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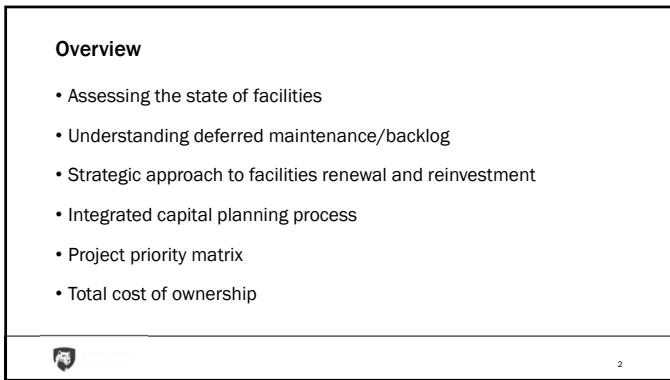
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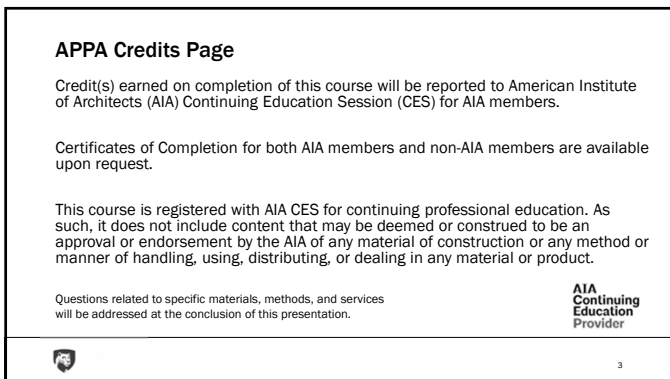
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### Course Description

An **Integrated Capital Plan** sits at the intersection of capital investments and operational funding.

In this course, we will learn how to develop a capital project priority matrix employing total cost of ownership (TCO) and integrating operating and capital budgets to address deferred maintenance and capital renewal.



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### Penn State at a Glance

 <p><b>Students</b> UP= 48,201 CC = 23,838 All = 88,116</p>	 <p><b>Land</b> UP= 11,249 acres CC = 2,646 acres All = 21,888 acres</p>	 <p><b>Roads</b> UP = 119 miles CC = 50.4 miles All = 217.6 miles</p>
 <p><b>Employees</b> Full-time = 20,794 Part-time = 13,810</p>	 <p><b>Walkways</b> UP= 88.6 miles CC = 54.1 miles All = 157.5 miles</p>	 <p><b>Buildings</b> UP= 971 at 20.3M GSF CC = 622 at 7.8M GSF All = 2,092 at 34.5M GSF</p>

UP = University Park (inc. Rock Springs Ag Area) CC = Commonwealth Campuses All = UP + CC + Hershey Medical + Additional Locations



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### Facilities Replacement Value Breakdown

