



**AGREEMENT BETWEEN
THE VENTURA COUNTY TRANSPORTATION COMMISSION
ITERIS INCORPORATED FOR THE DEVELOPMENT OF THE
VENTURA COUNTY TRAFFIC MODEL (VCTM).**

This Agreement is entered into this 1st day of April 2016 ("Effective Date") by and between the Ventura County Transportation Commission, hereinafter referred to as VCTC, and Iteris Inc. hereinafter referred to as CONSULTANT, to provide engineering services to develop a Ventura County Traffic Model (VCTM) as detailed in the Scope of Work and Project Proposal attached to this agreement.

VCTC and CONSULTANT agree as follows:

1. STATEMENT OF AGREEMENT

VCTC hereby engages CONSULTANT, and CONSULTANT hereby accepts such engagement, to provide engineering services to perform a series of tasks leading to the development and installation of a 2012 base year travel demand model and a 2040 forecast year. The 2040 forecast year model will include scenario testing of three future network scenarios and three land use scenarios. CONSULTANT shall perform those services on the terms and conditions herein described, and as set forth in Attachment 1 Scope of Work, to this Agreement. CONSULTANT hereby affirms that it has the professional qualifications, experience and facilities to properly perform said services and hereby agrees to undertake and complete the performance thereof.

2. DESCRIPTION OF SERVICES

The services to be performed by CONSULTANT are those set forth in Attachment 1 Scope of Work and further clarified in Attachment 2, Project Proposal dated March 4, 2016 of this Agreement. In the event of a conflict between any specific provision of this Agreement and any provision of Attachment 1 or Attachment 2, the provisions of this Agreement shall prevail. In the event of any conflict between any provisions of Attachment 1 and Attachment 2, the provisions of Attachment 1 shall prevail over conflicting provisions of Attachment 2. All work by the CONSULTANT shall be performed in a good and workmanlike manner.

3. COMPENSATION

3.1 - The total compensation payable by VCTC to CONSULTANT for the above stated services is not to exceed \$171,940 for the one-time engagement. The VCTC shall not be obligated to pay CONSULTANT for costs incurred in excess of this amount unless received in writing and agreed to by VCTC prior to the commencement of the work.

3.2 - CONSULTANT will invoice VCTC by percentage of task completion in accordance with the price proposal in Attachment 2 to this agreement. VCTC will pay CONSULTANT within thirty (30) days of receipt of an approved invoice. Each invoice shall be supported by an itemized statement of costs as specified in CONSULTANT's Proposal and claimed to have been incurred by CONSULTANT and its subcontractors (if any) in the performance of the Agreement during the period covered by each invoice. Costs in excess of those specified in the CONSULTANT's Proposal in Attachment 2 shall not be eligible for reimbursement.



4. TERM: PROGRESS AND COMPLETION

4.1 The term of this Agreement shall be eighteen (18) months commencing on the Effective Date.

4.2 CONSULTANT shall commence work on the services to be performed immediately after the Effective Date and shall consider full execution of this Agreement as Notice to Proceed. All services shall be completed in accordance with the CONSULTANT's schedule, adjusted for start date, contained in Attachment 2 to this Agreement. Deviations from the schedule must be approved by VCTC and all work under this Agreement is to be completed within the eighteen- month term specified in Section 4.1 above.

5. ASSIGNMENT AND SUBCONTRACTING

5.1 - This Agreement is for professional services and CONSULTANT may not assign its rights under this Agreement nor delegate the performance of its duties without the VCTC's prior written consent.

5.2 - CONSULTANT shall complete all work under this Agreement and as set forth in Attachment 1. CONSULTANT may assign duties to another CONSULTANT or to any subcontractor only upon prior written consent of the VCTC. Any assignment or delegation without VCTC's prior written consent shall be void.

6. RELATIONSHIP OF THE PARTIES

CONSULTANT is, and at all times retains the status of, an independent CONSULTANT and shall represent the will of VCTC only as to the results of the subject matter of this Agreement, and not as to the manner in which the services herein are performed, except as provided in Attachment 1. CONSULTANT shall have complete control and responsibility over the details and performance of the services herein required to complete the Agreement, and in no event shall CONSULTANT be considered an officer, agent, servant or employee of VCTC.

7. KEY PERSONNEL

Mr. Vigen Dividian, PE, is considered essential to the work being performed under this Agreement; substitution for this individual will not be made without the prior written consent of the VCTC.

8. INSURANCE

Consultant shall procure and maintain for the duration of the contract insurance against claims for injuries to persons or damages to property which may arise from or in connection with the performance of the work hereunder by the Consultant, its agents, representatives, or employees.

MINIMUM SCOPE AND LIMIT OF INSURANCE

Coverage shall be at least as broad as:

1. Commercial General Liability (CGL): Insurance Services Office Form CG 00 01 covering CGL on an "occurrence" basis for bodily injury and property damage, including products-completed operations, personal injury and advertising injury, with limits no less than \$1,000,000 per occurrence. If a general aggregate limit applies, either the general aggregate limit shall apply separately to this project/location or the general aggregate limit shall be twice the required occurrence limit.
2. Automobile Liability: Insurance Services Office Form Number CA 0001 covering, (any auto), or if Consultant has no owned autos, (hired) and (non-owned), with limit no less than \$1,000,000 per accident for bodily injury and property damage.



3. Workers' Compensation insurance as required by the State of California, with Statutory Limits, and Employer's Liability Insurance with limit of no less than \$1,000,000 per accident for bodily injury or disease. (Not required if consultant provides written verification it has no employees)
4. Professional Liability (Errors and Omissions) Insurance appropriate to the Consultant's profession, with limit no less than \$1,000,000 per occurrence or claim, \$2,000,000 aggregate.

Other Insurance Provisions

The insurance policies are to contain, or be endorsed to contain, the following provisions:

Additional Insured Status

The VCTC, its officers, officials, employees, and volunteers are to be covered as additional insureds on the auto policy with respect to liability arising out of automobiles owned, leased, hired or borrowed by or on behalf of the Consultant; and on the CGL policy with respect to liability arising out of work or operations performed by or on behalf of the Consultant including materials, parts, or equipment furnished in connection with such work or operations. General liability coverage can be provided in the form of an endorsement to the Consultant's insurance (at least as broad as ISO Form CG 20 10, 11 85 or both CG 20 10 and CG 23 37 forms if later revisions used).

Primary Coverage

For any claims related to this contract, the Consultant's Automobile and General Liability insurance coverage shall be primary insurance as respects the VCTC, its officers, officials, employees, and volunteers. Any insurance or self-insurance maintained by the VCTC, its officers, officials, employees, or volunteers shall be excess of the Consultant's insurance and shall not contribute with it.

Notice of Cancellation

Coverage shall not be canceled, except with 30 days' notice to the VCTC.

Waiver of Subrogation

Consultant hereby grants to VCTC a waiver of any right to subrogation which any insurer of said Consultant may acquire against the VCTC by virtue of the payment of any loss under such insurance. Consultant agrees to obtain any endorsement that may be necessary to effect this waiver of subrogation, but this provision applies regardless of whether or not the VCTC has received a waiver of subrogation endorsement from the insurer.

Acceptability of Insurers

Insurance is to be placed with insurers with a current A.M. Best's rating of no less than A: VII, unless otherwise accepted in writing by VCTC.

Claims Made Policies

If any of the required policies provide coverage on a claims-made basis:

1. The Retroactive Date must be before the date of the contract or the beginning of contract work.
2. Insurance must be maintained and evidence of insurance must be provided for at least five (5) years after completion of the contract of work, subject to commercial availability.
3. If coverage is canceled or non-renewed, and not replaced with another claims-made policy form with a Retroactive Date prior to the contract effective date, the Consultant must purchase "extended reporting" coverage for a minimum of five (5) years after completion of contract work.



Verification of Coverage

Consultant shall furnish the VCTC with certificates and amendatory endorsements or copies of the applicable policy language effecting coverage required by this clause. All certificates and endorsements are to be received and reasonably approved by the VCTC before work commences. However, failure to obtain the required documents prior to the work beginning shall not waive the Consultant's obligation to provide them. The VCTC reserves the right to require complete, certified copies of all required insurance policies, including endorsements required by these specifications, at any time.

Subcontractors

CONSULTANT shall require and verify that all subcontractors maintain insurance meeting all the requirements stated herein.

Special Risks or Circumstances

VCTC reserves the right to modify these requirements, including limits, based on the nature of the risk, prior experience, insurer, coverage, or other special circumstances.

Deductibles and Self-Insured Retentions

Consultant shall disclose to and obtain the approval of VCTC for any self-insured retention and/or deductible of all insurance policies required by this Agreement before beginning any of the services or work called for by any term of this Agreement/approval of this agreement by VCTC. The VCTC may require the Consultant to provide proof of ability to pay losses and related investigations, claim administration, and defense expenses within the retention. Further, if any insurance policy required by this Agreement includes a self-insured retention that must be paid by a named insured as a precondition of the insurer's liability, or which has the effect of providing that payments of the self-insured retention by others, including additional insureds or insurers do not serve to satisfy the self-insured retention, such provisions must be modified by special endorsement so as to not apply to the additional insured coverage required by this agreement so as to not prevent any of the parties to this agreement from satisfying or paying the self-insured retention required to be paid as a precondition to the insurer's liability. Additionally, the certificates of insurance must note whether the policy does or does not include any self-insured retention and also must disclose the deductible.

9. PERMITS

CONSULTANT shall, at CONSULTANT's expense, obtain all necessary permits and licenses necessary to perform and complete the work under this Agreement, give all notices, and pay all fees and taxes required by law. Any permits required from VCTC shall be granted to CONSULTANT at no cost.

10. INDEMNIFICATION

Notwithstanding the existence of insurance coverage required of CONSULTANT pursuant to this Agreement, CONSULTANT shall save, keep, indemnify, hold harmless VCTC and its appointed and elected officials, officers, employees and agents, from every claim or demand made and every liability, loss damage or expense and all costs or expenses incurred in connection therewith, by reason of damage to the property of, or personal injury to, any person, to the extent that it is occurring or arising out of the performance of CONSULTANT, its officers, agents or employees, including but not limited to, its subcontractors, of the work required pursuant to this agreement, negligent or wrongful act or omission by CONSULTANT including any such liability imposed by reason of any infringement of rights or any person or persons, firm or corporation, in consequence of the use in the performance of CONSULTANT of the work hereunder of any article or material supplied installed pursuant to this agreement. CONSULTANT



shall not be liable for claims, losses, damages or expenses caused by the willful misconduct or gross negligence of the VCTC. ,

11. NON-DISCRIMINATION

CONSULTANT shall not discriminate in the hiring of employees or in the employment of subcontractors on the basis of sex, race, religion, age, natural origin, handicap, or any other basis prohibited by law. CONSULTANT shall comply with the provisions of the Fair Employment and Housing Act and applicable laws promulgated thereunder.

12. RECORDS AND AUDITS

The CONSULTANT's accounting systems shall conform to generally accepted accounting principles (GAAP), enable the determination of costs at interim points of completion, and provide support for reimbursement payment vouchers or invoices. All accounting records and other supporting papers, except for the audit working papers, of CONSULTANT connected with performance under this Agreement shall be maintained for a minimum of three years from the date of final payment to CONSULTANT and shall be held open to inspection and audit by representatives of the State Auditor General.

13. ATTORNEY'S FEES

In the event an action is filed by either party to enforce rights under this Agreement, the prevailing party shall be entitled to recover a reasonable attorney's fee in addition to any relief granted by the court.

14. TERMINATION BY VCTC

This Agreement may be terminated by the VCTC at any time upon thirty (30) days written notice. In full discharge of any obligation to CONSULTANT in respect of this Agreement and such termination, the VCTC shall pay for the costs and noncancelable commitments incurred prior to the date of notice of termination and fair closeout costs. CONSULTANT shall take all reasonable steps to minimize termination costs. In no event, however, shall the VCTC be obligated to pay CONSULTANT any amount in excess of the total funds committed by the VCTC up to the time of termination to support the work.

15. NOTICES

15.1 - All notices to the VCTC under this Agreement shall be in writing and sent to:

Mr. Steve DeGeorge, Director of Planning
Ventura County Transportation Commission
950 County Square Drive, Suite 207
Ventura, CA 93003

15.2 - All notices to CONSULTANT under this Agreement shall be in writing and sent to:

Mr. Vigen Dividian, PE
Iteris Inc.
801 S. Grand Ave., Ste. 530
Los Angeles, CA 90017

16. ENTIRE AGREEMENT, MODIFICATION, AND EFFECTIVE DATE

16.1 - This Agreement constitutes the entire Agreement between the parties and supersedes all previous agreements and understandings related to this work. Each party to this Agreement acknowledges that no



representations, inducements, promises or agreements, orally or otherwise, have been made by a party, or anyone acting on behalf of any party, which are not embodied herein, and that any other agreement, statement or promise not contained in the Agreement shall not be valid or binding.

16.2 - This Agreement may not be altered, amended, or modified except by a written instrument signed by the duly authorized representative of both parties.

16.3 - This Agreement shall be effective as of the issuance of a Notice to Proceed from the VCTC to CONSULTANT.

17. GOVERNING LAW

This Agreement shall be governed by and construed in accordance with the laws of the State of California. This Agreement is executed and to be performed in the County of Ventura.

18. BREACHES AND DISPUTE RESOLUTION PROCEDURE

Disputes - Disputes arising in the performance of this Contract which are not resolved by agreement of the parties shall be decided in writing by the authorized representative of VCTC. This decision shall be final and conclusive unless within [ten (10)] days from the date of receipt of its copy, the CONSULTANT mails or otherwise furnishes a written appeal to the VCTC. In connection with any such appeal, the CONSULTANT shall be afforded an opportunity to be heard and to offer evidence in support of its position. The decision of the VCTC shall be binding upon the CONSULTANT and the CONSULTANT shall abide by the decision.

Performance During Dispute - Unless otherwise directed by VCTC, CONSULTANT shall continue performance under this Contract while matters in dispute are being resolved.

Claims for Damages - Should either party to the Contract suffer injury or damage to person or property because of any act or omission of the party or of any of his employees, agents or others for whose acts he is legally liable, a claim for damages therefor shall be made in writing to such other party within a reasonable time after the first observance of such injury of damage.

