May and has been averaging 800 unique visits per month. It has generated 178 unique comments via our interactive mapping tool. RGS completed over 200 intercept interviews Countywide and engaged more than 400 people at various presentations and workshops held throughout the County.

2035 Regional Transportation Plan, Community Outreach - Metropolitan Transportation Commission

RGS developed a comprehensive multiphase Public Involvement Program for the **Metropolitan Transportation Commission's Transportation 2035 Regional Transportation Plan. The plan was guided by the three E's of economy, environment and equity**, along with a set of ambitious goals and performance objectives that will transform investment priorities in the transportation system and how Bay Area residents travel.

The program was designed to engage environmental justice communities and others with a history of nonparticipation in transportation planning. In addition, RGS assisted MTC in planning for its regional Bay Area on the Move Summit, attracting over 900 policymakers and residents to present the proposed plan. RGS coordinated stakeholder outreach activities that included 27 public workshops, multi-cultural intercept interviews, electronic newsletters and two statistically valid telephone surveys of 3,600+ Bay Area residents.

Reference

Ellen Griffin
Legislation and Public Affairs
Metropolitan Transportation
Commission
1 415 778 5254



Three County Model 2015 Base Year Update and Support - SJCOG-StanCOG-MCAG

Lawrence Liao assisted the San Joaquin Council of Governments (SJCOG), Stanislaus Council of Governments (StanCOG), and Merced County Association of Governments (MCAG) to update the Three County Travel Demand Model (TCM) to the year 2015. The main tasks of this project were to: 1) Update, calibrate, and validate the TCM to the year 2015, 2) Provide assistance in 2018 RTP/SCS development, and 3) Provide continued on-call support of the model. Lawrence was the PM and Lead Modeler for this project.

Start/End Date:	2017-2018	Cost/Schedule Performance:	On time/within budget
Team:	Lawrence Liao, Jing Li, Lin Zhang	Subconsultants:	N/A
Total Project Cost:	\$110,000	Total Cost of Services:	\$110,000
Reference:	Ryan Niblock, Sr. Regional Planner, SJCOG, 555 East Weber Avenue, Stockton, CA 95202, 1 209 235 0588		

Menlo Park City Model Development - Menlo Park

Lawrence Liao developed a focused Menlo Park city model for the purpose of General Plan Circulation Element Update based on the latest City/County Association of Governments of San Mateo County (C/CAG) Model. A Cube Avenue Dynamic Traffic Assignment (DTA) Model was added for AM/PM peak hour conditions to enhance the modeling of peak spreading, vehicle speed and vehicle miles traveled of multimodal projects under congested conditions on local streets.

Start/End Date:	2015-2016	Cost/Schedule Performance:	On time/within budget
Team:	Lawrence Liao, Lin Zhang	Subconsultants:	N/A
Total Project Cost:	\$115,000	Total Cost of Services:	\$115,000
Reference:	Nicole Nagaya, Transportation Manager, City of Menlo Park, 701 Laurel Street, Menlo Park, CA 94025, 1 650 330 6781		

Travel Demand Modeling On-Call Services - Solano Transportation Authority

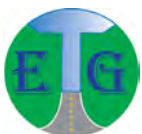
Lawrence Liao provided travel demand modeling on-call services to STA from 2010 to 2014, and 2017-2018. He designed and developed a focused Solano Napa Activity Based Model based on MTC Travel Model One in 2014. The on-call services also included providing ongoing support for the development, maintenance, and improvement of the Napa Solano Travel Demand Model; distributing the model data as requested by users; and providing technical support and troubleshooting.

Start/End Date:	2010-2014, 2017-2018	Cost/Schedule Performance:	On time/within budget
Team:	Lawrence Liao, Lin Zhang	Subconsultants:	N/A
Total Project Cost:	\$300,000	Total Cost of Services:	\$300,000
Reference:	Robert Guerrero, Director of Planning, STA, One Harbor Center, Suite 130, Suisun City, CA 94585, 1 707 424 6075		

Travel Demand Modeling On-Call Services - COMPASS

Lawrence Liao has been providing ongoing Cube Voyager modeling support to COMPASS since 2005. He developed the original 2002 COMPASS model and updated/validated the 2008 peak-hour model, increased the number of modeled zones, **integrated Cube Land into COMPASS' travel demand model, and enhanced the region's Mode Choice model to address the** Federal Transit Administration (FTA) Technical Guidance. Lawrence is currently assisting COMPASS with the latest 2018 model update.

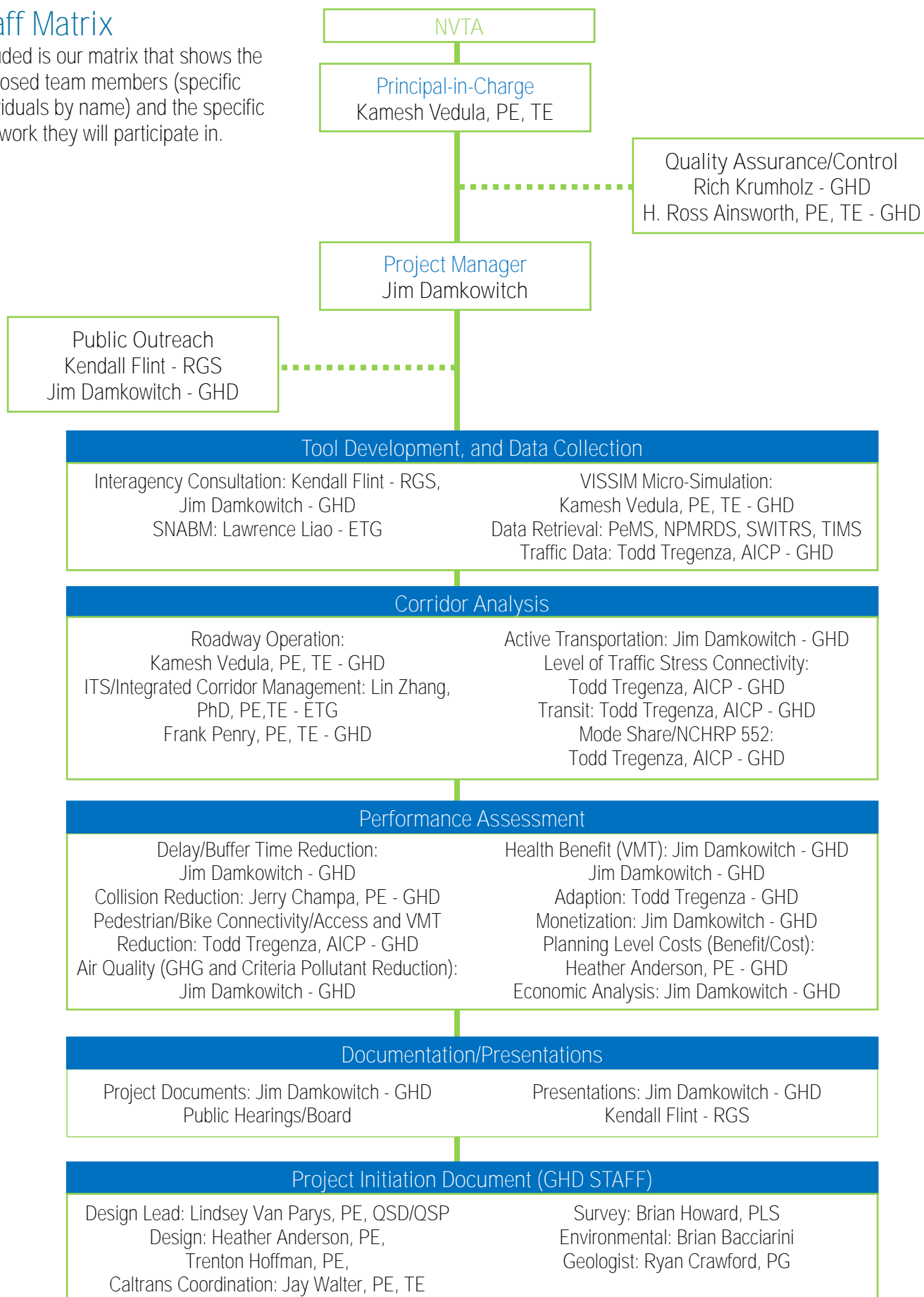
Start/End Date:	2014-Present	Cost/Schedule Performance:	On time/within budget
Team:	Lawrence Liao, Jing Li	Subconsultants:	N/A
Total Project Cost:	\$150,000	Total Cost of Services:	\$150,000
Reference:	MaryAnn Waldinger, Principal Planner, COMPASS, 700 NE 2nd St. # 200, Meridian, ID 83642, 1 208 475 2242		



Project Team Organization

Staff Matrix

Included is our matrix that shows the proposed team members (specific individuals by name) and the specific role/work they will participate in.



Jim Damkowitch

Project Role

Project Manager

Education

- MS, Geography, University of California, Santa Barbara, CA, 1985
- BA, Geography (Honors), University of California, Santa Barbara, CA, 1980

Congestion Management

- SJCOG 2019 CMP Monitoring Report Update
- StanCOG - Partial CMP Update - per 2018 RTP/SCS
- SACOG 2017 Federal CMP
- SJCOG 2017 Monitoring Report Update
- SJCOG 2016 CMP Update
- SJCOG 2010 CMP Regional Deficiency Plan

Regional Planning Experience

- StanCOG 2018 RTP/SCS & EIR
- MCAG 2018 RTP/SCS
- SJCOG 2018 RTP/SCS
- Calaveras COG 2017 RTP - Modeling and Performance Support
- Del Norte County LTC 2016 RTP - Modeling and Performance Support
- StanCOG 2014 RTP/SCS & EIR
- SJCOG 2014 RTP/SCS - Technical Support
- California Rural Counties Task Force: 2015 Performance Monitoring Indicators for Rural and Small Urban Transportation Planning
- California SB 375 MPO Self-Assessment - 2014 OPR
- Managed Caltrans D-5 Modeling On-Call

Qualifications

Jim Damkowitch has over 25 years of experience in regional multimodal transportation planning, congestion management, multidisciplinary corridor studies, active transportation plans, transit studies, operational analyses, transportation and air quality modeling, and performance measure applications. Jim specializes in the development of multimodal performance measures for purposes of alternatives selection and prioritization including performance metrics for state and federal congestion management programs and sustainable community strategies under SB 375. He has managed traffic studies for state highway infrastructure improvement projects (PSR and PA/ED phases), multimodal corridor studies, travel demand modeling, air quality modeling and transportation operational **studies for a variety of clients including Caltrans, MPO's, and various cities and counties in California.** He has served on state and regional planning committees and conference panels for transportation-air quality conformity, performance measurement, and SB 743 respectively.

Project Experience

- US 101 Corridor Mobility Master Plan - SLOCOG. Project Manager. Applied the Smart Mobility Framework for a comprehensive performance-based corridor analysis of US 101 in San Luis Obispo County. Analyzed corridor multimodal performance according to established performance metrics including B-C to identify and prioritize proposed capital improvements.
- SR 68 Scenic Highway Plan - Transportation Agency for Monterey County. Project Manager. Applied the Smart Mobility Framework for a comprehensive performance-based corridor analysis of SR 68 in Monterey County. Analyzed three corridor concepts relative to established performance metrics including B-C. Identified preferred corridor concept and associated capital improvements for prioritization (APA Excellence Award).
- I 80/SR 65 Travel Time Reliability Analysis and Safety Analysis - PCTPA. Project Manager. **Applied NPMRDS "big data" from FHWA to determine travel time reliability benefits of the I 80/SR 65 Interchange Improvement Project (Phase 1).** Also applied the Highway Safety Manual predictive method (Part B and C) to estimate the collision reduction potential of the improvement.

