

CONTRACT AMENDMENT

No. 2

Chaparral Roadway Widening Project

This Amendment shall be made a part of the City of Killeen CHAPARRAL ROADWAY WIDENING PROJECT Professional Services Agreement. This Contract was entered into on OCTOBER 18, 2022. The change in the fee structure is as follows:

JUSTIFICATION: This amendment will fund the plans, specifications, and estimate (PS&E) for Phase 1 of Chaparral Road between SH 195 and Chaparral High School. This will include 60%, 90%, and 100% design submittals. The proposed improvements for this amendment will include roadway, sidewalk/shared use path, underground storm drain, roadside ditches, cross culverts, detention, intersection improvements, temporary traffic control, retaining walls, illumination, pavement markings/signage, erosion control, and utility relocations for Chaparral Road. This Amendment also includes Right-of-Way Services and Permitting.

Scope of Services	Phase Basic or Special*	Present Contract Amount (Original thru Amendment # 1)	Proposed Amendment #2	Proposed Contract Amount (Original thru Amendment # 2)
Task 1: Design Management	BASIC	\$97,020.00	\$289,308.00	\$386,328.00
Task 2: Alignment Study	BASIC	\$32,900.00	\$0.00	\$32,900.00
Task 3: Funding Application	BASIC	\$129,476.00	\$242,557.00	\$372,033.00
Task 4: Schematic Design	BASIC	\$363,890.00	\$0.00	\$363,890.00
Task 5: Environmental Assessment	BASIC	\$214,370.00	\$318,206.00	\$532,576.00
Task 6: Subsurface Utility Engineering	BASIC	\$141,050.00	\$87,135.00	\$228,185.00
Task 7: Survey	BASIC	\$212,870.00	\$43,293.00	\$256,163.00
Task 8: Hydrologic & Hydraulic Analysis	BASIC	\$183,980.00	\$237,832.00	\$421,812.00
Task 9: Traffic Analysis	BASIC	\$49,810.00	\$65,142.00	\$114,952.00
Task 10: Public Outreach	BASIC	\$104,060.00	\$127,056.00	\$231,116.00
Task 11: Design	BASIC	\$0.00	\$2,029,072.00	\$2,029,072.00
Task 12: Bid Phase Services	BASIC	\$0.00	\$31,205.00	\$31,205.00
Task 13: Geotechnical Engineering	BASIC	\$0.00	\$128,813.00	\$128,813.00
Task 14: TXDOT Coordination	SPECIAL*	\$0.00	\$13,844.00	\$13,844.00
Task 14: Franchise Utility Coordination	SPECIAL*	\$0.00	\$41,392.00	\$41,392.00
Task 16: Land Acquisition Services	SPECIAL*	\$0.00	\$2,590,698.00	\$2,590,698.00
Task 17: TDLR/RAS Services	SPECIAL*	\$0.00	\$5,591.00	\$5,591.00
Task 18: Contingency	SPECIAL*	\$0.00	\$100,000.00	\$100,000.00
TOTAL		\$1,529,426.00	\$6,351,144.00	\$7,880,570.00

Note: Basic Services shall be charged as lump sum and Special* services shall be charged as Cost Plus Maximum.

CONSULTANT:

By: Chris B. Bosco

Signature: 

Title: Principal

Date: 9/30/2025

City of Killeen:

By: Kent Cagle

Signature: _____

Title: City Manager

Date: _____

#NAME?

EXHIBIT "A"
PROFESSIONAL ENGINEERING SERVICES
AMENDMENT #2

Chaparral Road – 100% PS&E Design from SH 195 to Chaparral High School

The scope set forth herein defines the work to be performed by Freese and Nichols, Inc. (PROFESSIONAL) and the City of Killeen, Texas (CITY) in completing the project. Both the CITY and PROFESSIONAL have attempted to clearly define the work to be performed and address the needs of the project.

PROFESSIONAL conducted the schematic design phase from 2022-2025 to identify a preliminary cost estimate and general footprint for the Chaparral Road improvements. This amendment will fund the plans, specifications, and estimate (PS&E) for Chaparral Road between SH 195 and Chaparral High School. This will include 60%, 90%, and 100% design submittals. The proposed improvements for this amendment will include roadway, sidewalk/shared use path, underground storm drain, roadside ditches, cross culverts, detention, traffic signals, traffic control, retaining walls, illumination, pavement markings/signage, erosion control, and minor utility relocations for Chaparral Road.

Design Assumptions:

- Project Limits: Between SH 195 and the west end of Chaparral High School.
- Design schedule is assumed to be 27 months.
- Typical section: Four-lane divided roadway section with a raised median and various turn lanes. A five-lane undivided roadway section will be applied in specific locations to allow for the necessary turning movements. Lane widths will match those shown in the previous schematic design.
- Three (3) traffic signals at the following intersections with Chaparral Road:
 - o SH 195 (minor relocations)
 - o Featherline Road
 - o Connection to Old Chaparral Road (west of Chaparral High School)
- Three (3) multilane roundabouts at the following intersections with Chaparral Road:
 - o Taylor Renee Drive
 - o Trimmier Road
 - o Whitis Parkway
- 12' wide shared use path on north side of Chaparral Road and a 6' wide sidewalk on south side of Chaparral Road.
- Roadway illumination will be in the parkway on the north and south sides of Chaparral Road. It is assumed that standard cobra head roadway illumination fixtures with no pedestrian specific or decorative illumination will be designed. No median illumination will be proposed.
- Underground storm drain improvements for Chaparral Road.
- Roadside ditches and cross culvert improvements.
- Three (3) stormwater detention basins.
- Add one northbound left turn lane to Old Chaparral Road (west of Chaparral High School).
- Proposed ROW will typically be 100' wide.

- Additional survey/SUE will be needed in areas that have changed since the original project scope was created.
- Asphalt pavement will be used for Chaparral Road and side streets.
- Horizontal and vertical design speed for Chaparral Road will be 45 mph.
- Turning movements (including turn lanes and roundabouts) will use a WB-50 design vehicle.
- Tasks previously completed by the PROFESSIONAL and not covered under the existing agreement have been included in the efforts listed below.
- Drainage design will use the more stringent of the City of Killeen's Drainage Design Manual (DDM, Version November 8th, 2011) and TxDOT's Hydraulic Design Manual. Proposed pedestrian facilities will meet PROWAG requirements. Roadway design will meet TxDOT's Roadway Design Manual criteria.
- Traffic control plan will be three (3) phases.
- Landscaping and irrigation design will only be performed for the roundabout center islands and raised median immediately approaching each leg of each roundabout. All other areas not proposed to use impervious cover are assumed to use sod with temporary watering by the contractor.

The project construction will be completed using Federal and CITY funding sources; therefore, the project will be designed in compliance with TxDOT standards and processes.

BASIC/SPECIAL SERVICES

<u>Task No.</u>	<u>Task Name</u>	<u>Basic/Special Services</u>
Task 1	Design Management	Basic
<i>Task 2</i>	<i>Alignment Study – Not Included</i>	<i>Basic</i>
Task 3	Funding Application	Basic
<i>Task 4</i>	<i>Schematic Design – Not Included</i>	<i>Basic</i>
Task 5	Environmental Assessment	Basic
Task 6	Subsurface Utility Engineering	Basic
Task 7	Survey	Basic
Task 8	Hydrologic and Hydraulic Analysis	Basic
Task 9	Traffic Analysis	Basic
Task 10	Public Outreach	Basic
Task 11	Design	Basic
Task 12	Bid Phase Services	Basic
Task 13	Geotechnical Engineering	Basic
Task 14	TxDOT Coordination	Special
Task 15	Franchise Utility Coordination	Special
Task 16	Land Acquisition Services	Special
Task 17	TDLR/RAS Services	Special
Task 18	Contingency	Special

TASKS

Task 1 - Design Management

PROFESSIONAL will manage the work outlined in this scope to help facilitate efficient and effective use of PROFESSIONAL's and CITY's time and resources. PROFESSIONAL will help to manage change, communicate, coordinate internally and externally as needed, and address issues with the CITY's Project Manager and others as necessary to make progress on the work. PROFESSIONAL will:

- A. Attend pre-design project kickoff meeting with CITY.
- B. Prepare and submit a project schedule to the CITY.
- C. Conduct and document (up to 24) project update meetings with CITY Project Manager.
- D. Conduct biweekly internal design team coordination meetings.
- E. Prepare and submit monthly invoices with project status reports and project schedule updates, as necessary (up to 24).
- F. Make up to three (3) general site visits to become familiar with site and observe existing conditions. This does not include site visits specifically listed in any other tasks.

