WORK AUTHORIZATION NO. 1

PROJECT: TRANSPORTATION CORRIDOR A-1

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated _____ and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and **Kennedy Consulting, Inc.** (the "Engineer").

Part1. The Engineer will provide the following Engineering Services set forth in Attachment "B" of this Work Authorization.

Part 2. The maximum amount payable for services under this Work Authorization without modification is **$909,762.52.**

Part 3. Payment to the Engineer for the services established under this Work Authorization shall be made in accordance with the Contract.

Part 4. This Work Authorization shall become effective on the date of final acceptance and full execution of the parties hereto and shall terminate on **December 31, 2017**. The Engineering Services set forth in Attachment "B" of this Work Authorization shall be fully completed on or before said date unless extended by a Supplemental Work Authorization.

Part 5. This Work Authorization does not waive the parties' responsibilities and obligations provided under the Contract.

Part 6. County believes it has sufficient funds currently available and authorized for expenditure to finance the costs of this Work Authorization. Engineer understands and agrees that County's payment of amounts under this Work Authorization is contingent on the County receiving appropriations or other expenditure authority sufficient to allow the County, in the exercise of reasonable administrative discretion, to continue to make payments under this Contract. It is further understood and agreed by Engineer that County shall have the right to terminate this Contract at the end of any County fiscal year if the governing body of County does not appropriate sufficient funds as determined by County's budget for the fiscal year in question. County may effect such termination by giving written notice of termination to Engineer.

Part 7. This Work Authorization is hereby accepted and acknowledged below.

EXECUTED this ____ day of _____, 2017.

ENGINEER:	COUNTY:
Kennedy Consulting, Inc.	Williamson County, Texas
By: Rafael Cruz Rodriguez Signature	By: _____ Signature
Rafael Cruz-Rodriguez Printed Name	_____ Printed Name
Vice President Title	_____ Title

LIST OF ATTACHMENTS

OK 3/1/2017

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

EXECUTED this ____ day of _____, 2017.

ENGINEER:	COUNTY:
Kennedy Consulting, Inc.	Williamson County, Texas
By: Rafael Cruz Rodriguez Signature	By: _____ Signature
Rafael Cruz-Rodriguez Printed Name	DAN A GATTIS Printed Name
Vice President Title	County Judge Title

LIST OF ATTACHMENTS

OK
3/1/2017

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

ATTACHMENT A
SERVICES TO BE PROVIDED BY THE COUNTY
PRELIMINARY ENGINEERING FOR Transportation Corridor A-1

In general, Williamson County and its representatives to their best efforts will render services as follows:

1. Name, business address and phone number of County's project manager.

2. Assistance to the Engineer, as necessary, with obtaining data and information from other local, regional, State and Federal agencies required for this project.

3. Obtain Rights of Entry from landowners that are unwilling to grant access to the Engineer.

4. Provide available survey information in electronic format.

5. Provide available appropriate County data on file, plans and specifications that are deemed pertinent to the completion of the work required by the scope of services (including previous hydraulic studies, models, previous reports and studies, available existing traffic counts, and design year traffic projections).

6. Provide available criteria and full information as to the client's requirements for the project. Provide examples of acceptable format for the required deliverables.

7. Provide timely reviews and decisions necessary for the Engineer to maintain the project work schedule. Review recommendations offered by the Engineer, progress of work, and final acceptance of all documents.

8. Submittal of documentation to regulatory agencies for review and comment, when specified.

9. Support project development efforts with stakeholders, coordinate meetings and interface with stakeholders, as needed.

10. Post and maintain project information for public consumption on the County website.

11. Assist with Coordination between the Engineer and the County's other subconsultants.

ATTACHMENT B
SERVICES TO BE PROVIDED BY THE ENGINEER
PRELIMINARY ENGINEERING FOR Transportation Corridor A-1

PROJECT DESCRIPTION

Existing Facility

The west terminus (SH 130) of the existing Transportation Corridor A-1 is in the general vicinity of CR 138, but will be finalized during the project development process. After the first mile, which may be located along CR 138, the project would be on new location, therefore, there is no existing facility. It is anticipated the facility would cross Brushy Creek and Cottonwood Creek. The anticipated end terminus on the east is FM 3349 or a nearby location, where Corridor E-1 would be located.

Proposed Facility

The proposed corridor would include two mainlanes in each direction, and three lanes frontage roads in each direction, mostly on new location. Starting at the west terminus (SH 130), the project displays urban characteristics. Through this section, the project utilizes CR 138 alignment. After the first mile, the alignment would be defined by minimizing, avoiding or mitigating human and environmental impacts. After the first mile, the project displays rural characteristics. The drainage for the first mile from the west terminus is anticipated to be storm sewer design. After that point, the drainage will be open channel design. The anticipated right of way (ROW) is 350 feet, but could be less at locations where constraints exist, in order to minimize impacts to natural, cultural and human environment. There are various waterway crossings that would require analysis and structural design. There are no Railroad Crossings.

Design Criteria

All tasks must follow the requirements of current TxDOT design criteria for access controlled facilities.

TASK 1. PROJECT MANAGEMENT

a. GENERAL PROJECT MANAGEMENT

Shall designate one Licensed Professional Engineer (Texas) to be responsible for the project management and all communications with the County and its representatives.

- Prepare Subconsultant Agreements for Route Studies

b. MONTHLY PROGRESS REPORTS, INVOICES, AND BILLING

- Submit monthly progress status reports to the GEC. Progress reports will include: tasks completed, tasks/objectives that are planned for the upcoming periods, lists or descriptions of items or decisions needed

from the County and its representatives. Subconsultant progress will be incorporated into the monthly progress report. A copy of the monthly progress report will be uploaded to ProjectWise. (Assume 6 Months duration for Route Studies Development).

- Prepare correspondence, invoices, and progress reports monthly in accordance with current County requirements. (Assume 6 Months duration for Route Studies Development).

- Subconsultant Management – Route Studies (Assume 6 Months)

c. QUALITY ASSURANCE / QUALITY CONTROL (QA/QC) PLAN

- Prepare a project specific QA/QC plan and submit to the County within thirty (30) days of notice to proceed. (One plan for the Route Studies development).

- For each deliverable, provide evidence of their internal review and mark-up of that deliverable as preparation for submittal and in accordance with submitted project specific QA/QC plan.

- Provide continuous QA/QC throughout the duration of the scheduled services included herein to appraise both technical and business performance and provide direction for project activities.

d. PROJECT COORDINATION AND ADMINISTRATION

- Prepare and maintain routine project record keeping including records of meetings. (Assume 6 Months for Route Studies development).

- Correspondence and coordination will be handled through & with the concurrence of the GEC. (Assume 6 Months for Route Studies development).

- Manage project activities (including documenting emails, phone and conference calls, maintain project files for the length of the project, meeting agendas, meeting minutes, and schedule meetings), direct Engineer's team/staff, correspond with the County and its representatives, and assist the County and its representatives in preparing responses to project-related inquiries. (Assume 6 Months for Route Studies development).

- Maintain a log of all stakeholder comments and inquiries received via phone, email, web form and written comments submitted at public meetings. Include stakeholder contact information and any responses provided.

e. PROGRESS / COORDINATION MEETINGS (7 meetings total assumed [6 external meetings /conference calls; 1 Kickoff Route Studies])

- Attend kickoff meetings (1 meeting for Route Studies development) and coordination/progress meetings (6 meetings assumed for Route Studies development) with the County and its representatives and stakeholders, as necessary to communicate development of the project and design issues.

- Prepare agenda and sign-in sheets for external coordination/progress meetings (one per meeting).

- Prepare meeting minutes for review via email within three (3) business days of the external coordination/progress meeting.

- Conduct and participate in internal coordination meetings/calls as required to advance the development of the project. (For Route Studies, assume 9 hours per month each).

f. PROJECT SCHEDULE

- Maintain a project schedule indicating tasks, subtasks, critical dates, milestones, and deliverables. (Update as needed).

g. DELIVERABLES

- Monthly Invoices and Progress Reports

- Project Specific QA/QC Plan

- Meeting Minutes, Sign-In Sheets, and Agendas

- Project Schedule

TASK 2. <u>ROUTE AND DESIGN STUDIES</u>

a. DATA COLLECTION

- Perform record research and obtaining existing information, including but not limited to: as-built plans, construction plans, ROW maps,

environmental reports, studies, future land use maps, floodplain data, floodplain and drainage models and analyses. Obtain construction plans for projects within the project limits and abutting TxDOT and County Roads. Obtain drainage studies, reports, and mapping for the project area, including reports for developments affecting the drainage area. Environmental data collection will address land use and community impacts, ecological resources including biological and water resources, and cultural resources including historic and archeological resources. Specific considerations are listed in the fee estimate.

- Conduct a field investigation of the proposed roadway alignment and the surrounding area to determine field conditions including photographic record of notable existing features.

- Review the data collected and organize the information.

- Complete a constraints matrix to evaluate up to three alternatives within the route study phase.

b. STAKEHOLDER COORDINATION

- Prepare and Conduct Meetings with Affected Property Owners (MAPO) (20 meetings assumed).

