

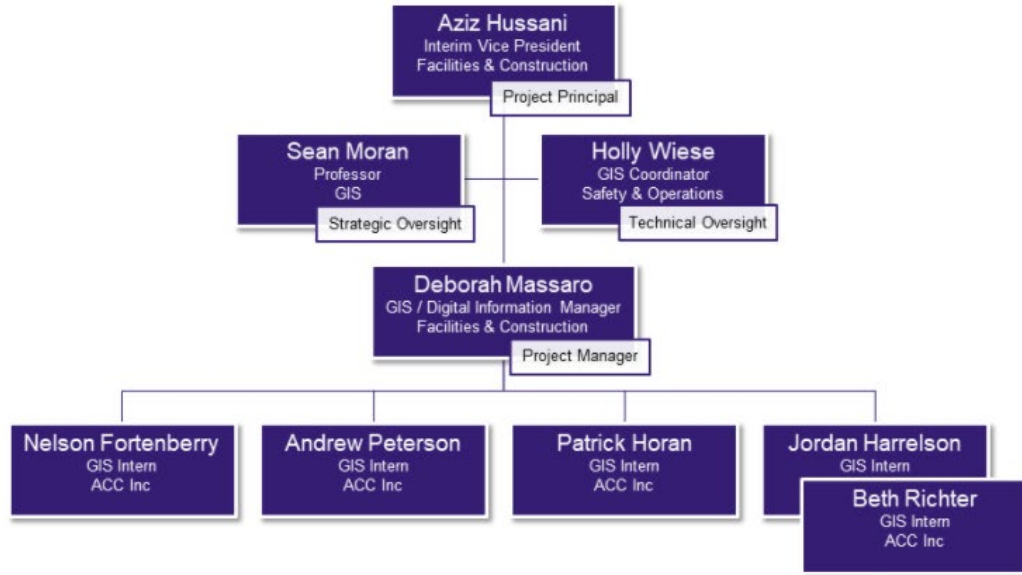


ACC Facilities & Construction GIS

San Gabriel Campus Pilot

December 1, 2021

Project Team

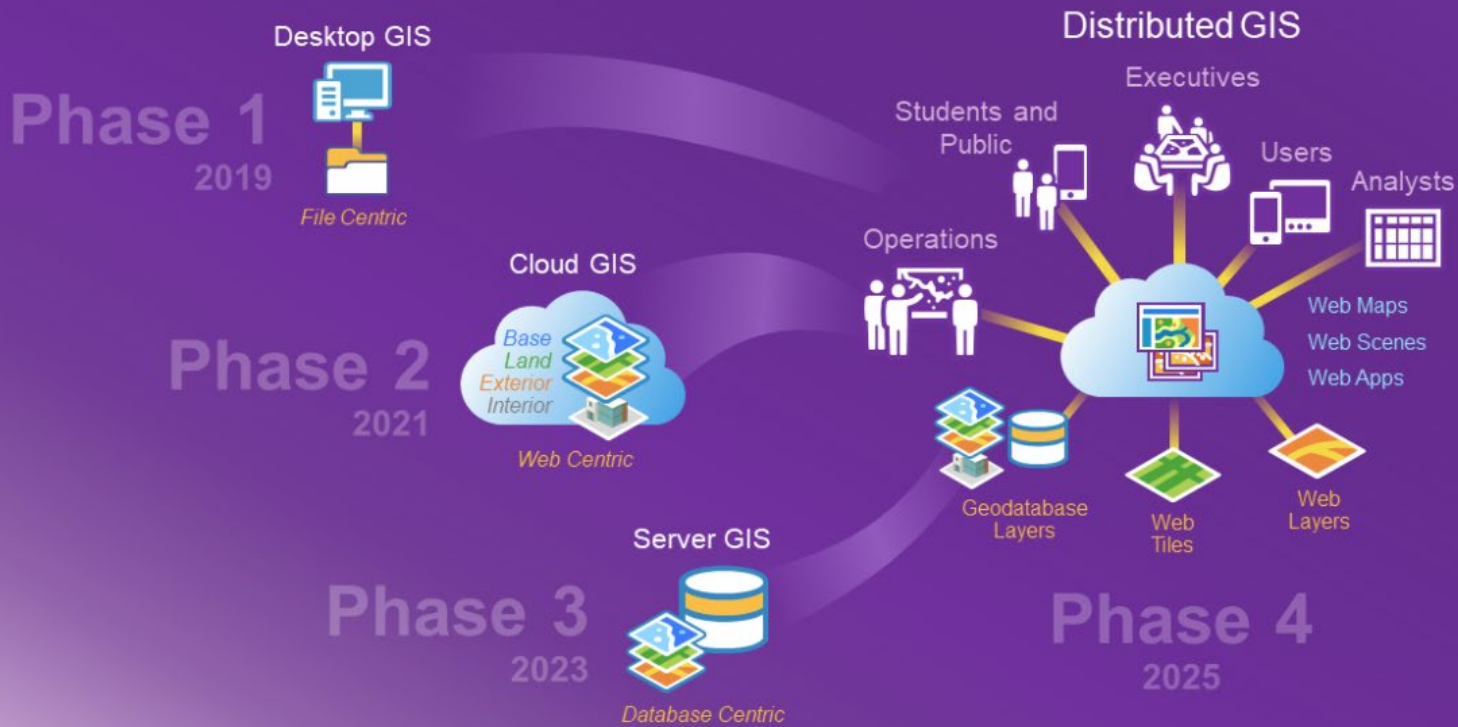


Project team includes members from Facilities & Construction, Safety & Operations, GIS, and ACC Inc

Project Goal

Enhance ACC facility construction, management, and maintenance using Geographic Information Systems (GIS) with high resolution mapping, enterprise geodatabases, and integrated systems that:

- Track real property assets.
- Streamline facility planning and site selection.
- Inform facility design and construction.
- Monitor and manage utility infrastructure.
- Optimize workspace utilization.
- Analyze and schedule facility maintenance.
- Increased visibility to campus safety features.