Deliverables:

- i. Meeting summary notes focusing on decisions and action items.
- ii. Design schedules (including baseline and necessary updates).
- iii. Monthly invoices and project status reports.

Task 2 – Alignment Study – Not Included

No scope or effort for Task 2 is included in this amendment.

Task 3 – Funding Application

This task covers efforts to prepare the 2024 RAISE Grant application (previously prepared by PROFESSIONAL) as well as three future grant applications.

- A. PROFESSIONAL prepared one grant application (2024 RAISE Grant) on behalf of the CITY. These grant application efforts included:
 - a. Prepared project description, project budget, project location file, merit criteria, benefit cost analysis, and project readiness portions of the application
 - b. Assisted CITY in acquiring letters of support from outside entities
 - c. Coordinated with CITY to acquire needed data and receive CITY feedback on application
 - d. Assisted CITY in submitting the grant application
- B. PROFESSIONAL will prepare up to three (3) future grant applications on behalf of the CITY. Examples of possible grant applications include:
 - a. USDOT RAISE/BUILD grant
 - b. TxDOT Transportation Alternatives (TA) program
 - c. USDOT Safe Streets and Roads for All (SS4A) grant program

- d. If a future grant application involves substantially more effort than any of these example grant programs, it will be considered an additional service and require additional funds beyond this contract.

Deliverables:

- i. 2024 RAISE Grant application
- j. Up to three (3) other grant applications

Task 4 – Schematic Design – Not Included

No scope or effort for Task 4 is included in this amendment.

Task 5 – Environmental Assessment

- A. Golden-cheeked Warbler (GCWA) Presence/Absence Surveys (1 year only)
 - a. This task was previously performed by PROFESSIONAL at the direction of the CITY. This scoping verbiage covers efforts already completed by the PROFESSIONAL.
 - b. PROFESSIONAL performed presence/absence surveys in accordance with USFWS protocols, and efforts were split into 2 tasks:
 - 1. Field Survey – this task involved the field efforts required to satisfy USFWS protocols for GCWA presence/absence surveys;
 - 2. Report Preparation – this task involved preparation of a report, and all supporting data, also in accordance with USFWS protocols.
 - c. Field Surveys – Presence/absence surveys were executed under the existing USFWS Section 10(a) Permit (#TE44547B-0). According to USFWS survey protocols, 1 hour of survey must be dedicated to every 25 acres. Since this is a linear project, we assumed that the four locations along the ROW that represent potential GCWA habitat would be surveyed for 1 hour each and would cover 25 acres surrounding that survey location. Data on vegetation structure and composition were also be recorded during the first survey.
 - d. The 4 locations determined for GCWA presence/absence survey (Figure 1) included the following locations:
 - 1. Eastern project terminus and intersection with Stillhouse Hollow Lake Road – specifically the tract east of Stillhouse Hollow Lake Road.
 - 2. Crossing over Trimmier Creek.
 - 3. New ROW section with S-curve – midpoint of the project ROW.
 - 4. Area near the intersection of Taylor Renee Drive and Chaparral Road – specifically the tract northwest of the intersection.



Figure 1. Proposed locations for GCWA presence/absence surveys associated with Chapparral Road improvements in Bell County; locations are depicted with red circles.

- e. Starting no sooner than March 15, each survey took place at least 3 times before May 15; however, 5 total surveys were performed before June 1. All surveys took place 5 or more days apart. If no GCWAs were heard during the first 4 surveys, playback calls were employed during the final survey. All data recorded during surveys followed USFWS's "Golden-cheeked warbler (GCWA) reporting for 10(a)(1)(A) Scientific Research and Recovery Permits."
 - f. Report Preparation – A report outlining the results of the presence/absence survey, prepared in accordance with USFWS guidelines, was provided to the CITY. The report included data forms, maps with detection locations, associated spatial data (i.e., ArcGIS shapefiles), and representative photographs.
- B. Biological Evaluation or Biological Assessment, and Agency Coordination
- a. This task was previously performed by PROFESSIONAL at the direction of the CITY. This scoping verbiage covers efforts already completed by the PROFESSIONAL.
 - b. PROFESSIONAL prepared a Biological Evaluation (BE) or Biological Assessment (BA) for the project following TXDOT guidance. A BE is required for "informal" Section 7 consultation under the Endangered Species Act (ESA), and a BA is required for "formal" Section 7 consultation. A BE and BA have highly similar formats. The BE or BA includes information obtained during the GCWA presence/absence survey, as well as other information obtained through file and literature reviews for other potentially occurring federally listed species. The BE or BA includes life history information on potentially occurring listed species, project action area, project effect determinations, and conservation measures to avoid and minimize

impacts. PROFESSIONAL will facilitate and coordinate up to 6 meetings with resource agencies regarding ESA consultation, such as TXDOT, USFWS, and US Army Corps of Engineers (USACE).

C. Mussel Survey and Relocation

- a. PROFESSIONAL will coordinate with Texas Parks and Wildlife Department (TPWD) to obtain an Aquatic Resource Relocation Permit (ARRP). Once the AARP is secured, PROFESSIONAL will perform freshwater mussel surveys and relocations at the Trimmier Creek crossing, according to federal and state protocols.

D. Nationwide Permit Pre-Construction Notification (PCN)

- a. This task includes a combination of tasks previously performed by PROFESSIONAL at the direction of the CITY as well as future tasks to complete the PCN. This scoping verbiage covers both efforts.
- b. JD site visit with TxDOT
 - i. PROFESSIONAL will prepare for and participate in a JD site visit with TxDOT environmental staff.
 - ii. PROFESSIONAL will revise the delineation report to incorporate the findings of the JD site visit.
- c. Pre-Application Meeting with USACE
 - i. PROFESSIONAL will prepare a letter to the USACE Fort Worth District requesting a pre-application meeting. The letter will include a description of the project, its purpose and need, maps, and conceptual design drawings. PROFESSIONAL will coordinate and attend the pre-application meeting with the USACE and prepare meeting documentation. This scope assumes that the pre-application meeting will be held using the USACE's preferred virtual platform.
- d. Mitigation Plan – if required
 - i. If required, PROFESSIONAL will prepare a Conceptual Mitigation Plan to document compensatory mitigation for potential losses to WOTUS resulting from the project. A conditional assessment of potential losses to WOTUS which would require mitigation will be conducted using the USACE's preferred Texas Rapid Assessment Method (TxRAM). This scope assumes that mitigation credits will be available for purchase from a mitigation bank which services the project area, and the project will not require permittee responsible mitigation. PROFESSIONAL will coordinate with a mitigation bank which services the proposed project area to determine the number of mitigation credits required for potential losses to WOTUS resulting from the project and the current cost of mitigation credits.
- e. Prepare Draft PCN
 - i. PROFESSIONAL will prepare a PCN in accordance with the requirements of NWP General Condition 32. A draft PCN will be prepared for the CITY's review and comment. The draft PCN will include the TXDOT Waters Features Delineation Report, a USACE Fort Worth District NWP application form, cultural resources information, federally listed threatened or endangered species information, a Conceptual Mitigation Plan, and the required supporting documentation and engineering drawings depicting the proposed impacts to waters of the U.S. The final

PCN will be prepared by incorporating the CITY's comments, changes in design, and will be submitted to the USACE Fort Worth District.

