

Section 1 - Project Understanding

The City of Pflugerville (Client) is seeking professional engineering and surveying services for the location, mapping, and analysis of overhead and underground utilities in the Downtown District. The City has identified the Downtown Core and areas along Pecan Street for more extensive analysis to determine the feasibility and costs of removing the overhead facilities and placing them underground. The City desires a high-level planning report providing for an inventory of overhead utilities and an analysis outlining a strategic approach the City should follow to undergrounding overhead utilities. This report shall also include cost estimates by street and alley segments further grouped into phases, include high-level analysis of water and wastewater infrastructure, and identify challenges, constraints, and opportunities related to the undergrounding of overhead utilities.

Section 2 - Project Management

CobbFendley will coordinate bi-weekly project update meetings with the City of Pflugerville. Invoicing will be performed on a monthly basis.

Assumptions

- Assume 1-hour meetings with associated time for agenda preparation and minute creation.
- Scope assumes a 7-month project duration

Section 3 - Land Use and Future Development Analysis

CobbFendley will meet with the City Economic Development liaison and Planning Department to discuss existing and future land use, potential development, and identification of key aesthetical areas within the Downtown Core and along Pecan Street. The purpose of the discussion is to gain local knowledge, understand City’s priorities, and to potential determine a process for the prioritization of project phasing.

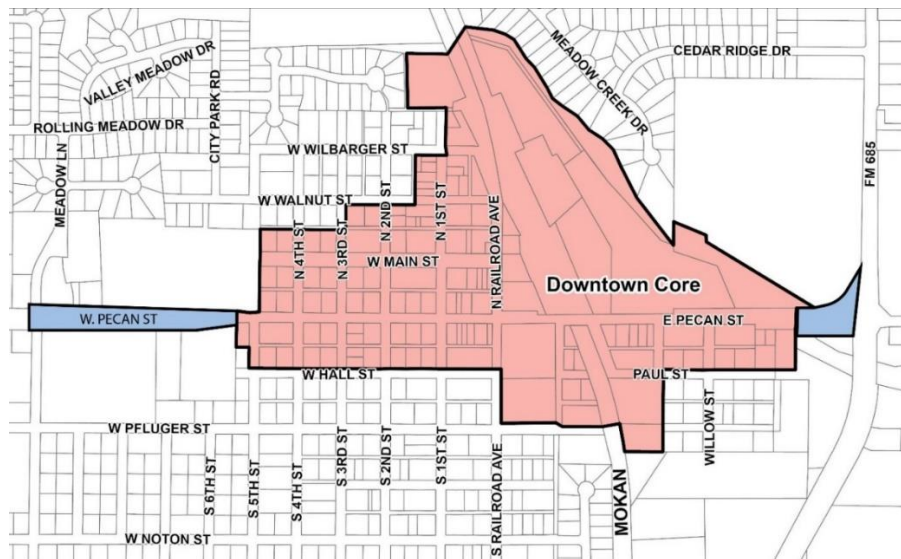


Figure 1: Downtown Core and Pecan Street within Downtown District Overlay - City of Pflugerville

Using the information gathered from the discussion with an emphasis on the City's current priorities for undergrounding and utility congested corridors along with a site visit, CobbFendley will assist the City of Pflugerville in preparing an initial phasing prioritization table for the purpose of project management focus. Once private company cost information becomes available a reallocation of project phasing may occur and an analysis within the final report will identify these findings and update the priority rankings of the potential utility projects with a focus on cost/benefit.

Deliverables

1. Establish an initial priority level table with City of Pflugerville input
2. Prepare updated priority level table and written narrative in final report to correspond with final cost estimates.

Assumptions

- No GIS data entry
- One meeting up to 4 hours with the Economic Development Liaison and Planning Department.
- One site visit

Section 4 - Subsurface Utility Engineering

The purpose of this SUE investigation is to assist in determining the presence and location of subsurface utilities.

CobbFendley will perform SUE Level D research on the entire Downtown District Overlay as shown in Figure .

