



FACILITY CONDITION ASSESSMENT FINDINGS

School Administrative Unit 70
August, 2023

Presenter:
Mary Venable, CEM, RA

Successful Asset Management:

Managing assets and budgets through predictive and focused strategies, rather than by unpredictable or reactive actions.

AGENDA

ABOUT BVNA

PROJECT UNDERSTANDING

FACILITY ASSESSMENT APPROACH

FACILITY ASSESSMENT FINDINGS

CONCLUSIONS

BUREAU VERITAS NORTH AMERICA

GLOBALLY AND NORTH AMERICA

\$5

Billion in Revenue

75,000

Employees

140

Countries

\$900

Million In Revenue US

8,000

NA Building Professionals

120

Offices and Laboratories

In all 50 States



Oil & Gas

Building & Infrastructure

Power & Utilities

Building Assessment & Project Mgmt.

Elevators & Escalators

Commissioning

Pressure Vessel Jurisdiction

Construction Compliance

Project Management

Transactional

Asset Management



FOUNDED IN 1828



FACILITY SERVICES

- FACILITY CONDITION ASSESSMENTS
- CAPITAL PLANNING
- ADA TRANSITION PLANS
- ENERGY AUDITS AND COMMISSIONING
- CMMS CONSULTING
- PREVENTIVE MAINTENANCE SCHEDULING



PROJECT SCOPE

FACILITY CONDITION ASSESSMENTS

- Record condition of facilities and their components
- Identify Short Term & Long-Range Needs
- Propose priorities
- Estimate replacement costs for upcoming years

ZERO NET ENERGY ASSESSMENT

- Identify potential energy savings measures
- Propose a framework for reducing or eliminating fossil fuel usage



FACILITY ASSESSMENT APPROACH

METHODOLOGY

Kick-Off Phase

- Kickoff Meeting
- Review Documents
- Scheduling
- Interviews and Questionnaires

Field Phase

- Building Inspections
- Record Assets & Condition
- Identify Deficiencies

Reporting Phase

- Deliver Draft Facility Reports
- Cost Estimates
- Expenditure Forecasts
- FCI – Facility Condition Index

Final Deliverable

- Present Findings
- Deliver Final Reports
- AssetCALC Database Delivery





- Site
- Exterior & Building Envelope
- Roof & Rooftop Systems
- Interiors
- Mechanical Systems –
HVAC, Electrical, Plumbing,
Fire

MOBILE DATA COLLECTION


Field Data Entry | Library Technology Center

Counts Calc Notes Photos Assets


Overview Struc Facade Roof Interior Elevator Plum HVAC Elec Fire O

Elevations Building Info Space Photos Plans / Sketches / Certificates

Building Name 1405 Monterey
Library Technology Center




Front Elevation




Rear Picnic Area

EXTRA PHOTO EXTRA PHOTO EXTRA PHOTO



Rear Elevation



Right Elevation

Library Technology Center

Size	Built	Renovated
67,044 sq ft	2000	

Asset Details Cost Inventory NA

Condensing Unit/Heat Pump, Split System, 8 to 10 21399 | D3032

Label Condensing Unit/Heat Pump, Split System, 8 to 10 Ton, Replace

Quantity 1 EA **Capacity** 8.7 TON

Location Main Roof

Plan Type Lifecycle/Renewal Performance/Integrity Safety
Modernization/Adaptation Accessibility Environmental

Asset Tag CU-2

Make Carrier

Model 38ARZ012---501LA

Serial 0406G30088

Barcode leave BLANK unless barcoding

Year Installed 2006 Built Renovated

Actual/Stamped Reported Estimated

Age 14 **EUL** 15 **RUL** 3

Public Private

Private Notes

100% complete

Complete & Close Duplicate Delete Add to Counts

Set GPS GPS Coordinates

Sketch Voice Note



SETTING PRIORITIES: *Condition Evaluation*

Condition Ratings	
Excellent	<i>New</i> or very close to new
Good	<i>Satisfactory</i> as-is, minor signs of normal wear
Fair	Showing signs of <i>wear</i> and use but still satisfactory - midlife
Poor	significantly <i>aged, flawed</i> , unreliable, deferred maintenance
Failed	<i>Ceased</i> functioning
Not Applicable	Not present – e.g. a proposed upgrade

Example:

B3011 - Roof, Built-Up, Bitumen

EUL 20 Years



Excellent
RUL 20 to 19 (>95% of EUL)

Good
RUL 18 to 13 (>66% EUL left)

Fair
RUL 12 to 3

Poor
RUL 2 to 1

Failed
RUL 0

FACILITY CONDITION INDEX

Rating the Overall Facility

$$\text{FACILITY CONDITION INDEX (FCI)} = \frac{\text{BUILDING RELATED NEEDS}}{\text{BUILDING REPLACEMENT VALUE}}$$

The Current Year FCI is the *ratio* of *Immediate Repair Costs* to the building's Current *Replacement Value*.