    1. Schedule, coordinate logistics for meetings. Prepare materials (agendas, sign-in sheets, meeting minutes, discussion topics, presentations, overall exhibits, and maps)

    2. Review and provide feedback on handouts, presentations, exhibits, and maps of the project limits for stakeholder coordination meetings.

- Coordinate with affected local agencies, County's consultants, and affected property owners. Includes preparing/reviewing presentations and other communication materials for elected official briefings.

c. CONSTRAINTS MAP (a corridor accommodating three (3) preliminary alignments assumed):

- Establish Project Design Criteria

- Develop Evaluation Criteria to assist in evaluating route alignment alternatives.
- Establish Overall Study Area
- Establish Range of Reasonable Alternatives
- Develop Conceptual Alternatives (3 total)
- Develop a constraints map and technical memorandum that includes environmental concerns, known constraints (structures, floodplain, environmental considerations listed above (Section 2 a), aerial photography, contour information, utility information, based on research of public databases and sources and details screening measures and decision practices for eliminating non-viable corridors.
- Estimate traffic projections for the ultimate roadway.

1. TRAFFIC PROJECTIONS

   i. Based on the traffic data collected and the regional travel demand model (TDM), the Engineer shall develop a 2040 roadway level traffic forecast. The 2040 TDM model will be executed utilizing the official demographics forecast packaged with the model. The model forecast will be used in conjunction with traffic data collected for this project to develop 2040 AM and PM Peak hour volumes for five major intersections along Corridor A-1 (SH 130 SBFR, SH 130 NBFR, CR 137, CR 134/FM 1660, and FM 3349). Where there is not enough detail coded into the model for existing intersections, existing counts and a growth rate will be used to help develop future traffic projections. Other intersections, including those that could be part of future developments or that are being designed by other agencies will not be assessed as part of this study. Up to three (3) phases will be assessed for the A-1 Corridor:

      - Phase 1 – Single two-way roadway
      - Phase 2 – One-way Frontage Road Pair
      - Phase 3 – Full freeway section with D/C's at SH 130 & FM 3349

2. DATA COLLECTION

   i. Collect Existing Field counts including:

- 24-hour tube counts along the following four (4) roadways:

  a. CR 138

  b. CR 137

  c. CR 134/FM 1660

  d. FM 3349

ii. Perform AM and PM 2-hour turning movement counts at the intersections of SH 130 and Gattis School Road.

3. COORDINATION MEETINGS

i. Coordinate as necessary throughout the project. Assume up to 2 meeting.

- Develop preliminary alignments and preliminary costs for use in soliciting input during coordination meetings with stakeholders.

- Refine preliminary alignment based on stakeholder input, design criteria, existing structures, potential displacements, ROW limits and requirements, known developments, FEMA floodplain areas, existing and proposed drainage structures and issues.

d. DELIVERABLES

- Meeting Minutes, Sign-In Sheets, Agendas, Presentations, Maps, and Exhibits for all Stakeholder Coordination Meetings.

- Constraints Map Preliminary Alignments and Technical Memorandum (pdf and hardcopies)

- Constraints Map Refined Alignment and Technical Memorandum Recommendation (pdf and hardcopies)

- Design Summary Form (pdf and hardcopies)

- Prepare and Post deliverables on ProjectWise

TASK 3. <u>PUBLIC INVOLVEMENT</u>

a. The Engineer will provide general public outreach and engagement throughout the project. A database will be developed and maintained in

Excel format which includes nearby property owners and residents, businesses, churches, educational/community organizations, elected/public officials, and any interested individuals. The Engineer will identify and reach out to key stakeholders that may be interested and will collect contact information for updates.

b. PUBLIC MEETING/OPEN HOUSE

- Two (2) public meetings assumed

- Plan, schedule, conduct, and facilitate public meeting(s) to share project information with and collect feedback from citizens and stakeholders. Tasks may include, but are not limited to:

1. Develop invitations, advertisements, and invitation lists

   i. Develop a direct mail piece to announce the start of the project and public meetings

2. Coordinate meeting announcements such as letters, email notices, signage, media releases, newspaper advertisements, website and social media postings. Including outreach / notifications to elected officials (letters and emails).

3. Coordinate meeting logistics, including securing locations and conducting site visit.

4. Provide experienced meeting facilitator and support staff to attend public meetings to solicit input from the public.

5. Prepare and review handouts and exhibits (mounted boards) for public viewing.

6. Facilitator preparation, including developing an annotated agenda

7. Develop public surveys and summarize results for 2 public meetings

8. Hold and participate in meeting rehearsals

9. Prepare Public meeting summaries and responses to any comments or questions provided

10. Coordinate court reporter and translators (if necessary)

c. COMMUNICATION MATERIALS AND TOOLS

- Prepare communications materials and tools to explain project information and key messages. Materials will include:

  1. Frequently asked questions will be developed at project beginning and will serve as the foundation for developing all other communication materials and key messages.

  2. Website copy will be provided to the County as necessary

  3. Copy for up to four (4) eNewsletters/eblasts will be provided to the County to promote public meetings and provide project updates.

  4. Copy and layout/design for up to two (2) fact sheets or handouts. County templates/branding will be used.

d. DELIVERABLES

- Sign-In Sheets, Handouts, Presentations, Maps, and Exhibits for Public Meeting.
- Meeting Summary and comment responses.
- FAQs
- Website copy
- Copy of eNewsletters/eBlasts
- Fact Sheets/Handouts

TASK 4. <u>RIGHT OF WAY (ROW) MAPPING</u>

a. PRIMARY PROJECT CONTROL

- The Surveyor will recover and utilize the existing primary project control as published by others during the previous aerial mapping project. The Surveyor will establish up to ten (10) secondary horizontal/vertical control points within the project limits. The Surveyor will constrain to the published control network where values are based on the horizontal and vertical datum [NAD83 (2011)/NAVD88 values (Texas Coordinate System, North Central Zone)]. Elevations of the secondary control will be verified with

digital level runs. Replacing existing published primary control points found to be missing or disturbed is outside of this scope of services.

- The Surveyor will establish up to twenty (20) ground targets to be utilized as project control for the Aerial LiDAR and tie to the primary project control. Elevations will be derived from GPS observations.

b. RIGHT OF ENTRY (ROE) COORDINATION

- Prepare and mail right of entry letters per the County's standard for the project team including surveying, geotechnical, environmental and drainage. Send a second follow up letter to non-responsive property owners.

    1. The Surveyor will develop a spreadsheet containing ownership information for the properties along the project limits where ROE is required. The spreadsheet will include information provided by the Williamson County Tax Appraisal District (Owner Name, Mailing Address, Tax ID number, and legal description). The ownership spreadsheet will be provided to Williamson County. Williamson County will obtain written ROE from the landowners for the purpose of gaining access for survey. The Surveyor will contact affected land owners prior to commencing any work on private property. The Surveyor anticipates that Williamson County will handle problems regarding any and all refusal to grant ROE or communication with land owners who are hostile with respect to the completion of this scope of services. The Surveyor will document any interactions with land owners while performing the work. Gaining ROE from all land owners in a timely manner will be critical to the success and efficiency in meeting deadlines for this project.

c. RECORDS RESEARCH

- The Surveyor will perform a ROW survey along the proposed alignment. Upon notice to proceed, the Surveyor will conduct research in the Williamson County Appraisal District offices to confirm property ownership for up to approximately 45 affected properties (subject properties). Concurrently, copies of the current deeds and any plats for all subject properties will be obtained from the County Clerks' records. The Surveyor anticipates that Title Commitments, Title Reports, and any other form of records research beyond obtaining current deeds and plats will be provided by others.

Obtaining any additional records (including easements, chain of title, or any encumbrances) is outside of this scope of services.

d. DELIVERABLES

- Survey Control Index Sheet and Horizontal and Vertical Control Sheet signed, sealed, and dated by a registered professional land surveyor on 11x17 white Mylar and PDF
- Right of Entry ownership spreadsheet
- Right of Entry Letters, Follow up Letters, and Executed Right of Entry Documents
- Existing ROW Base Map (MicroStation V8i format) of Property Ownership
- Field book copies scanned to PDF format

TASK 5. <u>SURVEYING – AERIAL LIDAR</u>

Limits of Aerial LiDAR shall extend from the existing east ROW line of SH 130 to FM 3349 (approximately 5.4 miles) and will be approximately 1000 feet wide centered along the proposed Corridor A-1 alignment.

a. FLIGHT ACQUISITION AND PROCESSING

- Ground Survey – Simultaneous with LiDAR acquisition, survey field personnel will position and operate two GPS base stations along route.
- LiDAR Acquisition – The Surveyor will acquire LiDAR data at not less than 20 points per square meter average density, and will simultaneously collect color imagery suitable to generate 3-inch pixel GSD resolution orthoimagery.

1. Equipment –The following equipment will be used for data acquisition:
   i. Rotary wing aircraft.
   ii. Trimble Harrier 68i aerial mapping system fully integrated with a Trimble 60MP aerial camera.

2. Base Stations – Aerial acquisition will be controlled with GPS base stations during the acquisition. Base station data is logged at 2 Hz and merged with GPS and IMU data recorded on-board the aircraft using post-processed kinematic techniques to produce a highly

accurate position for the laser aperture and cameras.