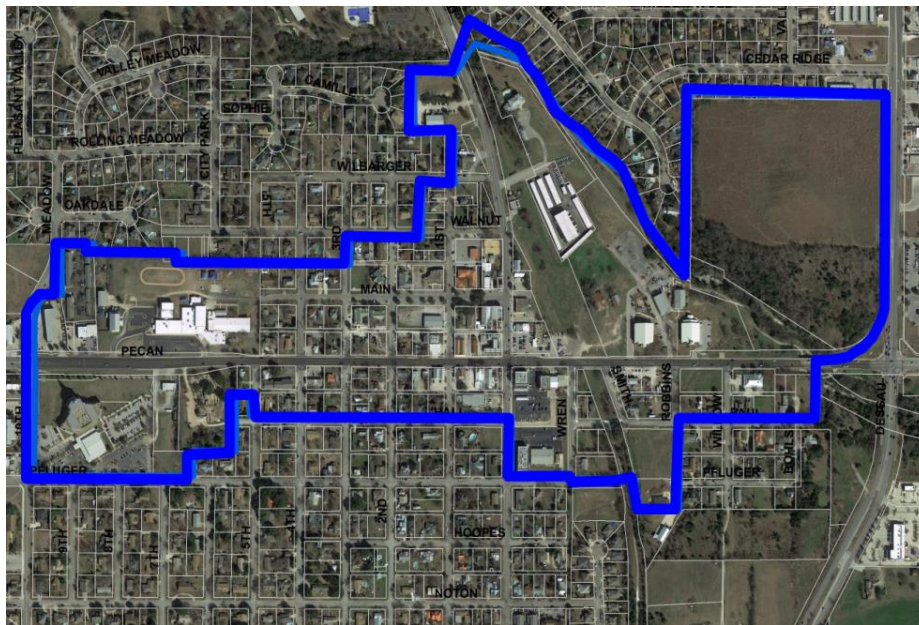


Figure 2: Downtown District Overlay - City of Pflugerville

Utility Quality Levels are defined in cumulative order (least to greatest):

- Quality Level D - Existing Records: Utilities are plotted from review of available existing records
- Quality Level C - Surface Visible Feature Survey: Quality Level "D" information from existing records is correlated with surveyed surface-visible features.
- Quality Level B - Designate: Two-dimensional horizontal mapping. This information is obtained through the application and interpretation of appropriate non-destructive surface geophysical methods. Utility indications may be referenced to established survey control. Additional description of services, methodology and equipment is provided below.
- Quality Level A - Locate (Test Hole): Three-dimensional mapping and other characterization data. This information is obtained through exposing utility facilities through test holes and measuring and recording (to appropriate survey control) utility/environment data.

SUE investigations may contain a combination of Quality Levels.

Record Research (Quality Level D)

1. CobbFendley will perform Record Research to obtain utility information for site and from adjacent areas that contain utilities leading onto the site.
2. Research will involve contacting the municipality (public utility departments), private utility providers, The Texas Railroad Commission and reviewing aerial images of the site for evidence of buried lines. Records can be in digital or hard copy form. Verbal descriptions from utility representatives may also be used.
3. Draft in appropriate format (typically dgn or AutoCAD) the utility record information into a project base file to form a composite utility map. Utilities are represented using separate layers and linestyles to reflect owner, size and type. APWA colors shall be used.
4. Review the composite drawing in the field. Field review is visual only and does not use electromagnetic locating equipment to identify buried utilities.

Visible Surface Features (Quality Level C)

1. Visible utility surface features are surveyed during the Level B scope (see Level B item 6 below). This is more efficient than obtaining Level C separately.

Designate (Quality Level B)

1. Coordinate with Client and property owners to schedule work. Client will provide permission or permits to perform work on site, or right of entry to property and any utility easements.
2. CobbFendley will designate (means to record and mark) the horizontal location of the existing tone-able, or otherwise designatable, utilities using non-destructive surface geophysical techniques, within the specified area. Tone-able utilities are typically utilities that are conductive or internally accessible with a traceable fish tape or sonde. Water and communication vaults can be investigated from above ground. Cobb Fendley will not enter buried power vaults or manholes.