FCI CONDITION RATING	DEFINITION	PERCENTAGE VALUE
Excellent	In new or well-maintained condition, with no visual evidence of wear, soiling or other deficiencies.	0% to 5%
Good	Subjected to wear and soiling but is still in a serviceable and functioning condition.	> 5% to 10%
Fair	Subjected to hard or long-term wear. Nearing the end of its useful or serviceable life.	> 10% to 30%
Poor	Has reached the end of its useful or serviceable life. Renewal is now necessary.	> 60%

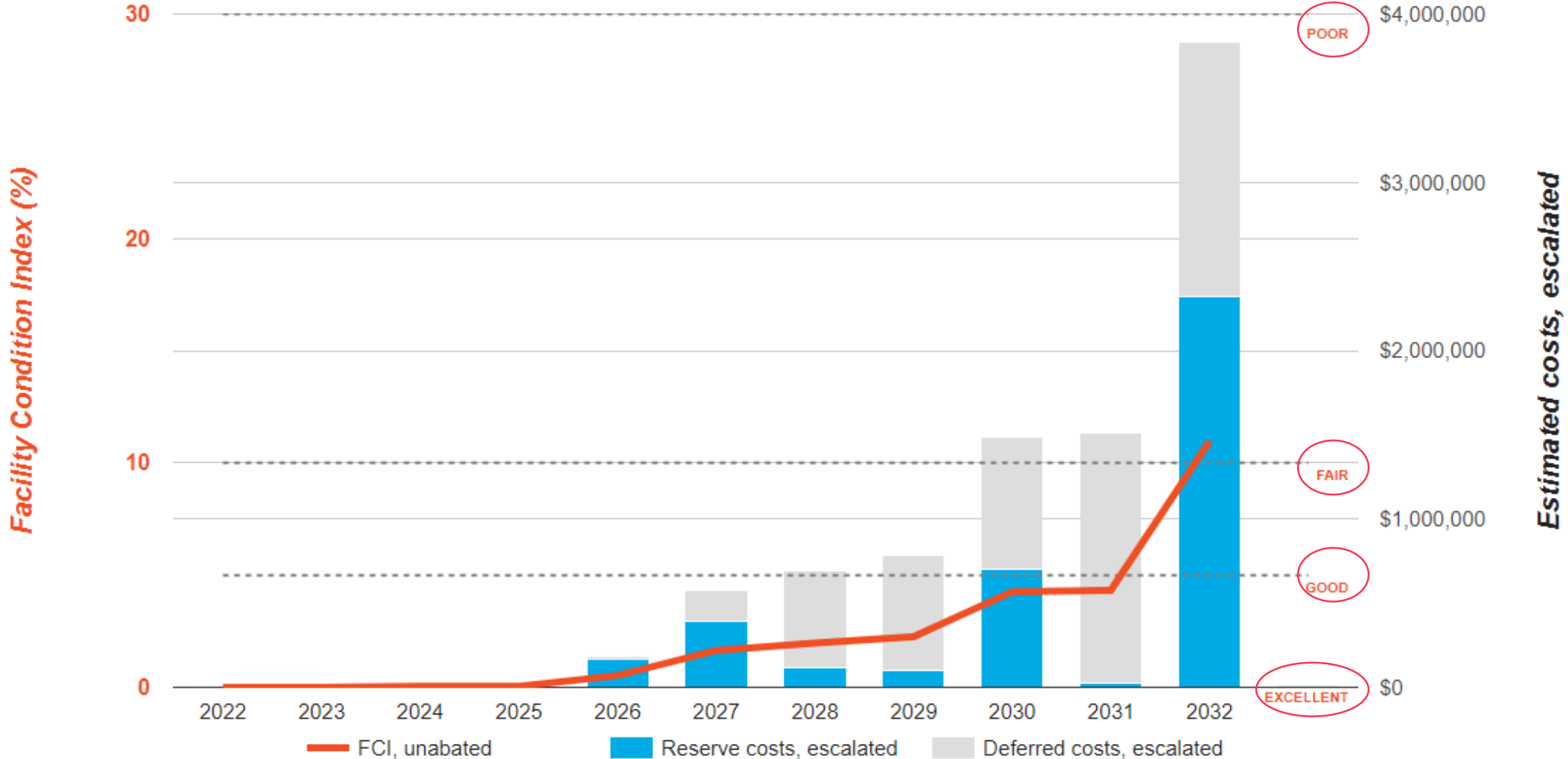
FCI Analysis: Bernice A. Ray School

Replacement Value: \$34,938,400

Inflation Rate: 3.0%

Average Needs per Year: \$348,600

Example:




FINDINGS

20 YEAR NEEDS & FCI

SUMMARY

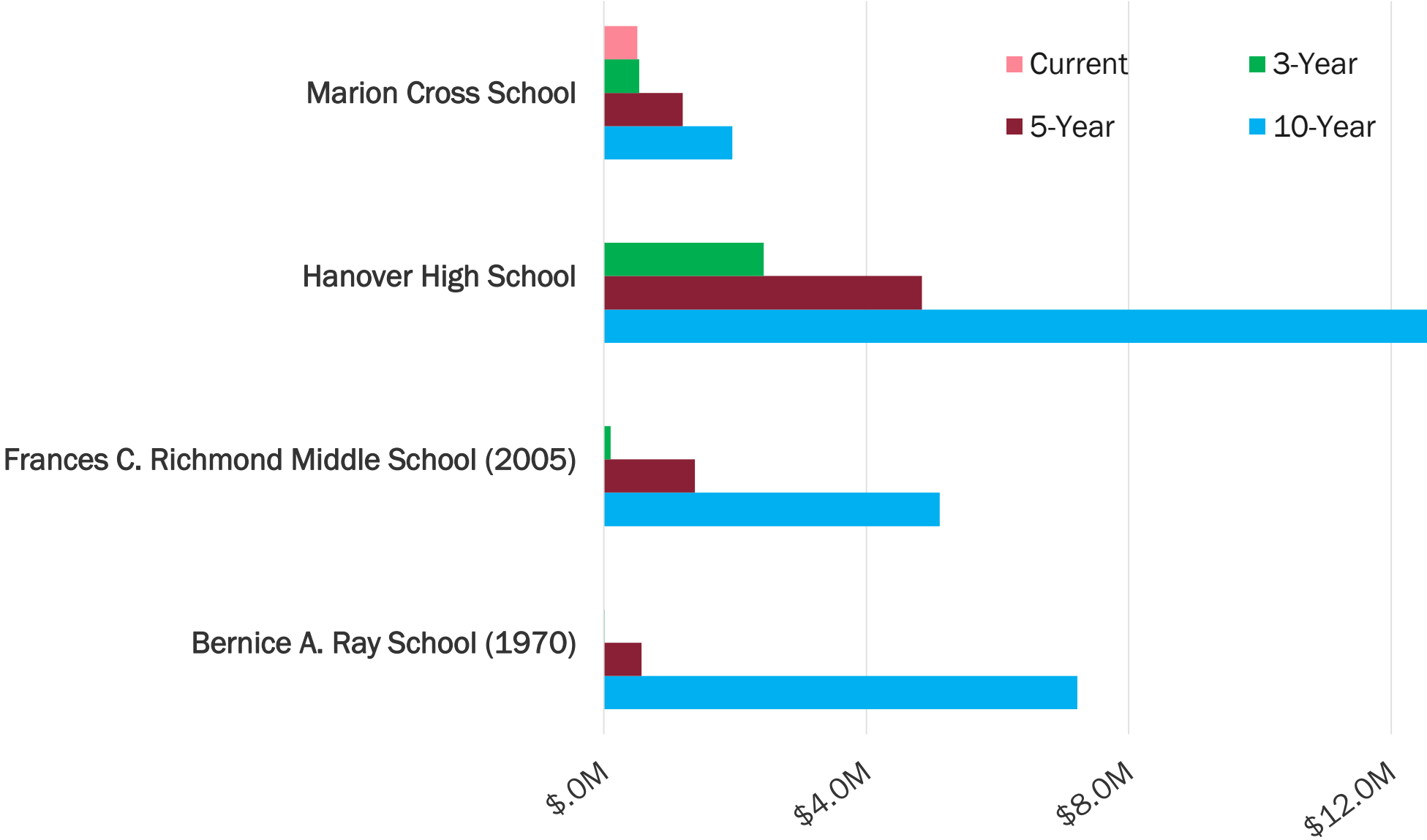
Excellent
Good
Fair
Poor

Facility (year built)	Cost/SF	Total SF	Replacement Value	Current	3-Year	5-Year	10-Year
 Bernice A. Ray School (1970)	\$430	81,252	\$34,938,360	0.0% \$900	0.0% \$14,000	1.6% \$575,700	20.7% \$7,219,400
Frances C. Richmond Middle School (2005)	\$430	105,000	\$45,150,000	0.0% \$5,000	0.2% \$100,400	3.1% \$1,389,700	11.3% \$5,119,500
Hanover High School	\$430	190,000	\$81,700,000	0.0% \$0	3.0% \$2,433,200	5.9% \$4,845,700	15.4% \$12,588,900
Marion Cross School	\$430	57,250	\$24,617,500	2.1% \$508,800	2.2% \$535,300	4.9% \$1,202,100	7.9% \$1,954,900



ANTICIPATED NEEDS (\$)

Current, 3-Year, 5-Year, 10-Year (Cumulative)





