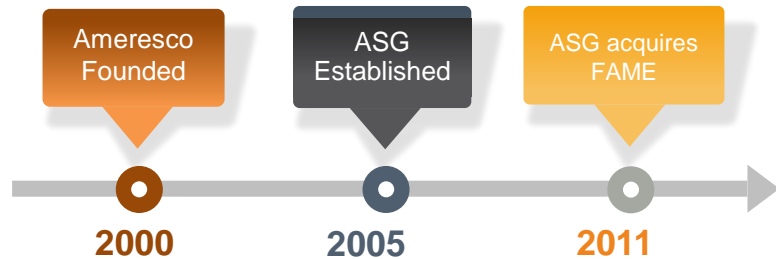


Facility Condition Assessments – Board Presentation

Nordonia Hills City School District

January 22, 2023

About the Asset Sustainability Group (ASG)



ASG Profile

- 70+ professionals
- 30+ years of advisory & support services to asset management industry
- 15+ years of industry leading software solutions
 - AssetPlanner Software Suite

ASG - A division of Ameresco, Inc (NYSE:AMRC).

- 1,500+ employees
- Engineering-based organization, product-agnostic solutions

ASG Fast Facts

- 3.2 billion square feet
- Over 130,000 buildings
- Over 250 active software clients; over 73,000 users
- Over 85,000 active meters read

Ameresco's Project Timeline and Scope

- Project Kick-Off (August 2023)
- Scope Covered 7 Sites (6 Schools)
✓ (583,000 sq ft).
- Project SOW
 - Staff Interviews conducted in early September
 - Site Assessments completed in October
 - Data Validation and Published Database in December
 - Executive Summary of Findings in January

Facility Condition Assessment

A Facility Condition Assessment is a non-intrusive, visual assessment of elements in a building or portfolio.



This assessment establishes the lifecycle of each building system, offers a rating on the systems condition and provides inventory including photo documentation.



The results of the assessment provide an understanding of levels of deferred maintenance, timing of capital renewals and funding required to support the organizations goals and objectives.

Effective Facility Planning Requires Defensible Data

Facilities Condition Assessments provide data that supports decision making regarding project prioritization, funding appropriations, investments, consolidations, and dispositions.

Facilities Condition Assessments

FCA's cover a wide range of elements whose condition and life cycle renewals affect the quality of learning and education for your students, staff and stakeholders.

Electrical

- Power & Distribution
- Interior Lighting
- Exterior Lighting
- Emergency Power
- Fire Alarm System
- Comm / IT Systems
- Security Systems
- Clock Systems

Mechanical

- Heating Systems
- Ventilation Systems
- Air Conditioning
- Plumbing / Drainage
- Building Controls
- Fire Prevention

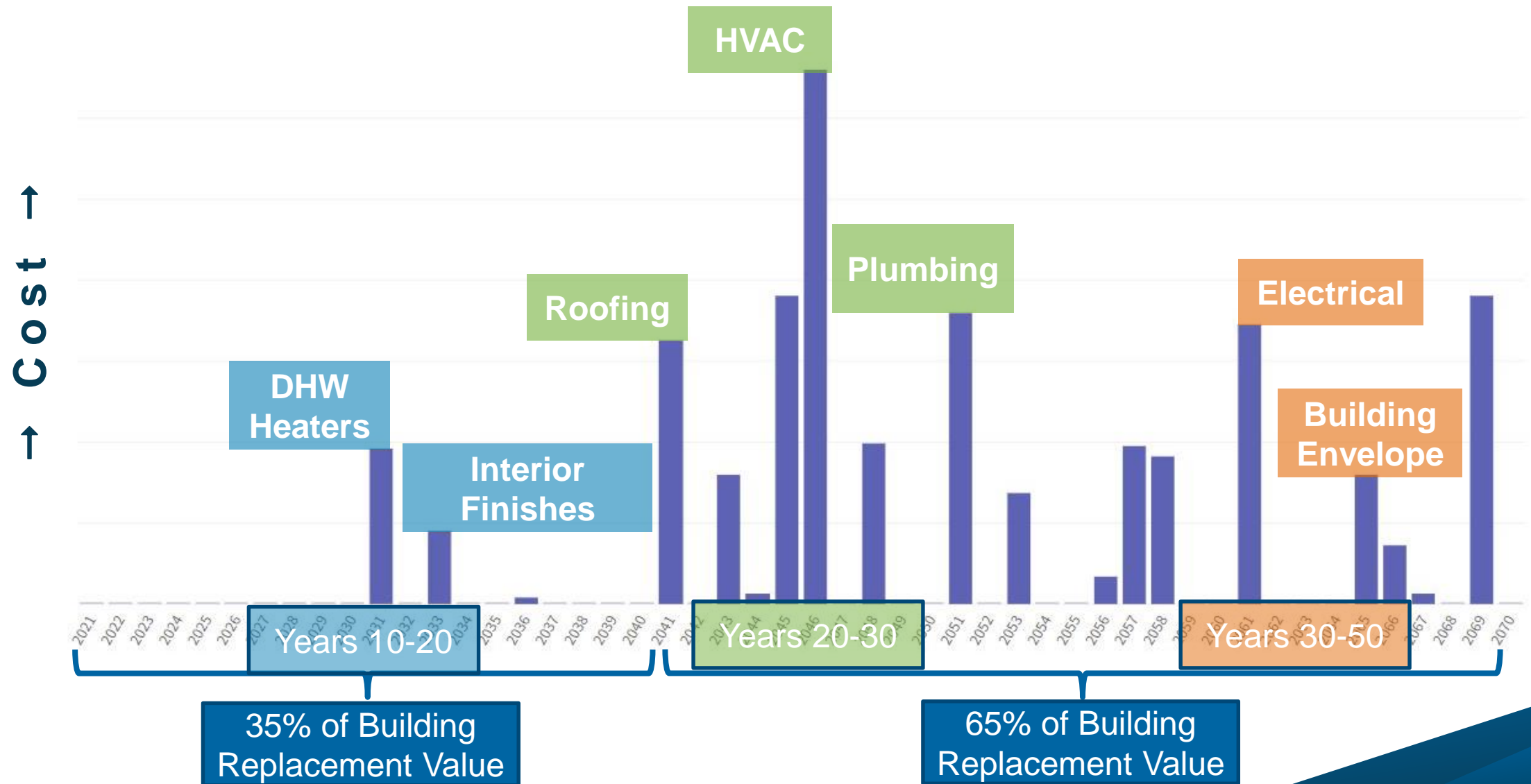
Architectural / Structural

- Roofing, Windows, Exterior Doors
- Foundation & Exterior Walls
- Flooring & Ceilings
- Interior Walls / Doors / Millwork
- Painting & Window Coverings
- Accessories & Equipment