3. LiDAR Acquisition - Quality Assurance/Control Process - Captured LiDAR data will be recorded on removable data storage units onboard the aircraft. After acquisition, the data will be copied to SATA drives and returned to our offices where it will be copied onto our network drives. The data will then be post-processed and reviewed to confirm complete data acquisition coverage. Any seams, holes, or other unwanted artifacts can be quickly identified to assess the need for any data acquisition re-capture. Once approved, the data will be archived and prepared for production.

   Daily acquisition QC procedures will be utilized to ensure data integrity from the mapping systems. These procedures include using a current satellite ephemeris for tracking the satellite constellation to plan scanning operations around the time of GPS Position Dilution of Precision (PDOP) spikes, adequate GPS static collection for receiver initialization and dynamic flying to initialize the IMU. During data acquisition, technicians constantly monitor the scanning system, checking the data logging rate, data storage capacity, GPS PDOP and imagery being collected.

b. LIDAR DATA PROCESSING

- Initial Processing – GPS/IMU Geo-referencing and Data Calibration. Once the collected data arrives, it is immediately processed and verified. Inertial measurement unit (IMU) data is processed and checked for gyro bias, systematic errors, and positional error.

- Laser Point Processing

  The calibration parameters are systematically checked and refined by estimating the residual boresight angles (roll, pitch, heading) and scanner scale corrections from overlapping strip areas, minimizing the inter-strip differences using a least squares approach.

  The ".las" data will then be projected into the required coordinate system. Simultaneously, the elevations will be transformed from ellipsoidal to orthometric heights by applying the latest GEOID models and all data will be geo-referenced to appropriate State Plane Coordinate System NAD83.

- Accuracy Testing

  Once the LAS files are created for a line, the data is tested to ensure it meets accuracy standards for the project. The ground survey information collected will be for use as an independent check of the LiDAR accuracy (minimum 8 pts. required). The Surveyor recommends not less than 20 well distributed check points throughout the project. The survey test

points should be on hard surfaces that are well defined features. Using the conventional survey data, a statistical comparison test will be run to verify that the geodetic positioning of the LiDAR data meets the accuracy standards required for the project. The absolute vertical accuracy of the project is +/-.25 ft. vertically, and 90% of the points tested shall be within this accuracy.

c. LIDAR DATA CLASSIFICATION AND FEATURE EXTRACTION

- Data Filtering - Once the initial post processing of the laser and imagery data is completed, it is ready for project set up and initial automated filtering and classification.

- Automated Filtering - Once the GPS/IMU data has been processed and the LiDAR data has gone through the boresite (correct for all roll, pitch, and yaw) the LiDAR data is sent to our LiDAR processing technicians for automated filtering and classification. Automated filtering of the data is the first process necessary to complete the bare earth ground processing and prepare the topographic mapping.

- Manual Editing - Effective auto filter routines can produce very clean LiDAR classifications. It is, however, always necessary to complete a manual review and edit of the data. The manual edit process eliminates any remaining anomalies and misclassifications within the data set.

- Feature Extraction and Planimetric Mapping - While automated filtering is a necessary component of each project and produces useful point cloud products, additional processing is required to produce all deliverables requested for the project. Our process includes collection of visible planimetric features in the specified collection area in accordance with the features required by TXDOT. Vector mapping will be produced for each of the planimetric features and will be delivered as a DGN drawing file for each line.

- Feature Coding - All data that is collected from the LiDAR (both point cloud and vector) will be feature coded at the time of collection using the attached TXDOT06 feature code library.

- Quality Assurance/Control Process

    i. Feature Extraction Quality Control – At the time of classification and feature extraction, our LiDAR technicians will use LiDAR data processing and feature extraction software to accurately identify, classify and locate specific features. There are multiple Quality

Control steps built into our feature collection process. The methodology proposed for this project is designed to ensure that QC steps for feature extraction and attribution meet or exceed the requirements set forth in the RFP. The major QC components of feature extraction process are summarized below.

1. Use of workflow "checklists"- Our suite of software is designed specifically to ensure that quality control is part of each step in the process. One of its key features is the use of well documented and managed workflows called "Cues" which define and control each step of a given task. These work flow checklists serve several purposes in the QC process:

2. Process repeatability and consistency - The software guides each technician through the required processing steps. Each technician uses the exact same process. The "Cues" encode flow logic so that steps have to be executed in a specific order. This ensures that each part of the collection process is repeatable and consistent no matter how many technicians are working on each phase of the project.

3. Process tracking - The software automatically records a time-stamped history of who executed each step on each workstation. This creates a time and date trail for any change recorded to the database during the duration of the project. These records are reviewed to make sure that each step in the collection process is completed.

4. Access Control - Cues also control access such that only a person who is a member of a specific processing group can execute a specific step (for example, if technician X is not a member of the QC group, he cannot execute the QC step). This also limits use of any data block to one person for any given task. It is not possible for two technicians to complete tasks at the same time on a given section of data and overwrite each other's updates.

In addition to these general quality management design features, there are also specific QC tools built into each of the processing steps.

5. Image Acquisition - The Surveyor will capture vertical color aerial imagery simultaneous to the LiDAR suitable for producing 3- inch GSD pixel orthophotography.

6. Aerial Triangulation - During the analytical Aerial Triangulation (AT) process, image coordinates of all tie, control, and check points in the imagery are measured and a "least squares bundle adjustment" is performed. This process yields exterior orientation parameters for all imagery and three-dimensional object coordinates for all measured image points.

7. Imagery and Control Data Comparison - The Surveyor will begin the A/T process immediately after receiving the imagery. All ABGPS/IMU data will be imported into the project, and control points will be measured on every photo on which they occur. We will then perform and exterior orientation analysis which will compare the given coordinates of the control points with their locations as projected on the photos by the given exterior orientation.

8. Measure Control Points Using Auto-Correlation - We will use a digital photogrammetry application that applies image-matching techniques to automate the point transfer and the point mensuration procedures to automatically extract tie points. To improve the bundle-adjustment we will manually measure points as necessary in any weak areas.

9. Review Residuals of Image Coordinates and Bundle Adjustments - A simultaneous bundle block adjustment will be performed using a least squares solution for all ground control, ABGPS/IMU, and photogrammetric observations.

d. ORTHOPHOTOGRAPHY PRODUCTION

The digital orthophotos will have a resolution of 1 pixel = 3 inches. All imagery will be rectified to the processed bare earth LiDAR data. The major processing tasks related to orthophotography production have been listed below.

- Rectification - The LiDAR data will be used to rectify the orthophotography. A triangulated irregular network (TIN) is created from the ground data which consists of the ground points and breaklines such as hydro lines and roads collected during the LiDAR data extraction process. Together these elements help to define the shape of the surface in three-dimensional space. Rectification to the surface model ensures the image pixels will be correctly located in the X and Y dimensions of the map space.

- Balancing/Mosaicking- Digital orthoimagery is subject to imbalances in tone, hue, and contrast due to a number of factors, including source imagery. We will not only balance adjoining images but will also use balancing techniques on the project as a whole. This process will eliminate the "patchwork" appearance caused by changes in conditions and sensor location/orientation between flight lines and image capture stations. To achieve consistent tone across the project area and to address the overlap between tiles, we will mosaic the images.

- Tiling -When the orthoimagery has passed internal quality check procedures, it will be broken up so that no individual image is larger than 10 MB. Imagery will be provided in TIF/TFW and ECW/EWW formats.

- Orthophotography Quality Control

    i. Aerial imagery is thoroughly reviewed by our digital imaging discipline lead for clarity, contrast, shadow detail, and sun spots.

    ii. The DEM is evaluated using various isometric views to check for any "spikes." DEM data are merged for given block and the elevation data is graphically displayed relative to the project boundary to ensure that all areas will be correctly rectified.

    iii. Ortho technicians validate that the DEM blocks overlap to ensure that there are no data gaps between blocks of imagery.

    iv. Ortho technicians review the location of seam lines and manually modify them to avoid height objects and to place them in monotone areas (through open field, along road centerlines, etc.)

    v. Ortho Technicians review the block-wide image characteristics and modify a histogram as necessary to adjust the overall tonal balance. Tonal balancing on a project-wide basis is reviewed to ensure consistent imagery and to specifically identify any breaks or processing failures.

    vi. A final visual inspection of each tile is completed for aesthetics and anomalies. Visible control points are measured on the final orthoimages and are compared against the values of the survey control coordinates. An RMSE is calculated for all measured control points and compared against the accuracy standards for the project.

e. DELIVERABLES

- Digital Orthophotography Image files
- Analytical aerial triangulation summary report in digital form
- Tiled LiDAR data files of classified points in LAS format
- One set of electronic files in MicroStation V8
- 2D DGN files of the planimetric feature collection data
- 3D DTM files in GeoPak format
- GeoPak .tin file

TASK 6. SCHEMATIC DEVELOPMENT - NO WORK ANTICIPATED ON THIS WORK AUTHORIZATION

TASK 7. DRAINAGE STUDY

It is anticipated the project includes two major FEMA stream crossings, Brushy Creek and Cottonwood Creek. Both streams are designated as an AE flood zone with a regulatory floodway. Additionally, up to 10 additional non-FEMA crossing structures are assumed. In addition to the crossing structures, there is flood control structure crossing anticipated at the Upper Brushy Creek WCID (UBCWCID) DAM No. 21.

a. HYDROLOGIC MODELING

Calculate discharges using appropriate hydrologic methods and as approved by the County. Consider the pre-construction and post-construction conditions in the hydrologic study. Include, at a minimum, the "design" frequency and the 1% Annual Exceedance Probability (AEP) storm frequency. The report must include the full range of frequencies.