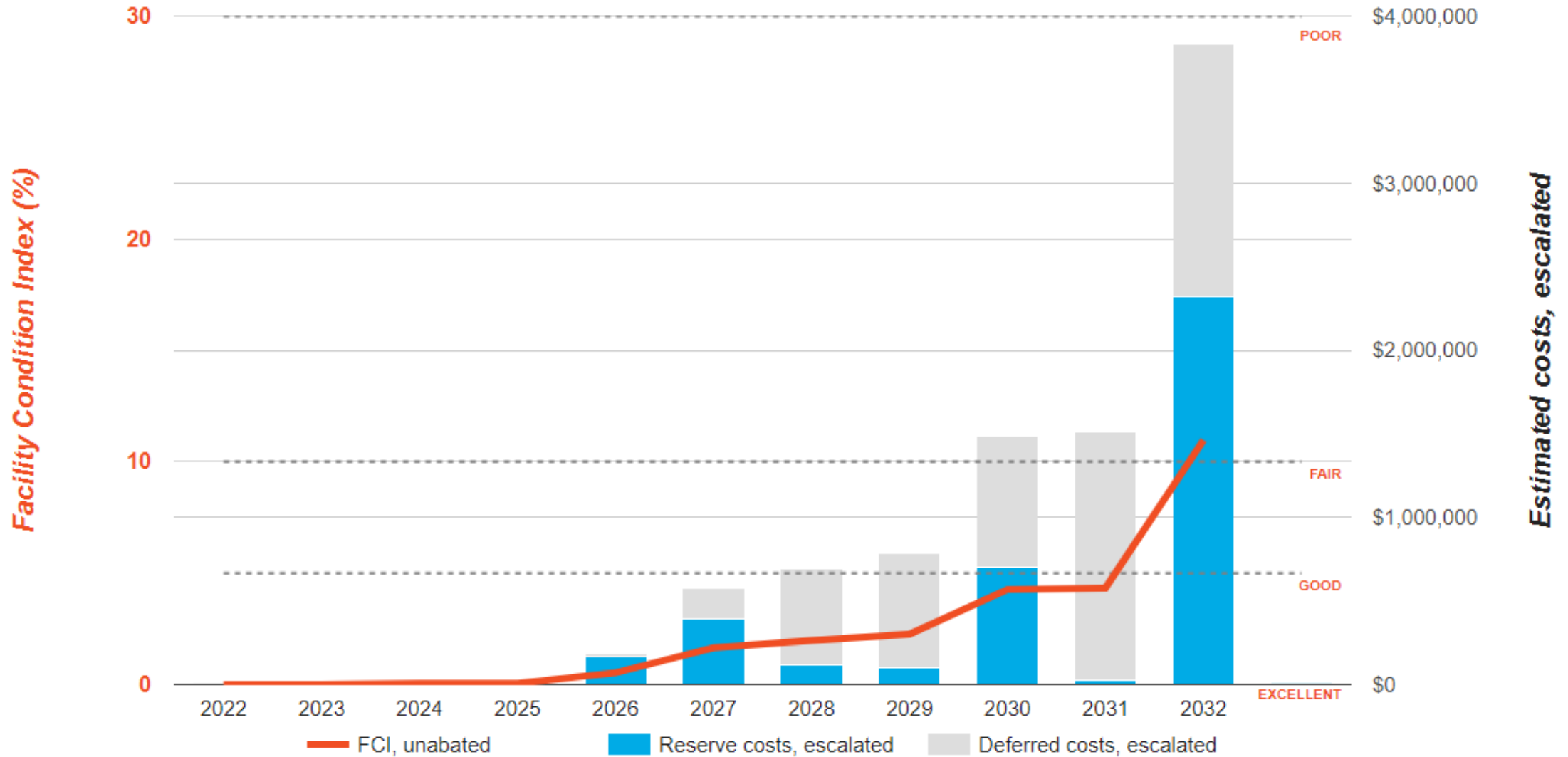
BERNICE A. RAY



Replacement Value: \$34,938,400

Inflation Rate: 3.0%

Average Needs per Year: \$348,600



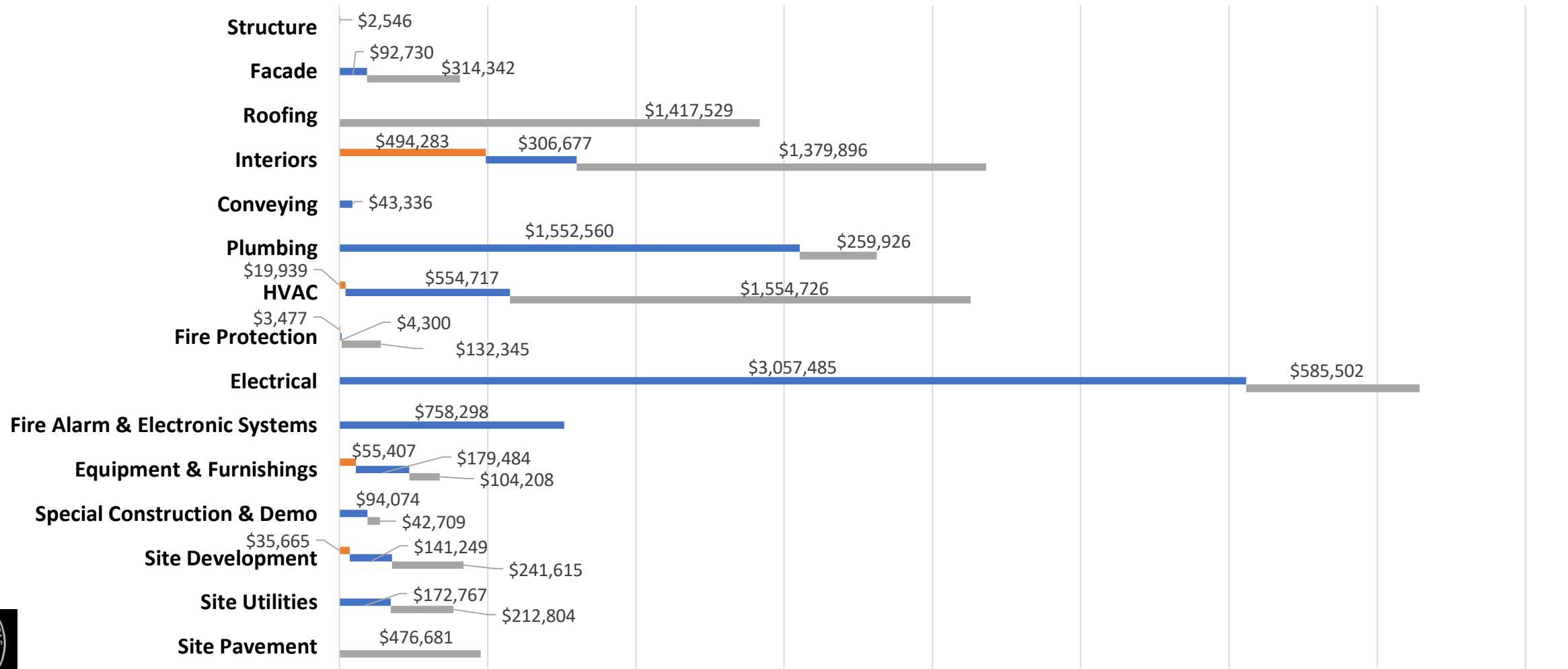
FORECAST BY TRADE

Bernice A. Ray

Bernice A Ray

0-5 Year 6-10 Year 11-20 Year

\$0.0M \$0.5M \$1.0M \$1.5M \$2.0M \$2.5M \$3.0M \$3.5M \$4.0M



KEY FINDINGS - *Priorities*

Bernice A. Ray



Interior Wall in Poor condition.