3. If internally accessible (e.g. via a cleanout) nonconductive lines can often be traced out with a fish tape or sonde. Under ideal circumstances, nonconductive buried lines can be investigated successfully with Ground Penetrating Radar (GPR). However, soil conditions in Texas are generally not suitable for GPR. CobbFendley has had success using GPR for SUE work, but non-conductive features can remain undetected.
4. A non-water base paint, utilizing the APWA color code scheme and pin flags will be used on all surface markings of underground features. CobbFendley will provide a field sketch of designated utilities.
5. Correlate utility records with designating field work and resolve discrepancies using professional judgment.
6. The designated utilities will be surveyed, tied to existing survey control provided by client. Utility surface features (poles, manholes, hydrants, etc.) are typically surveyed at this stage when the Level B field markings are picked up.
7. Survey will be drafted by CobbFendley to provide its layout on the project site. Utilities shown by record information, but not designated in the field will be represented by a different line style on the CADD and .pdf deliverable (Quality Level D).

Deliverables

1. Draft in appropriate format (typically dgn or AutoCAD) the utility record information from Level D into a project base file to form a composite utility map. Utilities are represented using separate layers and linestyles to reflect owner, size and type. APWA colors shall be used.
2. The Level B designated utilities will be surveyed, tied to an existing survey control provided by client. Utility surface features (poles, manholes, hydrants, etc.) are typically surveyed at this stage when the Level B field markings are picked up.

Limitations

CobbFendley will perform subsurface utility engineering in accordance with ASCE 38/02 Standard Guidelines for the Collection and Depiction of Subsurface Utility Data. CobbFendley will exercise all reasonable and customary care in the performance of SUE and Survey services, realizing the safety of all personnel is a prime consideration in the detection and mapping of subsurface utility features which may be in conflict with proposed work. However, a possibility exists that some utilities may not be detected and/or mapped using standard SUE procedures previously described.

SUE Services are intended to assist with design work and are not to be used for construction. Contractor shall call One Call before excavating as required by Texas Law.

Section 5 - Pole Fielding

Using the ArcGIS field data collector, CobbFendley field crews will audit each existing telephone/electric pole within the area shown in Figure 1 for the following information:

- Latitude/Longitude (+/- 3')
- Owner
- Pole Size

- Pole mounted equipment
- Electric Attachments
- Telecommunication Attachments (including network nodes)
- Service drop location and type
- Photographs of pole

Deliverables

1. CobbFendley will provide the GIS file and all of its attribute data to the City. (Projected Coordinate System (PCS): NAD 1983 State Plane Texas Central FIPS 4203 (US Feet); Geographic Coordinate System (GCS): GCS North American 1983)
2. Overview map showing all pole locations found in Figure 1.

Exclusions

- ROW permitting
- Pole Loading Analysis

Section 6 - Overhead to Underground Design Analysis

CobbFendley will attend one project coordination meeting with each overhead utility provider in the Downtown Core and along Pecan Street per Figure 1 to determine requirements to place facilities underground. Utility providers include:

- Oncor
- Charter/Spectrum
- FiberLight
- AT&T
- SuddenLink
- Grande
- CenturyLink
- MCI
- Zayo

CobbFendley will create a conceptual layout of the proposed underground infrastructure for the area shown in Figure 1. This layout will be shown on the Level D base map created in Section 4. The layout will include conduit labels, pad locations, and potential easements.

CobbFendley will also provide a section cut for each identified phase in Section 3 to show potential vertical clearance of utilities.

Deliverables

1. Schematic layout on existing utility base file (Level D) showing potential conduit routing, ground equipment locations, and easement sizes and locations.

2. Section cuts of the Section 3 identified street phases showing assumed vertical clearance of all utilities. This scope assumes up to 5 phases and up to 12 section cuts.

