

ATTACHMENT 1

Shoreline Boulevard Interim Bus Lane and Utility Improvements, Project 16-58

**Mark Thomas and Company, Inc.
Scope of Work**

August 2016

PROJECT UNDERSTANDING

The City wishes to construct the Shoreline Boulevard Interim Bus Lane and Utility Improvements Project (Project) which has been identified in the City's CIP as Project 16-58. The Project includes bus lane, sidewalk, bike lane and traffic signal improvements from Middlefield Road to Pear Avenue along Shoreline Boulevard. Bus lane, sidewalk, bike lane and traffic signal improvements will run along the length of the project from Middlefield Road to Pear Avenue. Waterline and Sewer improvements are included from Middlefield Road to the edge of the Caltrans right of way just south of the US-101 southbound on-ramp. In support of this objective, MTCO will prepare final plans, specifications, and estimates (PS&E) for the Project and perform services to obtain Caltrans approval for improvements within State right of way through the Caltrans Streamlined PEER Process.

The bus lane improvements will be based upon the recommendations included in the Shoreline Boulevard Transportation Corridor Study (Corridor Study) completed in November 2014. This scope of services is written with the understanding that the bus lane improvements will include four sheltered bus stops at the intersection of Shoreline Boulevard and Terra Bella Avenue and does not include any of the proposed "cycle-track" improvements. Further, it is understood that intersection improvements at the US 101 ramps (including La Avenida Street) will be limited to signal upgrades. Ramp, pedestrian and bicycle improvements within Caltrans right of way are limited to minor modifications as required by the bus lane and bicycle facility improvements. This scope includes "protected" bicycle and pedestrian improvements at the intersection of Shoreline Boulevard and Middlefield Road. Bicycle and pedestrian intersection improvements at Terra Bella Avenue, and Pear Avenue will be limited to basic safety and ADA upgrades as required to conform to existing conditions.

The scope includes approximately 1,400 feet of water main and 1,400 feet of sewer main replacement on Shoreline Boulevard from Middlefield to southbound Highway 101 on-ramp. Water main replacement will replace water mains, services, hydrants, and associated water system appurtenances. The water main replacement will utilize PVC pipe (or other material specified by the City) and be installed by open-trench method. The decision regarding final water main sizing will be made during the design phase based on water system analysis provided by City and based upon project specific recommendations from MTCO. Sewer mains and laterals will be replaced by pipe bursting with HDPE material. Final sewer main sizing and construction methods will be determined during final design based sewer network analysis provided by City and project specific recommendation from MTCO. This scope of service excludes network or system demand analysis of either water or sewer lines. The condition of the existing sewer manholes will be investigated based upon review of city provided CCTV footage. A supplemental scope and fee have been provided should the existing CCTV information be inadequate or inappropriate. MTCO will provide recommendations to the City regarding rehabilitation or replacement of existing manholes.

As part of this scope of services, MTCO will provide project management; surveying; roadway, platform, and signal design; geotechnical and drainage analysis; and final design services consistent with the improvements described herein. MTCO will diligently perform this scope of work and will be responsible for items of work under this contract to the extent that issues arising from the performance of these services are within our reasonable control.

This scope of work assumes that final design will be completed by December 31, 2017 and construction of improvements will commence in 2018.

SCOPE OF WORK

Task 1. Project Management

This task shall include general project administration and management.

1.1 General Project Management

This task will include ongoing general project management activities, including coordinating subconsultant activities and submittals. General project management will also include obtaining the Caltrans encroachment permit for field investigations as necessary. MTCO will organize and maintain project files. MTCO will maintain records to track correspondence, contractual matters, data requests, transmittals and other project data. MTCO will prepare a monthly invoices including a monthly progress report which will be included as part of the monthly invoice package. A transmittal letter will briefly highlight the overall project status and any significant scope, schedule or budget issues on the horizon. It is assumed that these tasks will be performed for the duration of the project (15 months).

1.2 Project Coordination

MTCO will coordinate design activities with consultant team members and stakeholders through regular communication via telephone calls, emails and other correspondence for the duration of the project (15 months). Stakeholder coordination may include VTA, Transit Operators, various Stakeholders and Developers, Caltrans functional units, other design consultants, adjacent property owners and other individuals. MTCO will prepare and distribute conversation minutes and action items list as necessary. Coordination with the developer for the interim bus lane tie-in at La Avenida Street is also included in this task.

1.3 Meetings

MTCO will attend eight (8) ongoing monthly coordination meetings and five (5) various stakeholder meetings. PDT meetings will include representatives from the City, Caltrans, VTA, transit operators, and other stakeholders as appropriate and as directed by the City. This task includes preparation of agendas, meeting minutes, log of action items, data request log, and design decision log. The project Critical Path Method (CPM) schedule identified below will be distributed and reviewed during PDT meetings.

1.4 Project Schedule

MTCO will update, maintain and distribute a CPM schedule on a monthly basis. The project schedule will include design activities, major milestones, quality control activities and agency review times. MTCO will submit updated electronic progress schedule on a monthly basis during the duration of the project (15 months). MTCO will notify the City of impacts that may affect schedule milestones in a timely manner. The initial project schedule will be prepared for and approved by the City at the outset of the project.

1.5 Risk Management Plan

Will be reviewed at focused risk management meetings. MTCO will update the plan on a quarterly basis in conjunction with City staff.

1.6 Quality Assurance / Quality Control

This scope assumes that quality reviews will be performed on draft and final engineering reports and as part of the 65% PS&E, 95% PS&E, 100% PS&E and final bid set documents.

Deliverables

- Monthly Project Progress Reports/ Invoices (24)
- PDT and other Meeting Agendas, Minutes, and Action Item Lists, Data Request Log, Design Decision Log (13 meetings)
- CPM Schedule, updated monthly (8 total)
- Updated Risk Management Plan, quarterly (3 updates)
- Quality Control Documentation

Task 2 (Phase I). Preliminary Investigation

2.1 Pothole Existing Utilities

MTCO shall have underground exploratory potholing conducted to verify locations of existing utility facilities.

Potholes shall be collected at tie in points and at locations of possible conflict with existing utilities to remain in place and will be backfilled with base material and finished with AC pavement. This scope of work assumes a total of ten (10) pothole locations. Pothole locations shall be field surveyed. Pothole information shall be added to record utility mapping and a base utility map shall be prepared and submitted to the city and other utility companies as necessary.

