WORK AUTHORIZATION

WORK AUTHORIZATION NO. 1

PROJECT: Engineering Services for Williamson County Long Range Transportation Plan

This Work Authorization is made pursuant to the terms and conditions of the Williamson County Contract for Engineering Services, being dated <u>October /9</u>, <u>2016</u> and entered into by and between Williamson County, Texas, a political subdivision of the State of Texas, (the "County") and <u>Alliance Transportation Group</u> (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 \$262,236.00.

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 <u>June 30, 2017</u>. 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 19 day of October,	20 <u>16</u> .
ENGINEER:	COUNTY:
Alliance Transportation Group, Inc.	Williamson County, Texas
By: Signature Signature Laway Michae Heath	By: Signature DAT A GATT'
Printed Name	Printed Name
Title	Courty Justs

LIST OF ATTACHMENTS

Attachment A - Services to be Provided by County

Attachment B - Services to be Provided by Engineer

Attachment C - Work Schedule

Attachment D - Fee Schedule

Original Date: 8/4/15 Revision Date: 12/9/15

Attachment A - Services to be Provided by County

Williamson County will provide a Project Manager and any requested data that is in the County's control.

Original Date: 8/4/15 Revision Date: 12/9/15

Attachment B - Services to be Provided by Engineer

Overview

This work program creates a collaborative effort with the Alliance team serving as an extension of Williamson County staff to complete value added technical analysis using the CAMPO Travel Demand Model (TDM) to evaluate transportation and land use scenarios defined by the County, as well as to provide other plan preparation and production support.

The following Scope of Work provides specific steps and major deliverables.

Scope of Work

Task 1 Project Management and Communication

The Engineer shall work closely with the County staff to design an effective plan that provides clear and effective lines of communication; defines roles and responsibilities; and supports a fast start, vigorous execution of critical path elements and maintenance of effort to a strong and conclusive finish that provides quality products. At project initiation, Engineer shall also work to use County resources by taking advantage of previous work, existing plans and other available resources.

The following steps are included in project management and communication:

Task 1.1 Project Management Plan

Upon notice to proceed, the Engineer shall develop a project management plan (PMP) that focuses on the timely execution of critical path elements of the scope, and provides ongoing measures of project performance. The PMP shall be developed collaboratively with the County project manager and shall be presented to the County project manager for approval within 2 weeks of notice to proceed. At a minimum the project management plan shall include:

- A general delineation of the roles and responsibilities
- A project schedule
- A communication strategy that establishes protocols for effective communication
- Project team roster and key personnel contact information
- Outline of the project quality assurance and quality control (QA/QC) process
- Progress report and billing protocols consistent with County reporting, and billing cycles

Task 1.2 Kickoff Meeting

The Engineer shall prepare for, schedule and conduct a kickoff meeting with the County PM and County staff to present the PMP and to coordinate with the County on project objectives and finalize project schedule, milestones and products.

Task 1.3 Ongoing Project Management and Administration

The Engineer shall oversee all project activities, including work by subcontractors, and maintain ongoing communication with the County Project Manager for the purpose of maintaining project schedule, milestones and budget.

Deliverables for Task 1 Project Management and Communication

- Project Management and Communication Plan
- Kickoff Meeting
- Ongoing, comprehensive project management and communication

Task 2 Demographics

The Engineer shall develop population and employment demographics and socioeconomic data for an ultimate build out scenario for Williamson County. The build out scenario shall be based on realistic assumptions about future growth, based on current distribution and density of land uses in the County supplemented by reasonable assumptions about future growth trends, emerging patterns, available supply stock, anticipated absorption capacity, and using other high growth counties in the state as examples of other high growth scenarios.

Task 2.1 Assemble Data

The Engineer shall assemble available local real estate market and existing conditions data, along with community plans and current zoning regulations. The Engineer shall obtain and analyze detailed economic and demographic data to understand regional and local market conditions.

Task 2.2 Socioeconomic Build Out Scenarios

The Engineer shall develop population, household and employment demographics for an ultimate build out scenario of Williamson County. This analysis includes, to the greatest extent possible, planned and proposed inventory that could influence development in the study area. Engineer shall apply capture rates for each land use, informed by professional experience and local market research, to estimate the amount of new development that can be absorbed in the County study area at build out.

The Engineer shall analyze the information generated and synthesized to estimate the build-out capacity of all transportation analysis zones for existing development types at prevailing and/or anticipated densities and land utilization rates, taking into account limits on developable land by type.