Other Relevant Projects

Has served as Project Manager for several related projects including:

Corridor Studies (Project Manager)

- I-580 Interregional Multi-Modal Corridor Study (2011, MTC/SJCOG)
- US 101 HOV Lane PA/ED Traffic Analysis (2012, Caltrans D-5)
- SR 99 & I-5 Interregional STAA Truck Study (2012, SACOG/SJCOG)
- SR 16 Corridor Analysis: Watt to Grant Line Road (2014, ACTC)
- US 101 Pismo PSR (2016, SLOCOG)
- SR 227 Corridor Operations Study (2017, SLOCOG)
- SR 1 Unified Corridor Study - Co-Project Manager (2018, SCCRTC)
- SR 49 CSMP - Technical Advisor (2018, NCTC)

SB 1 Solutions for Congested Corridor Program Grant Applications (Cycle 1)

- US 101 HOV PA/ED (2017, SBCAG) - Technical Support
- Southeast Connector (2017, SEC JPA) - Technical Support
- US 101 Pismo (2017, SLOCOG) - Project Manager
- SR 46 East (2017, City of Paso Robles) - Project Manager



Project Team Organization

Kamesh Vedula, PE, TE

Project Role

Principal-in-Charge

Registration/Affiliations

- Traffic Engineer, CA #2546
- Civil Engineer, CA #79926

Education

- BS, Civil Engineering, Nagarjuna University, Bapatla, India
- MS, Transportation, Kansas State University, Manhattan, KS

Foreign Language

- Hindi
- Telugu

Professional Skills

- Transportation Engineering
- Transportation Planning
- Traffic Engineering
- Travel Demand Modeling
- Master Planning
- Roundabout Planning/Design
- Traffic Operations Analysis
- Traffic Circulation Studies
- Traffic Impact Studies
- Traffic Impact Fees

Software Expertise

- ArcMap
- Cube/Voyager
- HCS-2000
- Synchro
- RODEL
- SIDRA
- SimTraffic
- Traffix
- TransCAD
- VISSIM

Qualifications

Kamesh Vedula has over 15 years in the disciplines of transportation engineering, planning, and modelling. His present roles include principal-in-charge, business development, project manager, and transportation operations leader - depending on project needs. He oversees the workload balance of the transportation planning/engineering group and coordinates with other groups and regions to level staff resources. He is a specialist of Intersection Control Evaluation (ICE) and has completed several ICE projects within a majority of Caltrans districts and conducted ICE analysis training classes in Caltrans District 11 and Headquarters. His project management experience includes PSR-PDS, PA/ED, ICE studies, roundabout planning/design, advanced roundabout operations analysis/design, complete streets studies, corridor studies, traffic impact studies, and traffic safety studies. Kamesh oversees daily operations including team meetings, scheduling, invoicing, and client coordination through active communication. He contributes to business development through conference attendance, positioning with clients and strategic teaming partners, preparation of qualifications and proposals, and interviews for projects.

Project Experience

- SR 49 Corridor System Management Plan - Nevada County Transportation Commission. Principal-in-Charge. Overseeing the field and digital data along corridor and corridor performance according to metrics.
- Southbound US 101 PA/ED Traffic Analysis - SLOCOG. Principal-in-Charge. Overseeing the macro-simulation FREQ model and corridor performance according to established performance metrics, including but not limited to congested travel speed, buffer time index, average travel speed, level of service.
- SR 29 South Corridor Engineering Feasibility Study and Middletown Community Action Plan - Lake County/City Area Planning Council. Traffic Engineer. Assisted with the design year forecasts and assisted with the traffic operations analysis.
- San Andreas State Route 49 Commercial Gateway and Corridor Study - Calaveras County. Quality Assurance/Control. Performed QA/QC of the future growth scenarios and transportation alternatives analysis.
- City of Jackson Capital Improvement Project, Traffic Model and Transportation Impact Fee Update - Jackson. Traffic Engineer. Prepared the base year and initial year 2035 model projections, assisted with the design year forecasts, and assisted with the traffic operations analysis.
- North State Street Complete Streets Feasibility Study - Mendocino County. Project Manager. Preparation of traffic forecasts (using Citywide Travel Demand Model), identification of project alternatives that provide acceptable operations for design year traffic, project phasing, community outreach, traffic operations analysis, and micro-simulation analysis.
- County Road 98 Bike and Safety Improvements Intersection Design Phase II - Yolo County. Project Engineer. Conducted a thorough analysis of the corridor, documenting traffic impact issues, high accident locations, sight visibility issues, and prepared a traffic and speed study to understand the underlying issues associated with the existing roadway. The findings from this study resulted in the identification of feasible roadway improvements aimed to improving the safety and mobility of the corridor.



Lindsey Van Parys, PE, QSD/ QSP

Project Role

Project Manager for Project Initiation Document

Registration/Affiliations

- Civil Engineer, CA #79989
- Civil Engineer, FL #83571
- California Water Board QSD/QSP #23879
- Transportation Research Board: Standing Committee on Roundabouts
- American Society of Civil Engineers
- Institute of Transportation Engineers
- **Women's Transportation Seminar**
- Young Professionals in Transportation

Education

- BS, Civil Engineering, California State University, Sacramento, CA, 2009
- BS, Health Science and Spanish, California State University, San Jose, CA, 2004

Certifications

Certificate, Traffic Collision Investigation, Northwestern University Center for Public Safety, Evanston, IL

Awards

2015 APWA Sacramento Chapter, Parks & Trails for El Dorado Trail: Segments 1 & 2 in Placerville

Foreign Languages

Spanish

Qualifications

Lindsey Van Parys is a registered civil engineer in multiple states and holds a certificate in Traffic Collision Investigation. She has been delivering transportation projects since 2008, and is currently a project manager. Lindsey manages transportation projects from the conceptual phases through to construction, including preliminary engineering, environmental assessments, and detail design for various types of roadway, highway, roundabout, complete street and active **transportation projects, with a key focus on delivering to clients' time, budget and quality expectations.** Her projects have ranged from major highway interchanges to innovative intersection and safety solutions, to shared use paths. Lindsey specializes in delivering projects on the State Highway System and has worked on dozens of concepts and designs, as well as project delivery for projects spanning North America.

Project Experience

- Citrus Heights Electric Greenway Design and Environmental Services - Citrus Heights. Project Manager. Responsible for the successful delivery of this three-mile long multi-use trail connects various destinations throughout the City, including five parks, schools, businesses, residential areas, and more. The project includes an in-depth alternative development and analysis, preparation of the environmental document, technical studies, safety analysis, alternative selection, floodplain analysis, public outreach, trail and amenity design, lighting, utility coordination, low water crossing design, wayfinding, signage, permitting, and right of way support. The project also involves the preparation of five park master plans.
- La Quinta Village Complete Street, a Road Diet Project - La Quinta. Project Manager. Responsible for the overall delivery of the environmental documentation, Plans, Specifications, and Estimates (PS&E), right of way and utility clearance for the three street corridor complete street project consisting of five roundabouts, water quality infrastructure, pedestrian and bicycle facilities and landscape/beautification elements. Also coordinating stakeholder outreach, one-on-one meetings with impacted property owners and business owners and performing community outreach. Is also coordinating utility relocations with six different utility purveyors and performing stakeholder outreach with property and business owners, as well as the community.
- Complete Street/Road Diet ATP Application - La Quinta. Project Manager. Assisted the City of La Quinta in preparing the successful Active Transportation Program (ATP) grant application by providing a conceptual design, preliminary costs estimates, cost/benefit analysis, and assisted with preparation of the various narrative responses for three complete street corridors that included five roundabouts, a road diet, bicycle lanes, and various pedestrian crossing improvements.
- State Route (SR) 49/Main Street Roundabout PS&E - Plymouth. Project Manager. Performed client and agency coordination on this federally funded, fast-tracked project while leading the roundabout optimization, design, PS&E production, and public outreach efforts. Designed the intersection modifications, pedestrians and bicycle enhancements, drainage design, and more. Also coordinated relocation of various utilities throughout the project corridor including power, water, and gas. Led the environmental permitting and right of way acquisition process.



Project Team Organization

Ross Ainsworth, PE, TE

Project Role

Quality Assurance/Control

Registration/Affiliations

- Civil Engineer, CA #19642, NV #4281, OR #10966
- Traffic Engineer, CA #0708

Education

- ME, Transportation Engineering, Pennsylvania State University, State College, Centre County, PA, 1971
- BS, Civil Engineering, California State University, Southern California, 1967

Qualifications

Ross Ainsworth is a senior project manager and a business development lead. Often principal-in-charge and quality control officer for projects, he is responsible for managing client coordination, project scheduling, budget control, technical analysis, corporate management, and companywide business development. His experience in both the public and private sectors gives him the capabilities and skill needed to serve as a liaison with government agencies, and a **representative at public workshops, open houses, and presentations for GHD's clients.** He has also attended numerous workshops and conferences as a presentation speaker.

Project Experience

- Rocklin Road Complete Street Corridor Improvement Master Plan and PS&E - Rocklin. Principal-in-Charge. GHD prepared a Corridor Master Plan/Alternatives Study to identify potential solutions to improve traffic operations, safety, and calm traffic from the I-80/Rocklin Road interchange to the Grove Street intersection (1.5 miles). The project involved three phases: Develop Alternatives & Preliminary Engineering, Public Involvement & Community Outreach, and PS&E. GHD performed VISSIM models, surveying, prepared PS&E and construction documents, and designed a local-based landscape theme. The Meyers and Grove Streets roundabouts are constructed and were federally funded with Local Assistance oversight. GHD is currently under contract for the I-80/Rocklin Road interchange project. The future projects include Granite Drive.
- La Quinta Complete Street, a Road Diet Project - La Quinta. Principal. Oversaw ATP grant application for three complete street coordinators, which included five roundabouts, a road diet, and various pedestrian crossing improvements.
- Streets West of Downtown Traffic Analysis - Napa. Principal-in-Charge. **Analyzing the City's traffic operational conditions by using BluFax to assess potential changes to travel patterns including a reversal of the one-way couplet and allowing two-way traffic on streets, which are currently one-way streets.**
- Farmersville Boulevard Master Plan - Farmersville. Principal-in-Charge. Oversaw the complete street concept for the downtown area to help spur economic development core.
- Main Street Complete Street and Beautification - Ripon. Principal-in-Charge. This 1.5-mile project consists of many sustainable **"Complete the Street" practices in an effort to put the pedestrian and bicyclist on a level playing field with the automobile traffic using the road.** The roadway connects the downtown to the main arterial leading to SR 99. The corridor traverses a business, commercial, public, and residential land uses.
- Barstow Avenue Complete Street at CSU Fresno - Fresno. Principal-in-Charge. Evaluation of roadway for pedestrian, bicycle, and vehicle access for campus parking facilities. A total of five roundabouts are planned.
- Citywide Roundabout Circulation Study - Rohnert Park. Principal-in-Charge. Project to improve the traffic circulation and safety at eight corridors and individual intersections to identify the best possible intersection alternative.