2.2 Geotechnical Testing

Parikh Consultants shall perform geotechnical testing and analysis of the subgrade soil from the landscaped areas to develop the pavement design for the new reversible bus lane. The existing pavement along the median may also be sampled in the event the higher Traffic Index (TI) value requires a re-construction of the pavement. Bulk samples will be collected for the R-value tests.

A truck mounted drill rig will be used to drill 8-inch diameter borings and collect samples of the subgrade soil to a maximum depth of 5-feet at four (4) locations in the existing planted median areas. This scope assumes no permit restrictions will be imposed by the City and that traffic control will be required. The City shall issue a no-fee encroachment permit. Sample collection within Caltrans right of way is not proposed and is excluded from this scope. R-value samples will be collected from each of the boring/sampling locations. Because similar material is anticipated, up to two (2) R-value tests will be conducted. Corrosion testing will be performed from up to two collected samples. The summary of the field work will be provided in a table. The results of the field work and the R-value tests will be provided in a letter report. No log of test borings are proposed as the data will be tabulated. Pavement design will be based on the R-value and the TI agreed upon by the City.

Due to the age of the existing facilities along Shoreline Boulevard and the nature of the improvements proposed as part of this project, no hazardous materials testing is proposed. Should hazardous materials testing or an Initial Site Assessment be required, MTCO shall perform that work as a supplemental service.

Deliverables

- Pothole field notes and annotated existing utility mapping with locations and depths shown
- Geotechnical field work summary table
- Geotechnical letter report

Task 3 (Phase II). Caltrans Design Exception Fact Sheets

3.1 Finalize Design Exception Fact Sheets

MTCO shall finalize advisory and mandatory design exception fact sheets for improvements not meeting Caltrans standards within Caltrans right of way. The previously authorized project scope included preparing draft fact sheets. This scope assumes up to three (3) non-standard advisory and three (3) non-standard mandatory exceptions which will be documented in on mandatory and one advisory fact sheet. Any supplemental fact sheet exceptions shall be considered as a supplemental scope of service and may be prepared by MTCO for additional fee. Design exceptions outside of State right of way will be documented in an abbreviated format for City approval. This scope includes submittal of previously prepared fact sheets and two (2) rounds of comments from Caltrans and/or the City. A total of three (3) submittals for design exception fact sheets is included.

Deliverables

- Finalized Advisory and Mandatory Design Exception Fact Sheets

Task 4 (Phase III). Design Development/Construction Documents

As part of Task 4, MTCO shall develop the required documents to successfully design, gain approval for, bid and construct the project improvements. This Task shall include development of the project plans, specifications, bid item schedule and construction cost estimates at the following stages of project development:

- 65% (unchecked detailed design)
- 95% (checked detailed design)
- 100% (draft final bid documents)
- Final (construction ready bid documents)

In addition, as part of Task 4, MTCO shall prepare the following technical reports/documents in support of the preparation of the project PS&E:

- Drainage Report (Technical Memorandum)
- Storm Water Data Report (Short form)
- Traffic Management Plan
- Traffic Signal Operations Analysis

Plans, specifications and estimates will be prepared consistent with the Caltrans Project Development Procedures Manual, Drafting Standards, and Highway Design Manual as well as City standards, design criteria and other codes as appropriate for a locally sponsored, funded encroachment permit project utilizing the Caltrans Streamlined PEER Process as described below. At each development stage of the PS&E, plans will include the preparation of the following roadway, structure and electrical engineering plans:

- Title sheet
- Typical cross sections
- Survey control diagram
- Key map
- Roadway/geometric layouts
- Profile and superelevation sheets
- Construction details
- Utility plan and profile
- Drainage plans
- Summary of quantities
- Stage construction plans
- Traffic handling plans
- Signing and pavement delineation plans
- Lighting, signal, and electrical plans
- Electrical plans (signals and lighting)
- Structure plans
- Landscape plans

The following sheet count is anticipated.

Sheet Count	Sheet Type
1	Title
2	Typical Sections
1	Key Map
1	Survey Control Diagram
4	Layouts
2	Profile/ Superelevations
8	Construction Details
2	Temporary Water Pollution Control Plans and Details
4	Drainage Layouts
4	Drainage Profiles
1	Drainage Details
2	Drainage Quantities
2	Utility Plan and Profile

5	Utility Details
4	Stage Construction
1	Detour Plan
10	Traffic Handling
1	Construction Area Signs
8	Sign Plans
1	Sign Quantities
4	Pavement Delineation
1	PD Quantities
20	Electrical plans and Details
2	Summary of Quantities
4	Structure Plans
6	Landscape Plans
95	Total

At each stage of plan development, MTCO will review, respond and resolve to all comments received from City, Caltrans and other approving/ commenting agencies. Each design submittal shall incorporate comments received on the previous submittal.

The MTCO team shall perform an internal, interdisciplinary QA/QC plan check and review as part of each submittal stage.

MTCO shall perform Task 4 based upon the following sub tasks:

4.1 65% PS&E (Unchecked Detailed Design)

65% PS&E will be prepared as a detailed, complete set of plans, technical specifications and estimate. MTCO shall provide responses to comments and attend a comment review/ resolution meeting at the outset of the 65% PS&E task.

4.1.1 Review and Respond to 35% Comments

MTCO will review, respond and resolve to all comments received from City, Caltrans and other approving/ commenting agencies on the 35% submittal.

4.1.2 65% Plans

Task shall include updating 35% plans and creating and developing plan details not included in the 35% submittal. Task shall include preparation of all plans as described above except electrical plans.

4.1.3 65% Electrical/ Signal Plans

KHA will develop a set of traffic signal plans and special provisions as part of the 65% PS&E for the following five intersections:

- Middlefield Road
- Terra Bella Avenue
- SB 101 off-ramp/on-ramp
- NB 101 off-ramp/on-ramp/La Avenida Street
- Pear Avenue

The traffic signal plans will include the traffic signal modification plans including new TSP and transit signal elements, equipment schedules and details. Our scope assumes that existing signal poles on the side streets and the main street (Shoreline Boulevard) and mast arms will require relocation. Our scope also assumes that existing cabinets cannot be reused, and will require relocation and modification. Temporary signals and/or stage construction plans for traffic signals are not anticipated to be necessary and will not be developed.

Our scope and fee have been developed under the assumption that the bus will only be traveling in a single direction at any given time, and therefore no interconnecting of traffic signals is included to control the flow of buses traveling in opposite directions at the same time.

As part of the signal design, our team will perform a lighting analysis and design street lighting to meet the lighting standards of the City and Caltrans. Street lighting will not be analyzed or designed beyond the intersection; lighting will be included only on signal poles.