Concrete
Bernice A. Ray School Mechanical room

Uniformat Code: C1010
Recommendation: **Repair in 2022**

Priority Score: **84.9**

Plan Type:
Performance/Integrity

Cost Estimate: \$800

\$\$\$\$

Concrete cracking in mechanical room. Repair is recommended. - AssetCALC ID: 4714410



Athletic Surfaces & Courts in Poor condition.

Basketball/General, Asphalt Pavement
Bernice A. Ray School Site

Uniformat Code: G2050
Recommendation: **Seal & Stripe in 2024**

Priority Score: **82.8**

Plan Type:
Performance/Integrity

Cost Estimate: \$100

\$\$\$\$

Isolated cracking on basketball court - AssetCALC ID: 4714357



Foundation System in Poor condition.

Concrete or CMU Walls w/out Footings
Bernice A. Ray School Building exterior

Uniformat Code: A1010
Recommendation: **Concrete or CMU Walls w/out Footings in 2024**

Priority Score: **90.8**

Plan Type:
Performance/Integrity

Cost Estimate: \$2,400

\$\$\$\$

Cracking on concrete foundation. Repair is recommended. - AssetCALC ID: 4714434



Flooring in Poor condition.

Vinyl Tile (VCT), w/ Asbestos Abatement
Bernice A. Ray School Classroom Supply Closets

Uniformat Code: C2030
Recommendation: **Replace in 2024**

Priority Score: **81.8**

Plan Type:
Performance/Integrity

Cost Estimate: \$10,000

\$\$\$\$

Classrooms have shared supply closet that have asbestos. 1970s original flooring. 10000-20000 a year for asbestos abatement. - AssetCALC ID: 4714399