Property/Site

- Roadways / Driveways
- Paving & Walkways
- Retaining Walls
- Landscaping
- Fencing
- Underground Utilities

Life Cycle Profile: New Building



ASG AssetPlanner® Approach

Disparate data:

- Excel Spreadsheets
- PDF's
- Institutional Knowledge
- Drawings / Schedules



Single Data
Repository



Basic Asset Details:

- Age
- Size
- No. of floors
- Functional use
- Site Address



Life Cycle
Cost
"Templates"



Validation:

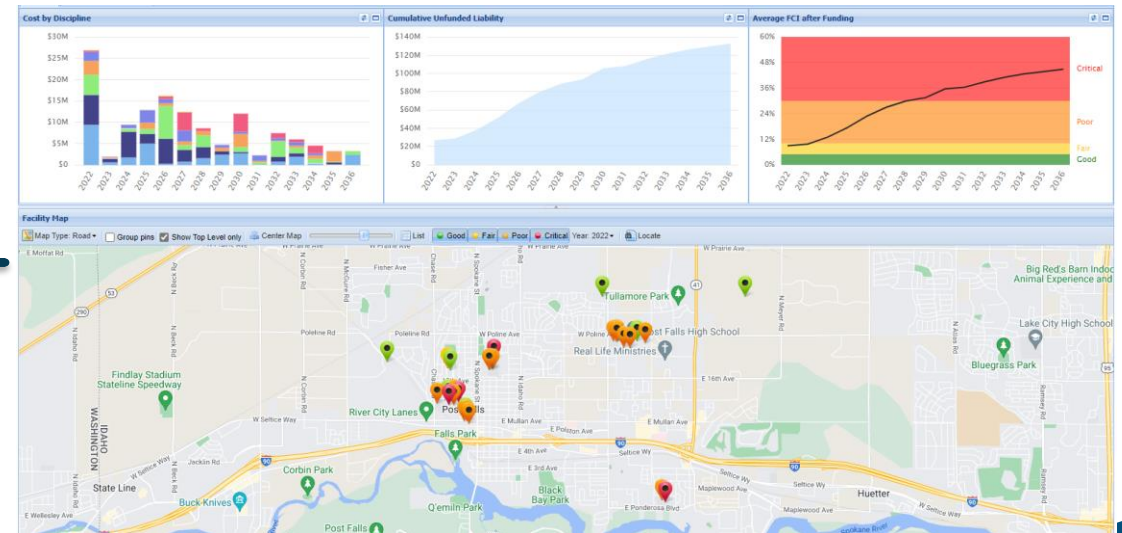
- Incorporation of detailed datasets
- Knowledge transfer
- On-Site Condition Assessments



Life Cycle
"Profile"

Benefits:

- Rapid data development process
- Institutional knowledge transfer
- Single data repository
- Dynamic dashboards for entire portfolio



Overview of Terminology



Assets

- Assets contain the base building details (Construction Date Size, Floors, Function, etc.)

Templates are assigned to Buildings in AssetPlanner and generate an overall Replacement Cost value.



Elements

- Elements are building inventory items defined by Uniformat II Classification (B Shell, C Interiors, D Services, etc.)

Templates generate the initial inventory listing for each building based on the Uniformat category list.



Actions

- Actions are work that Elements require (Replacement/Repair)

Templates generate the initial action costs and renewal forecasts based on replacement intervals for each category.