The Engineer shall use this analysis to perform a conversion of projected land use into the socio-economic data details required for travel demand modeling (i.e. households and employment by type). To implement the proposed methodology described above, the Engineer shall utilize a software called "Land." Land is open-source and does not require a licensing fee.

Using the gathered information, the Engineer shall allocate the additional population, households and employment to the respective CAMPO TDM traffic analysis zones (TAZ) within the study area.

Task 2.3 Land Use Scenarios

Although consistency in the ultimate build out land use/socioeconomic scenario will be, to the extent possible, maintained across transportation scenarios, the different ways in which the transportation system interacts with adjacent land use in each scenario will require adjustments or revisions to the distribution of land uses in the ultimate build out to match the context of the transportation system configurations and the impacts of that configuration on the land use patterns. The Engineer shall revise the ultimate build out land use/socioeconomic scenario as necessary to reflect how the transportation scenario may accelerate development or increase the attractiveness of different areas within the County.

Land use scenarios will at a minimum be designed to support the following travel demand model scenarios:

- Existing + Committed
- Controlled Access + No Build Arterials
- Arterials + No Build Controlled Access
- Controlled Access and Arterial

Deliverables for Task 2 Demographics

- Draft technical memorandum that includes detailed description of the methods, assumptions and processes used.
- Draft LRTP chapter that references the technical memorandum and summarizes the methods, assumptions, processes and conclusions drawn from the activities completed in Task 2.
- A GIS database containing the ultimate build out demographic, socioeconomic and land use data as influenced by each transportation scenario at both the TAZ and Census geography (either tract, block group, or block) levels.

Task 3 Travel Demand Modeling and Analysis

The following tasks are designed to measure and analyze the future performance of the Williamson County transportation system under a set of transportation scenarios defined by the County using the CAMPO TDM.

Task 3.1 Mobility Measures

To define how the TDM will be used and the results will be aggregated, reported and analyzed, the Engineer shall focus on the ways in which the multimodal transportation system performs in terms of quantitative mobility measures. Mobility is a measure of the transportation system's ability to successfully move people and goods from one place to another, both within the County and to connect them to regional activity centers. Mobility measures will include TDM output data including:

- Traffic congestion
- Total system delay
- Roadway Level of Service

Individual mobility measures shall be developed in collaboration with County with a focus on items related to outcome based system performance management principles used for assessment of projects in regional, state and federal funding programs.

Deliverables of Task 3.1 Mobility Measures

 A set of transportation performance measures that can be used to evaluate the performance of the Williamson County Transportation System performs under each of the scenarios and allows the County to prioritize projects for inclusion in regional, state and federal funding programs.

Task 3.2 Evaluation of Future Traffic Conditions

The Engineer shall apply the CAMPO travel demand model to develop traffic forecasts for a selected set of up to four (4) Alternative Build Scenarios. These runs shall provide the County with the ability to undertake, with support from the Engineer, scenario based planning and testing of proposed alternatives to be used in development and analysis of the LRTP. Under this task the Engineer shall:

- Code an expanded County roadway network to define each of the four (4) alternative transportation scenarios defined by the County.
- Perform TDM model runs to produce traffic forecasts for each of the four (4) scenarios using the ultimate build out land use and socioeconomic scenario (as revised for each scenario).
- Format the results and report the transportation system outcomes of each scenario in terms of the selected mobility measures.
- Interpretation and comparative analysis of the results of each of the modeled scenarios to provide insight into the dynamics of the various alternatives, the potential impacts and interactions of transportation and land use, and the factors most likely to help or hinder optimization of the transportation system in Williamson County.

Scenarios currently defined by the County for use in this demand analysis include the following:

- Existing + Committed
- Controlled Access + No Build Arterials
- Arterials + No Build Controlled Access
- Controlled Access and Arterial

The Existing + Committed scenario shall be defined as existing transportation projects as of September 1, 2016, as well as committed projects as listed in the 2013 Williamson County Bond Program construction letting list as well as projects identified for construction in the adopted (as of September 1, 2016) CAMPO Transportation Improvement Program.

Deliverables for Task 3.2 Evaluation of Future Traffic Conditions

- CAMPO TDM traffic forecasts for each of four (4) scenarios defined by the County
- Comparative analysis of the results of the four (4) scenarios to provide insight into the dynamics of the various alternatives and the interaction of the transportation system and future land use.