**E&G vs Non-E&G**

Total Value: \$15.31bn

**E&G Sub-Classes % Breakdown**

Sub-Class	Percentage
Admin, Academic, Support	90%
Utilities	8%
ARL	2%



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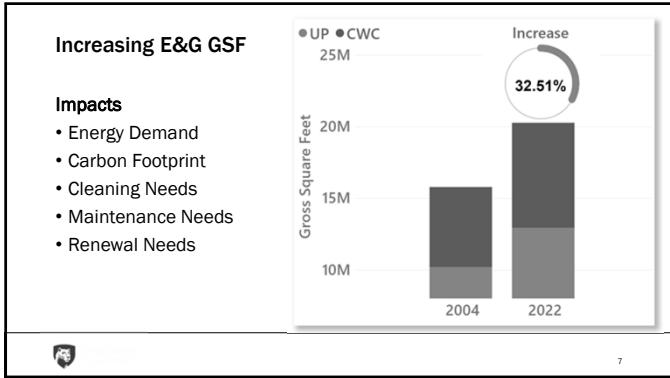
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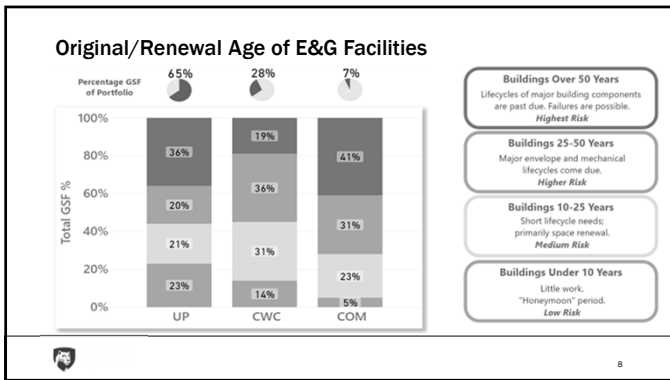
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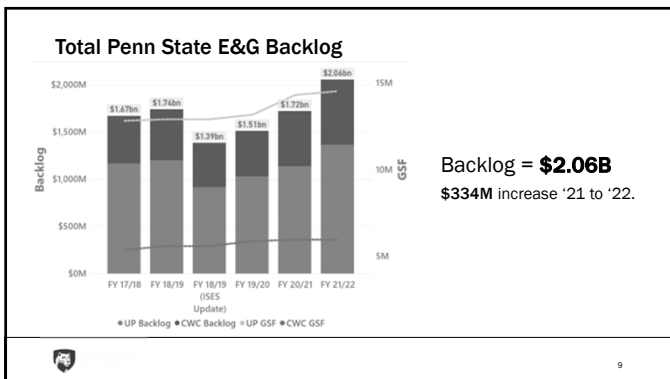
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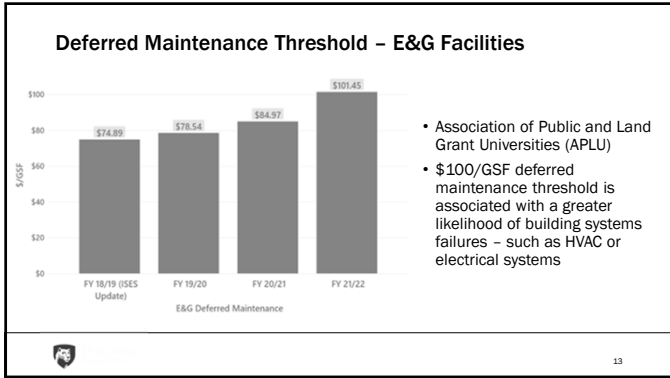
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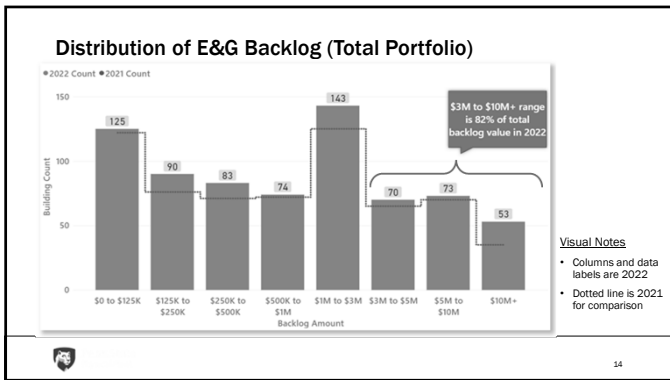
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### Strategic Approach to Facilities Renewal

Routine Maintenance (Each campus) 1:1	Major Maintenance (UP and CC) 1:1	Systems Renewal 1:2	Capital Projects 1:5
<ul style="list-style-type: none"> <li>• Preventive maintenance</li> <li>• Minor repairs (&lt;\$5,000)</li> <li>• Required investment to get to the expected life of systems and equipment</li> </ul>	<ul style="list-style-type: none"> <li>• Major repairs (&gt;\$5,000)</li> <li>• Equipment and system replacements</li> <li>• Repairs are required investments, but balanced with replacement investments</li> </ul>	<ul style="list-style-type: none"> <li>• Programmatic approach to improving facility condition that shares project resources across locations</li> </ul>	<ul style="list-style-type: none"> <li>• Includes functional improvements to the facilities to meet modern expectations</li> </ul>
OpEx		CapEx	

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### What's the right Number?