4.1.4 65% Specifications

MTCO shall prepare 65% technical specifications. Technical specifications shall be prepared as special provisions using Caltrans 2015 Standard Specifications format and will be draft specifications at the 65% submittal stage. MTCO shall utilize Caltrans standard special provisions (SSP's) except where they are unavailable or when the City provides alternative standard special provisions. Specification edits shall not follow Caltrans Office Engineer editing format (i.e. Caltrans editing macros and hidden text). No justification or approvals for non-conforming edits will be provided (i.e. no NSSP approvals shall be required or sought).

4.1.5 65% Quantities and Estimate

Using Caltrans standard bid items as and measurement quantities, MTCO shall quantify the required bid item quantities for elements of work shown on the 65% plans and as specified in the 65% special provisions. MTCO shall maintain a hard copy record of all quantity calculations at the 65% PS&E level (and at all subsequent levels of plan development). Unit bid price estimates will be based upon appropriate recently published bid prices as posted on Caltrans website and other recent, relevant local agency project bids.

65% PS&E Deliverables:

- Written, resolved response to comment matrix
- 20 hard copy sets of 65% PS&E
- Electronic submittal of all deliverables

4.2 95% PS&E (Checked Detailed Design)

95% PS&E will be prepared as a checked, detailed, complete set of plans, technical specifications and estimate. MTCO shall provide responses to comments and attend a comment review/ resolution meeting at the outset of the 95% PS&E task.

4.2.1 Review and Respond to 65% Comments

MTCO will review, respond and resolve to all comments received from City, Caltrans and other approving/ commenting agencies on the 65% submittal.

4.2.2 95% Plans

Task shall include updating 65% and incorporating comments received, checking details and further developing unresolved details or design issues not resolved as part of the 65% submittal. Task shall include preparation of all plans as described above except electrical plans.

4.2.3 95% Electrical/ Signal Plans

KHA will revise the 65% plans and prepare the traffic signal plans and special provisions as part of the 95% PS&E.

4.2.4 95% Specifications

MTCO shall prepare 95% technical specifications by editing and revising the 65% technical specifications.

4.2.5 95% Quantities and Estimate

MTCO shall prepare an independent quantity calculation takeoff based upon the 95% plans and specifications. MTCO shall maintain a hard copy record of the 95% quantity calculations. MTCO will update unit prices as appropriate.

95% PS&E Deliverables:

- Written, resolved response to comment matrix
- 20 hard copy sets of 95% PS&E
- Electronic submittal of all deliverables

4.3 100% PS&E (Draft Final Bid Documents)

100% PS&E will be prepared as draft final set of bid ready, complete bid documents. MTCO shall provide responses to comments and attend a comment review/resolution meeting at the outset of the 100% PS&E task.

4.3.1 Review and Respond to 95% Comments

MTCO will review, respond and resolve to all comments received from City, Caltrans and other approving/commenting agencies on the 95% submittal.

4.3.2 Update 100% Plans, Technical Specifications, Quantities and Estimate

Task shall include updating the 95% plans, specifications and estimate, incorporating comments received. MTCO shall prepare an independent quantity calculation takeoff based upon the 100% plans and specifications. MTCO shall maintain a hard copy record of the 100% quantity calculations. MTCO will update unit prices as appropriate.

This scope assumes that MTCO will provide the City a complete set of technical specifications only for incorporation with the City's boilerplate bid documents. At the City's discretion, MTCO can incorporate the technical specifications into the City's boilerplate as a supplemental service.

100% PS&E Deliverables:

- Written, resolved response to comment matrix
- 20 hard copy sets of 100% PS&E
- Electronic submittal of all deliverables

4.4 Final Construction Documents

Final construction documents will be prepared as a set of bid ready, complete documents.

4.4.1 Review and Respond to 100% Comments

MTCO will review, respond and resolve to all comments received from the City, Caltrans and other approving/commenting agencies on the 100% submittal.

4.4.2 Update Final Plans, Technical Specifications, Quantities and Estimate

Task shall include updating the 100% plans, specifications and estimate, incorporating comments received. MTCO shall verify the final bid quantities and perform independent spot checks of quantities based upon the 100% plans and specifications. MTCO will update unit prices as appropriate.

This scope assumes that MTCO will update the final construction documents prepared at the 100% stage with any remaining modifications and provide the City a comprehensive set of bid documents.

Final Bid Document Deliverables:

- Written, resolved response to comment matrix
- 11 hard copy sets of 100% PS&E (5 for the City, 6 for Caltrans Encroachment Permit)
- 1 set of signed mylars
- Electronic submittal of all deliverables

4.5 Engineering Reports

In order to ultimately gain project approval from Caltrans and in order to design the project, several engineering reports are necessary. These reports shall be prepared throughout the completion of Task 4 in support of the design development. Engineering reports and activities under this task include the following:

4.5.1 *Drainage Report*

MTCO will prepare a roadway drainage report in the form of a technical memo containing the required drainage report elements as required by District 4 and submit it to the City and Caltrans for review. The report will include a delineation of existing and proposed drainage shed areas, calculations for proposed drainage conditions (based upon the Rational Method), and calculations for proposed pipe sizes, inlet locations, and outfall areas based upon proposed modifications to the existing drainage system on Shoreline Blvd. This scope assumes that the City will provide design storm tailwater Hydraulic Grade Line (HGL) information for the purposes of calculating required changes to the drainage system.

Draft drainage calculations will be included with the 65% submittal and the draft and final drainage report will be submitted with the 95% and 100% submittals respectively.

MTCO will address and respond to comments received on each submittal.

This scope assumes no trunk line drainage system modification will be required.

Deliverables:

- Drainage Calculations (3 sets)
- Draft Drainage Report (5 copies)
- Final Drainage Report (5 copies)

4.5.2 *Storm Water Data Report*

MTCO will prepare a Storm Water Data Report (SWDR) in conformance with Caltrans SWDR guidelines to address post-construction storm water quantity and quality. MTCO shall prepare a draft and final SWDR. The SWDR will include a project risk level determination, storm water treatment sizing calculations including consideration of hydromodification, determination of disturbed soil area, impervious area calculation, and design checklists. The development of the SWDR and the permanent storm water treatment measures shall be coordinated with the development of the project drainage design concept. Storm water treatment measure calculations will be provided at 65%, and the draft and final SWDR will be submitted with the 95% and 100% submittals respectively.