Task 3.3 Application of Dynamic Traffic Assignment

The Engineer shall apply the dynamic traffic assignment (DTA) program developed by CTR using the CAMPO model outputs from the scenarios in Task 3.2. To accomplish this task, the Engineer shall add detailed information to the roadway network related to turn lanes, traffic control at intersections along with other required attributes. The Engineer shall also develop diurnal distributions to convert the CAMPO model trip tables to the more detailed time slices required for the DTA. The Engineer shall work with CTR to establish a remote connection to the DTA program for application of the model.

Deliverables for Task 3.3 Dynamic Traffic Assignment

• Traffic routing and performance results for each of four (4) scenarios

Deliverables for Task 3 Travel Demand Modeling and Analysis

- Draft technical memorandum that includes detailed description of the methods, assumptions and processes used.
- Draft LRTP chapter that references the technical memorandum and summarizes the methods, assumptions, processes and conclusions drawn from the activities completed in Task 3.

Task 4 Economic Analysis

Task 4.1 Evaluation of Property Values

In Engineer shall make use of the Land software outputs developed in Task 2 to inform the economic analysis. This economic assessment shall be utilized to inform the development of land use forecasts, providing an understanding of how transportation projects may accelerate development or increase the attractiveness and value of different areas within the County between now and the ultimate build out.

Task 4.2 Evaluation of Potential Tax Revenue

Based on the magnitude and distribution of the land uses by type in the ultimate build out scenario(s), combined with the estimated property values by property type, Engineer shall develop a projection of property tax revenue likely to be produced by the combination transportation and land use ultimate build out scenario. Tax revenue projections shall be based upon tax rate assumptions consistent with current property tax rates by class of property indexed to inflation and other economic factors.

Task 4.3 Overall Plan Evaluation

Once a preferred transportation scenario is selected by the County based on the mobility benefits and evaluation of property values and tax revenue, the Engineer shall evaluate the preferred transportation scenario.

Deliverables for Task 4 Economic Analysis

- A Technical Memorandum and draft LRTP Chapter that provides:
 - Comparative evaluation of property values resulting from each of the transportation scenarios under build out conditions
 - o Comparative evaluation of potential tax revenues from each of the transportation scenarios under build out conditions
 - Assessment of overall performance of a preferred LRTP transportation scenario in supporting County quality of place and economic sustainability goals

Task 5 Graphic Support

To support the County in providing materials to help staff, County planning partners, policy makers and the public visualize the outcomes of the various analyses being carried out and the alternatives being considered during plan Development, as well as to support the design and development of an accessible and aesthetic pleasing plan document, the Engineer shall provide graphic support services to the County by carrying out the following tasks.

Task 5.1 Graphic Exhibits

The Engineer shall provide camera-ready technical exhibits for use in communicating information to County planning partners, stakeholders and the public during development of the plan as well as graphic exhibits for inclusion in the final plan document. Products shall include:

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- Graphic exhibits in the form of thematic maps, figures, charts, diagrams and sketches
 for inclusion in the LRTP document, executive summaries and brochures to illustrate
 the document text and support exposition of the concepts, alternatives and outcomes of
 the LRTP development process.
- Large scale graphic exhibits for mounting on boards or other display media in the forms of tables, thematic maps, charts tables, diagrams and other figures for use in public meetings and presentations to policy makers, stakeholders, and the general public for the purpose of visualizing the concepts and alternatives being presented.
- Visual elements and graphics for inclusion in slide presentations, websites and social media platforms for the purpose of visualizing the concepts and alternatives being presented.
- A PowerPoint presentation of the LRTP for use at stakeholder meetings, plan presentations, and other events.

Task 5.2 Document Design and Layout

The Engineer shall work with County staff to develop a style guide, color palate, thematic accents and other design elements for use in the Williamson County LRTP document and associated brochures for the purpose of creating an attractive document with an accessible format that is easy to read and aesthetically pleasing.

Using the agreed upon style and visual design, the Engineer shall complete the paste up and layout of a Draft Williamson County LRTP document for review and approval by the County.

Based upon feedback from the County, the Engineer shall prepare two hundred (200) physical copies and one (1) electronic, camera ready, reproducible Final Williamson County LRTP Document for further publication by the County.

Using the agreed upon style and visual design, the Engineer shall complete the paste up and layout of a Draft Williamson County LRTP Executive Summary / Brochure that provides a concise summary of the key elements of the LRTP development and outcomes for review and approval of the County.

Based upon feedback from the County, the Engineer shall prepare fifty (50) physical copies and one (1) electronic, camera ready, reproducible Final Williamson County LRTP Executive Summary / Brochure for further publication by the County.

Based upon feedback from the County, the Engineer shall prepare two hundred (200) USB sticks containing PDFs of the Final Williamson County LRTP Document and Executive Summary / Brochure.