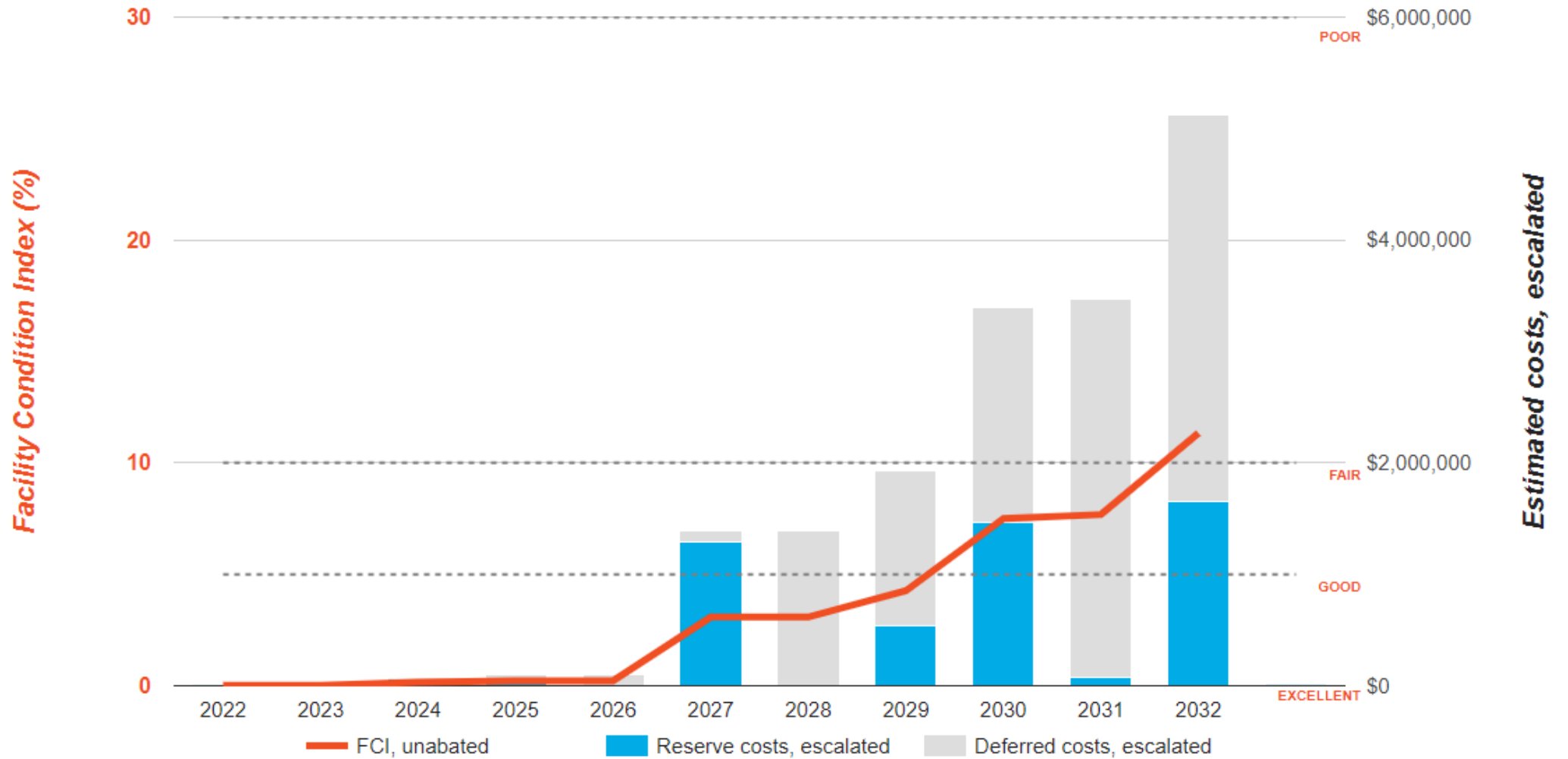
**FRANCES
RICHMOND
MIDDLE SCHOOL**

FCI Analysis: Frances C. Richmond Middle School

Replacement Value: \$45,150,000

Inflation Rate: 3.0%

Average Needs per Year: \$465,500



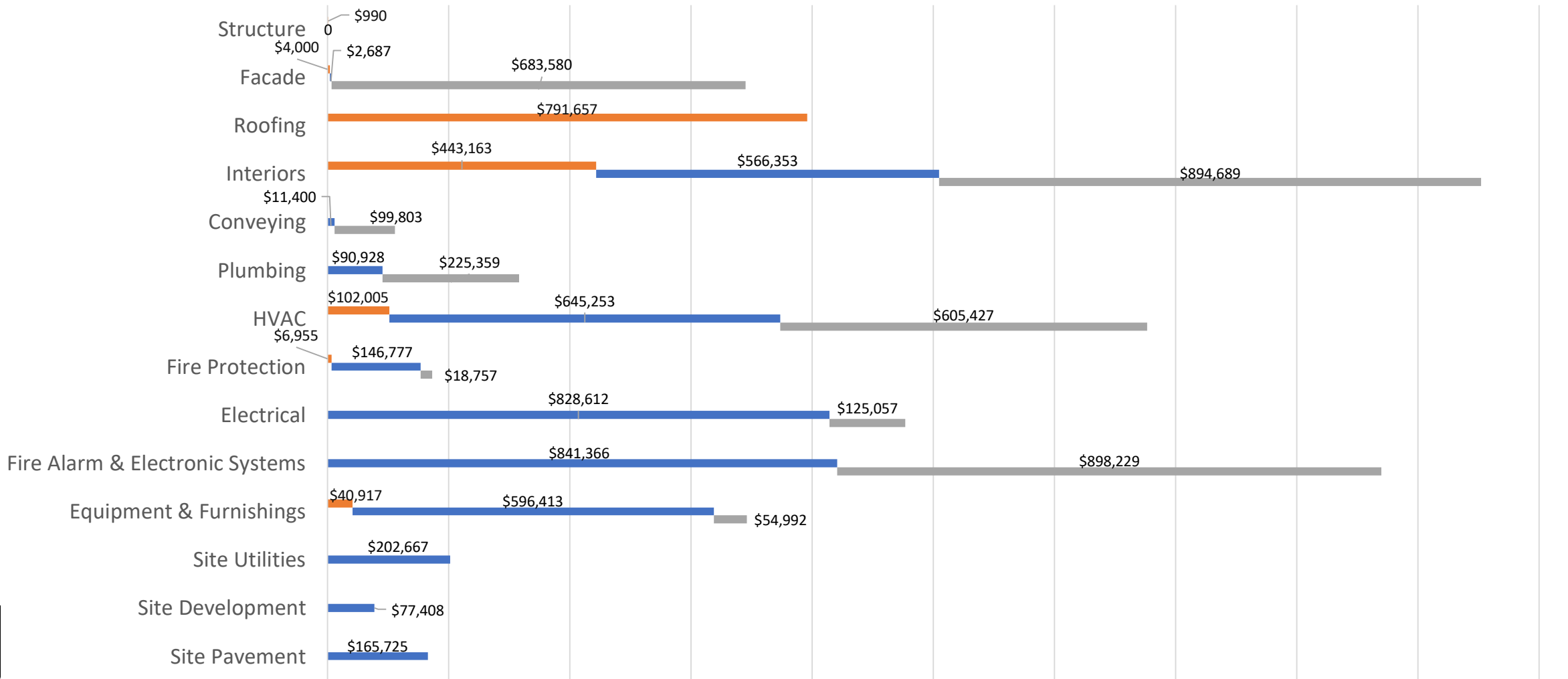
FORECAST BY TRADE

Frances Richmond Middle School

Frances Richmond Middle School

0-5 Year 6-10 Year 11-20 Year

\$0.0M \$0.2M \$0.4M \$0.6M \$0.8M \$1.0M \$1.2M \$1.4M \$1.6M \$1.8M \$2.0M



KEY FINDINGS - *Priorities*

Frances Richmond Middle School



Exterior Walls in Poor condition.

