

The University of Arizona Enterprise GIS

CFTA 2016

***Facilities Geospatial
Technologies Showcase***



UA Overview

Main Campus: Tucson, Arizona

Founded: 1885

Number of Buildings: 227

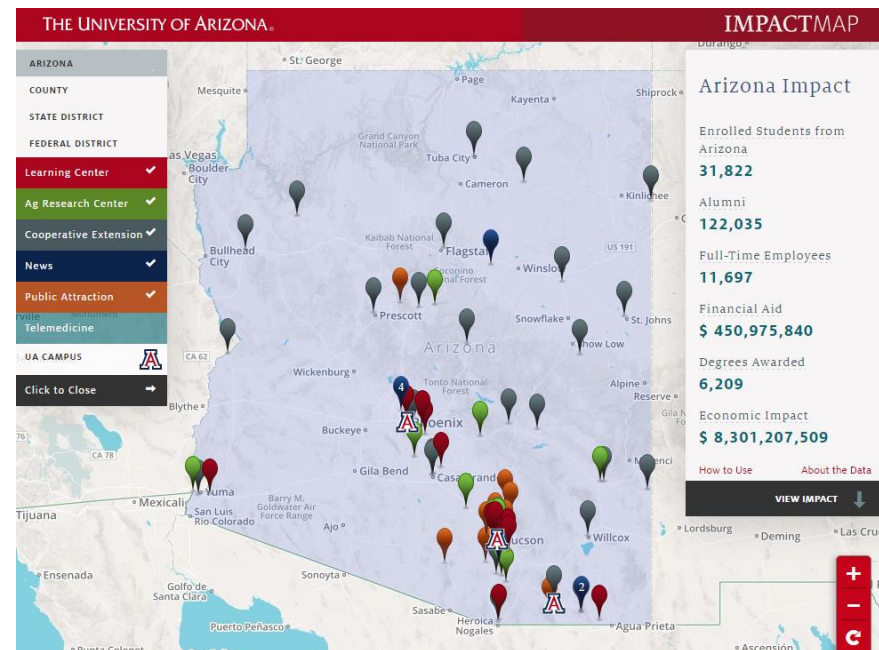
GSF: 9.4 million

Acres: 393

Total Students: 42,236

Total Employees: 15,615

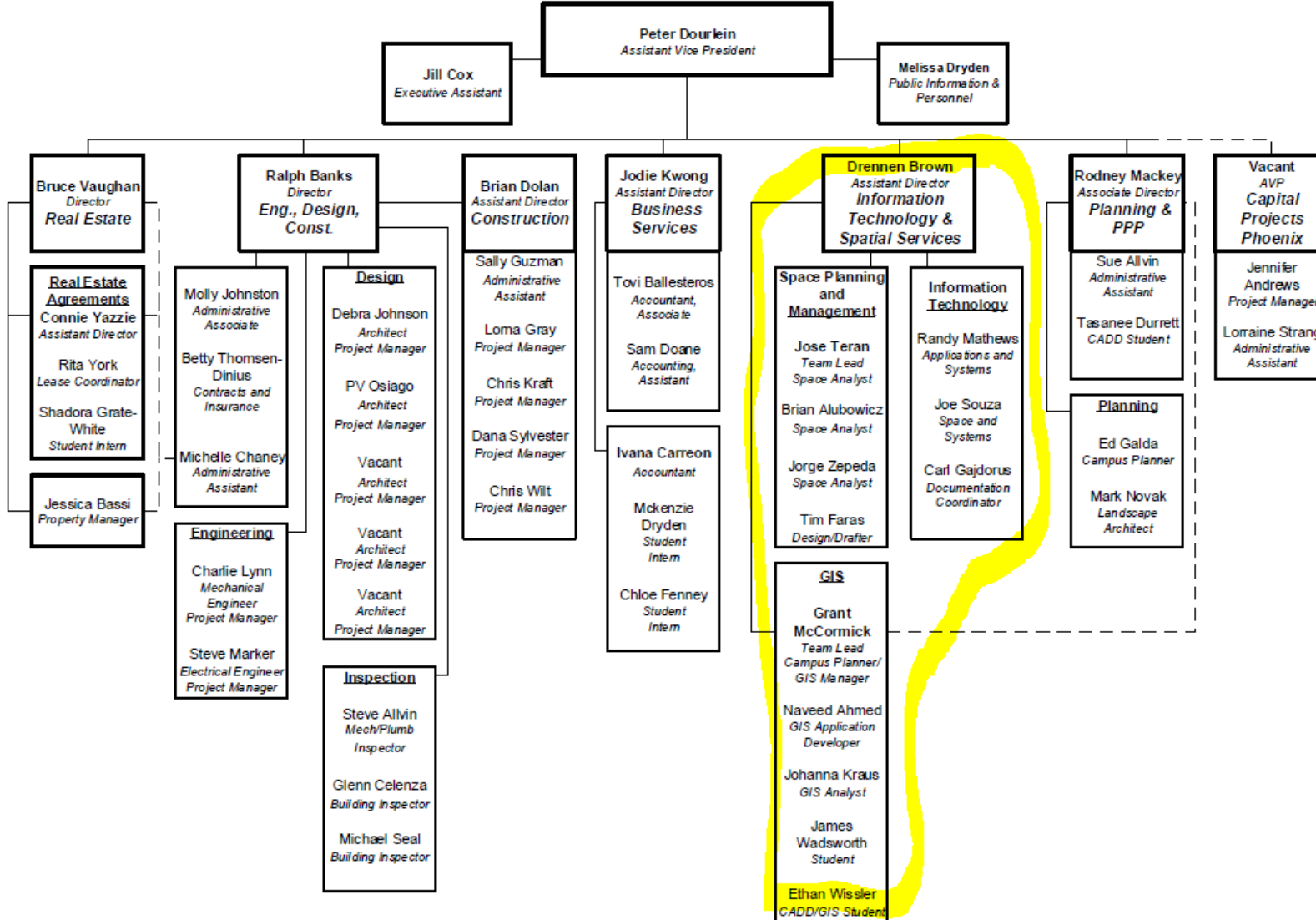
Two Branch Campuses and numerous other sites around the state



Department Organization

PLANNING, DESIGN & CONSTRUCTION

April 2016



Discussion Topics

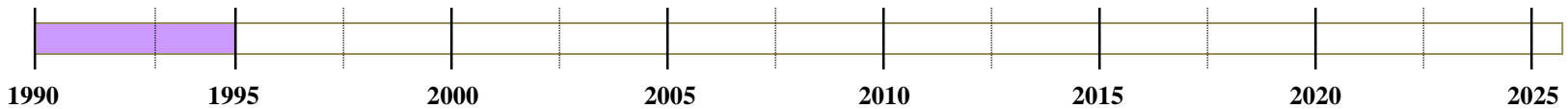
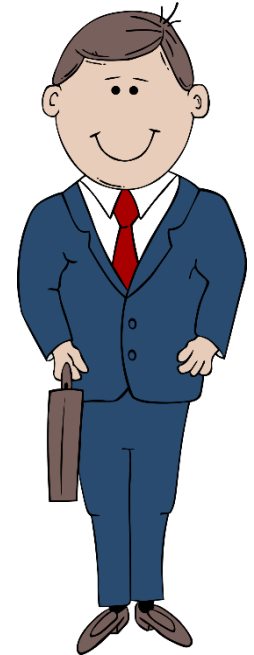
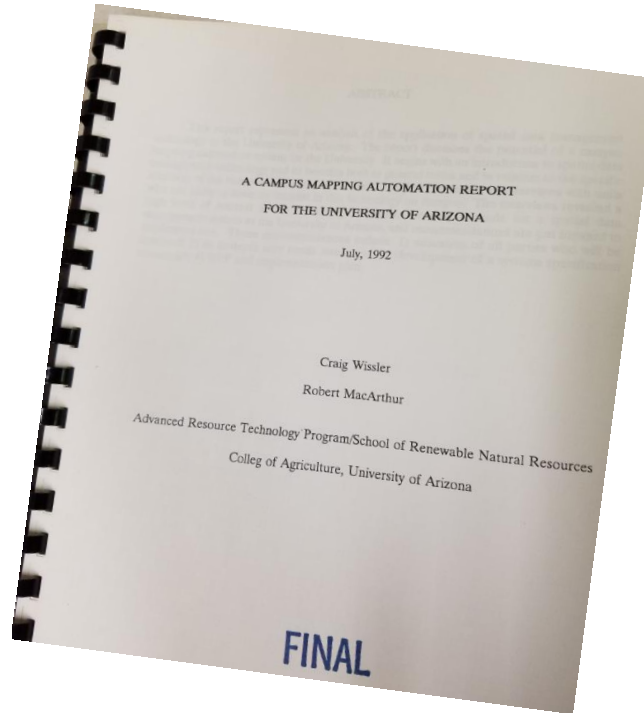
Background on the UA Enterprise GIS

Configuration of the System Today

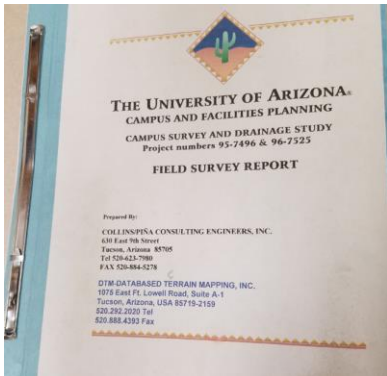
Current and Future Projects



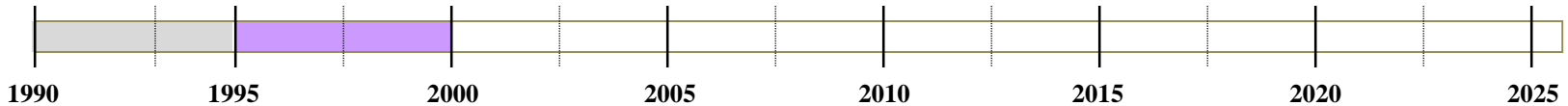
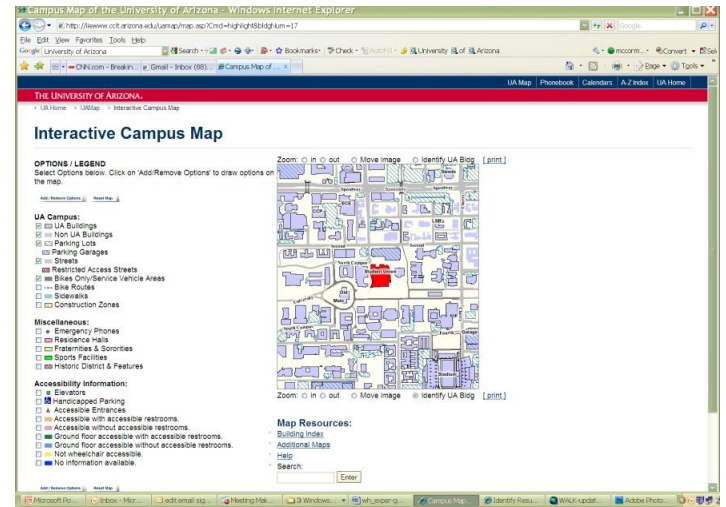
Report on need for Spatial Data Management System completed (1992)
1st GIS Staff Hired