Deliverables for Task 5 Graphic Support

- Graphic exhibits, thematic maps, figures, charts diagrams and sketches for inclusion in the Williamson County LRTP document and associated brochures
- Large Scale exhibits, thematic maps, figures, charts diagrams and sketches for inclusion in the Williamson County LRTP document
- Graphic elements for inclusion in slide presentations, websites and social media sites.
- Design, layout and production of two hundred (200) physical copies and one (1) camera ready, reproducible electronic copy of the final Williamson County LRTP document
- Design, layout and production of fifty (50) physical copies and one (1) camera ready, reproducible electronic copy of a stand-alone final Williamson County LRTP Executive Summary / Brochure
- Design, layout and production of two hundred (200) USB sticks containing PDFs of the Final Williamson County LRTP Document and Executive Summary / Brochure.

Task 6 Peer Review and Editing

The Engineer shall provide technical writing, peer review and editing services to support the County staff in developing the substantive content for the Williamson County Long Range Transportation Plan by carrying out the following tasks:

Task 6.1 Technical Writing and Editing

The Engineer shall provide technical writing support to the County staff by completing the following services:

- Engineer shall collaborate with County staff on the goals, objectives, major themes and anticipated content of the LRTP document and develop, for County approval, a draft outline or thumbnail key elements to be used in plan development.
- Engineer shall assemble, review and edit for clarity and consistency, subject matter content provided by County staff and content specialists for each of the key elements identified in the LRTP outline.
- The Engineer shall return edited copy to the County staff / principal content specialist for review and concurrence in the revised text.

Task 6.2 Peer Review

The Engineer shall provide peer review support to the County staff and content specialists by completing the following services:

• Engineer shall review the content materials developed by County staff and content specialists to identify and recommend additional topics or thematic material that should be included in the LRTP content to provide a complete and comprehensive picture of the LRTP analysis, available solutions and proposed solutions to address County goals.

• Engineer shall review the content materials developed by County staff and make recommendations regarding additions or revisions to methodology and analytical processes to a) better meet regulatory and financial program requirements; and b) to support the County's goal of producing an LRTP that promotes planning excellence and conforms to current best practice principles.

Deliverables for Task 6 Peer Review and Editing

- Reviewed and edited copy of the content supplied by County staff and content specialists for each substantive topic to be included in the LRTP document.
- Recommendations on additional substantive content, topics or thematic material that would provide a more comprehensive exposition of the LRTP analysis, alternatives and outcomes.
- Review of substantive content with recommendations for consistency with federal, state, regional and local regulatory requirements.
- Review of substantive content for consistency with current best practice principles.

Task 7 Coordination with the County Task 7.1 Coordination with the County

The Engineer shall work closely with County staff members. The Engineer shall prepare material for and lead five (5) meetings with County Staff, individuals, or identified representatives. No information regarding the LRTP shall be released without written authorization from the Senior Director of Infrastructure or the Williamson County Judge.

Deliverables for Task 7 Stakeholder Coordination

- Outreach Materials
- Meetings (5) with stakeholders

Original Date: 8/4/15 Revision Date: 12/9/15

Attachment C - Work Schedule

The completed draft report is due April 1, 2017.

Original Date: 8/4/15 Revision Date: 12/9/15

Attachment D - Fee Schedule

Alliance Transportation Group

Contract				
Labor/Staff/Classification	Rate			
Project Principal	\$	250.00		
Senior Project Manager	\$	244.00		
Senior Engineer	\$	193.00		
Project Engineer	\$	144.00		
Engineer-in-Training (EIT)	\$	101.00		
Senior Engineering Technician	\$	133.00		
Engineering Technician	\$	90.00		
Planning Director	\$	230.00		
Sr Travel Demand Modeler	\$	182.00		
Travel Demand Modeler III	\$	137.00		
Travel Demand Modeler II	\$	117.00		
Senior Planner	\$	162.00		
Planner II	\$	125.00		
Planneri	\$	85.00		
Project Adminstrator	\$	104.00		
Clerical	\$	65.00		

Manhan Group

Labor/Staff/Classification		Contract Rate			
Land Use Modeler	\$	150.00			
Technical Lead	\$	135.00			
Programmer	\$	75.00			
CD AD					

CD&P

	Contra	
Labor/Staff/Classification		Rate
Sub Project Manager	\$	150.00
Public Involvement Task Leader	\$	110.00
Senior Graphic Designer	\$	80.00
PI & Spanish Language Specialis	\$	80.00
PI Coordinator	\$	60.00
Administrative Services	\$	50.00