#### Replacement Value Reinvestment Ratio

- \$10.3B E&G Replacement Value
- 2.5% - industry standard for 40-Year Capital Replacement Cycle
- Doesn't address existing backlog or functional obsolescence, relation to mission, aesthetics, etc.

- 2.5% → \$258.0M annually → 40-year cycle
- 2.0% → \$206.0M annually → 50-year cycle

*Remember: Not all dollars are the same based on Penn State empirical data.*

- Routine Maintenance 1:1
- Major Maintenance 1:1
- Systems Renewal 1:2
- Capital Project 1:5

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#### Current Annual E&G Investment

Routine Maintenance	= \$38.0M	} Op Ex
Major Maintenance	= \$33.4M	
Systems Renewal (\$35.0M @ 1:2)	= \$17.5M	} Cap Ex
Capital Projects (\$293.4M @ 1:5)	= \$58.7M	
	<b>= \$147.6M</b>	

- 2.5% → \$258.0M annually → 40-year cycle
- 2.0% → \$206.0M annually → 50-year cycle
- 1.4% → \$147.6M annually → 70-year cycle

Strict discipline to drive Systems Renewal and Capital closer to a 1:1 ratio – no new stuff/growth

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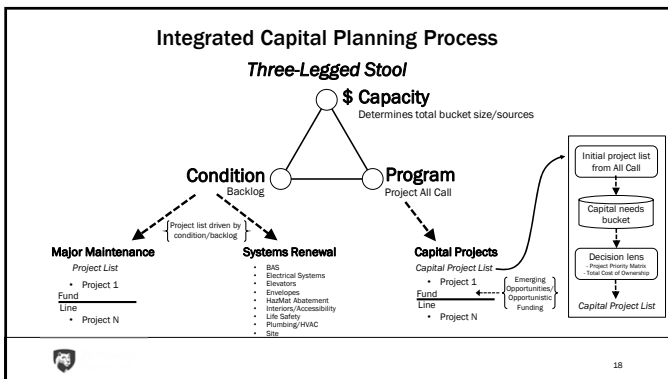
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**Project Priority Matrix – Category Definitions and Scoring**

Learning Excellence	Research Excellence	Campus Community	Sustainability	Business Continuity
Reduction of Deferred Maintenance Backlog	Conformance with Master Plan	Alignment with Strategic Plan(s)	Safety/Code Compliance	Economic Opportunity, Community Outreach, Extension

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**Project Priority Matrix – Category Definitions and Scoring**

**Learning Excellence**

Project will provide the needed infrastructure and facility upgrades to educational or instructional space to support the pedagogical needs of the faculty and students.

- 1 - Project will have a **minimal** impact on learning excellence
- 3 - Project **moderately** supports learning excellence
- 5 - **Primary focus** of the project is supporting learning excellence

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**Project Priority Matrix – Category Definitions and Scoring**

**Research Excellence**

Project will provide the needed infrastructure, facility upgrades to research space, or facility space to support a rigorous program of research and creative accomplishment.

- 1 - Project will have a **minimal** impact on the research mission
- 3 - Project **moderately** supports the research mission
- 5 - **Primary focus** of the project is supporting the research mission

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**Project Priority Matrix – Category Definitions and Scoring**

**Campus Community**

Project contributes to the improvement of aesthetics, quality or the functionality of the space with the primary drivers being student life, arts, engagement, inclusivity, athletic and/or recreational programs, or improvement in facility amenities for faculty and staff. These projects may also address issues of campus image and impact. Could include both interior and exterior space.

- 1 – Project contributes a **minimal improvement**
- 3 – Project contributes a **significant improvement**
- 5 – Project contributes an **exceptional improvement**



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**Project Priority Matrix – Category Definitions and Scoring**

**Sustainability**

Project should meet general sustainable design and/or building requirements, which includes but is not limited to energy usage, carbon emission, waste streams, water conservation, or increases in efficiency.