- Integrate ACC systems.



The Facilities & Construction GIS Architecture Plan synergizes with the ACC System GIS Architecture Plan.

ACC Inc

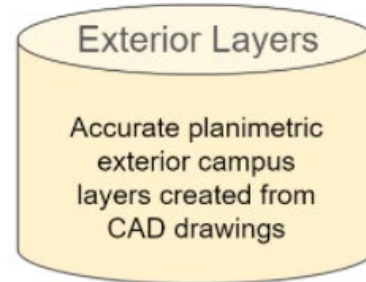
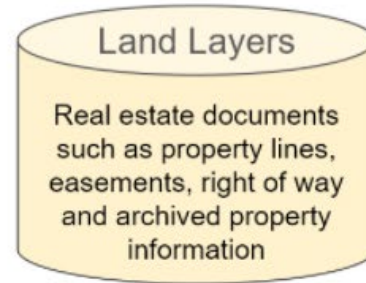
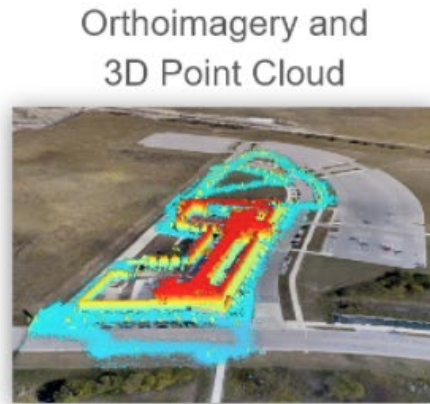
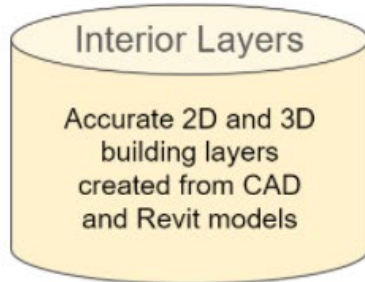
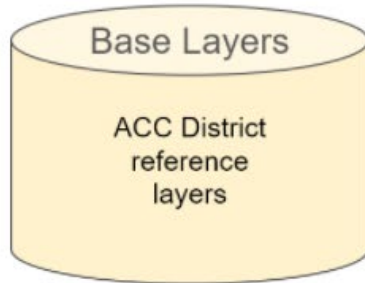
ACC Incubator for Professional Skills

- Supports internships, projects, and temporary positions for ACC students.
 - Students office with employer, remote, or at ACC Inc.
 - A dedicated professional office with 6 GIS workstations.
 - Hourly employees paid \$15.50 and work max of 19 hrs/wk.
 - Students graduate with the academic, technical, and professional skills desired by employers.
-



