

Using GIS for Campus and Indoor Facility Operations

2018 ESRI User Conference

July 11, 2018

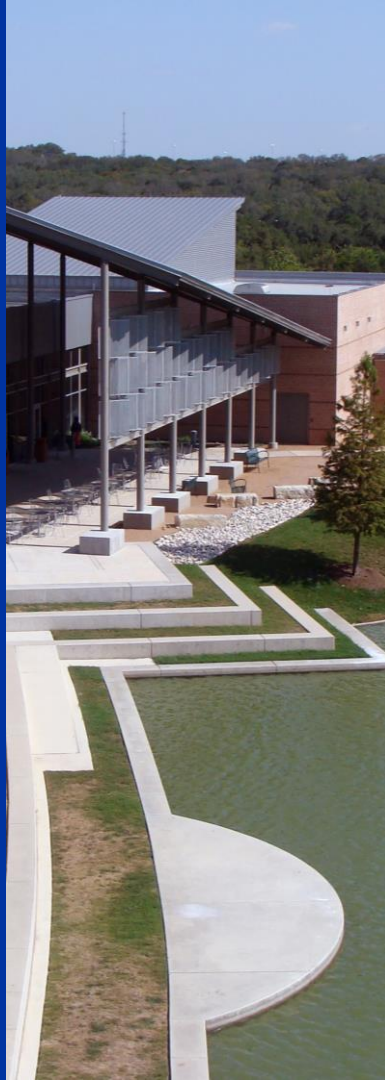


**Lockwood, Andrews
& Newnam, Inc.**
A LEO A DALY COMPANY



**ALAMO
COLLEGES
DISTRICT**

Agenda



- Alamo College Introduction
- Project Overview
- Challenges
- Looking to the Future

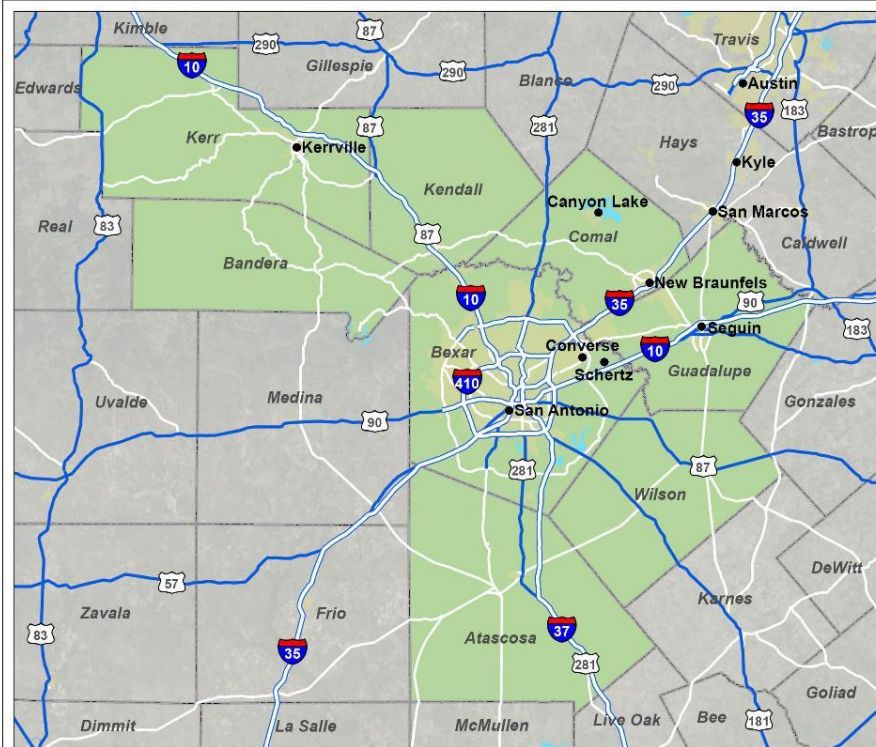
Alamo College Background

- 58,321 Students
- November 2005 - \$450 Million Facilities CIP
- 24 New Buildings
- 1.3 Million Square Feet of Facilities
- May 2018 - \$450 Million Facilities CIP