Deliverables

- Storm Water Treatment Calculations (3 sets)
- Draft SWDR (5 copies)
- Final SWDR (5 copies)

4.5.3 *Traffic Management Plan*

MTCO will prepare a Traffic Management Plan (TMP) for the project. The TMP will conform to Caltrans TMP Guidelines by addressing project strategies and approaches to reduce traffic impacts of construction through Public Information, Motorist Information, Incident Management Strategies, Construction Strategies and Alternative Route Strategies. The TMP will include calculations for lane closures and lane closure charts. MTCO will prepare draft and final TMPs at the 65% and 95% project completion milestones. This scope of work assumes that existing hourly traffic count data will be made available to MTCO by the City. The scope excludes conducting traffic counts, although counts can be conducted as an additional service.

Deliverables

- Draft TMP (5 copies)
- Final TMP (5 copies)

4.5.4 *Traffic Signal Operations Analysis*

KHA will conduct a traffic operations analysis of the five signalized intersections that are proposed to operate with a center-running, reversible transit lane. KHA proposes to conduct the detailed traffic operations analysis at the signalized intersections along Shoreline Boulevard listed below:

- Middlefield Road
- Terra Bella Avenue
- SB 101 off-ramp/on-ramp
- NB 101 off-ramp/on-ramp/La Avenida Street
- Pear Avenue

The traffic analysis will evaluate TSP, center-running, reversible transit lanes, and queue jump/transit signal operations. We understand that the installation of a center-running bus lane will impact left turn lanes, and our traffic analysis will include an evaluation of left-turn alternatives, including the potential removal of left turn pockets. Should left turn lanes be kept in the project, the analysis will include the dedicated operations of the bus lanes with respect to the left-turn lanes, i.e., non-concurrent traffic movements.

Our team will work with the City and Caltrans to determine the TSP and queue jump/transit signal parameters to incorporate into the traffic analysis including the TSP/queue jump arrival times, green extension and early green times and phase reduction times.

The TSP parameters that will be incorporated into the traffic analysis and simulation modeling include:

- TSP detection zones (including the need for check out detection),
- TSP phase minimums and maximums
- Non-TSP phase maximum green reduction times
- TSP delay time (if necessary)
- Transition type (long, short, none), TSP parameters for both coordinated and free operations.

Other traffic and TSP parameters that will be part of the traffic operations analysis includes:

- Cycle lengths to accommodate early greens, green extensions and queue jump timings reliably.
- Signal phase sequences as appropriate (except for protected/permissive where phasing will be lead/lead only), double or half cycling.
- Vehicle versus pedestrian split times: Timing parameters that incorporate pedestrian activity to operate optimum vehicle splits and offsets to accommodate pedestrians.
- Sizing turn bays at intersection based on the design hourly volumes.

Our team will gather readily available traffic volumes from various sources including traffic studies, traffic models and other data sources. It is assumed that no new traffic counts will be collected for this analysis.

KHA will gather and utilize readily available existing traffic signal timings (via City and Caltrans timing sheets), conduct peak- and off-peak field observations along the corridor at the signalized intersections. We will conduct an evaluation of the transit operations including bus and automobile conflicts (queues, merges, diverges), bike lanes, driveway locations, pedestrian access, on-street parking, bus turning radius, and speed limits.

Synchro models will be prepared and calibrated against factors that affect traffic signal progression including intersections with high pedestrian or bicyclist volumes, oversaturated intersections, uneven lane distribution, parking maneuvers, and bus operations with existing stops.

The final Synchro models will be summarized in a Memo of Findings.

KHA will prepare draft and final Traffic Signal Operations Analysis memoranda at the 65% and 95% project completion milestones.

Deliverables

- Draft Traffic Signal Operations Analysis (5 copies)
- Final Traffic Signal Operations Analysis (5 copies)

4.6 Right of Way Engineering and Acquisition Support

MTCO will support the City as a supplemental service should right of way acquisition be required. This supplemental scope assumes that all acquisition services will be led by City staff or via services provided

outside this scope of service. In support of this supplemental task MTCO will perform the following subtasks:

4.6.1 Prepare Plats and Legal Descriptions

MTCO will identify right of way required for the construction of the project and will prepare plat and legal descriptions for required property acquisitions. This supplemental scope of service assumes up to seven (7) acquisition parcels (a combination of fee and easement acquisitions) from a total of seven properties. Should additional acquisition parcels be required, MTCO will provide those as extra work not covered by this supplemental scope. This scope assumes the City will provide preliminary title reports for all affected properties.

Preparation of Caltrans right of way mapping products (Appraisal Maps and Right of Way Record Maps) and a Record of Survey is excluded from this supplemental scope of service.

Deliverable:

- Seven (7) Plat and Legal Descriptions

4.6.2 Right of Way Acquisition Support

MTCO will provide support for the City's right of way acquisition activities. These activities include preparing right of way requirement exhibits, meetings with property owners, preparation of improvement cost estimates in support of acquisition appraisals, and other activities as required by the City. As the extent and nature of these support services cannot be known at this time, for the purposes of this scope, MTCO will provide a budget allowance for these services of 12 hours per property impact, assuming seven (7) impacted properties. These services shall be provided on a time and materials basis. Should activities exceed the budget allowance, MTCO shall require additional budget authorization for activities beyond the budget allowance.

Deliverable:

- As required (which may include exhibits, cost estimates and other materials)

Task 5 (Part of Phase III). Caltrans Approval Process

This scope assumes that Caltrans project approvals will be achieved using the Caltrans Streamlined PEER process. MTCO will lead this effort for the City and will help obtain a Caltrans construction encroachment permit for improvements within State right of way.

5.1 Peer Process

MTCO will prepare documents and lead efforts to obtain Caltrans approval for improvements to be constructed within Caltrans right of way. This scope assumes that the project will be approved through the Streamlined PEER process as outlined in Caltrans Project Delivery Procedures Manual. MTCO will prepare a PEER with accompanying documentation, including project geometric drawings and CEQA documentation. Caltrans will review and will provide conditional approval of the PEER, providing project initiation but project approval clearance for the Shoreline Interim Bus Lane project. Upon completion of the PS&E, MTCO will resubmit the PEER document in order to obtain final project approval which enables the issuance of a construction encroachment permit. MTCO will prepare a signature ready construction encroachment permit application to be submitted with the final PEER document.

Deliverables:

- Signature Ready Caltrans PEER Documents (Conditional Approval and Final Approval)
- Signature Ready Encroachment Permit Application
- A copy of all deliverables are available to the City in PDF format and original format

5.2 Freeway Agreement Support

A Freeway Agreement will likely be required to modify access to SR85 from northbound Shoreline Boulevard. As noted previously, this scope assumes that primary coordination for this task will be handled by the City;

however, MTCO will support the City's efforts by drafting up to three exhibits for inclusion in the Final Freeway Agreement and MTCO will review and provide the City comments on the Freeway Agreement language.