Richard Krumholz

Project Role

Quality Assurance/Control

Education

- BS (Honors), Industrial Technology, Illinois State University, Normal, IL, 1973
- Post Graduate Work, Industrial Education, California State University, San Diego, CA, 1976-1977
- Continuing Education, Natural Resources Management, California State University, Humboldt, CA, 1990

Qualifications

Richard Krumholz is a transportation manager and lead Caltrans liaison on projects. He has extensive experience managing, planning, programming, and developing transportation projects. He joined GHD in 2013 after 33 years of working with the Caltrans, where he retired as District 5 Director. His relationships and familiarity with Caltrans and its staff will help facilitate projects requiring review or approval. He has extensive experience managing, planning, programming, and developing transportation projects, and is an effective leader and problem solver. At time of his retiring, District 5 had a record \$450 million in **capital projects under construction. He served as the district's focal point for the California Transportation Commission and as Principal Liaison for five counties and 33 cities.**

Project Experience

- SR 49/Main Street Roundabout - Plymouth. Caltrans District 10 Liaison. This project enhanced the entrance to the community of Plymouth and the Shenandoah Valley. Rich served as the primary liaison with Caltrans District **10 with a special focus on the project's schedule and funding. He was** able to secure over a million dollars in federal safety grant funding (HSIP), which enabled the project to move ahead to construction.
- SR 1/SR 41/Main Street Roundabout - Morro Bay. Caltrans District 5 Liaison. Coordinated the Intersection Control Evaluation (ICE) effort with Caltrans District 5's Planning, Design and Traffic Operations staff. Rich was instrumental in working with Caltrans, SLOCOG, and City staff to reach consensus on project design and a viable funding plan. The project is cooperatively funded with local, regional, state, and federal funding.
- 17 Mile Drive/Holman Highway 68/Highway 1 Roundabout - Monterey. Caltrans District 5 Liaison. Primary contact person for the Caltrans District 5 project team members, attended Project Development Team (PDT) meetings to assure consistent and strong communication between City staff, regional planning staff (TAMC), and District 5 staff/managers. Assured adherence to Caltrans policies and guided the project through the formal EIR Addendum and Supplemental Project Report phases.
- First and Second Street Roundabouts along California Boulevard PS&E - Napa. Caltrans Liaison. Worked with Caltrans District 4 Managers to forge a funding partnership utilizing local (City of Napa), regional (MTC), state (SHOPP), and federal (CMAQ) funds. Worked closely with District 4 staff to draft acceptable terms for a cooperative agreement that delineated funding responsibilities and project development roles.
- Halcyon Road Complete Streets Plan - Arroyo Grande. Caltrans Liaison. Assisted the City in the preparation of the Caltrans Sustainable Communities grant application and facilitated a pre-application meeting between City and Caltrans staff. Assisted with determining project scope and also helped plan and participated in the public engagement process (Community Charrettes and Stakeholder Advisory Group).
- SR 60/Sunnymead Interchange - Moreno Valley. Caltrans District 8 Liaison. Helped guide the project team through the ICE process with district traffic operations and design staff. Assured adherence to all Caltrans policies **regarding right of way, as the City's project required a transfer of State Highway operating right of way.**



Project Team Organization

Todd Tregenza, AICP

Project Role

Senior Transportation Planner

Registration/Affiliations

- AICP Certified Planner, CA #29678
- Young Professionals in Transportation, Sacramento Chapter, Co-Founder and Past Chair

Education

BS, Community and Regional Development, University of California, Davis, CA, 2007

Software Proficiency

- ArcMAP
- AutoCAD
- CUBE
- Synchro
- SimTraffic
- Traffix
- VISSIM

Foreign Language

French

Qualifications

Todd Tregenza has 11 years of professional experience in various areas of transportation consulting with an emphasis on transportation planning projects. He has assisted dozens of agencies on short and long-range planning efforts, including the development of travel demand models, general plan circulation elements, specific plans and master plans, corridor studies, capital improvement programs, nexus and fee studies, transportation operational analysis, and impact analyses. His experience spans public and private sector work for a broad range of projects that require circulation, safety, and operational analysis from a transportation perspective. Todd also has extensive experience as a transportation planner for local agencies, assisting in preparation of transportation studies and grant applications, performing peer reviews of impact studies, and developing CEQA impact analyses for development projects of all sizes.

Project Experience

- SR 49 Corridor System Management Plan - Nevada County. Transportation Planner. Developing active transportation performance metrics, analyzing safety and accessibility, evaluating safety countermeasures, and developing system wide improvements for bicycle/pedestrian mobility.
- G12 Corridor Study - Monterey County. Transportation Planner. Analyzing historical crash data and overseeing crash analysis using systemic safety approach, evaluating feasibility of safety countermeasures, and developing improvement concepts to improve safety for modes along corridor.
- Dry Creek Valley Safety and Capacity Study - Sonoma County. Project Manager. Evaluated safety of the roadway system, assessed safety risk based on geometric, topographical, and seasonal conditions for all modes, with a focus on special events, such as cycling events and winery events.
- Traffic Safety Studies - Grover Beach. Transportation Planner. Prepared analysis and report for three traffic safety studies including consideration of angled parking on West Grand Avenue, traffic calming on Margarita Avenue, and enhanced pedestrian crossings on Oak Park Boulevard.
- Transportation Safety/Circulation Studies - Arroyo Grande. Transportation Planner. Prepared several multimodal safety/circulation studies including Ocean View Safe Routes to School Plan, South Halcyon Road Complete Street and Road Diet, and Short Street Closure to Vehicular Traffic.
- South Halcyon Road ATP Grant Application - Arroyo Grande. Transportation Planner. Prepared NCHRP 552 analysis to forecast induced bicycle demand, oversaw safety data analysis, and benefit/cost calculation.
- Active Transportation Plan - Turlock. Transportation Planner. As part of the team, identified gap closure projects and prioritized planned multimodal infrastructure in the context of improving connectivity between critical destinations, such as schools, residential neighborhoods, and parks.
- SR 49 Southern Gateway Commercial Corridor Study - San Andreas. Project Manager. Prepared near/long-term prioritized complete streets projects for use along SR 49/Mountain Ranch Road. Developed TDM based on land use and absorption rates. Improvements included bicycle/pedestrian gap closures, enhanced crossings, roundabouts, signals, and Class I trails.
- SR 29 South Corridor Engineered Feasibility Study and Middletown Community Action Plan - Lake County. Transportation Planner. Assisted with development of GIS base mapping and GIS Atlas layout/preparation.



Frank Penry, PE, TE

Project Role

Corridor Analysis

Registration/Affiliations

- Civil Engineer, CA #62785, OR #84632
- Traffic Engineer, CA #TR2304
- Traffic Operations Engineer, #1603
- American Society of Civil Engineers
- ASCE Redwood Empire Section, Former President
- Institute of Transportation Engineers (ITE)
- ITE San Francisco Bay Area Section, Secretary
- Registered Traffic Engineers of America
- American Public Works Association

Education

BS, Civil Engineering, California State University, Chico, CA

Other Relevant Experience

- Green Island Road Recycled Water Pipeline Project - American Canyon
- Vintage Ranch Subdivision Public Improvement - American Canyon
- City Traffic Engineer - City of Petaluma
- Petaluma Blvd TLC/Streetscape and Pedestrian Improvement - City of Petaluma
- Eureka Waterfront Trail - City of Eureka
- Traffic Engineering Staff Services - City of Cotati
- Traffic Engineering & Staff Services - City of Sonoma
- Railroad At-Grade Crossing Design and Implementation Services, North Coast Rail Authority (NCRA)

Qualifications

A registered traffic engineer and civil engineer with certification as a professional traffic operations engineer, Frank Penry has 22 years of experience in transportation planning and traffic engineering design. He has managed numerous transportation studies and design projects over the years, from small development impact studies to major roadway improvements. Frank has served as the City Traffic Engineer for the cities of Petaluma, Cotati, Sonoma, and Fortuna, providing the administration and development of municipal traffic engineering programs. He is well-versed in a wide range of traffic engineering design standards and encroachment requirements, traffic signals, roundabouts, traffic calming and streetscapes, construction traffic handling, detour, and control plans for a variety of civil engineering projects.

Project Experience

- SR-121 Five-Way Intersection Improvements - Napa. Project Manager. Mr. Penry was Project Manager for the preparation and delivery of **comprehensive Project Initiation Documents (PID's) for the 5-way** intersection of Silverado Trail (SR 121)/Third Street/East Avenue/Coombsville Road. Improvements at the intersection were pursued because of issues related to traffic congestion and inadequate signal timing for pedestrian crossings. Designs from key options formulated with previous planning documents were advanced and evaluated, and new improvement options were developed. Coordination between the City and Caltrans was performed in order to get input on the wide range of considered alternatives. Several of the options involved altering the current neighborhood access to create a four-leg intersection. A dual-roundabout configuration that maintained current access was also considered, but ultimately dismissed because of issues related to driver understanding.
- Town of Windsor Conde Lane/Johnson Street Pedestrian Enhancements - Windsor. Project Manager. Leading design of signing, striping, lighting, and an enhanced pedestrian crosswalk using RRFB at the realigned intersection of Johnson Street and Conde Lane in the Town of Windsor. The project will realign Conde Lane and remove all-way stop control to reduce delay and increase traffic flow between two adjacent traffic signals. The all-way stop control is currently a "T" intersection with traffic signals on two adjacent legs; morning and afternoon peak traffic from a nearby elementary school backs up from the stop controls to either signal. The project requires coordinating among the town, the design team, and neighborhood stakeholders to build consensus for the final design.
- Traffic Data Management System - American Canyon. Traffic Engineer. Responsible for preparation of traffic signal inventory, planning, design, and encroachment permit design package for Caltrans approval of the system. Following on the success of the Traffic Signal Synchronization, the City sought additional funding to install permanent traffic count stations along SR 29 to monitor traffic data trends, and provide centralized collection and monitoring of data, video, and operational details. The project is envisioned to track and predict conditions, which would lead to local and regional improvements to the State Highway, including additional travel lanes. Additionally, the project is viewed as the first step towards more proactive traffic management to increase the service life of the existing highway.



Project Team Organization

Heather Anderson, PE

Project Role

- Performance Assessment
- Project Initiation Document

Registration/Affiliations

- Civil Engineer, CA #85522
- **Women's Transportation Seminar**
- Young Professionals in Transportation

Education

BS, Civil Engineering, California State University, Chico, CA, 2010

Qualifications

Heather Anderson is a registered California professional engineer with over 10 years of technical and coordination experience gained on a broad range of civil engineering projects in all aspects of transportation improvements, including bicycle/pedestrian facilities, roundabouts, interchange replacements, corridor widening, and express lanes. She is both a project manager and a project leader, well-versed in Caltrans process and procedures and preparing documents, exhibits, Plans, Specifications, and Estimates (PS&E) in compliance with local, state, and federal standards. She works collaboratively with staff to deliver a quality product from the early planning stages through construction completion.

Project Experience

- SR 49 Corridor System Management Plan - Nevada County. Project Engineer. Currently analysing collisions and developing list of optional safety improvements to supplement the traffic study along 13 miles of SR 49 in Nevada County.
- US 101/State Street - Mendocino County. Project Manager. Currently coordinating with Caltrans District 1 while overseeing and reviewing the preparation of preliminary engineering and public outreach for up to six roundabouts or signals along North State Street, which is the major arterial for the County into and out of Ukiah.
- La Quinta Village Complete Street, a Road Diet - La Quinta. Project Engineer. Assisting with preliminary engineering for the geometrics and striping/signing of five roundabouts for the three-street corridor complete street project consisting of five roundabouts, water quality infrastructure, pedestrian and bicycle facilities, and landscape/beautification elements near and along Old Town La Quinta.
- Main Street/Shenandoah Road Safe Route to School Active Transportation Program Grant Application Assistance and PS&E - Plymouth. Project Engineer, Assistant Project Manager. Preparing plans and exhibits for the layout of the sidewalk and complete street alternatives for Main Street and connection to the new roundabout at Shenandoah Road.
- North Main Street/SR 49 Complete Streets Corridor Plan and Copello Road Pedestrian Connector - Design Workshop - Angels Camp. Project Engineer. Currently overseeing and reviewing the preparation of the PS&E of the sidewalk and complete street alternatives for Main Street and Shenandoah road for connection to the roundabout.
- Valley Springs Complete Streets/Town Center Connectivity - Valley Springs. Project Engineer. Assisting with the data collection, base mapping, alternatives analysis, and presentations for the feasibility study of the plan that is to provide for safe mobility and accessibility throughout, connecting people, schools, shopping, and recreational areas by enhancing all modes of travel.
- SR 29/SR 221 Interchange - SOSCOL Junction - Napa County. Project Manager. Currently overseeing and reviewing the preparation of the PA/ED with Caltrans District 4 for a revision to the original Caltrans flyover concept to update the highway at the State Route (SR) 99 and 221 interchange to complex roundabouts on both sides. This project is a high profile project for the Napa Valley Transportation Authority, as they have been trying to update this integral intersection for the past 10+ years.



Jerry Champa, PE

Project Role

Collision Reduction (Safety)

Registration/Affiliations

- Civil Engineer, CA #40573
- Institute of Transportation Engineers
- Transportation Research Board, Committee on Roundabouts

Education

BS, Civil Engineering and BA, American Studies, University of Notre Dame, Notre Dame, IN

Authored/Instructed

- Co-Lead/Author of Strategic Highway Safety Implementation Plan for Challenge Area
- ICE Policy Directive, CA MUTCD revision, and Safety Analysis guidance
- Co-author of Managed Lanes Policy Directive & Design Bulletin on Roundabouts
- Training Instructor on Traffic Safety & Project Delivery Topics

Professional Experience

Caltrans, Division of Traffic Operations, HQ Office:

- ICE Technical Assistance Manager.
- Statewide Traffic Safety & Operations Liaison Engineer. In-house consultant providing technical assistance on complex and critical engineering decisions, Advisor/approval authority on: traffic control and safety system policy decisions; and safety management program (HSIP) and proposals.