- 1 – Likely to **meet minimum** OPP published sustainability design and performance requirements
- 3 – Likely to **exceed minimum** OPP published sustainability design and performance requirements
- 5 – Likely to **significantly exceed minimum** OPP published sustainability design and performance requirements



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**Project Priority Matrix – Category Definitions and Scoring**

**Business Continuity**

Project contributes to an overall improvement in facility resiliency, risk mitigation, or continuity of operations due to a significant disruption in education, research, service or auxiliary functions.

- 1 – Project contributes a **minimal improvement**
- 3 – Project contributes a **moderate improvement**
- 5 – **Primary focus** of the project is improving business continuity



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**Project Priority Matrix – Category Definitions and Scoring**

**Reduction of Deferred Maintenance Backlog**

Projects address outstanding maintenance, contribute to asset preservation or enhance the integrity of building systems, structure or campus, and contribute to an increase in the facility condition index and facility reliability.

- 1** – Addresses between **0-19%** of backlog
- 2** – Addresses between **20-39%** of backlog
- 3** – Addresses between **40-64%** of backlog
- 4** – Addresses between **65-89%** of backlog
- 5** – Addresses between **90-100%** of backlog



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**Project Priority Matrix – Category Definitions and Scoring**

**Conformance with the Master Plan**

Project complies with the University, Campus, and/or Unit Level Master Plan and supports the goals and objectives of the University by anticipating and preparing for the future, extending the useful life of a facility noted as critical to the master plan or minimizes disruptions from unforeseen industry change.

- 1** – **Does not comply** with the master plan
- 3** – **Complies with a portion** of the master plan
- 5** – **Fully complies** with master plan



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**Project Priority Matrix – Category Definitions and Scoring**

**Alignment with Strategic Plan(s)**

Project supports one or more foundations, thematic priorities, or supporting elements of the university, campus, and/or unit strategic plan(s).

- 1** – **Supports few** components of the Strategic Plan
- 3** – **Supports some** components of the Strategic Plan
- 5** – **Supports many** components of the Strategic Plan



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**Project Priority Matrix – Category Definitions and Scoring**

**Safety/Code Compliance**

Project addresses safety and/or building code related requirements including but not limited to removal/abatement of hazardous materials and ADA accessibility and compliance.

- 1** – Project will **minimally address** safety/code requirements
- 3** – Project will **moderately address** safety/code requirements
- 5** – Project will **significantly address** safety/code requirements



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**Project Priority Matrix – Category Definitions and Scoring**

**Economic Opportunity, Community Outreach, Extension**

Project allows for the realization of economic or other benefits resulting from but not limited to, public/private partnerships, community outreach/extension or other untapped sources of University/College revenue or economic advancement.

- 1** – Project contributes **minimal** economic or other benefits
- 3** – Project contributes **significant** economic or other benefits
- 5** – Project contributes **exceptional** economic or other benefits



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**Project Priority Matrix**

**24-28 Capital Plan Project Priority**

Categories	Relative Weight
Learning Excellence	85.00
Research Excellence	90.00
Campus Community	50.00
Sustainability	65.00
Business Continuity	50.00
Reduction in Deferred Maintenance Backlog	80.00
Conformance with Master Plan	50.00
Alignment with Strategic Plans	50.00
Safety/Code Compliance	80.00
Economic Opportunity/Community Outreach/Extension	65.00



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**Summary**

- Reinvestment in facilities is **crucial** to ensuring they retain value and meet the organizational mission.
- OpEx (1:1) and Systems Renewal programs (1:2) provide the **most condition improvement value** for each dollar spent.
- Integrated Capital Planning:
  - **Works in concert** with CapEx and OpEx.
  - Is **complicated** when areas/units act as independent entities.



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 Chief Facilities Officer  
 The Pennsylvania State University

**T. Mark Miller, PE**  
 Assistant Vice President of Facilities Management and Planning  
 Deputy Chief Facilities Officer  
 The Pennsylvania State University



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