- Obtain the drainage area boundaries and hydrologic parameters such as impervious covered areas, and overland flow paths and slopes from appropriate sources including, but are not limited to, topographic maps, GIS modeling, construction plans, and existing hydrologic studies. The Engineer shall not use existing hydrologic studies without assessing their validity. If necessary, obtain additional information such as local rainfall from official sites such as USGS rain gauges.

- At the Zone AE FEMA crossings, the best available models from the Final UBCWCID Flood Protection Plan dated June 2016 for the Brushy

Creek and Cottonwood Creek will be obtained. These will be compared with the FEMA effective data for reasonableness. These models will be supplemented as necessary (land use, impervious cover) and used as the basis for developing peak discharges for design.

- For each identified outfall, the Engineer shall quantify the change in peak flow rates between the existing and proposed conditions created by the project. The Engineer shall then determine if the overall increase in peak flow from the project compared to the peak flow in the receiving channel or storm drain system will create an adverse impact to the adjacent properties or existing storm drain systems. If the Engineer determines that the project will create adverse impacts to adjacent properties, the Engineer shall identify potential on-site locations for detention storage and assess potential detention storage availability. The Engineer may recommend detention structures in the form of ponds and ditches where the ROW area allows or within oversized storm drain conduits in locations with limited ROW area. Utilizing hydrograph routing software such as Hydrologic Engineering Center – Hydrologic Modeling System (HEC-HMS) or Storm Water Management Model (SWMM), the Engineer shall calculate required storage volumes based on hydrograph calculations and peak flows to limit 100-year discharge from each outfall to that produced under existing conditions.

- The Engineer will assess the hydrologic impact of the project in the 2, 5, 10, 25 and 50-year storm events to the receiving system and make any recommendations for erosion protection if required. If the receiving system is to an existing storm sewer system outside of the County ROW, the Engineer shall address impacts to the receiving storm drain system, taking into consideration what the existing system was sized to accommodate, and make recommendations for onsite improvements as to not have an adverse impact on these systems.

b. HYDRAULIC MODELING

- Perform hydraulic design and analysis using appropriate hydraulic methods, which may include computer models such as HEC-RAS, unsteady Hydrologic Engineering Center – River Analysis System (HEC- RAS) or two-dimensional (2D) models such as SWMM. 2D models shall not be developed without the express permission of the State. Data entry for appropriate hydraulic computer programs shall

consist of a combination of both on-the-ground survey and other appropriate sources including but not limited to topographic maps, GIS modeling, and construction plans and existing hydrologic studies.

- For the FEMA crossings, the Effective or best available models will be utilized accordingly for this analysis. Review the provided base model for correctness and updated as needed. For the Non-FEMA crossings, an original HEC-RAS model will be created for the analysis.

- Quantify impacts, beneficial or adverse, in terms of increases in peak flow rates and WSELs for the above listed hydraulic conditions and hydrologic events. The Engineer shall make recommendations for the proposed design which would limit any increase in WSELs upstream and downstream of the facility to be contained within County ROW. If there are conditions which cause and increase in WSEL outside of County ROW, The Engineer shall evaluate the potential risk to adjacent properties both upstream and downstream of the crossings.

- Compute ROW corridor 1% AEP flood plain volumes for existing and proposed roadway elevations. The Engineer may provide mitigation to offset a decrease in 1% AEP flood plain volumes.

- A Floodway Impact Analysis will be performed at Brushy Creek and Cottonwood Creek to determine the impact to the base flood elevation (BFE) between the pre- and post-construction. Federal requirements do not allow any increases to the BFE within a regulatory floodway.

c. FEMA COORDINATION

- Coordinate with Local Floodplain Administrator (FPA) as necessary throughout the project. Assume 2 meetings.

- For the UBCWCID SCSS site 21 dam (see below), any improvements to this dam will need to be approved by the local FPA. Assume 1 meeting.

TASK 8. <u>ENVIRONMENTAL SERVICES – NO WORK ANTICIPATED ON THIS WORK AUTHORIZATION</u>

TASK 9. <u>GEOTECHNICAL SERVICES - NO WORK ANTICIPATED ON THIS WORK AUTHORIZATION</u>

TASK 10. <u>PLAN PREPARATION - NO WORK ANTICIPATED ON THIS WORK AUTHORIZATION</u>

TASK 11. PERMITS - NO WORK ANTICIPATED ON THIS WORK AUTHORIZATION

TASK 12. BIDDING PHASE SERVICES - NO WORK ANTICIPATED ON THIS WORK AUTHORIZATION

ATTACHMENT C
WORK AUTHORIZATION #1
SCHEDULE
TRANSPORTATION CORRIDOR A-1 PLANNING, ENV, PI

		2017									
		MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Task 1	MANAGEMENT ROUTE STUDIES										
	Prepare Subconsultant Agreements										
	Prepare QA/QC Plan										
	Prepare & Maintain Records										
	Correspondence & Coordination with GEC										
	Manage Project Activities										
	Project Kickoff Meeting										
	Progress Meetings										
	Maintain Project Schedule										
	Prepare Invoices & Progress Reports										
Task 2	ROUTE & DESIGN STUDIES										
	Data Collection										
	Stakeholder Coordination										
	TxDOT Coordination										
	City of Pflugerville Coordination										
	City of Hutto Coordination										
	City of Taylor Coordination										
	Travis County Coordination										
	CTRMA Coordination										
	Neighborhood Meetings										
	Constraint Map										
	Develop Evaluation Criteria										
	Establish Study Area										
	Range of Reasonable Alternatives										
	Conceptual Alternatives										
	Traffic Projections										
	Environmental Investigations										
	Preliminary Cost										
Task 3	PUBLIC INVOLVEMENT										
	Identify Stakeholders										
	Prepare Handouts for Public Meeting #1										
	Select Meeting Venue for Public Meeting #1										
	Advertise Public Meeting #1										
	Prepare Exhibits for Public Meeting #1										
	Public Meeting #1										
	Respond to Public Meeting # 1 comments										
	Public Meeting #1 Summary										
	Prepare Handouts for Public Meeting #2										
	Select Meeting Venue for Public Meeting #2										
	Advertise Public Meeting #2										
	Prepare Exhibits for Public Meeting #2										
	Public Meeting #2										
	Respond to Public Meeting #2 comments										
	Public Meeting #2 Summary										
TASK 4	RIGHT OF WAY										
	Right of Entry Letters										
	Recover Existing Control										
	Record Search										
Task 5	SURVEYING										
	Udar Data Collection										
Task 7	DRAINAGE STUDY										
	Data Collection										
	Coordination with Agencies										
	Perform Analysis										

Task Duration	
Concurrent Tasks	
Critical Path Tasks	

ATTACHMENT D - FEE SCHEDULE
WORK AUTHORIZATION # 1
Fee Schedule Summary
Kennedy Consulting, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	KCI (39.4%)	Rifeline (9.9%)	Buie (8.0%)	CML (5.9%)	ATG (24.3%)	SAM (11.1%)	Cobb Fendley (1.4%)	Cost / Task Totals
Task 1. PROJECT MANAGEMENT	$66,022.50	$7,728.00	$7,584.00	$9,345.00	$15,975.00	$0.00	$2,180.00	$108,834.50
Task 2. ROUTE AND DESIGN STUDIES	$241,260.00	$22,280.00	$17,270.00	$35,640.00	$66,508.00	$0.00	$10,355.50	$393,313.50
Task 3. PUBLIC INVOLVEMENT	$39,490.00	$60,043.50	$48,193.50	$8,462.60	$4,071.00	$0.00	$0.00	$160,260.60
Task 4. RIGHT OF WAY (ROW) MAPPING	$11,900.00	$0.00	$0.00	$0.00	$0.00	$29,720.00	$0.00	$41,620.00
Task 5. SURVEYING	$0.00	$0.00	$0.00	$0.00	$0.00	$70,926.17	$0.00	$70,926.17
Task 7. DRAINAGE STUDY	$0.00	$0.00	$0.00	$0.00	$134,807.75	$0.00	$0.00	$134,807.75
FEE SCHEDULE SUMMARY	$358,672.50	$90,051.50	$73,047.50	$53,447.60	$221,361.75	$100,646.17	$12,535.50	$909,762.52
Kennedy Consulting, Inc.								$358,672.50
Rifeline, LLC								$90,051.50
Buie & Co. Public Relations								$73,047.50
Cox McLain Environmental Consulting, Inc.								$53,447.60
Alliance Transportation Group, Inc.								$221,361.75
Surveying And Mapping, Inc.								$100,646.17
Cobb, Fendley & Associates, Inc.								$12,535.50
PROJECT TOTAL								$909,762.52

