

### **Travis County Commissioners Court Agenda Request**

Meeting Date: March 13, 2012

Prepared By/Phone Number: John Pena, CTPM; Marvin Brice, CPPB,

Purchasing Office, 512-854-9700

Elected/Appointed Official/Dept. Head: Cyd V. Grimes, C.P.M., CPPO

**Purchasing Agent** 

Commissioners Court Sponsor: Judge Samuel T. Biscoe

#### Agenda Language:

APPROVE MODIFICATION NO. 1 TO CONTRACT 10AE0198JE, AECOM TECHNICAL SERVICES, INC. FOR DESIGN SERVICES FOR ARTERIAL "A".

➤ Purchasing Recommendation and Comments: Purchasing concurs with the department and recommends approval of requested action. This procurement action meets the compliance requirements as outlined by the statutes.

On August 3, 2010, the court approved a Professional Services Agreement (PSA) with the engineering firm AECOM Technical Services, Inc. for Work Product 1 (WP1) of this project. WP1 included preparing schematics of alignment alternates to determine the most cost effective alignment between US290 and Parmer Lane. The design was coordinated with the City of Austin, TxDOT, CTRMA, neighborhood associations and the other stakeholders along its route. The court approved a fee of \$463,759.64 for this phase of the project. WP1 was finalized December 2011.

Upon completion of WP1, TNR staff, with the Purchasing Office assistance, entered into negotiations for the scope and fee with AECOM Technical Services, Inc. for phase two, Work Product 2 (WP2) the project, which will include preliminary design plans (up to 30% complete) for the portion of the roadway that is located within Travis County's jurisdiction.

TNR recommends approval of Modification No. 1 for WP2 in the amount of \$286,232.77.

➤ Contract Expenditures: Within the last 12 months \$363,085.48 has been spent against this contract, thus far.

#### Contract-Related Information:

Award Amount: \$463,759.64, WP1
Contract Type: Professional Services

Contract Period: 10 Months from the NTP date.

#### > Contract Modification Information: N/A

Modification Amount: \$286,232.77

Modification Type: Professional Services

Modification Period: 5 Months from the NTP date.

#### Solicitation-Related Information: N/A

Solicitations Sent: Responses Received: HUB Information: % HUB Subcontractor:

### > Special Contract Considerations: N/A

<ul> <li>Award has been protested; interested parties have been notified.</li> </ul>
☐ Award is not to the lowest bidder; interested parties have been
notified.
Comments:

#### > Funding Information:

$\boxtimes$	Purchase Requisition in H.T.E	E.: 550914
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☐ Comments:

MODIFICATION OF CONTRACT N	NUMBER: <u>10AE0198JE</u>	PAGE 1 OF 11 PAGES					
	DESIGN SERVICES FOR ARTER	IAL "A"					
ISSUED BY: PURCHASING OFFICE 700 LAVACA STREET SUITE 800 AUSTIN, TEXAS 78701	PURCHASING AGENT ASST: John E. Pena, CTPM TEL. NO: (512) 854-9700 FAX NO: (512) 854-9185	DATE PREPARED: February 21, 2012					
ISSUED TO: AECOM	MODIFICATION NO.:	EXECUTED DATE OF ORIGINAL CONTRACT:					
Attn: Lorena Echeverria De Misi, P.E. 400 West 15th Street, Suite 500 Austin, Texas 78701	1	August 3, 2010					
ORIGINAL CONTRACT TERM DATES: January 4	1.2011 - Through Completion CURRENT CONTRACT TE	RM DATES: January 4, 2011 - Through Completion					
FOR TRAVIS COUNTY INTERNAL USE ONLY: Original Contract A		lified Amount: \$749,992.41					
DESCRIPTION OF CHANGES: The above	referenced contract is modified to reflect the changes as	set below:					
A. Reference Exhibit 1, Section 1-Com \$687,326.01, an increase of \$266,200	pensation for Basic Services, Section 1.1. The Fixed 0.37.	Fee Total is changed from \$421,125.64, to					
B. Reference Exhibit 1, Section 1-Compensation for Basic Services, Section 1.1, Sub-paragraph 1.1.1 (ii) Work Product 2. The fee is changed from the \$ TBD (\$0.00) amount, to \$266,200.37, an increase of \$266,200.37.							
C. Reference Exhibit 1, Section 4-Reimbursable Expenses, Paragraph 4.1, Non-Labor Reimbursable Expenses. The amount is changed from \$28,226.00 to \$34,768.40, an increase of \$6,542.40.							
D. Reference Exhibit 1, <u>Section 4-Rein</u> from \$14,408.00 to \$27,898.00, an in	abursable Expenses, Paragraph 4.1, Sub-Consultant Macrease of \$13,490.00.	fanagement Fees. The amount is changed					
	The <u>Reimbursable Expense Total</u> for Non-Labor Reimbursable Expenses and the Sub-Consultant Management Fees is the Not-to-Exceed (NTE) amount of \$62,666.40, an increase of \$20,032.40.						
E. Reference Exhibit 1, Section 5-Total Agreement Sum, is changed from a NTE amount of \$463,759.64 (Work Product 1, \$421,125.64; Non-Labor Reimbursable Expense, \$28,226.00 & Sub-consultant Management Fees, \$14,408.00) to a NTE amount of \$749,992.41 (Work Product 1, \$421,125.64; Non-Labor Reimbursable Expense, \$28,226.00; Sub-consultant Management Fees, \$14,408.00 and Work Product 2, \$266,200.37; Non-Labor Reimbursable Expense, \$6,542.40 & Sub-Consultant Management Fees, \$13,490.00), an increase of \$286,232.77.							
F. The attached Scope of Work is made a part of the contract and is added to Appendix A, Scope of Services as Work Product 2, Phase II: 30% PS&E.							
effect.	and provisions of the document referenced above as heretofore	modified, remain unchanged and in full force and					
Note to Vendor:  [EXXX] Complete and execute (sign) your portion of the signature block section below for all copies and return all signed copies to Travis County.  [ DO NOT execute and return to Travis County. Retain for your records.							
LEGAL BUSINESS NAME: AECOM	TECHNICAL SERVICES, INC.	□ DBA					
BY: MC A. H	□ CORPORATION						
SIGNATURE	□ OTHER						
PRINT NAME	TEGARIX	DATE:					
TITLE:	ICE PRESIDENT	OFFICE					
ITS DULY AUTHORIZED AGENT							
BY: US COUNTY, TEXAS  BY: US CYD V. GRIMES, C.P.M., CPPO, TRAVIS CO	UNTY PURCHASING AGENT	DOTT 5 DATE:					
TRAVIS COUNTY, TEXAS		DATE:					
BY: SAMUEL T. BISCOE, TRAVIS COUNTY JUD	GE						

# SCOPE OF WORK SERVICES TO BE PROVIDED BY THE ENGINEER ARTERIAL "A" PROJECT

### WORK PRODUCT 2 PHASE II: 30% PS&E

Arterial "A" is a MAD4 arterial approximately 3.5-miles in length with 11,300 feet located within Travis County jurisdiction and the remaining inside the City of Austin jurisdiction. The design speed is 45 mph and the typical cross section of the roadway includes:

- two 12-ft lanes in each direction
- 23-ft wide grassy median (back-of-curb)
- 5-ft bike lane abutting the concrete gutter along each outside lane
- 2-ft concrete curb and gutter along outside edge of bike lane
- · 6-ft sidewalk on both sides of the road

The work to be performed under this contract will consist of providing engineering services for the preparation of 30% Plans, Specifications, and Estimates (PS&E) for the portion located within Travis County will be developed. One draft environmental document will also be prepared. The work will be performed by AECOM, Inc. (AECOM), Cox|McLain (CM), Crespo Consulting Services (CSP), Surveying & Mapping, Inc. (SAM), and Unintech (UNi).

All engineering documents will include 30% plans and estimates in accordance with the format stipulated by Travis County.

The project will be developed using generally recognized engineering methodology and standards of care.

Engineering services will be required for an acceptable project as approved by Transportation and Natural Resources (TNR). The project will be developed in English units.