ACC Inc and partner organizations have funded over 50 paid GIS internships valued over \$500,000

Data Collection



The San Gabriel Campus Pilot GIS includes interior, exterior, land, and base layers

Orthoimagery

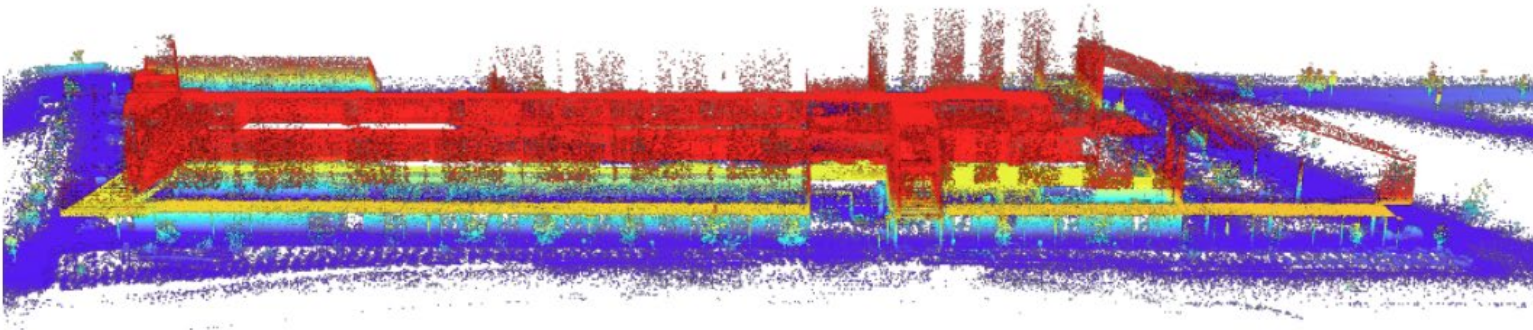
- Collected high-resolution aerial images with ACC GIS drone.
- SGC Campus image is georeferenced and accurate to 12 cm.
- Mosaiced images to create a true color orthoimage with 10 cm pixels.



Professors Sally Holl, Sean Moran, and Adam Long demonstrate how to use the ACC GIS drone to collect high resolution aerial imagery