- f. Address USACE comments
 - i. PROFESSIONAL will address up to two rounds of USACE comments/requests for additional information or clarification. Additional requests by the USACE for site visits, consultation with other resource agencies, or excessive request for additional information resulting in expenditures beyond PROFESSIONAL's project budget will be considered additional services.
- g. Project Team Coordination
 - i. PROFESSIONAL scientists will coordinate with the project team (design team and CITY) on the findings of the delineation, assist with fill calculations, and provide permitting input into the design.
- E. TxDOT Coordination
 - a. PROFESSIONAL will prepare for and participate in bi-weekly meetings with TxDOT Environmental staff to provide updates on the status of environmental analysis and reports and discuss next steps required to obtain environmental clearance.
 - b. PROFESSIONAL will prepare for and participate in periodic phone calls and meetings with TxDOT Environmental staff.
- F. Update Environmental Tech Reports
 - a. PROFESSIONAL will conduct up to two site visits and make up to two rounds of revisions to the following environmental tech reports to address design changes and changes in TxDOT forms or templates.
 - i. Farmland Protection Policy Act
 - ii. Hazmat ISA
 - iii. Species Analysis
 - iv. Archeological Survey Report
 - v. Historical Intensive Survey Report
 - vi. Surface Water Analysis
 - vii. Community Impacts Assessment
- G. Update Biological Evaluation Report
 - a. PROFESSIONAL will update the biological evaluation report to address design changes.
 - b. PROFESSIONAL will address one round of comments from TxDOT on the revised report.
- H. Assist with Public Involvement
 - a. PROFESSIONAL will assist with updating the Notice and Opportunity to Comment and attend one public hearing.
- I. Ambient Noise Collection
 - a. This task was previously performed by PROFESSIONAL at the direction of the CITY. This scoping verbiage covers efforts already completed by the PROFESSIONAL.
 - b. Meet with TxDOT to coordinate anticipated ambient noise data collection locations.
 - c. Collect ambient noise at three additional locations near the Chaparral High School and football stadium.
 - d. Update noise models to determine whether a noise workshop is needed or not.
- J. Update Traffic Noise Analysis and Report
 - a. PROFESSIONAL will update traffic noise models and report for realignment at Broadway

- Ranch.
- b. PROFESSIONAL will submit traffic model files and report to TxDOT subject matter expert (SME) for review and address TxDOT comments.
- c. Coordinate with TxDOT SME.
- K. Assumptions for the Environmental Assessment Task
 - a. GCWA surveys would take place in only 4 locations along the proposed ROW.
 - i. SOW for GCWA surveys is for one season of survey only.
 - ii. 1 hour of survey would be performed at each of the 4 locations, with an assumption that the 1-hour survey effort covers 25 acres surrounding the survey location.
 - iii. CITY would provide access to the parcels needed for GCWA surveys and mussel relocations.
 - b. Regarding agency coordination, PROFESSIONAL assumes 6 meetings along with preparation time for each.
 - c. A draft BE or BA will be prepared. The schedule for the final BE or BA will be dependent upon agency review timelines and coordination.
 - d. No additional threatened or endangered species presence/absence surveys or habitat assessments would be required to address design changes. No new species would be listed or proposed for federal listing as threatened or endangered.
 - e. The proposed project will not require a USACE Environmental Assessment (EA) or Easement Request for activities on USACE fee lands.
 - f. The project can be environmentally cleared as an open ended (d) categorical exclusion and will not require an environmental assessment or environmental impact statement.
 - g. The flowage easement request will not require other additional environmental services which are not included in this scope of services.
 - h. Freshwater mussel survey and relocations at Trimmier Creek crossing assumes that the more complex survey protocols necessary for state or federal species (i.e., Phase 2 Survey) would not be required based on TPWD's classification of Trimmier Creek as a Group 5 stream (which implies low likelihood of occurrence for state or federally listed species).
 - i. Noise workshop will not be warranted.
 - j. No additional development requiring a building permit would occur prior to the date of environmental clearance.
 - k. No additional site visits for traffic noise data collection will be required.
 - l. The project will qualify as 4(f) de minimis and will not require an individual 4(f) evaluation, alternatives analysis, or additional public involvement.

Deliverables:

- i. GCWA Presence/Absence Survey Report
- ii. Draft and Final Biological Evaluation (BE) or Biological Assessment (BA)
- iii. Mussel Relocation Report
- iv. Request for a Pre-Application Meeting with USACE
- v. Draft and Final NWP PCN
- vi. Updated environmental tech reports

- vii. Updated traffic noise analysis report

Task 6 – Subsurface Utility Engineering

A. Quality Level A – Twenty-Five (25) Test Holes

- a. To determine the exact location and elevation of utilities on the project, PROFESSIONAL will efficiently excavate to expose the requested utilities. PROFESSIONAL would first identify the horizontal position of the test hole locations by designating, then excavate those locations using air-vacuum excavation.
- b. PROFESSIONAL will comply with policies for the prevention of underground utility damage (i.e., one-call system).
- c. PROFESSIONAL will coordinate with CITY, property owners and utility owners, as needed, to schedule work, and scheduling is subject to utility owner's approval and schedule for utility owner's field representative supervision, if required by utility owner. PROFESSIONAL will obtain permission from private property owners to perform work on site, or right of entry to property and any utility easements. Test hole locations are assumed to be accessible by vacuum excavation truck using normal access methods – no matting, grading, or clearing required. Night work is not expected on this project.
- d. PROFESSIONAL will expose utilities using non-destructive air vacuum excavation. PROFESSIONAL accepts no responsibility for contaminated soils should they be encountered during excavation. PROFESSIONAL does not take ownership of any excavated material. Depending on site soil conditions, utilities may not be able to be exposed using non-destructive excavation and excavation will not continue when impenetrable soil conditions are encountered. Test holes that are unsuccessful due to impenetrable soil conditions will be invoiced at the specified contract rate. Test holes are assumed to be no deeper than 16 feet.
- e. PROFESSIONAL will measure and record (as possible, depending on digging conditions) the depth of the utility at critical locations, as well as recording of utility size, utility material, utility condition and type of soil around the utility as well as any surface pavement type and thickness.
- f. PROFESSIONAL will backfill the hole with excavated material, mechanically compacted in lifts. Specialized backfill or surface restoration other than asphalt cold patch or replaced concrete core is not included in this scope.
- g. PROFESSIONAL will provide survey of utility test holes and drafting of test hole data will be performed to incorporate utility location and elevation information into project base file.
- h. PROFESSIONAL will prepare engineer-sealed 8.5"x11" Test Holes Data Sheets - showing utility depth, size and line material, condition of the line, type of soil for each location, as well as a SUE CAD file containing data surveyed according to project controls.
- i. It is anticipated that SUE Quality Level A may require ROW permitting and the estimated cost for one (1) permit application has been included in this fee estimate, not including any ROW permitting fees or engineered traffic control plans that may be required by the jurisdiction.

- j. It is anticipated that SUE Quality Level A may require traffic control and the estimated cost for approximately eight (8) days of traffic control equipment rental has been included in this fee estimate. SUE Quality Level A may require pavement cutting and repair, and the estimated cost for eight (8) pavement cuts and repairs has been included in this fee estimate.

Deliverables:

- i. Test hole results (up to 25)

Task 7 – Survey

- A. Supplemental Topographic Survey
 - a. PROFESSIONAL will conduct additional on ground (conventional) topographic surveying for additional areas within the project corridor as determined by the CITY and shown in Exhibit B.
 - b. PROFESSIONAL has included in the fee for one (1) area of topographic surveying not to exceed 1,000 linear feet.
 - c. PROFESSIONAL will combine the additional topographic data with previously completed topographic survey to prepare mapping of 1' contours.
 - d. The deliverable shall be MicroStation digital files unless otherwise specified.

Deliverables:

- i. Survey linework
- ii. Metes and Bounds documents (up to 90)

Task 8 – Hydrology and Hydraulic Analysis

- A. Hydrologic Analysis - Finalize hydrologic analysis for the project limits under a divided 4-lane road, referred to as the full-build out condition.
 - a. Duplicate the following HEC-HMS models: existing conditions, unmitigated, mitigated, and ultimate which were developed during the schematic design.
 - b. Amend the unmitigated and mitigated HEC-HMS models with final design hydrologic values (TCs, CNs, etc.). These models will be referred to as the unmitigated model and mitigated model. Each model will contain existing land use conditions outside the proposed right of way and full build out conditions within the proposed right of way. Model results will be used to size:
 - c. Three (3) detention ponds.
 - d. Duplicate the ultimate model and amend with ultimate land use conditions outside the proposed right of way, referred to as the ultimate unmitigated model. This model's results will be used to size:
 - e. Seven (7) road crossings that use culverts to drain uphill drainage areas (minor crossings).
 - f. Duplicate the corrected effective HEC-HMS model and post-construction HEC-HMS model

developed during the schematic design.