ALAMO COLLEGES SERVICE AREA

Counties: Atascosa, Bandera, Bexar, Comal, Guadalupe, Kendall, Kerr, and Wilson



DEMOGRAPHICS

Population Summary			
	2010	2018	2021
Total Population	2,149,200	2,365,000	2,634,000
Population by Sex			
Males	1,053,000	1,177,000	1,295,000
Females	1,093,000	1,218,000	1,339,000
Population by Age			
Total	2,146,000	2,365,000	2,634,000
18-24	1,332,700	1,477,700	1,462,100
65+ Yrs	240,000	314,000	385,200
0-4	7.3%	7.3%	8.0%
5-9	7.0%	7.3%	8.8%
10-14	7.5%	7.1%	8.9%
15-24	14.9%	16.6%	18.2%
25-34	15.3%	14.3%	14.8%
35-44	13.3%	12.4%	13.2%
45-54	13.7%	12.8%	11.9%
55-64	10.8%	11.8%	11.5%
65-74	6.2%	7.8%	10.9%
75-84	3.3%	3.9%	4.3%
85+	1.4%	1.5%	1.6%
Household Summary			
2019 Households	768,000	850,800	932,700
2016 Population 25 Years Plus by Educational Attainment			
Total	1,545,400		
Less than 9th Grade	7.5%		
9th - 12th Grade, No Diploma	7.6%		
High School Graduate	20.9%		
GED/Alternative Credential	4.0%		
Some College, No Degree	23.0%		
Associate Degree	7.7%		
Bachelor's Degree	17.7%		
Graduate/Professional Degree	10.2%		
Household Income			
Average Household Income	No Data	\$ 74,400	\$ 80,800

LEGEND

 Alamo Colleges Service Area



0 5 10 20 Miles

Source: ESRI and Facility Programming and Consulting

Information shown herein is a graphical representation only and based upon available information. Facility Programming and Consulting cannot be responsible for consequences resulting from error or omission in the information and graphical representations made herein.



ALAMO COLLEGES SERVICE AREA

Existing and Proposed College Campus Locations



EXISTING LOCATIONS

- Atascosa**
 - First Responders Academy
- Boerne**
 - Northwest Training Facility
- Kerrville**
 - Kerrville Center
- New Braunfels**
 - Central Texas Technology Center
- San Antonio**
 - Brackenridge Education & Training Center
 - Eastside Education Training Program
 - Northwest Vista College
 - Palo Alto College
 - San Antonio College
 - Southwest Campus
 - St. Philip's College
 - Westside Education & Training Center
- Universal City**
 - Northeast Lakeview College

PROPOSED LOCATION

- San Antonio**
 - Southside Campus

	Spring 2016 Enrollment	
St. Philip's	11,713	\$1,655
St. Philip's Southwest Campus	974	Not Available
San Antonio	20,586	17,457
Palo Alto	9,805	8,925
Northwest Vista	16,652	15,826
Northwest Lakeview	5,664	4,758
Total	65,394	58,321

SOURCE: Facility Programming and Consulting, Alamo Colleges Service Area

LEGEND

- Existing Alamo College Campus
- Proposed Alamo Southside Campus
- Alamo Colleges Service Area



0 2.5 5 10 15 Miles

Source: ESRI and Facility Programming and Consulting

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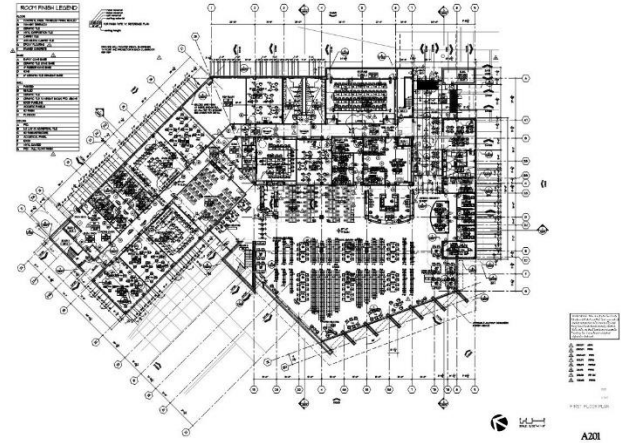
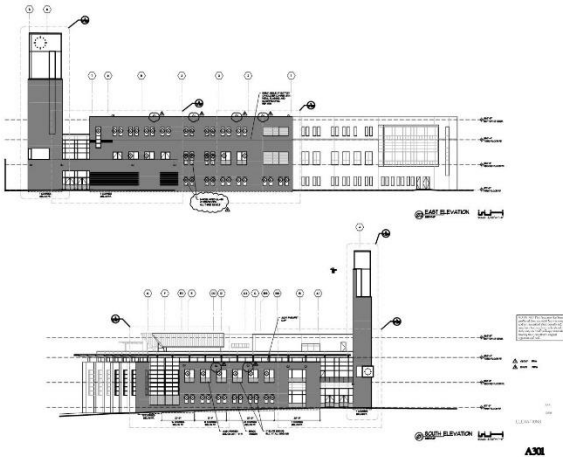
Facilities History of Alamo Colleges

