

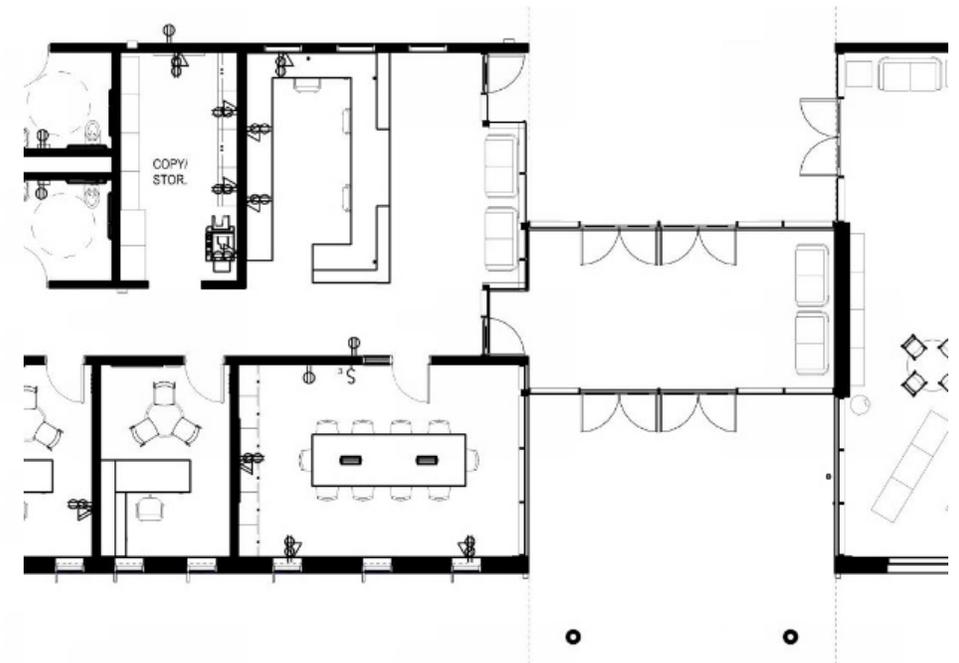
From Virtual Reality to Physical Barriers: Building a Safer School

Sylvia Kowalk

Principal, Legat Architects

Virtual Reality Training Facility for Security Officers





Architectural Rendering and Simulation of Controlled Vestibule



Visually Communicating Circulation Spaces







Limited landscape around the outside of the school

Questions?

Sylvia Kowalk

skowalk@legat.com

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School Safety Goal: A Safe Learning Environment for Every Student

Christy Miller & Caitlin Brudnicki
BCL IT Consulting

Security isn't just a physical concern.



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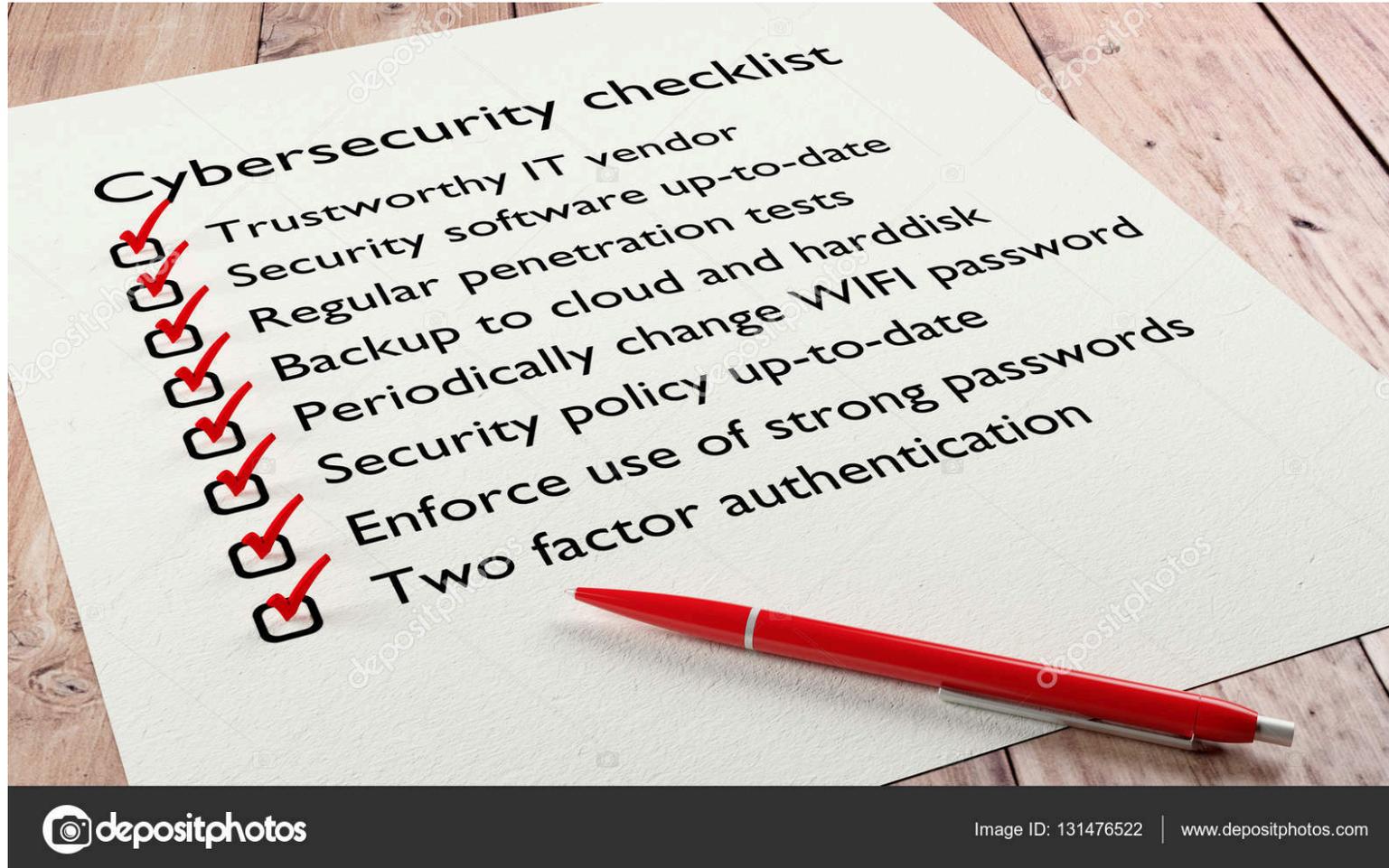
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Hacking is more common than a physical threat.



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Cybersecurity starts with simple steps.



On the physical side, doors are always a big ticket item.



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Physical security can also be simple, signs are an easy deterrent.



With safe and secure schools, learning can happen.



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Questions?