TABLE 1	I: PROJECT INVENTORY		
Project Length in Travis County = 11,300 feet			
ROADWAY	RETAINING WALL		
Total Roadway Length = 8,900 feet	Number of Retaining Walls = 26 Total Retaining Wall Length = 11,600 feet		
BRIDGE	DRAINAGE		
Number of Bridge Crossings = 3 Number of Single Bridges = 2 Number of Twin Bridges = 2 Total Bridge Length = 2,360 feet	Number of Bridge Class Culverts = 2 Number of Non-Bridge Class Culverts = 8 Number of Water-Quality Ponds = 10 Number of Detention Ponds = 10		

Modification No. 1 Contract No. 10AE198JE Page 3 of 11

#### WORK PRODUCT 2 PHASE II: 30% PS&E

#### SECTION 2.1: SERVICES TO BE PROVIDED BY AECOM, INC. (AECOM)

At the completion of Phase I, the preferred alignment will be approved by the County and Phase II will begin. Phase II will develop the detailed design for 30% complete design documents. Plans will be developed in 11"x1,7" format (half-scale).

#### **ROADWAY DESIGN**

- 1. Develop typical section sheets for both existing and proposed Arterial "A", Rundberg Lane, Braker Lane, Cameron Road, and US 290E.
- 2. Calculate final superelevation rates and update shape file for preferred alignment.
- 3. Design independent vertical profiles for northbound and southbound Arterial "A" lanes. This will provide flexibility in reducing retaining wall needs, slope easements, and earthwork quantities for the project.
- 4. Design existing and proposed cross street profiles for US 290 E westbound frontage road, Rundberg Lane, Springdale Road, Barr Lane, Cameron Road, and Taebaek Drive.
- 5. Define proposed driveway criteria and locations along Arterial "A" alignment and update roadway base map file. Driveway profiles will be created at 60% development and not under this contract.
- 6. Develop roadway plan and profile sheets (1" = 100'H / 1" = 10'V) for Arterial "A". Coordinates, superelevation data, stations, elevations of key alignment features and bench marks will be noted. Roadway P&P sheets will be developed only for the portion of the project that is located within Travis County, approximately 11.300 feet.
- 7. Develop profile sheets for cross streets including US 290E westbound frontage road, Rundberg Lane, Springdale Road, Barr Lane, Cameron Road, and Taebaek Drive (1" = 100'H / 1" = 10'V).
- 8. Prepare preliminary intersection layouts for the intersections of US 290 E, Springdale Road, Rundberg Lane, and Cameron Road (1" = 50').
- 9. Develop design cross sections for preferred alignment at maximum 100-ft increments and prepare cross section sheets (1" = 20').
- 10. Determine quantities of cut and fill for each cross section.
- 11. Calculate quantities for roadway items for the project.
- 12. Conduct site visit to verify field items as needed to satisfy the requirements of the County.

#### UTILITIES

- 1. Obtain record drawings and review existing utility record drawings provided by utility agencies for development of existing utility base file.
- 2. Determine utility conflicts and coordinate with utility agencies for relocation. Incorporate existing utilities into the preliminary plans.
- 3. Develop preliminary existing utility layouts (1" = 100'). The ENGINEER will furnish 30% plans to each serving utility company for coordination. The actual design and relocation of existing utilities will be done by others.

#### DRAINAGE

1. Calculate internal drainage areas for storm sewer system and develop drainage area maps for inclusion in the plans.

- 2. Perform preliminary storm sewer analysis and design using Geopak Drainage software.
- 3. Generate hydraulic computation sheets to provide all calculations to the County in the form of a printed output file as well as showing the necessary information in the final plan set for the project.
- 4. Develop preliminary storm sewer plan and profile sheets (1" = 100').
- 5. Conduct site visit to verify field items as needed to satisfy the requirements of the County.

#### TRAFFIC CONTROL PLAN

1. Prepare TCP narrative sheet outlining the general sequence of construction plan. Narrative sheet will be submitted to the County for review and incorporation into the plans.

#### **RETAINING WALLS**

1. Identify preliminary retaining wall locations, lengths, heights, and square areas for the independent vertical profiles of Arterial "A". Retaining wall locations will be summarized in tabular form for the 30% submittal. Preliminary retaining wall layouts will be developed at the 60% level of design completion.