Qualifications

Jerry Champa works as a senior engineer hand-in-hand with GHD's Transportation Team across California and the nation. He has been assisting state and local agencies to secure funding for safety-centric, operational and active transportation infrastructure improvements since 1998. He continues to be a national leader, training instructor, and advocate for the adoption of ICE as a traffic engineering policy and type-selection tool for making the optimal investment decision on solution proposals involving new, expanded, or improved access points. His expertise was developed over a 25-year-period through statewide roles as a Caltrans Geometric Design and Traffic Engineering Policy, Funding Program, and **Technical Assistance Specialist and "Change Agent."**

Project Experience

- Caltrans California Strategic Highway Safety Plan (2) - California. Co-Lead & Author. Produced the Action & Implementation Plans for two critical **Challenge Areas: "Driver Decisions About Turning & Rights of Way," and "Intersections, Interchanges and Other Roadway Access."** Established ICE program (policy, type-selection framework, safety analysis tool, and Technical Assistance Network) to objectively evaluate and compare roundabouts and other innovative solutions alongside traditional intersection control strategies. The ICE program increases the use of a proven but under-utilized safety countermeasure via comparison for alternatives.
- Pedestrian Safety Audit of North Lake Boulevard (SR 28) - Tahoe City. Member, Advisor to Multi-Disciplinary Team. Invited to participate by Tahoe RPA and FHWA. Audit produced consensus and funding to implement specific infrastructure improvement recommendations to address pedestrian/cyclist safety needs at all intersections and crossings within study limits.
- Mobility & Safety Study of Lincoln Highway (SR 50) - Meyers. Member & Advisor to Multi-Disciplinary Team. Invited to participate by Tahoe RPA and FHWA, and a study produced community and party agency consensus on recommendations to improve pedestrian and cyclist safety through implementation of access and speed management strategies toward transformation of highway corridor to a complete/main street.
- Pedestrian Crossing Studies, Caltrans District 12 - Laguna Beach. Technical Advisor. Advised on numerous pedestrian crossing studies along Pacific Coast Highway and Laguna Canyon Highway; studies led to funding for installation of In-Roadway Lighting/Pedestrian Hybrid Beacon systems.
- Neighborhood Safety Optimization Plan - Sacramento. Technical Advisor (Volunteer Basis). Advising and assisting the LPCA Public Safety Committee Chairman on effort to establish a meaningful partnership with City Traffic Engineering Division in order to address ongoing traffic and traveler safety issues that do not meet collision, volume, and other engineering warrants to justify resource expenditures or even incremental improvements.
- Strategic Highway Safety Implementation & Action Plans. Co-Lead & Author. Employed network screening to identify a previously unrecognized pattern of fatal and serious injury collisions along highway corridors throughout the state. Developed and successfully implemented a systemic response that includes 11 HSIP-funded projects to add safety lighting along highway segments that vary in length (between 1-10 miles).
- Caltrans Highway Safety Monitoring & Improvement Program



Project Team Organization

Trenton Hoffman, PE

Project Role

Project Initiation Document

Registration/Affiliations

- Civil Engineer, CA #89888
- Young Professionals in Transportation
- GHD Young Professionals

Education

BS, Civil Engineering, California Polytechnic State University, San Luis Obispo, CA, 2015

Qualifications

Trenton Hoffman joined GHD as a design engineer. His responsibilities include civil design, roundabout design checks per national standards, utilizing AutoCAD and Microstation for plans and drawings, preparing technical memorandums and reports, Project Approval/Environmental Documents (PA/ED), Plans, Specifications And Estimates (PS&E), and providing utility services. As the former civil engineer in a hydropower group, he worked on projects including a concrete masonry unit structure housing a dam's lower level outlet, asset valuation of various hydropower facilities, and a partially underground water storage tank design. Through these projects, he became familiar with codes and standards used in civil and structural design and gained a unique perspective regarding hydropower and tying that work into civil engineering.

Project Experience

- Citrus Heights Electric Greenway Design and Environmental Services - Citrus Heights. Engineer. Assisted in identifying right of way conflicts and easements. Provided preliminary right of way exhibits for a safe routes to school project connecting multiple city parks and schools.
- Jepson Parkway Phase 2 Plan Line - Vacaville. Engineer. The project included conceptual widening of a two-lane road into a four-lane road with a raised median for 2040 conditions, and again widening to a six-lane road with a raised median for ultimate buildout conditions. Developed typical sections and plan-line sheets for use in right of way acquisition required for ultimate buildout.
- La Quinta Village Complete Street, a Road Diet - La Quinta. Engineer. Assisted with roadway sections, signing, and drawing development of five roundabouts near and along Old Town La Quinta.
- Plymouth ATP Sidewalk Project - Plymouth. Engineer. Assisted with preparing the utility mapping, "A" letters, final PS&E, and conceptual approval drawings for the layout of the sidewalk and complete street alternatives for Main Street and connection to the new roundabout at Shenandoah Road.
- SR 116/SR 121 Roundabout Intersection Improvements - Sonoma County. Engineer. Designed pavement delineation and signing and assisted with drawing development for a roundabout at a major state route junction in Caltrans right of way.
- First Street and Second Street Roundabouts along California Boulevard ICE and PS&E - Napa. Engineer. Assisted with the 100% and final PS&E plan set, prepared staging quantities, and performed the office engineer review for several roundabouts that connect downtown Napa to SR 29.
- 17 Mile Drive/Holman Highway 68/Highway 1 Roundabout - Monterey. Engineer. Assisted in preparing as-builts including drawing updates and electronic filing for a roundabout at the Southbound Highway 1 ramps and Holman Highway in Monterey.
- SR 99/Eaton Road Roundabout ICE Step 1 and HSIP Grant Application - Chico. Engineer. Performed roundabout design checks per National Cooperative Highway Research Program (NCHRP) 672 and Caltrans HDM standards, including fast-paths, truck turns, bus turns, and sight distance for the PA/ED and PS&E for a roundabout at the intersection of the northbound State Route (SR) 99 on and off-ramps and Eaton Road/Hicks Lane. This project is anticipated to go to construction Spring 2020.



Jay Walter, PE, TE

Project Role

Caltrans Coordination

Registration/Affiliations

- Civil Engineer, CA #41227
- Traffic Engineer, CA #1749
- American Public Works Association
- League of California Cities
- San Mateo City/County Engineers Association County
- San Mateo City/County Engineers Association of Governments
- California Traffic Control Devices Committee

Education

BS, Civil Engineering, California Polytechnic State University, San Luis Obispo, CA, 1983

Professional History

- Director of Public Works, City Engineer, City of San Carlos, CA, 2012 - 2017
- Public Works Director, City of San Luis Obispo, CA, 2001 - 2012
- Caltrans District 5 Director, 1998 - 2001

Project (On-Call)

- City of Arroyo Grande On-Call Transportation Services
- City of Paso Robles On-Call Traffic Engineering
- City of San Luis Obispo On-Call Transportation Services
- City of Grover Beach Traffic Engineering Studies

Qualifications

Jay Walter joined GHD's San Luis Obispo office as the Office Manager in January 2018. He is a highly experienced public works professional with over 34 years in increasingly responsible positions including top leadership roles with California Department of Transportation (Caltrans) and the cities of San Carlos and San Luis Obispo. He is well-versed in both administrative and technical aspects of managing large complex public works agencies and departments including **budget, planning, operational, and administrative duties.** **Jay's knowledge of the communities from Ventura to San Mateo is unparalleled and supported by our Central Coast office; he will be a valuable asset to GHD's current and future clients as we expand our transportation reach on the west coast.**

Project Experience

- Buchon Street Traffic Calming - San Luis Obispo. Project Manager. Managed the project, which included the development of PS&E for speed humps and a mini roundabout for intersection control.
- Santa Maria Downtown Streetscape Plan - Santa Maria. Project Manager. As part of the SERA design team, provided consulting services and traffic analysis for the City of Santa Maria Downtown Streetscapes Plan.
- City of Paso Robles Speed Zone Survey Update - Paso Robles. Project Manager, Project Engineer. Analyzing the data collected from the citywide radar surveys and speed limit analyses. Preparing the project reports (engineering and traffic surveys) for 59 various locations within the City.
- US 101/5th Street Interchange ICE Step 1 and Step 2 Process - Gonzales. Project Manager. Prepared engineering report for analysis of traffic signal warrants at the ramp intersections, analyzing traffic volume data, collision data, and made recommendations to the City Engineer.
- On-Call Transportation/Traffic Engineering - Paso Robles. Project Manager. Performing planning, design, construction assistance, and technical review of roadway design, traffic signals, roadside safety features, signage/stripping programs, pavement maintenance, travel demand modeling, multi-modal operations analysis, review of development proposals, and processing projects with Caltrans and agencies.
- On-Call Transportation Services - San Luis Obispo. Engineer. Performed peer review of the traffic signal warrants for the Los Verdes Park Development. Provided engineering services for Buchon Street Traffic Calming Improvements, including PS&E for speed humps and a mini roundabout for intersection control.
- Traffic Engineering Studies - Grover Beach. Project Manager. Prepared engineering studies for various intersections within the city, analyzing traffic volume data, collision data, speed data and roadway conditions, and made recommendations to the City Engineer.
- US 101/Main Street Interchange Study - Santa Maria. Project Manager. Managed revision of a major freeway interchange, coordinated Caltrans interaction and concurrence, directed the design of interim improvements that provide traffic relief while the longer term project is being designed.
- Shell Beach Elementary School Access Study - Pismo Beach. Project Manager. Provided traffic data analysis and access improvement ideas for congested drop off and pick up zones.



Project Team Organization

Brian Bacciarini

Project Role

Environmental

Education

BS, Environmental Studies, Sonoma State University, Rohnert Park, CA, 2001

Certifications

- Construction Document Technician, OSHA 40-Hour HAZWOPER Certification
- OSHA 8-Hour Annual HAZWOPER Certificate of Completion Construction Site Planning and Management

Qualifications

Brian Bacciarini has 16 years of experience with GHD as an environmental planner and CEQA/NEPA project manager. He assists cities, counties, state agencies, special districts, and federal agencies to review and clear infrastructure projects in accordance with environmental regulations and guidelines. He specializes in evaluating projects involving multiple jurisdictions and federal funding programs, including the Caltrans Local Assistance Procedures. Brian's project experience includes roundabouts, roadways, bridges, transit stations, railroads, ferries, trails, and utility replacement projects. This far-reaching range of experience provides him with the breadth of understanding required for this project.

Project Experience

- Napa Highway SR 121 Roundabout - Napa County. NEPA Lead in Caltrans District 4. Assisted with the initial environmental review of this locally sponsored interchange project on the District 4 State Highway System. The project includes dual roundabouts to replace a congested five-way intersection at Silverado Trail, Third Street, East Avenue, and Coombsville Road. Coordinated the completion of a PEAR, which provides the initial environmental evaluation of the project and alternatives before it is programmed. This included identifying environmental constraints that may affect project design, alternatives, cost, schedule, and delivery.
- Grant Avenue Bridge Rehabilitation - Novato. NEPA Lead in Caltrans District 4. Project includes rehabilitating and widening an existing vehicle and pedestrian bridge, as well as stabilizing the banks and channel on the upstream portion of Novato Creek. Project also includes grant authorization from the Caltrans Highway Bridge Replacement and Rehabilitation program for partial federal funding. Oversaw the completion of a PES form and numerous technical studies in support of a categorical exclusion finding. Caltrans environmental clearance was provided October 2016.
- Lucas Valley Road Realignment - Marin County. NEPA Lead in Caltrans District 4. Assisting with the NEPA review of this federally funded roadway realignment. The project includes a roadway curve realignment and retaining wall on Lucas Road in an area that has been problematic for larger vehicles to traverse. The project is federally funded by the HSIP, with federal-aid funds administered by District 4 Local Assistance. Overseeing the completion of technical studies, including a Natural Environment Study Minimal Impact memo, APE Maps, and Archaeological Survey Report in support of a categorical exclusion finding.
- Fulton Road Widening Improvement - Santa Rosa. Environmental Lead/CEQA Project Manager for Preliminary Engineering Design. The project includes roadway widening, new vehicle travel lanes, bicycle lanes, sidewalks, bioretention areas, bus stops, landscaping, utility relocations, storm water facilities, and property acquisitions and easements. Managed the completion of a CEQA MND that included technical studies for traffic, wetlands, cultural resources, and roadway traffic noise. The MND was adopted by the City Council in October of 2017. He is also managing permitting services.
- Grant Avenue Bridge Rehab Project - Novato. Environmental Project Manager. Managed the CEQA and NEPA review of this bridge rehabilitation project. The project includes grant authorization from the Caltrans Highway Bridge Replacement and Rehabilitation program for partial federal funding.