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Caitlin Brudnicki

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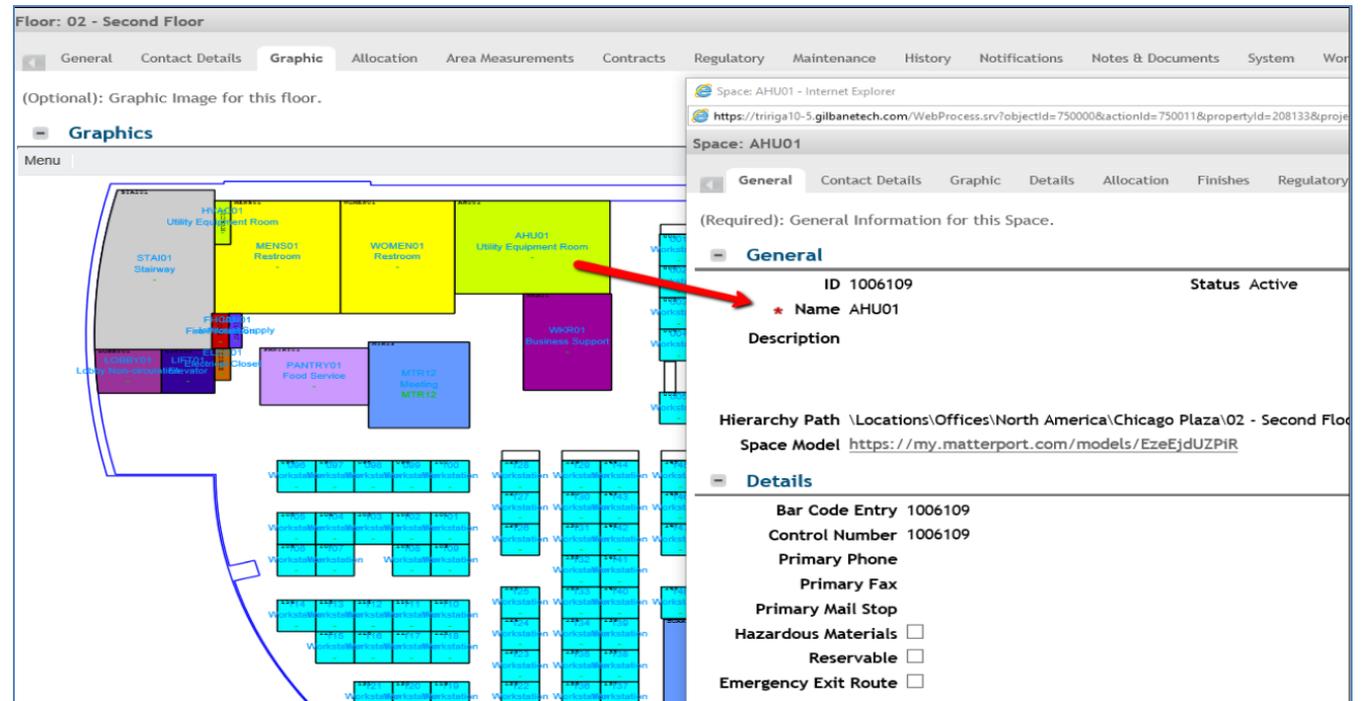
Reality Capture/3D Modeling of Existing Buildings with FM Integration

Randy Smith

Gilbane Building Company

Challenges of 3D Reality Capture in FM

- BIM file sizes
- Design vs Reality
- Software required
- Training required
- 2D integration for FM is sufficient?



Matterport – The right tool for the job

- Structured Light Scans
- Easy to create
- Small file size
- Cloud-based
- Web viewing
- Embed key data
- Links for integration





Dollhouse

Floor plan



FM Integration – Space to Model

The image shows two browser windows side-by-side. The left window, titled 'Spacer: AHU01 - Internet Explorer', displays a web form for 'Space: AHU01'. The form has tabs for 'General', 'Contact Details', 'Graphic', 'Details', 'Allocation', 'Finishes', and 'Regulatory'. The 'General' tab is active, showing fields for 'ID 1006109', 'Status Active', 'Name AHU01', and 'Description'. A 'Hierarchy Path' is listed as '\\Locations\Offices\North America\Chicago Plaza\02 - Second Floor'. A 'Space Model' link is provided: <https://my.matterport.com/models/EzeEjdUZPiR>. Below this are 'Details' and 'Units' sections. A red arrow points from this link to the right window.

The right window, titled 'Space Detail - Internet Explorer', shows a Matterport 3D model viewer. The title is 'CU Mech Basement'. Below the title is a '3D Showcase' section with a video player. The video player shows a 3D rendering of a mechanical basement with pipes and equipment. A play button is overlaid on the video, with the text 'Explore 3D Space' below it. The Matterport logo and '3D SHOWCASE' are visible in the bottom right corner of the viewer.

FM Integration – Model to Asset



Building Equipment: VFD-CHP-4 - CU-Variable Frequency Drive

General Contacts Details Graphics Contracts Assessment Environmental Operating Schedule Maintenance History Notifications Notes & Documents System Calend

(Required): General information for the Asset.

General

ID VFD-CHP-4 - CU

* **Name** Variable Frequency Drive

As-Built Model https://my.matterport.com/show/?m=EzeEjdUZPIR&start=%7B%22camera_position%22:%7B%22x%22:0.59,%22y%22:1.7072,%22z%22:-4.5996%7D,%22camera_quaternion%22:%7B%22x%22:-0.1048

Image



Details

Serial Number 2154705040	Nameplate
Bar Code Entry	Control Number EQ-1973891
Condition Excellent	Building System Class
Reservable <input type="checkbox"/>	
Maintenance Priority Low	
Organization	
Primary Location \Locations\Offices\North America\Chicago Plaza\02 - Second Floor\AHU01	
* Currency US Dollars	

Spec Information

* **Specification Name** ABB-VFD-ACH550-VDR-031A-4

Spec ID ABB-VFD	Spec Class Electrical Equipment
Brand ABB	Model Number ACH550-VDR-031A-4
Description ABB-Variable Frequency Drive-ACH550-VDR-031A-4	

FM Integration – Work Order to Equipment

Work Task: 1030028-Watson Center - Chillers PM Annual Schedules - YEARLY Add To Bookmarks Print Help

General Work Details Resources Procedures Dependencies Advanced Notifications Complete Hold Save Save & Close More x

(Required): Use this tab to enter, review, or change basic information about the task.

General Accept | Start Work | Stop Work

Task ID Status Active

* Task Name Assignment Status Assigned

Description

Equipment Model 

Task Reissue Reason

* Currency

Details

Task Type Task Prio

Request Class Service C

Primary Work Location

Geography Lookup

Customer Organization



Summary

- Existing buildings typically do not have BIM models
- This technology can model spaces and assets quickly
- Model only what you need (critical or complex spaces)
- Software and models retained in the cloud
- Training to view models takes ten minutes
- Enhances visualization for FM purposes
- Easily integrate 3D reality models with FM databases

Questions?