Concrete Block (CMU)
Frances C. Richmond Middle School Building
Exterior

Uniformat Code: B2010
Recommendation: **Repair/Repoint in 2022**

Priority Score: **88.9**

Plan Type:
Performance/Integrity

Cost Estimate: \$4,000

\$\$\$\$

Exterior wall is recommended for repointing - AssetCALC ID: 4714639



Basement Wall in Poor condition.

any type, Waterproofing of Exterior Face
Frances C. Richmond Middle School Building
exterior

Uniformat Code: A2010
Recommendation: **Replace in 2022**

Priority Score: **86.9**

Plan Type:
Performance/Integrity

Cost Estimate: \$1,000

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Moisture on exterior walls of classrooms 810 and 800. - AssetCALC ID: 4714541



Unit Ventilator in Poor condition.

approx/nominal 3 Ton
Frances C. Richmond Middle School
Gymnasium

Uniformat Code: D3030
Recommendation: **Replace in 2024**

Priority Score: **81.8**

Plan Type:
Performance/Integrity

Cost Estimate: \$54,000

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Hard to maintain. Units have a history of failing. - AssetCALC ID: 4714517

Exhaust Fan

Industrial Dust Collection, 3 HP Motor, 2000
CFM
Frances C. Richmond Middle School Wood
Working Classroom

Uniformat Code: D3060
Recommendation: **Replace in 2024**

Priority Score: **58.8**

Plan Type:
Retrofit/Adaptation

Cost Estimate: \$5,000

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Complaints about not enough ventilation in wood working classroom. This is a cost allowance to either upgrade current system or install an additional system. - AssetCALC ID: 4833777