Task 6 (Phase IV). Bidding

6.1 Bid Support

MTCO will support the City in the bidding process by answering written requests for information (RFI's), and providing design clarification as required. Because level of effort required for bid support cannot be accurately forecast, MTCO will provide bid support services on a time and materials basis. MTCO has provided a budget amount based upon historic trends. Should the level of effort budget be insufficient, additional budget authorization will be required. The anticipated budget does not include the design of any major features for design addenda in the basic Bid Support Services. The City will prepare all copies of PS&E for distribution to bidders.

Task 7 (Phase V). Construction

MTCO will provide the following services for the project during construction. However, given that the full parameters of the project are not known and scoping of such services are not possible, the following scope of work will be performed on a time and materials basis. Levels of effort for this task are based upon historic, generic levels of effort for similar tasks.

7.1 Design Support During Construction

7.1.1 Attend Meetings/General Support

When requested by the PM, RE or other authorized representatives, MTCO will attend project meetings and respond to general telephone calls, electronic mail, or facsimile, and provide general (miscellaneous) project support.

7.1.2 Respond to Requests for Information

When requested by the PM, RE or other authorized representatives, MTCO will respond to Contractor's RFI's and provide minor clarification of the PS&E documents for the Project.

7.1.3 Project Site Visits

When requested by or with the approval of the PM, RE or other authorized representatives, MTCO will make site visits to observe the progress of the construction, meet with City or RE staff to identify work that does not conform to or is not following the intent of the contract PS&E documents. Written jobsite reports will be prepared and submitted to the City if conflicts or problems are identified during jobsite visits. MTCO shall notify the RE or authorized representative when MTCO is present on the jobsite. MTCO's personnel and equipment shall be in compliance with current Caltrans construction safety policies and procedures when visiting the jobsite.

7.1.4 Review Shop Drawings/Submittals

When requested by or with the approval of the PM, RE or other authorized representatives, MTCO will review shop drawings and miscellaneous submittals from the Contractor for the Project. MTCO shall review or take other appropriate action required by Contractor's submittals as requested by City or RE. Review of submittals is limited to checking for submittal conformance with the design concept expressed in the Contract Documents. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities or for substantiating instructions for installation or performance of equipment or systems designed by the Contractor, all of which remain the responsibility of the Contractor to the extent required by the Contract Documents. MTCO's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by MTCO, of construction means, methods, techniques, sequences or procedures. MTCO's review for conformance with contract

documents of a specific item shall not indicate approval of an assembly of which the item is a component.

7.1.5 Prepare Contract Change Orders (CCO's)

When requested by or with the approval of the PM, RE or other authorized representatives, MTCO shall prepare construction Contract Change Order (CCO) documents consisting of PS&E to the level of detail as needed, or as directed, for each request. Since MTCO has no control over local conditions, the cost of labor, materials, equipment or services furnished by others, or over competitive bidding or market conditions, MTCO does not guarantee the accuracy of any opinions of probable construction cost as compared to construction contractor's bids or the actual cost to City.

7.1.6 Review CCTV Sewer Logs and DVD

When requested by or with the approval of the PM, RE or other authorized representatives, MTCO shall review available CCTV footage to confirm acceptability of sewer work. MTCO shall provide a CASQA certified technician to review CCTV logs for this task.

These preliminary budget amounts included in the fee for Task 7 constitute only budgetary amounts, and the actual level of effort to be expended will depend upon the level of effort requested of each design team member by the PM and RE. Should the level of effort exceed the anticipated budget, MTCO will seek authorization for additional funds beyond the amounts identified herein.

Design Support During Construction Deliverables:

- Site Visit Logs
- RFI Responses
- Shop Drawing Reviews
- CCO's

7.2 Construction Staking

MTCO will provide construction staking services for the project. Construction staking will be done at the direction of the City and/or RE. Construction staking shall be done in conformance with Caltrans Survey manual.

Construction Staking Deliverables:

- Slope Stake Notes
- Cut Sheets
- Surveyor's Daily Logs
- Restaking Notification

Task 8 (Phase VI). Post Construction

MTCO will provide the following services for the project following completion of construction. However, given that the full parameters of the project are not known and scoping of such services are not, the following scope of work will be performed on a time and materials basis. Levels of effort for this task are based upon historic, generic levels of effort for similar tasks.

8.1 Prepare Record Drawings

Based upon redline drawings provided to MTCO from the City, MTCO shall prepare record drawings. MTCO will provide the city with one signed, stamped set of record drawings on Mylar and will provide one set of final electronic record drawings to the City in AutoCAD format.

Deliverables:

- 1 Mylar original set of record drawings
- Final electronic record drawings in AutoCAD format

Assumptions/Exclusions

- Preparation of a cooperative agreement between the City and Caltrans is not included.
- Detailed information such as alignment studies, structure planning studies, signal warrant analysis, and detailed environmental is not included.
- Project topographic mapping will not follow Caltrans A-B-C process.
- Utility Relocation Process per Caltrans Right of Way Manual (and FHWA requirements) is not required, i.e. A-B-C Utility Coordination Process and Utility Agreements.
- No dry utility design (electric, gas, communication). It is assumed that all dry utility design will be completed by the utility facility owner/operator.
- No Right of Way Certification.
- Right of way acquisition (if required) will be handled by the City. MTCO team, if required, will provide right of way acquisition support noted herein.
- City shall be responsible for Caltrans coordination of Freeway Agreement (if required). MTCO will support preparation of Freeway Agreement with exhibits and shall review text and provide comments to the City only.
- No ramp modification design included.
- City shall prepare and provide 2015 Caltrans compliant boilerplate to MTCO.
- Existing electrical service point at each intersection will be used for the modified signals.
- Coordination with PG&E for new service points is excluded.
- City to Advertise, Award and Administer the project construction.
- Caltrans non-standard Special Provision approval process is excluded.
- Construction Administration is specifically excluded from this scope.
- Bus stop shelters shall be prefabricated (not custom) and shall not include real time signage or way finding signage.
- Site amenities shall be limited to shelters (no benches, trash receptacles or other amenities).
- Water and sewer system analysis is excluded.
- CCTV services for existing sewer system. (MTCO will provide CCTV of sewer lines as a supplemental service as defined below.)
- Plan reproduction for bidding or construction is excluded
-

S. Supplemental Services

S.1 Utility Coordination

MTCO will provide utility coordination for the City as a supplemental service. Identification of apparent utility conflicts from record information and readily apparent surface features is included as part of the base scope of service.