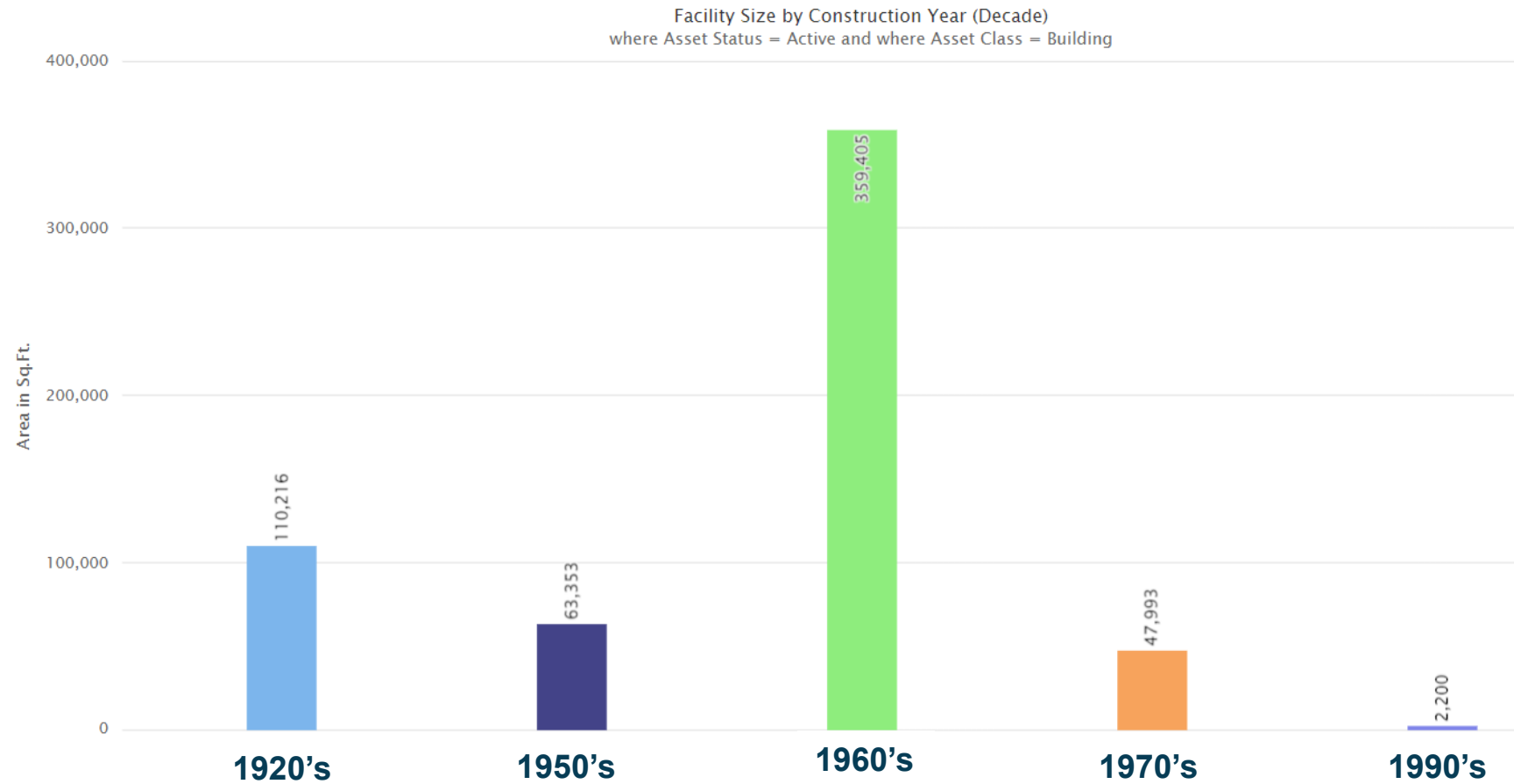


STEP 1:

Understanding
Current State



Facilities Age Profile

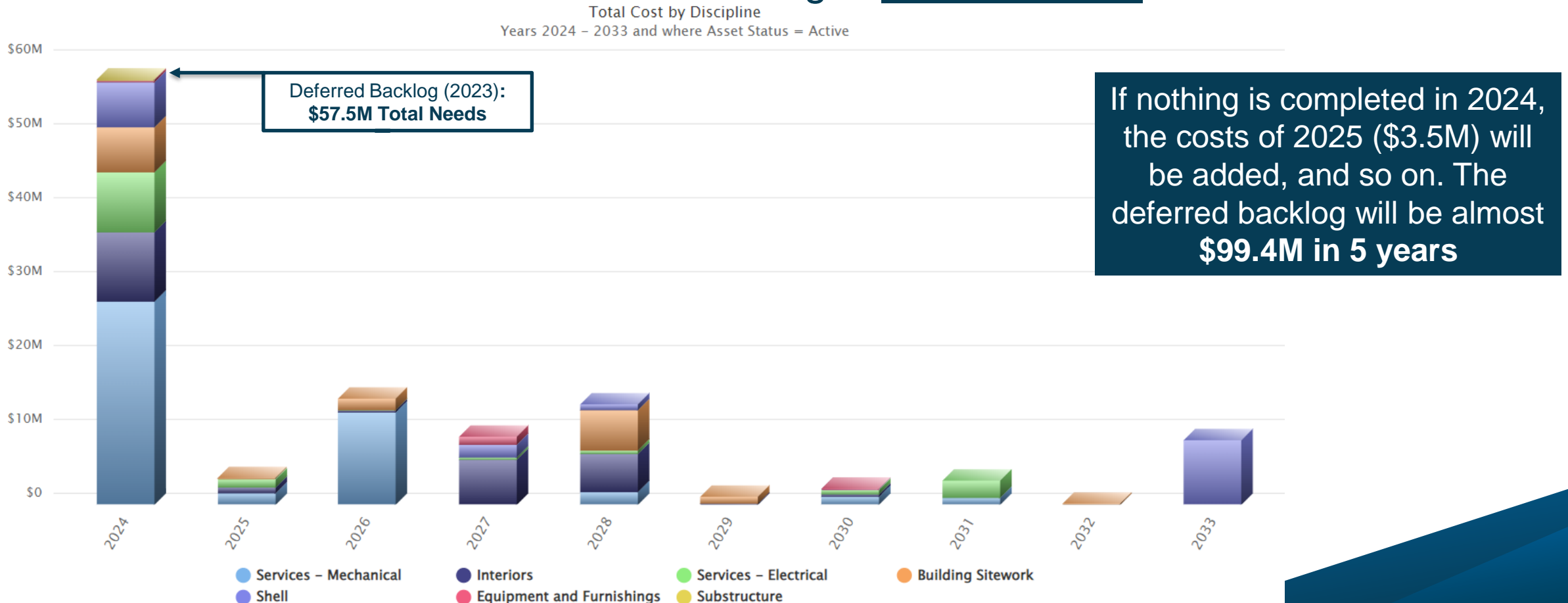


| Description | All buildings |
|----------------------------------|---------------|
| Number of buildings (qty) | 9 |
| Gross area (SF) of buildings | 583,167 |
| Average age of buildings (years) | 63 (c. 1960) |
| Current replacement value (\$M) | ~\$183.3M |

Capital Needs by Discipline

Life cycle forecasts have been established for the major building elements for each asset. This determines the capital renewal budget requirements over time.