CTR

	Contract			
Labor/Staff/Classification		Rate		
Senior Traffic Engineer	\$	177.00		
Project Engineer	\$	96.00		
Clerical	\$	45.00		

DIRECT EXPENSES

DIRECT EXPENSES - Prime and Subs	unit	quantity	cost/unit	cost
Mileage (state approved rate)	mile	250	\$ 0.54	\$ 135.00
Photocopies B/W (8 1/2" X 11")	each	20	\$ 0.10	\$ 2.00
Photocopies B/W (11" X 17")	each	20	\$ 0.20	\$ 4.00
Photocopies Color (8 1/2" X 11")	each	25	\$ 0.40	\$ 10.00
Photocopies Color (11" X 17")	each	50	\$ 0.80	\$ 40.00
Remote hosting of demographic tools during project execution (not to exceed \$500)	CPU/hour	100	\$ 5.00	\$ 500.00
Report Production	each	200	\$ 45.00	\$ 9,000.00
Report (executive summary) Production	each	50	\$ 30.00	\$ 1,500.00
UBS stick with logo production	each	200	\$ 7.25	\$ 1,450.00

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Total Project	Cost by Task and				
Tasks	Alliance	CTR	CD&P	Manhan	Total by Task
			44.44	40.00	40.00
Task 1 Project Management and Communication	\$0.00				
Task 1.1 Project Management Plan	\$2,166.00				
Task 1.2 Kickoff Meeting	\$1,688.00				
Task 1.3 Ongoing Project Management and Administration	\$7,316.00	\$0.00			
Task 2 Demographics	\$0.00		\$0.00		
Task 2.1 Assemble Data	\$4,872.00	\$0.00			
Task 2.2 Socioeconomic Build Out Scenarios	\$10,740.00	\$0.00	\$0.00	\$18,375.00	\$29,115.00
Task 2.3 Land Use Scenarios	\$12,986.00	\$0.00	\$0.00	\$5,400.00	\$18,386.00
Task 3 Travel Demand Modeling and Analysis	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Task 3.1 Mobility Measures	\$4,294.00	\$0.00	\$0.00	\$0.00	\$4,294.00
Task 3.2 Evaluation of Future Traffic Conditions	\$31,872.00	\$0.00	\$0.00	\$0.00	\$31,872.00
Task 3.3 Application of Dynamic Traffic Assignment	\$17,520.00	\$30,420.00	\$0.00	\$0.00	\$47,940.00
Task 4 Economic Analysis	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Task 4.1 Evaluation of Property Values	\$9,944.00	\$0.00	\$0.00	\$0.00	\$9,944.00
Task 4.2 Evaluation of Potential Tax Revenue	\$10,944.00	\$0.00	\$0.00	\$0.00	\$10,944.00
Task 4.3 Overall Plan Evaluation	\$22,632.00	\$0.00			\$22,632.00
Task 5 Graphic Support	\$0.00				
Task 5.1 Graphic Exhibits	\$8,372.00				
Task 5.2 Document Design and Layout	\$7,160.00				
	\$0.00				
Task 6 Peer Review and Editing	\$10,592.00				
Task 6.1 Technical Writing and Editing					
Task 6.2 Peer Review	\$12,592.00				
Task 7 Coordination with the County	\$0.00				
Task 7.1 Coordination with the County	\$6,740.00	\$0.00	\$4,440.00	\$0.00	
	4			4	\$0.00
Total Labor Cost (labor, overhead, fee)	\$182,430.00	\$30,420.00	\$12,840.00	\$27,675.00	\$253,365.00
DIRECT EXPENSES*	unit	quantity	cost/unit	cost	
Mileage (state approved rate)	mile	250	\$ 0.540	\$ 135.00	
Photocopies B/W (8 1/2" X 11")	each	20	\$ 0.10	\$ 2.00	
Photocopies B/W (11" X 17")	each	20	\$ 0.20	\$ 4.00	
Photocopies Color (8 1/2" X 11")	each	25	\$ 0.40	\$ 10.00	
Photocopies Color (11" X 17")	each	50	\$ 0.80	\$ 40.00	
Report (executive summary) Production	each	50	\$ 15.00	\$ 750.00	
UBS stick with logo production	each	200	\$ 7.25	\$ 1,450,00	
Remote hosting of demographic tools during project execution (not to exce	2		\$ 80.00		
Report Production	each	200		\$ 6,000.00	1
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Total Direct Costs*					\$8,871.00
Total Project Cost					\$262,236.00
TOTAL PROJECT COST					7202,230.00