#### **MISCELLANEOUS ROADWAY**

- 1. Miscellaneous Drafting
  - a. Project Title Sheet prepare a title sheet formatted to County guidelines to be used for the construction plans. Index of sheets will be included on the title sheet.
  - b. Project Layout develop site layout for the project.
  - c. Horizontal Alignment Data Sheet prepare horizontal alignment data sheets.
  - d. Preliminary Summary Sheets prepare summary sheets to tabulate roadway, drainage, and structural items on the project.
- 2. Project Estimate prepare a construction estimate of the engineer's opinion of probable costs. The estimate will be prepared for the project at the 30% submittal.
- 3. Submittals and Design Review Meetings a 30% final deliverable will be required. Two (2) copies will be submitted for County review. Comments and revisions requested from County review will be addressed and/or incorporated into the final deliverable under this contract.
  - a. 30% Submittal & Review submittal will include preliminary cross sections, P&P sheets, existing and proposed typical sections, preliminary title and index sheets, preliminary drainage area map and drainage calculations, preliminary bridge layouts, preliminary retaining wall locations, TCP narrative, preliminary utility exhibits, summary sheet outline, identify potential utility conflicts, and preliminary cost estimate.
  - b. Attend 30% review meeting.
  - c. Electronic Graphics Submittal provide to the County, an electronic deliverable (CD-ROM) of all design documents for the project.

#### **PROJECT MANAGEMENT**

- 1. Provide overall project management services including project coordination, subconsultant management, and preparation of invoices. Ensure timely delivery of the PS&E submittals, GEOPAK files, electronic files, and hard copies of all pertinent information, all in American Standard System of Measure format.
- 2. Monitor and update design project schedule as needed throughout development of the project.
- 3. Design Notebook Compile a notebook containing the project design calculations and associated data.
- 4. Project Meetings

- a. Attend project related meetings with the County, as directed. The Engineer will be required to attend up to two (2) Project Development Meetings to discuss the progress of the project and design issues. Meetings are estimated at 2 hr/meeting.
- b. Record and distribute meeting minutes. The Engineer will compile and provide the minutes of all meetings to the County within ten (10) working days of such meetings.

5. Quality Management

- a. Quality Control/ Quality Assurance Reviews Perform QA/QC and assure that all work performed, including subconsultant work, goes through a QA/QC process before County receives deliverables.
- b. Prepare Comment Log Files for documenting, coordinating, and addressing review comments received by the County personnel throughout the development of the PS&E.

#### SECTION 2.2: SERVICES TO BE PROVIDED BY COXIMCLAIN (CML)

#### **ENVIRONMENTAL STUDIES**

1. Assist in project management and communications.

 Prepare final Travis County Environmental Assessment (EA) - Prepare County EA summarizing environmental studies and constraints and documenting potential environmental impacts, including permitting requirements, for the 30% PS&E. Deliverables: Final Travis County EA (2 hard copies and 1 electronic copy)

3. Provide additional agency coordination (no permits).

4. Project archeologists will conduct background research at the Texas Archeological Research Laboratory (TARL) and summarize findings and recommendations in the Final EA. An archeological survey (pedestrian survey Including standard shovel tests) will be performed for the project, and summarized in a report suitable for submittal to the THC. Prepare one (1) archeological survey report (2 hard copies and 1 electronic copy).

## SECTION 2.3: SERVICES TO BE PROVIDED BY CRESPO CONSULTING SERVICES, INC. (CRESPO)

#### DRAINAGE

1. Hydrologic Studies

- a. Prepare a drainage area map for inclusion in the plans.
- b. Coordinate with the local FEMA administrator.
- 2. Hydraulic Computations Perform necessary hydraulic computations for the design of this project. Hydraulic design calculations will be performed for the following: bridges, culverts, and water quality / detention ponds. This work will include the use of hydraulic computer programs such as WinStorm, HEC-RAS, HEC II or other hydraulic modeling programs approved by the County. FEMA analysis does not include a CLOMR or LOMR and, if either is required, will be performed under an additional scope and budget. All modeling and design will be conducted in conformance with FEMA and County Floodplain Administrator's requirements, and will provide the basis final design modeling and CLOMR/LOMR development (if necessary).
- 3. Hydraulic Report Provide all hydraulic calculations to the County in the form of a drainage report as well as showing the necessary information in the 30% plan set for the project. The report will be signed and sealed by a Texas registered Professional Engineer. Perform scour calculations for bridge structures and include in the drainage report at the 30% submittal to the County.