This supplemental scope assumes that all official utility correspondence will be handled by City staff. Except as noted in the scope of service above, this supplemental service excludes all utility design. Utility potholing is excluded from this supplemental scope of service. In support of this supplemental task MTCO will perform the following subtasks:

S.1.1 Utility Coordination

Utility coordination shall include communication with utility companies to request verification of utility mapping, and once utility conflicts are identified, mapping will be provided to utility companies for verification prior to issuance of Relocation Notices. MTCO will attend up to 8 utility coordination meetings, either at the City of Mountain View or in the field with utility companies. MTCO will review utility relocation plans prepared by Utility companies for consistency with the project improvements.

S.1.2 Draft Utility Notices

MTCO will draft utility relocation notices to be signed and sent by the City to agencies or jurisdictions that will need to have their facilities relocated due to the project improvements.

S.1.3 Utility Conflict Exhibits

Based upon the utility conflicts identified as part of the basic scope of service following the completion of the conceptual roadway and “wet” utility design and vertical alignment confirmation, up to 4 utility conflict maps (1 per affected utility company) will be prepared. The utility conflict maps will show the existing roadway facility with existing utility facilities from record information superimposed on the proposed project geometry. Apparent utility conflicts will be noted on the conflict map and provided to the city for issuance to the utility companies.

Deliverables:

- Draft utility notices
- Utility conflict exhibits

S.2 Caltrans Ramp Design

Should the City wish to modify the Northbound and Southbound loop on-ramps to highway 101 to improve pedestrian safety along Shoreline Boulevard, MTCO will provide professional services to gain Caltrans project approval as part of the Interim Bus Lane streamlined PEER process and prepare plans, specifications, and estimates for the modifications to the 101 Northbound and Southbound loop on-ramps. The improvements include ramp modifications (“square” geometry, profile, superelevation), pavement widening, landscaping and irrigation, lighting and traffic/pedestrian crossing signal design.

S.2.1 Additional Project Management

This task will include additional project management associated with coordinating with Caltrans. Project management will also include coordination with Caltrans to obtain design review and project approvals for the Caltrans ramp modification design.

S.2.2 Supplementary Topographic Survey

MTCO will perform limited field topography to supplement the existing topographic information previously gathered. Caltrans review of the topographic data and control is not included in this scope of work.

Any survey within Caltrans right of way will require traffic control, coordination with Caltrans Encroachment Permit Inspectors and may be conducted at night. This scope assumes a total of two days of traffic control at \$3,000 per day.

S.2.3 Soil Classification for Retaining Walls

It is assumed that the ramp modification will require up to two 150 linear foot of retaining walls to be designed. The existing topography shows steep slopes in the ramp modification areas. The assumed retaining walls will require geotechnical investigations in the area and soil classification. The geotechnical memo shall include retaining wall recommendations for standard Caltrans retaining structures.

Deliverables:

- Geotechnical Recommendation Memo

S.2.4 Drainage Design/Storm Water Control Memo

MTCO will prepare a roadway drainage report in the form of a technical memo containing the required drainage report elements as required by Caltrans. These elements are limited to a site map, delineation of existing and proposed drainage shed areas, and calculations for proposed drainage conditions (based on the Rational Method). This scope assumes that there is an existing storm drain system that will be tied into and a full storm drainage system design is not included. It is assumed that a full drainage report will not be required and is excluded from this scope of work.

MTCO will prepare a Storm Water Control Memo in conformance with the Santa Clara County Clean Water Program. MTCO will prepare a draft and final Storm Water Control Memo. In addition, MTCO will recommend erosion control and best management practices for the proposed project to minimize impacts from the proposed project on storm water quality. Preparation of a Storm Water Pollution Prevention Plan is assumed to be a requirement of the Contractor and is not included in this scope.

Deliverables:

- Drainage Calculations
- Draft and Final Drainage Technical Memorandum
- Storm Water Control Memo

S.2.5 Storm Water Data Report

MTCO will prepare a Storm Water Data Report (SWDR) in conformance with Caltrans SWDR guidelines to address post-construction storm water quantity and quality. This scope assumes a “short form” SWDR will be sufficient for the project. MTCO shall prepare a draft and final SWDR. The SWDR will include a project risk level determination, storm water treatment sizing calculations including consideration of hydromodification, determination of disturbed soil area, impervious area calculation, and design checklists. The development of the SWDR and the permanent storm water treatment measures shall be coordinated with the development of the project drainage design concept. Storm water treatment measure calculations will be provided at 65%, and the draft and final SWDR will be submitted with the 95% and 100% submittals respectively.

Deliverables:

- Draft and Final SWDR

S.2.6 Lighting Modification, Analysis and Design

KHA will perform lighting analysis and design at the pedestrian crossing for the modified loop on-ramps.

Deliverables:

- Lighting Level Analysis

S.2.7 Additional Design Activities

This task will include preparation of additional plan sheets and associated specifications to be included in the PS&E that will additionally be submitted to Caltrans for review and approval. This scope assumes the following additional or modified sheets will be required:

- Typical Cross-section
- Layouts
- Profile/Superelevation
- Construction Details
- Drainage
- Bioretention Details
- Landscape
- Irrigation
- Pavement Delineation
- Signs
- Staging
- Traffic Handling
- Lighting
- Traffic Signal

At each stage of plan development, MTCO will review, respond and resolve to all comments received from

City, Caltrans and other approving/ commenting agencies. Each design submittal shall incorporate comments received on the previous submittal.

The MTCO team shall perform an internal, interdisciplinary QA/QC plan check and review as part of each submittal stage.

S.3 Soil Characterization/ Hazardous Materials Testing

Geocon consultants will perform soil characterization for material off-haul. This scope does not include permitting - Geocon will work under Encroachment and Access Permits issued by City at no cost.

Scope assumes that one day of traffic control will be required.

ADL and TPH Investigation (Shoreline Boulevard)

Field Activities:

- Advance 16 borings to approximately 2ft below ground surface.
- Collect one soil sample per boring (total 16 samples) and composite into four 4-point samples for analyses.

Laboratory Analyses (One week TAT):

- Up to 4 composite soil samples for CAM 17 metals
- Up to 8 analyses for Soluble (WET or TCLP) metals
- Up to 4 composite soil samples for TPHg/BTEX/MTBE
- Up to 4 composite soil samples for TPHd/mo
- Up to 4 soil samples for Pesticides
- Up to 4 composite soil samples for naturally-occurring asbestos (NOA)
- Up to 4 composite soil samples for pH

Deliverables:

- Draft and Final ADL/ Pollutant Investigation report

S.4 Additional Survey Services

MTCO proposes the following work plan to delineate existing right of way along with up to 9 lots adjacent to Shoreline Blvd, record appraisal mapping and monument preservation.