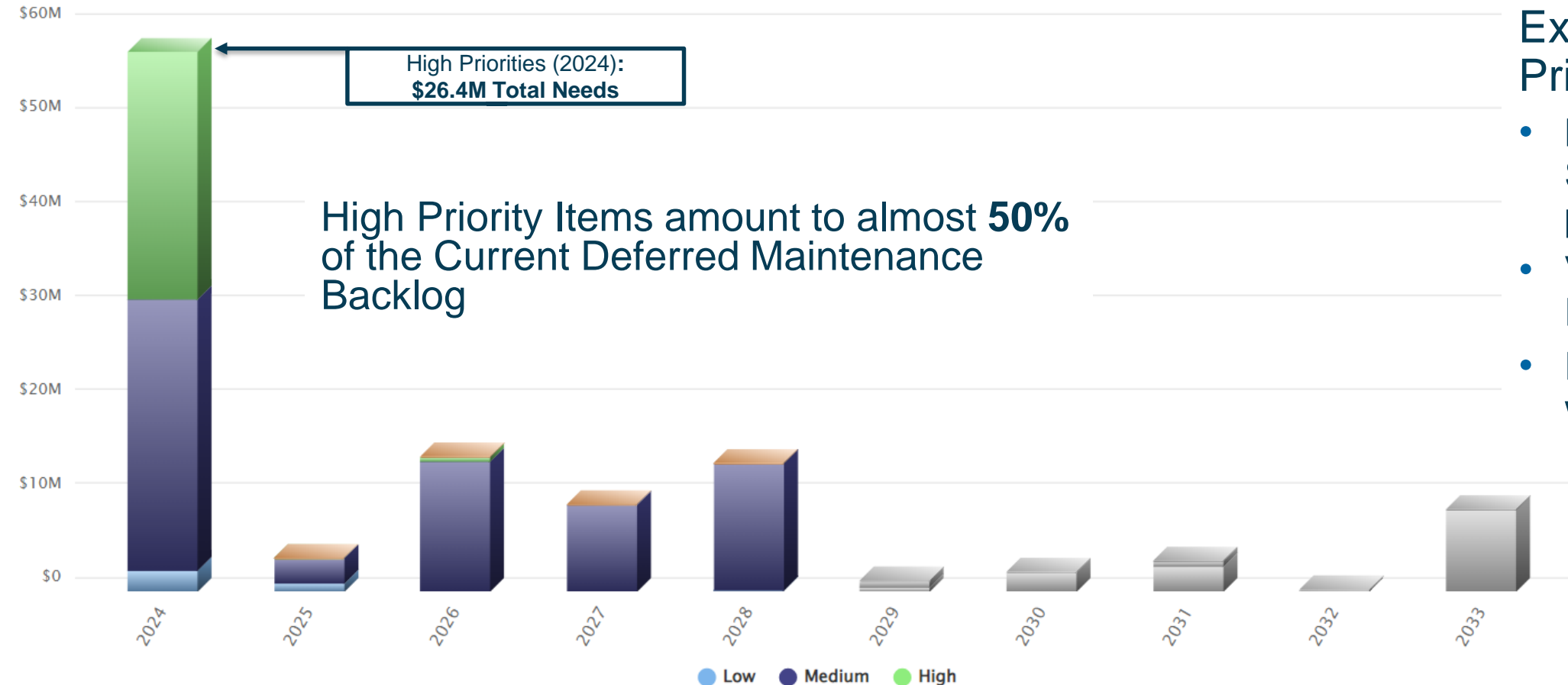
Current Deferred Maintenance Backlog is **\$57.5 Million** as of 2024.



Capital Needs by Priority

Building elements are prioritized based on a mixture of condition, life expectancy, operational impact, fire/life safety impact, and energy efficiency.

Total Cost by Priority
Years 2024 – 2033 and where Asset Status = Active



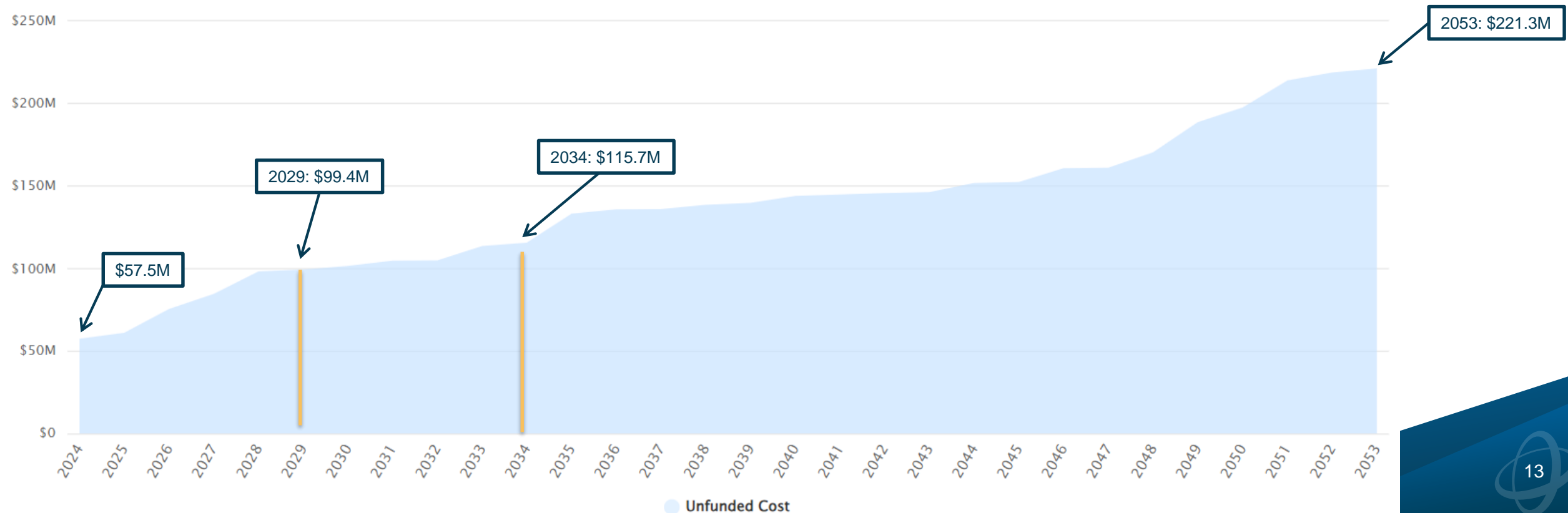
Examples of High Priority Items:

- Missing Fire Alarm Systems (in-process)
- Vinyl Asbestos Tile Flooring
- Plumbing Fixtures with Lead

Projected Total Liability - Unfunded

The total liability represents the cumulative renewal needs of the portfolio based on the findings and results obtained from the life cycle renewal cost analysis.