- g. Amend the post-construction HEC-HMS model with final design hydrologic values (TCs, CNs, etc.). The model will contain existing land use conditions outside the proposed right of way and full build out conditions within the proposed right of way. Model results will be used to size two major crossings (Sta 45+00 and Sta 67+00) where the proposed road crosses FEMA delineated floodplains.
- h. All models in this task will be updated once for each design development: 60%, 90%, 100%. A total of three updates.
- i. Compare the cost of subsurface inline detention to surface detention as shown in schematic design. Compare the right of way/drainage easement area needed to implement subsurface inline detention to the area needed for surface detention.

B. Detention Analysis

- a. Use the mitigated model to complete the final design for three (3) detention basins within the project extents. Design the following detention basins elements to mitigate increases in rainfall runoff peak discharges: elevation-storage relationship and outfall structure.
- b. Design the basin's inlet structure and the associated grading of channels or roadside ditches downstream of each basin's outfall structure. Design development will begin at the 60% design level and be updated at the 90% and 100%. At each design level, the design will be modified twice, a total of six modifications. A modification occurs when the drainage area or impervious cover draining to the basin changes +/- 5%. Any modifications beyond the two modifications at each design level will be considered additional services and will be completed under an amendment to the contract.

C. Minor Culvert Crossings

- a. Duplicate the HY-8 models that were created in the schematic design. Use the discharges from the ultimate HEC-HMS model to update the HY-8 models to design pipe sizes for seven (7) minor crossings. Instead of using the City's DDM's headwater elevation requirement (DDM 1.2.6.C) of three inches of water or less over the road profile, each minor crossing will be designed so the headwater elevation does not exceed the curb elevation or centerline elevation, whichever is lower.
- b. Design the crossings' inlet and outlet structures, energy dissipation and scour protection for each minor crossing.
- c. Design development will begin at the 60% design level and be updated during the 90% and 100%. A total of three updates.

D. Major Culvert Crossings

- a. Duplicate the post-project HEC-RAS model and corrected effective HEC-RAS model created in schematic design. Amend the post-project HEC-RAS model with final design hydrologic elements for two major crossings (Sta 45+00 and Sta 67+00) where the proposed road crosses FEMA delineated floodplains. Amend the HEC-RAS model using discharges from the post construction HEC-HMS model (task 2.1.b.1) and final culvert design. Design typical cross section dimensions for the culvert crossing.
- b. Update the floodplain grading at the two major crossings. Adjust floodplain excavation until no increase in water surface elevation is calculated at structures or roads.
- c. Design the major crossings' energy dissipation and scour protection.

- E. Hydraulic Impact Assessment - The schematic design included an adverse hydraulic impact assessment at four locations where the proposed improvements increased rainfall runoff peak discharges at the proposed right of way because a location for a detention basin could not be reasonably secured.
- a. The assessment showed no adverse impacts to structures or roads. This assessment will be updated per final design elements. Unmitigated location #1 at Sta 67+00 is located within a FEMA floodplain (Figure 1). The remaining three locations are located outside of the project extents. An adverse impact assessment will begin where runoff leaves the proposed right of way and continues 1,000 feet downstream.
 - b. For unmitigated discharge locations #1 (Figure 1) the following adverse impact assessment work will be completed:
 - i. Run the post-project HEC-RAS model and calculate water surface elevations and velocities for the 100-year discharge from the post construction HEC-HMS model.
 - ii. Prepare flood inundation mapping for the 100-year storm event for existing conditions and post construction conditions. Floodplain mapping will extend upstream until the existing condition's and proposed condition's water surface elevations are equal. Floodplain mapping will extend downstream until the water surface elevations meet or for 1,000 whichever is shorter. Mapping will not include tying into the effective FEMA floodplain. FEMA floodplains were calculated using pre-Atlas14 hydrology and outdated land use condition.
 - iii. Identify adverse impacts. An adverse impact occurs if the increase in water surface elevation results in an inundation or an increase in inundation of any building, structure, roadway or improvement or downstream erosion or an increase in erosion (DDM 1.2.8.a).
 - a. Meet with City staff to determine if an adverse hydraulic impact exists at road crossings, structures and representative cross sections. If an adverse hydraulic impact exists, Design adverse impact mitigation measures (detention, mitigation, etc.) adjacent to the crossing to mitigate the adverse impact.
- F. Permitting
- a. Floodplain development permit
 - i. Prepare a floodplain development permit application for the CITY. Submit application and meet with floodplain development officer. Respond to City comments until permit is obtained. It is assumed an approved Conditional Letter of Map Revision (CLOMR) from FEMA is not required to obtain the floodplain development permit because during schematic design, a rise in the 100-year water surface elevation was not calculated.
 - b. City Development Permit
 - i. Respond to City comments on detention analysis.

Deliverables:

- i. Hydrology and Hydraulics Design Report
- ii. Floodplain Development Permit Application

Task 9 – Traffic Analysis

- A. Roundabout Analysis Lane Recommendations. PROFESSIONAL will perform roundabout lane analysis to determine if one (1) or two (2) lanes are needed for north and south bound lanes. Sidra software

will be used for this analysis. Intersections include the following:

- i. Taylor Renee Dr
 - ii. Trimmier Rd
 - iii. Whitis Parkway
- B. PROFESSIONAL will also prepare a VISSIM model for each roundabout.
- C. Data collection for three (3) 24-Hour turning movement count locations. Traffic Counts will be collected while school is in session
- D. Prepare a Draft Technical Memorandum with summary of findings and recommendations. Perform QAQC for the Technical Memorandum. Prepare a Final Technical Memorandum with summary of findings and recommendations
- E. Rectangular Rapid Flashing Beacon Design. (3 roundabouts) A rectangular rapid flashing beacon with pedestrian push buttons design shall be produced for each approach to the multilane roundabout (up to 4 approaches). The intersections to be included in pedestrian crossing design are:
- a. Taylor Renee Dr
 - b. Trimmier Rd
 - c. Whitis Parkway
- F. Flashing Beacon equipment utilized in the design will be to City of Killeen / TxDOT standards and specifications. Rapid Flashing Beacons will be solar powered.

Deliverables:

- i. Traffic memo

Task 10 – Public Outreach

- A. Public Engagement
- a. PROFESSIONAL will develop a Public Involvement Plan that will include tools and strategies for engaging the public that align with the CITY's approach to public communications. PROFESSIONAL will assist the CITY and the project team with stakeholder and property owner communications throughout the project. Communications could include phone or email correspondence with the public and specific stakeholders or property owners to communicate project changes and progress as needed. Additionally, PROFESSIONAL will update and maintain the existing database. Updates will include stakeholder communication logs; emails will be collected when possible. The project website, hosted by the CITY, and general project materials will be updated to reflect project progress and next steps. Finally, email updates will be sent out to keep the public updated on the project's progress.
- B. Virtual Property Owner and Stakeholder Meetings
- a. PROFESSIONAL will plan and facilitate up to ten (10) virtual meetings with major stakeholders and large property owners. Meetings could include large landowners and those with the highest right-of-way impact including Killeen, Bell County, Harker Heights, emergency services, and Killeen ISD leadership.
- C. Public Meeting
- a. PROFESSIONAL will plan, schedule, conduct and facilitate up to 1 NEPA compliant public meeting to share project updates and design improvements with and collect feedback from the community. It is anticipated that the public meeting will be held at Chaparral High School

along the project limits. PROFESSIONAL will develop and distribute promotion materials such as official notices, fliers, email announcements, social media, media release, and ads. Additionally, PROFESSIONAL will hold and participate in meeting rehearsals and facilitate the public meeting. PROFESSIONAL will develop meeting materials and provide Spanish translation as needed.