The general requirements for the work under this scope are listed below.

- These tasks will be completed under the direct supervision of a California Licensed Land Surveyor and will comply with the provisions of the Professional Land Surveyors Act, Sections 8700 to 8805 Business, and Professions Code, and the provisions of the California Coordinate System, Sections 8801 through 8819 of the Public Resources Code.
- Submittal of electronic information may be transmitted by email, or posted to the MTCO FTP site (or other FTP site, as directed) under password protection with instruction for retrieval and password transmitted by email.

S.4.1 Boundary Delineation

Current right of way lines for the project are shown based on record information without a property survey of monumentation and other physical evidence. While sufficient to write descriptions, this approach carries some risk in that the physical improvements are not tied directly to the boundary. This could lead to discrepancies between the location of physical improvements and the right of way lines. To mitigate this risk requires a property survey of the right of way lines and parcels based on field ties of physical evidence and comparison with mapping and documents.

If authorized, MTCO will perform a field survey to search and locate existing survey monuments and physical evidence required to establish the existing right-of-way along with up to nine parcels adjacent to Shoreline Blvd. This data will be analyzed and the existing Right of Way and parcels will be delineated. MTCO assumes

sufficient monuments or reference marks thereto shown on various maps will be available to retrace right-of-way without convoluted surveys outside the project limits. It is assumed that right of entries will be provided. A Record of Survey is not included in this scope of work but may be required by law. If a Record of Survey is required a fee will be negotiated.

S.4.2 Mapping

After the existing Right of Way has been delineated and the design engineers have approved the proposed line work, Preliminary Title Reports will be provided, easements and encumbrances will be plotted and appraisal map(s) will be prepared. MTCO shall prepare an (11" x 17") exhibit showing the proposed acquisition with the existing Right of Way. The limits will extend from Middlefield Road to Plymouth Street and will be based off of record line work in areas that boundary delineation has not been included. When record line work is used it may not accurately show and/or describe the parcel and area of acquisition shown or needed. These exhibits will show the impacted area over an aerial photograph. Areas of acquisition, easement and encumbrances will be shown to assist in the appraisal process. For this effort it is assumed that no more than nine exhibits will be prepared.

S.4.3 Monument Preservation

MTCO will prepare corner records for monuments that currently exist on the project and may be destroyed during construction. Reference marks will be set for the monuments. Pre-construction corner records will be filed with the County Surveyor. During construction, MTCO will reset survey marker disks. It is assumed that if a monument well is required the contractor will set the well including the disk. MTCO will then stamp and punch the disk. MTCO will provide one set of stakes for replacement monument location. After construction, MTCO will file new post construction corner records documenting the location of the reset monuments with the County Surveyor. It is assumed that ten (10) pre and post corner records will need to be filed.

S.5 Service Point Coordination

KHA will perform service point coordination at each of the five signals to be modified in the corridor. This shall include preparing all service point applications and providing load requirements to PG&E. This service shall be performed as needed. This scope assumes an allowance of \$5,000 per signal service point modification. All fees shall be paid for by the City.

Deliverable:

- Service Point Application

S.6 Additional Traffic Analysis

TJKM will utilize an existing microsimulation model created for the City of Mountain View as the basis for performing additional traffic analysis to gain project approval from Caltrans. The existing model network runs from Middlefield to Charleston and includes the bus lane. The model will be modified to include the bus stops at Terra Bella and the bus lane shall be ended at Pear to match the proposed improvements. TJKM shall coordinate with Caltrans to gain approval for the traffic operations. This effort shall be completed as part of the Caltrans PEER process.

S.6.1 AM Peak Hour Microsimulation

As a first item of work, TJKM will modify the current to include the bus stops at Terra Bella and the bus lane shall be ended at Pear to match the proposed improvements. The model will also be updated to consider the queue effect along the northbound and southbound off-ramps to demonstrate that the Bus Lane improvements will not worsen without project conditions along either off-ramp. TJKM will also prepare a 2040 model forecast of the AM peak hour improvements based upon either the North Bayshore EIR traffic forecasts or the N. Bayshore Gateway Study forecasts, depending upon the consensus of both the City and Caltrans. This scope excludes development of independent traffic or bus forecasts. Results of the existing and forecast microsimulation traffic forecasts will be summarized in a memorandum and shared with the City

and Caltrans. TJKM shall coordinate with Caltrans to gain approval for the traffic operations. It is anticipated that Caltrans can give project approval based upon only the AM peak hour operations and forecasts.

Deliverable:

- AM Peak Hour Microsimulation Technical Memorandum and supporting information

S.6.2 PM Peak Hour Microsimulation

Should it be required, TJKM will prepare a PM existing and 2040 microsimulation analysis of the project. As with the AM analysis, TJKM will consider the effect of the improvements on both the intersections and consider queue effects along the off-ramps. Results of the existing and forecast microsimulation traffic forecasts will be summarized in a memorandum and shared with the City and Caltrans. TJKM shall coordinate with Caltrans to gain approval for the traffic operations.

Deliverable:

- PM Peak Hour Microsimulation Technical Memorandum and supporting information

S.7 Sanitary Sewer CCTV Investigation

Should the existing CCTV logs be insufficient to assess the condition of the existing sewer line and manholes, MTCO will perform CCTV inspection of 1500 feet of the existing sewer and manholes between Middlefield and the southerly limit of Caltrans right of way. This scope of service will be performed by qualified CCTV technicians and video logs and assessment report will be provided to the City. This scope and the accompanying fee estimate assumes that the sewer line will be cleaned by the City and that flow will be restricted by the City to allow for CCTV operation. The hourly cost for CCTV crew includes labor and equipment to perform CCTV inspection. Line cleaning and flow restriction services are not included. The scope and fee assume an 8 hour window for access can be provided for CCTV inspection. The scope assumes one day of traffic control.

Deliverable:

- CCTV logs and Inspection Report

Additional Out of Scope Services

As the City wishes to have the MTCO consultant team provide the minimum scope of service to deliver the Bus Lane and Utility Improvement Project, MTCO has carefully excluded some services which the city may wish to include in this scope of work. Some of these services may include:

- Way finding signage and real time signage at platforms
- Bus stop shelter design and site amenities
- Cycle track layout and design
- Hazardous materials testing and analysis for Aerially Deposited Lead
- PSR-PR if required by Caltrans

MARK THOMAS & COMPANY, INC.