Brian Howard, PLS

Project Role Surveys

Registration/Affiliations

- Professional Land Surveyor, CA #7250
- California Land Surveyor Association

Education

- BS, Survey and Photogrammetry, California State University, Fresno, CA
- AS, Engineering, College of the Siskiyous, Weed, CA

Certification/Training

- Advanced BLM Cadastal Workshop
- FEMA Elevation Certificate - 2016
- FEMA Obtaining and Developing Base Flood Elevations in Zone A Areas
- FEMA Flood Plan Determination in Approximate Zone A - 2016
- Hypack Hydrographic Training Seminar
- Water Boundaries for California Land Surveyors

Software/Equipment Expertise

- AutoDesk Civil3D
- Differential Levels
- Digital Level
- Needed Accessories
- Trimble Geomatics Office
- Trimble R-8 GPS Receivers
- Trimble S-6 Robotic Total Stations
- Trimble 5700 GPS Receivers
- TSC2 Survey Controllers

Qualifications

Brian Howard manages the firm's Northern California surveying projects and supervises surveyors scheduling field and office personnel. Throughout his over 30 -year career, he has performed surveying and right of way engineering on a full range of surveying work, including Chainman, Instrumentman, and Party Chief. He has extensive experience with topographic, boundary, and construction surveying, as well as expertise with geodetic and photogrammetric control, hydrographic surveying, aids to navigation, optical tooling, machine alignment, movement, and settlement surveys. Brian has surveyed in all types of environments from the highly industrial settings of chemical plants, steel mills, and oil refineries, to remote areas staking slide repairs and establishing boundary lines in the **vast majority of California's counties from Orange and Riverside, to Modoc and Siskiyou.** He also has surveying experience in Nevada, Oregon, and Hawaii.

Project Experience

- Farmersville Boulevard at Noble Avenue and SR 198 Eastbound Ramps Roundabout PS&E - Farmersville. Role. Performed the right of way support and base mapping to include in the traffic analysis, construction with over 60 plats and legal descriptions, provided topographic, right of way, and monumentation survey. Project involved improvement of freeway interchange with two adjoining projects for two roundabouts located along Noble Avenue - one at the intersection of SR 198 eastbound ramps, and the other at Farmersville Boulevard.
- Rocklin Road Roundabout Corridor - Rocklin Road at Meyers Street and Grove Street (Construction Staking and Support) - Rocklin. Surveyor. Provided right of way engineering, construction staking, monumentation centerline, and record of survey. Provided right of way engineering, construction staking, monumentation centerline, and record of survey. Boundary resolution, right of way engineering and construction staking of two roundabouts on Rocklin Road. Prepared legal descriptions and plats and a record of survey. Performed field surveys, office tasks, and overall surveying for a complete street corridor. The Meyers Street and Grove Street Roundabout were constructed in 2014.
- I-5/Deschutes Road Interchange Reconstruction and Roundabout - Anderson. Topographic Surveying, Right of Way Engineering, Construction Staking QA & Monumentation. Provided the topographic surveying, right of way engineering, construction staking quality assurance, and monumentation for this freeway off-ramp and five-leg two-lane roundabout.
- SR 99/SR 104 (Twin Cities Road) Interchange PSR/PR and PS&E - Galt. Surveyor. Performed the field survey, aerial survey, right of way, property/topographic surveys, office support for control aerial and topographic mapping for the planning, engineering, and through to the final plans for the roundabouts with five legs and new northbound off-ramp at the two existing interchange locations. Construction was completed in 2013 for \$4 million.
- Shasta View Drive/Inspiration Place Roundabout - Redding. Surveyor. Provided construction staking services.
- Shasta View Drive/Old Alturas Road Roundabout Design - Redding. Surveyor. Provided the topographic survey and right of way engineering services for a roundabout to minimize right of way impacts while replacing an all-way stop intersection with a modern roundabout.



Project Team Organization

Ryan Crawford, PG

Project Role

Geologist

Registration/Affiliations

Geologist, CA #8764

Education

- MS, Geology, Humboldt State University, Arcata, CA, 2007
- BS, Geology, Humboldt State University, Arcata, CA, 2003
- 40-Hour OSHA/RCRA Hazardous Site Waste Operations Courses
- Soil and Groundwater Management
- Construction Site Planning and Management for Water Quality
- Applied Contaminant Chemistry Transport in Soil and Groundwater
- Incremental Sampling Methodologies for soil and groundwater
- Soil, Soil Vapor, and Groundwater Impacts Modelling
- Applied Soil, Soil Vapor, and Groundwater Remedial Technologies

Qualifications

Ryan Crawford is a professional geologist who has performed on a variety of geological, environmental, and hydrological projects throughout California, Alaska, Panama, Ecuador, and Guam. His contamination assessment and remediation experience includes: Initial site assessments, environmental site assessments, phase I/II/III investigations (including large and small scale phase I corridor studies) surface and groundwater hydrologic studies; environmental subsurface investigations with associated remediation system design and implementation for the full suite of contaminants; boring and well drilling supervision; performing risk-based corrective action evaluations; regulator and contractor coordination; technical writing, review, and editing and recommendations for reports; preparation and implementation of work plans, remedial action plans, ADL and NOA reports, corrective action plans, report of findings, sensitive receptor surveys, and the characterization and disposal of investigative derived waste materials since 2007.

Project Experience

- Talmage Road Highway 101 Overpass Aerially Deposited Lead Report - Ukiah. Ongoing testing by Caltrans throughout California has indicated that ADL exists along major freeways and roadways due to emissions from motorized vehicle exhaust powered by leaded gasoline. Oversaw the initial site assessment and sample collection of aerially deposited lead along the Talmage Road Overpass project and prepared the associated ADL report.
- Hill Road Bridge Replacement Aerially Deposited Lead and Naturally Occurring Asbestos Reports - Mendocino. Asbestos is naturally occurring (NOA) in much of Northern California and can potentially be encountered in particular rocks and soils, which can pose an inhalation hazard when disturbed. As part of the ISA, oversaw the collected of NOA and ADL samples along the drip line and bridge abutments of Hill Road bridge for Mendocino County and Caltrans and provided recommendations for waste stream and wrote the associated reports for construction/destruction during the project.
- Clover Creek Bridge Replacement Hazardous Materials Survey: Aerially Deposited Lead and Naturally Occurring Asbestos Reports - Lake. Conducted a hazardous materials survey prior to bridge demolition and redesign. Included review of site and regional geology and oversaw the collection of samples for ADL and NOA including analytical results interpretation and recommendations related to bridge destruction and soil disturbance issues.
- Rancho Vicente Staging Area Grading: Santa Clara Parks NOA Sampling & Reporting - Santa Clara County. Mapping data published by City of San Jose Environmental Services show that the project is near locations **that are classified as "Definite" to contain both ultramafic and serpentine rock formations**, of which both rock types can yield various concentrations and forms of NOA. Directed a Caltrans type NOA reporting survey.
- Phase I Corridor Studies - Arcata, Eureka, Sonoma, Napa and Santa Rosa. Responsible for hazardous materials Phase I corridor studies up to four miles in length conducted through sections of the Arcata and Eureka **cities as part of a "Rails-to Trails" project. Industrial activities investigated in the area dated back to the early 1900's. Studies were for sewer and water pipeline upgrades through city right of ways.**



Lin Zhang, PhD, PE, TE, PTOE

Project Role

- PeMS
- Freeway Operations

Qualified

- PhD, Civil Engineering, University of Hawaii, HI
- MS, Civil Engineering, Southeast University, Nanjing, China
- BS, Civil Engineering, Southeast University, Nanjing, China
- Civil Engineer, CA #75052
- Traffic Engineer, CA #2428
- Professional Traffic Operations Engineer, CA #2062

Connected

- National Academies' Transportation Research Board Committee on Freeway Operations
- Arterial Advisory Group, Bay Area

Professional Skills

- Traffic Operations
- Corridor Studies
- Traffic Simulation & Modeling
- Toll Operations
- Managed Lanes
- Congestion Pricing
- Traffic Signal Systems
- Traffic Safety
- Intelligent Transportation Systems
- Performance Measurement

Qualifications

Dr. Lin Zhang has more than 15 years of professional experience in the areas of transportation engineering and planning, with increasing responsibility in both the public and private sectors. Dr. Zhang has considerable experience in traffic operations, corridor studies, traffic simulation and modeling, toll operations, managed lanes, congestion pricing, traffic signal systems, traffic safety, Intelligent Transportation Systems (ITS), and performance measurement. Dr. Zhang is a registered Professional Engineer (PE), Traffic Engineer (TE), and Professional Traffic Operations Engineer (PTOE). He is a Member of the National Academies' Transportation Research Board (TRB) Committee on Freeway Operations, one of the most active and prestigious committees within the TRB. He is the Past President for the San Francisco Bay Area Institute of Transportation Engineers. He is also a committee member of the Arterial Advisory Group (AAG) in the Bay Area. He has contributed to numerous regional, national, and international conferences as a speaker/moderator.

Project Experience

- I-580 Design Alternative Assessment (DAA) - Alameda County. Task Leader. Leading both tasks on Data Collection and Analysis & Corridor Operations Analysis. Corridor operations analysis is being conducted using Highway Capacity Manual (HCM)-based FREEVAL analysis tool.
- I-880 Adaptive Ramp Metering Implementation Plan - Alameda/Santa Clara County. Task Leader. Dr. Assisting MTC with existing conditions assessment for the I-880 ARM implementation plan.
- 2018 CMP Monitoring and Conformance Reports - Santa Clara Valley Transportation Authority (VTA). Project Manager. Assisting VTA with its 2018 Congestion Management Program (CMP) Monitoring Reports.
- Using Archived Data as a Tool for Operations Planning - San Francisco Bay Area. Case Study Lead. Conducted a case study in the San Francisco Bay Area to demonstrate how MTC used archived data to support corridor study planning efforts.
- I-80/Gilman Street Interchange Improvement PA/ED Project - Berkeley. Task Leader. Responsible for traffic analyses for this project, including freeway and arterial operations analysis using VISSIM, a micro-simulation tool.
- Most Congested Freeway Segments in San Francisco Bay Area - Metropolitan Transportation Commission. Assisted in refining the methodology using INRIX data for the Most Congested Freeways in Bay Area, also known as the State of the System report.
- Bay Area Traffic Trend Analysis - San Francisco Bay Area. Analysis. Conducted analysis of Bay Area traffic trend using INRIX and PeMS data.
- Integrated Corridor Management Tools, Strategies, and Deployment Support - FHWA. Participated in the analysis, modeling, and simulation activities of the Integrated Corridor Management initiative for the FHWA.
- I-210 Corridor Study - LA County, CA, Southern California Association of Governments (SCAG). Model Development. Developed a VISSIM micro-simulation model for 23-mile corridor and conducted alternatives analysis.
- Next Generation Simulation Core Algorithms & Data Sets - FHWA. Model Development. Successfully generated more than 13 million vehicle trajectory data points for traffic flow, operations, and simulation research.



Project Team Organization

Lawrence Liao

Project Role

SNABM

Education

- ME, Transportation with a Certificate of Logistics, University of California, Berkeley, CA
- MS, Industrial Engineering, University of New Haven, CT
- BS, Industrial Engineering, Tunghai University, Taiwan

Professional History

- ETG, 2018 - Present
- TJKM, 2014 - 2018
- Cambridge Systematics, 2008 - 2014
- Arup, 2007 - 2008
- Fehr & Peers, 2003 - 2007
- Citilabs, 1999 - 2002

Professional Skills

- Travel Demand Modeling
- Transportation Planning
- Big Data Analytics
- Certified Cube Trainer

Presentations

Mr. Liao presented the procedure he developed at the TRB Integrated Corridor Management Workshop in Irvine, CA in September 2009.