**Departmental System
Vision for Enterprise**



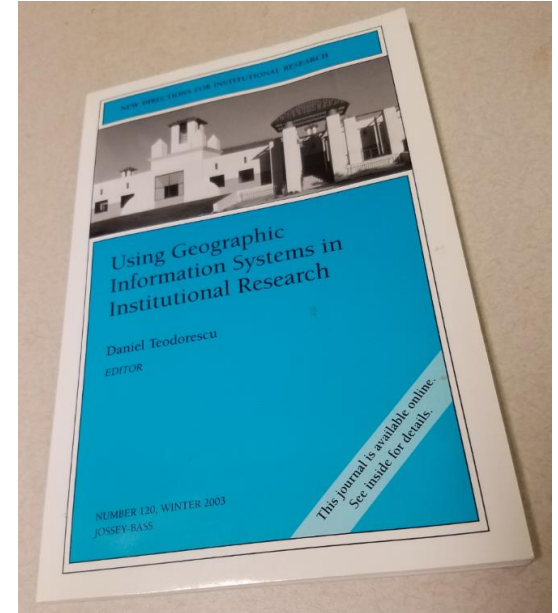
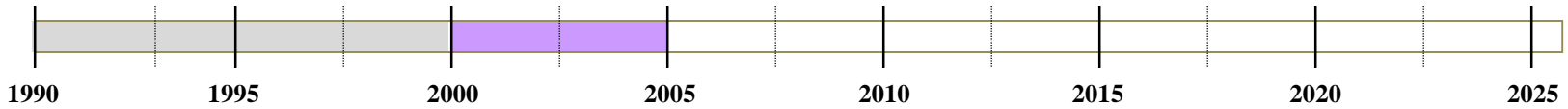
1st GIS Staff Hired
 Created GIS Basemap and Orthophotos (1996)
 First Initiative to create Enterprise system (1997)
 1st Campus GIS Web Map Created (1998)
 ESRI UC Presentation on GIS use for Universities (1999)



**Departmental System
 Vision for Enterprise**



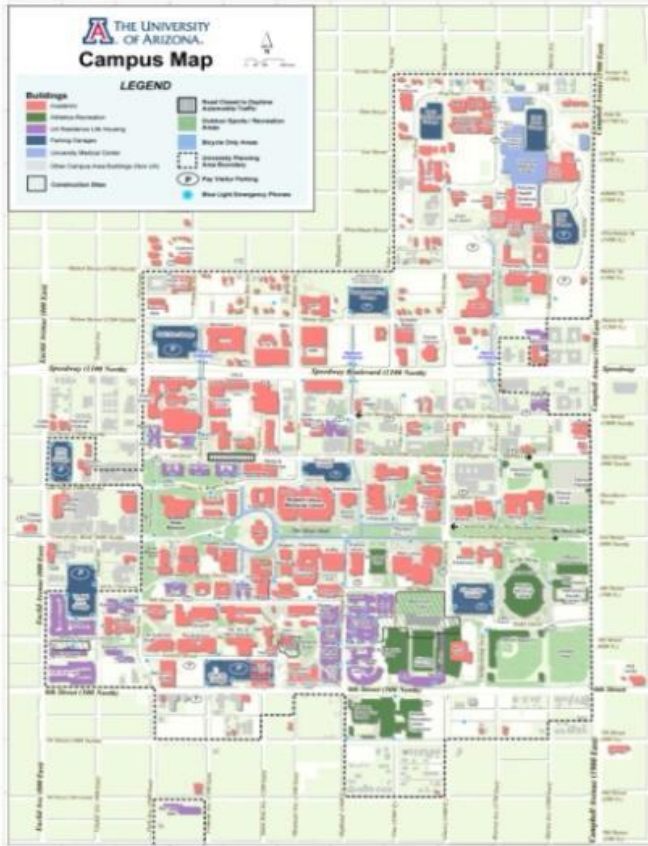
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 ESRI UC Presentation on GIS use for Universities (1999)
Chapter in Book on GIS use for Universities (1999)
 2nd Initiative to create Enterprise System (2003)
GIS Used for Custom Maps, Campus Planning (2000-2005)



**Departmental System
 Vision for Enterprise**

Custom Products and Analyses

Visitor / Directory Map



Most Frequently Requested Locations

Name	Location	Name	Location	Name	Location	University Information
Administration	01	Highland Center	02	Palmer Hall	03	Administration: 520-521-2222
Arizona State Museum	04	Interdisciplinary Center	05	Palmer Hall	06	Highland Center: 520-521-2222
Arizona Stadium	07	Interdisciplinary Center	08	Palmer Hall	09	Highland Center: 520-521-2222
Arizona Union	10	Interdisciplinary Center	11	Palmer Hall	12	Highland Center: 520-521-2222
Arizona Union	13	Interdisciplinary Center	14	Palmer Hall	15	Highland Center: 520-521-2222
Arizona Union	16	Interdisciplinary Center	17	Palmer Hall	18	Highland Center: 520-521-2222
Arizona Union	19	Interdisciplinary Center	20	Palmer Hall	21	Highland Center: 520-521-2222
Arizona Union	22	Interdisciplinary Center	23	Palmer Hall	24	Highland Center: 520-521-2222
Arizona Union	25	Interdisciplinary Center	26	Palmer Hall	27	Highland Center: 520-521-2222
Arizona Union	28	Interdisciplinary Center	29	Palmer Hall	30	Highland Center: 520-521-2222
Arizona Union	31	Interdisciplinary Center	32	Palmer Hall	33	Highland Center: 520-521-2222
Arizona Union	34	Interdisciplinary Center	35	Palmer Hall	36	Highland Center: 520-521-2222
Arizona Union	37	Interdisciplinary Center	38	Palmer Hall	39	Highland Center: 520-521-2222
Arizona Union	40	Interdisciplinary Center	41	Palmer Hall	42	Highland Center: 520-521-2222
Arizona Union	43	Interdisciplinary Center	44	Palmer Hall	45	Highland Center: 520-521-2222
Arizona Union	46	Interdisciplinary Center	47	Palmer Hall	48	Highland Center: 520-521-2222
Arizona Union	49	Interdisciplinary Center	50	Palmer Hall	51	Highland Center: 520-521-2222
Arizona Union	52	Interdisciplinary Center	53	Palmer Hall	54	Highland Center: 520-521-2222
Arizona Union	55	Interdisciplinary Center	56	Palmer Hall	57	Highland Center: 520-521-2222
Arizona Union	58	Interdisciplinary Center	59	Palmer Hall	60	Highland Center: 520-521-2222
Arizona Union	61	Interdisciplinary Center	62	Palmer Hall	63	Highland Center: 520-521-2222
Arizona Union	64	Interdisciplinary Center	65	Palmer Hall	66	Highland Center: 520-521-2222
Arizona Union	67	Interdisciplinary Center	68	Palmer Hall	69	Highland Center: 520-521-2222
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Arizona Union	73	Interdisciplinary Center	74	Palmer Hall	75	Highland Center: 520-521-2222
Arizona Union	76	Interdisciplinary Center	77	Palmer Hall	78	Highland Center: 520-521-2222
Arizona Union	79	Interdisciplinary Center	80	Palmer Hall	81	Highland Center: 520-521-2222
Arizona Union	82	Interdisciplinary Center	83	Palmer Hall	84	Highland Center: 520-521-2222
Arizona Union	85	Interdisciplinary Center	86	Palmer Hall	87	Highland Center: 520-521-2222
Arizona Union	88	Interdisciplinary Center	89	Palmer Hall	90	Highland Center: 520-521-2222
Arizona Union	91	Interdisciplinary Center	92	Palmer Hall	93	Highland Center: 520-521-2222
Arizona Union	94	Interdisciplinary Center	95	Palmer Hall	96	Highland Center: 520-521-2222
Arizona Union	97	Interdisciplinary Center	98	Palmer Hall	99	Highland Center: 520-521-2222
Arizona Union	100	Interdisciplinary Center	101	Palmer Hall	102	Highland Center: 520-521-2222

Spring Fling Guide

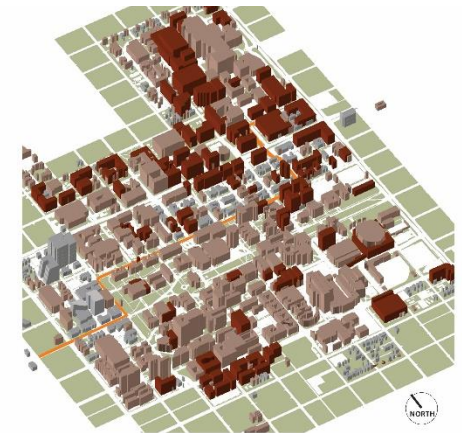
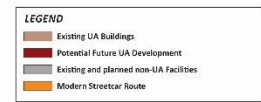