Deliverables:

- i. Public involvement plan
- ii. Stakeholder communications and log
- iii. Update website (up to 3 times)
- iv. Public meeting promotion materials
- v. Public meeting materials
- vi. Public meeting summary report and comment response matrix

Task 11 – Design

- A. PROFESSIONAL will design ultimate section (four-lane divided or five-lane undivided) based on the schematic level designs
- B. PROFESSIONAL will collect relevant project data (such as contour data, aerial imagery, and record drawings) from CITY and other available sources.
- C. PROFESSIONAL will provide 60% design services to the CITY with the following design plans. All information listed will be provided on the design plans:

GENERAL

- COVER SHEET
- INDEX OF SHEETS
- PROJECT LAYOUT AND SURVEY CONTROL DATA
- HORIZONTAL ALIGNMENT DATA
- TYPICAL SECTIONS
- RIGHT OF WAY AND EASEMENT PLAN
- GENERAL NOTES
- SUMMARY SHEETS
- EXISTING UTILITY LAYOUT

CONSTRUCTION PHASING

- CONSTRUCTION PHASING NARRATIVE
- DETOUR PLANS

ROADWAY

- REMOVAL PLANS
- ROADWAY KEY MAP
- ROADWAY PLAN AND PROFILE
- SIDESTREET PLAN AND PROFILE
- ROUNDABOUT LAYOUT
- FENCING PLAN
- ROADWAY SPECIAL DETAILS

RETAINING WALL

- RETAINING WALL KEY MAP
- RETAINING WALL PLAN AND PROFILE

DRAINAGE

- DRAINAGE KEY MAP
- DRAINAGE AREA MAPS AND CALCULATIONS SHEETS FOR SEVEN MINOR CROSSINGS AND TWO CULVERT CROSSINGS
- HYDRAULIC IMPACT ASSESSMENT
- FLOODPLAIN GRADING PLAN AND SECTION (MAJOR CROSSING AT STA 67+00)
- DETENTION POND GRADING AND PROFILE VIEW
- DETENTION POND TYPICAL SECTION AND SECTION VIEW SHEETS
- DETENTION POND TYPICAL DETAILS
- DETAIL SHEET FOR POND OUTFALL ENERGY DISSIPATION, SCOUR PROTECTION
- CULVERT PLAN AND PROFILE
- ROADSIDE DITCH PLAN AND PROFILE
- STORM DRAIN TRUNKLINE PLAN AND PROFILE

TRAFFIC SIGNAL

- EXISTING INTERSECTION LAYOUT
- PROPOSED SIGNAL LAYOUT
- TRAFFIC SIGNAL INTERSECTION QUADRANT DETAILS

ILLUMINATION

- ILLUMINATION LAYOUT

PAVEMENT MARKING AND SIGNAGE

- PAVEMENT MARKING AND SIGNAGE PLAN

UTILITY ADJUSTMENTS

- UTILITY ADJUSTMENT PLAN

LANDSCAPING / IRRIGATION

- LANDSCAPING AND IRRIGATION PLAN

CROSS SECTIONS

- CROSS SECTIONS

- D. After review and approval of the 60% Design by the CITY and TxDOT, the PROFESSIONAL will provide 90% Design services.
- E. PROFESSIONAL will provide 90% Design services by progressing, updating, or revising the plans listed in the 60% design submittal and the additional design plans:

GENERAL

CONSTRUCTION PHASING

- CONSTRUCTION PHASING TYPICAL SECTIONS
- CONSTRUCTION PHASING PLANS
- CITY/TXDOT STANDARDS

ROADWAY

- DRIVEWAY PROFILES
- ROUNDABOUT ALIGNMENT PLAN
- ROUNDABOUT GRADING PLAN

- ROUNDABOUT JOINTING PLAN
- ROUNDABOUT PROFILES
- CITY/TXDOT STANDARDS

RETAINING WALL

- RETAINING WALL SPECIAL DETAILS
- CITY/TXDOT STANDARDS

DRAINAGE

- STORM DRAIN LATERAL PLAN AND PROFILE
- CITY/TXDOT STANDARDS

TRAFFIC SIGNAL

- TRAFFIC SIGNAL SUMMARY
- CHANNEL ASSIGNMENT DIAGRAM
- TRAFFIC SIGNAL SIGNAGE PLAN
- RRFB LAYOUT
- CITY/TXDOT STANDARDS

ILLUMINATION

- CITY/TXDOT STANDARDS

PAVEMENT MARKING AND SIGNAGE

- SUMMARY OF SMALL SIGNS
- CITY/TXDOT STANDARDS

UTILITY ADJUSTMENTS

- CITY/TXDOT STANDARDS

LANDSCAPING / IRRIGATION

- CITY/TXDOT STANDARDS

EROSION CONTROL

- EROSION CONTROL PLAN
- CITY/TXDOT STANDARDS

CROSS SECTIONS

- F. After review and approval of the 90% Design by the CITY and TxDOT, PROFESSIONAL will provide 100% Design services.
- G. PROFESSIONAL will provide 100% design services by progressing, updating, or revising the plans listed in the 60% and 90% design submittals.
- H. PROFESSIONAL will develop an opinion of probable construction cost (OPCC) based on each design submittal. Sources of data used in the preparation of the OPCC include construction data aggregation services, similar past project performed by PROFESSIONAL, bid results from previous CITY projects of similar type, and professional experience and engineering judgement.
- I. PROFESSIONAL will prepare construction specifications documents utilizing CITY and TxDOT standard documents for the 90% and 100% Design.
- J. PROFESSIONAL will conduct QC/QA and constructability review of the design deliverables for each submittal.
- K. PROFESSIONAL will attend one (1) post-submittal meeting with CITY after each submittal.

- L. For each submittal, PROFESSIONAL will provide CITY with a PDF copy of deliverables.
- M. Cross sections will be cut every 100'.

Deliverables:

- i. 60%, 90%, and 100% Design Plans
- ii. 60%, 90%, and 100% Opinion of Probable Construction Costs (OPCC)
- iii. 90% and 100% Construction Specifications
- iv. QC/QA Documentation

Task 12 – Bid Phase Services

- A. PROFESSIONAL will provide the CITY with bid documents including: bid schedule, drawings, and project specification documents.
- B. PROFESSIONAL will host and upload, or post, all bid documents to online bidding site.
- C. PROFESSIONAL will provide a copy of the Notice to Bidders for CITY to use in notifying construction news publications and publishing appropriate legal notice. The cost for publications will be paid by CITY.
- D. PROFESSIONAL will attend one (1) pre-bid meeting and assist to create a pre-bid meeting agenda.
- E. Assist CITY by responding to questions and interpreting bid documents. Prepare and issue addenda to the bid documents to CITY, if necessary. PROFESSIONAL will upload addenda to online bidding site.
- F. PROFESSIONAL shall assist in the tabulation and review of all bids received for the construction of the improvements and shall make recommendations for award to the CITY.
- G. Furnish CITY with issued for construction sets including four (4) copies of half size (11"x17") drawings, four (4) copies of the project specifications, and PDF copy of the above items.

Deliverables:

- i. Pre-bid meeting agenda
- ii. Addenda for bid documents
- iii. Recommendation for award

Task 13 – Geotechnical Engineering

The proposed geotechnical scope of work for the project will consist of field exploration with exploratory core borings, laboratory testing on recovered samples, engineering analysis, and reporting, as presented below.

- A. Task 1 – Field Exploration
 - a. The field exploration will include borings along the existing and proposed right-of-way. The PROFESSIONAL design team previously developed a design schematic drawing that includes proposed plan view and profile grades along the roadway. This schematic has been used to select boring locations. Table 12-1 presents boring locations and approximate stations along the roadway with a general purpose for each boring.

Table 12-1. Proposed Borings Along Chaparral Road

Boring	Approximate Station	Purpose	Depth, ft	Traffic Control
2501	17+00	Road	20	Yes
2502	26+25	Road	20	Yes
2503	35+75	Road, Culvert A, Detention Pond	20	Yes
2504	45+00	Road, Culvert B, retain wall 7' max	20	Yes
2505	54+10	Road, Roundabout, retain wall 10' max	20	Yes
2506	61+00	Road	20	Yes
2507	66+50	Road, Culvert C, retaining walls 7'-9'	25	Yes
2408	78+00	Road, Roundabout	20	Yes
2509	83+75	Road, Roundabout	20	Yes
2510	92+00	Road, Roundabout	40	Yes
2511	109+00	Road, Detention Pond, Culvert E	40	Yes
2512	124+50	Road	20	Yes
2513	156+50	Road	20	No*

*Where traffic control is not needed, bulk samples can be obtained.