Remedies - Unless this contract provides otherwise, all claims, counterclaims, disputes and other matters in question between the VCTC and the CONSULTANT arising out of or relating to this agreement or its breach will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State of California.

Rights and Remedies - The duties and obligations imposed by the Contract Documents and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the VCTC, or CONSULTANT shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.



IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed by their duly authorized representatives.

VENTURA COUNTY TRANSPORTATION COMMISSION

Keith Millhouse, Chair

Date

APPROVED AS TO FORM:

Steven T. Mattas, General Counsel

Date

CONSULTANT – Iteris Inc.

Viggin Davidian, PE

Date



Attachment 1

SCOPE OF WORK

This work program consists of a series of tasks leading to the development and installation of a 2012 base year travel demand model and a 2040 forecast year. The 2040 forecast year model will include scenario testing of three future network scenarios and three land use scenarios. A twelve to fourteen month project completion schedule should be anticipated.

Task 1: Model Software and Structure

A: Consultant shall meet with VCTC staff and SCAG staff to determine the most suitable software package that will allow for leveraging SCAG's regional model while enabling VCTC staff to utilize the software package without consultant assistance. Consultants may recommend additional modules, modifications or post processing procedures to be included to meet VCTC's needs. Ease of use by VCTC staff and maintaining consistency with SCAG's model are key considerations in software selection.

B: Consultant shall meet with VCTC staff and SCAG staff to determine the most suitable TAZ and base year network structure. It is VCTC's preference that the finer grained TAZ structure from the SCAG model be utilized. The 2007 VCTM will be available for the selected consultant to use for baseline information as well.

Task pricing note: Consultants shall include the pricing of a "consultant preferred" modeling software with up to two (2) licenses in the price proposal for this Request for Proposal. Costs for additional modules or post processing procedures shall be included as options for consideration.

Task 2: Land Use Assumptions

The Ventura County Traffic Model (VCTM) shall be a land use based model as opposed to SCAG's socio-economic based model. Land use assumptions were provided to SCAG by local jurisdictions and may be available for use to build the VCTM. Consultant in consultation with VCTC shall validate the land use assumptions with the local jurisdiction will be required. The VCTM shall contain a 2012 base year land use database and up to three 2040 forecast land use scenarios. The variations in the 2040 land use scenarios are intended to allow the County of Ventura to test alternate land use patterns should they choose to. Land use changes in the additional scenarios will be limited to the unincorporated areas of the county only. Land uses within the incorporated cities will not be changed in the alternate 2040 growth scenarios.

Task 3: Model Variables

Model variables including but not limited to trip generation rates, splitting factors, and special generators have not been reviewed in recent model updates. Consultant shall review and analyze these model variables in consultation with VCTC's Transportation Technical Advisory Committee (TTAC).

Task 4: 2012 Base Year Model

Consultant shall develop and validate 2012 base year model including AM peak, PM Peak and off peak capabilities. The 2012 base year model network shall be developed in consultation with VCTC staff, SCAG staff and VCTC's Transportation Technical Advisory Committee (TTAC).

Consultant's validation shall utilize observed count data from recent city/county count program and/or digital count data such as Caltrans Performance Measurement System (PeMS) or other acceptable



sources. Consultant shall meet and confer with SCAG to ensure consistency of base year model.

Task 5: 2040 Forecast Year Model

Consultant shall develop a 2040 Forecast Model AM peak, PM Peak and off peak capabilities, with up to three growth scenarios and up to three network scenarios. The variations in the 2040 growth scenarios are intended to allow the County of Ventura to test alternate land use patterns should they choose to. Land use changes in the additional scenarios will be limited to the unincorporated areas of the county only. Land uses within the incorporated cities will not be changed in the alternate 2040 growth scenarios.

VCTC will provide three network definitions to be tested. Network changes will include additional lanes to regionally significant freeways and limited arterial changes.

Task 6: Mode Choice and Active Transportation Modules

Consultant will ensure that the 2012 Base Year and 2040 Forecast year models will include either modules and/or post processing procedures to test changes in transit operation or ridership and the impacts of active transportation projects on the regional road network.

Task 7: District Definition

The County of Ventura currently manages a reciprocal Traffic Impact Mitigation Fee Program (TIMF) based on a past version of the VCTM. The County of Ventura has expressed an interest in revisiting that program in the near future. The 2007 VCTM retained defined districts to enable the County of Ventura to revisit their program and this model development shall continue to have retained that district structure for future use. The District definition can be found in the 2009 Model Development and Validation Report at <http://www.goventura.org/rfp-traffic-modeling>.

Task 8: Installation

Consultant shall install and configure the base year and forecast year model at VCTC offices for local use. Hardware requirements shall be provided to VCTC in advance of installation to ensure sufficiency of VCTC hardware and network.

Task 9: Meetings

The Consultant shall conduct meetings as needed with VCTC staff and at a minimum, two (2) with SCAG staff, four (4) with VCTC's Transportation Technical Advisory Committee (TTAC), and one (1) meeting with VCTC Board to present final product and findings.

Task 10: Documentation

A: The Consultant shall provide full model documentation including but not limited to, a description of model structure, TAZs, inputs, variables, trip generation rates, validation methodology and results. Consultant will provide two hard bound copies of all documentation, as well as one electronic copy.

B: The consultant shall prepare user manuals specific to the VCTM and in addition to standard software application documentation. Consultant will provide two hard bound copies of all documentation as well as one electronic copy.



Task 11: Training

The Consultant shall provide forty (40) hours of staff training for two (2) VCTC staff members to ensure familiarity with the model operation to test a minimum:

- Changes in network
- Changes in land use
- Perform select link/zone analysis
- Changes in transit operations
- Impacts of active transportation projects

Task 12: Optional Air Quality Module

The Consultant shall include a module and/or post processing methodology to assess VMT and greenhouse gas impacts of land use or network changes within the model.



March 4, 2016

Mr. Steve DeGeorge, Director of Planning
Ventura County Transportation Commission
950 County Square Drive, Suite 207
Ventura, CA 93003

Re: Proposal for Ventura County Traffic Model (VCTM)

P16-0242.16

Dear Mr. DeGeorge:

Iteris, Inc. (Iteris) is pleased to submit this proposal to provide Consultant Services to the Ventura County Transportation Commission (VCTC) related to the Ventura County Traffic Model. The firm specializes in the fields of traffic engineering, transportation planning, travel demand forecasting, and intelligent transportation systems. Iteris has a long and solid history of providing services to government agencies throughout California and the United States. Iteris has strong regional experience in travel demand forecasting and data analytics and has extensive on-call travel modeling experience, as well as development of travel demand model user's guides and providing model training to agency staff.

Iteris has a reputation as an industry leader for its expertise in model application and special purpose focused model development capabilities for airport ground access, heavy duty truck, rail and Bus Rapid Transit (BRT), and active transportation demand forecasting. Iteris staff have worked closely with various regional and subregional agencies including SCAG, LA Metro, OCTA, RCTC, SANBAG and local cities for over 25 years in development and application of some of the largest and most intricate travel demand models. We have developed **city-wide models** for Circulation Elements for over 30 local agencies; complex highway and transit **corridor models** for interchange and alignment studies; and **subregional and area-wide models**. Most importantly, and **relevant to this assignment**, Iteris has unparalleled experience in development of **county-wide models**, including the development of the current Ventura County Model in 2009, the Riverside County Traffic Analysis Model (RIVTAM), a first of its kind focusing in the SCAG Regional Model, the Imperial County Model and the enhancement of the San Bernardino County model as part of the county's general plan update. Iteris staff have been part of the VCTM since its inception and have a genuine passion to continue perfecting the model for its future use, especially if VCTC is successful in a potential county sales tax measure which will generate the need for major transportation planning and design studies.

Iteris proposes **Mr. Vigen Davidian, PE**, with over 34 years of transportation planning and travel demand forecasting project experience, 22 years with Iteris, as the Project Director for this assignment. Mr. Davidian led the development of the current VCTM, which has served the County well for many years. Mr. Davidian has over 25 years of hands-on project experience in Ventura County and is intimately familiar with the County's travel patterns and transportation conditions. In addition, he also successfully managed the development of other complex county-wide models in Southern California including the groundbreaking RIVTAM, the Imperial County model, the pioneering Heavy Duty Truck Model for SCAG, as well as several large-scale subregional models. He will be the principal contact with VCTC and other entities per VCTC's direction.

As Project Director, Mr. Davidian will make work assignments, oversee technical work performance and quality control from project inception to completion, and will be responsible for coordinating staff activities and meetings.

Iteris has an unparalleled depth of local senior and associate modeling staff to support VCTC's work effort related to the Ventura County Traffic Model on this assignment. The following is a list of our proposed senior staff with a synopsis of their relevant experience:

- *Chris Devlin* will serve as the Technical Manager, with 24 years of experience in transportation planning and travel demand forecasting. Mr. Devlin has worked on traffic models worldwide, and has developed model outputs to support the economic, financial, and environmental analysis of projects. He is proficient in the use of Geographic Information Systems (GIS) for problem-solving, and the effective presentation of results.
- *Jennifer Martin, PE* will serve as modeling task lead. She has over 12 years of specialized experience working in transportation forecasting and modeling and transportation planning, as well as project management. As Iteris' Chief Modeler, Ms. Martin has national experience, including 10 years of on-call model development and support for the Municipality of Anchorage. Ms. Martin has extensive experience using the SCAG regional model, and is highly skilled in script coding, roadway and transit network editing, and development of model performance measure outputs.
- *Kristin Tso, PE, TE* will serve as the land-use task lead for this assignment, and has over 8 years of transportation planning and travel demand forecasting experience with numerous Southern California regional models, and has experience developing and implementing methodologies for automated reporting. Ms. Tso also has experience in closing the gap between travel demand forecasting and micro-simulation analysis for identification of preferred solutions.

Iteris proposes a highly cooperative approach with VCTC staff and all stakeholders to encourage active communication and to facilitate appropriate solutions to VCTC needs to provide a genuinely practical product at the end of the process. Iteris' staff are all local and have a deep understanding of Ventura County, its travel patterns and transportation needs.

The proposed Iteris Team will provide VCTC with the following unique advantages:

- ***Ideal Relevant Experience.*** The Iteris Team has experience in each of the special tasks discussed in the RFP. Not only do we have the capability of updating the current model scripts and making adjustments to those, but we also have the technical capability to participate in much more in-depth modeling procedures. Including land-use modeling, which we have incorporated into the previous Ventura County, Simi Valley, Camarillo, Irvine, and Anaheim travel demand models.
- ***Unparalleled Understanding.*** The Iteris Team has extensive experience supporting multiple regions in model support and development roles. Iteris has strong knowledge of the current VCTM model networks, inputs, and processes, and update needs. Due to our local staff and multitude of local and regional projects in Ventura County, we believe that no one knows Ventura County like Iteris. Iteris understands the role of the VCTM in the upcoming General Plan Update process and have close working relationship with the land-use and transportation consulting firms.

- ***Depth and Availability of Staff.*** Iteris has one of the largest groups of locally-based expert transportation technical staff. Our staff availability projections show that staff assigned to this project have significant levels of availability for the anticipated performance period over the next 12 to 14 months.

As Senior Vice President and General Manager, I Ramin Massoumi, am authorized to bind the company. Additionally, I attest that all information contained within this proposal is true and correct. This proposal shall remain valid for a period of no less than 120 days from the date of submittal. Thank you for the opportunity to submit this proposal. Iteris looks forward to assisting VCTC on important and successful updates to the existing traffic model. Should you have any questions, please contact me at **(949) 270-9527** or **rmm@iteris.com**, or the designated Project Director, Mr. Davidian, at **(213) 802-1707** or **vjd@iteris.com**.

Sincerely,
Iteris, Inc.

Ramin Massoumi, PE
Senior Vice President & General Manager
Transportation Systems



TABLE OF CONTENTS

1.0 | Company Profile1

2.0 | Project Approach.....3

3.0 | Organization Chart20

4.0 | Relevant Experience24

5.0 | Cost Proposal.....31

TABLES AND FIGURES

Table 1 – Project Schedule19

Table 2 –Project Director Contact Information20

Figure 1 – Project Team Organizational Chart21

Table 3 – Key Staff and Availability.....21

Table 4 – Relevant Project Experience Matrix.....24

Table 5 – Cost Proposal32

APPENDICES

- Appendix A – Resumes
- Appendix B – Evidence of Insurance



1.0 | COMPANY PROFILE

The Ventura County Transportation Commission (VCTC) has requested qualifications and a proposal to provide travel demand model development and forecasting services. This proposal focuses on our firm's core areas of expertise – Travel Demand Model Development and Implementation. Iteris has the staff expertise and availability to achieve success for the VCTC on these types of projects.

Iteris' Background

Iteris, Inc. (Iteris) is a market leader in providing Transportation Planning and Modeling Solutions to the Southern California region. Iteris staff have decades of expertise in travel demand modeling, along with superior services and patented products to help detect, measure, and manage traffic and vehicular performance. With over 75 professional staff in southern California and over 300 staff, Iteris is headquartered in Santa Ana, CA with offices nationwide.

Iteris Team members are experts in the fields of travel demand modeling, transportation planning, traffic engineering, and Intelligent Transportation Systems (ITS). Iteris' knowledge of these practice areas enables the firm to provide comprehensive services ranging from initial traffic impact studies, transportation model development and implementation, and transportation planning, through implementation and performance monitoring. Iteris combines the knowledge of transportation planners, technical travel demand modelers, transportation engineers, systems engineers, system integrators, and software engineers to offer an unmatched combination of talent and experience. The innovative solutions Iteris develops and deploys help public agencies reduce traffic congestion, enhance transit and non-motorized travel, monitor and manage transportation networks, and provide greater access to reliable traveler information.