Summary of Hours by Classification - WA #1
Kennedy Consulting, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Director $225.00/Hr	Sr. Project Manager $220.00/Hr	Senior Prof. 2 $200.00/Hr	Senior Prof. 1 $175.00/Hr	Prof. 2 / Sr. Eng. Tech $150.00/Hr	Prof. 1 / Eng. Tech $115.00/Hr	Admin / Clerical $65.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 1. PROJECT MANAGEMENT									
a. General Project Management									
Prepare Subconsultant Agreements - Route Studies		8					8	16	$2,280.00
b. Monthly Progress Reports, Invoices, and Billing									
Progress Reports, Invoices, and Billing - Route Studies (6 Mo.)		6					18	24	$2,490.00
Project Correspondence - Route Studies (6 Mo.)		18						18	$3,960.00
Subconsultant Management - Route Studies (6 Mo.)		18						18	$3,960.00
c. Quality Assurance / Quality Control (QA/QC) Plan								0	$0.00
Prepare QA/QC Plan - Route Studies	8	16					12	36	$6,100.00
Continuous QA/QC - Route Studies	10	20	10					40	$8,650.00
d. Project Coordination and Administration								0	$0.00
Prepare and maintain records - Route Studies (6 Mo.)		8						8	$1,760.00
Correspondence and coordination with GEC - Route Studies (6 Mo.)		18						18	$3,960.00
Manage project activities - Route Studies (6 Mo.)		18						18	$3,960.00
e. Progress / Coordination Meetings (32 Mtgs.total)								0	$0.00
Prepare for and attend Kickoff Meeting - Route Studies (1 Mtg.)	4	6	6		12	12		40	$6,600.00
Attend Progress Meetings - Route Studies (6 Mtgs.)	4	12						16	$3,540.00
Prepare agenda & sign-in sheets for coord. meetings - Route Studies		6						6	$1,320.00
Prepare meeting minutes - Route Studies		12						12	$2,640.00
Internal coordination meetings - Route Studies	4	12						16	$3,540.00
f. Project Schedule								0	$0.00
Maintain Project Schedule - Route Studies (6 Mo.)	4	12				12		28	$4,920.00
Direct Expenses									$6,342.50
PROJECT MANAGEMENT Subtotal:	34	190	16	0	12	24	38	314	$66,022.50

Summary of Hours by Classification - WA #1
Kennedy Consulting, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Director $225.00/Hr	Sr. Project Manager $220.00/Hr	Senior Prof. 2 $200.00/Hr	Senior Prof. 1 $175.00/Hr	Prof. 2 / Sr. Eng. Tech $150.00/Hr	Prof. 1 / Eng. Tech $115.00/Hr	Admin / Clerical $65.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 2. ROUTE AND DESIGN STUDIES									
a. Data Collection									
Conduct Field Investigations		4	8	24			4	40	$6,940.00
Review Data Collected and Organize information			20	28	12	36		96	$14,840.00
b. Stakeholder Coordination								0	$0.00
Prepare agendas, sign-in sheets, meeting minutes, presentations, etc.		16					8	24	$4,040.00
Coordinate with affected local agencies, consultants, and property owners	12	24						36	$7,980.00
Meetings with affected property owners (MAPO) (10 Mtgs.)	10	20						30	$6,650.00
TxDOT Coordination (3 Mtgs.)	9	18						27	$5,985.00
City of Pflugerville Coordination (2 Mtgs.)	8	8						16	$3,560.00
City of Hutto Coordination (2 Mtgs.)	8	8						16	$3,560.00
City of Taylor Coordination (2 Mtgs.)	8	8						16	$3,560.00
Travis County Coordination (2 Mtgs.)	8	8						16	$3,560.00
CTRMA Coordination (1 Mtg.)	4	4						8	$1,780.00
Neighborhood Meetings (10 Mtgs.)	20	20						40	$8,900.00
c. Constraints Map (3 preliminary alignments assumed)								0	$0.00
Establish Project Design Criteria	1	2	4	8		12		27	$4,245.00
Develop Evaluation Criteria	2	6	12		12			32	$5,970.00
Establish Overall Study Area	2	4	12					18	$3,730.00
Establish Range of Reasonable Alternatives	4	4	12	16	24	40		100	$15,180.00
Develop Conceptual Alternatives (3 total)	8	16	32	80	100	120		356	$54,520.00
Develop Constraints Map and Technical Memorandum	2	2	6	24	26	32		92	$13,870.00
Estimate Traffic Projections for the Ultimate Roadway	2	4	8	8				22	$4,330.00
Develop Preliminary Alignments and Costs		8	16	24	48	88		184	$26,480.00
Refine Preliminary Alignment based on Stakeholder Input		4	10	20	80	100		214	$29,880.00
d. Deliverables								0	$0.00
Prepare and Post on ProjectWise				36	36			72	$11,700.00
ROUTE AND DESIGN STUDIES Subtotal:	108	188	140	268	338	428	12	1482	$241,260.00

Summary of Hours by Classification - WA #1
Kennedy Consulting, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Director $225.00/Hr	Sr. Project Manager $220.00/Hr	Senior Prof. 2 $200.00/Hr	Senior Prof. 1 $175.00/Hr	Prof. 2 / Sr. Eng. Tech $150.00/Hr	Prof. 1 / Eng. Tech $115.00/Hr	Admin / Clerical $65.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 3. PUBLIC INVOLVEMENT									
a. Develop Database in Excel								0	$0.00
Identify and reach out to key stakeholders		20						20	$4,400.00
b. Public Meeting / Open House								0	$0.00
Coordinate Meeting Announcements		4						4	$880.00
Coordinate meeting logistics	2	4						6	$1,330.00
Plan, schedule, conduct public meetings	2	4	8					14	$2,930.00
Prepare handouts and exhibits		4		8		28		40	$5,500.00
Facilitator Preparation & Develop annotated agenda		4						4	$880.00
Develop Public Surveys	2	4						6	$1,330.00
Plan, Prepare for and Attend Public Meetings (2 Total)	8	10	18					36	$7,600.00
Prepare Public Meeting Summary	2	10						12	$2,650.00
Prepare response to comments	2	6	12	12			16	48	$7,310.00
Coordinate court reporter and translators (if necessary)								0	$0.00
c. Communication Materials and Tools								0	$0.00
Frequently Asked Questions		4						4	$880.00
Website Copy								0	$0.00
Copy for up to 4 eNewsletters/eBlasts		8						8	$1,760.00
Copy and layout/design for up to two (2) fact sheets/handouts		2	8					10	$2,040.00
Public Involvement Subtotal:	18	84	46	20	0	28	16	212	$39,490.00
Task 4. RIGHT OF WAY (ROW) MAPPING									
a. Recover Exist. Control, Establish Up to 10 Secondary Control Pts.				4				4	$700.00
b. Right Of Entry (ROE) Coordination		16		32			32	80	$11,200.00
Right of Way Mapping Subtotal:	0	16	0	36	0	0	32	84	$11,900.00
KCI SUMMARY	160	478	202	324	350	480	98	2092	$358,672.50

Summary of Direct Expenses - WA #1
Kennedy Consulting, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Item Description	Unit	Quantity	Unit Cost	Total Cost
Direct Expenses				
I. Mileage	mile	2000	$0.535	**$1,070.00**
II. In-house Photocopies B/W (8 1/2" X 11")	Per Page	500	$0.16	**$80.00**
III. In-house Photocopies Color (8 1/2" X 11")	Per Page	50	$0.75	**$37.50**
IV. In-house Photocopies B/W (11" X 17")	Per Page	500	$0.32	**$160.00**
V. In-house Photocopies Color (11" X 17")	Per Page	50	$1.50	**$75.00**
VI. In-house Plots (B/W on Bond)	SF	0	$0.75	**$0.00**
VII. In-house Plots (Color on Bond)	SF	0	$1.75	**$0.00**
VIII. Overnight Mail - letter size	each	3	$15.00	**$45.00**
IX. Overnight Mail - oversized box	each	2	$75.00	**$150.00**
X. Courier Services	each	4	$25.00	**$100.00**
XI. Outside Printing - Reports / Exhibits	each	4	$250.00	**$1,000.00**
XII. Large Format Plotting	SF	250	$2.50	**$625.00**
XIII. Mounting of Large Exhibits	SF	300	$10.00	**$3,000.00**
			KCI Total Direct Expenses	**$6,342.50**

Summary of Hours by Classification - WA #1
Rifeline, LLC
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Principal $200.00/Hr	Vice President $180.00/Hr	Sr. Public Affairs Mgr $180.00/Hr	Director Communications $170.00/Hr	PI Manager $160.00/Hr	Community Outreach Mgr $150.00/Hr	Community Outreach Coord. $120.00/Hr	Admin / Clerical $58.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 1. PROJECT MANAGEMENT										
b. Monthly Progress Reports, Invoices, and Billing										
Progress Reports, Invoices, and Billing - Route Studies (6 Mo.)								6	6	$348.00
d. Project Coordination and Administration									0	$0.00
Correspondence and coordination with GEC - Route Studies (6 Mo.)	6	9							15	$2,820.00
e. Progress / Coordination Meetings (32 Mtgs.total)									0	$0.00
Prepare for and attend Kickoff Meeting - Rouet Studies (1 Mtg.)	3	3							6	$1,140.00
Attend Progress Meetings - Route Studies (6 Mtgs.)	6	6							12	$2,280.00
Internal coordination meetings - Route Studies	3	3							6	$1,140.00
										$0.00
PROJECT MANAGEMENT Subtotal:	**18**	**21**	**0**	**0**	**0**	**0**		**6**	**45**	**$7,728.00**
Task 2. ROUTE AND DESIGN STUDIES										
b. Stakeholder Coordination									0	$0.00
Prepare Agendas, Sign-in Sheets, Meeting Minutes, Presentations, etc.		16							16	$2,880.00
Coordinate with affected local agencies, Consultants and Property Owners	30	10							40	$7,800.00
Stakeholder Coordination Meetings (20 MAPOs Assumed)	20								20	$4,000.00
Neighborhood Meetings (10 Assumed)	20	20							40	$7,600.00
ROUTE AND DESIGN STUDIES Subtotal:	**70**	**46**	**0**	**0**	**0**	**0**		**0**	**116**	**$22,280.00**