3D Point Cloud

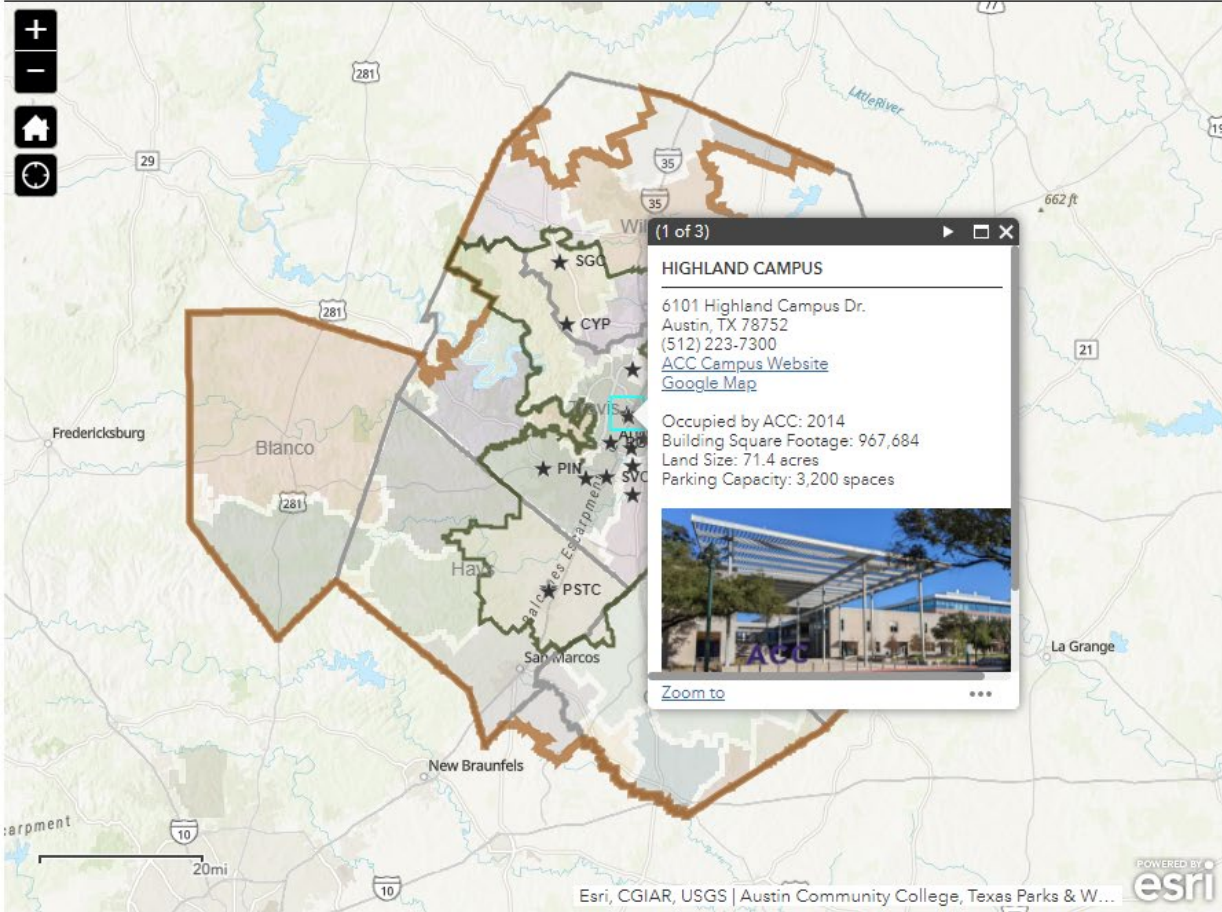
- Collected high-resolution LiDAR with ACC GIS laser scanner.
- Merged 37 million points into a single point cloud with 2.5 cm spacing.
- SGC Campus 3D point cloud is georeferenced with exterior/interior points.
- Provides detailed campus models and as-built information for campuses where this data is not available.
- Record of the present condition of the building and can be used to identify potential structural deformations.
- Detailed map of any given terrain and high-resolution contour maps.