Randy Smith

rsmith@gilbaneco.com

[@OHFacilities](#) [#OFCCConf18](#)

Lessons Learned: General Contracting

Craig Weise
Chief of Projects

General Information

- OFCC has started 180 GC projects since January 2012
- GC projects range in value from \$49K to \$29M
- Most diverse scale and type of projects in comparison to other delivery methods used by OFCC

Lessons Learned

- Need for Preconstruction Stage Support
 - Estimating experience
 - Conducted at end of each Design Stage
 - Independent validation
 - Knowledge of market conditions
 - Ability to perform compliance/constructability review
 - Basic knowledge of means & methods
 - Assistance in phasing construction

Lessons Learned

- Public Bidding Challenges (similar to Multiple Prime)
 - Soliciting sufficient GC bidder interest to ensure competitive prices
 - Scope, scale, timing and location of project
 - Bonding capacity
 - Lack of transparency to Subs
 - Harder to identify true cost drivers
 - Potential need for rebidding (>10% over estimate)
 - + First-hand knowledge of market conditions
 - Confidence varies with number of bids received

Lessons Learned

- Need to Verify Quality of Schedule
 - While GC is responsible for schedule performance by all Subs, Owner team still needs to evaluate and carefully monitor schedule (both technical development of schedule & its outcomes)
 - Schedule logic (predecessors/successors)
 - Relationship types (finish to start, etc)
 - Durations
 - Constraints
 - Float (total, free)
 - Lags

Questions?

Craig Weise

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@OHFacilities #OFCCConf18

Business Opportunities

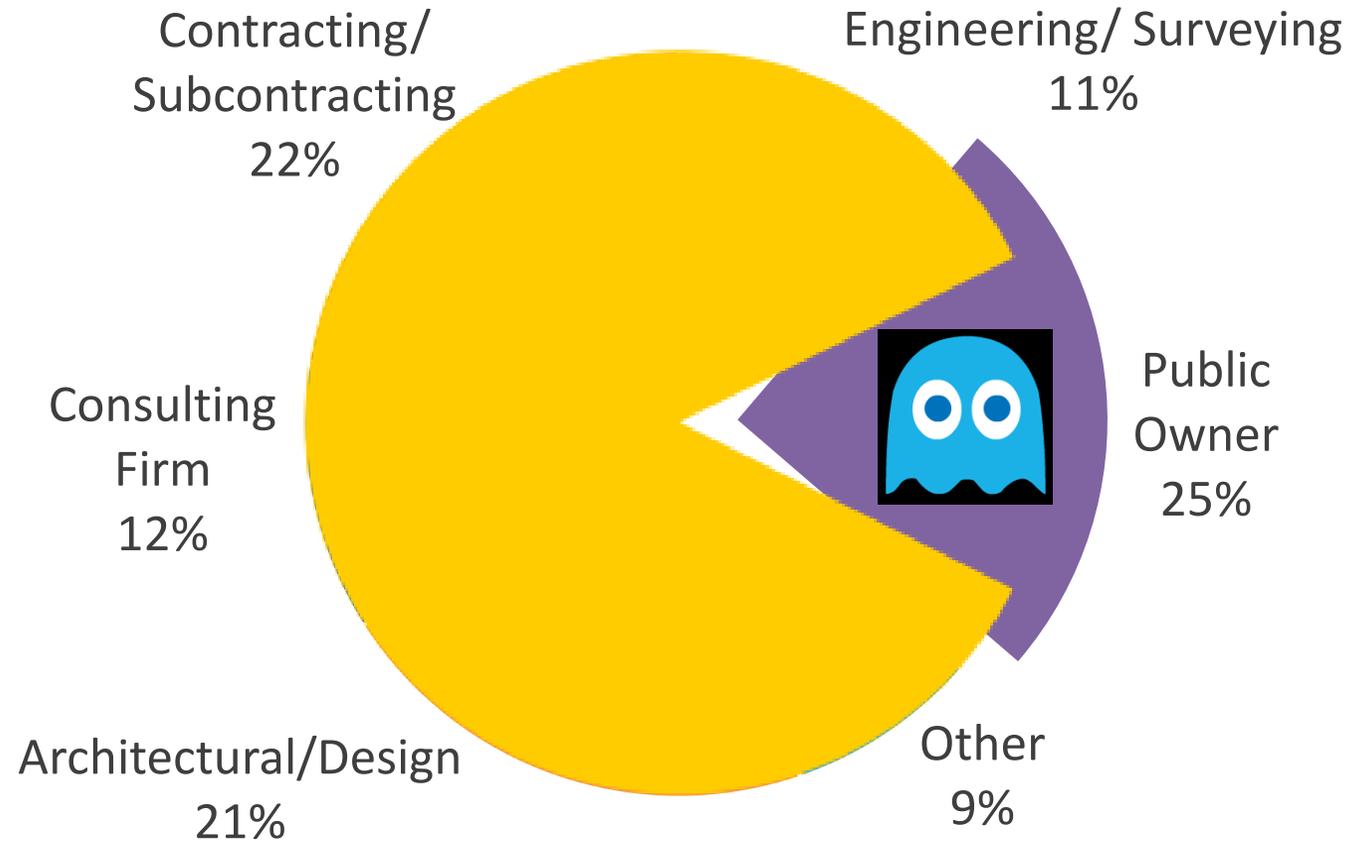
Jeff Westhoven, OFCC

Gregory S. Robertson, Ohio University

Jeremy Hyer, Ohio Department of Rehabilitation and Correction



Audience profile



Business Opportunities: Topics

- Finding opportunities
- Finding background information on capital projects
- Upcoming K-12 projects
- Upcoming state agency/higher education projects

Business Opportunities: Topics

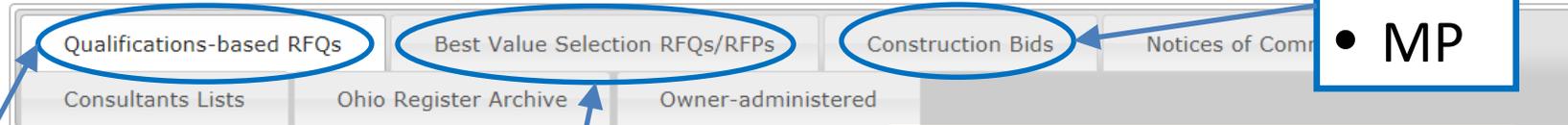
- Finding opportunities
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Finding Opportunities ... Opportunities Map



Opportunities

- A/E
- CxA
- Planning



- GC
- MP

Qualifications-based Selection (QBS) Requests for Qualifications

Qualifications-based Selection" (QBS) refers to a procurement process used by state agencies, institutions of higher education and school districts for the selection of Architect/Engineer (A/E) and A/E services for public construction projects. It is a competitive contract procurement process where bidders submit qualifications to the public over a set schedule, budget and fees.

For the...Architect/Engineer (CMA); Owner Agent (OA); C Services (CxA) provider; and provider.

- CMR
- D-B
- Energy PC



*Highlighted designations may not reflect the actual project location.