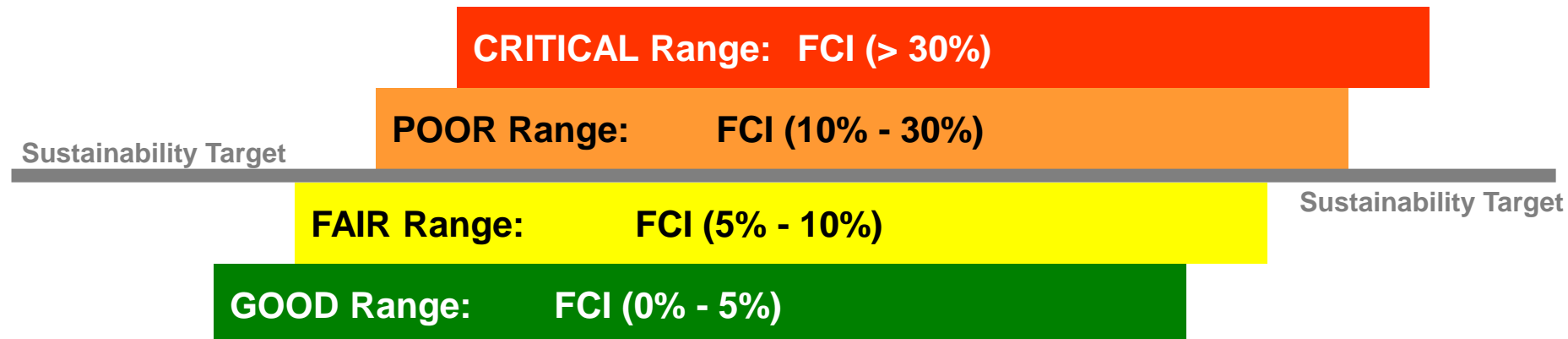
Represented in current year dollars, the cumulative total liability is predicted to accelerate from **\$57M to \$99M** over the next 5 years. An increase of **73% in just 5 years**.



Facility Condition Index (FCI)

Industry standard index used to track condition performance of buildings quantify risk. The FCI provides a consistent measurement of condition for a single building, group of building, or portfolio of buildings.

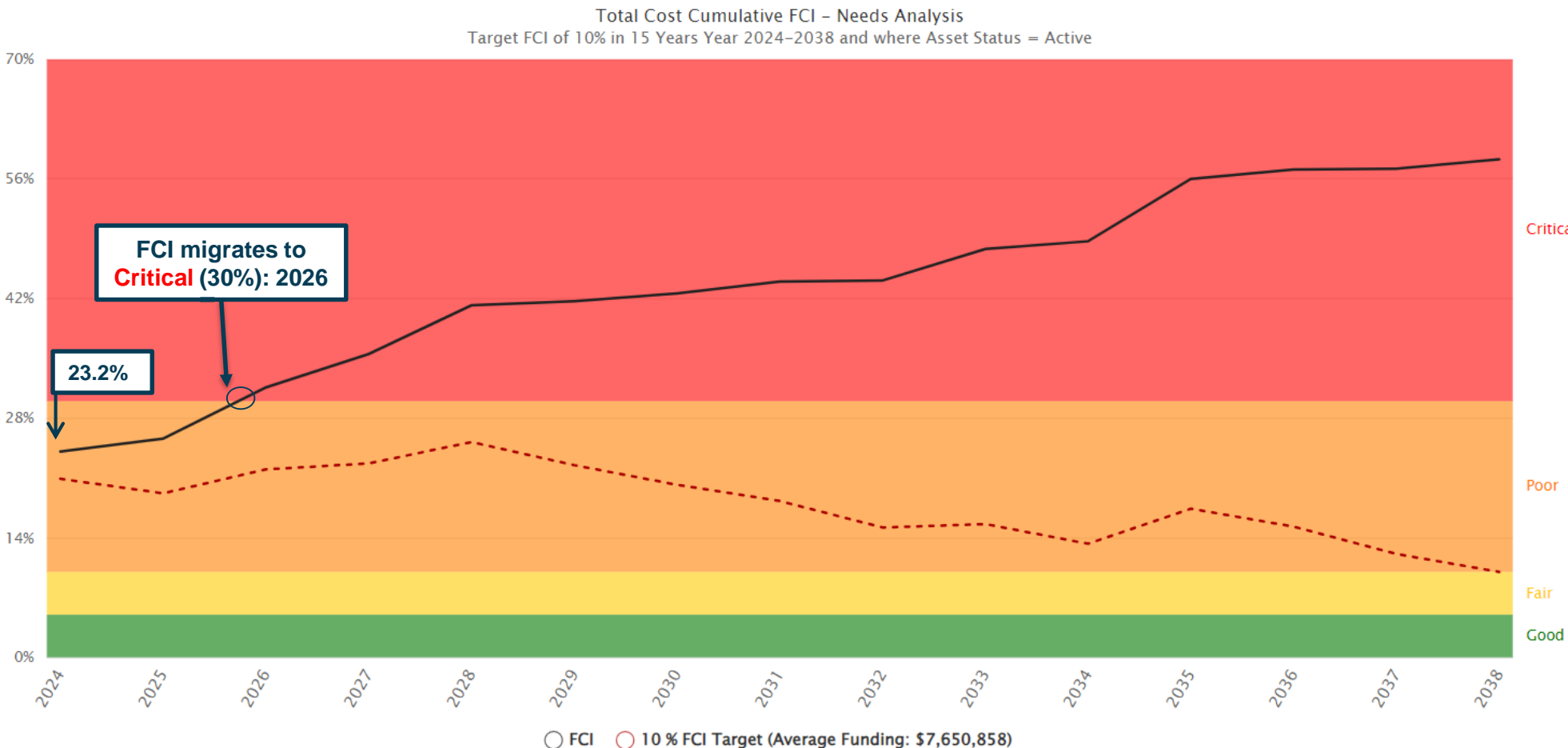
$$\text{FCI} = \frac{\text{Renewal and Repair Costs}}{\text{Replacement Cost}}$$



65% Rule = Once FCI exceeds 65%, it may be financially imprudent to continue investing in building.