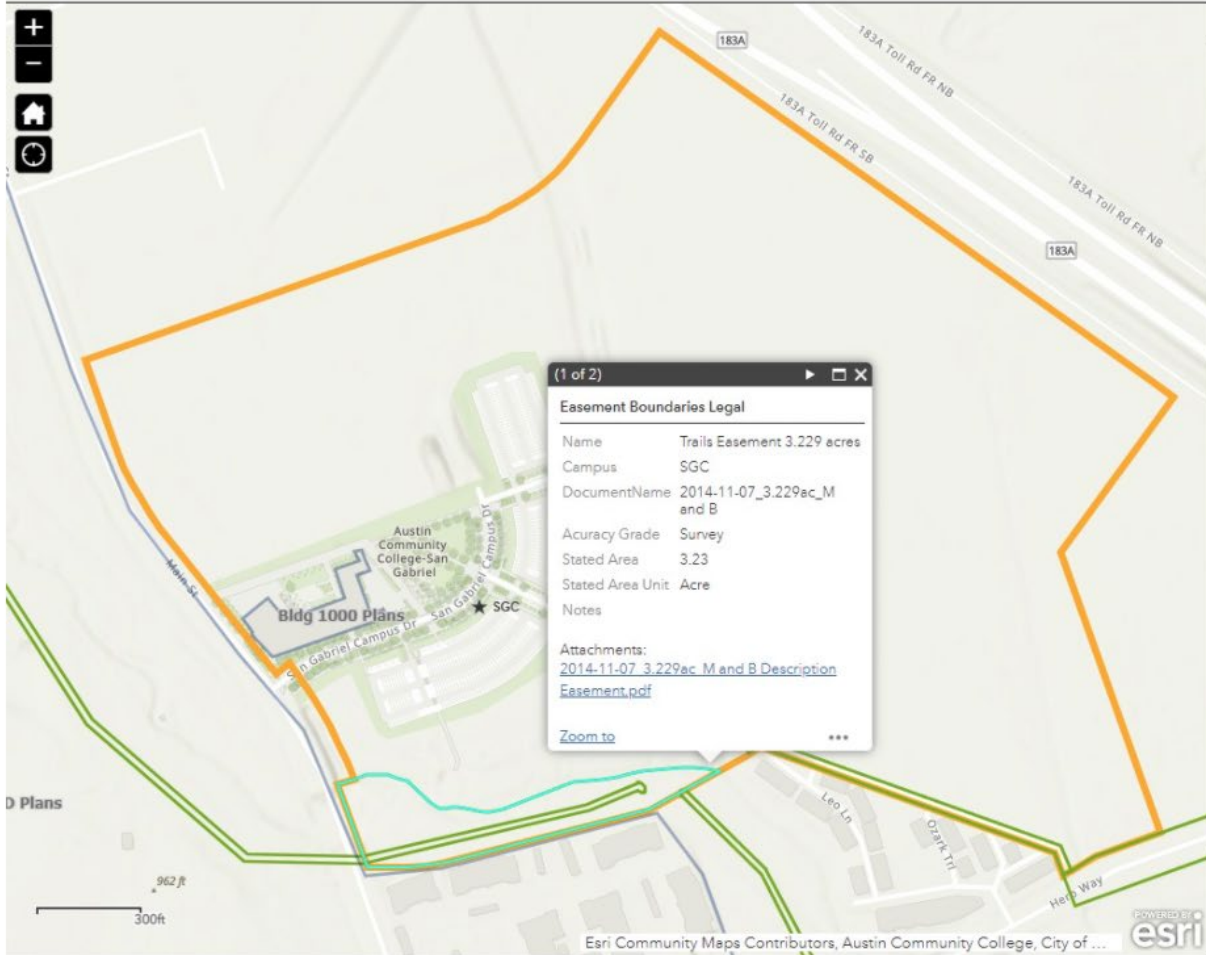
▶ 0:23 / 0:28





Layer List

- ACC System Campus and Facility Locations ...
- ACC Owned Parcels 2021 ...
- ACC Taxing District 2018 ...
- ACC System Service Area 2018 ...
- ACC 3 Regions ...
 - Central
 - North
 - South
- High Schools ...
 - ACC Priority HS
 - Other HS
- PatrolZone2019 ...
- Service Area Counties ...



(1 of 2)

Easement Boundaries Legal

Name	Trails Easement 3.229 acres
Campus	SGC
DocumentName	2014-11-07_3.229ac_M and B
Accuracy Grade	Survey
Stated Area	3.23
Stated Area Unit	Acre
Notes	

Attachments:
[2014-11-07_3.229ac_M and B Description Easement.pdf](#)

[Zoom to](#) ***

Layer List

- ACC Facility Locations
- ★
- Service_Area_Counties
- ACC Owned Parcels 2021
- Plans and Drawings
- Easement Lines COGO
- Easement Boundaries Legal
- Parcel Lines COGO
- Parcel Boundaries Legal
- Zoning
- Civic Building
- OS - Open Space
- T4 - General Urban
- T5 - Urban Center
- T6 - Urban Core
- City of Austin Land Use
- Leander Zoning Raster 10/22/2021





Legend

- Storm Manhole
- Sewer_Manhole
- Water Service Connection
- Water System Meter
- Water Flow Valve
- Water Fire Hydrant
- Storm Catch Basin
- Storm Pipe
- Sewer Main