Development Density Analysis

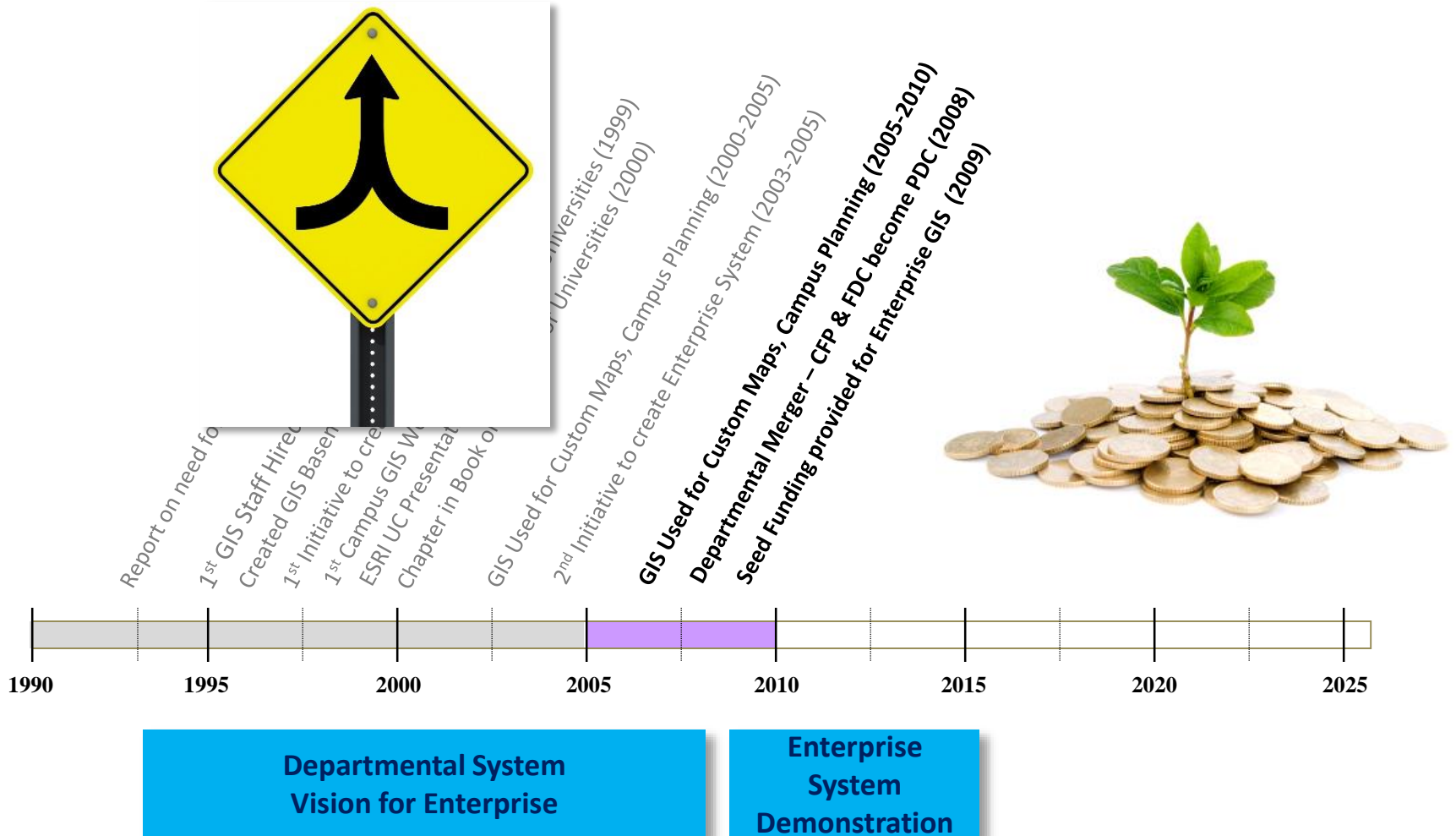
CAMPUS DENSITY ANALYSIS

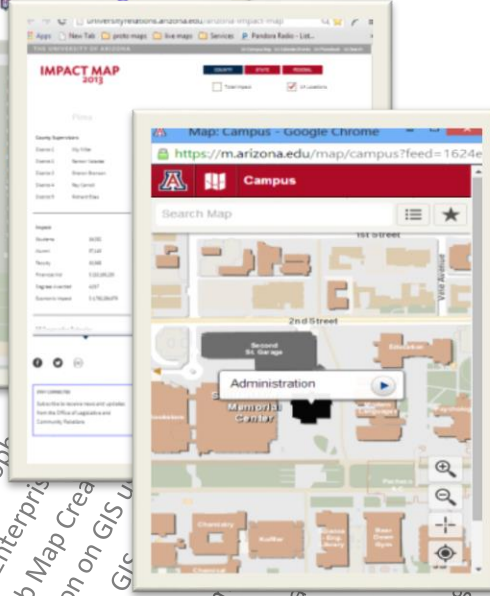
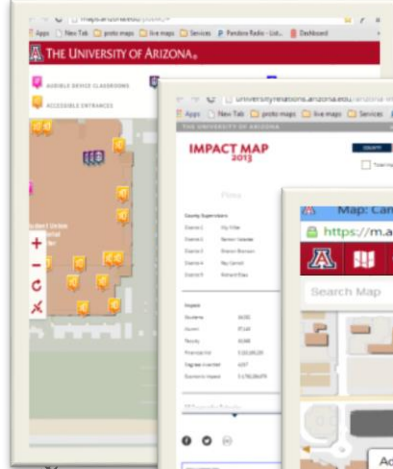
	2003	2009	2013
TOTAL CAMPUS SQUARE FOOTAGE	8.6M GSF (w/831,000 GSF in design and construction)	10M GSF (w/372,000 GSF in design and construction)	10.4M GSF (w/800,000 GSF in design and construction)
TOTAL ESTIMATED CAMPUS CAPACITY	17M GSF	17M GSF	21M GSF
ADDITIONAL CAMPUS CAPACITY AVAILABLE	8.4M GSF	7M GSF	10M GSF

- Conclusions**
- With fixed campus boundaries & continued enrollment and research growth – higher density is needed campus-wide.
 - Increased density is offset by a well-designed Open Space Network and the use of proven urban planning principles.
 - Off campus growth will also accommodate some future needs, and make best use of limited on-campus building sites.

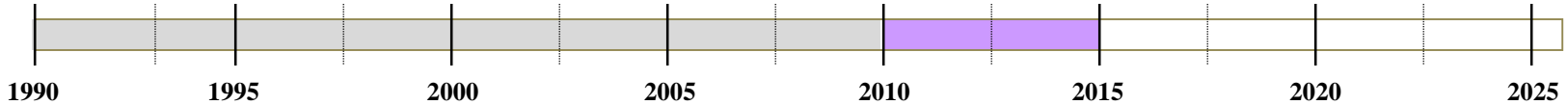


Potential Campus Density at Build-Out





Report on need for Spatial Data Management
 1st GIS Staff Hired
 Created GIS Basemap and Orthophoto
 1st Initiative to create Enterprise GIS
 ESRI UC Presentation on creating an Enterprise GIS
 Chapter in Book on GIS
 GIS Used for Custom
 2nd Initiative to create
 Departmental Merge
 Seed Funding provided for Enterprise GIS (2008)
 & FDC become PDC (2008)
 ESRI UC Presentation on creating an Enterprise GIS (2009)
 UA Adopts Web Maps launched, Enterprise GDB Created (2011)
 Second increment of Seed Funding provided for Enterprise GIS (2012)
 Campus 360 beta and PDC Projects Web Maps launched Spring 2014: Public, AzMobile, Impact Map
 360 V2 plus 3 new web launched



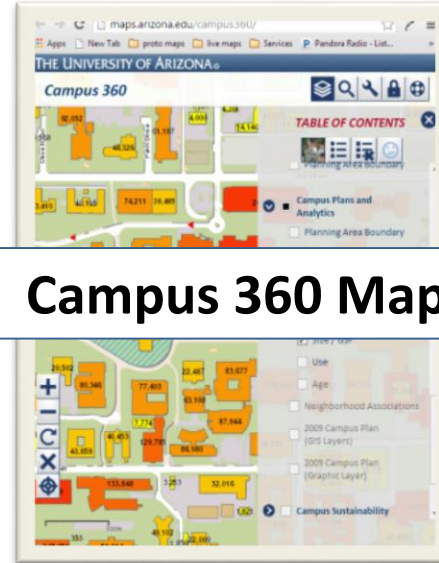
**Departmental System
Vision for Enterprise**

**Enterprise
System
Demonstration**

Web Map Applications: maps.arizona.edu



Public Map



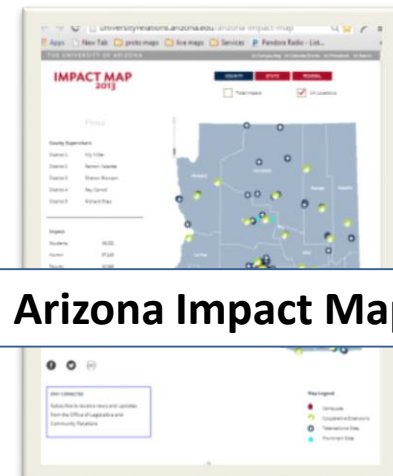
Campus 360 Map



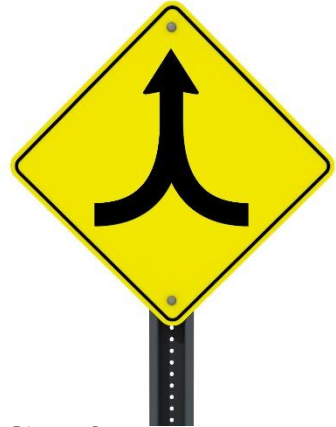
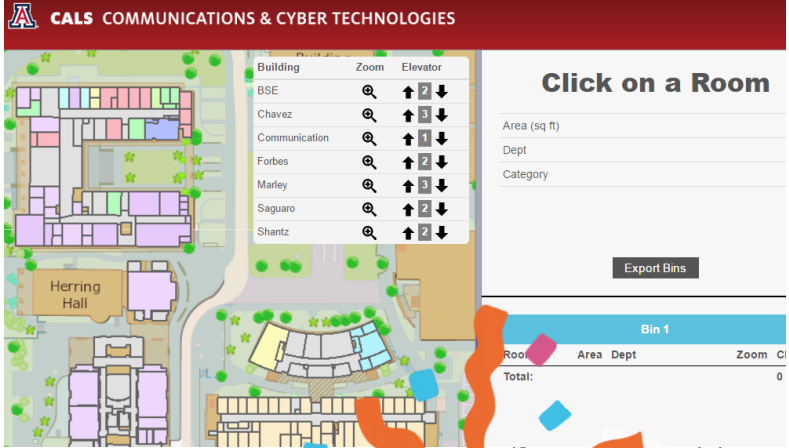
PDC Projects Map



Arizona Mobile Map



Arizona Impact Map



1st GIS Use for Custom Maps, Campus Planning (1999)

2nd Initiative to create Enterprise System (2000)

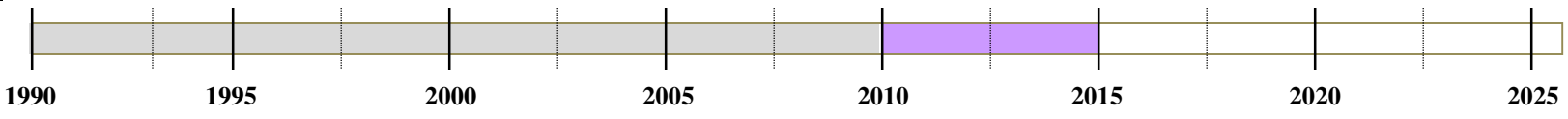
Departmental Map Seed Funding

Silver ESRI UA A Sec 3 ne

CALS launches Space Exchange Map - June

Departmental Merger - PDC and REA - October

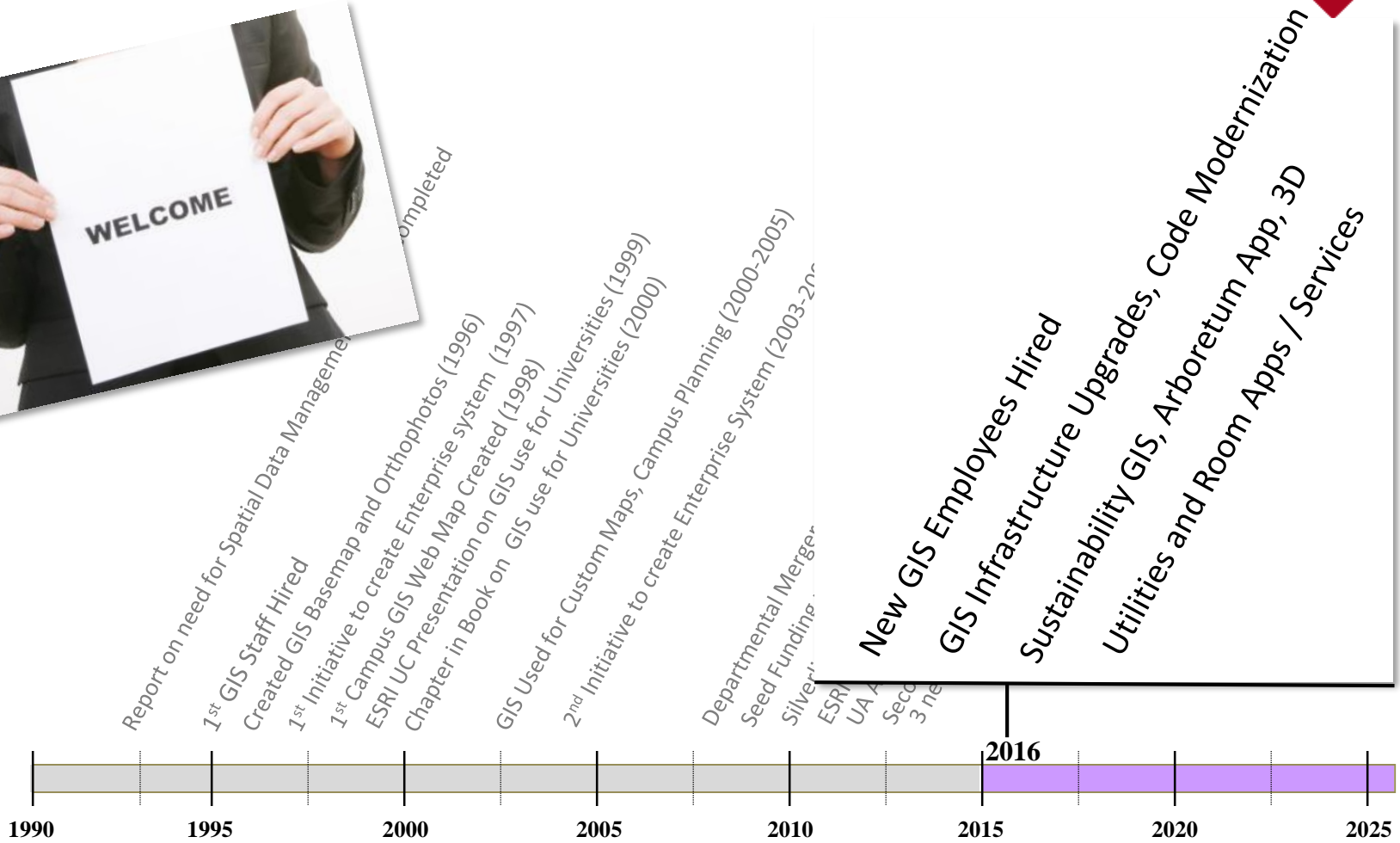
New GIS Employees Approved - December



Departmental System Vision for Enterprise

Enterprise System Demonstration

Enterprise System Full Implementation



**Departmental System
Vision for Enterprise**

**Enterprise
System
Demonstration**

**Enterprise System
Full Implementation**



UA Enterprise GIS Today

Current Configuration

Enterprise GeoDatabase

Common GeoDatabase



Data Maintainers, Map
Makers, Analysts



Web Map
Applications



Other Data
Systems

Enterprise GeoDatabase

Administration

Capital Projects, UA Site Points – Statewide, Athletic Sites, Land Parcels, Web Cameras