Qualifications

Lawrence Liao has more than 18 years of experience in the areas of travel demand forecasting, transportation planning, and big data analytics. He has developed and updated travel demand models at various levels - from cities and counties to **Metropolitan Planning Organizations (MPO's) and states, and for both trip-based and activity-based models**. He has also applied travel demand models to support various projects, such as corridor system management plans, traffic impact studies, general plan updates, environmental impact reports, corridor studies, transit-oriented development, managed lane modeling, as well as federal research projects.

Lawrence is experienced in all major travel demand modeling software packages, including CUBE, TransCAD, EMME, VISUM, Tranplan, and MINUTP, as well as, common programming languages, such as, Python, Java, MS Office VBA, C++, Pascal, and Fortran. He is also one of only five certified CUBE trainers in the world and is an expert in CUBE-VOYAGER/TP+ scripting.

Project Experience

- I-5/SR 99, I-80/SR 51, SR 65, US 50 Corridor Management Systems Plans - Sacramento. Lead Modeler. In charge of converting static travel demand information from the regional demand model (SACMET07) into time-dependent trip tables for four corridors (I 5/SR 99, I 80/SR 51, SR 65, US 50) in the Sacramento area. Developed a standard procedure to ensure that the final time-dependent trip tables are feasible for traffic microsimulation models.
- North Development Environmental Impact Report (EIR) - Rancho Murieta. Modeling. Provided travel demand modeling services using SACSIM11 to support the traffic impact analysis in the EIR. Mr. Liao prepared input data for DaySim, using PopGen and buffering tools to develop a cumulative model with four large scale approved projects and developed traffic forecasts for the 2014 base scenario and 2035 cumulative no-project scenario.
- Strategic Highway Research Program (SHRP) 2 C10 Project - Sacramento. This project integrated the activity-based model (SACSIM) maintained by the Sacramento Area Council of Governments (SACOG) with a traffic microsimulation model, DynusT. The project also included enhancements to SACSIM and DynusT to analyze the effects of reliability on the transportation system and integration of the new integrated model with the U.S. Environmental Protection Agency's (EPA) MOVES program for air quality analysis. Mr. Liao was a key staff in charge of model integration compiling input data for DynusT using data from SACSIM.
- Solano-Napa Activity Based Model Development - Solano & Napa Counties. Developed a focused activity-base model for the Solano and Napa counties (SNABM) based on the MTC ABM. The MTC ABM model code stream was revised to accommodate the enhanced zonal and network structure in SNABM. Procedures were developed to map employment data from the SIC-based categories to the NAICS-based categories for the new SNABM, and to map link attributes from the current SNTDM to the MTC ABM link attributes.



Kendall Flint

Project Role

- Interagency Consultation
- Public Outreach
- Public Hearings/Board Presentations

Affiliations

- American Planning Association
- California Association of Public Information Officials
- Public Relations Society of America
- International Association of Business Communicators

Education

BA, English, University of California, Los Angeles, CA

Awards

Kendall's award-winning work has been honored by the California Association of Public Information Officers, Public Relations Society of America, International Television Association, International Association of Business Communicators and California Local Economic Development Corp., which honored the economic development program for the City of Elk Grove with its Crystal Eagle Grand Prize.

Qualifications

Kendall Flint is an industry professional with more than 25 years of marketing, advertising, and public engagement experience. She has created and implemented a broad range of communication, economic development, and outreach campaigns for both public and private agencies. Her award-winning work has been honored by the California Association of Public Information Officers, Public Relations Society of America, International Television Association, International Association of Business Communicators and California Local Economic Development Corporation, which honored the economic development program for the City of Elk Grove with its Crystal Eagle Grand Prize. She has specific experience in transportation and land use outreach programs throughout California.

Project Experience

- **Measure L - Stanislaus Council of Governments.** RGS developed an expenditure plan and ballot measure, Measure L, for a transportation sales tax in 2016 for the Stanislaus Council of Governments after the failure of two previous efforts in 2006 and 2008. RGS managed a methodical process that included focus groups, polling and more than 100 meetings with local agencies, stakeholder groups and advisory bodies. This all-inclusive approach resulted in a markedly different plan that previous set before voters. The **focus was on "Local Roads First"** - a mantra that resonated with voters and stakeholders regardless of party affiliation. Measure L passed with 71.95% of the vote in favor of the proposed sales tax measure.
- **SR 68 Scenic Corridor Study - Transportation Agency of Monterey County.** Managed a comprehensive outreach program for the Transportation Agency for Monterey County (TAMC) as part of its SR-68 Scenic Corridor Study. The study reviewed how SR-68 operates today, and what can be done to ensure that it operates as safely and acceptably as possible for all users in the future. Work included numerous community presentations, a dedicate website and a series of workshops.
- **US 101 Mobility Study and SR 227 Study - San Luis Obispo County Council of Governments.** Led a highly successful countywide outreach effort to prioritize future investments along US 101 through the County. The outreach effort focused on anecdotal, qualitative views and opinions expressed by the public. The project website averaged over 800 unique visits per month. It has generated over 400 unique comments via our interactive mapping tool. RGS completed over 200 intercept interviews countywide and engaged more than 600 people at various presentations and workshops held throughout the County. Also developed and implemented an outreach program in support of the SR 227 Corridor Study. This included a series of interactive workshops and community presentations.
- **Highway 92-Highway 1 Transportation Study.** Managed the Highway 92-Highway 1 Transportation Study, ConnectTheCoastside.com. *Connect the Coastside* was a comprehensive transportation management plan to identify programs and improvements along Highway 1 and Highway 92 to **accommodate the Midcoast's future transportation needs. The plan evaluated the existing and future residential and non-residential development potential of the Midcoast and City of Half Moon Bay by conducting a land use build-out analysis and an assessment of the current and future transportation system.**



REQUEST FOR TASK PROPOSAL

Pursuant to

On-Call Planning Services (RFQ 2015-03) and
On-Call A/E Design & Project Delivery Services (RFQ 2017-07)
for

STATE ROUTE 29 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN AND PROJECT INITIATION DOCUMENT FOR STATE ROUTE 29 THROUGH AMERICAN CANYON

As an on-call planning and on-call A/E design & project delivery firm selected under the provisions of RFQ 2015-03 and RFQ 2017-07, you are being asked to prepare a budget, schedule, and proposal for the STATE ROUTE 29 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN AND PROJECT INITIATION DOCUMENT FOR STATE ROUTE 29 THROUGH AMERICAN CANYON – Task Order No. 9. The scope of work for this task order is attached hereto as EXHIBIT A. Selection will be based on cost, schedule of performance, and expertise. You are invited to prepare a proposal to perform this work. Your proposal must include:

- (1) A detailed schedule of performance.
- (2) A not-to-exceed cost proposal (incl. hourly/labor rates).
- (3) A listing of assigned project personnel.

This work may or may not be funded with federal funds. All contract documents will contain applicable mandated federal contract provisions and be issued pursuant to the terms and conditions of RFQ 2015-03, RFQ 2017-07 and the professional services agreement executed pursuant thereto. NVRTA's overall DBE goal is 2.2%.

The NVRTA project manager assigned to this task is Rebecca Schenck, Transportation Program Planner, at (707) 259-8636 or by e-mail rschenck@nvta.ca.gov.

A pre-proposal conference is scheduled for February 12, 2019, 2:30 PM (local), NVRTA, Board Room, 625 Burnell Street, Napa, CA 94559, or the option to call-in to address any questions and/or needed clarification will be available by dialing 1-888-398-2342 and using access code 9209029 when prompted.

All inquiries regarding this task proposal are to be directed to Renée Y. Kulick, Sr. Administrative Technician, by e-mail rkulick@nvta.ca.gov by February 15, 2019, 2:00 PM (local). NVRTA, in its sole discretion, reserves the right to:

1. Reject any or all proposal submittals.
2. Issue one (1) or more subsequent Requests for Task Proposal.
3. Open proposals at its convenience.
4. Remedy technical errors in the solicitation/selection process.
5. Approve or disapprove the use of particular sub-proposers.
6. Negotiate with any, all, or none of the proposers responding.
7. Award a contract to one (1) or more proposers.
8. Waive informalities and irregularities in any proposal.

Proposals are due to NVRTA no later than March 7, 2019, 2:00 PM (local).

Kate Miller
Executive Director

EXHIBIT A

SCOPE OF WORK

State Route 29 Comprehensive Multimodal Corridor Plan and Project Initiation Document for State Route 29 through American Canyon

This scope of work covers two (2) main objectives that are to be separately priced:

Objective 1 - Update the State Route 29 Gateway Corridor Plan to meet the conditions of the Senate Bill 1, Comprehensive Multimodal Corridor Plan Guidelines, as outlined in

http://www.catc.ca.gov/programs/sb1/sccp/corridor-plan/docs/120518_Approved_CMCP_Guidelines.pdf

Objective 2 - Complete a Project Initiation Document (PID) for State Route 29 in American Canyon between Napa Junction Road and American Canyon Road.

SECTION I STATE ROUTE 29 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN

The State Route (SR) 29 Comprehensive Multimodal Corridor Plan will update the SR 29 Gateway Corridor Improvement Plan that was adopted in October 2014, and define projects that can be implemented near-term, mid-term and long-term. The SR 29 Comprehensive Multimodal Corridor Plan (Plan) will build upon the October 2014 Plan by analyzing intersection improvements in greater detail, evaluating the impacts of parallel local road improvements for all modes, evaluating technologies and traveler information, and modeling improvements through a micro-simulation model in accordance with Caltrans Corridor Planning Guidance and the principles of the federal Congestion Management Process. The project limits for this study are Devlin Road to the west, Newell Drive and North/South Kelly Roads to the east, the intersection of SR 29/121 (Imola intersection) to the north, and SR 37/29 interchange to the south.

Specifically, the Plan will:

- 1) Include near-term multi-modal solutions to specific intersections;
- 2) Evaluate adjacent/parallel corridor connections and extensions;
- 3) Expand on and analyze bus, bicycle, and pedestrian improvements along the corridor(s);
- 4) Evaluate integrated technology and smart corridor solutions that can be applied to the corridor to improve operations;
- 5) Provide economic impact analysis that evaluates the economic effects of proposed improvements;
- 6) Include congestion management strategies; and

- 7) Determine the order projects should be delivered to optimize traffic operations, reduce traffic/congestion and minimize additional traffic/congestion in other parts of the corridor.

The Plan will include multi-modal improvements and congestion management strategies on the corridor and expand on near and midterm solutions that can be implemented in the next 2-5 years, in addition to longer term improvements. The Plan will also take a more comprehensive (parallel corridor) circulation approach and evaluate parallel arterials such as potential extensions and connections on Devlin Road, Newell Drive, South and North Kelly Roads, Fairgrounds Drive - Flosden Road, and Soscol Ferry Road and analyze how potential improvements will impact congestion on the highway. The Plan will include micro-simulation models of proposed alternatives. The Plan will further investigate smart/adaptive corridor management technologies and strategies for application on SR 29.

The Plan will be continuously tracked and monitored by NVTa staff, the Staff Working Group (SWG) comprised of NVTa SR 29 Working Group and Caltrans planning, engineering and environmental staff.

Expected products are listed as deliverables.

TASK 1 Project Startup

- 1.1 Kick-Off Meeting.** Conduct a kick-off meeting with select project management team members to review the approved scope of work and discuss expectations, including needed data and proposing a public engagement strategy.

Deliverable	Documentation
Signed contract between Consultant and NVTa	Copy of signed contract
Conduct kick-off meeting	Meeting notes/summary of public outreach plan
Data Collection	Updated Average Daily Traffic (ADT) and Turning Movement Counts

TASK 2 Ongoing Stakeholder and Community Outreach and Project Oversight

- 2.1 Stakeholder/Jurisdictional Meetings.** Budget up to four (4) stakeholder meetings which could include municipal, business and/or community members.