Water Utility and Planimetrics



ACC Room and Feature Finder

Zoom in or click on a room for more detailed info



Select a Building

None

Select a Floor

1

Search By Room Number

No Selection

Search By Room Name

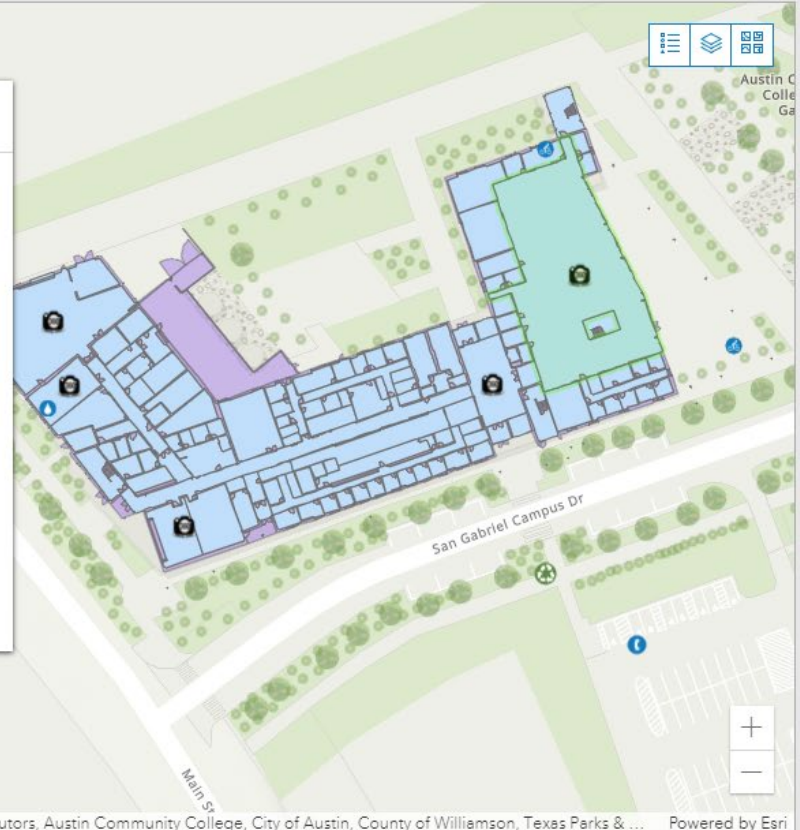
No Selection

Zoom to Pan

Floor 1 Map

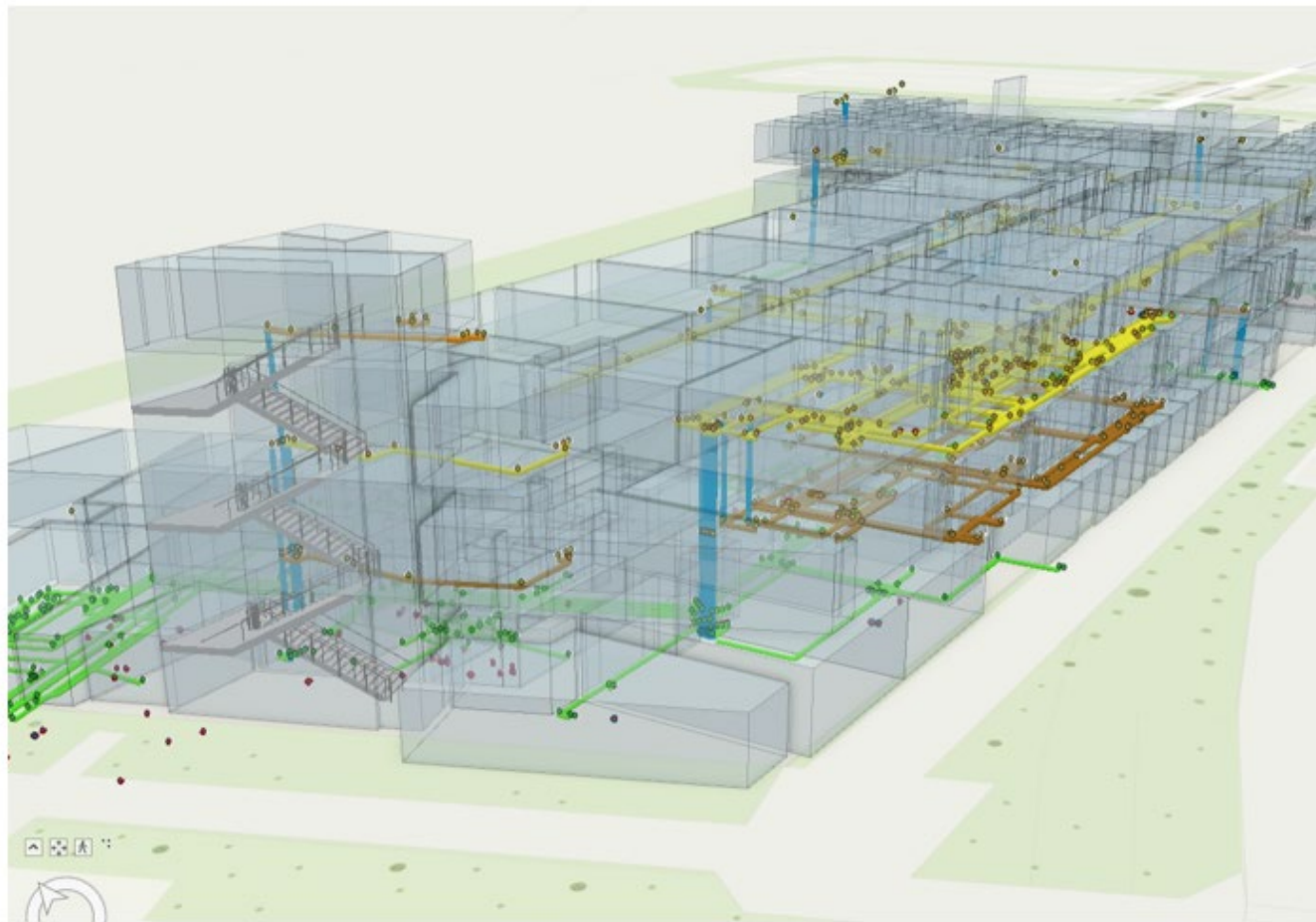


Room Name	ACCELERATOR
Room Number	1100
Square Feet	8528
Astra Room Reserve Page	View



Esri, NASA, NGA, USGS, FEMA | Esri Community Maps Contributors, Austin Community College, City of Austin, County of Williamson, Texas Parks & ... Powered by Esri

Indoor mapping: Searchable room finder with panorama photos.



3D Scene: Gabriel Campus Revit model with GIS plumbing layer



Interactive 2D and 3D Indoor Model

Data Assimilation

Base.gdb

- ▶ ACC System
 - ACC Facility Locations
 - ACC District Counties
 - ACC Service Area
 - ACC Taxing District
 - ACC 3 Regions
 - ACC Owned Parcels
 - Construction Zones
 - Safety Patrol zones
- ▶ Administrative
 - Counties
 - Census Tracts
 - Census Block Groups
 - Census Blocks
 - City Limits
 - Zip Codes
 - School Districts
 - High Schools
- ▶ Environmental
 - Flood Plains
 - Elevation Contours