- b. The proposed boring locations are shown upon the design schematic which is in the project proposal file.
- c. Select and mark 13 boring locations and notify Texas 811, appropriate CITY department(s) and other agencies to request location and marking of existing underground utilities prior to the field exploration.
- d. PROFESSIONAL will provide traffic control during the core drilling for the borings located within the existing roadway or existing right-of-way.
- e. PROFESSIONAL will drill a total of 13 borings to depths of 20 to 40 feet depending upon the location. Samples will be collected intermittently using continuous or hollow stem auger and either split-spoon or tube samplers. Rock and rock-like materials if encountered will be tested insitu using a TxDOT Cone Penetration Test or cored with NX sized core barrel, as appropriate for the material. Bulk samples will be obtained at boring location 2513 where the roadway in front of Chaparral High School has not been constructed. At completion, the boreholes will be backfilled with auger cuttings/bentonite hole plug and the pavement surface patched (where applicable); the boring off the existing road will be backfilled with auger cuttings/bentonite hole plug. Note: Core borings will be drilled along the existing ROW. Presently no borings are planned to be drilled in proposed detention areas since these basins will be relatively shallow (3-4 feet) and are outside the existing ROW where PROFESSIONAL does not presently have right-of-entry permission.
- f. PROFESSIONAL will provide an Engineer or Geologist experienced in logging borings to direct the drilling, log the borings, and handle and transport the samples. Visual classification of the subsurface stratigraphy shall be provided per the Unified Soil Classification System (USCS).

B. Task 2 – Laboratory Testing

- a. Testing shall be performed on samples obtained from the borings to determine soil classification and pertinent engineering properties of the subsurface materials. PROFESSIONAL will select samples for laboratory testing, assign tests, and review the test results. Testing will be performed by PROFESSIONAL.
- b. Laboratory tests will be assigned based on the specific subsurface materials encountered during exploration. Test type and quantity may vary, but are expected to include:
 - i. Classification tests (liquid and plastic limits and percent passing the no. 200 sieve or gradation)
 - ii. Moisture content
 - iii. Dry unit weight
 - iv. Unconfined compressive strength
 - v. One-dimensional swell (restrained)
 - vi. Triaxial tests – consolidated undrained with pore pressure measured.
 - vii. Soluble sulfate content
 - viii. California Bearing Ratio test (CBR) for pavement design (subgrade strength)
 - ix. Lime series, pH

C. Task 3 – Engineering Analysis

- a. Prepare a Geotechnical Report to include:
 - i. Appendix with the boring locations, boring logs, laboratory test results, and a key to the symbols used.
 - ii. Discussion of subsurface conditions and soil properties indicated by the field and laboratory work, and the implications for design.
 - iii. Provide geotechnical design recommendations for support of the culverts.
 - iv. Provide lateral earth pressures for the retaining walls and culverts as appropriate.
 - v. Provide allowable bearing pressures for the retaining walls supported upon footings. The footing retaining walls will be relatively short (10 feet maximum height). Global stability calculations will be performed depending upon the subsurface conditions encountered. If slope stability calculations are performed, shear strengths for the subsurface materials will be estimated using the results from the soil classification tests and published correlations.
 - vi. Perform global stability analysis for MSE walls as appropriate.
 - vii. General discussion of expected construction related issues.
 - viii. Field borings will be drilled along the existing ROW near the proposed detention ponds. Field borings are not planned to be drilled on private property at the detention ponds. A general discussion regarding pond depths and side slopes will be provided but detailed slope stability calculations are not included.
 - ix. Earthwork related recommendations for use during development of plans and specifications.
 - x. Design traffic volumes and the pavement thickness calculations will be performed by PROFESSIONAL. This will include subgrade treatment and selected material types for flexible pavement sections.

Deliverables:

- i. Geotechnical memorandum
- ii. Pavement section recommendation

Task 14 – TxDOT Coordination

- A. PROFESSIONAL will conduct and document up to four (4) project meetings with TxDOT.
- B. PROFESSIONAL will prepare and submit a Design Summary Report (DSR) to TxDOT.
- C. Based on the design submittal and in accordance with TxDOT requirements, the PROFESSIONAL will prepare and submit the following documents:
 - a. TxDOT Fort Worth District General Notes
 - b. Contract Time Estimate
 - c. Specification List
 - d. Estimated Construction Cost
 - e. Form 1002 – P. S. & E. Transmittal Data
 - f. Form 2229 - Significant Project Procedures
 - g. Utility Certifications
 - h. Railroad Certifications
 - i. Encroachment Certifications
 - j. Right-of-Way Certifications
 - k. Relocation Certifications
 - l. Project Manual
 - m. Local Government Project - Plan Development Review Checklist
 - n. Performance Timeline
 - o. Construction Summary Estimate
- D. PROFESSIONAL will assist CITY in executing one (1) Advanced Funding Agreement (AFA) amendment with TxDOT. Any additional AFA's or AFA amendments will be considered an additional service.
- E. PROFESSIONAL will submit the 60% plan set to TxDOT.
- F. PROFESSIONAL will coordinate with TxDOT as needed to confirm project design meets TxDOT standards and requirements.
- G. This contract assumes the project will be locally let.

Deliverables:

- i. Draft Amended Advanced Funding Agreement (AFA)
- ii. Draft TxDOT documents listed above

Task 15 - Franchise Utility Coordination

- A. Utility adjustment coordination includes utility coordination meetings with individual utility companies, communication and coordination with utilities, and conflict assessment and analysis. Utility coordination activities will be in accordance with the Texas Administrative Code (TAC) standards. There are eight (8) utilities anticipated along the approx. 2.5-mile project corridor, including Central Texas

WSC (CTWSC), Bell County WCID (BCWCID), Bartlett Electric Cooperative (BEC), Brightspeed, City of Killeen, Oncor, Spectrum, and Unite Private Networks (UPN).

- B. Utility coordination during design phase will include the following tasks:
- a. Develop Utility Contact List: PROFESSIONAL will establish contact with existing utility companies within and adjacent to the project area and create a utility contact list. This list will be maintained throughout the project.
 - b. Initial Project Notification Contact: PROFESSIONAL will notify all known utility owners within and adjacent to the project site.
 - c. Utility Layouts: PROFESSIONAL will maintain a rough layout of proposed utility locations to better communicate with utility owners
 - d. Conflict Assessment: PROFESSIONAL will utilize the existing utility layout provided by SUE to perform a conflict assessment to determine utility conflicts within the proposed roadway alignment. This assessment will be provided at 60%, 90%, and 100% submittals.
 - e. TxDOT Coordination: PROFESSIONAL will coordinate with TxDOT for utilities located within SH 195 ROW.
 - f. Individual Utility Meetings: PROFESSIONAL will hold (3) individual meetings with each utility prior to the 60%, 90%, and 100% submittals to discuss the updated project alignment and any correlating new and/or removed conflicts.
 - g. Utility Schedule and Sequencing: PROFESSIONAL will review the utility adjustment schedule in relation to construction sequencing and schedule for timely relocation of the utility.
 - h. Utility Agreements: PROFESSIONAL will coordinate with reimbursable utility owners to prepare and execute utility agreements (up to 2). CITY to provide standard utility agreement forms.
 - i. Utility Certifications: PROFESSIONAL will prepare utility certifications for project bidding and identify anticipated utility clearance dates.
 - j. Coordinate on a regular basis with CTWSC to check whether their relocation designs conflict with the Chaparral Road design.
- C. Utility coordination during utility relocation phase will include the following tasks:
- a. Utility Follow Ups: PROFESSIONAL will follow up with each utility post permit approval to confirm the relocation is complete. PROFESSIONAL assumes bi-weekly follow-ups with each utility up to six (6) months post permit approval.
 - b. Utility Field Meetings: PROFESSIONAL will meet with utilities in the field to discuss relocation efforts and confirm relocation is complete when necessary. PROFESSIONAL assumes up to four (4) field meetings total.