*To enlarge the map, click icon.

[Enlarged map](#)

[Website Opportunities](#)

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Finding Opportunities ...

Opportunities Map: Cultural Facilities Projects



- Community School Classroom Facilities Grants - Round 2
- Cultural Facilities Grants**
- Program Eligibility
- Funding & Grant Process
- Program Resources
- Contacts
- School Security Grants
- Lead Fixture Replacement Grants - Round 2

Cultural Facilities Grant Program



[Cultural Facilities Projects](#)

Business Opportunities: Topics

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Business Opportunities: Topics

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Finding Background Information on Capital Projects

Legislative Service Commission: [Capital Projects by County](#)

- Service needed
- **Project size**
- **Location**
- Timing
- Delivery model
- **Owner**

CAPITAL PROJECTS BY COUNTY-ALL PROJECTS

County and Funding Agency	Fund	Line Item	Item/Project Name	Appropriations
Statewide				
Adjutant General	7026	C74535	Renovations and Improvements	\$5,561,505
Adjutant General	3420	C74537	Renovation Projects - Federal Share	\$10,330,366
Adjutant General	7026	C74541	Armory Technology Infrastructure	\$120,000
Adjutant General	5340	C74542	Renovations and Improvements	\$1,000,000
Department of Agriculture	7057	C70009	Clean Ohio Agricultural Easement	\$12,500,000
Department of Administrative Services	7026	C10011	Statewide Communications System	\$7,000,000
Department of Administrative Services	5KZ0	C10035	Building Improvement	\$39,424,700
Department of Developmental Disabilities	7033	C59004	Community Assistance Projects	\$24,000,000
Development Services Agency	7046	C19505	Coal Research and Development	\$5,000,000
Department of Natural Resources	7061	C72514	Clean Ohio Trail Fund	\$12,500,000
Department of Natural Resources	7031	C72549	Facilities Development	\$1,500,000
Department of Natural Resources	7035	C725A0	State Parks, Campgrounds, Lodges, Cabins	\$57,554,343

Finding Background Information on Capital Projects

Legislative Service Commission:
[Capital Appropriations, Complete Analysis, pp. 65-183](#)

- Service needed
- Project size
- Location
- Timing
- Delivery model
- Owner

(AGO) ATTORNEY GENERAL	
Administrative Building Fund	\$3,813,752
TOTAL - All Funds	\$3,813,752
ADMINISTRATIVE BUILDING FUND (7026)	
C05517	General Building Renovations
<i>County:</i>	\$200,000
Multi-county - Madison, Summit	
<p>This capital appropriation will support general renovation projects in facilities operated by the Attorney General. The Ohio Facilities Construction Commission has identified a number of small projects where building renovations are necessary to remediate issues that absent this capital money might require the Office of the Attorney General to use money appropriated for its operating budget.</p>	
C05521	BCI London Renovations
<i>County:</i>	\$969,752
Madison	
<p>This capital appropriation will be used to complete a three-phase HVAC upgrade project at the Bureau of Criminal Investigation (BCI) headquarter facility in London, Ohio. The age of the existing HVAC controls and components, along with the need for improved compatibility between the newer chillers (installed in phases 1 and 2 of the project) and existing controls created the need for this final phase of the upgrade project.</p>	

Business Opportunities: Topics

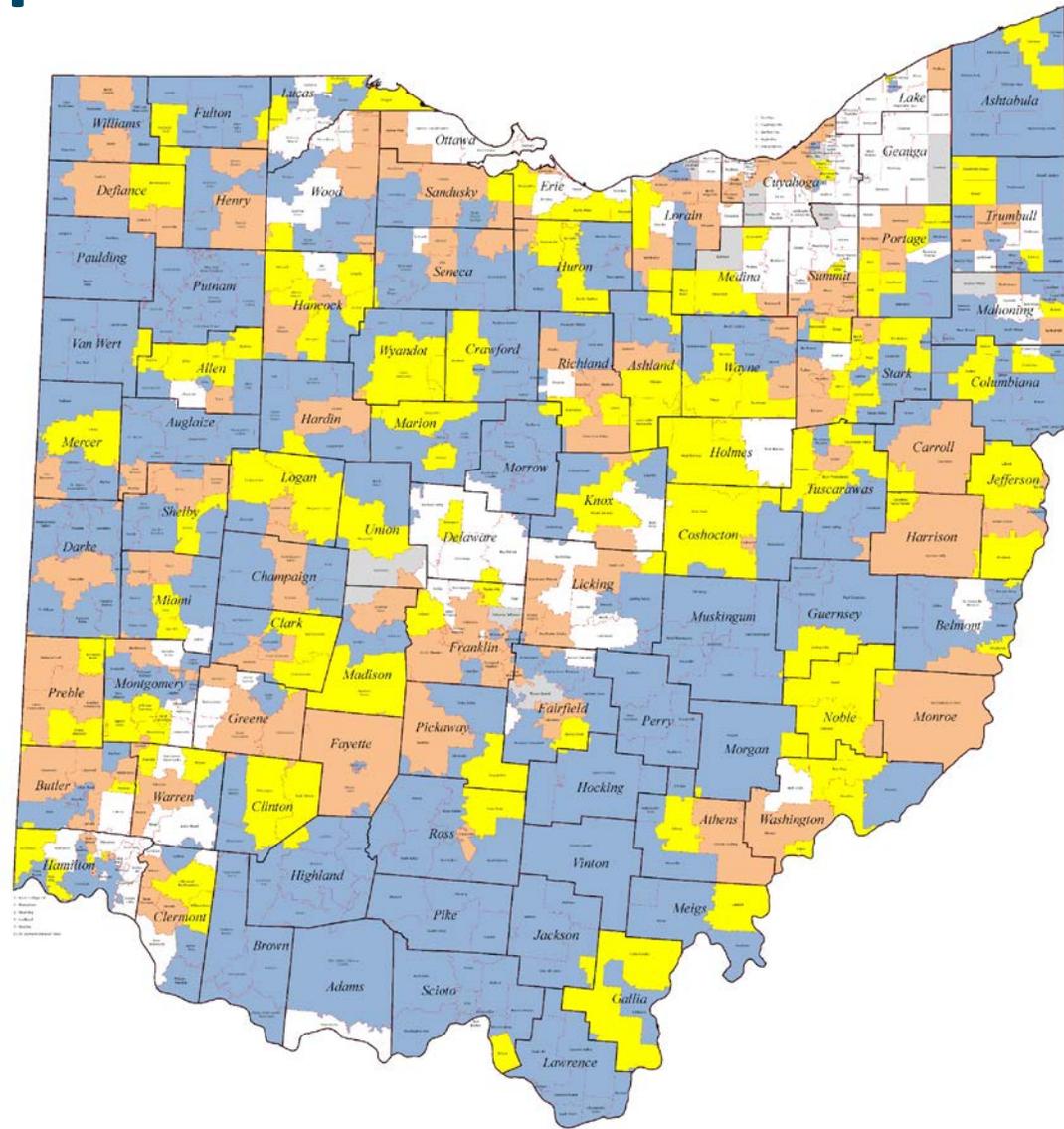
- Finding opportunities
- Finding background information on capital projects
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Business Opportunities: Topics

- Finding opportunities
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Upcoming K-12 Projects ...