Summary of Hours by Classification - WA #1
Rifeline, LLC
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Principal $200.00/Hr	Vice President $180.00/Hr	Sr. Public Affairs Mgr $180.00/Hr	Director Communications $170.00/Hr	PI Manager $160.00/Hr	Community Outreach Mgr $150.00/Hr	Community Outreach Coord. $120.00/Hr	Admin / Clerical $58.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 3. PUBLIC INVOLVEMENT										
a. Develop Database in Excel	2	6							8	$1,480.00
Identify and Reach out to key stakeholders	50				50				100	$18,000.00
b. Public Meeting/Open House									0	$0.00
Prepare Invitations, advertisements and invitation list	1	4							5	$920.00
Develop Mail Direct	1	2							3	$560.00
Coordinate Meeting Announcements	2	4							6	$1,120.00
Coordinate meeting logistics		10							10	$1,800.00
Plan, schedule, conduct public meetings	10	10							20	$3,800.00
Prepare handouts and exhibits	10	4							14	$2,720.00
Facilitator Preparation & Develop annotated agenda	4	2							6	$1,160.00
Develop Public Surveys	3	9							12	$2,220.00
Plan, Prepare and Attend Public Meetings (2 Total)	6	8							14	$2,640.00
Prepare Public Meeting Summary	2	4							6	$1,120.00
Prepare response to comments	2	4							6	$1,120.00
Coordinate court reporter and translators (if necessary)									0	$0.00
c. Communication Materials and Tools									0	$0.00
Frequently Asked Questions	2	5							7	$1,300.00
Website Copy	1	3							4	$740.00
Copy for up to 4 eNewsletters/eBlasts	1	2							3	$560.00
Copy and layout/design for up to two (2) fact sheets/handouts	1	4							5	$920.00
Direct Expenses										$17,863.50
PUBLIC INVOLVEMENT Subtotal:	98	81	0	0	50	0	0	0	229	$60,043.50
Rifeline SUMMARY	186	148	0	0	50	0	0	6	390	$90,051.50

Summary of Direct Expenses - WA #1
Rifeline, LLC
Transportation Corridor A-1 Planning, ENV, & PI

Item Description	Unit	Quantity	Unit Cost	Total Cost
Direct Expenses				
I. Mileage	mile	3500	$0.535	**$1,872.50**
II. In-house Photocopies B/W (8 1/2" X 11")	Per Page	1,000	$0.10	**$100.00**
III. In-house Photocopies Color (8 1/2" X 11")	Per Page	1,250	$0.75	**$937.50**
IV. Standard Postage	Per Letter	50	$0.47	**$23.50**
V. Parking	Per Day	5	$10.00	**$50.00**
VI. Newspaper Advertisements	Per Publication	4	$2,000.00	**$8,000.00**
VII. Public Meeting refreshments	Per Meeting	2	$20.00	**$40.00**
VIII. Public Meeting Supplies	Per Meeting	2	$20.00	**$40.00**
IX. Court Reporter	Per Day	2	$500.00	**$1,000.00**
X. Translator	Per Event	2	$400.00	**$800.00**
XI. Post Crd (mail) or Flyer (hand Deliver) - Printing + Postage or Flyering Services	Each	2,000	$1.25	**$2,500.00**
XII. Facility Rental	Per Event	2	$400.00	**$800.00**
XIII. Custodian	Per Hour	10	$50.00	**$500.00**
XIV. Audio-Visual Equipment Rental	Per Event	2	$400.00	**$800.00**
XV. Meeting Signage	EACH	8	$50.00	**$400.00**
			Rifeline Direct Expenses	**$17,863.50**

Summary of Hours by Classification - WA #1
Buie & Co. Public Relations
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Principal $185.00/Hr	Account Manager $140.00/Hr	Graphic Designer $125.00/Hr	Account Coordinator $120.00/Hr	Admin / Clerical $58.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 1. PROJECT MANAGEMENT							
b. Monthly Progress Reports, Invoices, and Billing						0	$0.00
Progress Reports, Invoices, and Billing - Route Studies (6 Mo.)				6	3	9	$894.00
d. Project Coordination and Administration						0	$0.00
Prepare and maintain records - Route Studies (6 Mo.)				8		8	$960.00
Correspondence and coordination with GEC - Route Studies (6 Mo.)	4	6		6		16	$2,300.00
e. Progress / Coordination Meetings (32 Mtgs.total)						0	$0.00
Prepare for and attend Kickoff Meeting - Route Studies (1 Mtg.)	3					3	$555.00
Attend Progress Meetings - Route Studies (6 Mtgs.)	6					6	$1,110.00
Internal coordination meetings - Route Studies (6 Mo.)	5	6				11	$1,765.00
PROJECT MANAGEMENT Subtotal:	**18**	**12**	**0**	**20**	**3**	**53**	**$7,584.00**
Task 2. ROUTE AND DESIGN STUDIES							
b. Stakeholder Coordination						0	$0.00
Prepare Agendas, Sign-in Sheets, Meeting Minutes, Presentations, etc.				16		16	$1,920.00
Coordinate with affected local agencies, Consultants and Property Owners	30			10		40	$6,750.00
Stakeholder Coordination Meetings (20 MAPOs Assumed)	20					20	$3,700.00
Neighborhood Meetings (10 Assumed)	20			10		30	$4,900.00
ROUTE AND DESIGN STUDIES Subtotal:	**70**	**0**	**0**	**36**	**0**	**106**	**$17,270.00**

Summary of Hours by Classification - WA #1
Buie & Co. Public Relations
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Principal $185.00/Hr	Account Manager $140.00/Hr	Graphic Designer $125.00/Hr	Account Coordinator $120.00/Hr	Admin / Clerical $58.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 3. PUBLIC INVOLVEMENT							
a. Develop Database in Excel	2			6		8	$1,090.00
Identify and Reach out to key stakeholders	100					100	$18,500.00
b. Public Meeting/Open House						0	$0.00
Prepare Invitations, advertisements and invitation list	1		15	4		20	$2,540.00
Develop Mail Direct	1		2	4		7	$915.00
Coordinate Meeting Announcements	2	7		4		13	$1,830.00
Coordinate meeting logistics				10		10	$1,200.00
Plan, schedule, conduct public meetings	10			10		20	$3,050.00
Prepare handouts and exhibits	8					8	$1,480.00
Facilitator Preparation & Develop annotated agenda						0	$0.00
Develop Public Surveys	2			4		6	$850.00
Plan, Prepare and Attend Public Meetings (2 Total)	8	10		10		28	$4,080.00
Prepare Public Meeting Summary	1	4				5	$745.00
Prepare response to comments	1	4				5	$745.00
Coordinate court reportes and translators (if necessary)				3		3	$360.00
c. Communication Materials and Tools						0	$0.00
Frequently Asked Questions	5					5	$925.00
Website Copy	1	5				6	$885.00
Copy for up to 4 eNewsletters/eBlasts	1	8				9	$1,305.00
Copy and layout/design for up to two (2) fact sheets/handouts	2	6	8			16	$2,210.00
Direct Expenses							$5,483.50
Public Involvement Subtotal:	**145**	**44**	**25**	**55**	**0**	**269**	**$48,193.50**
BUIE SUMMARY	**233**	**56**	**25**	**111**	**3**	**428**	**$73,047.50**

Summary of Direct Expenses - WA #1
Buie & Co. Public Relations
Transportation Corridor A-1 Planning, ENV, & PI

Item Description	Unit	Quantity	Unit Cost	Total Cost
Direct Expenses				
I. Mileage	mile	3500	$0.535	**$1,872.50**
II. In-house Photocopies B/W (8 1/2" X 11")	Per Page	1,000	$0.10	**$100.00**
III. In-house Photocopies Color (8 1/2" X 11")	Per Page	1,250	$0.75	**$937.50**
IV. Standard Postage	Per Letter	50	$0.47	**$23.50**
V. Parking	Per Day	5	$10.00	**$50.00**
VI. Newspaper Advertisements	Per Publication		$2,000.00	**$0.00**
VII. Public Meeting refreshments	Per Meeting		$20.00	**$0.00**
VIII. Public Meeting Supplies	Per Meeting		$20.00	**$0.00**
IX. Court Reporter	Per Day		$500.00	**$0.00**
X. Translator	Per Event		$400.00	**$0.00**
XI. Post Crd (mail) or Flyer (hand Deliver) - Printing + Postage or Flyering Services	Each	2,000	$1.25	**$2,500.00**
XII. Facility Rental	Per Event		$400.00	**$0.00**
XIII. Custodian	Per Hour		$50.00	**$0.00**
XIV. Audio-Visual Equipment Rental	Per Event		$400.00	**$0.00**
XV. Meeting Signage	EACH		$50.00	**$0.00**
			BUIE Total Direct Expenses	**$5,483.50**