Facility Condition Index – Unfunded




The portfolio has a current **FCI of 24.1%**, placing the facilities in the **Poor** range. However, without proper funding, the FCI would migrate to **Critical** by **2026**. The FCI will more than double over the next 10 years to **48.7%**



If the District was able to fund **\$7.6M**/annually over the next 15 years, it could bring its FCI score down to a **Fair 10%**

Facility Condition Index Grid – 23.2% Average

- All buildings are showing **Poor** or **Critical** FCI scores
- This accounts for **\$57M** in deferred backlog Today
- This same group of buildings will account for **\$99M** in deferred backlog in 5 years time.
- This is an increase of over **70%** over the next **5 years**

| FCI Grid | | | | | | |
|--|----------------------|----------------------|------------------|------------|-------------|-------------|
| <input checked="" type="checkbox"/> Include Soft Costs  Filters  Export  Search <input type="text"/> <input type="button" value="x"/> | | | | | | |
| Asset ▲ | CRV incl. Soft Costs | 30 Years Average ... | Current Year FCI | FCI Year 5 | FCI Year 10 | FCI Year 15 |
| Ledgeview Elementary | \$ 20,756,492 | \$ 0 | 30.7 % | 48.8 % | 50.5 % | 64.2 % |
| Lee Eaton Intermediate | \$ 21,617,226 | \$ 0 | 32.9 % | 45.6 % | 45.8 % | 57.8 % |
| Maintenance Garage | \$ 658,761 | \$ 0 | 12.8 % | 12.8 % | 14.9 % | 20.1 % |
| Maintenance Warehouse | \$ 908,756 | \$ 0 | 13.8 % | 21.0 % | 23.2 % | 28.8 % |
| Nordonia High | \$ 83,092,413 | \$ 0 | 25.6 % | 41.8 % | 48.2 % | 61.8 % |
| Nordonia Middle | \$ 37,607,757 | \$ 0 | 21.9 % | 41.0 % | 55.5 % | 61.6 % |
| Northfield Elementary | \$ 20,045,942 | \$ 0 | 24.2 % | 42.0 % | 49.3 % | 57.3 % |
| Rushwood Elementary | \$ 15,707,695 | \$ 0 | 19.1 % | 37.5 % | 47.8 % | 63.2 % |
| Transportation Garage | \$ 1,527,128 | \$ 0 | 18.2 % | 19.5 % | 23.5 % | 29.9 % |



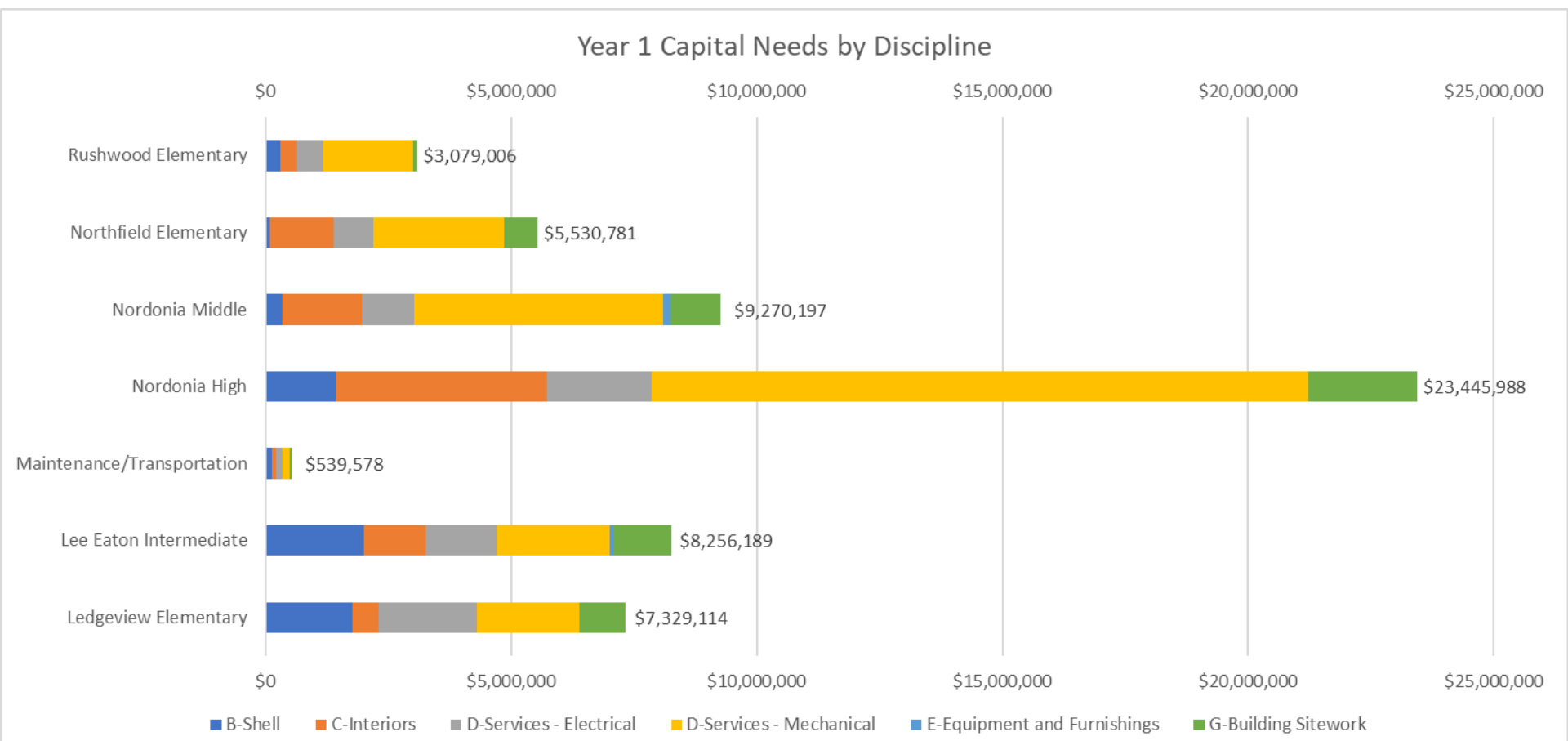
STEP 2:

Capital Planning



Capital Needs – Current

The largest category of needs currently throughout the district are Mechanical Systems. This category is the leading cost driver for all buildings. When removing sitework and focusing specifically on districts buildings 54% of the districts capital needs are for Mechanical Systems.

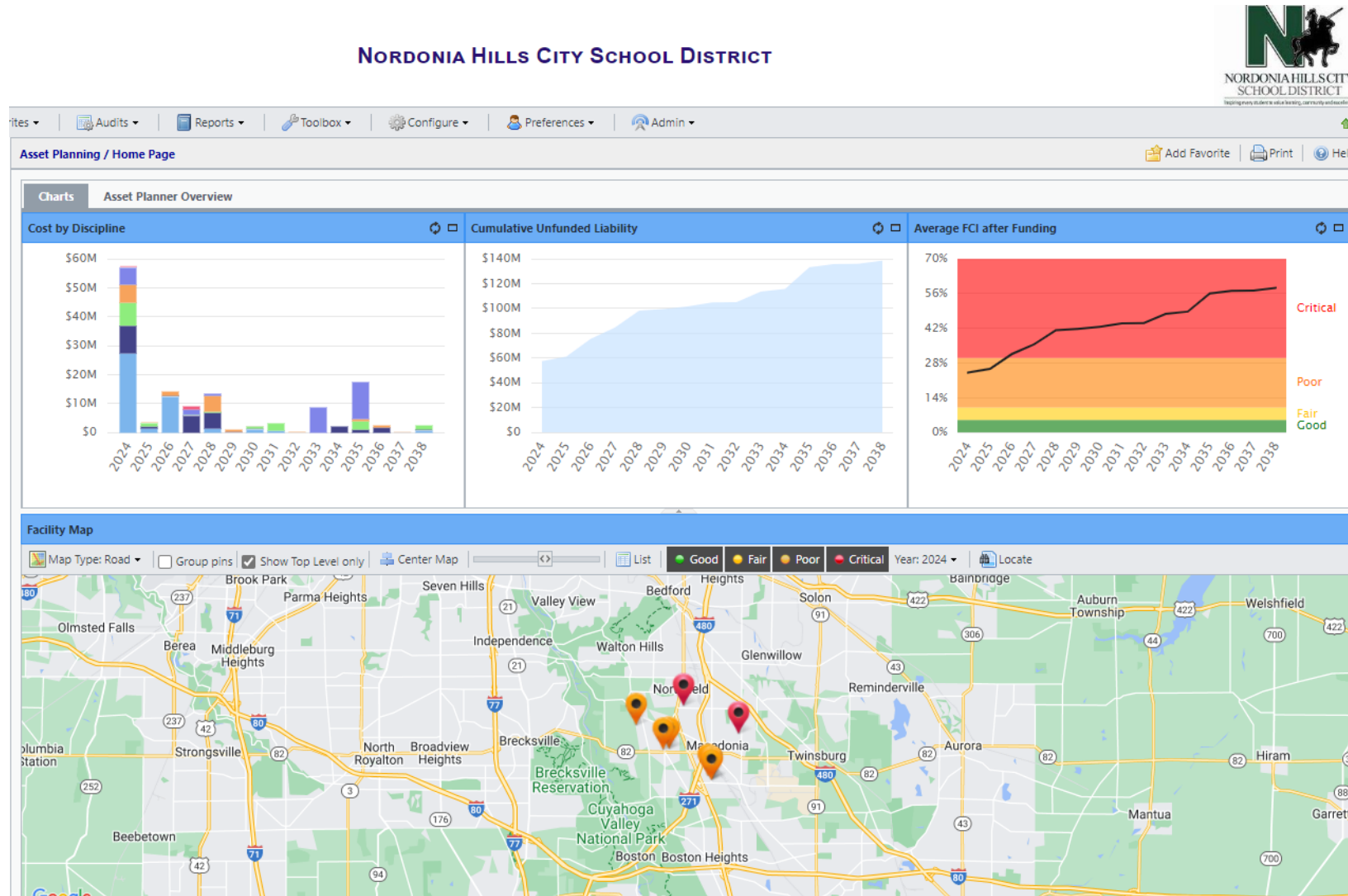


*Mechanical, Electrical, and Plumbing (MEP) Systems are usually about 30-35% of a buildings capital needs.

*NHCSD’s MEP Systems total almost 70% of capital needs

Focused Projects/Needs

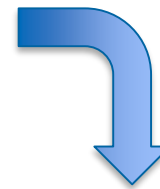
Lets jump into the software - [Home Page \(assetplanner.com\)](https://assetplanner.com)



15 Year Trending Capital Needs by Facility

| Today % of Need in Total (\$77M) | | | | | | |
|----------------------------------|---------|-------------|-------------------------|-------------------------|-----------------------------|---------------------|
| | B-Shell | C-Interiors | D-Services - Electrical | D-Services - Mechanical | E-Equipment and Furnishings | G-Building Sitework |
| Ledgeview Elementary | 24% | 7% | 27% | 28% | 0% | 13% |
| Lee Eaton Intermediate | 24% | 15% | 17% | 28% | 1% | 14% |
| Nordonia High | 6% | 18% | 9% | 57% | 0% | 9% |
| Nordonia Middle | 4% | 18% | 11% | 55% | 2% | 11% |
| Northfield Elementary | 2% | 23% | 15% | 48% | 0% | 12% |
| Rushwood Elementary | 10% | 11% | 17% | 59% | 0% | 3% |