Arboretum

Trees, Tree Descriptions

Hydro

Drainage structures, watersheds, water harvesting features

Site Features

Signs, Bluelight Emergency Phones, Public Art, Automated External Defibrillators (AEDs)

Structures

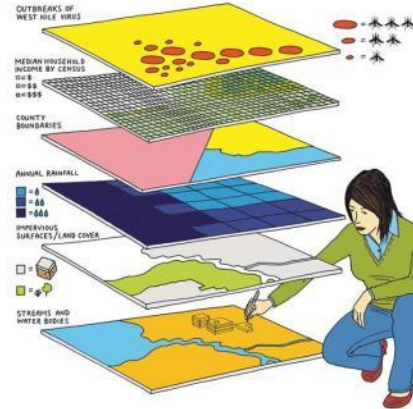
Building Entrances, Building Roof & Footprints, Misc. Structures

Transportation

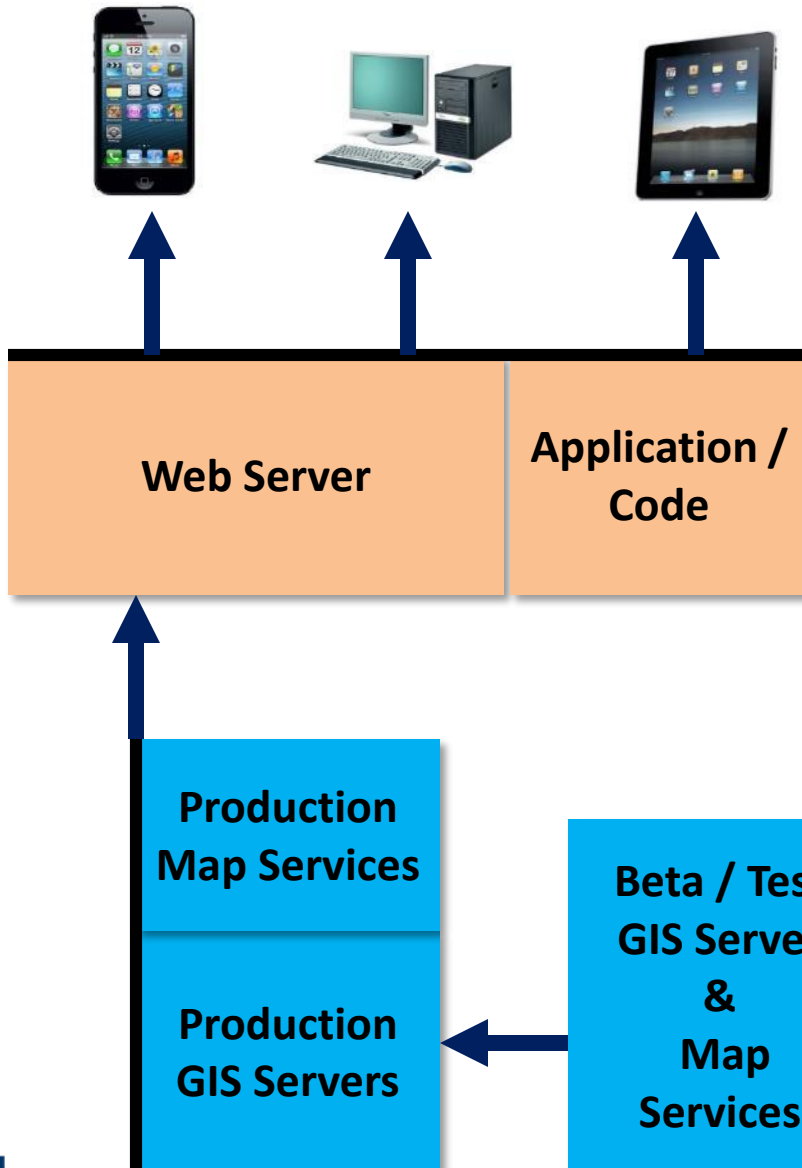
Parking Spaces & Lots, Bike Parking & Paths, Shuttles, Streets, Walks

Utilities

Light Poles, tunnels, water lines



UAGIS.STRUCTURES.Buildings	
BuildingID	CartoName
92	Maricopa
107	Old Main
111	Douglass
127	South
124	Shantz
126	Yavapai
122	Marley
123	Herring
118	Forbes
114	Nugent
215	Koffler

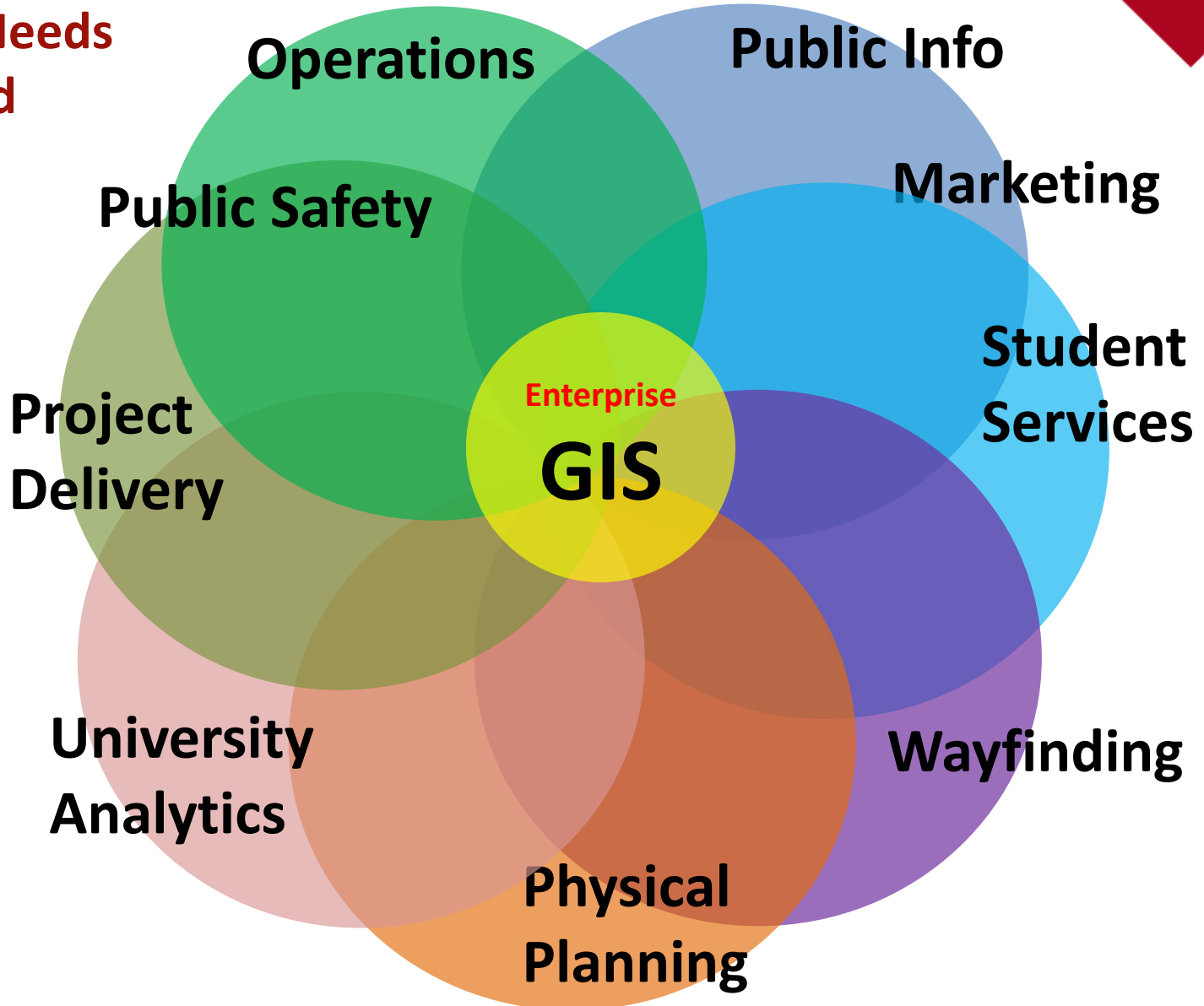


Web Map Applications

The EGIS/Esri Framework provides:

- “Ready to go” infrastructure
- An integrated platform
- Security
- Up to date and accurate information
- Control over branded and internal info
- Integrated enterprise information
- Expandability
- Responsiveness

**Campus Needs
Supported**



Current GIS Projects

New GIS Data, Services, and Applications

Arboretum / FM Grounds Field App

Sustainability Web Map

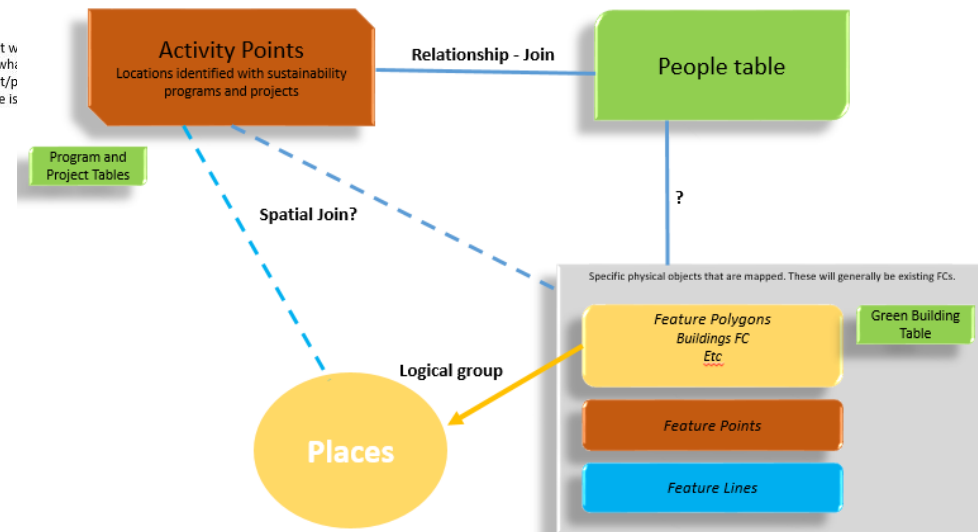
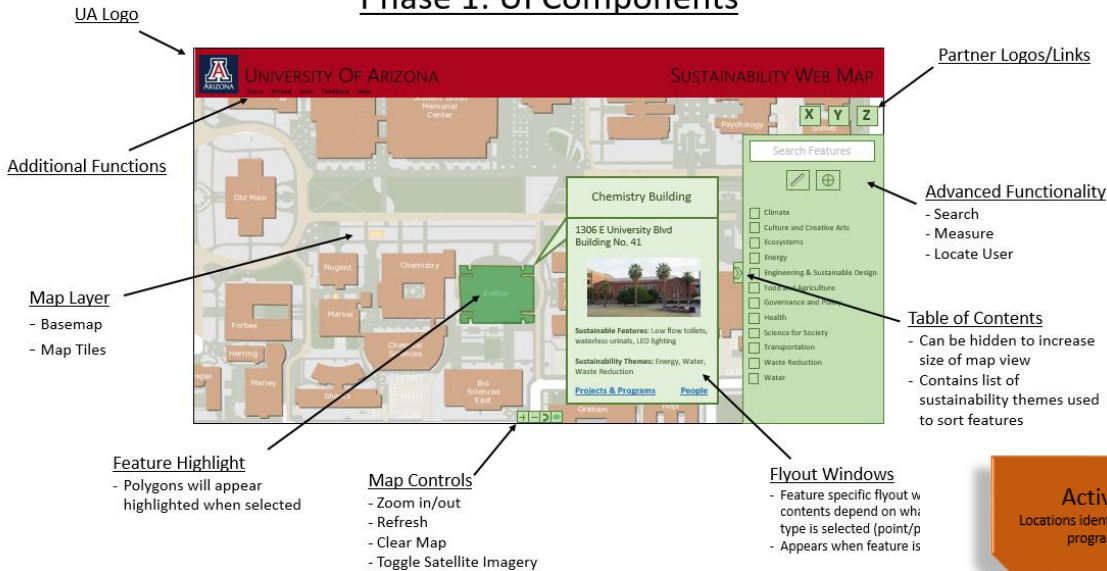
3D Building Data