Summary of Hours by Classification - WA #1
Cox McLain Environmental Consulting, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Sr. ENV Scientist II $150.00/Hr	Sr. ENV Scientist $130.00/Hr	ENV Professional II $110.00/Hr	ENV Professional I $95.00/Hr	ENV Staff III $85.00/Hr	ENV Staff II $75.00/Hr	ENV Staff I $65.00/Hr	ENV Tech II $55.00/Hr	ENV Tech I $45.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 1. PROJECT MANAGEMENT											
b. Monthly Progress Reports, Invoices, and Billing										0	$0.00
Progress Reports, Invoices, and Billing - Route Studies (6 Mo.)	8							8		16	$1,640.00
c. Quality Assurance / Quality Control (QA/QC) Plan										0	$0.00
Prepare QA/QC Plan - Route Studies	2									2	$300.00
d. Project Coordination and Administration										0	$0.00
Prepare and maintain records - Route Studies (6 Mo.)	3		6							9	$1,110.00
Correspondence and coordination with GEC - Route Studies (6 Mo.)	3		6							9	$1,110.00
Manage project activities - Route Studies (6 Mo.)	6		6							12	$1,560.00
e. Progress / Coordination Meetings (32 Mtgs.total)										0	$0.00
Prepare for and attend Kickoff Meeting - Route Studies (1 Mtg.)	2									2	$300.00
Attend Progress Meetings - Route Studies (6 Mtgs.)	8		8							16	$2,080.00
Internal coordination meetings - Route Studies		1	1	1		5	4	5		17	$1,245.00
										0	$0.00
PROJECT MANAGEMENT Subtotal:	32	1	27	1	0	5	4	13	0	83	$9,345.00

Summary of Hours by Classification - WA #1
Cox McLain Environmental Consulting, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Sr. ENV Scientist II $150.00/Hr	Sr. ENV Scientist $130.00/Hr	ENV Professional II $110.00/Hr	ENV Professional I $95.00/Hr	ENV Staff III $85.00/Hr	ENV Staff II $75.00/Hr	ENV Staff I $65.00/Hr	ENV Tech II $55.00/Hr	ENV Tech I $45.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 2. ROUTE AND DESIGN STUDIES											
a. Data Collection											
Hazardous Waste Sites	1	1	1	0	0	8	8	8	4	31	$2,130.00
Water Quality and Wetlands/Waters of the US, Floodplains	1	1	2	6	0	16	16	8	0	50	$3,750.00
Ecological Resources - Wildlife Habitat, T&E Species	1	1	2	4	0	16	14	16	2	56	$3,960.00
Cultural Resources - Historic, Archaeological sites, Cemeteries	1	1	3	0	3	16	16	0	0	40	$3,105.00
Community (Socioecon., Relocat., Land Use, Farmlands, other modes)	1	1	8	8	0	8	16	16	4	62	$4,620.00
Noise and Air Quality	1	1	3	0	0	0	6	0	1	12	$1,045.00
Other Environmentally Sensitive Areas (Visual Resources, etc.)	1	0	1	2	0	0	4	0	0	8	$710.00
Prepare Eval. Matrix Criteria, Populate Matrix, Review Evaluation Matrix	6	4	4	2	8	4	12	0	2	42	$3,900.00
b. Stakeholder Coordination										0	$0.00
Prepare Agendas, Sign-in Sheets, Meeting Minutes, Presentations, etc.										0	$0.00
Coord. with affected local agencies, Consultants and Property Owners										0	$0.00
Stakeholder Coordination Meetings (3 meetings Assumed)	8		10							18	$2,300.00
c. Constraints Map (3 preliminary alignments assumed)										0	$0.00
Develop constraint map (Draft and Final)	3	6	2	2	2	8	24		6	53	$4,240.00
Technical Reports	4	8	8	8	8	8	8	8	8	68	$5,880.00
										0	$0.00
ROUTE AND DESIGN STUDIES Subtotal:	28	24	44	32	21	84	124	56	27	440	$35,640.00
Task 3. PUBLIC INVOLVEMENT											
a. Develop Database in Excel										0	$0.00
Identify and Reach out to key stakeholders										0	$0.00
b. Public Meeting/Open House										0	$0.00
Prepare handouts and exhibits	2		2							4	$520.00
Plan, Prepare and Attend Public Meetings (3 Total)	8		10			10				28	$3,050.00
Plan, Prepare Exhibits for Public Meetings (3 Total)										0	$0.00
Plan, Prepare and Attend Public Hearing (1 Total)										0	$0.00
Prepare Public Meeting Summary										0	$0.00
Prepare response to comments	4		8		12	8				32	$3,100.00
Direct Expenses											$1,792.60
Public Involvement Subtotal:	14	0	20	0	12	18	0	0	0	64	$8,462.60
Cox McLain SUMMARY	74	25	91	33	33	107	128	69	27	587	$53,447.60

Summary of Direct Expenses - WA #1
Cox McLain Environmental Consulting, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Item Description	Unit	Quantity	Unit Cost	Total Cost
Direct Expenses				
I. Mileage	mile	0	$0.535	$0.00
II. In-house Photocopies B/W (8 1/2" X 11")	Per Page	250	$0.16	$40.00
III. In-house Photocopies Color (8 1/2" X 11")	Per Page	125	$0.75	$93.75
IV. In-house Photocopies B/W (11" X 17")	Per Page	125	$0.32	$40.00
V. In-house Photocopies Color (11" X 17")	Per Page	50	$1.50	$75.00
VI. In-house Plots (B/W on Bond)	SF	30	$0.75	$22.50
VII. In-house Plots (Color on Bond)	SF	30	$1.75	$52.50
VIII. Hazardous Materials Database Search	Per Search	2	$550.00	$1,100.00
IX. Environmental Field Supplies (lathes, stakes, flagging, spray paint, etc.)	Day	4	$40.00	$160.00
X. Overnight Mail - Letter Size	EACH	3	$22.950	$68.85
XI. Overnight Mail - Oversized Box	EACH	2	$70.000	$140.00
			Cox McLain Total Direct Expenses	$1,792.60

Summary of Hours by Classification - WA #1
Alliance Transportation Group, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Principal $250.00/Hr	Sr. Project Manager $244.00/Hr	Senior Engineer $193.00/Hr	Project Engineer $144.00/Hr	EIT $101.00/Hr	Sr. Eng. Tech $133.00/Hr	Engineer Technician $90.00/Hr	Planning Director $230.00/Hr	Sr. Travel Demand Mod. $182.00/Hr	Travel Dem. Modeler III $137.00/Hr	Travel Dem. Modeler II $117.00/Hr	Project Administrator $104.00/Hr	Clerical $83.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 1. PROJECT MANAGEMENT															
b. Monthly Progress Reports, Invoices, and Billing															
Progress Reports, Invoices, and Billing - Route Studies (6 Mo.)	1	1	12									6	6	26	$3,824.00
c. Quality Assurance / Quality Control (QA/QC) Plan														0	$0.00
Continuous QA/QC - Route Studies	1	1	8	8	3									21	$3,493.00
d. Project Coordination and Administration														0	$0.00
Prepare and maintain records - Route Studies (6 Mo.)			6	12										18	$2,886.00
Correspondence and coordination with GEC - Route Studies (6 Mo.)			6	12										18	$2,886.00
Manage project activities - Route Studies (6 Mo.)			6	12										18	$2,886.00
														0	$0.00
PROJECT MANAGEMENT Subtotal:	2	2	38	44	3	0	0	0	0	0	0	6	6	101	$15,975.00
Task 2. ROUTE AND DESIGN STUDIES															
a. Data Collection															
Conduct Field Investigations			2	10	10									22	$2,836.00
Develop and Maintain Ownership Information														0	$0.00
Review Data Collected and Organize Information			2	10	10									22	$2,836.00
b. Stakeholder Coordination														0	$0.00
Prepare agendas, sign-in sheets, meeting minutes, presentations, etc.														0	$0.00
Coordinate with affected local agencies, consultants, & property owners			16	8	6									30	$4,846.00
c. Constraints Map (3 preliminary alignments assumed)														0	$0.00
Develop Conceptual Alternatives (3 total)			2	8	12									22	$2,750.00
Traffic Projections															
Travel Data Model (TDM) (3 Phases)															
Phase 1 - Two-way Road	1	4	7	8				1	16	40	24			101	$15,159.00
Phase 2 - One-way Frontage Road Pairs		1	1	2				1	8	24	12			49	$7,103.00
Phase 3 - Full Freeway Section with DC's at SH 130 and FM 3349		2	2	4				1	8	24	12			53	$7,826.00
Volumes (3 Phases)														0	$0.00
Phase 1 - Two-way Road	1	1	2	4	8	8	8	1	2	2	2			39	$5,150.00
Phase 2 - One-way Frontage Road Pairs		1	4	8	16	8	8	1	2	2	2			52	$6,670.00
Phase 3 - Full Freeway Section with DC's at SH 130 and FM 3349		2	4	8	16	8	8	1	2	2	2			53	$6,914.00
Data Collection														0	$0.00
AM and PM 2-hour Turning Movement Counts		1		1	2								1	5	$655.00
24-hour Tube Counts along 4 Roadways		1		2	4								1	8	$1,001.00
Coordination Meetings														0	$0.00
Two Meetings		8			8									16	$2,760.00
ROUTE AND DESIGN STUDIES Subtotal:	2	21	42	73	92	24	24	6	38	94	54	0	2	472	$68,508.00
Task 3. PUBLIC INVOLVEMENT															
b. Public Meeting/Open House														0	$0.00
Plan, Prepare and Attend Public Meetings (2 Total)			8											8	$1,544.00
Plan, Prepare Exhibits for Public Meetings (2 Total)			4		4									8	$1,176.00
Prepare Public Meeting Summary			3											3	$579.00
Prepare response to comments			4											4	$772.00
														0	$0.00
Public Involvement Subtotal:	0	0	19	0	4	0	0	0	0	0	0	0	0	23	$4,071.00