- Active sensor system
- Space Utilization Study Performed in 2005
- Maximo used to Manage Assets since 2008
- Facility Condition Index (FCI) and Asset Data

Age Range of Buildings	Number of Buildings	GSF in Age Range	% of Total (GSF)
Greater than 50 Years Old	33	991,893	18%
Between 25 and 50 Years Old	32	1,051,727	19%
Between 10 and 25 Years Old	53	710,988	13%
Less than 10 Years Old	89	2,771,388	50%
Total	207	5,525,996	100%

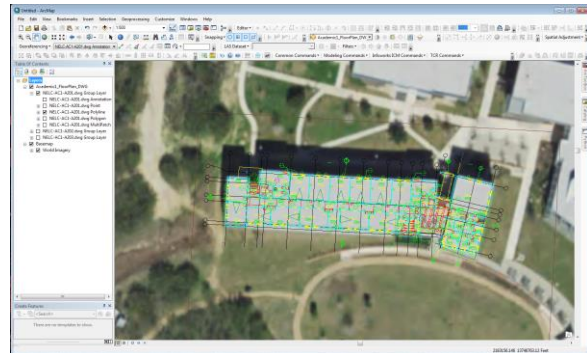
Previous GIS Efforts

- Phase I Project Northeast Lake View Campus (NLC)
- Test and Implement ESRI Database
- Convert Existing Data to GIS



Previous GIS Efforts

- Based on ESRI Data Models
 - Building Interior Space Data Model (BISDM)
 - Local Government Information Model
- Project Workflow
 - Incorporate Asset Data from Maximo to GIS
 - Georeference AutoCAD As-Built DWGs
- Deliverables
 - Campus GIS



NLC – Campus GIS



Phase II Project Goals

- Identify and develop service maps for NLC
- Blending GIS & asset management
- NVC Campus GIS



Legend

Emergency Call Stanchion



Fire Protection Equipment



Fire Hydrant



Standpipe



Fire Exit Sign



Fire Extinguisher



Hose Reel



Manual Alarm Actuator

Fire Evacuation Route



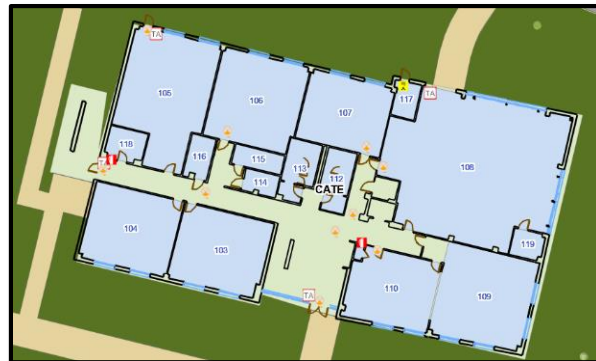
Phase II Challenges

- Do more with less
- Duplicate the creation of a GIS on another campus
 - NLC was new with “average” drawings
 - NVC has some “average” for new buildings
 - NVC lacks detail for original buildings

Service Maps for NLC

Emergency Services Maps:

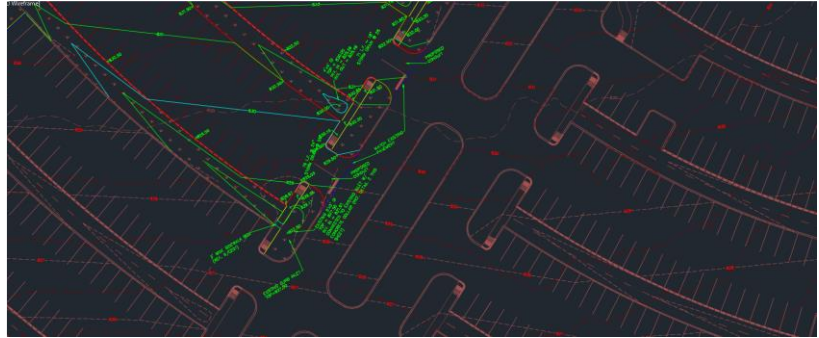
- Tornado Shelter locations
- Emergency evacuation maps including building rally points
- Locations of OSHA confined spaces
- Fire Protection system



Service Maps for NLC

Student Services Maps:

- ADA parking
- Non ADA parking
- Motorcycle parking
- Bicycle parking
- Disk golf locations
- Walking paths
- Locations of information monitors