Exclusions

- Electric and telecommunication cable design
- Transformer sizing
- Profile drawings
- Electric system reliability and sizing analysis

Section 7 - Cost Estimate

CobbFendley will provide a comprehensive cost estimate for the relocation of overhead lines underground in the area defined by Figure 1, based upon a high-level material take-off. The estimate shall be further grouped into phases based on ease of construction, economy of scale, and priority level as identified in Section 3. The estimate will include 25% contingency for unknowns. The estimate shall include:

- Linear feet of underground electric duct
- Linear feet of underground telecommunication duct
- Manhole/Pullbox quantities
- Proposed Pole quantities
- Equipment pad quantities
- Required easements
- Utility Costs
- Engineering Costs
- Mobilization

Section 8 - Water/Wastewater Analysis

The electric and telecommunication overhead to underground conversion study will include a high-level analysis to identify potential water and/or wastewater relocations and upsizing of lines in the Downtown Core and along Pecan Street per Figure 1. The analysis will be based on different factors, including: priority level within the project area, investigation of pipe sizes and subsequent determination of whether a water distribution main or wastewater collection main needs to be upsized to the minimum size, verification of whether water and wastewater mains currently meet TCEQ criteria, investigation of pipe age and material, and review of the City's 2020 Water and Wastewater Master Plans to determine if upgrades not previously mentioned can be included in the study.

Deliverables

1. Written narrative within the Final Report regarding opportunities for water and wastewater improvements in conjunction with the relocation of overhead utilities underground as a cost saving effort. Identify potential challenges for each overhead utility relocation based on the presence of underground utilities or relative impact to the overall project construction sequence.

2. Water and wastewater maps, relative to overhead utility lines, shall be integrated into the report as examples of opportunities and utility constraints.

Section 9 - Final Report

CobbFendley will prepare its findings into an overall Final Report which shall serve as the City's strategic planning document for the relocation of overhead utilities underground. The final report will include:

- Executive summary stating findings pursuant to Sections 3 through 8, methodology of the study, and other recommendations or considerations for further analysis. (e.g., cost savings with economy of scale, sequencing of water and wastewater improvements with certain phases of the relocation of overhead utilities underground, recommendations for further analysis pertaining to water and wastewater improvements and items listed under Exclusions under each section, etc.)
- An overall map of existing overhead utilities with the identification of the phases identified within the Cost Estimate, where each phase has multiple street segments.
- A map of existing overhead utilities for each phase with contributing street and alley segments.
- An overall phase map identified in Section 3.
- Proposed location map of each phase identified in Section 3.
- Utilities studied in each phase identified in Section 3.
- Proposed schematic layout of each phase identified in Section 3.
- Proposed street section cut of each phase identified in Section 3 and performed in Section 5.
- Cost estimate for the removal of all overhead lines in the area defined in Figure 1.
- Cost estimate of each phase identified in Section 3.
- Potential future costs of work as construction will be phased over the next 10-20 years.
- General cost estimates for undergrounding utilities from a high-level perspective (i.e., cost of conduit per linear feet per each dry utility line, cost of transformer pad(s) based of certain design characteristics, engineering costs, Subsurface Utility Engineering (SUE))

Section 10 – Review of Deliverables

CobbFendley shall provide the City with the Deliverables specified within Sections 1 – 9 and allow the City to review Deliverables, as provided below. The City will review for acceptance of the following:

- Two (2) reviews of the Final Report with the 3rd draft anticipated to be the final draft.
- Review of the GIS and CADD data for the Pole Fielding, Overhead to Underground Design Analysis, and Subsurface Utility Engineering.

Section 11 – Presentation to City Council

CobbFendley shall deliver a PowerPoint presentation to City Council discussing the findings from the Final Report.

Assumptions

Assume 1 meeting with Principal and Project Manager.

Section 12 - Basis of Compensation

The above services shall be provided for a lump sum fee of \$231,270.37. The fee breakdown is as follows:

Task	Fee
Project Management	\$14,191.25
Land Use and Future Development Analysis	\$6,065.00
Subsurface Utility Engineering	
Level D (Downtown District Overlay)	\$32,133.72
Pole Fielding	\$14,278.40
Overhead to Underground Design Analysis	\$114,651.50
Cost Estimate	\$17,810.00
Water/Wastewater Analysis	\$11,104.50
Final Report	\$13,670.00
Presentation to City Council	\$7,366.00
Total	\$231,270.37

Additional Subsurface Utility Engineering (SUE) services to be performed by CobbFendley, if authorized by the City Manager, may be provided for a not to exceed amount of \$20,000.00. The fee breakdown is as follows:

Task	Fee
Subsurface Utility Engineering	
Level C and B (Allowance - Not to Exceed)	\$20,000.00
Total	\$20,000.00