Iteris was founded based on the principle of providing quality solutions on time and within budget. Iteris is committed to the transportation industry, striving to apply in depth knowledge to solve the most challenging problems associated with the movement of people and goods to enhance a growing economy. Iteris promises principal-level commitment to all projects and takes a disciplined approach to each project based on ISO 9001 standards, starting with an understanding of end-user needs. Iteris delivers precise solutions that meet customer needs and expectations based on the following core competencies:

- | | |
|--|--|
| <ul style="list-style-type: none">• Traffic Signal Timing & Synchronization• Planning & Design<ul style="list-style-type: none">○ Travel Demand Modeling & Forecasting○ Traffic Engineering & Transportation Planning○ Transit○ ITS Planning & Design○ Goods Movement | <ul style="list-style-type: none">• Analytics• Performance Monitoring & Management• Research & Education• System Integration• Traveler Information<ul style="list-style-type: none">○ Road Maintenance Weather Services○ Traveler Information / 511 |
|--|--|

Relevant Services

Iteris has extensive relevant experience with VCTC and other agencies throughout California from planning to design to implementation including all modes of transportation, as noted below.



TRANSPORTATION PLANNING



Every successful project begins with thorough planning. From a site access study for a neighborhood commercial center to a route alignment study for a new rail corridor, Iteris has applied its planning expertise to a wide variety of transportation projects around the world. The technical expertise that Iteris brings to a project is the foundation of its success in Transportation Planning. Understanding of the project development process and its ability to build public consensus helps clients implement transportation solutions for the future.

Iteris brings significant experience to any Transportation Planning project and is an innovator in multimodal travel demand modeling. Experts within the company have applied travel demand modeling to prepare transportation master plans for cities and counties, as well as for large private development projects. Iteris' expertise in goods movement analysis and forecasting makes the team a leader in traffic analysis, circulation and master planning for ports and airports. In addition, expertise in traffic operations analysis has established the company as a key partner with agencies proposing roadway and freeway improvements. Iteris has been involved in every facet of transit planning from conceptual route alignment studies to environmental clearance of light rail, heavy rail, and commuter rail and bus rapid transit. Iteris is also at the leading edge of climate change analysis related to transportation and can assist clients with VMT analysis (CEQA analysis related to SB 743), climate action plans, and transportation system sustainability planning.

Iteris offers expertise in;

- | | | |
|---|---------------------------------|--------------------------------------|
| • Travel Demand Forecasting | • Transit Planning | • Area-Wide Circulation Plans |
| • Corridor Studies | • Traffic Impact Analysis | • Environmental Studies |
| • Strategic Transportation Plans | • Micro-Simulation | • Master Plan Development |
| • System Performance Monitoring | • Neighborhood Traffic Impacts | • Transportation Finance |
| • Traffic Impact Fee Analysis | • Parking Studies | • Rail Transit |
| • Traffic Operations Analysis | • Goods Movement | • Airport Ground Access |
| • Climate Change/VMT Analysis | • Non-Motorized Planning | • Policy Analysis |



2.0 | PROJECT APPROACH

Project Understanding



Ventura County has a long, almost a quarter of a century, history in development and application of travel demand forecasting models. The original VCTM was developed in 1992 utilizing Tranplan software and was updated for land-use inputs and networks in 1997. The current VCTM was developed by Iteris in 2009 as a more comprehensive update of the original model and was one of the first county-wide models developed in TransCAD software in southern California. It also included, for the first time, a simpler mode choice component as one of its main enhancements over the original model.

With changes in regional growth and transportation conditions, updates to the Southern California Area of Governments (SCAG) Regional Transportation Plans (RTP) as well as advancements in modeling technology and travel demand simulation, after almost 7 years, the time has come for another comprehensive update of the VCTM. VCTC intends to develop and update the county-wide model for maximum consistency with regional and subregional parameters including the base-year and latest forecast year socioeconomic and land-use projections and transportation networks. The model will also be developed to address other secondary uses such as the General Plan Update, transportation impact assessments, VMT forecasts for CEQA analysis, and air quality (greenhouse gas emissions) applications.

Other issues that are now very important to the Ventura County for travel demand forecasting include a greater and more robust ability to perform mode choice modeling, especially for active transportation modes (pedestrians and bicycles), the ability to capture the effects of transit oriented developments (TODs) around major bus and rail transit stations, mixed-use developments in urban downtowns, as well as the ability to capture the unique travel characteristics of major special generators throughout the county.

Ventura County is unique in southern California in that it has relatively more stable and controlled growth patterns, and incorporated cities that are not as contiguous as cities in other counties, with vast intermediate preserved open spaces and a limited number of transportation facilities connecting the cities. In addition, Ventura County is at the northwestern end of the SCAG Region. As such, the VCTM shares several of its “cordon” points with the SCAG Regional Transportation Plan Model, and has only a few connections with Los Angeles County, its only abutting county in the SCAG Region. Development of focused models at the “edges” of a regional model typically require extra care to ensure that the trip interchanges and linkages with the remainder of the region, and also to the north to Santa Barbara County (outside the SCAG Region), are reflected as accurately and dynamically as possible, especially for the forecast horizon years. Other issues that will be addressed include the distinctive development densities in Ventura County, better forecasting of heavy duty vehicles as it relates to significant agricultural uses and truck traffic related to Port Hueneme, the Naval Base, and other potential recreational and commercial special traffic generators.

Iteris has a solid track record of assisting various southern California agencies in development and update of regional, county-wide and subregional travel demand forecast models. In addition to the development



Ventura County Traffic Model

of the current VCTM in 2009 as well as city-wide models for Simi Valley and Camarillo, we have developed some of the largest and most complex regional models in southern California.

Our staff also have an extensive background in regional transportation planning and needs assessment, with a comprehensive knowledge of travel patterns, growth and capacity issues in the region and especially Ventura County, having worked on several general plan circulation elements and impact fee studies. We will utilize the extensive regional planning expertise of our staff to the maximum extent possible to address some of the unique issues and challenges outlined above.

Approach to Work Plan

Iteris' work plan is built around a solid understanding of the requirements needed to develop a focused travel demand model for Ventura County. Having first-hand knowledge of the current model, Iteris is able to immediately assist the County in understanding the required enhancements to model applications to meet the current planning needs of VCTC.

Ventura County is located within the six-county Southern California Area of Governments (SCAG) region, and the Ventura County Traffic Model (VCTM) is required to be consistent with current regional practices. The VCTM will be developed with a calibrated and validated 2012 base year, and will have various 2040 forecast year scenarios.

Ventura County has recently embarked on an update to the General Plan and VCTC is also positioned to begin work on a Congestion Management Plan (CMP) in the near future. The VCTM developed for this project will be utilized in the development of both plans, and Iteris will develop the tool with that in mind.

Iteris keenly recognizes the importance of face time and keeping open dialog between the technical team and VCTC staff and stakeholders. Keeping an open dialog will ensure a more user-friendly product and less of "black-box" feeling that is typically associated with travel demand models.

All work will be completed within a 12 to 14 month schedule.

Scope of Work

With extensive transportation planning experience, travel demand model development, forecasting and application expertise, Iteris can offer a complete, customized, and wide-range of transportation model development and support services to VCTC.

Having developed the current VCTM and been involved in its application for nearly a decade, Iteris knows that the tool will be used for various purposes, including forecasting traffic volumes, determining regional traffic impacts in relation to land-use changes and alternative growth scenarios, and identifying regional and local roadway deficiencies. The VCTM will also be used as a tool in local traffic impact analyses, and CEQA based VMT analysis to meet SB 743 requirements.

The following sections describe our general approach to providing VCTC with high-quality and relevant travel demand model development and modeling support services.



Task 1. Model Software and Structure

The selection of model software and model structure are both important decisions in ensuring that the tool developed for VCTC meets VCTC's usability needs, as well as future project application needs. It will be critical at the beginning of the project for the Iteris Team to meet with VCTC and also SCAG staff (for compatibility) to determine the software package that should be used for the project. The existing VCTM uses TransCAD software, as does the current SCAG model, so compatibility between existing tools and model inputs would require less start-up time investment if TransCAD is selected as the software tool as opposed to other software choices. Currently, TransCAD is the overwhelming choice for software package used regionally and locally in Southern California.

A large portion of the model software and structure task (if agreed to use the SCAG model as a basis) will be obtaining and setting up the SCAG 2016 RTP model and associated tools for use on Iteris and VCTC machines prior to modification for VCTM use. An initial full model run will be required to ensure model consistency with SCAG forecasts given the possible differences in machine specifications. Current estimates range between 7 and 10 days for a full model run.

SCAG 2016 Subarea Modeling Tool (SMT)

Iteris recommends the use of the upcoming SCAG 2016 trip-based travel model, with the inclusion of the updated Subarea Modeling Tool (SMT). The SMT was developed for the previous version (2008 RTP) of the SCAG model, but had not been updated for the 2012 RTP model. The reason Iteris recommends this approach is because the current VCTC model and the SCAG regional model both use TransCAD software, and a consistent platform will ensure an ease-of-use by VCTC staff, as well as an ease in maintaining consistency with regional forecasts. At a recent SCAG modeling task force meeting SCAG staff indicated that the new SMT tool it is expected to be available for distribution in April 2016, which should be compatible with the project schedule.

Iteris therefore proposes using the 2016 SCAG SMT as a basis for model development, and then building upon that tool with additional model capabilities and modules. This will leverage a significant amount of labor that has been invested into the SCAG trip-based model, and enable this project to spend more specialized modeling efforts within Ventura County.



Concurrence with Regional Modeling

By taking the Iteris approach, VCTC will need to obtain SCAG model scripts (written in GISDK, TransCAD's scripting language). Iteris will assist the County in requesting this data from SCAG. Obtaining these scripts will allow for the development of additional modules and procedures within the SCAG SMT, without the need for additional post-processing tools or off-model procedures.



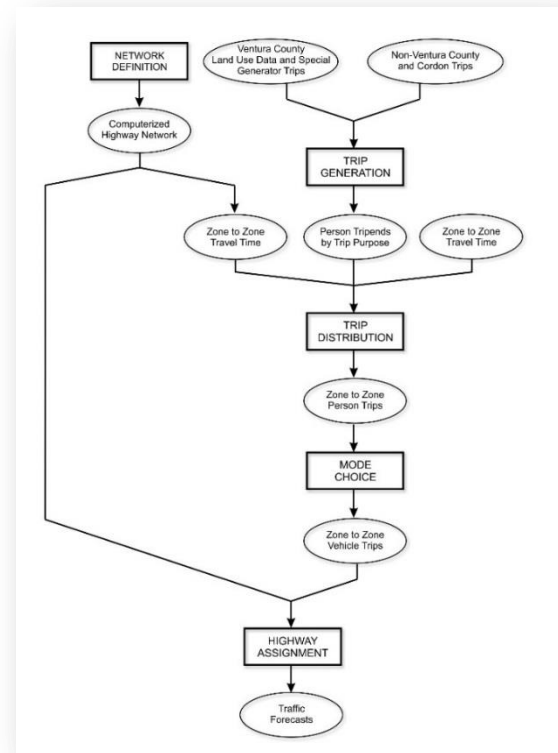
Zone Structure

It is advised that the fine grained zones from the current VCTM be maintained or enhanced to include any recent information SCAG has obtained from local jurisdictions in the development of the 2016 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS) as well as the SCAG activity-based model (ABM), which is currently under production. As part of this effort, SCAG worked extensively on the development of inputs to the *Population Synthesizer* tool for the ABM, and obtained a significant amount of information related to demographics and available land-uses for future development in the county.

The *Population Synthesizer* tool is a module that uses Census Public Use Microdata Sample (PUMS) data to mirror known household and person attribute distributions (at the SCAG zonal level) and generates a synthetic set of population and household variables to be used as a basis for travel forecasting.

Model Sequence and Structure

Once all the details of model development process have been agreed upon, Iteris will develop diagrams to clearly outline the model structure, modeling process, input/output sequence and dependencies. A similar useful flow chart was illustrated as part of the development of the current VCTM (as shown in the flow-chart on the right) and was provided in the current model users' guide.



Deliverables:

- A white paper discussing the selected model software and the anticipated model structure.



Task 2. Land-Use Assumptions

The current VCTM was developed as a land-use based model, with a forecast year of 2030. Iteris worked hand-in-hand with the County and local agencies in developing the previous two models, and understands that the County desires to maintain a land-use based model for this update. The assumptions used to forecast land-use were compiled prior to the recent economic recession, and are likely overstating growth in the region. The land-use assumptions used will be thoroughly revised and evaluated for the development of both the base year (2012) and forecast year (2040).

Iteris will work with VCTC staff to convert available land-use data from the Ventura County General Plan (updated in 2011) into a format suitable for input to the traffic model. The General Plan includes a breakdown of 15 planning areas, with information for existing and "holding capacity" (assuming a full-build-out of City and County plans). Some aggregations of land-use type may be necessary and these will be agreed with VCTC staff prior to input to the model.



Ventura County General Plan
Goals, Policies and Programs
GENERAL PLAN LAND USE MAP
Figure 3.1 South Half
April 2010

- Agriculture (SRA, MRA)
- Agriculture - Urban Reserve (SRA, MRA)
- Open Space (SRA, MRA)
- Open Space - Urban Reserve (SRA, MRA)
- Rural (SRA, MRA)
- Rural - Urban Reserve (SRA, MRA)
- Urban Reserve (SRA, MRA)
- Existing Community - Urban Reserve
- State or Federal Facility - Urban Reserve
- Urban
- Reserved for Future Recreation Production

County of Ventura
Resource Management Agency
Information Systems
Map Number: 11100000-000000-000000-000000

0 1 2 3 4 Miles

A land-use based modeling component in any model provides a greater confidence in modeled trips. Iteris has incorporated land-used based modeling into several of the regional models, including the City of Anaheim traffic analysis model which is based on the Orange County Traffic Analysis Mode (OCTAM), the City of Irvine traffic analysis model (ITAM), and the current Ventura County Model (VCTM).