2.2 Committee Meetings. Meet with NVTa Citizen Advisory Committee (CAC) and the Technical Advisory Committee (TAC). The CAC is comprised of numerous interest groups and individuals representing all modes who have an interest in the SR 29 Comprehensive Multimodal Corridor Plan. Members of the CAC represent environmental advocacy groups, merchant and business associations, hospitality, agriculture, wine production, education, and health. The TAC is made up of technical staff (public works and planning) from each jurisdiction. The Consultant will provide updates and/or materials for staff updates to the CAC and TAC approximately four (4) times during the course of the project. The Committee will review project progress and submit comments to the Staff Working Group and the NVTa Board.

2.3 Public Meetings.

2.3.1 Promote, advertise, and conduct no more than three (3) public charrettes at different locations/times through a multi-media campaign (including, but not limited to, use of newspaper and radio broadcast) through the Citizen Advisory Committee and other stakeholders to gain public involvement and refine plan concepts. One (1) of the public charrettes should be held in the beginning of the process to gain initial input and feedback and one (1) charrette should be held later in the process to review the draft Corridor Plan/Concepts.

2.3.2 Prepare presentation materiel for City Council and County Board of Supervisor meetings. Most presentations will be conducted by NVTa staff and/or City/County staff.

2.3.3 Prepare presentation materials and present no more than three times to the Napa Valley Transportation Authority Board (NVTa Board) which will act as the steering committee for the Comprehensive Multimodal Corridor Plan.

2.3.4 Meet with SWG approximately six (6) times over the course of the study (made up of NVTa staff, Caltrans staff, and the SR 29 Working Group members from the City of American Canyon, City of Napa, and County of Napa).

Prior to publication of milestone documents, draft documents and supporting data will be reviewed by the SWG. This group is expected to meet approximately six (6) times at key points in the process: to review and accept the Vision, to review the existing corridor study's results; potential improvement programs, review the draft Corridor Implementation Plan. Day-to-day work on project documents and meetings will be carried out by the Consultant, with direct staff

support from NVTa. It is expected that the Consultant team will consist of a transportation engineering and planning firm engaged in multi-modal planning and engineering, congestion management, transportation technology, and traffic modeling. The Consultant team should also be able to demonstrate a significant understanding of state and federal transportation funding programs and have existing working relationships with Caltrans District 4 and California Transportation Commission (CTC) staff.

Deliverable	Documentation
Public Outreach	Contact lists and logs
Citizen Advisory Committee and Technical Advisory Committee meetings	Presentation/meeting materials, agendas and minutes
Public Meetings/charrettes	Presentation/meeting materials, attendance lists, agendas, meeting notes
NVTa Board	Presentation/meeting materials, agendas, meeting notes
Staff Working Group	Presentation/meeting materials, attendance lists, agendas, meeting notes

TASK 3 Develop Plan Components

The SR 29 Comprehensive Multimodal Corridor Plan (Plan), to be managed by NVTa, will consist of the following subtasks

3.1 Evaluate Opportunities, Develop Corridor Plan Framework, and Literature Review. Refine the purpose and need statement for the SR 29 corridor including current problems and deficiencies facing the corridor. The Consultant will work with Stakeholders (CAC, TAC, jurisdictional staff and others) and the SWG, to develop a refined multi-modal and congestion management strategy framework for the corridor. The framework will serve as a broad outline to the Corridor Plan and define purpose and need for improvements to the corridor, plan/project elements and will evaluate parallel corridor connectivity/extension options that will work in tandem to improve circulation and congestion on the SR 29 corridor. The framework will consider all modes of transportation, congestion management strategies and smart/adaptive technologies that will improve corridor operations, to improve access to and on the corridor. The framework will include graphics, and emphasize context sensitive designs for each proposed improvement. The Consultant team will prepare a *literature review* of

elements included in similar highway corridors that serve as both a regional highway and a main street in suburban/urban locations.

3.2 Summarize Corridor Existing Studies and Plans. The Consultant with assistance from the SWG will identify all existing circulation, transit, bicycle and pedestrian studies, and plans that apply to the Corridor as well as jurisdictional General Plan policies. The Consultant will then create a summary documenting what is known about the corridor and relevant, adopted plans. The Consultant will also develop a matrix showing all of the adopted policies that apply to the Corridor. Special emphasis will be given to identification of policies that are consistent across jurisdictions. The matrix will also identify policies that conflict with one another. The Plan documents will include but are not limited to the SR 29 Gateway Corridor Improvement Plan, the City of American Canyon Broadway Specific Plan, the Watson Ranch EIR, County of Napa and American Canyon Circulation Elements, the County of Napa Airport Industrial Specific Plan, City of Napa General and Specific Plans, NVTa Countywide Transportation Plan Vision 2040, NVTa Pedestrian and Bicycle Plans, and NVTa Express Bus Study. It should also be noted that the City of Napa has a citywide traffic model and that NVTa's Napa Travel Demand Model has been recently separated and validated, resulting in Napa County having its own model.

3.3 Model Future Traffic Projections. The Consultant will have access to the Napa Model. Because the Napa Model is a regional model, post processing may be necessary to determine future traffic projections. NVTa may wish to use more detailed micro-simulation modeling to provide future traffic projections on individual proposed improvements. The Consultant will provide detailed traffic projections for the Corridor and important connecting streets. Model assumptions shall be reviewed and accepted by the SWG. The Consultant will compare volumes within the model to volumes identified in the City of American Canyon, City of Napa and County of Napa circulation studies and other recent studies, and propose adjustments where appropriate for review and acceptance by the Group. If there are conflicts, the report will describe them. The resulting report will summarize existing conditions and projected future year (2040) conditions for weekday peak hour commute traffic and weekend visitor peak traffic. Where weekend peak volumes are not available, a methodology will be developed to factor from weekday data.

3.4 a. Program and Project Identification. Identify potential programs and projects to improve the corridor while considering California Streets and Highways Code – Sections 2390-2397 and focusing on the Solutions for Congested Corridors Program (SCCP) strategies to:

- 1) Reduce traffic congestion and address local access focusing primarily on operational improvements rather than capacity or facility expansion;
- 2) Improve corridor safety, accessibility and crossings for all travel modes;
- 3) Improve corridor circulation by evaluating pending connections/extension improvements of parallel roadways, improvements to existing mainline corridors, intersection improvements, or other congestion management strategies;
- 4) Improve transit access and transit flow;
- 5) Build upon aesthetic improvements identified in the SR 29 Gateway Corridor Plan to improve the appearance and cohesiveness of the corridor while ensuring that each jurisdiction remains visually distinct;
- 6) Upgrade technologies that will improve corridor operations and provide travel information;
- 7) Evaluate economic development, job creation and retention of proposed projects/programs; and
- 8) Reduce greenhouse gas emissions and air pollution impacts with proposed projects/programs, and stimulate efficient land use.

b. Cost/Benefit Analysis. The Consultant and SWG will develop, and the Stakeholders, TAC, and NVTB Board will review, a menu of physical improvements and programs that can advance improvements in the corridor. The menu will include existing projects or programs that have not been fully implemented as well as near-term, mid-term and long-term projects. The Consultant will develop a matrix to determine the ability of each existing or new project to advance the framework and to improve the corridor by advancing one or more of the eight (8) objectives listed above. The matrix will list short, mid and long term projects, develop an optimized order of delivery, and rate projects based on how well the project accomplishes the above stated goals.

The Consultant will create a cost estimate for each project or program, including costs to build facilities or acquire program materials, annual operation and maintenance costs, and funding options.

3.5 Corridor Improvement Implementation Plan. Develop a Corridor Improvement Implementation Plan, covering the following topics:

- a. Recommended programs and projects
 - 1) Project Deliverability
 - 2) Congestion Relief
 - 3) Air Quality
 - 4) Safety Improvements
 - 5) Accessibility
 - 6) Efficient Land Use
- b. Funding options and strategy
 - 1) Matching of Funds
- c. Governance options for multi-jurisdictional programs or projects.
- d. Economic Impact Analysis of the proposed improvements. The economic impact analysis should include the following:
 - 1) Use of construction cost estimates and projected gains in worker productivity and reduced delays/congestion and possible net tourism gains(such as transient occupancy tax revenue)
 - 2) Impacts to goods movement and freight
 - 3) Direct Impacts and estimated employment changes from budget dollars to be spent
 - 4) Induced and indirect impacts on business revenues and employment
 - 5) State and local tax gains

The Consultant and SWG will prepare, and the Stakeholders, TAC and NVTB Board will review, a draft implementation plan for corridor improvement projects and programs to address the study's varied objectives. The implementation plan will recommend steps for immediate, short-term (1 -2 years), mid-term (3-5 years) and long-term (beyond 5 years) implementation. The implementation plan will provide an estimated project delivery schedule for key improvements, evaluate project readiness, identify a funding strategy of existing and potential new funds available to initiate and operate the recommended programs and projects, and will recommend a governance option for the multi-jurisdictional projects or programs.

Deliverable	Documentation
Develop Ranked project list for corridor improvements	Copy of draft Plan. Consider a range of performance metrics
Develop Summary of Existing Studies and Plans	Copy of draft Summary and Conflict policy Matrix
Project Future Traffic	Copy of Traffic Projections
Project costs	Copy of Cost Estimate for each project phase or program
Economic Impact Analysis	Copy of Economic Analysis in the draft Plan
Develop a Corridor Improvement Implementation Plan (Include cost/benefit analysis)	Copy of Draft Corridor Improvement Implementation Plan optimize project order in terms of their effectiveness of reducing traffic congestion and minimizing adverse traffic impacts as well as project readiness.
Modified Draft Plan (if necessary)	Modified Draft Plan before final approval based on stakeholder feedback

TASK 4 Final Plan Preparation & Public Meeting

4.1 Prepare final plans based on NVTB Board, CAC, SWG, TAC, and community input.

4.2 Present final plans at a public meeting before the NVTB Board for acceptance.

Deliverable	Documentation
Preparation of final plan(s) for public meeting	Copy of final plan(s) and meeting presentation materials

SECTION II PREPARATION OF PROJECT INITIATION DOCUMENT FOR STATE ROUTE 29 THROUGH THE CITY OF AMERICAN CANYON

TASK 1 Project Initiation Document (PID)

1.1 Based upon the final plans of the SR 29 Comprehensive Multimodal Corridor Plan (Plan), the Consultant will prepare a Project Initiation Document (PID) in accordance with Caltrans' latest Project

Development Procedures Manual (PDPM) outlining the scope, cost and schedule for segment of the project from Napa Junction Road to American Canyon Road. The PID will:

- 1) Document the project's purpose and need;
- 2) Present existing information, initial assumptions, identified risks, and constraints;
- 3) Include up to three alternatives and a no build condition that will be taken to meet or reduce transportation deficiencies and address the purpose and need; and
- 4) Narrow the number of project alternatives to be studied, to facilitate cost efficiencies during the PA&ED phase.

1.2 Produce final PID to be executed by NVTa and Caltrans.

SECTION III EVALUATION CRITERIA

Proposal submitted will be evaluated in the following criteria –

CRITERIA	MAX POINTS
Project Understanding	25
Experience and Qualifications	25
Project Team Organization	20
Demonstrate Ability to Develop Innovative or Advanced Applications and/or Technology Solutions	20
Familiarity with State and Federal Procedures	10
Total	100



ADDENDUM No. 1

Date: February 14, 2019

To: Prospective Bidders

From: Napa Valley Transportation Authority (NVRTA)

Re: Addendum No. 1 to Request for Task Proposal (RTP) No. 09 – STATE ROUTE 29 COMPREHENSIVE MULTIMODAL CORRIDOR PLAN AND PROJECT INITIATION DOCUMENT FOR STATE ROUTE 29 THROUGH AMERICAN CANYON

This addendum is being issued by the Napa Valley Transportation Authority (NVRTA) to provide the following change under the proposal submittal deadline as follows:

*The proposal submittal deadline of March 7, 2019, 2:00 PM (local) has been changed to a **new proposal submittal due date and time of March 4, 2019, 2:00 PM (local).** **This new proposal deadline is Monday, March 4, 2019, 2:00 PM (local) which is prior to the previous deadline.***

This document is being provided to you as additional information. All of the documents which have been issued after the release of the RTP will serve as the basis of the work product that will be the ultimate result of this procurement.

We thank you for your continued interest in this procurement and look forward to receiving your response to our solicitation.