Deliverables:

- i. Utility contact list
- ii. Utility conflict assessment
- iii. Meeting minutes from utility coordination meetings
- iv. Utility certifications
- v. Utility agreements (up to 2)

Task 16 – Land Acquisition Services

A. Metes and Bounds Descriptions

- a. PROFESSIONAL will research property ownership, adjoining parcels and ROW Information along Chaparral Road and private/public properties affected by the proposed alignment (Estimated 90 parcels)
- b. A field survey will be performed in accordance with and meeting the requirements of the Texas Society of Professional Surveyors (TSPS), Manual of Practice for Requirements for Category 1A – Condition 3 (Suburban) – Land Title Survey and the minimum survey standards promoted by the Texas Board of Professional Engineers and Land Surveyors.
- c. PROFESSIONAL will create a Deed / Abstract Map based on records collected, of the parcels and the adjoining tracts.
- d. Based on the Deed Map created, PROFESSIONAL will mobilize a field survey crew to the site and locate property corners necessary to establish the boundary of the parcels within the project limits and stated ROW's.
- e. Based on the field survey and data collected, PROFESSIONAL will create a survey sketch and metes and bounds description of each of the Right-of-Way, Drainage Easement, and Temporary Construction Documents requested.
- f. PROFESSIONAL estimates the documents to be drafted as nineteen (19) Right-of-Way documents, twenty six (26) TCE documents, twenty-four (24) Drainage Easements, and fifty-three (53) Right-of-Way and TCE documents, for a total of one-hundred twenty two (122).
- g. PROFESSIONAL assumes that Right-of-Way parcels that require TCEs can be combined into a single document.
- h. PROFESSIONAL will create Right-of-Way sheets (11"x17") for the project limits. Approximately 12 sheets.
- i. Each property description and sketch will be signed and sealed by a Texas Registered Professional Land Surveyor.
- j. The following surveyor's certificate will be used on the survey drawing:
 - i. IN MY PROFESSIONAL OPINION, THIS PLAT REPRESENTS THE FACTS FOUND ON THE GROUND DURING THE COURSE OF A BOUNDARY SURVEY CONDUCTED UNDER MY SUPERVISION ON [INSERT DATE OF SURVEY], AND THAT THIS SURVEY SUBSTANTIALLY COMPLIES WITH THE CURRENT TEXAS SOCIETY OF PROFESSIONAL SURVEYORS STANDARDS AND SPECIFICATIONS FOR A CATEGORY 1A, CONDITION 3 SUBURBAN SURVEY.
- k. PROFESSIONAL will monument the limits of each parcel created, as required by Texas Board of Professional Engineers and Land Surveyors minimum requirement for Boundary Surveying.
- l. PROFESSIONAL will provide all deliverables in AutoCAD Civil 3D 2018 or MicroStation digital format, unless requested at beginning of the project to be another format.
- m. This includes 1 revision to the description and sketch. If any additional revisions are needed to do changes in the alignment or other reason per CITY request will be handled on a Time and Materials Basis or separate Scope and Fee.

B. The CITY has real estate impacts associated with the Chaparral Road project which will include

appraisal and real estate acquisition services. PROFESSIONAL shall provide a variety of services to support the CITY in execution of the project including appraisal and land rights acquisition services. PROFESSIONAL's services may also include, as directed by CITY, assistance with open houses or similar meetings with the public, presentations to all approval authorities, and other real estate and property work that may be needed from time to time to support the timely execution of the project.

C. PROFESSIONAL shall render the following professional services in connection with the development of the Project:

- a. Pre-Acquisition Services for 79 Parcels
 - i. Research preliminary ownership and county tax information.
 - ii. Prepare and obtain any Rights of Entry necessary for surveying, geotechnical investigations and environmental services.
- b. Title Services for 79 Parcels
 - i. Review preliminary title commitment (Schedules A, B & C) or preliminary title search information for all properties.
 - ii. Secure title commitments and updates in accordance with insurance rules and requirements for parcel payment submissions for properties which will be acquired in fee simple and for ROW easements.
 - iii. Secure title insurance for all parcels, insuring acceptable title. Cure all exceptions on Schedule C, when applicable. Written approval by CITY will be required for any exceptions to coverage.
 - iv. Attend closings and provide closing services in conjunction with Title Company for all tracts.
 - v. Record all original instruments immediately after closing at the respective County Clerk's Office.
- c. Appraisal Services and Appraisal Review for 79 Parcels/Transactions (In Fee and/or Easement Acquisition)
 - i. Prepare and conduct personal pre-appraisal contact with interest owner(s) for each parcel.
 - ii. Contact property owners or their designated representative to offer opportunity to accompany the appraiser on the appraiser's inspection of subject property. Maintain record of contact in file.
 - iii. Finalize complete appraisal report for each parcel. These reports shall conform to the CITY's policies and procedures along with the Uniform Standards of Professional Appraisal Practice.
 - iv. All completed appraisals will be administratively reviewed and approved by the CITY.
 - v. Appraisal fee could be adjusted based on complexity of evaluation within range provided in Fee Schedule.
 - vi. Have 2nd appraiser perform a review of appraisal to meet all funding requirements.
- d. Negotiation Services for 79 Parcels/Transactions (In Fee and/or Easement Acquisition)
 - i. Analyze appraisal reports and confirm approved value prior to making offer for each parcel.
 - ii. Analyze preliminary title report to determine potential title problems and propose methods to cure title deficiencies. (Exhaust all efforts to obtain subordinations of

liens, waiver of lienholders and clear any title, if PROFESSIONAL staff cannot cure title through standard practices, the CITY will be responsible for obtaining legal counsel to remedy any tile deficiencies as required by title or alternatively, may elect to close the easement without a title policy).

- iii. Prepare the initial offer letter and any other documents required or requested by the CITY in an acceptable form.
- iv. Contact each property owner or owner's designated representative and present the written offer in person where practical. When owners do not wish to have offers delivered in person, they will be mailed via certified mail with return receipt for documentation of delivery/receipt. Maintain follow-up contacts and secure the necessary instruments upon acceptance of the offer for the closing.
- v. Provide a copy of the appraisal report for the subject property exclusively to the property owner or authorized representative at the time of the offer.
- vi. Respond to property owner inquiries verbally and/or in writing within two business days.
- vii. Prepare a separate negotiator contact report for each parcel file for each contact.
- viii. Maintain parcel files of original documentation related to the purchase of the real property or property interests/acquisition of the Easement or Right of Way.
- ix. Present counteroffers in a form as directed by the CITY. Transmit any written counteroffer from property owners including supporting documentation, and Agent's recommendation with regard to the counteroffer.
- x. Prepare second and final offer letter as necessary.
- e. Acquisition/Closing Services for 79 Parcels/Transactions (In Fee and/or Easement Acquisition)
 - i. Prepare check request, review closing documents and facilitate execution of all necessary documents. Attend closings and provide closing services in conjunction with Title Company for all tracts.
 - ii. Transport any documents to the CITY and landowner for signatures.
 - iii. Record or cause to be recorded all original instruments immediately after closing at the respective County Clerk's Office.
 - iv. Review Title Policy and provide to CITY for permanent storage.
- f. Project Administration for 79 Parcels/Transactions (In Fee and/or Easement Acquisition)
 - i. Maintain current status reports of all parcel and project activities.
 - ii. Provide bi-weekly update reports to CITY (if requested).
 - iii. Participate in up to 10 project review meetings as requested, all additional meetings will be charged on a per hour basis.
 - iv. Copy designated CITY representative on all property owner correspondence, as requested.
 - v. Maintain copies of all correspondence and contacts with property owners.
 - vi. Update database with current status information and documentation.
 - vii. Condemnation Support Services are not included in the Basic Scope of Services.

Deliverables:

- i. Right of entry documents for up to 79 parcels
- ii. Preliminary title commitments and title insurance for up to 79 parcels
- iii. Appraisal reports for up to 79 parcels
- iv. Initial offer letter for up to 79 parcels
- v. Second and final offer letter (as necessary) for up to 79 parcels
- vi. Records of all correspondence with property owners

Task 17 – TDLR/RAS Services

PROFESSIONAL is to provide the following Accessibility Plan Review/Inspection Services:

- A. Provide permitting support for the CITY and prepare plan layouts for Americans with Disabilities Act (ADA) and Texas Department of Licensing and Regulation (TDLR) compliant sidewalks, curb ramps, pedestrian push buttons, and crosswalks.
- B. Retain the services of a TDLR Registered Accessibility Specialist (RAS) plan reviewer approved by the CITY. PROFESSIONAL will be compensated for the TDLR registration and RAS reviewer costs by the CITY as a reimbursable expense.
- C. Consult the Registered Accessibility Specialist for any accessibility design issues/questions that arise.
- D. Complete and submit the plan review forms and paperwork during the design phase as required by TDLR. PROFESSIONAL will be compensated for the TDLR registration and RAS reviewer costs by the CITY as a reimbursable expense.
- E. Coordinate with the RAS reviewer to complete the required plan review after the 100% submittal.
- F. This amendment will not cover the cost of construction inspection services. That effort will be included in a future amendment.

Deliverables:

- i. Planset for RAS review
- ii. Register project through TDLR
- iii. RAS reviewer comments

Task 18 – Contingency

This task include contingency funds for use if additional services are needed. This task shall not be used without written consent from the CITY.