- *Land-use based model inputs for 2012 and 2040.*
- *A white-paper description of the use and application of the land-use tool (to be included in the model documentation task).*

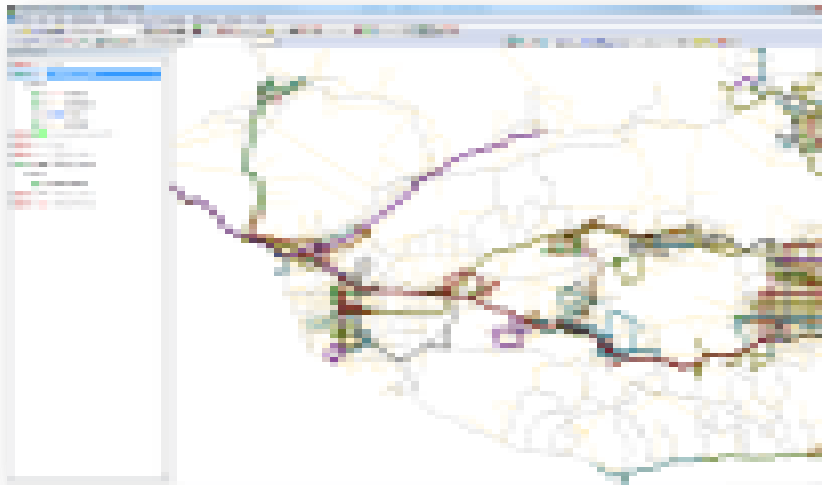


Task 3. Model Variables

Iteris will complete a thorough review of all model inputs, variables, and parameters. The starting point for the update to the model will be to use rates developed for the previous model, however, these need to be reviewed in coordination with the Transportation Technical Advisory Committee (TTAC) to ensure that current travel in the region is being simulated adequately.

Examples of model inputs, variables, and parameters include:

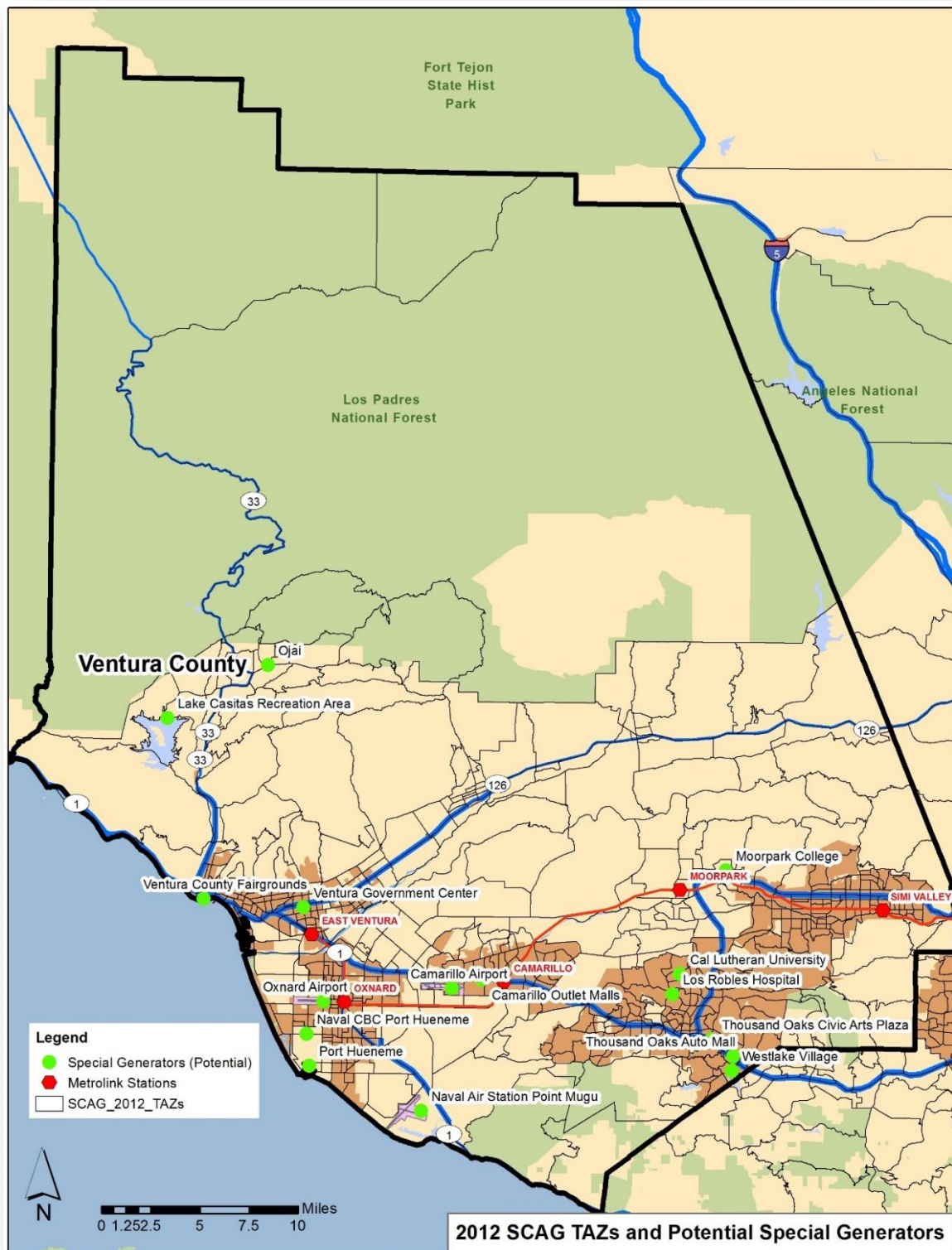
- **Networks:** Iteris will compare the current roadway network from the base year SCAG RTP networks with the current VCTM network and make an assessment whether additional network detail needs to be added to the SCAG network. Similarly Iteris will review the base year SCAG RTP transit networks to see if these adequately represent the transit system in Ventura County, including bus and Metrolink systems. Additional network transit detail may be added as appropriate.
- **Trip generation rates:** Compare the socioeconomic and demographic based trip generation rates from the SCAG model with the VCTM land-use category based trip rates from the previous model to determine adequacy and make modifications as necessary.
- **Zone splitting factors:** A comparison of SCAG model trip purpose zone splitting factors (at the production and attraction level) will be made with the existing VCTM based land-use category trip purpose zone splitting factors, to ensure accuracy of forecasts specific to Ventura County.
- **Mode specific constants:** Used in mode split analysis, the mode specific constants will be obtained from the SCAG regional model, but will be modified and tailored to meet the transit usage patterns of Ventura County.
- **Parking Costs:** Parking costs are a vital model input that helps drive mode choice, and should be calibrated to ensure appropriate trip generation and mode split especially for business districts and areas with significant transit activity. Parking costs will be a piece of the SCAG model tool, and will be verified and updated within VCTC. Parking costs are not a part of the existing VCTM, but will enhance regional mode choice with its application.
- **Special Generators:** The special generators in the travel demand model are important in ensuring the ability to forecast special type trips. Special generators typically have unique or specific trip characteristics (quantity and patterns) which may not be fully reflected in standard land-use based trip calculations. Throughout Ventura County, there are numerous special generators, shown in the map of potential special generators below.





Ventura County Traffic Model

The Iteris Team will examine these land-uses for possible inclusion in the model as special generators and will implement (based on data availability) as necessary to enhance the modeling process.





Ventura County Traffic Model

The review and revision to model variables will be an on-going process through the 2012 Base Year model calibration and validation task. Iteris proposes a close working relationship with VCTC staff during the process to thoroughly incorporate all appropriate adjustments to methodology, and to identify any potential new tools that would benefit VCTC staff in supporting regional projects.

Deliverables:

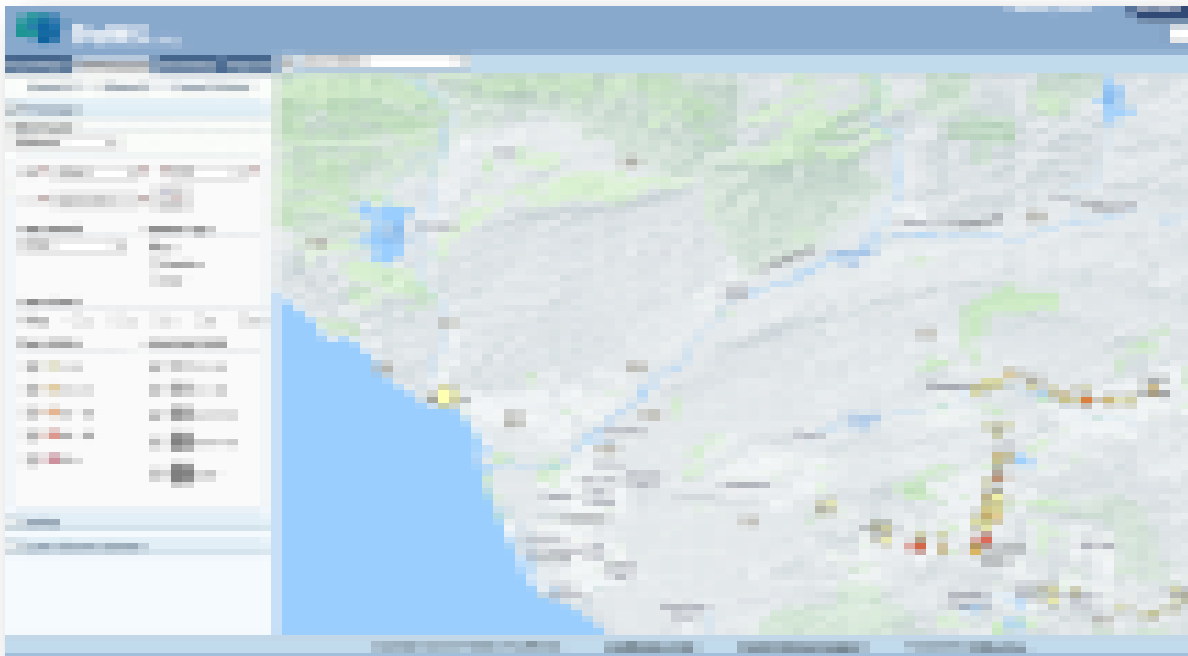
- *A working paper will be completed for meetings held with VCTC staff, SCAG staff, and the TTAC. The working paper will ultimately be a portion of the final model documentation.*



Task 4. 2012 Base Year Model

The base year of the current VCTM is 2007, and the base year model for the updated VCTM will be 2012 (consistent with the regional SCAG model). The AM peak period, PM peak period, and off-peak capabilities of the existing model will be maintained, and the model development will be performed in coordination with VCTC staff, SCAG staff, and VCTC's Transportation Technical Advisory Committee (TTAC).

The base year 2012 VCTM model will be calibrated to the model variables in Task 3, and validation will be completed utilizing the most recently observed City and County traffic count data obtained through the County count program, or other digital count data services (e.g. Caltrans PeMS). An example of PeMS data which is operated by Iteris on behalf of Caltrans is provided below. Iteris staff are experts in handling, aggregating, and analyzing PeMS data to accurately reflect existing conditions.



The Iteris Team is well-positioned to provide any required validation services based on our previous experience with county-wide models. Model validation tasks typically include validation at all steps of the modeling process, and at a minimum, involve various forms of screenline and cutline analysis, count



to volume statistical comparisons, error analysis at various functional classes of facilities, and verification of socioeconomic data inputs.

Iteris is an industry leader in “big data” and data analytics, and has been at the forefront of incorporating big data into the model validation process. The primary reason for including big data into the model validation task is to efficiently incorporate regional speed data onto the demand model network to add an additional layer onto the validation stage, resulting in a more validated existing year model. The previously developed 18 screenlines (used for validation in the 2009 model update) will be examined and modified as necessary to reflect and significant changed current conditions. Iteris staff will also use county-wide aggregate statistics such as VMT, average trip length, speeds (using PeMS data), or other statistics to enhance model validation.

All validation activities will be completed in accordance with all regional, national, state, VCTC, and FHWA validation guidelines and requirements. Nationally promulgated standards, primarily the *FHWA Travel Model Improvement Program (TMIP) Model Validation and Reasonableness Checking Manual*, will be used to verify model reasonable performance on validation criteria. The Second Edition of the Reasonableness Checking Manual was developed in 2010 by FHWA, and serves as the leading guidance on travel model validation throughout the nation.

Deliverables:

- *A calibrated and validated base year traffic model.*



Task 5. 2040 Forecast Year Model

The forecast year 2040 VCTM model will be based on the calibrated model variables from the 2012 base year model. The AM peak, PM peak, and off-peak capabilities of the existing model will be maintained, and the model development will be done in coordination with VCTC staff, SCAG staff, and VCTC's Transportation Technical Advisory Committee (TTAC).

The network definitions for the forecast year will be developed based on coordination with VCTC staff, including any capacity adjustments required to regional freeways or local arterials. Land-use forecasts will be obtained through cooperation with VCTC and County staffs involved in the General Plan effort. Iteris staff will work closely with the team performing the current General Plan Update to ensure that the most current land-use forecasts are incorporated into the model. The forecast model will include up to three variations of growth scenarios, and three variations in network scenarios. The land-use changes for additional scenarios will be solely limited to changes in the unincorporated areas of the County.

Deliverables:

- *Forecast models incorporating up to three network definitions developed by VCTC, as well as up to three land-use growth scenarios.*



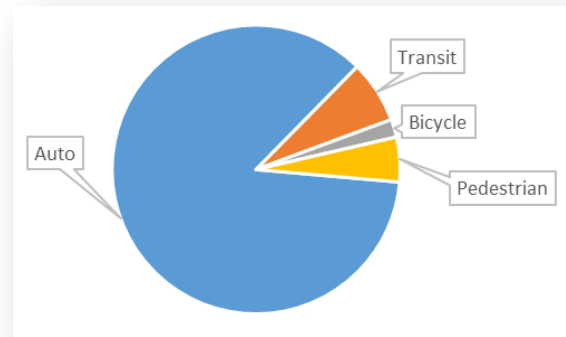
Task 6. Mode Choice and Active Transportation Modules

The current VCTM does not explicitly model transit modes but rather removes a proportion of trips from the highway network prior to the assignment stage. The current VCTM factors production and attraction person trips to vehicle trips based on vehicle occupancy factors, and the resulting vehicle trip tables are converted to origin/destination trip tables for assignment.



By using the SMT Iteris will incorporate the mode choice and transit assignment capabilities features of the 2012 SCAG model into the VCTC model in its entirety, which will increase the functionality of the mode choice model by dynamically including an increased transit mode split module, as well as establishing and refining an active transportation mode split (inclusive of walk and bike trips).

In addition to reviewing and adjusting the VCTM model's transit network taking into account regional and local bus systems and Metrolink, the current methodologies within the VCTM model for transit access are one piece of the tool that Iteris recommends investigating and adjusting as necessary. Components that will be reviewed the transit module will include, but will not be limited to the transit network lines and connections, frequencies, wait/transfer times, park and ride connections, and fares/out of pocket costs.