Utility Mapping

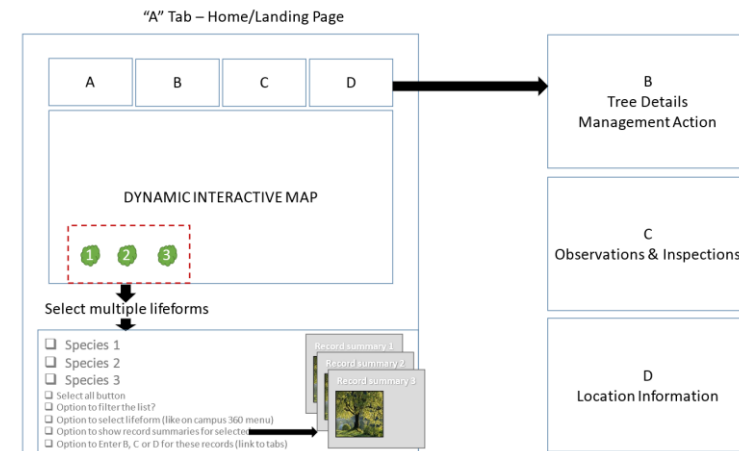
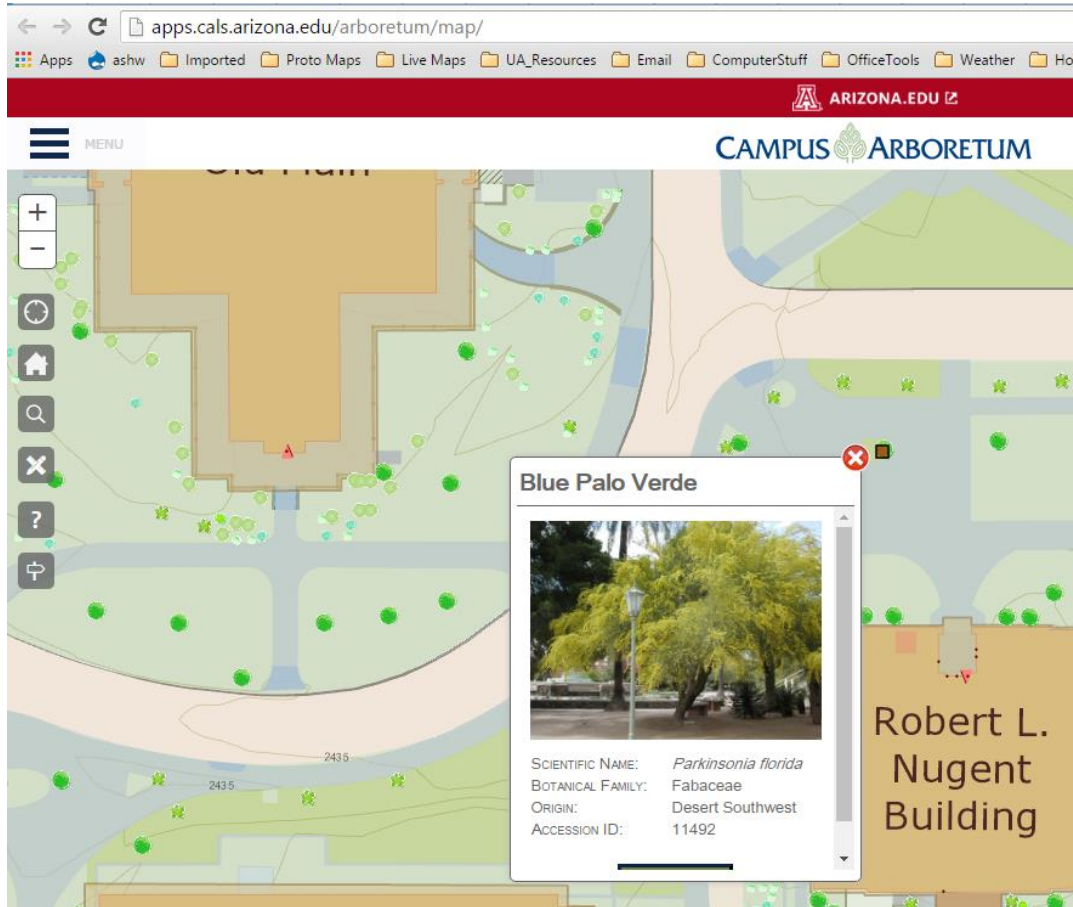
Room / Interior Mapping

Sustainability Web Map / Database

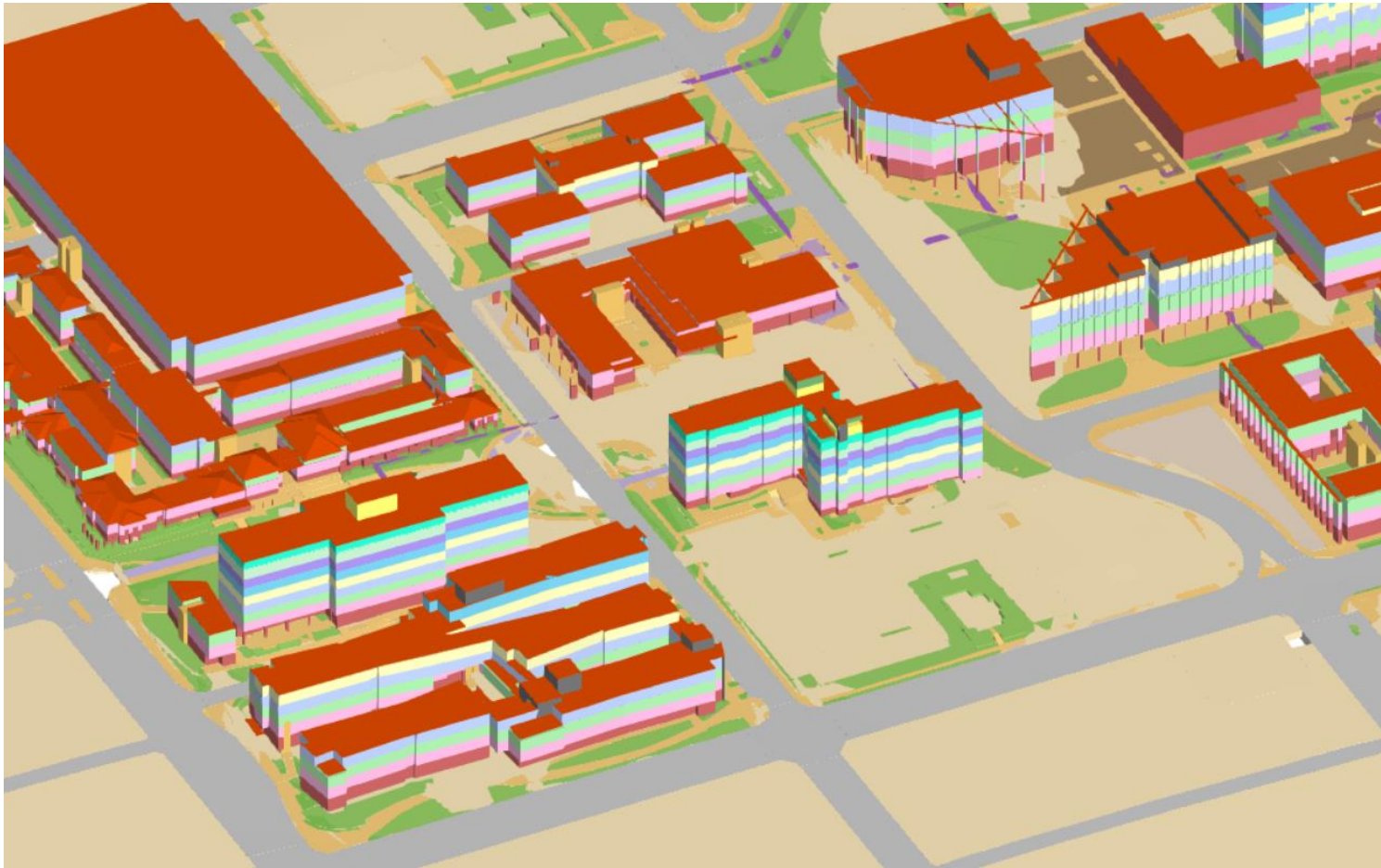
Phase 1: UI Components



Arboretum / FM Grounds Field App



3D Buildings

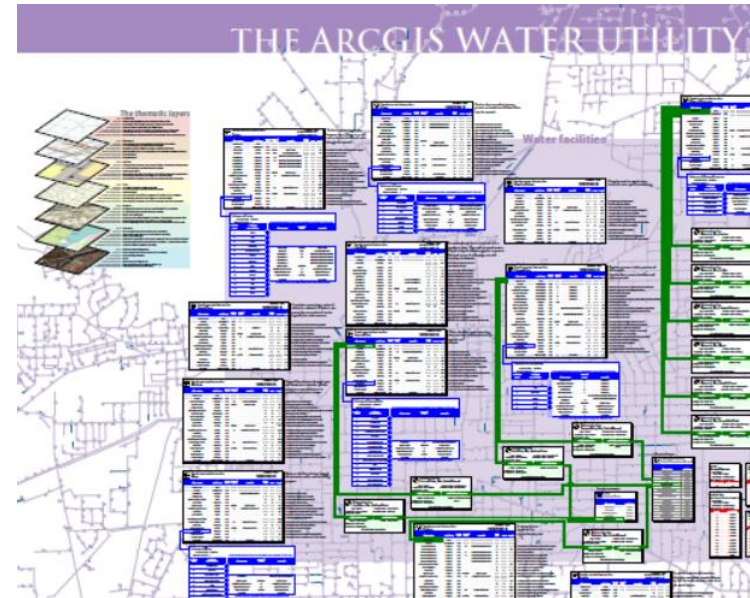


Utility Mapping

UA Utility Typology

Utility System Description and Priorities for Mapping: Utility Resources		
12-Mar-15		
Utility Resources		
Utility Resource	Elements	Contained In
SANITARY SEWER LINES	Pipes Sewer manholes	Direct Burial
CHILLED WATER	Supply Return Valves	Direct Burial; Tunnels
STEAM	Supply Lines Return Condensate Lines Condensate Pumps Isolation Valves	Tunnels