K-12 Completion Status 2017



Complete

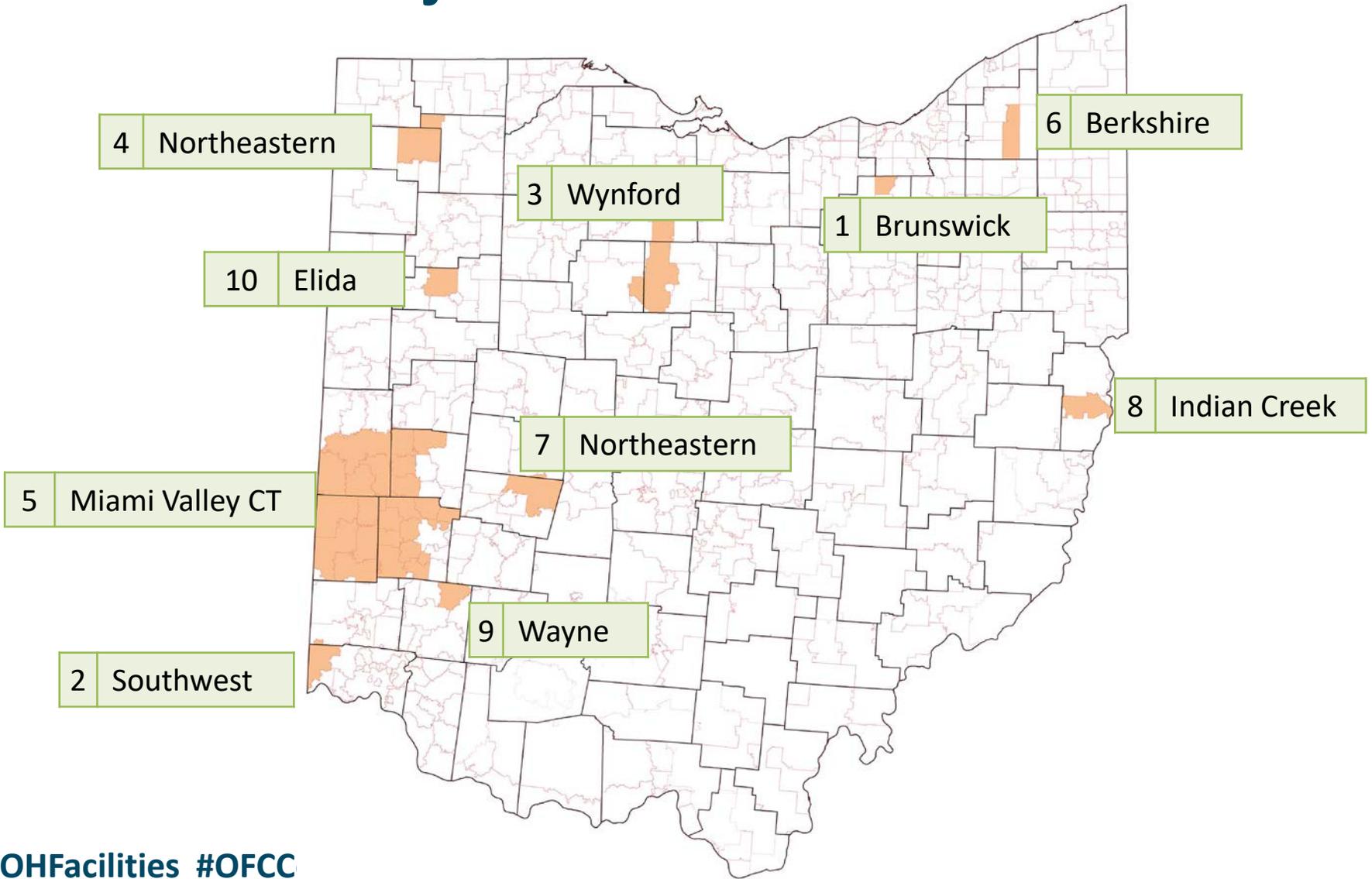
Partial

Waiting for local \$

Waiting for state \$

Upcoming K-12 Projects ...

New K-12 Projects 2018-2019



Upcoming K-12 Projects ...

New K-12 Projects 2018-2019

Map #	District	County	Co-funded Budget	Delivery Method	A/E Solicitation	CMR/DB/GC Solicitation
1	Brunswick City School District	Medina	\$ 50,322,457	CMR	Dec 2017	Jan 2018
2	Southwest Local School District	Hamilton	\$ 84,695,998	CMR	Feb 2018	March 2018
3	Wynford Local School District	Crawford	\$21,528,679	CMR	Feb 2018	March 2018
4	Northeastern Local School District	Defiance	\$ 33,981,044	CMR	Feb 2018	March 2018
5	Miami Valley Career Tech	Montgomery	\$ 61,409,284	CMR	Feb 2018	April 2018
6	Berkshire Local School District	Geauga	\$ 41,572,615	CMR	June 2018	July 2018
7	Northeastern Local School District	Clark	\$ 102,422,404	CMR	Aug 2018	Sept 2018
8	Indian Creek Local School District	Jefferson	\$ 45,778,588	CMR	Sept 2018	Sept 2018
9	Wayne Local School District	Warren	\$ 22,007,490	GC	Jan 2018	Spring 2019
10	Elida Local School District	Allen	\$ 53,502,328	TBD	Feb 2019	April 2019
	Total		\$ 517,220,887			

Business Opportunities: Topics

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Business Opportunities: Topics

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Upcoming Capital Projects: Ohio University