Deliverables:

- Updated transit networks and mode choice variables to be included as inputs to the 2012 and 2040 year models.

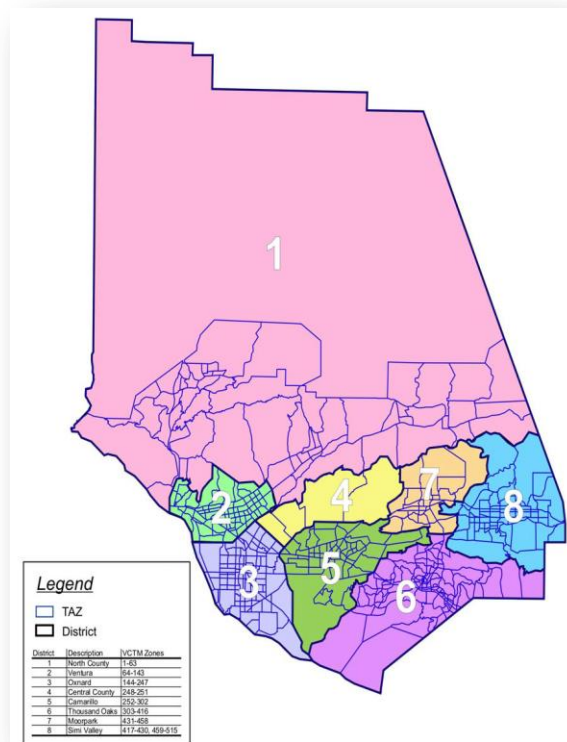


Task 7. District Definition

District definitions are maintained at the zonal level in the travel demand model. There are two specific district definitions that Iteris will maintain in the VCTM update: the TIMF districts, and the General Plan districts.

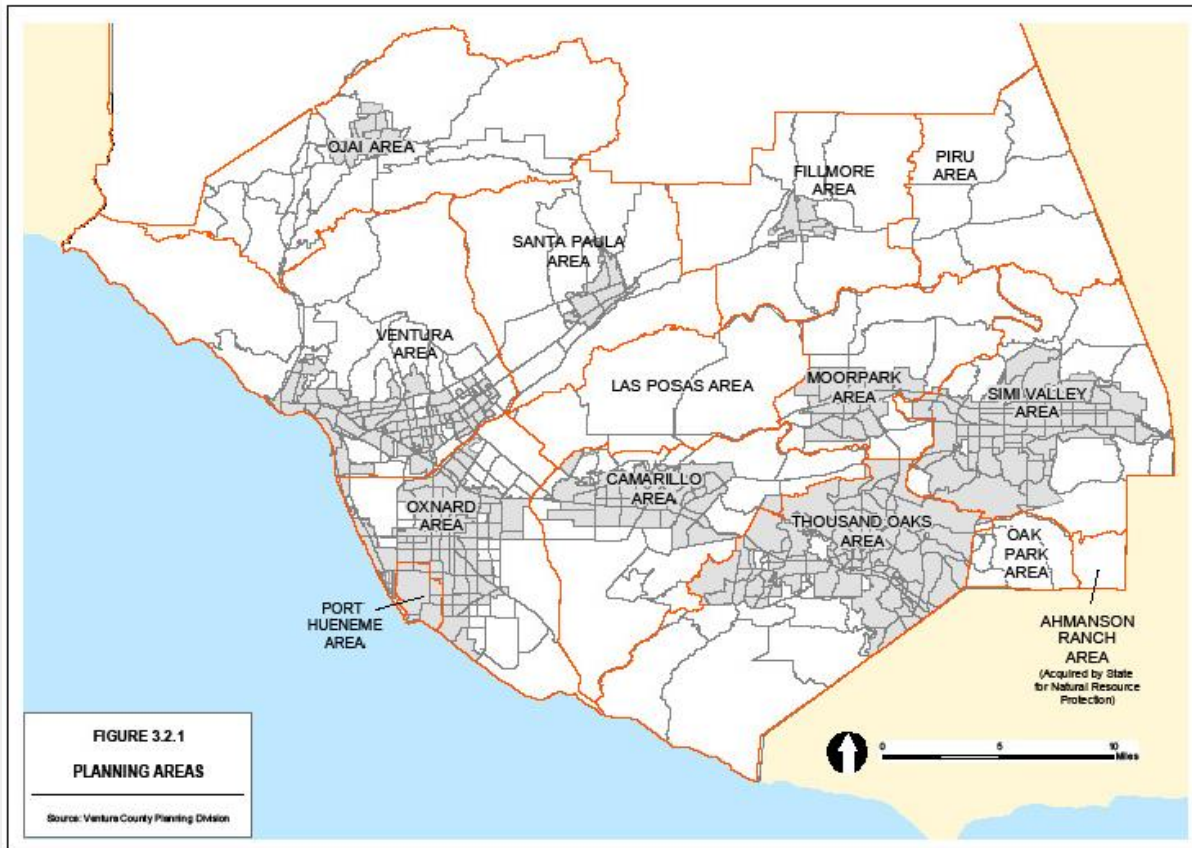
A Traffic Impact Mitigation Fee Program (TIMF) is currently managed by the County of Ventura, and is based on the current version of the VCTM. One use of the updated VCTM will be revisit the fee structure included in the TIMF. Iteris has substantial current expertise in this technical area having recently developed or in the process of developing fee update programs for the Warner Center Specific Plan, the City of Rialto, the City of Chino Hills, and the City of Irvine.

The fee district definition update process will involve various reviews including a review of forecast land-use compared to prior model assumptions and planning forecasts. This is where the GIS database developed in Task 2 can be utilized to identify areas where growth assumptions have significantly changed which might require a change in the fee program districts. The current TIMF utilized a district structure which Iteris will maintain in the VCTM update.



Ventura County Traffic Model

While similar to the TIMF districts, the General Plan maintains separate “planning areas” that are used for land-use disaggregation. The planning areas from the General Plan will be maintained in the VCTM update to assist in reporting of population and employment statistics, as well as trip generation information for the districts.



Ventura County General Plan LAND USE APPENDIX (6-28-11 Edition)

Senate Bill 743 (SB 743)

The new CEQA guidelines contained in SB743 require the development of a “regional” VMT by land-use type in order to determine impacts from developments. The implementation of the new CEQA guidelines and thresholds is unclear, but could include informed outputs directly from the travel demand model. The district definition could potentially be used as a bounding guideline for Ventura County to develop location and regional based VMTs or VMT averages by land-use category or County and subregion. The model outputs will be developed with sufficient detail and customization to enable VCTC or local staffs to develop regional and subregional statistics including VMT, VHT, average speeds and others by any identified geographic boundaries.

Deliverables:

- An updated zone database correlation table to include district level definition.



Task 8. Installation

Upon completion of the development of the model, Iteris staff will assist VCTC with the purchase or update of TransCAD software from Caliper Corporation and install the software at VCTC offices for local use. A discussion of the purchase cost of two alternative TransCAD software packages is included in our cost estimate.

Iteris' recommended software solution is a single network TransCAD licenses to be set up on one remotely accessible machine at VCTC. The advantage to a network license, is the ability to utilize up to two local instances of TransCAD, as well as enabling Iteris to access the model and software remotely for debugging and training purposes. The alternative of maintaining two locally installed TransCAD licenses which does not permit remote desktop capabilities, and Iteris considers this to be a less desirable option than a single network license.

It is important that if a remote desktop license alternative is selected that network capabilities and security issues be discussed with the Information Technology (IT) department at VCTC prior to software purchase and installation. A benefit of installing the software and models on machines that have remote capabilities would allow Iteris to assist VCTC staff immediately when questions arise, with direct access and insight into problem solving.

Prior to installation, Iteris will work with VCTC staff to obtain the correct hardware and computers for installation, as well as suitable network capabilities for the most efficient in-house processing. Ideally, Iteris will work both in VCTC offices and as a remote-desktop user to assist for debugging purposes.

Iteris will also install the base year and future year models and ensure the model run completes, as well as replicates modeled data on the Iteris machine.

Deliverables:

- *Software and model installed on one or two machines at VCTC offices depending on software package selected.*
- *A complete model run will be compared on VCTC machines and on Iteris machines to ensure reliability of forecasts.*



Task 9. Meetings

The development of a traffic model that best meets the needs of Ventura County will require several meetings with VCTC staff, SCAG modeling staff, VCTC's Transportation Technical Advisory Committee (TTAC) and a meeting with the VCTC Board at completion of the project to discuss the final product and findings.

It is anticipated that Iteris will meet with various groups of staff and advisory committees throughout the development of the modeling tool. At a minimum, it is anticipated that there will be the following:

- Two meetings with SCAG modeling staff to ensure consistency with regional modeling practices,



Ventura County Traffic Model

- Four meetings with VCTC's Transportation Technical Advisory Committee (TTAC) to guarantee that the technical needs of the region are being met with the development of the modeling tool, and
- One meeting with the VCTC Board to present the final product, as well as any findings that were made during the development of the modeling tool.
- A meeting with Santa Barbara County Staff to discuss potential cordoning issues with Santa Barbara County and potential use of data from the Santa Barbara County model.

Iteris proposes an open dialogue between VCTC staff and the technical project team to keep staff informed of project schedule, and any complications that may arise. This open dialogue will ensure that the project stays on schedule, with tasks that are completed timely, and with complications that are addressed efficiently. In addition to attending staff meetings, the Iteris PM or task lead will present VCTC staff with monthly progress reports.

Deliverables:

- *Agendas, meeting minutes, and presentations as required.*



Task 10. Documentation

The documentation task for the modeling process will be continual throughout the course of the project. Working papers will be drafted and used throughout the development, and in conjunction with meetings held with VCTC staff, SCAG staff, and with VCTC's Transportation Technical Advisory Committee (TTAC). The working papers will serve as a basis for the final model documentation, and will include all aspects of the modeling process, including a description of the model structure and methodology, network and zonal inputs, model variables (e.g. trip generation rates and mode choice constants), and model calibration and validation methodology and results.

Iteris has developed model documentation and users' guides for many county-wide, subregional and local models, including RIVTAM as well as the current VCTM. We have developed clear outlines for these documents with illustrations that explain the step by step modeling process. The model documentation clearly states all steps taken in developing the model and is used for both technical and non-technical audiences. While the users' guide is a highly technical document and is predominantly targeted to the hands-on modeler and model developers, the text and language used within the report will be understandable to both novice and experienced modelers alike. The current user's guide for the TransCAD version of the VCTC model was developed by Iteris in 2009, and will need to be updated to reflect the potential improvements and adjustments made during this project.





Deliverables:

- Working papers discussing the model development process and model assumptions.
- A draft and final model users' guide. The final model users' guide will be inclusive of all working papers and training tools developed throughout the course of the project. The final users' guide will be delivered as an electronic copy, and also as two hard bound copies.



Task 11. Training

Iteris staff have extensive experience in providing modeling training courses which explain the modeling process and the benefits of using a model (such as internal consistency between different model runs) as well as model limitations. The knowledge of both model benefits and model limitations combined with experience and professional judgement are crucial to the interpretation of the model results.

The training course that Iteris will develop for VCTC will be specifically tailored to provide VCTC staff with extensive familiarity with the model tool, as well as the understanding of how the model pieces fit together, as well as an understanding of the sensitivities of the model.

A traffic model is often referred to as a "black-box" operation, and the training course will be designed to open that box and make the developed tool useable for both novice and experienced users. At a minimum, the course will include the following areas:

- **Traffic Modeling 101:** An introduction to travel modeling to ensure that users have a complete understanding of the traditional four-step modeling process, as well as an understanding of all specialized modules and tools developed specifically for the VCTM.
- **Model Inputs and Outputs:** A detailed explanation of model inputs and outputs, as well as how to modify the inputs. Examples of model inputs are roadway and transit networks, and land-use and demographic variables.
- **Mode Choice:** The mode choice tool and its inputs will be discussed in depth in the training course, because that is the tool that will be used to determine the impacts on the network of transit and active transportation projects throughout the region.
- **Performance Evaluation Tools:** A thorough instruction related to performance evaluation tools, and descriptions of how and when to apply model outputs to project evaluation. Evaluation tools will include, at a minimum, select link/zone analysis, screenline analysis, intersection turning movement reporting. A series of TransCAD workspaces will be developed to provide standardized mapping of model outputs and the updating and editing of these workspaces will also be included in the training.

Deliverables:

- A hands-on training course held for VCTC staff.
- A power-point presentation as well as an instruction manual will be developed prior to the course, and included in the model documentation.



Task 12. Optional Air Quality Module

Recent CEQA guidelines (SB 743) are directing a shift from a level-of-service (LOS) analysis to a greenhouse gas (GHG) or vehicle-miles-traveled (VMT) based analysis. Iteris proposes the development of a module within the TransCAD model platform that segregates VMT by geography, as well as by land-use type. The air quality module will be capable of providing different outputs.

Zone-Based VMT

Iteris has substantial recent experience with providing model outputs to support climate action plans (CAPs) and GHG inventories for various local jurisdictions including the City of Los Angeles, the City of Industry and the City of La Canada. For these type of analysis it is necessary to identify the VMT directly attributable to that jurisdiction in order to formulate policies aimed at reducing VMT. The methodology used to do this calculates Zone-based VMT.

A zone-based VMT calculation identifies the total number of trips produced by, or attracted to, a zone and uses the model “skims” to calculate a VMT. The “skim” is a matrix generated by the model that represents the zone to zone travel distances and travel times for the entire model area.

Daily VMT by zone is calculated by multiplying the origin-destination trip tables by travel distance “skims” from the highway assignment for Peak and Off Peak periods separately. Each time period is calculated separately because travel paths between origin and destination (and the resulting VMT) can vary due in congested versus uncongested travel conditions. The time periods are summed together to calculate the daily VMT. Zone-based VMT is calculated for four different categories:

- Travel wholly within the jurisdiction boundary (Internal to Internal)
- Trips originating within the jurisdiction but ending outside the jurisdiction (Internal to External)
- Trips originating outside the jurisdiction and ending inside the jurisdiction (External to Internal)
- Trips with origins and destinations outside the jurisdiction (External to External)

	Internal (I)	External (X)
Internal (I)	Internal to Internal (I-I)	Internal to External (I-X)
External (X)	External to Internal (X-I)	External to External (X-X)

For the purposes of a CAP the VMT associated with “External to External” trips are not attributable to the jurisdiction. By convention only 50% of the VMT associated with “Internal to External” and “External to Internal” trips are allocated to the jurisdiction

itself and the other 50% allocated to the non-jurisdiction (or “external”) end on the trip.