- 4. Hydraulic Data Sheet Prepare a Hydraulic Data Sheet for inclusion in the plans for two (2) bridge crossings. A Hydraulic Data Sheet for two (2) bridge class culverts will also be prepared to only include the inputs/outputs of the computer software analyses. Hydraulic data for eight (8) non-bridge class culverts will be displayed alongside the corresponding culvert in the Culvert Profile Sheet.
- 5. Drainage Easements Verify the locations and size of any necessary drainage easements previously identified under Work Product 1.
- 6. Culvert Layout Culvert design will be performed in accordance with TxDOT's Hydraulic Design Manual and will be based upon the drainage area information and the runoff computations. Culvert Layout Sheets will be shown at a scale of 1" = 40' and prepared for two (2) bridge class culverts. Culvert Profile Sheets will be shown at a scale of 1" = 20' and prepared for eight (8) non bridge class culverts. Plan view will show the location of culvert, roadway alignment, utilities, and channel improvements, as required. Profile view information will include size, slope, proposed and existing ground lines above the culvert, and hydraulic data.
- 7. Summary of quantities Update quantities for drainage items quantified under Work Product 1 for the 30% submittal. Summary sheets will be provided by AECOM and drainage items tabulated on sheets.
- 8. Conduct site visit and field work to support 30% design for the proposed new roadway alignment and related drainage appurtenances.

#### SECTION 2.4 SERVICES TO BE PROVIDED BY SURVEYING & MAPPING, INC. (SAM)

#### **SURVEY AND ROW**

1. Project Survey Control

Project horizontal and vertical control (5/8" iron rods with SAM Control plastic caps) will be set along the selected route for Arterial A at minimum 1,000 foot intervals (13 control points estimated). Survey control for this project will be placed on the following horizontal and vertical datums: NAD83/93/NAVD88 values (Texas State Plane Grid Coordinates, Central Zone) (US 290 2008 CTRMA/HNTB Control). An ASCII file providing X, Y, Z coordinates for the control points set for this project will be provided along with a survey control drawing on 11x17 white mylar and copies of field notes with 3 ties from the control points to permanent features.

2. Design Survey

- a. 2.3-mile Corridor Survey the topographic relief sufficient to produce 1 foot contour mapping intervals and locate existing visible planimetric features along the proposed 2.3-mile corridor of Arterial A from the north right-of-way (ROW) of US 290 to the Austin City Limit Line to include, but not limited to, fences, buildings and visible surface utility features. The survey limits will extend 10 feet in each direction from the proposed ROW line (67 feet from proposed centerline) of Arterial A for a total width of 134 feet. The design survey limits will extend on to the Austin Community Landfill site located on the East side of Arterial A up to the limits of the active area.
- b. Minor Cross Streets Perform full topographic survey, sufficient to produce 1 foot contour mapping intervals, from ROW to ROW, of the four existing roads that cross or tie-in to the proposed Arterial A alignment (Springdale Road, Barr Lane, Blue Goose Road, Taebak Drive). The limits for the topographic survey of said roads will extend a maximum 200 feet in each direction from the intersection of the existing road centerline with the proposed ROW line (67 feet from proposed centerline) of Arterial A.