Service Maps for NLC

Emergency Services Maps:

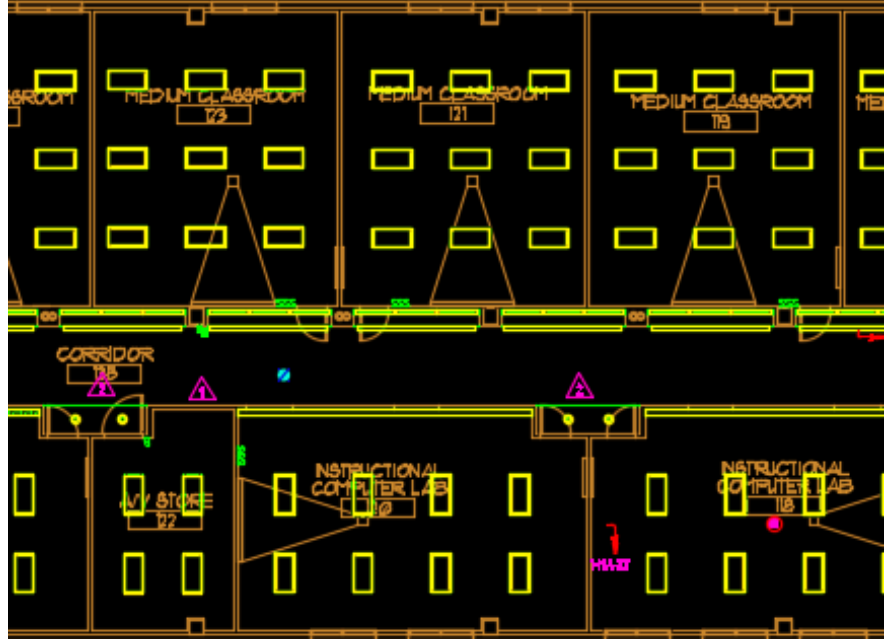
- Emergency phones interior and exterior
- ID access control lock doors
- Fire Alarm
- Emergency eye wash and emergency shower locations
- Fire lane locations



Service Maps for NLC

Sustainability Maps:

- ➔ Soap/paper towel dispensers
- ➔ Parking lot and exterior pedestrian lighting
- ➔ Building wall pack lighting
- ➔ Interior lighting by room, by floor, by building



Service Maps for NLC

Sustainability Maps:

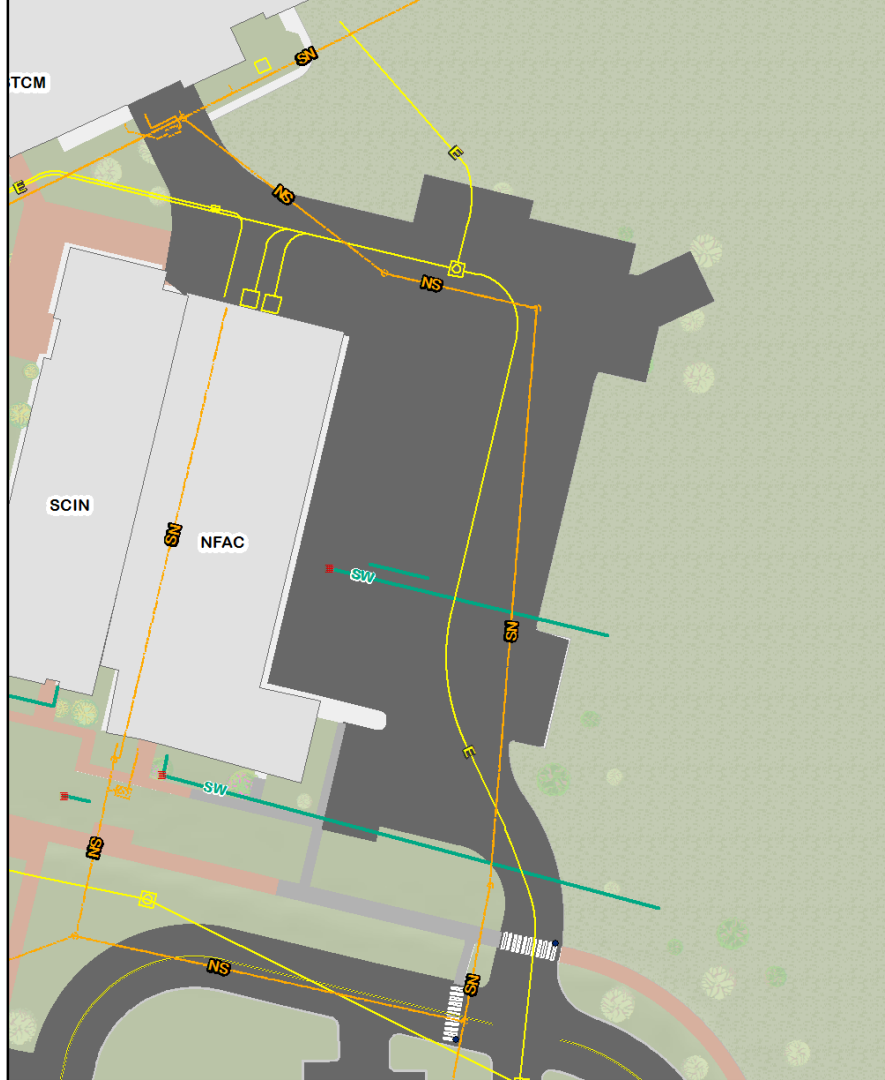
- Floor surface types
- Recycle bins by size
- HVAC sensors and controls
- Chillers, air handler units, pumps, valves
- Solar suitability