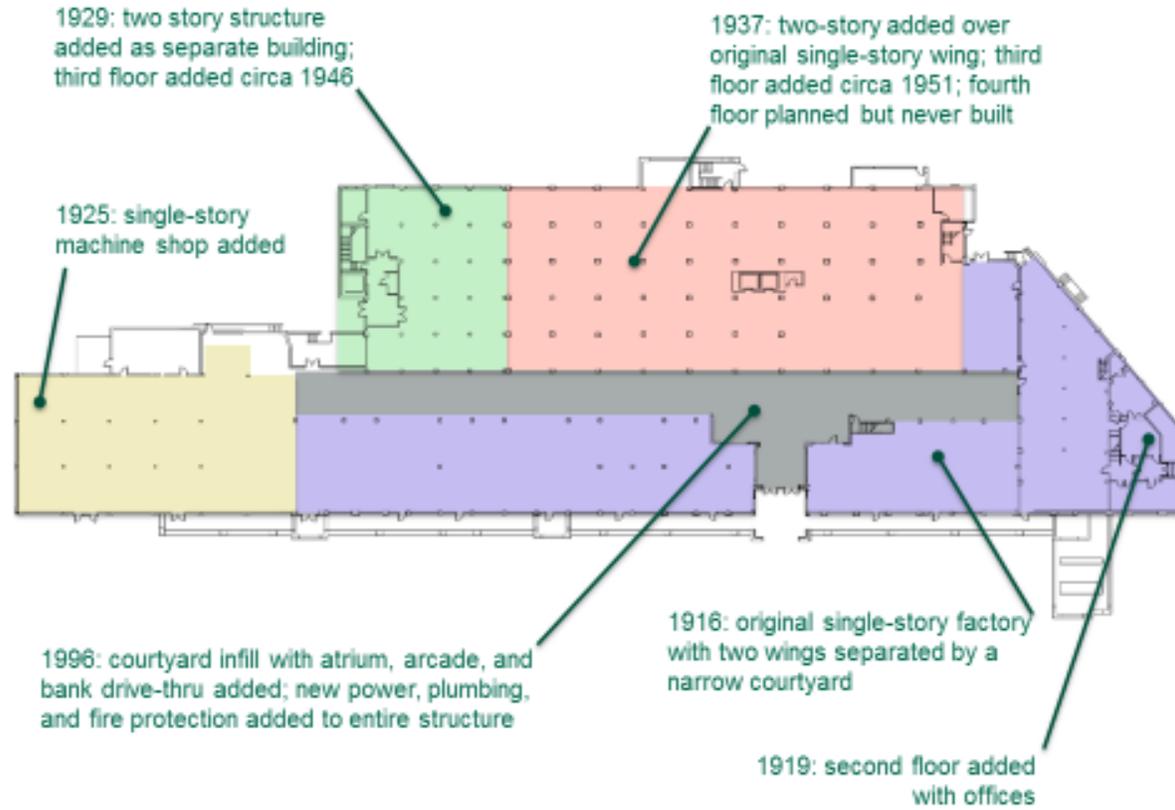
Gregory S. Robertson, PE, PMP
Associate Vice President

Project	Construction Budget	Method	A/E Selection	BVS/Bid
Russ Research Opportunity Center	\$25 M	TBD	TBD	TBD
Chilled Water Plant 3 - Plant	\$8.7 M	TBD	RMF	TBD
Chilled Water Plant 3 - Distribution	\$11 M	GC	M Engineering	Bid
Ridges 13, 14 & 18 Renovation	\$10 M	GC	Champlin	Bid
Bromley Infrastructure Improvements	\$5.6 M	GC	Prater Engineering	Bid
Konneker Research Ridges 25 HVAC and Boiler System Upgrade	\$4.3 M	GC	TBD	Bid

Upcoming Capital Projects:

Russ Research Opportunity Center

Construction History provides vibration isolation opportunities & ability to meet today's goals



West Union Street Office Center

- 110,000 GSF
- Occupied by Administrative Units
- Adaptability:
 - Construction began in 1919, several additions through 1996
 - Built as a manufacturing facility
- Facility has approximately \$16M of critical deferred maintenance needs to continue occupancy
- Flexible, simple space for large scale interactions

Upcoming Capital Projects:



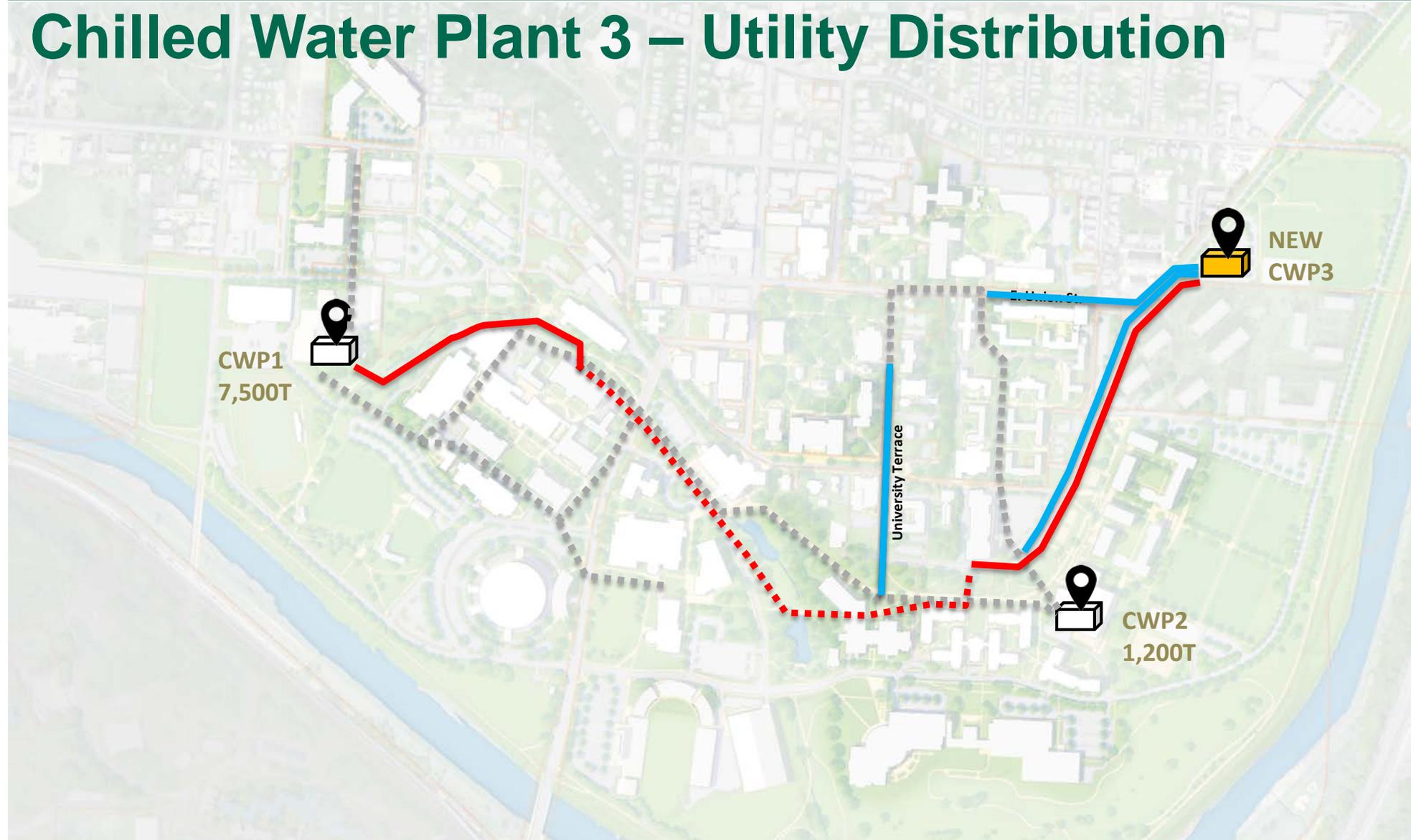
Chilled Water Plant 3-Plant



Upcoming Capital Projects:

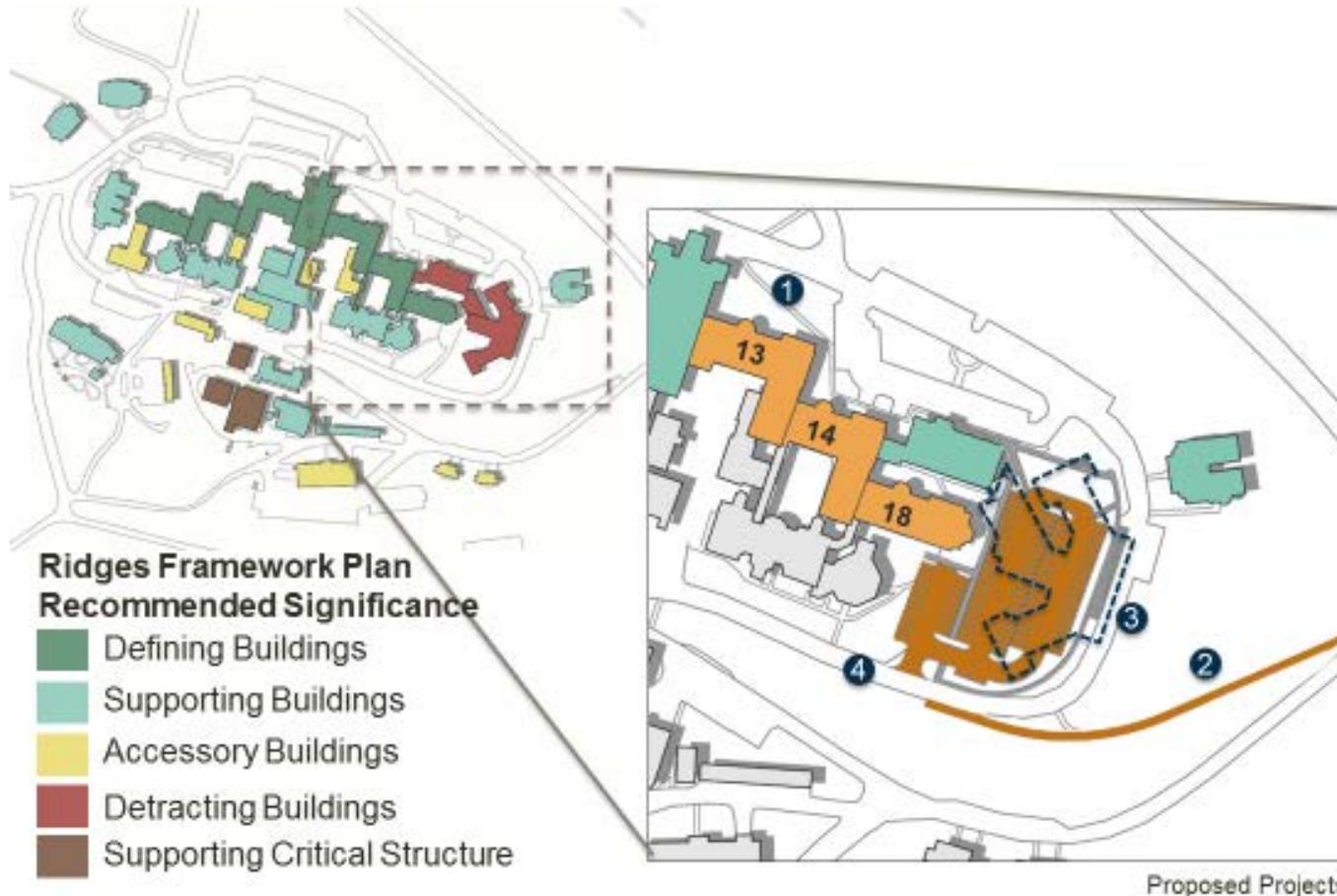


Chilled Water Plant 3 – Utility Distribution



Upcoming Capital Projects:

Ridges Renovation & Associated Projects



Renovation of Ridges Building 13, 14, 18

Installation of a pedestrian pathway from Richland Roundabout to Ridges Circle

Demolition of Ridges Building #20, per Ridges Framework Plan

Construct new Parking spaces



Upcoming Capital Projects:

 OHIO UNIVERSITY

Bromley Infrastructure Improvements

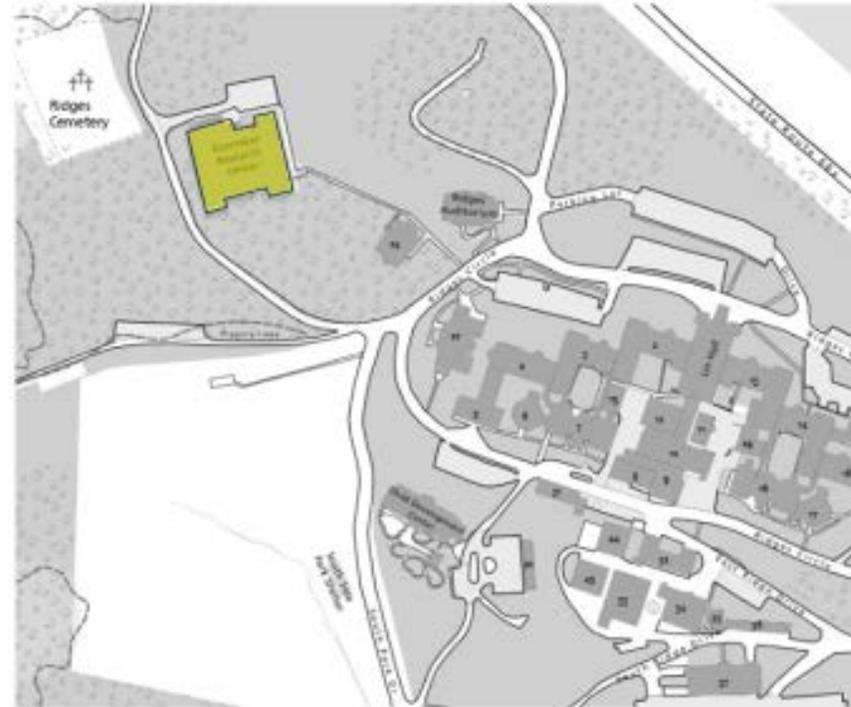


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Upcoming Capital Projects:



Konneker Research Ridges 25 HVAC and Boiler System Upgrade 2018



Upcoming Capital Projects: FY19-20 Capital Bill: \$100 Million Club

Ohio Department	Capital Budget		
Natural Resources	\$ 234,618,104	Local Jails (Earmark)	\$ 4,525,000
Rehabilitation and Correction	\$ 220,024,071	Water System/ Plant Improvements	\$ 10,377,795
Mental Health & Addiction Services	\$ 168,605,600	Community Residential Program	\$ 1,526,250
Administrative Services	\$ 105,674,700	General Building Renovations	\$ 203,595,026