- c. Rundberg Lane Perform full topographic survey, sufficient to produce 1 foot contour mapping intervals for the proposed Rundberg Lane extension from Springdale Road to Arterial A (approximately 300 feet). The survey limits for this area will extend 10 feet in each direction from the proposed ROW line (67 feet from proposed centerline) of Rundberg Lane for a total width of 134 feet.
- d. Draiñage Channels Major drainage channels that cross proposed Arterial A alignment will be cross sectioned at 50 feet upstream and downstream (bridge-class culverts only, 2 locations). One (1) cross-section will be needed at the upstream end and one (1) at the downstream end. For bridge locations over Walnut Creek Tributary #3, cross sections will be shot at 200 ft upstream and downstream. Two (2) cross-sections will be needed for the proposed bridges at the upstream end and two (2) at the downstream end at approximate stations 47+00, 60+00, and 71+00. Grade shots will be taken at the center of creek, bottom of creek bank, top of creek bank and at natural grade approximately 50 feet beyond the discernible top of creek bank. These cross sections are not intended to be part of the overall DTM.
- e. **Design Survey deliverables** will include a base map showing the above information using MicroStation (V8) and furnished in 2D and 3D format on a compact disk. Deliverables shall include 2D & 3D MicroStation (V8) drawing files of all features located in the field along with one-foot interval contours and a GEOPAK TIN file. Other deliverables shall include a PDF of field book copies, an ASCII point file of coordinates.

3. Right of Entry

- a. Travis County will acquire the required right of entries in a timely manner for properties that must be accessed for the on-the-ground surveying that will be performed.
- 4. Additional Services Not Included In Scope
  - a. Preparation of descriptions for drainage easements, construction easements or access denial lines will be additional services.
  - b. SUE services.
  - c. Staking or locating geotechnical soil borings.
  - d. Staking of alignment and ROW lines.
  - e. ROW survey
  - f. ROW documents
  - a. Additional design survey due to changes in the alignment.

#### SECTION 2.4 SERVICES TO BE PROVIDED BY UNINTECH (UNI)

#### **BRIDGE DESIGN**

- 1. Conduct site visit.
- 2. Evaluate and coordinate with roadway design.
- 3. Evaluate and coordinate with hydraulic analysis with substructure location and shape.
- 4. Provide proposed bridge typical sections.
- 5. Develop three (3) bridge layouts in accordance with the most recent edition of the TxDOT's Bridge Project Development Manual, and Bridge Detailing Manual.
  - a. Provide the following information on each bridge layout plan view, as applicable:
    - i. Horizontal curve information
    - li. Horizontal, vertical, and template information for all roadways or railroads crossed

- iii. Bearing of centerline or reference line
- iv. Skew angle(s)
- v. Slope for header banks and approach fills
- vi. Control stations and deck elevations at beginning and ending of bridge and at all intersections
- vii. Approach pavement and crown width
- viii. Width of bridge roadway, curbs, face of rails, shoulders, and sidewalks
- ix. Bridge end treatments including cement stabilized backfill details
- x. Limits and type of riprap
- xi. Proposed features beneath structure
- xii. Location of profile grade line
- xiii. North arrow and scale bar
- xiv. Typical bridge roadway section including preliminary proposed beam types and spacing
- xv. Cross-slope and superelevation data
- xvi. Locations and calculated values of minimum vertical clearances. Dimension minimum vertical clearance to controlling features
- xvii. Location of soil core holes, including station and offset
- xviii. Bent stations and bearings
- xix. Traffic flow directional arrows
- xx. Railing type(s)
- xxi. Joint type and seal size, if used
- xxii. Beam line numbers consistent with span details
- xxiii. Critical horizontal clearances, including distances to railroad tracks, nearby structures, and utilities
- xxiv. Bearings of utilities
  - b. Provide the following information on each bridge layout elevation view, as applicable:
    - i. Foundation type
    - ii. Finished grade elevations at beginning and end of bridge
  - iii. Overall length of structure
  - iv. Lengths and types of spans and units
  - v. Ralling type(s)
  - vi. Locations of minimum vertical clearances. Dimension minimum vertical clearance to controlling features
  - vii. Existing and proposed ground lines
  - viii. Grid elevations and stations
  - ix. Bent numbers
  - x. Bridge stationing compatible with grid stations
  - xi. Standard title
  - xii. Profile grade data
  - xiii. Type of riprap
- xiv. Soil bore holes information with penetrometer test data shown at the correct stations, elevations, and scale
- xv. Dowel locations at all bents
- xvi. Column "H" heights
- xvii. Number, size, and length of foundations
- xviii. Design and 100-yr peak discharges

- xix. Design and 100-yr high water
- xx. Natural and through-bridge velocities for design and 100-yr floods
- xxi. Calculated backwater for design and 100-yr floods
- xxii. Direction of flow at waterway crossings
- xxiii. Existing and Proposed Contours at waterway crossings
- 6. Prepare preliminary cost estimate for bridges.
- 7. Perform internal QA/QC on all deliverables before submitting to AECOM.