 - Soils
- ▶ Infrastructure
 - Roads
 - Parcels

Exterior.gdb

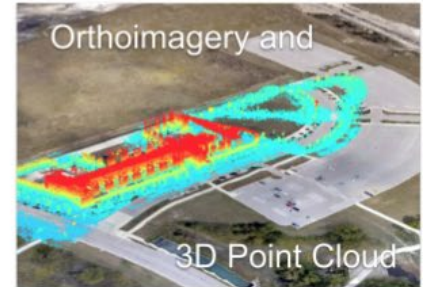
- ▶ Electric
 - Electric Substation
- ▶ Gas
 - Distribution pipe
 - Pump
 - Tank
 - Valve
- ▶ Landscape
 - Ground Cover
 - Trees
 - Landscape Maintenance Areas
 - Irrigation System
- ▶ Pavement
 - Hardscape
 - Pavement Markings
 - Parking Lots
 - Building Footprints
- ▶ Sewer
 - Manhole
 - Meter
 - Pump
- ▶ Storm
 - Retention Pond
- ▶ Water
 - Waterbody
 - Waterline
 - Hydrants

Interior.gdb

- ▶ Indoors
 - Sites (Campus)
 - Facilities (Buildings)
 - Levels (Floors)
 - Units (Rooms)
 - Details (walls, windows)
 - Points Of Interest*
 - ▶ Indoors 3D
 - ▶ Network
 - ▶ Prelim Network
-
- *Point of Interest Features**
 - Restrooms
 - AED
 - Evacuation Route Plans
 - Sustainability Features
 - Charging Stations
 - Smoking Areas
 - Public Art
 - Blue Emergency Phones
 - Bicycle Parking
 - Emergency Rally Muster Points
 - Police
 - Drinking Fountains
 - Vending Machines

Land.gdb

- ▶ Design
 - Plans and Drawings (with attachments)
- ▶ Legal
 - Easement Boundaries Legal (with attachments)
 - Easement Lines COGO
 - Parcel Boundaries Legal (with attachments)
 - Parcel Lines COGO

