

**Progress Report for the Texas State University Campus Basemap Geodatabase
Development Project: Phase 1**



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1. Introduction

The purpose of this progress report is to update our client, Texas State University Campus Facilities, on the status of the project concerning Phase 1 of the Campus Basemap Project.

1.1 Overview

The Old Main Geospatial Solutions team has created this report to detail the completed, in progress, and future tasks as of March 30, 2026, and address any necessary modifications to our methodology and scope. An updated timetable is included to adjust from our initial proposal document. This project is to be executed by the Old Main Geospatial Solutions team during the Spring 2026 semester at Texas State University. Beginning January 20, 2026, and ending on April 24, 2026, Phase 1 will be working through geodatabase development, data management, and preliminary network routing to achieve the client's future goals.

1.2 Purpose

The purpose of this project is to set a foundation for a future interactive campus map that is entirely owned by Texas State University. The current interactive map used by the university is managed by a third-party company and costs the university thousands every year. To move away from that third-party map, the first phase of this project will utilize legacy data owned by the university facilities department and apply data management practices to prepare the data for wayfinding and networking capabilities using ArcGIS Pro. This will create an ADA accessible, easy-to-use, and cost-effective solution for students and the university. Data standardization of these existing datasets will ensure future data integrity for future analysis and allow a user-friendly understanding of campus basemap data.

1.3 Scope

This original project scope encompasses the San Marcos Texas State University Campus boundary, extending from Old Ranch Road 12 and Uhland Road. The project's scope includes

important campus elements: buildings, sidewalks, roads, parking lots, and green zones. At this point in the project, the scope has not been adjusted from the original proposal.

2. Tasks

The workflow begins with a comprehensive data assessment, during which existing data is reviewed, gaps are identified, and quality assurance and editing are performed. Following this, attributes, domains and subtypes are reviewed and standardized to ensure data consistency and integrity. Finally, a network dataset is constructed using the sidewalk, crosswalk, road and building entrance layers to support future wayfinding and accessibility applications.

2.1 Work Completed

We have verified and unified important components of our data. Map projections have been standardized to ensure data creation for new layers is accurate and usable for future analysts. We also checked that building footprints are accurate and line up correctly with the other layers in the project.

The roads layer has been joined to city street data, including city or state-owned roads that coincide with university buildings, parking garages/ lots, and have been assigned correct names and ownership types. Attributes have been cleaned and standardized, as well as had some new attributes added or created. These additions include speed limit and number of lanes (sourced from city data) and length in miles for each segment. Domains have been assigned to ownership type.

The green zone polygon layer has been reprojected to WGS 1984, attributes have been standardized and domains assigned. Crosswalk points have been converted into an implementable linear dataset. This was a manual process using the original point shapefile and aerial imagery as reference. New crosswalks were added that were not present in the original layer provided. This was achieved using the aerial imagery provided by the client. Attribute fields such as location and ID were assigned to the newly created crosswalk layer.

The sidewalk polygon shapefile provided was converted to a linear shapefile using a combination of topographic production tools and manual edits using the provided aerial imagery

as reference. Extensive manual edits were needed, as the centerline created from the polygon shapefile resulted in several topographical errors, such as linear paths that ran through statues, construction sites, etc. The lines were then connected to the finished crosswalk and entrance points layers and are now ready for development of a wayfinding network.

Parking surfaces layer has been modified to identify parking permits required for each individual parking lot. Attributes were created for each type of parking permit. Permits listed include green resident, purple commute, silver bobcat village, cypress orange, Balcones blue, restricted red, ADA accessible, visitor, service delivery, service vehicle, hall director, reserved, electric vehicle charging, and motorcycle parking spaces. Each parking lot includes the number of parking spaces available under specific permits. These statistics were found from the Texas State University parking website. (<https://www.parking.txst.edu/about/statistics.html>)

2.2 Present Work

Metadata for each project layer must be created and compiled to ensure the geodatabase is usable by the Texas State Facilities team. We will be using the metadata ArcGIS Pro automatically creates for our layers, double checking this data, then turning it into a clean metadata list. While we have begun standardizing attributes, due to the volume of attributes and amount of data creation work, we are still establishing and implementing uniformity for all attributes. In particular, the Building Footprints layer contains nearly 50 attributes so it will likely take the greatest amount of time to complete. Domains and subtypes are being established for select layers currently (ex. Green Zones). The sidewalk line layer requires merging of features to reduce the number of entries from the ~6000 that exist after centerline conversion and manual editing. This in turn will simplify attribute standardization and domain/subtype assignments.

2.3 Work Scheduled

Our future work consists of attribute standardization, finishing metadata creation, establishing domains and subtypes, setting up the geodatabase and finishing with the network dataset creation. Once each geodatabase component has been fully cleaned and standardized,

with domains set, the geodatabase structure will be set. Following the geodatabase setup, the team will begin creating the network dataset that will be foundational to future wayfinding efforts.

2.4 Problems and Challenges

One of the main challenges that the Old Main Geospatial Solutions team faced was underestimating the amount of time needed to complete the topological edits on newly created line layers. After the sidewalks had been converted to a line, our team needed to review each line segment's connectivity. Due to the high quantity of total sidewalk segments, this step needed two full weeks of extra attention. We dedicated extra time to this step as its topological accuracy is required for future network dataset analysis.

Another early challenge was the creation of accurate building entrance locations. Without having floor plans for individual buildings located on campus, our team relied on the provided aerial imagery and our own knowledge of campus to place building entrance points. This was a significant issue in large buildings with sidewalks that did not clearly indicate entrances, or had several entrance/exit points. Additionally, aerial imagery was obscured by trees or shadows, blocking the view of select building entrances. Building floor plan documents were eventually provided by the client, and with the added resources of the Texas State interactive map and Google Earth street view, we were able to resolve this issue.

We were also faced with the difficulty of unifying the team's work between the dozen source data sets. Without an ArcGIS Pro Enterprise account that allows for live edits of the same data, the team has been using the ArcGIS Online interface as a replacement. While functional, this increases the need for multiple downloads and has necessitated extra time waiting for uploads on the online platform. Another part of our solution has been ensuring constant and thorough communication between team members. Our current setup facilitates an efficient workflow and works well for all team members.

2.5 Revised Timetable

The revised timetable below allocates less time to attribute standardization and setting domains and subtypes. It has been adjusted to accommodate the additional amount of time that it has taken the team to correct topological edits in the new line layers and ensure their ability to support network analysis. The final steps of the project will be completed in a timely manner with the final deliverables ready for the client on April 24, 2026.

1/20/26 - 3/23/26	Data review, Data creation, Topological edits, Create Metadata, Attribute Standardization
3/24/26 - 4/1/26	Complete Attribute Standardization and Set Domains/Subtypes, Establish Geodatabase
4/2/26 - 4/12/26	Create Network Dataset
4/13/26 - 4/28/26	Finalize Project Deliverables

3. Conclusion

Old Main Geospatial Solutions team is creating a university-owned geodatabase that will lay the foundation for an interactive campus map with integrated wayfinding capabilities. To date, our team has completed the following: data review, topological edits, data/shapefile creation, metadata creation, and attribute creation/standardization. Issues have been encountered that have pushed our timeline back slightly, such as extensive topological edits, geographic accuracy of shapefiles, and disjointed workflow due to the lack of a unified project file that allows for real time edits. With these issues handled, we look forward to completing attribute standardization and establishing domains and subtypes. Assuming there are no more obstacles before project completion, we plan on creating a network dataset for wayfinding purposes.