Limits: From US 290E To City Limit Line

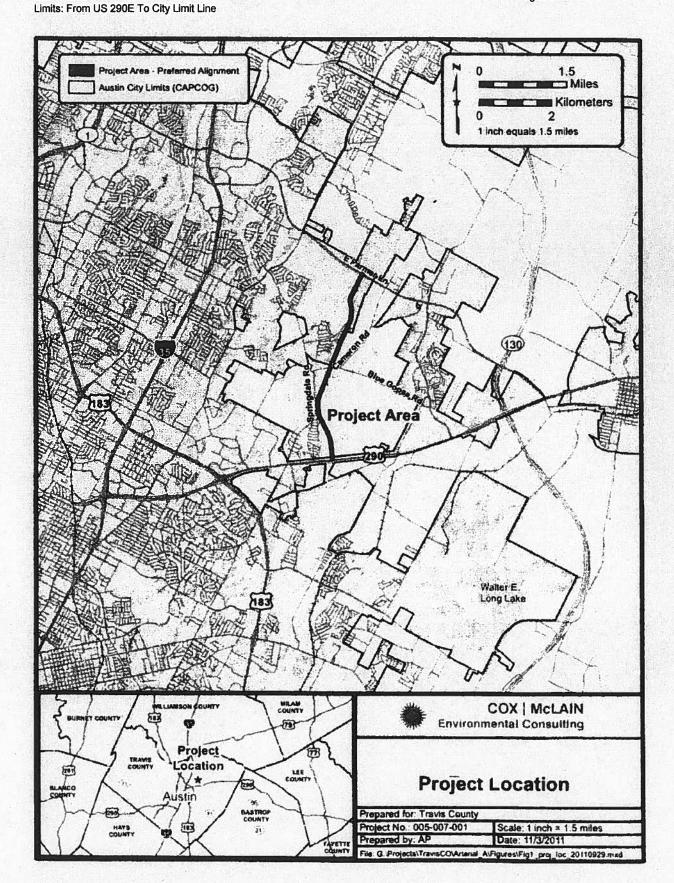
#### **SECTION 3: PROJECT SUBMITTALS**

Work Product 2 submittal will include a cover letter from the Engineer stating who from the design team performed a Quality Assurance / Quality Control check. Two final checks will be submitted and three weeks allowed for the County to review and provide written comments and/or approval.

#### 30% Design Submittal:

- 1. Preliminary title and index of sheets
- 2. Plan and profile sheets
- 3. Existing and proposed typical sections
- 4. Preliminary intersection layouts
- 5. Preliminary cross sections
- 6. Preliminary drainage area map, discharge relationships, and drainage calculations
- 7. Storm drainage master plan
- 8. Preliminary culvert layouts
- 9. Preliminary bridge layouts
- 10. Preliminary retaining wall locations
- 11. Sequence of work outline for traffic control
- 12. Identify potential conflicts with existing utilities and prepare preliminary utility exhibits
- 13. Update estimate and prepare preliminary summary sheets
- 14. Certification letter for QA/QC check
- 15. Submit plans (paper plots), estimate, and all supporting paperwork for TNR review
- 16. Final County EA

**Timeline: 5 Months** 



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PURCHASE REQUISITION NBR: 0000550914
STATUS: AUDITOR APPROVAL
PEASON: 52022 POADS CLD MOD PO#4455007 CONT 10450108 IE

	SITION BY: BRUNIL LOCATION: AS IND		REASON: 53 SUGGESTED				ONT 10AE0198JE AL SERVICES INC	DATE: DELIVER BY DATE:	1/20/12 1/20/12
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DE0111 01 T1					RENT FISCAL			286232.	77

REQUISITION COMMENTS: 20120120 RT 2/7/12 WAITING ON CONTRACT MOD.KS