ESRI Data Model



Initial Goal: Define where components are and what they are

UNIVERSITY OF ARIZONA TUNNEL ASSESSMENT

LOCATION VAULT ID: 5th St. V422 South to V424 (Corner Vault)
 INSPECTION DATE: 7.07.11
 TUNNEL TEMPERATURE: 118 Deg. F

UTILITY	PIPE SIZE	PIPE MATERIAL	PIPE CONDITION	TUNNEL DIMENSIONS	INSUL. MAT.	INSUL. SIZE	CONDITION	FOOTAGE	NOTES
High Pressure Steam	6"	Sch 40 Bk	1962	4'-0" W x 6'-8" H	Asbestos	1-1/2"	Good	196'	Asbestos w/ Canvas Jacketing
Pumped Condensate	2"	Type L Copper	1962		Fiberglass	1-1/2"	Fair	196'	No Canvas Jacketing
Chilled Water Supply	8"	Sch 40 Bk	1962		Composite	1"	Poor	196'	No Canvas Jacketing / Asbestos Fittings
Chilled Water Return	8"	Sch 40 Bk	1962		Fiberglass	1-1/2"	Poor	196'	No Canvas Jacketing / Asbestos Fittings
Domestic Cold Water	6"	Type L Copper	Good		N/A	N/A	N/A	196'	95/5 Solder Joints
Compressed Air	6"	Type L Copper	Good		N/A	N/A	N/A	196'	95/5 Solder Joints

PICTURE # | DESCRIPTION

118 | Electrical J Box cover missing

119 | Damaged insulation anchoring

120 | 6" Ductile Iron Sewer

121 | Missing insulation on 2" Pumped Condensate @ 68' South of V422

122 | Leaking 2" Pumped Condensate Expansion Joint @ 106' South of V422

123 | Leaking 2" Pumped Condensate Expansion Joint @ 185' South of V422

124 | Missing insulation on 2" Pumped Condensate @ 185' South of V422

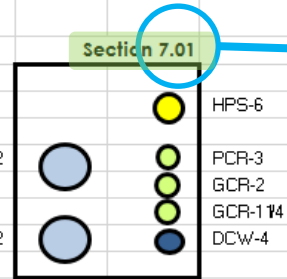
125 | Steam trap leaking (end of tunnel)

NOTES



Source Data for Tunnels / Contents

University of Arizona
GIS Tunnel Data



Section Utility Data Table

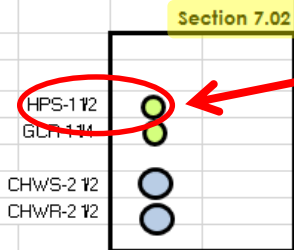
System	Size (in)	SectionID
HPS	6	7.01
MPS		7.01
LPS		7.01
PCR	3	7.01
GCR	2, 1 1/4	7.01
CHWS	12	7.01
CHWR	12	7.01
DCW	4	7.01
RW		7.01

Tunnel Section Reference Table

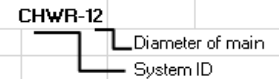
SectionID	Height	Width	View To	Start Vault	End Vault
7.01	6'-4"	4'-0"	East	V-660	V-666
7.02	4'-6"	3'-0"	North	V-666	V-13
7.03	6'-4"	4'-0"	East	V-666	V-668
7.04	6'-10"	6'-2"	North	V-668	V-726
7.05	6'-3"	4'-0"	East	V-668	V-670
7.06	6'-5"	3'-0"	North	V-670	V-12
7.07	6'-3"	4'-0"	East	V-670	V-672
7.08	6'-1"	4'-0"	North	V-672	V-11
7.09	6'-3"	4'-0"	East	V-672	V-674
7.10	4'-6"	3'-0"	North	V-674	V-20
7.11	6'-1"	4'-0"	East	V-674	V-680A
7.12	5'-0"	3'-2"	North	V-680A	V-10
7.13	4'-6"	3'-1"	North	V-680A	V-23A
7.14	6'-4"	4'-0"	North	V-680B	V-23
7.15	6'-4"	4'-0"	East	V-680B	V-682A
7.16	4'-6"	3'-1"	North	V-682A	V-681
7.17	6'-4"	4'-0"	East	V-682A	V-682B
7.18	6'-4"	4'-0"	East	V-682B	V-684
7.19	4'-1"	3'-2"	North	V-684	V-9
7.20	6'-4"	4'-0"	East	V-684	V-686
7.21	6'-4"	4'-0"	East	V-686	V-688
7.22	4'-6"	4'-0"	North	V-688	V-26
7.23	6'-4"	4'-0"	East	V-688	V-690
7.24	4'-6"	3'-0"	North	V-690	V-8
7.25	6'-4"	4'-0"	East	V-690	VTI

Updated Legend

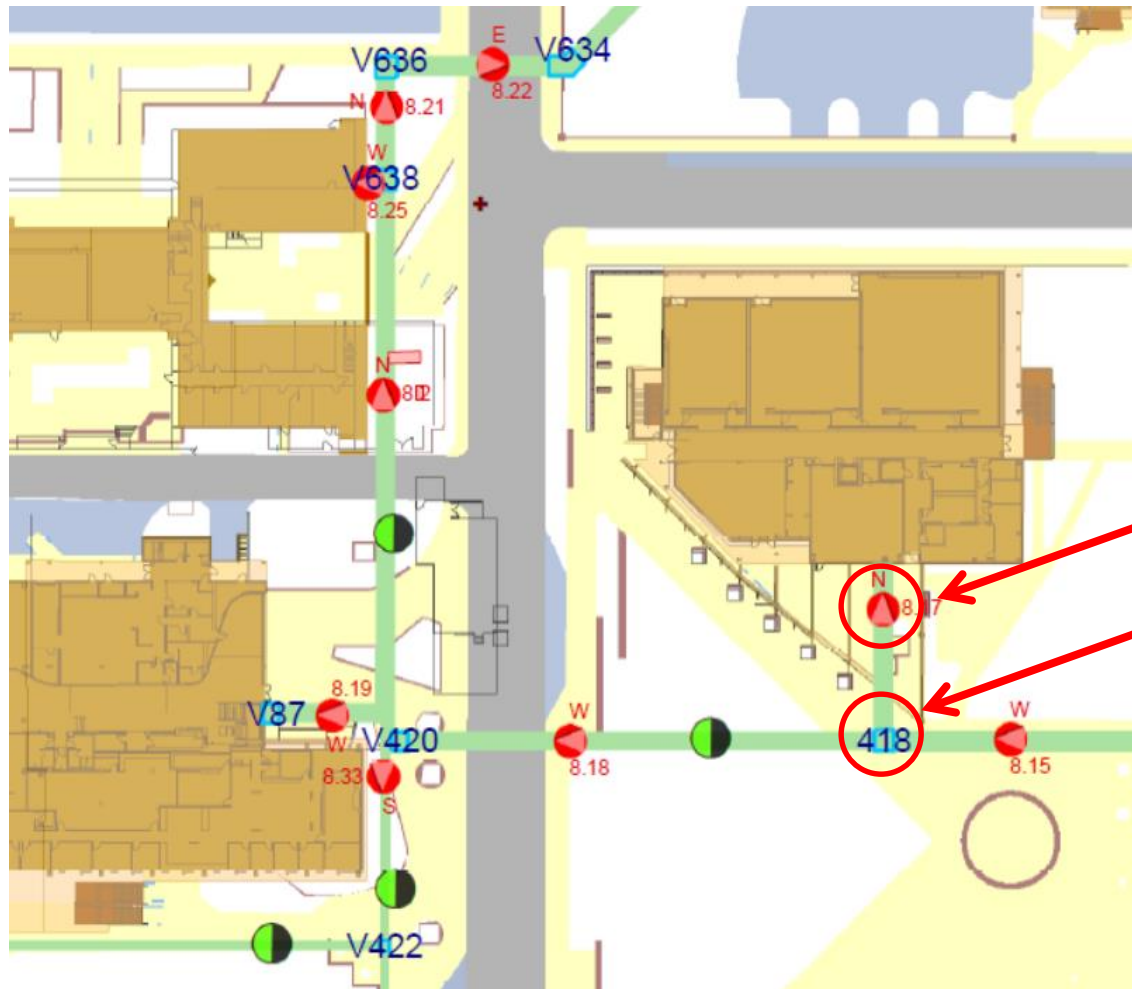
ID	System
HPS	High Pressure steam
MPS	Medium pressure steam
LPS	Low pressure steam
PCR	Pumped condensate return
GCR	Gravity condensate return
CHWS	Chilled water supply
CHWR	Chilled water return
DCW	Domestic cold water
RW	Reclaimed water



System	Size (in)	SectionID
HPS	1 1/2	7.02
MPS		7.02
LPS		7.02
PCR		7.02
GCR	1 1/4	7.02
CHWS	2 1/2	7.02
CHWR	2 1/2	7.02
DCW		7.02
RW		7.02



Tunnel Mapping



Cross-Section

Vault

Web Map Access to Utility Information

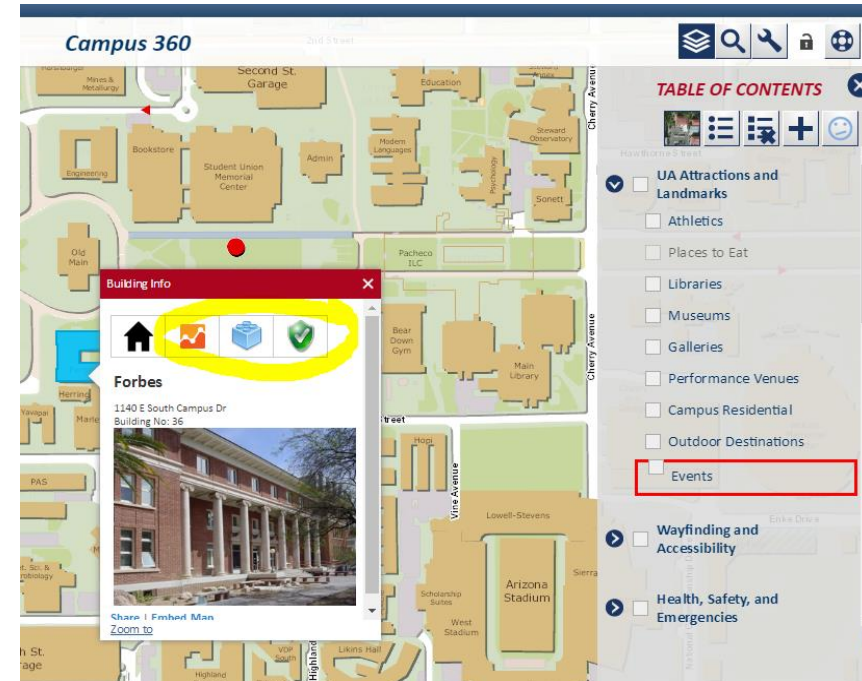
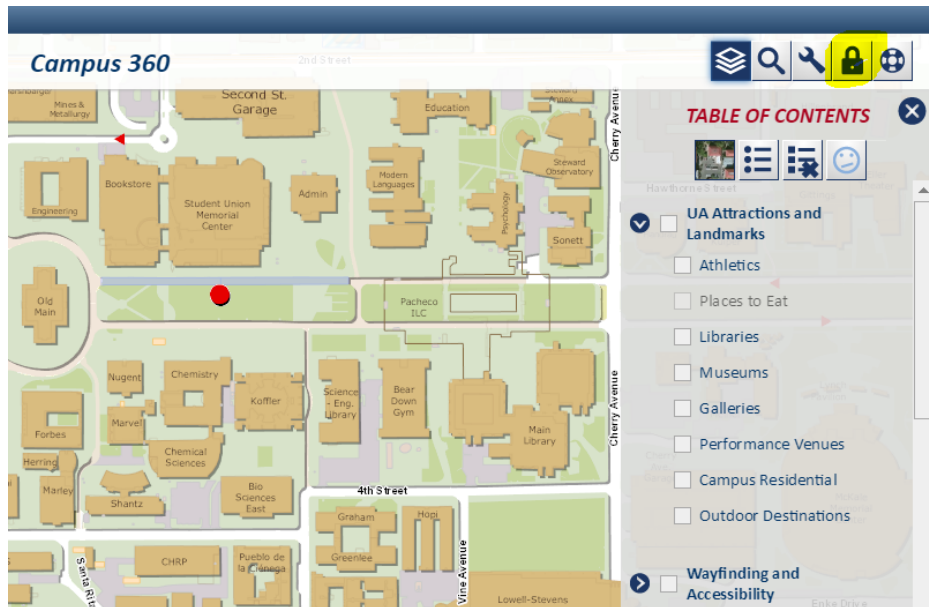
Access Levels