Kate Miller
Executive Director

EXHIBIT B

COST SHEET

DESCRTIPTION		AMOUNT
<i>SECTION I - SR 29 Comprehensive Multimodal Corridor Plan</i>		
TASK 1	Project Start Up and Kick-Off Meeting	\$ 26,387
TASK 2	Ongoing Stakeholde and Community Outreach	\$ 60,997
TASK 3	Development Plan Concepts	\$ 151,564
TASK 4	Final Plan Preparation and Public Meeting	\$ 32,119
	Other Costs/Expenses	\$ 8,955
	SUBTOTAL	\$ 280,022
<i>SECTION II - Project Initiation Document</i>		
TASK 1	Project Management , Coordination and Quality Control	\$ 76,300
TASK 2	Preliminary Research/Data Collection and Base Mapping	\$ 37,862
TASK 3	Purpose and Need Project Information Form	\$ 7,423
TASK 4	Traffic Study - Intersection Control Evaluation (ICE) Step 1	\$ 63,652
TASK 5	Alternatives Development and Analysis	\$ 97,066
TASK 6	Project Study Report/Project Development Support (PSR-PDS)	\$ 48,996
	Other Costs/Expenses	\$ 8,500
	SUBTOTAL	\$ 339,799
	TOTAL	\$ 619,821

The total amount to be paid to the CONTRACTOR for the scope of work defined under EXHIBIT A shall not exceed \$619,821. Subject to Agreement, CONTRACTOR shall periodically invoice NVTA based on progress towards completion of task/deliverables listed above, amounts not to exceed tasks/deliverable totals.

SECTION 1

Task Description	Project Team Budget and Hours Summary							
	GHD Total Hours	GHD Total Cost	ETG Total Hours	ETG Total Cost	RGS Total Hours	RGS Total Cost	Total Project Hours	Total Project Cost
Task 1 Project Startup								
1.1 Project Management and Coordination	20	\$ 4,557	-	\$ -	-	\$ -	20	\$ 4,557
1.2 Project Kick-Off Meeting	18	\$ 4,065	-	\$ -	8	\$ 1,200	26	\$ 5,265
1.3 Bi-Weekly Conference Calls	12	\$ 2,734	-	\$ -	8	\$ 1,200	20	\$ 3,934
1.4 Data Retrieval / Processing / Review	96	\$ 11,531	4	\$ 620	4	\$ 480	104	\$ 12,631
Task 2 Ongoing Stakeholder and Community Outreach and Project Oversight								
2.1 Prepare a Draft and Final Public Outreach Plan	4	\$ 911	-	\$ -	28	\$ 3,560	32	\$ 4,471
2.2 Stakeholder/Jurisdictional Meetings	24	\$ 5,115	-	\$ -	36	\$ 4,800	60	\$ 9,915
2.3 Committee Meetings	24	\$ 5,468	-	\$ -	8	\$ 1,200	32	\$ 6,668
2.4 Public Meetings	28	\$ 5,492	-	\$ -	86	\$ 11,600	114	\$ 17,092
2.5 Collateral Outreach Materials	52	\$ 6,325	-	\$ -	68	\$ 8,600	120	\$ 14,925
2.6 Public Outreach Summary Report	8	\$ 1,646	-	\$ -	52	\$ 6,280	60	\$ 7,926
Task 3 Develop Plan Components								
3.1 Evaluate Opportunities, Develop Corridor Plan Framework and Literature Review	36	\$ 5,410	2	\$ 420	-	\$ -	38	\$ 5,830
3.2 Summarize Corridor Existing Studies and Plans	44	\$ 5,769	4	\$ 840	-	\$ -	48	\$ 6,609
3.3 Model Future Traffic Projections	104	\$ 14,574	112	\$ 21,760	-	\$ -	216	\$ 36,334
3.4 Program and Project identification	528	\$ 62,627	104	\$ 17,440	-	\$ -	632	\$ 80,067
3.5 Corridor improvement Implementation Plan	142	\$ 22,724	-	\$ -	-	\$ -	142	\$ 22,724
Task 4 Final Plan and Public Meeting								
4.1 Prepare Administrative Draft, Draft, and Final Plan	129	\$ 25,147	16	\$ 2,480	-	\$ -	145	\$ 27,627
4.2 Present Final Plan to NVTB Board	16	\$ 3,292	-	\$ -	8	\$ 1,200	24	\$ 4,492
Total Hours	1,285		242		306		1,833	\$ -
Social Pinpoint Direct Cost		\$ 2,500		\$ -		\$ -	-	\$ 2,500
Outreach Materials Direct Cost (Project Cards, Project Logo, Materials)		\$ 1,500		\$ -		\$ 2,000	-	\$ 3,500
Travel/Lodging Direct Cost		\$ 1,000		\$ -		\$ -	-	\$ 1,000
Economic Advisory Role by Urban Economics		\$ 1,955		\$ -		\$ -	-	\$ 1,955
	1,285	\$ 194,342	242	\$ 43,560	306	\$ 42,120	1,833	\$ 280,022

Task Description		GHD														Other Direct Costs	GHD Total Hours	GHD Total Cost
		Kamesh Vedula	Jim Damkowitz	Lindsey Van Parys	Rich Krumholz	Ross Ainsworth	Jerry Champa	Todd Tregenza	Heather Anderson	Dan Kehrer	Kenneth Isenhower	Erin Gibbs	Rosanna Southern	Vick Namsaly	Zach Stinger			
		Principal in Charge	Project Manager	Project Manager	Technical Advisor QA/QC	Technical Advisor QA/QC	Technical Advisor QA/QC	Senior Transportation Planner	Senior Transportation Engineer	Transportation Engineer	Traffic Operations	Transportation Planner	Transportation Planner	Transportation Design	Transportation Analyst			
Task 1	Project Startup																	
	1.1 Project Management and Coordination		20														20	\$ 4,557
	1.2 Project Kick-Off Meeting	6	6					6									18	\$ 4,065
	1.3 Bi-Weekly Conference Calls		12														12	\$ 2,734
	1.4 Data Retrieval / Processing / Review		4					16					22	30	24		96	\$ 11,531
Task 2	Ongoing Stakeholder and Community Outreach and Project Oversight																	
	2.1 Prepare a Draft and Final Public Outreach Plan		4														4	\$ 911
	2.2 Stakeholder/Jurisdictional Meetings		16					8									24	\$ 5,115
	2.3 Committee Meetings		24														24	\$ 5,468
	2.4 Public Meetings		16					8						4			28	\$ 5,492
	2.5 Collateral Outreach Materials		8					4						40			52	\$ 6,325
	2.6 Public Outreach Summary Report		4					4									8	\$ 1,646
Task 3	Develop Plan Components																	
	3.1 Evaluate Opportunities, Develop Corridor Plan Framework and Literature Review		8					8					10		10		36	\$ 5,410
	3.2 Summarize Corridor Existing Studies and Plans		4					8					16		16		44	\$ 5,769
	3.3 Model Future Traffic Projections	4	16					4			80						104	\$ 14,574
	3.4 Program and Project identification	4	20				24	20			60	100	100	100	100		528	\$ 62,627
	3.5 Corridor improvement Implementation Plan	4	20		4	10		24					30	20	30		142	\$ 22,724
Task 4	Final Plan and Public Meeting																	
	4.1 Prepare Administrative Draft, Draft, and Final Plan		40		8	12		24					40		5		129	\$ 25,147
	4.2 Present Final Plan to NVTA Board		8					8									16	\$ 3,292
	Total Hours	18	230	0	12	22	24	142	0	0	140	100	218	194	185			
	Social Pinpoint Direct Cost															\$ 2,500		\$ 2,500
	Outreach Materials Direct Cost (Project Cards, Project Logo, Materials)															\$ 1,500		\$ 1,500
	Travel/Lodging Direct Cost															\$ 1,000		\$ 1,000
	Economic Advisory Role by Urban Economics															\$ 1,955		\$ 1,955
		\$ 4,788	\$ 52,401	\$ -	\$ 4,585	\$ 6,444	\$ 5,878	\$ 26,083	\$ -	\$ -	\$ 15,978	\$ 10,008	\$ 24,887	\$ 18,275	\$ 18,062	\$ 6,955	1,285	\$ 194,342

[illegible]

SECTION 1

[illegible]

Task Description		GHD												GHD Total Hours	GHD Total Cost
		Kamesh Vedula	Jim Damkowitch	Lindsey Van Parys	Ross Ainsworth	Jay Walter	Heather Anderson	Trenton Hoffman	Kenneth Isenhower	Brian Howard	Brian Bacciarini	Ryan Crawford	Other Direct Costs		
		Principal in Charge	Project Advisor	Project Manager	Technical Advisor QA/QC	Caltrans Liason	Senior Transportation Engineer	Transportation Engineer	Traffic Engineer	Survey	Environmental	Environmental			
		\$ 266	\$ 228	\$ 204	\$ 293	\$ 245	\$ 180	\$ 125	\$ 114	\$ 191	\$ 195	\$ 150	\$ 1.00		
Task 1	Project Management, Coordination and Quality Control														
1.1	Project Management & Quality Control	8		80	40									128	\$ 30,199
1.2	Project Meetings & Agency Coordination	4	4	80		16	24	16	8		8	4		164	\$ 31,657
1.3	Public Information Open House (1)		2	16			16	16			2			52	\$ 9,009
1.4	Project Presentations (1)		3	8			6	10			4			31	\$ 5,435
Task 2	Preliminary Research/Data Collection and Base Mapping														
2.1	Preliminary Research/Data Collection			2			4	24		20			\$ 2,500.00	2,550	\$ 10,462
2.2	Preliminary Base Mapping			2			4	12		32				50	\$ 8,750
2.3	Existing Study Area Environmental Constraints		2	6			4	8			32	60		112	\$ 18,650
Task 3	Purpose and Need Project Information Form														
3.1	Develop Purpose and Need Statement	1	1	6							2			10	\$ 2,111
3.2	Prepare Draft of the PIF		1	6			6	12						25	\$ 4,041
3.3	Prepare Final PIF			2			2	4						8	\$ 1,271
Task 4	Traffic Study: Intersection Control Evaluation (ICE) Step 1														
4.1	Existing Transportation Conditions	2		6			16	32	72					128	\$ 16,874
4.2	Traffic Modeling Forecasts	8		2			8		60					78	\$ 10,828
4.3	Evaluate Construction Year and Design Year Traffic Operations	4		2			8	24	80					118	\$ 15,056
4.4	Intersection Control Evaluation (ICE) Step 1 and Traffic Operations Report	4		16			24	32	72					148	\$ 20,894
Task 5	Alternatives Development & Analysis														
5.1	Develop Project Build Alternatives	6	2	18			72	120			16			234	\$ 36,886
5.2	Environmental Analysis - Preliminary Environmental Analysis Report (PEAR)			2			4				32	48	\$ 500.00	586	\$ 15,073
5.3	Design Standards			2			6	12						20	\$ 2,996
5.4	Storm Water Data Report (SWDR)			4			24	32						60	\$ 9,159
5.5	Right of Way Estimates			6			12	40						58	\$ 8,407
5.6	Develop Cost Estimates			6			24	52						82	\$ 12,076
5.7	Develop Schedules			12							1			13	\$ 2,648
5.8	Project Risks			4			6				2			12	\$ 2,290
5.9	Life Cycle Cost Analysis (LCCA)			8			16	24						48	\$ 7,531
Task 6	Project Study Report/Project Development Support (PSR-PDS)														
6.1	First Draft PSR-PDS	1		8			32	96	4		2			143	\$ 20,558
6.2	Review Comments on the First Draft PSR-PDS			4			8	40	2		1			55	\$ 7,700
6.3	Second Draft PDS-PDS			6			16	72	2		2			98	\$ 13,759
6.4	Review Comments on the Second Draft PSR-PDS			2			4	20						26	\$ 3,638
6.5	Final PSR-PDS			3			4	16						23	\$ 3,341
	Total Hours	38	15	319	40	16	350	714	300	52	104	112			
	Printed/Pulished Material/Imagry Costs												\$ 3,500		\$ 3,500
	Travel/Lodging Direct Cost												\$ 5,000		\$ 5,000
													\$ 8,500	5,060	\$ 339,798