By using the SMT tool the updated VCTC model can assign passenger vehicles as well as light, medium and heavy trucks so VMT can be calculated separately for each these categories which will be important inputs air quality models.

Link-Based VMT

Traditional VMT calculations are link-based and include all the links within an area. This includes trip generated within that area as well as through trips. An advantage of the link-based methodology compared to the Zone-based method is that VMT by “speed bin” which is an important input to air quality models can be calculated. Again calculations can be performed for passenger vehicles, light, medium and heavy trucks separately.



Standard emissions calculations can be applied to model outputs to ascertain outputs of greenhouse gases. By combining link-based and zone-based methodologies it becomes possible to provide a range of outputs to assess the change in greenhouse gas emissions of land-use or network changes within the model. The purpose for including the tool within the model, rather than relying on an external post-processing analysis, is to ensure consistency in model output data and analysis.

The development of the optional VMT/emissions module within the VCTM would enhance the ease-of-use of the modeling tool, and encourage a standardization of outputs for use in Ventura County planning projects. This module will be able to provide inputs to more complex and specialized air quality dispersion models which are beyond the scope of this effort.

Deliverables:

- *A module within the TransCAD modeling tool with the capability of developing standardized outputs for project purposes.*

Quality Control Methods

Monitoring of technical performance, schedules, and costs using a combination of automated and manual techniques provides an early indication of any deviation from planned performance.

To ensure timely delivery and budget adherence Iteris will:

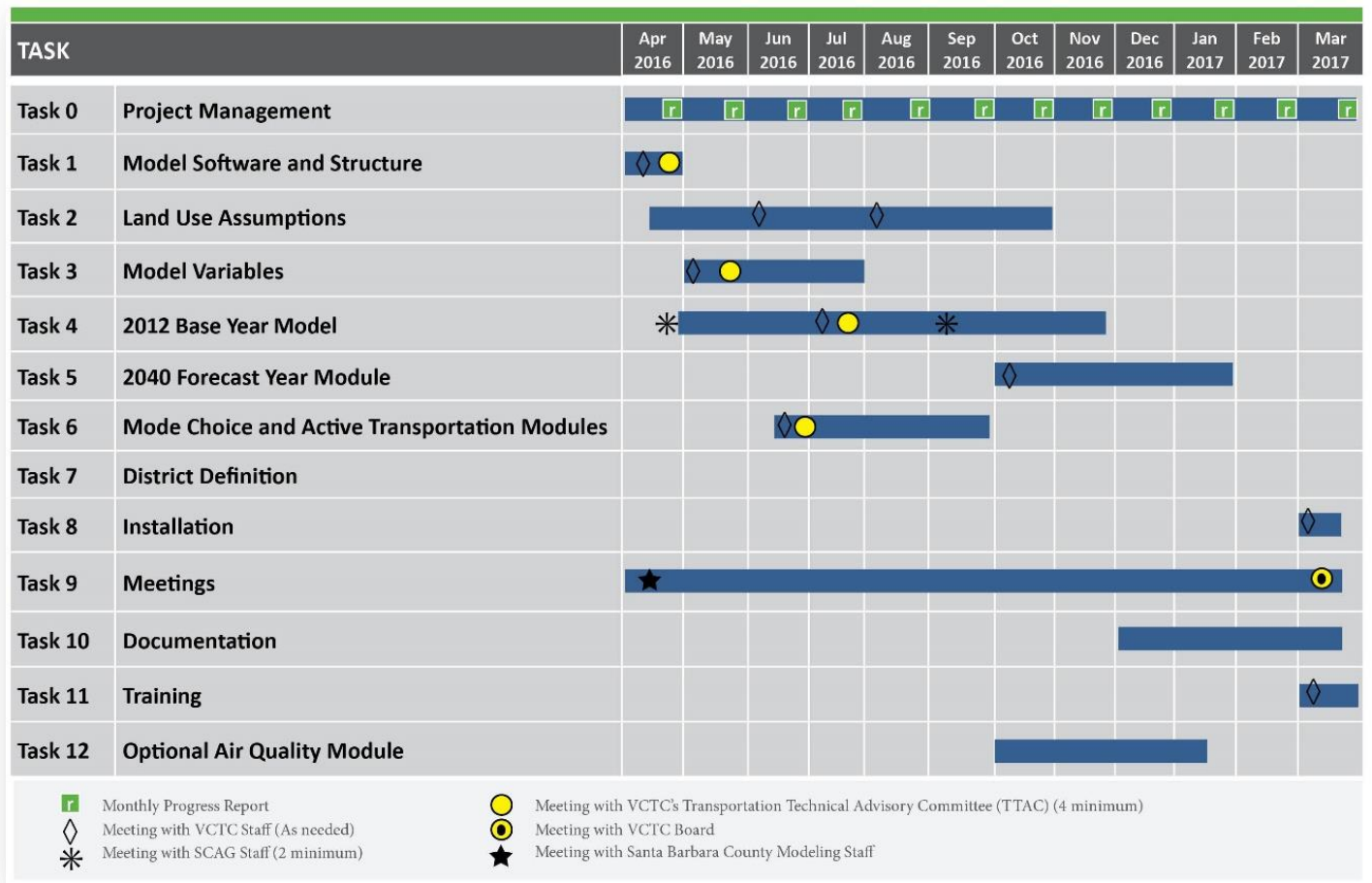
1. Monitor and control project activities with respect to schedule performance and analyze the impact of delays and cost alternatives;
2. Facilitate the assessment of work progress in terms of project milestones, work completed, percent in process, and dependence on future project tasks;
3. Develop and track subcontractor progress on scopes;
4. Emphasize active and open communication between the team;
5. Submit monthly written progress report to VCTC.



Proposed Project Schedule

Iteris has provided proposed project schedule below in **Table 1**.

Table 1 – Project Schedule



3.0 | ORGANIZATION CHART

Project Director

Mr. Viggen Davidian, PE, Vice President and a registered professional engineer with over 34 years of transportation planning and travel demand forecasting experience, 22 with Iteris, will serve as the Project Director for this assignment. Mr. Davidian led the development of the current VCTM, which has served the County well for many years. In addition, he has also successfully managed the development of other complex county-wide models in Southern California including the groundbreaking RIVTAM, Imperial County model, and pioneering Heavy Duty Truck Model for SCAG, as well as several large-scale subregional models. He will be the principal contact with VCTC and other entities per VCTC's direction. As Project Director, Mr. Davidian will make all work assignments and will oversee technical work performance and quality control from project inception to completion, and will be responsible for coordinating staff activities and meetings. Mr. Davidian's contact information is provided in **Table 2**:



Table 2 –Project Director Contact Information

PROJECT DIRECTOR
<i>Viggen Davidian, PE</i> Iteris, Inc. 801 S. Grand Ave., Ste. 530, Los Angeles, CA 90017 Phone: (213) 802-1707 Fax: (213) 488-9440 Email: vjd@iteris.com

KEY PERSONNEL ORGANIZATION

With offices in Santa Ana (headquarters), Los Angeles, and Berkeley, Iteris has the resources of over 75 staff throughout California dedicated to Travel Demand Modeling, Transportation Planning, Traffic Engineering, and ITS, available to meet all the needs of VCTC. Iteris has selected a qualified team of experts with strong business and technical knowledge to provide excellent service to VCTC. The senior transportation modelers, Jennifer Martin, PE, Chris Devlin, and Kristin Tso, PE, TE, have a combined 40 years of travel modeling experience. Travel model experience includes on-call support contracts, GISDK model script development and updates, travel model calibration and validation, multi-modal travel model development and evaluation, land-use model development, and long-range planning support.

Iteris' project team organization of proposed key staff is provided in **Figure 1**, followed by key staff role and availability in **Table 3** and brief bios for each team member. Full resumes of the Iteris Team are located in **Appendix A**.



Figure 1 – Project Team Organizational Chart



Table 3 – Key Staff and Availability

KEY STAFF	PROJECT ROLE	% OF AVAILABILITY	SKILLS						
			Travel Model Development	Land-use	Model Validation & Calibration	Model Outputs & Post Processing	Model Documentation	Model Training	Model Specific Module Development
Viggen Davidian, PE	Project Director QA/ QC	45%	✓	✓	✓	✓	✓	✓	✓
Chris Devlin	Technical Manager	60%	✓	✓	✓	✓	✓	✓	✓
Jennifer Martin, PE	Task Leader -Traffic Modeling	50%	✓	✓	✓	✓	✓	✓	✓
Kristin Tso, TE, PE	Task Leader -Land-use	60%		✓		✓			✓
Deepak Kaushik, PE	Transportation Planner	30%		✓		✓		✓	



Ventura County Traffic Model

KEY STAFF	PROJECT ROLE	% OF AVAILABILITY	SKILLS						
			Travel Model Development	Land-use	Model Validation & Calibration	Model Outputs & Post Processing	Model Documentation	Model Training	Model Specific Module Development
Amy Kim, TE	Transportation Planner	50%		✓		✓			
Gina Escalante	Transportation Planner	60%			✓	✓	✓		
Dina Saleh	Transportation Planner	50%		✓		✓			

ITERIS' STAFF BIOS



Viggen Davidian, PE – Project Director - Quality Assurance/ Quality Control
MS, Civil Engineering (Transportation), University of California, Berkeley, 1981
BS, Civil Engineering, Iowa State University, 1979
NHI Certificate of Training—Project Development and Environmental Documentation, FHWA
Professional Civil Engineer, CA #36335, 1983

Mr. Davidian has over 34 years of comprehensive project engineering and management experience encompassing transportation planning, traffic engineering design, and civil engineering, both in the private and the public sectors. He has managed and directed a wide-range of projects from traffic, circulation and parking design for various size developments to large-scale multi-modal transportation strategic plans as well as corridor and area-wide studies. These assignments have involved traffic engineering design on-call projects, traffic management system plans, system performance measurement studies, ITS technologies, major investment studies, corridor alternatives analysis and needs assessments, travel demand model development and forecasting, short and long-range transit plans, high-speed rail, general plan circulation elements, and highway alignment and preliminary design studies.

Mr. Davidian oversees Iteris' capabilities and resources in Multi-Modal Transportation Strategic Plans and Travel Demand Forecasting. Mr. Davidian has extensive experience in development, implementation and application of travel demand forecast models using various software packages. Projects have included area-wide models, city-wide models for the development and general plan circulation elements for several mid and large size cities, and corridor studies. He has managed and overseen the development of over 25 large and small travel demand models in the past 20 years. Mr. Davidian was the project manager for the development of the original VCTM and its update to TransCAD. He also pioneered the development of SCAG's Heavy Duty Truck component to the Regional Model. Mr. Davidian was the project manager for the development of RIVTAM, the first subregional model based on TransCAD from the SCAG Regional Model. Mr. Davidian also managed the development of the Imperial County and Border-crossing Model. He has specialized in integration of travel demand modeling and GIS applications for interpretation of forecast results and analysis of performance indicators. Other specialty modeling efforts included bus and rail transit and high-speed rail modeling and development of focused models for ports and airports.



Ventura County Traffic Model



Chris Devlin – Technical Manager

MSc, Transport Planning and Engineering, University of Leeds, UK, 1991
BA, Economics, Durham University, UK, 1987

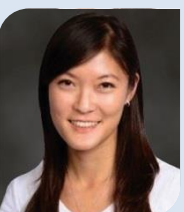
Mr. Devlin has served as Senior Transportation Planner for Iteris' Mobility Services Group of Iteris since November 2013. Mr. Devlin has 24 years of experience in transportation planning and has managed and participated in a wide variety of transportation studies including travel demand forecasting studies, travel surveys, traffic impact studies, parking studies, and corridor studies. He is an experienced travel demand forecaster having developed and worked on over thirty different traffic models throughout the world. He is proficient in several modeling packages including TransCAD, Cube and emme2 and in the use of micro-simulation packages. He has developed model outputs to support the economic, financial and environmental analysis of major highway, transit and aviation projects. He is proficient in the use of Geographic Information Systems (GIS) for problem-solving, analysis and the effective presentation of results. He has designed and run GIS training courses specifically for Transportation Planners including the design and coding of GIS utilities and scripts. He has performed several large-scale transportation surveys from the survey design stage, through implementation, data cleaning, database population and reporting.



Jennifer Martin, PE – Task Leader-Travel Modeling

BS, Civil Engineering, University of Idaho, Moscow, ID, 2003
Professional Engineer, Alaska State Board of Professional Engineers and Professional Surveyors, #11998, 2008

Ms. Martin serves as the Senior Transportation Engineer for Iteris' Mobility Services Group. Ms. Martin has over 12 years of experience working in transportation forecasting and modeling, transportation planning, traffic engineering and analysis, traffic operations and management plans, public involvement, and project management. Jennifer is fluent with a variety of travel demand modeling software (including TransCAD and GISDK scripting), traffic engineering software, and traffic analysis methods. Jennifer has national experience applying and modifying travel demand models for both large and small scale projects, and has experience in evaluating outputs for NEPA/CEQA analysis, VMT evaluation for Senate Bill 743, air quality and noise impact analyses, and operational impact analyses. Ms. Martin is highly skilled in travel model performance measure output, as well as developing model analysis tools for project efficiency.



Kristen Tso, PE, TE – Task Leader-Land-use

MS, Transportation Engineering, University of California, Berkeley, 2007
BS, Civil Engineering, University of California, Berkeley, 2006
Professional Civil Engineer, CA #77339, 2011; Professional Traffic Engineer, CA #2650, 2012

Ms. Tso serves as a Senior Transportation Planner and Engineer for Iteris' Mobility Services Group. She is a highly qualified traffic engineer with over 9 years of project experience in parking operational planning, traffic engineering and operations, travel demand forecasting, transportation planning and traffic simulation. Her technical specialties include freeway and arterial operational analysis, traffic simulation modeling, traffic demand forecasting, highway and arterial improvement planning and design, and construction detour/closure analysis. Ms. Tso has worked extensively on traffic impact analyses in accordance with CEQA/NEPA and other municipal guidelines for both small and large scale transportation projects across the state of California. She has experience evaluating outputs from various regional travel demand models including SCAG, OCTA, SANDAG, RivTAM and other sub-regional models. Ms. Tso's software experience includes Synchro, SimTraffic, VISSIM, TransCAD, HCS, Traffix, Microsoft Excel, CUBE, and Microstation.