1/0/00

	MTCo																	Subconsultants					TOTAL COST			
	Rob Himes \$325	Sasha Dansky \$275	Richard Tanaka \$325	Structural Manager \$278	Senior Survey Manager \$210	Project Manager \$200	Senior Project Engineer \$178	Senior Design Engineer \$158	Design Engineer \$118	Project Surveyor \$145	Sr. Survey Technician \$126	Design (Tech Assistant) \$68	Project Coordinator \$100	2 Person Field Party and Vehicle \$270	Landscape Architect \$200	CCTV 2-Man Crew \$475	Total Hours	Labor Cost	Expenses	Total	Parikh Consultants	TJKM		David J. Powers	Kimley-Horn	Nelson/Nygaard
1 PROJECT MANAGEMENT																										
1 General Project Management	6	40											32				78	\$16,150	\$2,500	\$18,650	-	-	-	-	-	\$18,650
2 Project Coordination		32	8	8									16				64	\$15,224		\$15,224	-	-	-	-	-	\$15,224
3 Meetings		40					24										64	\$15,272		\$15,272	-	-	-	7,840	-	\$23,112
4 Project Schedule		10					14										24	\$5,242		\$5,242	-	-	-	-	-	\$5,242
5 Risk Management Plan		6					8										14	\$3,074		\$3,074	-	-	-	-	-	\$3,074
6 Quality Assurance/Quality Control	6	2				10	10										28	\$6,280		\$6,280	-	-	-	-	-	\$6,280
Subtotal Phase 1	12	130	8	8	0	10	56	0	0	0	0	0	48	0	0	0	272	\$61,242	\$2,500	\$63,742	\$0	\$0	\$0	\$7,840	\$0	\$71,582
2 PRELIMINARY INVESTIGATION																										
1 Pothole Existing Utilities					2		8		24				4	4			42	\$6,156	\$20,000	\$26,156	-	-	-	-	-	\$26,156
2 Geotechnical Testing		2				2	4										8	\$1,662		\$1,662	10,348	-	-	-	-	\$12,010
Subtotal Phase 2	0	2	0	0	2	2	12	0	24	0	0	0	4	4	0	0	50	\$7,818	\$20,000	\$27,818	\$10,348	\$0	\$0	\$0	\$0	\$38,166
3 CALTRANS DESIGN EXCEPTION FACT SHETS																										
1 Finalize Design Exception Fact Sheets		2				4	8	20									34	\$4,974		\$4,974	-	-	-	-	-	\$4,974
Subtotal Phase 3	0	2	0	0	0	4	0	8	20	0	0	0	0	0	0	0	34	\$4,974	\$0	\$4,974	\$0	\$0	\$0	\$0	\$0	\$4,974
4 DESIGN DEVELOPMENT/CONSTRUCTION DOCUMENTS																										
1 65% PS&E (Unchecked Detailed Design)																										
4.1.1 Review and Respond to 35% Comments		2				4	8						4				18	\$3,174	\$2,500	\$5,674	-	-	-	-	-	\$5,674
4.1.2 65% Plans		12	4	16	2	48	80	120	96						24		402	\$68,396		\$68,396	-	-	-	-	2,350	\$70,746
4.1.3 65% Electrical/Signal Plans																	0	\$0		\$0	-	-	-	19,980	-	\$19,980
4.1.4 65% Specifications		2	2	2		16	24					16			2		64	\$11,228		\$11,228	-	-	-	10,450	-	\$21,678
4.1.5 65% Quantities and Estimate		2	2	2		12	40		40						2		100	\$16,396		\$16,396	-	-	-	5,160	-	\$21,556
2 95% PS&E (Checked Detailed Design)																										
4.2.1 Review and Respond to 65% Comments		2	2			4	8						4		2		22	\$4,224	\$2,500	\$6,724	-	-	-	-	-	\$6,724
4.2.2 95% Plans		12	4	16		48	80	120	80						16		376	\$64,488		\$64,488	-	-	-	-	1,810	\$66,298
4.2.3 95% Electrical/Signal Plans																	0	\$0		\$0	-	-	-	18,980	-	\$18,980
4.2.4 95% Specifications		8	4	2		16	40					16					86	\$15,976		\$15,976	-	-	-	7,800	-	\$23,776
4.2.5 95% Quantities and Estimate		4	2	2		8	24		40								80	\$12,898		\$12,898	-	-	-	4,520	-	\$17,418
3 100% PS&E (Draft Final Bid Documents)																										
4.3.1 Review and Respond to 95% Comments		2	1	1		4	8						4		1		21	\$3,977	\$1,250	\$5,227	-	-	-	-	-	\$5,227
4.3.2 Update 100% Plans, Technical Specifications, Quantities and Estimate		8	8			32	40	120	80						16		304	\$49,920		\$49,920	-	-	-	17,540	1,630	\$69,090
4 Final Construction Documents																										
4.4.1 Review and Respond to 100% Comments		2	1			4	4								1		12	\$2,587	\$1,250	\$3,837	-	-	-	-	-	\$3,837
4.4.2 Update Final Plans, Technical Specifications, Quantities and Estimate		8	2			16	40	40	80						12		198	\$31,330		\$31,330	-	-	-	6,895	-	\$38,225
5 Engineering Reports																										
4.5.1 Drainage Report		2				4	24	40	40				8				118	\$17,462	\$500	\$17,962	-	-	-	-	-	\$17,962
4.5.2 Storm Water Data Report		2				4	24	16	40				8		2		96	\$14,070	\$250	\$14,320	-	-	-	-	-	\$14,320
4.5.3 Traffic Management Plan		2				4	24	16	40				8				94	\$13,670	\$250	\$13,920	-	-	-	-	-	\$13,920
4.5.4 Traffic Signal Operations Analysis		2															2	\$550		\$550	-	-	-	37,790	-	\$38,340
6 Right of Way Engineering and Acquisition Support																										
4.6.1 Prepare Plats and Legal Descriptions					40		80						8				128	\$23,200	\$500	\$23,700	-	-	-	-	-	\$23,700
4.6.2 Right of Way Acquisition Support		12			16	16	40										84	\$16,980		\$16,980	-	-	-	-	-	\$16,980
Subtotal Phase 4	0	84	32	41	58	240	508	552	536	0	0	0	68	8	78	0	2205	\$370,526	\$9,000	\$379,526	\$0	\$0	\$0	\$129,115	\$5,790	\$514,431