ADDITIONAL SERVICES

Additional Services to be performed by PROFESSIONAL, if authorized by CITY, which are not included in the above described services, are described as follows:

- A. Design or analysis services beyond 100% submittal.
- B. Design or analysis services for any improvements east or south of Chaparral High School.
- C. Phased/Interim roadway or drainage design. This amendment will only include design of ultimate conditions.
- D. Construction phase services.
- E. RAS construction inspection services.
- F. Construction materials testing.
- G. Additional endangered species surveys aside from the species stated above.
- H. Preparation of a formal written request for USACE authorization under a letter of permission procedure, or a standard individual Section 404 permit application.
- I. Application to Texas Commission on Environmental Quality for individual 401 Water Quality Certification.
- J. Expert representation at legal proceedings or at contested hearings.
- K. Field layouts or the furnishing of construction line and grade surveys (to be provided by the Contractor).
- L. Providing renderings, model, and mock-ups requested by the CITY.
- M. Assisting CITY in claims disputes with Contractor(s).
- N. Assisting CITY in the defense or prosecution of litigation in connection with or in addition to those services contemplated by this AGREEMENT. Such services, if any, will be furnished by PROFESSIONAL on a fee basis negotiated by the respective parties outside of and in addition to this AGREEMENT.
- O. Performing investigations, studies, and analysis of work proposed by construction contractors to correct defective work.
- P. Design, contract modifications, studies or analysis required to comply with local, State, Federal or other regulatory agencies that become effective after the date of this agreement.
- Q. GIS mapping services or assistance with these services.
- R. Site visits and meetings in excess of the number of trips included.
- S. Investigations, analyses, and studies requested by the Contractor and approved by the CITY, for substitutions of equipment and/or materials or deviations from the drawings and specifications.
- T. Providing irrigation or landscape design services for any areas apart from the roundabouts and approaching raised medians.
- U. Providing the designated deliverables at an accelerated timeline other than the schedule originally agreed upon between PROFESSIONAL and CITY.
- V. Creation and submittal of a Letter of Map Revision (LOMR) or Conditional Letter of Map Revision (CLOMR).

- W. Grant administration.
- X. Noise workshop and sound wall design.
- Y. Condemnation Support Services (eminent domain, prepare condemnation package, testify as an expert witness in eminent domain proceedings, complex appraisals, etc.).
- Z. More than two appraisals/offers per parcel.
- AA. Water and/or sanitary sewer design for any utilities owned by Central Texas Water Supply. Central Texas Water Supply has decided to design any relocations in house.

SHEET LIST SUMMARY

SHEET NAME	TOTAL NUMBER OF SHEETS
<u>GENERAL</u>	
COVER SHEET	1
INDEX OF SHEETS	2
PROJECT LAYOUT AND SURVEY CONTROL DATA	4
HORIZONTAL ALIGNMENT DATA	6
TYPICAL SECTIONS	6
RIGHT OF WAY AND EASEMENT PLAN	4
GENERAL NOTES	2
SUMMARY SHEETS	4
EXISTING UTILITY LAYOUT	11
<u>CONSTRUCTION PHASING</u>	
CONSTRUCTION PHASING NARRATIVE	1
CONSTRUCTION PHASING TYPICAL SECTIONS	2
CONSTRUCTION PHASING PLANS	33
DETOUR PLANS	6
CITY/TXDOT STANDARDS	20
<u>ROADWAY</u>	
REMOVAL PLANS	11
ROADWAY KEY MAP	4
ROADWAY PLAN AND PROFILE	22
SIDESTREET PLAN AND PROFILE	10
ROUNDBOUT LAYOUT	3
ROUNDBOUT ALIGNMENT PLAN	15
ROUNDBOUT GRADING PLAN	3
ROUNDBOUT JOINTING PLAN	3

ROUNDBOUT PROFILES	27
DRIVEWAY PROFILES	24
FENCING PLAN	11
ROADWAY SPECIAL DETAILS	4
CITY/TXDOT STANDARDS	20
<u>RETAINING WALL</u>	
RETAINING WALL KEY MAP	4
RETAINING WALL PLAN AND PROFILE	8
RETAINING WALL SPECIAL DETAILS	2
CITY/TXDOT STANDARDS	5
<u>DRAINAGE</u>	
DRAINAGE KEY MAP	4
DRAINAGE AREA MAPS	6
DRAINAGE CALCULATION SHEETS	8
FLOODPLAIN GRADING PLAN AND SECTION	4
DETENTION POND GRADING AND PROFILE VIEW	6
DETENTION POND TYPICAL SECTION AND SECTION VIEW	3
DETENTION POND TYPICAL DETAILS	2
POND OUTFALL ENERGY DISSIPATION, SCOUR PROTECTION	3
CULVERT PLAN AND PROFILE	7
ROADSIDE DITCH PLAN AND PROFILE	22
STORM DRAIN TRUNKLINE PLAN AND PROFILE	30
STORM DRAIN LATERAL PLAN AND PROFILE	12
CITY/TXDOT STANDARDS	30
<u>TRAFFIC SIGNAL</u>	
EXISTING INTERSECTION LAYOUT	3
PROPOSED SIGNAL LAYOUT	3
TRAFFIC SIGNAL INTERSECTION QUADRANT DETAILS	12
TRAFFIC SIGNAL SUMMARY	6
CHANNEL ASSIGNMENT DIAGRAM	3
TRAFFIC SIGNAL SIGNAGE PLAN	3
RRFB LAYOUT	3
CITY/TXDOT STANDARDS	12
<u>ILLUMINATION</u>	
ILLUMINATION LAYOUT	11
CITY/TXDOT STANDARDS	6

<u>PAVEMENT MARKING AND SIGNAGE</u>	
PAVEMENT MARKING AND SIGNAGE PLAN	11
SMALL SIGN SUMMARY	4
CITY/TXDOT STANDARDS	10
<u>UTILITY ADJUSTMENTS</u>	
UTILITY ADJUSTMENT PLAN	11
CITY/TXDOT STANDARDS	6
<u>LANDSCAPING / IRRIGATION</u>	
LANDSCAPE AND IRRIGATION PLAN	23
CITY/TXDOT STANDARDS	4
<u>EROSION CONTROL</u>	
EROSION CONTROL PLAN	11
CITY/TXDOT STANDARDS	8
<u>CROSS SECTIONS</u>	
CROSS SECTIONS	75
TOTAL NUMBER OF PLANSHEETS	640

FEE SUMMARY

Task No.	Task Description	Basic/Special*	Amendment #2	Original Contract + Amendment #1 + Amendment #2
Task 1	Design Management	Basic	\$289,308	\$386,328
<i>Task 2</i>	<i>Alignment Study (Closed)</i>	<i>Basic</i>	<i>\$0</i>	<i>\$32,900</i>
Task 3	Funding Application	Basic	\$242,557	\$372,033
<i>Task 4</i>	<i>Schematic Design (Closed)</i>	<i>Basic</i>	<i>\$0</i>	<i>\$363,890</i>
Task 5	Environmental Assessment	Basic	\$318,206	\$532,576
Task 6	Subsurface Utility Engineering	Basic	\$87,135	\$228,185
Task 7	Survey	Basic	\$43,293	\$256,163
Task 8	Hydrologic and Hydraulic Analysis	Basic	\$237,832	\$421,812
Task 9	Traffic Analysis	Basic	\$65,142	\$114,952
Task 10	Public Outreach	Basic	\$127,056	\$231,116
Task 11	Design	Basic	\$2,029,072	\$2,029,072
Task 12	Bid Phase Services	Basic	\$31,205	\$31,205
Task 13	Geotechnical Engineering	Basic	\$128,813	\$128,813
Task 14	TxDOT Coordination	Special	\$13,844	\$13,844
Task 15	Franchise Utility Coordination	Special	\$41,392	\$41,392
Task 16	Land Acquisition Services	Special	\$2,590,698	\$2,590,698
Task 17	TDLR/RAS Services	Special	\$5,591	\$5,591
Task 18	Contingency	Special	\$100,000	\$100,000
Basic Services Total			\$3,599,619	\$5,129,045
Special Services Total			\$2,751,525	\$2,751,525
Grand Total			\$6,351,144	\$7,880,570

*Note: Basic services shall be charged as lump sum and special services shall be charged as Cost Plus Maximum.

EXHIBIT B - ADDITIONAL SURVEY LOCATIONS