Public: *Tiled image basemaps. Dynamic features*

Business Intelligence: *Dynamic features, Admin / Planning focus*

Infrastructure: *Dynamic features, Facilities, assets, utilities, focus*

Emergency: *Dynamic features, Emergency response focus*



Room / Interior Mapping Deep Dive

Introduction – Drennen Brown, Assistant Director IT and Spatial Services

Opportunities from merging with Space Management (Space Analysis, Management, Reporting)

Managing 1100 CAD Floor Plans in around 230 Main Campus buildings

Why integrate floor plans with GIS?

- Asset management
- Room / class scheduling
- Location services
- [RCM](#) (Responsibility Centered Mgmt) analysis
- Worker scheduling and routing
- Life and safety
- Space analysis tools
- All in the context of a relational Enterprise GIS!

How could we automate this?

Room / Interior Mapping

- Automation Process
 - Building Blocks
 - Leveraging what we have
 - Georeferencing
 - GIS Feature Creation Scripts
- Demonstration Applications
- Practical Applications

Room / Interior Mapping

ARCHIBUS is CAFM (Computer Aided Facility Management) software

Whats great? Whats not?

Discovery of “drawing-name + CAD ‘handle’”

ARCHIBUS CAD File Space Database » My Home » My Favorites » My Jobs » My Profile

Space Plan Space Inven Floor Plans

Tasks: Highlight Ro Highlight Ro

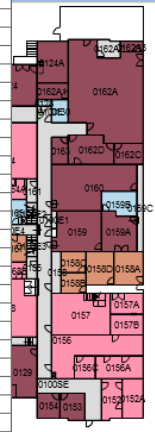
Floor Plans

Table

Floor02_4

OBJECTID*	Shape*	Layer	DocName	Handle	Join_Key	Join_Key*	BL_ID	FL	RM_ID	Description	College_Name
1	Polygon	RMS	02-4.dwg	1C97	02-4.dwg+1C97	02-4.dwg+1C97	0002.00	3	0322	Office	College of Fine Arts
2	Polygon	RMS	02-4.dwg	1C98	02-4.dwg+1C98	02-4.dwg+1C98	0002.00	3	0320	Office	College of Fine Arts
3	Polygon	RMS	02-4.dwg	1C99	02-4.dwg+1C99	02-4.dwg+1C99	0002.00	3	0318	Office	College of Fine Arts
4	Polygon	RMS	02-4.dwg	1C9A	02-4.dwg+1C9A	02-4.dwg+1C9A	0002.00	3	0316	Office	College of Fine Arts
5	Polygon	RMS	02-4.dwg	1C9B	02-4.dwg+1C9B	02-4.dwg+1C9B	0002.00	3	0330	Class Laboratory Service	College of Fine Arts
6	Polygon	RMS	02-4.dwg	1C9C	02-4.dwg+1C9C	02-4.dwg+1C9C	0002.00	3	0326	Class Laboratory	College of Fine Arts
7	Polygon	RMS	02-4.dwg	1C9D	02-4.dwg+1C9D	02-4.dwg+1C9D	0002.00	3	0310	Class Laboratory	College of Fine Arts
8	Polygon	RMS	02-4.dwg	1C9E	02-4.dwg+1C9E	02-4.dwg+1C9E	0002.00	3	0328	Class Laboratory	College of Fine Arts
9	Polygon	RMS	02-4.dwg	1CA6	02-4.dwg+1CA6	02-4.dwg+1CA6	0002.00	3	0312	Class Laboratory	College of Fine Arts
10	Polygon	RMS	02-4.dwg	1CA7	02-4.dwg+1CA7	02-4.dwg+1CA7	0002.00	3	0308	Office	College of Fine Arts
11	Polygon	RMS	02-4.dwg	1CA8	02-4.dwg+1CA8	02-4.dwg+1CA8	0002.00	3	0306A	Custodial Area	Business Affairs General
12	Polygon	RMS	02-4.dwg	1CA9	02-4.dwg+1CA9	02-4.dwg+1CA9	0002.00	3	0304	Custodial Area	Business Affairs General
13	Polygon	RMS	02-4.dwg	1CAA	02-4.dwg+1CAA	02-4.dwg+1CAA	0002.00	3	0302A	Custodial Area	Business Affairs General
14	Polygon	RMS	02-4.dwg	1CAB	02-4.dwg+1CAB	02-4.dwg+1CAB	0002.00	3	0307A	Class Laboratory Service	College of Fine Arts
15	Polygon	RMS	02-4.dwg	1CAC	02-4.dwg+1CAC	02-4.dwg+1CAC	0002.00	3	0307B	Class Laboratory Service	College of Fine Arts
16	Polygon	RMS	02-4.dwg	1CAD	02-4.dwg+1CAD	02-4.dwg+1CAD	0002.00	3	0305	Class Laboratory Service	College of Fine Arts
17	Polygon	RMS	02-4.dwg	1CAE	02-4.dwg+1CAE	02-4.dwg+1CAE	0002.00	3	0303A	Office	College of Fine Arts
18	Polygon	RMS	02-4.dwg	1CAF	02-4.dwg+1CAF	02-4.dwg+1CAF	0002.00	3	0303	Class Laboratory	College of Fine Arts
19	Polygon	RMS	02-4.dwg	1CB0	02-4.dwg+1CB0	02-4.dwg+1CB0	0002.00	3	0301	Class Laboratory	College of Fine Arts
20	Polygon	RMS	02-4.dwg	1CB1	02-4.dwg+1CB1	02-4.dwg+1CB1	0002.00	3	0306	Mechanical Area	Business Affairs General
21	Polygon	RMS	02-4.dwg	1CB2	02-4.dwg+1CB2	02-4.dwg+1CB2	0002.00	3	0302	Mechanical Area	Business Affairs General
22	Polygon	RMS	02-4.dwg	1CB3	02-4.dwg+1CB3	02-4.dwg+1CB3	0002.00	3	0307	Class Laboratory	College of Fine Arts
23	Polygon	RMS	02-4.dwg	1CB4	02-4.dwg+1CB4	02-4.dwg+1CB4	0002.00	3	0324	Class Laboratory	College of Fine Arts
24	Polygon	RMS	02-4.dwg	1CB8	02-4.dwg+1CB8	02-4.dwg+1CB8	0002.00	3	0314	Class Laboratory	College of Fine Arts
25	Polygon	RMS	02-4.dwg	1CBA	02-4.dwg+1CBA	02-4.dwg+1CBA	0002.00	3	0300E	Circulation Area	Business Affairs General
26	Polygon	RMS	02-4.dwg	1CBC	02-4.dwg+1CBC	02-4.dwg+1CBC	0002.00	3	0300N	Circulation Area	Business Affairs General
27	Polygon	RMS	02-4.dwg	1DD6	02-4.dwg+1DD6	02-4.dwg+1DD6	0002.00	3	0300SE	Circulation Area	Business Affairs General
28	Polygon	RMS	02-4.dwg	1DD7	02-4.dwg+1DD7	02-4.dwg+1DD7	0002.00	3	0300SW	Circulation Area	Business Affairs General
29	Polygon	RMS	02-4.dwg	1DE2	02-4.dwg+1DE2	02-4.dwg+1DE2	0002.00	3	0300S1	Circulation Area	Business Affairs General
30	Polygon	RMS	02-4.dwg	1DE3	02-4.dwg+1DE3	02-4.dwg+1DE3	0002.00	3	0300S	Circulation Area	Business Affairs General
31	Polygon	RMS	02-4.dwg	1EAD	02-4.dwg+1EAD	02-4.dwg+1EAD	0002.00	4	0400	Circulation Area	Business Affairs General
32	Polygon	RMS	02-4.dwg	1EB0	02-4.dwg+1EB0	02-4.dwg+1EB0	0002.00	4	0401	Circulation Area	Business Affairs General

Department Code:



0027.00 Social Sciences
0028.00 Douglass

Room / Interior Mapping

Leveraging Archibus

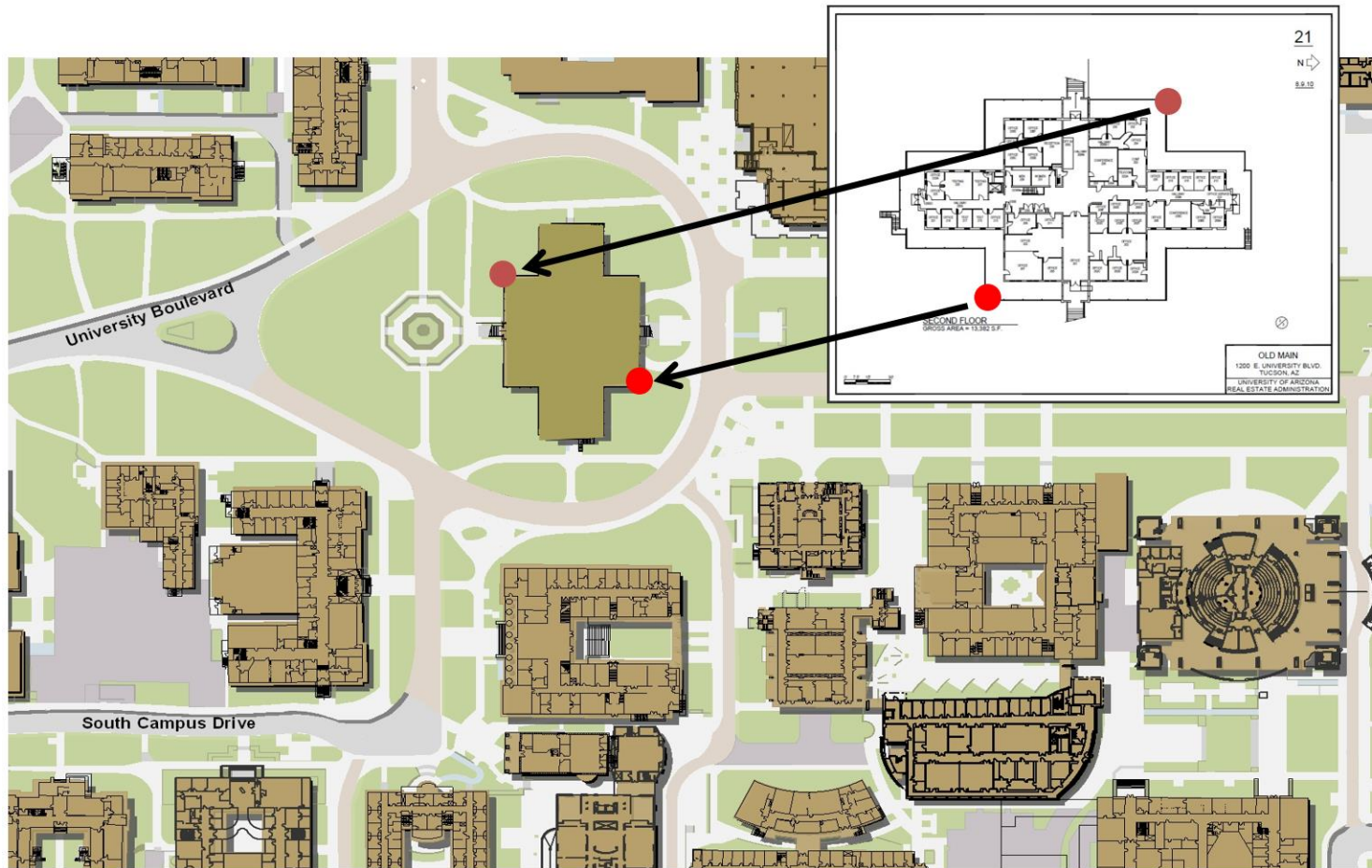
- Room Polygons already drawn
- Already associated with rich database