4.0 | RELEVANT EXPERIENCE

Relevant Qualifications

Iteris has a history of successful projects with similar scope and work content for the many agencies throughout California. Iteris has a proven track record of on-time, within-budget performance on projects; and encourages the VCTC to check with references provided with our project qualifications below. Iteris is proud of the reputation the company has earned, and the resulting numerous repeat clients. Iteris has initiated over 850 ITS/Engineering and Planning projects since 2006. These projects include a wide-range of public and private entities including local agencies, counties, MPO and Caltrans. Of these 850 projects, approximately 70% represent repeat clients - a testament to Iteris' ultimate client satisfaction goal.

Iteris is an industry leader for its expertise in model application and special purpose focused model development capabilities such as airport ground access, heavy duty truck, rail and BRT transit and active transportation demand forecasting. Our staff have worked intimately with various regional and subregional agencies including SCAG, Los Angeles Metro, OCTA, RCTC, SANBAG and local cities for over 25 years in development and application of some of the largest and most intricate travel demand models. We have developed city-wide models for Circulation Elements for over 30 local agencies; complex highway and transit corridor models for interchange and alignment studies; and subregional and area-wide models. Most importantly, and relevant to this assignment, we have unparalleled experience in development of county-wide models, including the development of the current Ventura County Model in 2009, the Riverside County Traffic Analysis Model (RIVTAM), which was the first of its kind in focusing of the SCAG Regional Model, the Imperial County Model and the enhancement of the San Bernardino County model as part of the county's general plan update.

Iteris' extensive experience relevant to this project is demonstrated by the following showcase listing of recent, relevant projects throughout California that encompass all the aspects of the VCTC's project. In accordance with the RFP, Iteris has provided client contact references, along with projects completed for each reference. The projects are summarized in **Table 4** below followed by a detailed description of each project:

Table 4 – Relevant Project Experience Matrix

PROJECT QUALIFICATIONS	AREAS OF EXPERTISE							
	Travel Model Development	Development of Model Operating Parameters	GISDK (TransCAD) Model Development	Land-use Based Trip Generation Model	Model Validation & Calibration	Model Documentation	Model Training	Model Specific Module Development
Ventura County Travel Model Development & Update	✓	✓	✓	✓	✓	✓		
Riverside County-wide Travel Demand Modeling (RIVTAM)	✓	✓	✓		✓	✓		✓

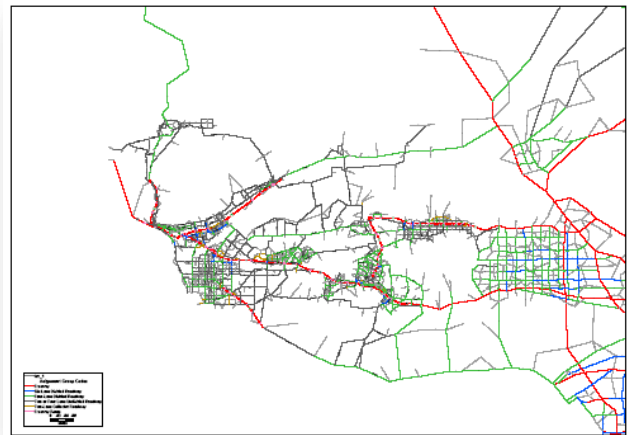


Iteris' Response to Request for Proposal for
Ventura County Traffic Model

PROJECT QUALIFICATIONS	AREAS OF EXPERTISE							
Imperial County Travel Model Development	✓	✓		✓	✓	✓	✓	
Simi Valley Travel Model Development	✓	✓	✓		✓	✓	✓	
City of Camarillo Travel Demand Model	✓	✓	✓		✓	✓	✓	
Anaheim Travel Model Development (ATAM)	✓	✓		✓	✓	✓	✓	
Irvine Travel Model Development (ITAM)	✓	✓		✓	✓	✓	✓	
Warner Center Specific Plan Travel Model Development	✓				✓		✓	
City of La Quinta Travel Model Development	✓		✓		✓	✓	✓	
SCAG Heavy Duty Truck Model (HDT)	✓	✓	✓			✓		✓
Gateway Cities Strategic Plan Modeling	✓	✓	✓		✓	✓		✓
San Bernardino Mountain Area Study	✓	✓			✓	✓	✓	✓

Ventura County Traffic Model (VCTM) – Ventura County, CA

Iteris developed and updated the Ventura County Travel Demand Model. As part of the project, Iteris developed a TransCAD hybrid travel demand forecasting (TDF) model based on the previous version of the Ventura County Traffic Model (VCTM). This model is focused on Ventura County and is developed based on the SCAG Regional Transportation Model and is consistent with its input data. The model also has a unique capability of addressing land-use in addition to socio-economic data, includes special generators as well as a partial mode choice model. This county-wide model that is used for long-range planning, as well as development of forecasts for transportation facilities and corridors in Ventura County by the Ventura County Transportation Commission (VCTC) and the Ventura County Public Works and Transportation Department.



Key Personnel	Viggen Davidian (Project Manager)
Client Reference	Steve DeGeorge, Ventura County Transportation Commission, 950 County Square Drive, Suite 207, Ventura, CA 93003, 805-642-1591, sefner@goventura.org

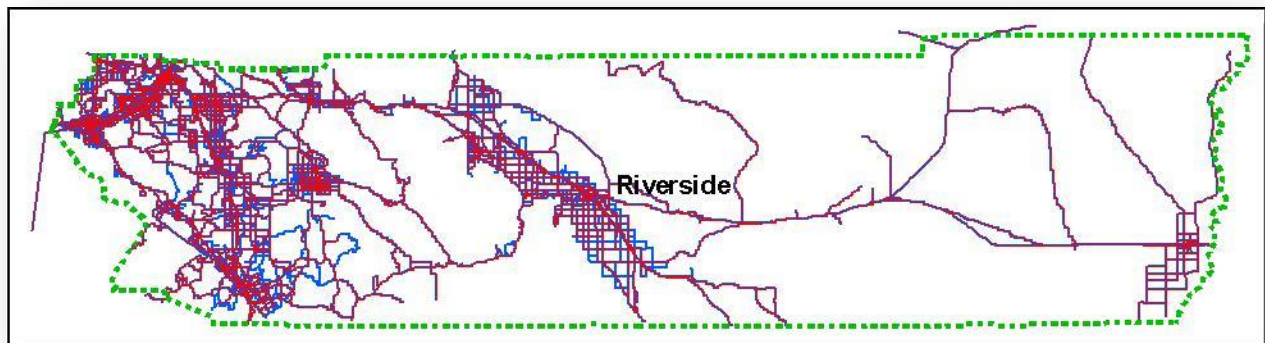
Riverside County County-wide Travel Demand Modeling (RIVTAM) – Riverside County, CA





Ventura County Traffic Model

Iteris was retained by the County of Riverside Transportation and Land Management Agency to update and maintain the two large-scale travel demand models that are used for developing long range traffic forecasts in the County of Riverside. The two models are the Western Riverside County Model (CTP) and the Coachella Valley Area Transportation Model. Iteris reviewed and updated the two models' networks and zonal data for consistency with SCAG and other regional information. Iteris also served as on-call modelers to the County for developing traffic forecasts for proposed development projects and corridor/facility plans throughout the county. This assignment has been continuing for the past four years. In 2007, Iteris was also retained on a sole-source basis by the County of Riverside and a consortium of other County agencies including RCTC, WRCOG and CVAG, to develop a completely new and updated, consolidated county-wide model for Riverside County based on the new SCAG Regional Model using the TransCAD software package.

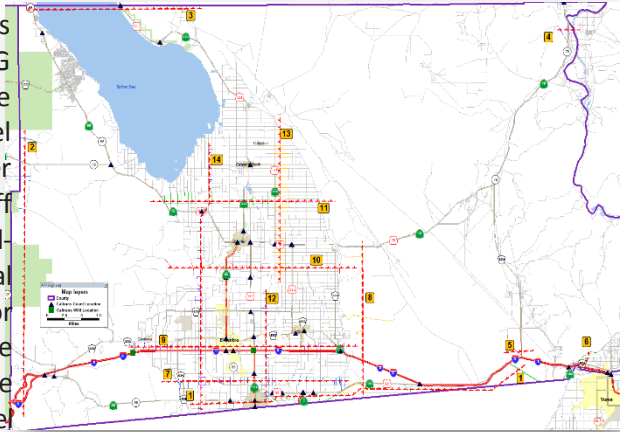


The resulting RIVTAM model is the first adaptation of the new SCAG TransCAD model and will be the basis for all future regional and corridor forecasting work in Riverside County as well as the parent model for development of subregional, local and municipal models. The new model has over 1,400 additional zones and over 570 centerline miles of roadways. The model also has a special generator component to forecast the unique trip-making characteristics in Coachella Valley area with significant part-time and visitor population. The model validation process is a comprehensive and elaborate effort including collection and cataloguing of over 300 traffic counts with vehicle classification and 46 screenlines drawn across County's travel corridors.

Key Personnel	Viggen Davidian
Client Reference	Kevin Tsang, Transportation Engineer, Riverside County Transportation Department (RCTD), 4080 Lemon Street, Riverside, CA 92502-2208, 951-955-6742, ktsang@rctlma.org

Imperial County and Cross Border Model – Imperial County, CA

Iteris developed a new travel demand model for Imperial County by focusing and refining the county's traffic analysis zones (TAZ) and network from the SCAG Regional Travel Demand Model. This was one of the original applications of the Subarea Model Development Tool (SMDT) developed by Caliper Corporation in southern California. Iteris staff conducted extensive original research on unique land-uses and trip generation characteristics of Imperial county, especially various special trip generators and for the development of agricultural commercial vehicle travel as part of the heavy duty truck component of the model. Iteris staff also developed border crossing model to forecast future border travel between Calexico and Mexicali based on the recently completed Cross-Border

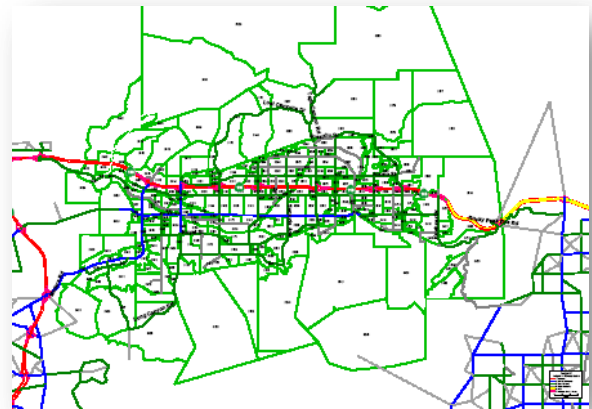


Survey. The Cross-Border model forecast auto and truck related border crossings along the three Ports of Entry between Imperial County and Mexico. The model is integrated with the Imperial County sub regional model. The Model is built in TransCAD and is compatible with SCAG RTP 2008 regional model. The Imperial County and its border crossing component are currently being used by Caltrans District 8 and also SANDAG.

Key Personnel	Viggen Davidian (Project Manager)
Client Reference	Gouxioung Huang, PhD, Manager of Modeling and Forecasting, SCAG, 3403 10 th Street, Suite 805, Riverside, CA 92501, 213-236-1948, huang@scag.ca.gov

Simi Valley City-wide Model – Simi Valley, CA

Iteris developed a new travel demand model for the City of Simi Valley. The new Simi Valley Model was developed based on the SCAG Regional Travel Demand Model and is consistent with the regional model in structure and parameters outside the City and the County. Iteris collected a large quantity of city-wide traffic data at intersections and roadway segments to validate the model. Iteris' scope of work included updating all components of the model including the highway network, zonal structure, socioeconomic and land-use data. The model also has a post-processing component that is used to analyze intersection. The new model is used for the General Plan Update process, as well as various traffic studies for development projects and EIRs.



Key Personnel	Viggen Davidian (Project Manager), Jennifer Martin, Deepak Kaushik
Client Reference	Farhad Miran, Senior Traffic Engineer, City of Simi Valley, 2929 Tapo Cyn. Rd., Simi Valley, CA, 93063, 805-583-6796, fmiran@simivalley.org



Ventura County Traffic Model

Camarillo Travel Demand Model – City of Camarillo, CA

Iteris developed a new travel demand model for the City of Camarillo in Ventura County. The new Model was developed based on the SCAG Regional Travel Demand Model and is consistent with the regional model in structure and parameters outside the City and the County. Iteris converted the City's old model to the new TransCAD platform maintaining the model's internal trip generation process. Iteris' scope of work included updating all components of the model including the highway network, zonal structure, socioeconomic and land-use data. The model also has a post-processing component that is used to analyze intersection operations based on the forecasts developed by the new travel demand model. Traffic volumes and levels of service on a total of 64 major intersections are directly processed through the program. The new model is used for the development of needed transportation improvements for roadway segments and intersections as part of a City-wide Development Impact and Nexus Fee Program, as well as various traffic studies for development projects and EIRs.



Key Personnel	Viggen Davidian (Project Manager)
Client Reference	Tom Fox, City Engineer, City of Camarillo, 601 Carmen Drive, Camarillo, CA 93010, (805) 388-5355, engineeringdept@cityofcamarillo.org

City-wide Traffic Model Development and On-Call Modeling Services – City of Anaheim, CA

Iteris was retained by the City of Anaheim to develop a revised version of the city-wide traffic analysis model. Iteris developed the first local city-wide model in Orange County based on the OCTAM framework which allowed the City to evaluate multi-modal transportation infrastructure investment alternatives. The model developed was a land-use based model allowing for improvement upon the OCTAM framework for trip generation and distribution. The model development also included the capability to evaluate transit activity throughout the City. Iteris developed the city-wide model structure by developing a refined zonal structure throughout the city and integrating the zonal structure into the framework of the county-wide model, OCTAM. All existing and future model highway and transit networks were updated, the base year model calibrated and validated and the future model applied. Following completion of the model, Iteris remains under contract to the City on an on-call basis to support modeling activities.