Upcoming Capital Projects: Ohio Department of Rehabilitation & Correction (ODRC)

Master Plan

Ohio Reformatory for Women

- Design & Construction of 100 bed SMI Healing Center

Franklin Medical Center

- Design addition to FMC and renovate existing HUB area

Pickaway Correctional Expansion

- Construct 504 bed General Custody Housing & Program Building



Upcoming Capital Projects: Ohio Department of Rehabilitation and Correction (ODRC)

General Area	Project Name	Budget
LIFE SAFETY HVAC	ORW HVAC REPLACEMENT	3,500,000.00
LIFE SAFETY PLUMBING	ORW SITE DRAINAGE PROJECT	3,000,000.00
LIFE SAFETY HVAC	TOCI HVAC CONTROL UPGRADE	385,000.00
LIFE SAFETY HVAC	TOCI HVAC REPLACEMENT	1,260,000.00
STUN FENCES/PERIMETER SECURITY	BECI SALLYPORT	460,000.00
OPERATIONAL IMPACT	BECI TPU BLDG REPLACEMENT	5,748,000.00
WATER/WASTEWATER RENOVATIONS	CCI WATER PLANT SOFTENING UPGR	3,000,000.00
SECURITY	NCI DOOR FRAME REPLACEMENT	322,500.00
LIFE SAFETY HVAC	RCI HVAC CONTROL UPGRADE	2,500,000.00
LIFE SAFETY FIRE	SCC FIRE SYSTEM PANEL REPLACEM	695,660.00
OPERATIONAL IMPACT/SAFETY	SCC TUNNEL STUDY	50,000.00
WATER/WASTEWATER RENOVATIONS	SCC WASTEWATER UPGRADE	3,742,795.00
LIFE SAFETY HVAC	SOCF HVAC REPLACEMENT	3,000,000.00
LIFE SAFETY PLUMBING	SOCF SHOWER PH 2	3,639,500.00

Upcoming Capital Projects: Ohio Department of Rehabilitation and Correction (ODRC)

General Area	Project Name	Budget
LIFE SAFETY PLUMBING	CTA PLUMBING REPLACEMENT	635,000.00
LIFE SAFETY PLUMBING	GCI BACKFLOW PREVENTER REPLACE	541,250.00
SECURITY	GCI ELECTRONIC CELL DOOR PH 3	878,750.00
LIFE SAFETY ROOF	GCI ROOF REPLACEMENT	5,625,000.00
LIFE SAFETY PLUMBING	LORCI SHOWER RENOVATION	635,000.00
STUN FENCES/PERIMETER SECURITY	NERC FENCE UPGRADES	1,000,000.00
LIFE SAFETY HVAC	OSP JOHNSON CONTROLS UPGRADE	3,760,000.00
SECURITY	TCI CONTROL CENTER UPGRADE	947,500.00
OPERATIONAL IMPACT	AOCI OCF WINDOWS REPLACEMENT	3,991,250.00
SECURITY	AOCI SEG DOOR CONTROL REPLACE	710,000.00
LIFE SAFETY FIRE	MANCI FIRE SYSTEM PANEL REPLAC	2,135,000.00
OPERATIONAL IMPACT	MANCI WINDOWS PHASE 2	4,000,000.00
LIFE SAFETY ELECTRICAL	MCI ELECTRIC POWERHOUSE PHASE2	5,010,000.00
LIFE SAFETY HVAC	MCI GYM HVAC AND AIR BALANCING	641,000.00

Upcoming Capital Projects: Ohio Department of Rehabilitation and Correction (ODRC)

General Area	Project Name	Budget
LIFE SAFETY BOILERS	CRC BOILER LOOP HEATING REPLAC	625,948.00
LIFE SAFETY PLUMBING	CRC SHOWER RENOVATION	768,000.00
OPERATIONAL IMPACT	DCI CEILING AND FLOOR REPLACEM	1,000,000.00
SECURITY	DCI EXTERIOR DOOR REPLACEMENT	200,000.00
SECURITY	FMC DOOR AND FRAME REPLACEMENT	595,468.00
OPERATIONAL IMPACT/SAFETY	FMC DORM 3 DEMO REPLACE MECHAN	1,300,000.00
SECURITY	LECI DOOR CONTROLS UPGRADE	4,000,000.00
OPERATIONAL IMPACT	LOCI REPOINTING PHASE 3	3,000,000.00
LIFE SAFETY ROOF	MACI METAL ROOF REPLACEMENT	3,760,000.00
SECURITY	MACI TOILET SINK REPLACEMENT	408,000.00
LIFE SAFETY BOILERS	PCI FHC BOILER FLU REPLACEMENT	447,500.00
LIFE SAFETY PLUMBING	PCI SANITARY SEWER PHASE 2	3,135,000.00
LIFE SAFETY BOILERS	CRC BOILER LOOP HEATING REPLAC	625,948.00
LIFE SAFETY PLUMBING	CRC SHOWER RENOVATION	768,000.00

Upcoming Capital Projects: Ohio Department of Rehabilitation and Correction (ODRC)

General Area	Project Name	Budget
OPERATIONAL IMPACT/SAFETY	PCI UTILITY TUNNEL RENOVATIONS	2,010,000.00
WATER/WASTEWATER RENOVATIONS	PCI WATER WASTEWATER TREATMENT	635,000.00
LIFE SAFETY ELECTRICAL	WCI LIGHTNING PROTECTION	250,000.00
LIFE SAFETY FIRE	WCI FIRE ALARM SYSTEM REPLACEM	3,250,000.00
LIFE SAFETY ADA	STW ADA LEVEL 3 RENOVATIONS	197,000.00
OPERATIONAL IMPACT	STW EDUC CAREER TECH CLASSROOM	700,000.00
ELPAS	STW ELPAS P2	10,015,000.00
IT INFRASTRUCTURE	STW FIBER INFRASTRUCTURE P1	3,000,000.00
STUN FENCES/PERIMETER SECURITY	STW NON LETHAL FENCES P4	10,000,000.00
OPERATIONAL IMPACT	STW UNDERGROUND STORAGE TANK R	447,500.00
WATER/WASTEWATER RENOVATIONS	WATER SYSTEM/PLANT IMPROVEMENTS CONTINGENCY	3,000,000.00
OPERATIONAL IMPACT/SAFETY	PCI UTILITY TUNNEL RENOVATIONS	2,010,000.00
WATER/WASTEWATER RENOVATIONS	PCI WATER WASTEWATER TREATMENT	635,000.00
LIFE SAFETY ELECTRICAL	WCI LIGHTNING PROTECTION	250,000.00

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Thank you!

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ASK OFCC

Craig Weise
Chief of Projects

This concludes The American Institute of Architects Continuing Education Systems Course

Provider Name: Ohio Facilities Construction Commission
Provider #: G442
Contact: sue.meyer@ofcc.ohio.gov

Reminder:
***Pick up your Certificate of Participation at
the Registration desk.***