Summary of Hours by Classification - WA #1
Alliance Transportation Group, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Project Principal $250.00/Hr	Sr. Project Manager $244.00/Hr	Senior Engineer $193.00/Hr	Project Engineer $144.00/Hr	EIT $101.00/Hr	Sr. Eng. Tech $133.00/Hr	Engineer Technician $90.00/Hr	Planning Director $230.00/Hr	Sr. Travel Demand Mod. $182.00/Hr	Travel Dem. Modeler III $137.00/Hr	Travel Dem. Modeler II $117.00/Hr	Project Administrator $164.00/Hr	Clerical $85.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 7. DRAINAGE STUDY															
a. Hydrologic Modeling														0	$0.00
Drainage Areas		2	4	50	140									196	$22,600.00
Update FEMA Models			4	30	65									99	$11,657.00
Peak Impact Analysis / Detention Design			8	65	125									198	$23,529.00
b. Hydraulic Modeling														0	$0.00
Hydraulic Design non-FEMA crossings		2	5	65	100									172	$20,913.00
Hydraulic Design FEMA crossings			2	40	120									162	$18,266.00
Mitigation Recommendations			1	12	20									33	$3,941.00
Floodplain Volume Calculation			1	15	25									41	$4,878.00
Floodway Impact Analysis			2	20	52									74	$8,518.00
c. FEMA Coordination														0	$0.00
FPA Meetings		2	8	8	6									24	$3,790.00
Floodway Certification			4	12										16	$2,500.00
SCS Dam Approval			4	4	2									10	$1,550.00
d. Deliverables														0	$0.00
Draft and Final Drainage Report and Exhibits		1	5	25	45									76	$9,354.00
Direct Expenses															$3,311.75
Drainage Study Subtotal:	0	7	48	346	700	0	0	0	0	0	0	0	0	1101	$134,807.75
ATG SUMMARY	4	30	147	463	799	24	24	8	38	94	54	8	8	1697	$221,361.75

Summary of Direct Expenses - WA #1
Alliance Transportation Group, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Item Description	Unit	Quantity	Unit Cost	Total Cost
Direct Expenses				
I. Mileage	mile	150	$0.535	**$80.25**
II. In-house Photocopies B/W (8 1/2" X 11")	Per Page	750	$0.10	**$75.00**
III. In-house Photocopies Color (8 1/2" X 11")	Per Page	250	$0.75	**$187.50**
IV. In-house Photocopies B/W (11" X 17")	Per Page	500	$0.30	**$150.00**
V. In-house Photocopies Color (11" X 17")	Per Page	250	$1.50	**$375.00**
VI. Courier Services	EACH	3	$60.00	**$180.00**
VII. Toll Charges	EACH	8	$3.000	**$24.00**
VIII. Report Binding	EACH	10	$10.000	**$100.00**
IX. 24 Hour Counts (4)	EACH	4	$135.000	**$540.00**
X. 2-Hour Tutning Movement Counts (2)	EACH	2	$650.000	**$1,300.00**
XI. Other Miscellaneous		1	$300.000	**$300.00**
			ATG Total Direct Expenses	**$3,311.75**

Summary of Manhours by Classification
Surveying And Mapping, Inc.
Transportation Corridor A-1 Planning, EMV, & PI

Description of Work or Task	Sr. PM $145.00/hr	Project Manager $125.00/hr	Senior Survey Technician $90.00/hr	Survey Technician $80.00/hr	Two Person Survey Crew $130.00/hr	Three Person Survey Crew $180.00/hr	Admin / Clerical $70.00/hr	Aerial Proj. Manager $125.00/hr	Project Coord. Ast $101.67/hr	Analytical Triang. Spec. $85.33/hr	Aerial Map. Tech $90.33/hr	Mapping Editor $75.34/hr	Aerial Ortho. Tech $73.11/hr	Project Coord. AP $115.02/hr	Airborne Lidar Processing Tech $96.29/hr	Helicopter Lidar Processing Tech $107.71/hr	Aerial Processing Tech $94.83/hr	Orthophoto Specialist $75.34/hr	Certified Photogrammetrist $100.29/hr	Staff Hr. Totals	Staff Cost / Task Totals
Task 4. RIGHT OF WAY (ROW) MAPPING																					
a. Receiver Ests. Control, Establish Up to 10 Secondary Control Pts.	2	7	8	8	60	30														135	$17,512.00
b. Right Of Entry Coordination	2	4	16	24																46	$4,436.00
c. Records Search	6	8	40	20																74	$7,470.00
Right of Way Mapping Subtotal	10	14	64	52	60	30	0	0	0	0	0	0	0	0	0	0	0	0	0	256	$29,730.00
Task 5. SURVEYING																					
a. Flight Acquisition and Initial Processing							2	4	8				2							14	$1,570.32
b. Calibration and Accuracy Verification	1	1	2		30		2	4	8	8			2			24				80	$8,306.16
c. Lidar Point Processing and extraction							2	4	8		34	24	2		117		32			211	$18,206.33
d. Mosaic Images, Create Seam lines, Image Processing							2	4	8				2	16				48	48	118	$11,363.36
e. Direct Expenses																					$36,514.00
Surveying Subtotal	1	1	2	0	30	0	6	16	24	8	34	24	8	16	117	24	32	48	48	423	$78,826.17
SAM SUMMARY	11	15	66	52	90	30	6	16	24	8	34	24	8	16	117	24	32	48	48	679	$108,646.17

Summary of Direct Expenses - WA #1
Surveying And Mapping, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Item Description	Unit	Quantity	Unit Cost	Total Cost
Direct Expenses				
I. Mileage	mile	1,400	$0.535	$749.00
II. Traffic Control	day	1	$1,500.00	$1,500.00
III. GPS Receiver	Hour	120	$25.00	$3,000.00
IV. Deed Records	Sheet	225	$1.00	$225.00
V. Map Records	Sheet	30	$6.00	$180.00
VI. Aerial Lidar System	Day	1	$6,500.00	$6,500.00
VII. Materials and Shipping	EACH	2	$30.00	$60.00
VIII. LiDAR Workstation	Hour	204	$25.00	$5,100.00
IX. Helicopter Airborne Lidar	HOUR	8	$1,650.000	$13,200.00
			SAM Total Direct Expenses	$30,514.00

Summary of Hours by Classification - WA#1
Cobb, Fendley & Associates, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Description of Work or Task	Senior Engineer $235.00/Hr	Project Engineer $125.00/Hr	Sr. Utility Specialist $150.00/Hr	Utility Specialist $125.00/Hr	Senior Technician $135.00/Hr	Technician $110.00/Hr	Staff-Hr. Totals	Staff Cost / Task Totals
Task 1. PROJECT MANAGEMENT								
c. Quality Assurance / Quality Control (QA/QC) Plan							0	$0.00
Continuous QA/QC - Schematic (Utilities - SUE Level D)	4		2				6	$1,240.00
e. Progress / Coordination Meetings (32 Mtgs.total)							0	$0.00
Internal coordination meetings - Schematic	4						4	$940.00
								$0.00
PROJECT MANAGEMENT Subtotal:	8	0	2	0	0	0	10	$2,180.00
Task 2. ROUTE AND DESIGN STUDIES								
a. Data Collection								
Conduct Field Investigations (Utilities SUE Level D)		6	2	8	8	36	60	$7,090.00
Develop & Maintain Ownership Information							0	$0.00
Review Data Collected and Organize information (Utilities SUE Level D)	4		10			4	18	$2,880.00
Direct Expenses								$385.50
ROUTE AND DESIGN STUDIES Subtotal:	4	6	12	8	8	40	78	$10,355.50
CFA SUMMARY	12	6	14	8	8	40	88	$12,535.50

Summary of Direct Expenses - WA #1
Cobb, Fendley & Associates, Inc.
Transportation Corridor A-1 Planning, ENV, & PI

Item Description	Unit	Quantity	Unit Cost	Total Cost
Direct Expenses				
I. Mileage	mile	300	$0.535	**$160.50**
II. In-house Photocopies Color (11" X 17")	SF	75	$3.00	**$225.00**
			CFA Total Direct Expenses	**$385.50**