Key Personnel	Viggen Davidian (Project Manager), Chris Devlin (on-going model support), Jennifer Martin (on-going model support)
Client Reference	David Kennedy, Transportation Planner, City of Anaheim, 200 S. Anaheim Blvd., Anaheim, CA, 92805, 714-765-4920, dkennedy@anaheim.net



Ventura County Traffic Model

Irvine On-Call Traffic Modeling and Transportation Analysis – City of Irvine, CA

Iteris provides on-going support to City Staff for the development and operation of ITAM (the City's Travel Demand Forecasting Model). Support extends from development of Traffic Analysis Zone (TAZ) system, integration with OCTAM (OCTA's Regional Travel Demand Forecasting), through trip generation, distribution, assignment and validation. We also assist the City with post-processing model results and the development of level of service analysis for input to Traffic Studies and Environmental Impact Reports. Iteris also supports City staff with review of Traffic Studies and other Transportation analysis and provides GIS support on an as-needed basis.

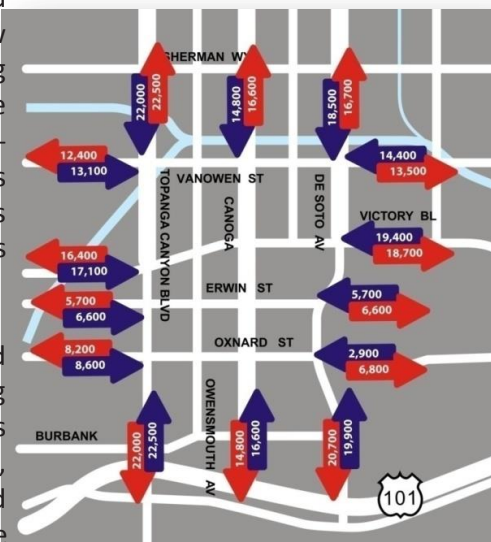


Key Personnel	Chris Devlin (Project Manager)
Client Reference	Kerwin Lau, Project Development Administrator, City of Irvine, 1 Civic Center Plaza, Irvine, California 92623-9575, 949-724-7360, klau@ci.irvine.ca.us

Warner Center Specific Plan Restudy and Focused TOD Sensitive Model – Los Angeles, CA

In this major effort, Iteris led a multi-disciplinary consultant team comprised of prominent urban planners and designers, economists, architects and environmental specialists. The primary objective of the new Warner Center Specific Plan is to reestablish a compelling vision of Warner Center in 2035. To achieve this goal, the consultant team and City staff integrated urban design, land-use planning and mobility in a collaborative process which was guided and shaped strongly by the Warner Center Citizen's Advisory Committee, property owners, developers, residents and other stakeholders.

Multi-modal mobility improvement strategies were developed to address potential traffic impacts and deficiencies, including traditional arterial and highway improvements, as well as innovative measures such as bus rapid transit (BRT), alternative modes of transportation and Transit Oriented Development (TOD) strategies. Iteris developed an innovative focused travel demand model for this study that is based on the SCAG Regional Model and is refined and customized to add elements of travel demand in a Transit Oriented Development environment. These include accessibility to the Metro Orange Line Busway, internal trip capture of mixed use developments, walkability and development densities.

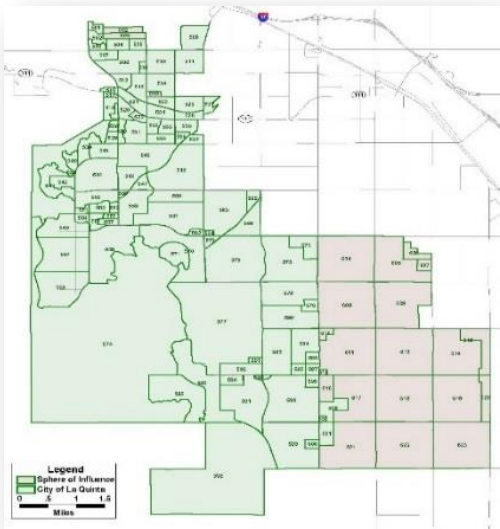


Key Personnel	Viggen Davidian (Project Manager), Jennifer Martin
Client Reference	Armen Hovanessian, Senior Transportation Engineer, City of Los Angeles, 6262 Van Nuys Blvd., Rm. 320, Van Nuys, CA, 91401, 818-374-4695, armen.hovanessian@lacity.org



Travel Demand Model and Circulation Element Update, Active Transportation Infrastructure Plan – City of La Quinta, CA

Iteris developed a new travel demand model for the City of La Quinta in Coachella Valley in eastern Riverside County. The Model was developed based on the official Riverside County travel demand model RIVTAM. The model was used to assist in the development of infrastructure improvements related to the city’s General Plan Update. The La Quinta Traffic Analysis Model (LQTAM) covers all of the six counties in the SCAG region. New zone structure with 949 zones was designed to detail the La Quinta area and to aggregate a set of zones outside of the area. The model roadway network within the City and Sphere of Influence (SOI) area was expanded to include roadways classified as Collector and above, as shown in the City of La Quinta General Plan Circulation Element. The structure of the La Quinta Model is consistent with the RIVTAM model to ensure compatibility between the two models.



Key Personnel	Viggen Davidian (Project Manager), Deepak Kaushik
Client Reference	Mr. Nazir Lalani, City Traffic Engineer, City of La Quinta, 78-495 Calle Tampico La Quinta, CA 92253, 760-777-7129, nlalani@la-quinta.org



5.0 | COST PROPOSAL

Iteris is pleased to submit the following cost proposal. Including option tasks and recommended software licenses, the total cost proposal is **\$171,940**. The total labor costs for Tasks 1 through 11 is **\$138,100**, with the addition of **\$15,060** for the optional air quality module task (Task 12).

Table 5 (following page) provides the detailed rates of key personnel that will be assigned to this project.

In addition to labor costs, a recommended software solution is a single network TransCAD licenses to be set up on one remotely accessible machine at VCTC. The advantage to a network license, is the ability to utilize up to two local instances of TransCAD, as well as enabling Iteris to access the model and software remotely for debugging and training purposes. This cost assumes \$12,000 for a single licenses, with a 50% additional fee (totaling **\$18,000**) for remote desktop capability. This cost estimate is based on Caliper's current order form (dated 3/2/2016).

The alternative of maintaining two locally installed TransCAD licenses would cost \$12,000 for the first license, and \$9,000 for the second license, for a total of \$21,000. This software license option does not permit remote desktop capabilities, and Iteris considers this to be a less desirable option than a single network license.



Table 5 – Cost Proposal

TASKS	ITERIS STAFF HOURS					LABOR HOURS	STAFF COSTS
	Principal	Senior Trans II	Senior Trans I	Assoc Trans	Assist Trans		
Staff Rates	\$240	\$180	\$165	\$125	\$100		
TASKS							
Task 1. Model Software and Structure	4	40				44	\$8,180
Task 2. Land Use Assumptions		10	40	40	40	130	\$17,400
Task 3. Model Variables	10	80	10	20		120	\$21,000
Task 4. 2012 Base Yea Model		60	40	80		180	\$27,400
Task 5. 2040 Forecast Year Model		20	20	20		60	\$9,400
Task 6. Mode Choice and Active Transportation Module		60	40			100	\$17,400
Task 7. District Definition		8		8		16	\$2,440
Task 8. Installation		8				8	\$1,440
Task 9. Meetings	20	40	10			70	\$13,750
Task 10. Documentation	8	40	20			68	\$12,460
Task 11. Training	4	36				40	\$7,440
Task 12. Optical Air Quality Module	4	60	20			84	\$15,060
Total Hours and Labor Cost	50	462	200	168	40	920	\$153,160
<i>Total Labor</i>							\$153,160
<i>Other Costs (Mileage)</i>							\$580
<i>Software</i>							\$18,000
<i>Reproduction</i>							\$200
<i>Total Expenses</i>							\$18,780
TOTAL COST ESTIMATE							\$171,940



APPENDIX A

RESUMES

Iteris, Inc.

- CHRIS DEVLIN
- VIGGEN DAVIDIAN
- JENNIFER MARTIN
 - KRISTIN TSO
- DEEPAK KAUSHIK
 - AMY KIM
- GINA ESCALANTE
 - DINA SALEH



APPENDIX B

EVIDENCE OF INSURANCE



Iteris' Response to Request for Proposal for
Ventura County Traffic Model

ACORD®		CERTIFICATE OF LIABILITY INSURANCE		DATE (MM/DD/YYYY) 3/28/2015		
THIS CERTIFICATE IS ISSUED AS A MATTER OF INFORMATION ONLY AND CONFERS NO RIGHTS UPON THE CERTIFICATE HOLDER. THIS CERTIFICATE DOES NOT AFFIRMATIVELY OR NEGATIVELY AMEND, EXTEND OR ALTER THE COVERAGE AFFORDED BY THE POLICIES BELOW. THIS CERTIFICATE OF INSURANCE DOES NOT CONSTITUTE A CONTRACT BETWEEN THE ISSUING INSURER(S), AUTHORIZED REPRESENTATIVE OR PRODUCER, AND THE CERTIFICATE HOLDER.						
IMPORTANT: If the certificate holder is an ADDITIONAL INSURED, the policy(ies) must be endorsed. If SUBROGATION IS WAIVED, subject to the terms and conditions of the policy, certain policies may require an endorsement. A statement on this certificate does not confer rights to the certificate holder in lieu of such endorsement(s).						
PRODUCER Woodruff-Sawyer & Co. 50 California Street, Floor 12 San Francisco CA 94111			CONTACT NAME: Corinne Ford PHONE (A/C No. Ext): 415-391-2141 FAX (A/C No): 415-989-9923 E-MAIL: cford@wsandco.com ADDRESS:			
INSURED ITERINC-01 Iteris, Inc. 1700 Carnegie Avenue, Suite 100 Santa Ana CA 92705-5551			INSURER(S) AFFORDING COVERAGE		NAIC #	
			INSURER A: Berkley National Insurance Company		38911	
			INSURER B: Illinois Union Insurance Company		27960	
			INSURER C: Zurich American Insurance Company		16535	
			INSURER D: American Guarantee and Liability In		26247	
			INSURER E:			
			INSURER F:			
COVERAGES CERTIFICATE NUMBER: 13059840 REVISION NUMBER:						
THIS IS TO CERTIFY THAT THE POLICIES OF INSURANCE LISTED BELOW HAVE BEEN ISSUED TO THE INSURED NAMED ABOVE FOR THE POLICY PERIOD INDICATED. NOTWITHSTANDING ANY REQUIREMENT, TERM OR CONDITION OF ANY CONTRACT OR OTHER DOCUMENT WITH RESPECT TO WHICH THIS CERTIFICATE MAY BE ISSUED OR MAY PERTAIN, THE INSURANCE AFFORDED BY THE POLICIES DESCRIBED HEREIN IS SUBJECT TO ALL THE TERMS, EXCLUSIONS AND CONDITIONS OF SUCH POLICIES. LIMITS SHOWN MAY HAVE BEEN REDUCED BY PAID CLAIMS.						
INSR LTR	TYPE OF INSURANCE	ADDL SUBR INSD WVD	POLICY NUMBER	POLICY EFF (MM/DD/YYYY)	POLICY EXP (MM/DD/YYYY)	LIMITS
C	X COMMERCIAL GENERAL LIABILITY CLAIMS-MADE ☒ OCCUR X BI Ded. None GEN'L AGGREGATE LIMIT APPLIES PER: POLICY ☐ PRO. JECT ☐ LOC. OTHER:		CP0553288001	4/1/2015	4/1/2016	EACH OCCURRENCE \$2,000,000 DAMAGE TO RENTED PREMISES (Ea occurrence) \$2,000,000 MED EXP (Any one person) \$15,000 PERSONAL & ADV INJURY \$2,000,000 GENERAL AGGREGATE \$4,000,000 PRODUCTS - COM/OP AGG \$4,000,000 \$
C	AUTOMOBILE LIABILITY X ANY AUTO ALL OWNED AUTOS ☐ SCHEDULED AUTOS HIRED AUTOS ☐ NON-OWNED AUTOS		CP0553288001	4/1/2015	4/1/2016	COMBINED SINGLE LIMIT (Ea accident) \$1,000,000 BODILY INJURY (Per person) \$ BODILY INJURY (Per accident) \$ PROPERTY DAMAGE (Per accident) \$ Owned/Hired Comp/Coll \$Ded's \$500
D	UMBRELLA LIAB ☒ OCCUR EXCESS LIAB ☐ CLAIMS-MADE DED ☒ RETENTION \$ 10,000		AUC55328801	4/1/2015	4/1/2016	EACH OCCURRENCE \$25,000,000 AGGREGATE \$ \$
A	WORKERS COMPENSATION AND EMPLOYERS' LIABILITY ANY PROPRIETOR/PARTNER/EXECUTIVE OFFICER/MEMBER EXCLUDED? ☐ Y/N If yes, describe under DESCRIPTION OF OPERATIONS below	N/A	TWC700100813	4/1/2015	4/1/2016	PER STATUTE ☐ OTH-ER ☐ E.L. EACH ACCIDENT \$1,000,000 E.L. DISEASE - EA EMPLOYEE \$1,000,000 E.L. DISEASE - POLICY LIMIT \$1,000,000
B	Professional Liability Claims Made Form Retro-Date 01/01/1991		G21656045012	4/1/2015	4/1/2016	Limit \$5,000,000/ Deductible \$50,000 Agg \$5,000,000
DESCRIPTION OF OPERATIONS / LOCATIONS / VEHICLES (ACORD 101, Additional Remarks Schedule, may be attached if more space is required) Issued for Evidence of Insurance Purposes Only						
CERTIFICATE HOLDER			CANCELLATION			
Iteris, Inc. (Basic) 1700 Carnegie Avenue, Suite 100 Santa Ana CA 92705-5551			SHOULD ANY OF THE ABOVE DESCRIBED POLICIES BE CANCELLED BEFORE THE EXPIRATION DATE THEREOF, NOTICE WILL BE DELIVERED IN ACCORDANCE WITH THE POLICY PROVISIONS.			
			AUTHORIZED REPRESENTATIVE <i>Corinne L Ford</i>			

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ACORD 25 (2014/01)

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