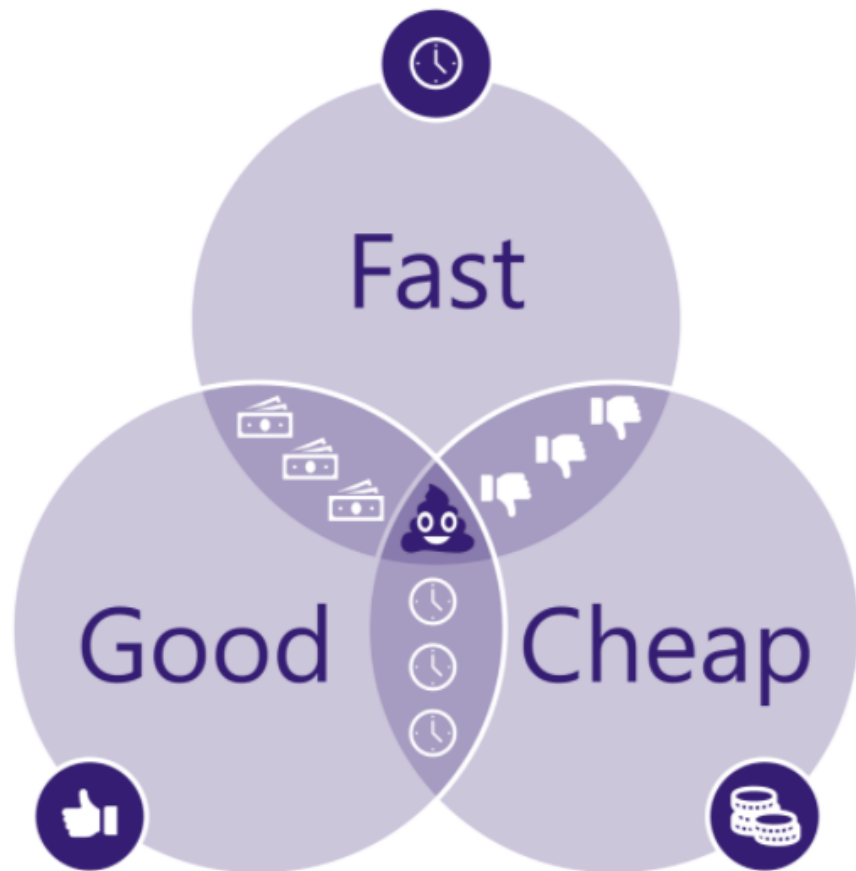


Take Away and Value

ACC has the resources to create robust, high-resolution, and high-value maps to support Facilities and Construction as well as other departments. Leveraging ACC knowledge with GIS department tools, expertise, and interns, is a win-win for ACC and its students.

Value for ACC: 645 hours combined staff and intern time on project. Cost ~ \$13,000. An equivalent project by outside consulting vendors is valued at ~ \$33,600.

Value for Student Interns: Paid real-world experience with marketable skills in GIS, Revit models, drones, Lidar, CAD, construction and real estate documents.



Next Steps

Seek ACC SGC Pilot Project Feedback

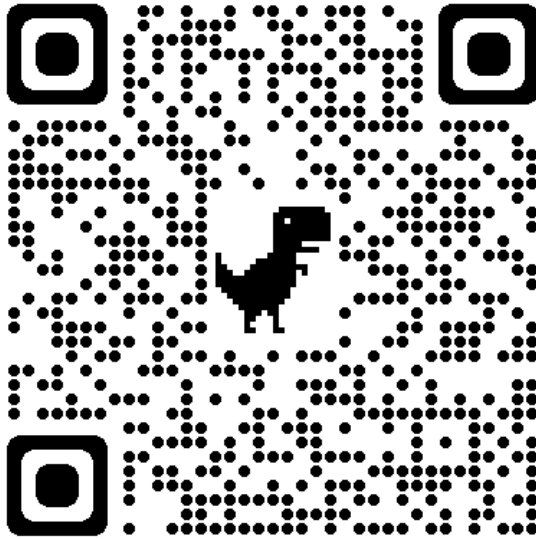
- Remove, add, and/or amend layers as requested by department.
- Request subject matter expert (SME) review (e.g. water utilities).
- Present to ACC leadership.
- Request feedback and finalize pilot.

Create Facilities & Construction GIS

- Complete real estate base map for each campus first.
- Then add interior room info such as mechanical equipment and 360's.
- Add in exterior utilities for other campuses.

Future

- App for students to navigate to classrooms.
- Work with other departments to add feature layers of their desired info.



QR code to the Storymap version
of this presentation.

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