Time



- Current Needs focus mostly around Mechanical Systems
- Year's 2-15 Needs focus around Shell, Interiors and Mechanical Systems

15 Year Planning

- Roofing – \$12.5M
- Ext Walls, Windows, Doors – \$11.4M
- Flooring – \$5.6M
- Paving – \$8.9M

| Years 2 - 15 % of Need in Total (\$57M) | | | | | | |
|---|---------|-------------|-------------------------|-------------------------|-----------------------------|---------------------|
| | B-Shell | C-Interiors | D-Services - Electrical | D-Services - Mechanical | E-Equipment and Furnishings | G-Building Sitework |
| Ledgeview Elementary | 29% | 22% | 8% | 33% | 1% | 7% |
| Lee Eaton Intermediate | 30% | 21% | 11% | 30% | 0% | 8% |
| Nordonia High | 41% | 22% | 14% | 17% | 3% | 2% |
| Nordonia Middle | 18% | 23% | 13% | 22% | 0% | 24% |
| Northfield Elementary | 25% | 12% | 19% | 35% | 1% | 7% |
| Rushwood Elementary | 33% | 28% | 3% | 22% | 1% | 13% |



% Change

| Today - 15 Year Outlook Trending Needs of Total Capital | | | | | | |
|---|---------|-------------|-------------------------|-------------------------|-----------------------------|---------------------|
| | B-Shell | C-Interiors | D-Services - Electrical | D-Services - Mechanical | E-Equipment and Furnishings | G-Building Sitework |
| Ledgeview Elementary | 4% | 15% | -19% | 5% | 1% | -6% |
| Lee Eaton Intermediate | 6% | 5% | -6% | 2% | -1% | -6% |
| Nordonia High | 35% | 4% | 5% | -40% | 3% | -7% |
| Nordonia Middle | 15% | 5% | 1% | -33% | -2% | 13% |
| Northfield Elementary | 24% | -12% | 4% | -13% | 1% | -5% |
| Rushwood Elementary | 24% | 17% | -14% | -38% | 1% | 10% |



Step 3:

Moving Forward



Next Steps

- Additional Presentations or Reporting?
- Formal user training (project close-out)
 - Continued Review of Data and Planning
- Schedule Prioritization Workshop
 - Alignment of capital projects and needs/risks
 - Developing energy projects that have good payback schedules
 - Developing the priority matrix and customizing scoring criteria as needed

Smart Building Solutions - Driven by Experience

Uniquely Qualified in Ohio K-12 Schools



North Canton
Todd Henne



South Euclid Lyndhurst
Karl Williamson



Newton Falls
Justin Christopher



Mansfield
Tacy Courtright



Boardman
Brian Fonderlin



Stow-Munroe Falls
Tom Bratten



Niles City Schools
Rhonda Amorganos

100+
Ohio School District Clients

30,000,000+
K-12 Square Feet Audited

\$60,000,000+
K-12 Energy Projects

80,000,000 lbs
CO₂ Saved Since 2008

South Euclid Lyndhurst City Schools



About the Project

Project Details

- \$9.4M design-build energy efficiency project (ongoing). Includes the installation of Mini-Splits at 3 buildings (Brush High School, Greenview Upper Elementary School, and Memorial Junior High School), LED Lighting District-wide, Controls Upgrade District-wide, and an Electrical Service Upgrade for the High School.

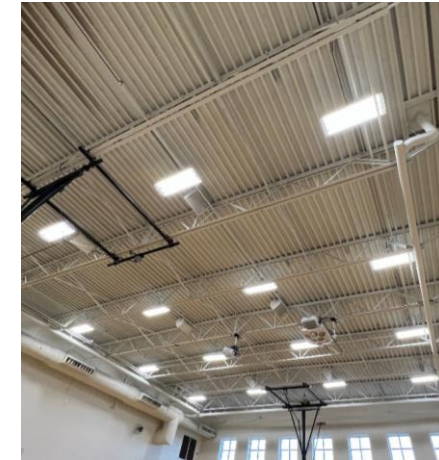
District Needs

- Due to deferred maintenance over time, there were several needs at SEL. There was also a strong desire by the community to complete the addition of air conditioning to the three remaining buildings.

Solution

- By leveraging the energy savings of the LED Lighting and Building Controls Upgrades, Ameresco was able to design a project that utilized only a portion of their dedicated annual funds that were put aside specifically for air conditioning. Ultimately, SEL was able to get cooling much sooner than originally planned due to the savings and financing this project.

Project Photos



North Canton City Schools



About the Project

Project Details

- The district had already been working with Ameresco on a controls upgrade since 2013. A first phase of mechanical upgrades and energy efficiency occurred in 2018. \$2.9M design-build energy efficiency project which included LED Lighting for the High School and Middle School, a continuation of controls upgrades, RTU Replacements, Mini Splits, and Middle School Window Upgrades.
- Followup phases have included replacements of water-source heat pumps, controls upgrades, and boiler replacements.

District Needs

- Due to the age of Hoover High School, several mechanical units came to the end of their useful life at the same time. There was also a need to upgrade the district's building automation system to a non-proprietary system.

Solution

- By leveraging the energy savings of the LED Lighting and Building Controls Upgrades, Ameresco was able to design a self-funding project as a phase 1 project to complete as many upgrades as possible. Other upgrades were completed in subsequent years per priority and need. A full controls integrations was completed over 10 years.

Project Photos



Next Steps for Nordonia Hills City Schools



Energy Conservation Measures

LED Lighting Upgrades Interior

LED Lighting Upgrades Exterior/Site Lighting

Replace Boilers

Replace Pumps & Install VFDs

Replace RTUs

Controls Retrocommissioning



Any Questions?



[ameresco.com](https://www.ameresco.com)

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