Service Maps for NLC

Facilities Maps:

- Sanitary sewer
- Storm sewer system
- Electrical system
- Telecommunications systems



Service Maps for NLC

Facilities Maps:

- ➔ Roof access ladders and hatches
- ➔ Landscaping
- ➔ Irrigation system
- ➔ Domestic water system
- ➔ Natural gas system
- ➔ Geotech borings



Ongoing Project Results

Storm Safety

Keeping informed about the weather is the best way to avoid being caught in a tornado or severe thunderstorm. Your local National Weather Service Forecast Office provides information about dangerous weather in your area, and you should keep a close eye on this information whenever storms threaten your area. A battery operated NOAA Weather Radio with a warning alarm feature should be a part of your information system! [Weather Channel](#)

When a severe storm or tornado threatens, remember these basic guidelines:

GET IN - get as far inside a strong building as you can, away from doors and windows

GET DOWN - get to the lowest floor

COVER UP - use whatever you can to protect yourself from flying or falling debris.

Tornado Safety

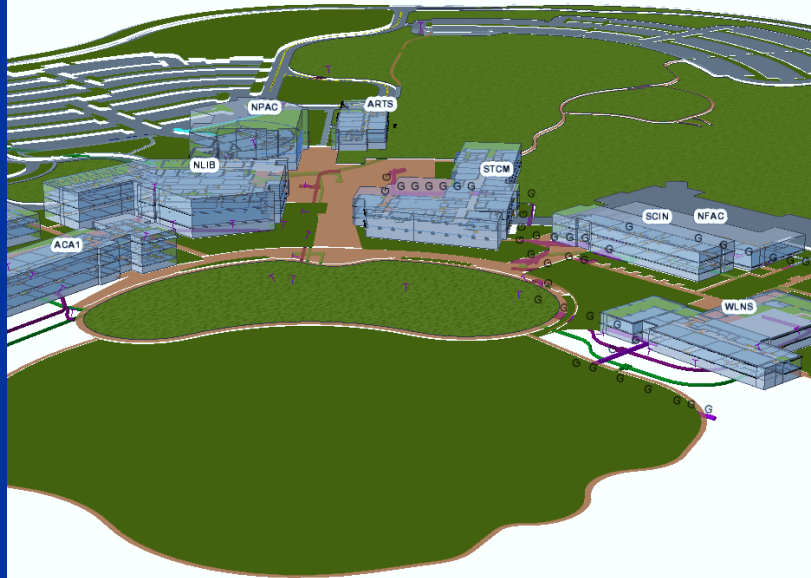
- A reinforced underground storm shelter, storm cellar, enclosed basement or safe room are usually the safest places in a tornado. Underground shelters get you out of the way of flying and falling debris, which is a tornado's most lethal weapon.
- If you cannot get underground, remember the basic guidelines. Get as far inside the strongest building you can find. Stay away from doors, windows and other openings to the outside. Put as many walls between you and the outside as you can.
- Get as low as you can. Go to the lowest floor of the building you're in.
- Cover up to protect yourself from flying and falling debris. Use whatever you can find - pillows, blankets, sleeping bags, mattresses. Wearing a helmet or hardhat will help protect your head from debris.



Key Takeaways

- Utilize Existing Data
- Verify Data
- Semi Automated with Manual Interaction
- Build as Effort Allows
- Wide variety of future uses

Questions



Questions?



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