Leveraging Prior GIS work

- Many floor plans already georeferenced

Room / Interior Mapping

Stitching it together - Georeferencing



Room / Interior Mapping

Batch File

```
1 python importFloorplan.py 20
2 python importFloorplan.py 21
3 python importFloorplan.py 27
4 python importFloorplan.py 33
5 python importFloorplan.py 36
6 python importFloorplan.py 107
7 python importFloorplan.py 40
8 python importFloorplan.py 41
9 python importFloorplan.py 44
10 python importFloorplan.py 38
11 python importFloorplan.py 54
12 python importFloorplan.py 56
13 python importFloorplan.py 70
14 python importFloorplan.py 67
15 python importFloorplan.py 66
16 python importFloorplan.py 65
17 python importFloorplan.py 10
18 python importFloorplan.py 11+12
19 python importFloorplan.py 24
20 python importFloorplan.py 25
```

ArcPy Script – importFloorplan.py

```
1 # -*- coding: utf-8 -*-
2 # -----
3 # importFloorplan.py
4 # Usage: cadToFC <Building_Number>
5 #
6 # 1) Convert one building's CAD files to Feature Classes within a file geodatabase using State Plane
7 # 2) World Files needed for georeferencing are in State Plane Coordinates
8 # 3) Reproject the feature class into Webmercator
9 # 4) Add layer to an MXD using new featureclass. Refer to Level (B, 1, 2, etc) Crosswalk and append
10 # 5) Join to ROOMEXT (a stand alone table with Space data) using "Join_Key" = drawingName + eHandle
11 #
12 # Additional Scripts that can be run subsequently
13 # -----
14 # layerProcessing.py - Sets symbology and labeling without changing/adding FCs or layers
15 # setMinLabelScale.py - Sets the minimum scale to show labels.
16 #
17 # REQUIRES
18 # -----
19 # Empty FGDB must be setup and ROOMEXT table added
20 # Test.gdb provided as example
21 # MXD Can be blank/empty
22 #
23 #
24 # Notes
25 # ----
26 # We could eliminate what seems like a duplication of args Building Name / Number
27 # Except that multi-drawing files like 11+12.dwg, 11+12 makes an illegal layer name
28 # in this case we call "cadToFC 11and12 11+12"
29 #
30 #
31 # -----
32 #
33 # Constants
34 FGDB = "myTest.gdb"
35 MXD = "Test.mxd"
36 #
37 # Import modules
38 import arcpy
39 import os.path # used for checking file existence
40 #
41 #
42 # Create Dictionary of Drawing / Actual Level Pairs
43 import csv
44 myfile = file('Level-Crosswalk.csv')
45 myfile.readline() # skip "date,value" line
46 levelCrosswalk = dict(csv.reader(myfile))
47 #
48 # Open logfile for append
49 fo = open("ConversionLog.txt", "a")
50 #
51 # Paths
52 file_path = "F:\\repos\\importFloorplan\\" # This is where GDB and MXD live
53 workspace = file_path + FGDB
54 cad_path = "S:\\Floorplans\\CAD\\"
55 #
56 mxddata = file_path + MXD
57 #
58 # Pointer to MXD
59 mxd = arcpy.mapping.MapDocument(mxddata)
60 #
```

CAD files are named by Bldg/Floor
ArcPy Script Converts CAD Polygons to GIS Features
Re-creates database keys used by Archibus
Joins GIS features to matching database records
<https://bitbucket.org/egisua/floorplanimport>

Room / Interior Mapping

GIS Room Service

- Goal not to create every application
- Stand up a service for other developers

Current Partners

- Facilities Management
 - Custodial Routing, Shop Order Routing
- College of Agriculture
 - Space / RCM App
- Hazardous Waste
 - Location and Categorization of materials

Mashup Demonstration

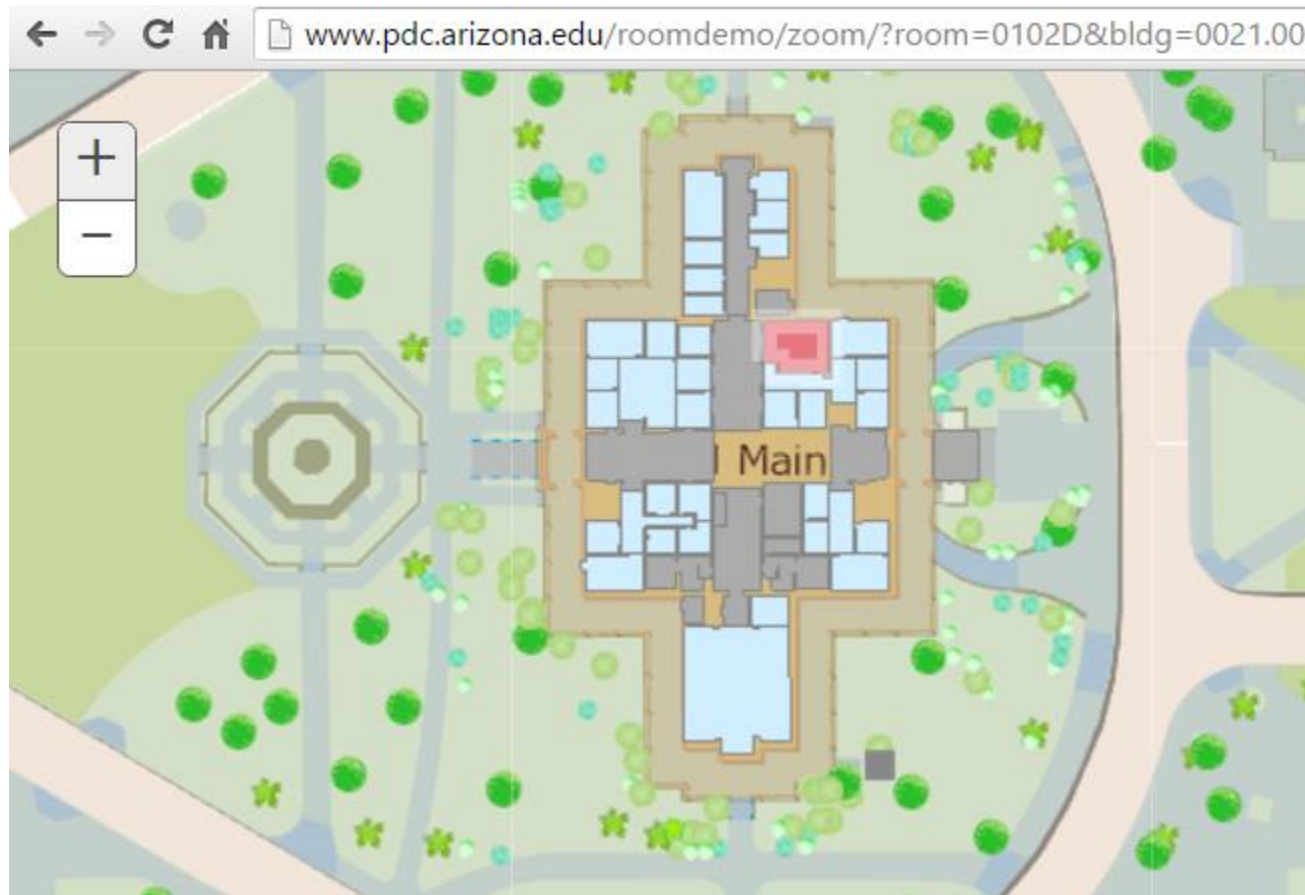
www.pdc.arizona.edu/roomdemo/#access_token=6d62285f505bcc65240d32eb370b3ca&expires_

Planning, Design & Construction Enterprise GIS Room Demo

Using EGIS to Access External Data

Data From Enterprise GIS	Data From External Service
Bldg No: 0040.00	Bldg Name: Robert L. Nugent Building
Floor: 1	Department: Dean of Students Office
Room: 0121	Area: 88 sqft
	Description: Professional/ Technical

Zoom to Room Demonstration



Zoom to Room Demonstration

MATH 120R - 001 Calculus Preparation

The University of Arizona | Fall 2016 | Lecture

Class Details

Status	● Open w/Req	Career	Undergraduate
Class Number	35152	Dates	9/14/2016 - 12/7/2016
Session	Dynamically Dated Session	Grading	Regular Grades A, B, C, D, E
Units	4 units	Location	Tucson
Instruction Mode	In Person	Campus	The University of Arizona
Class Components	Lecture Required		

Meeting Information

Days & Times	Room	Instructor	Meeting Dates
MoTuWeThFr 8:00AM - 8:50AM	Phys-Atmos Sci, Rm 412	Staff	09/14/2016 - 12/07/2016

Enrollment Information

Enrollment Requirements MATH 109C, 112,113, 116, 120R, 122A or Proctored/Prep for College Algebra 88+ or Proctored/Prep for Calculus 65+.

Per Unit Fee	\$0.00	Flat Fee	\$0.00	iCourse Fee	\$0.00
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Class Availability

Class Capacity	17	Wait List Capacity	0
Enrollment Total	12	Wait List Total	0
Available Seats	5		

Location



CALS Space Exchange Map

CALS COMMUNICATIONS & CYBER TECHNOLOGIES



Building	Zoom	Elevator
BSE	🔍	↑ 2 ↓
Chavez	🔍	↑ 3 ↓
Communication	🔍	↑ 1 ↓
Forbes	🔍	↑ 1 ↓
Marley	🔍	↑ 3 ↓
Saguaro	🔍	↑ 3 ↓
Shantz	🔍	↑ 2 ↓

Marley 218

Area (sq ft)	910
Dept	CAREER ACAD SRV (101)
Category	Lab

[Add to Bin 1](#) [Add to Bin 2](#)

[Export Bins](#)

Bin 1				
Room	Area	Dept	Zoom	Clear
Forbes 128	308	AG & BIOSYS ENG (122)	🔍	✕
Forbes 119	678	AG & BIOSYS ENG (122)	🔍	✕
Total:				986

Bin 2				
Room	Area	Dept	Zoom	Clear
Saguaro 326	1170	SWES (121)	🔍	✕
Saguaro 304	643	SWES (121)	🔍	✕
Saguaro 302	740	SWES (121)	🔍	✕
Total:				2553

Room / Interior Mapping

Where Are We / Where are we going?

- Started in April
- Cleaning up Source Data
- Working on full automation
- Presentation
- Reach out and education

Thank you!

Drennen Brown

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