MARION CROSS SCHOOL

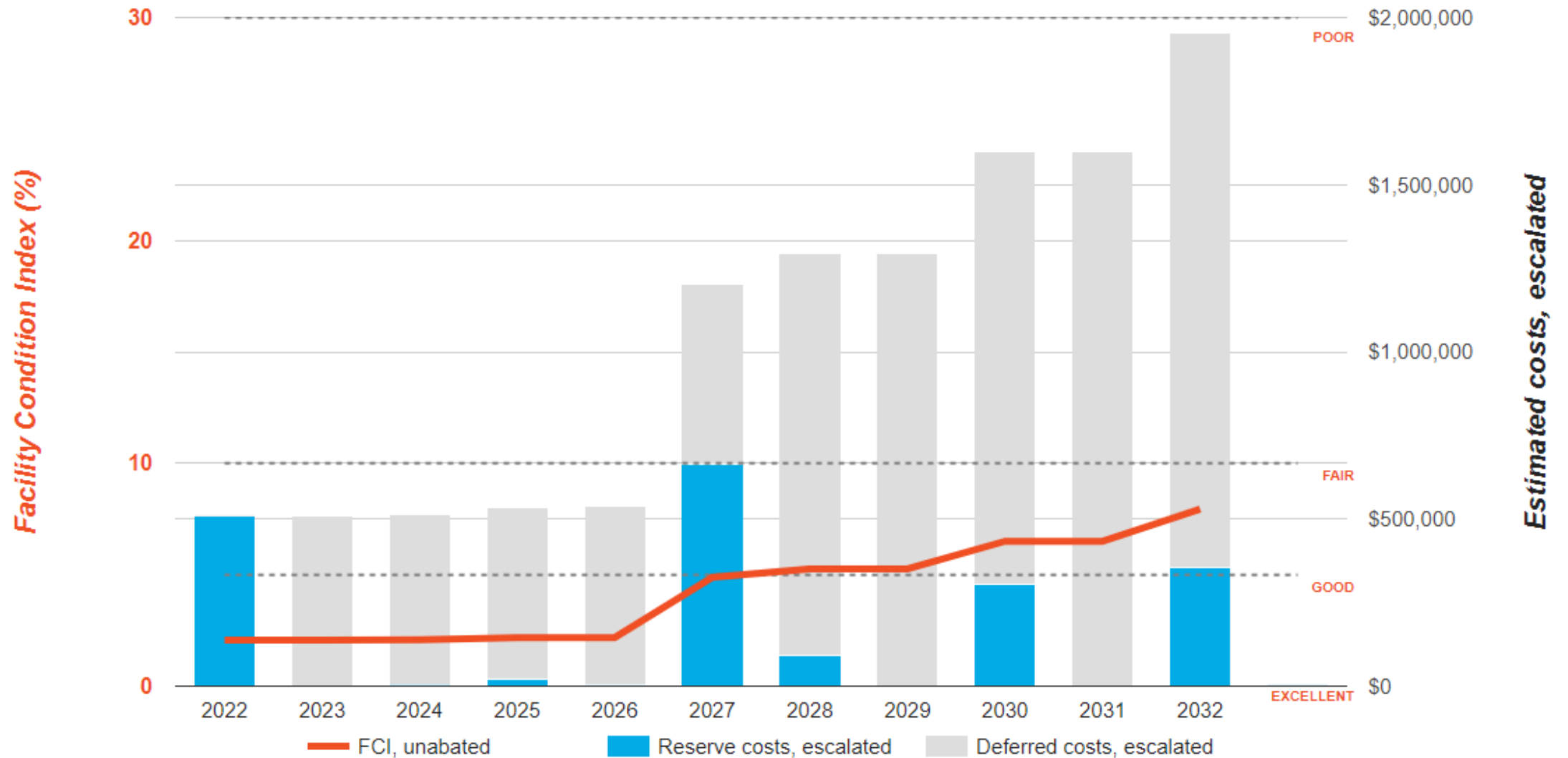
FCI Analysis: Marion Cross School

Marion Cross School

Replacement Value: \$24,617,500

Inflation Rate: 3.0%

Average Needs per Year: \$177,800

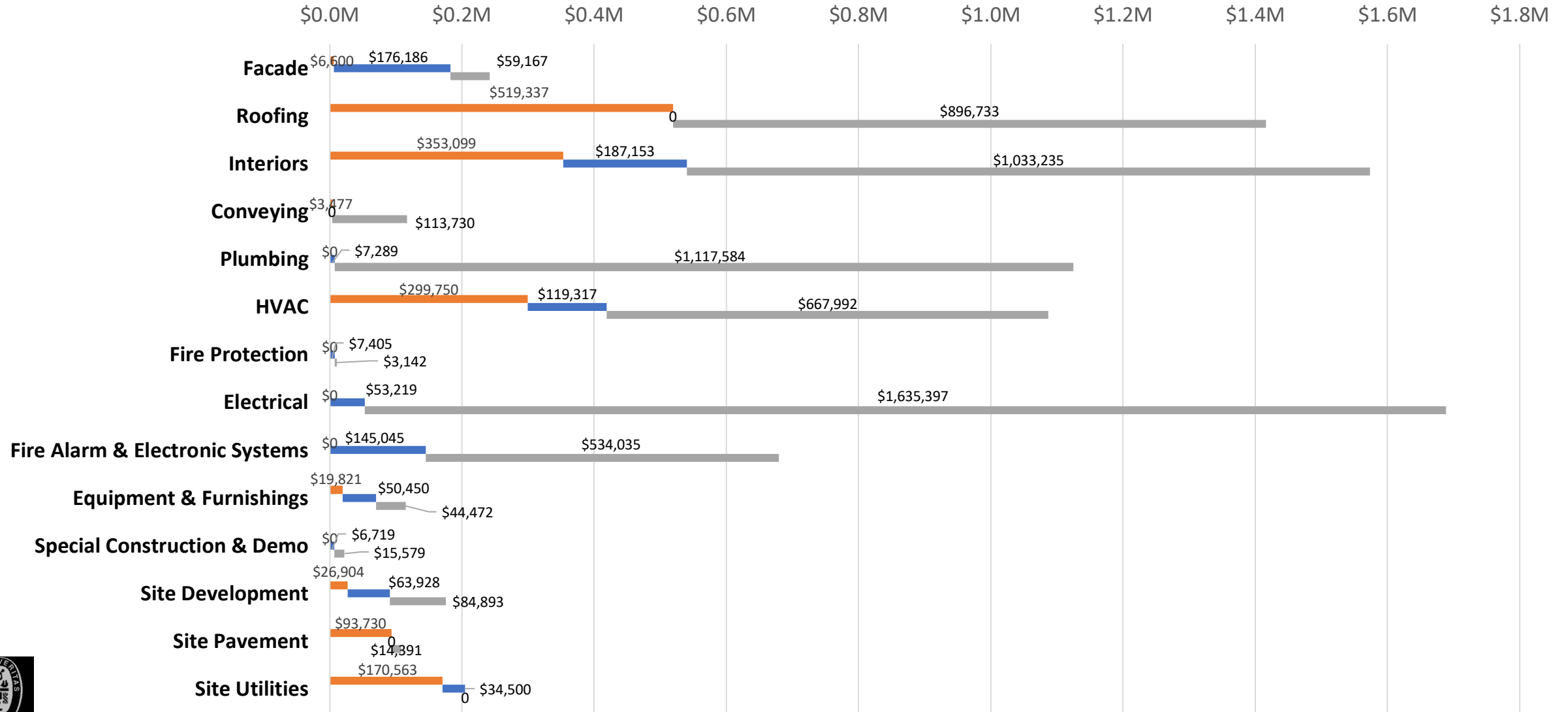


FORECAST BY TRADE

Marion Cross School

Marion Cross School

0-5 Year 6-10 Year 11-20 Year



KEY FINDINGS - *Priorities*

Marion Cross School



Parking Lots in Poor condition.

Pavement, Asphalt
Buildings and Site Marion Cross School North
Entrance Parking

Uniformat Code: G2020
Recommendation: **Mill & Overlay in 2023**

Priority Score: **84.9**

Plan Type:
Performance/Integrity

Cost Estimate: \$21,000

\$\$\$\$

Isolated areas of asphalt cracking and pothole - AssetCALC ID: 4512349



Suspended Ceilings in Poor condition.

Acoustical Tile (ACT)
Buildings and Site Marion Cross School
Throughout building

Uniformat Code: C1070
Recommendation: **Replace in 2024**

Priority Score: **81.8**

Plan Type:
Performance/Integrity

Cost Estimate: \$3,500

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Isolated ceiling tiles damaged by leaks. Replacement is recommended to prevent mold issues. - AssetCALC ID: 4512349



Roofing in Poor condition.

Single-Ply Membrane, EPDM
Buildings and Site Marion Cross School Roof

Uniformat Code: B3010
Recommendation: **Replace in 2022**

Priority Score: **88.9**

Plan Type:
Performance/Integrity

Cost Estimate: \$71,500

\$\$\$\$

Roof is aged and worn out. Leaks have occurred and are patched up as needed. Prior moisture analysis report showed isolated areas of moisture issues. - AssetCALC ID: 4512411



Storm Drainage System in Poor condition.

Inlets & Underground Piping, All-Inclusive
Buildings and Site Marion Cross School Rear
Playground Area

Uniformat Code: G3030
Recommendation: **Replace in 2022**

Priority Score: **86.9**

Plan Type:
Performance/Integrity

Cost Estimate: \$105,000

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HANOVER HIGH SCHOOL

FCI Analysis: Hanover High School

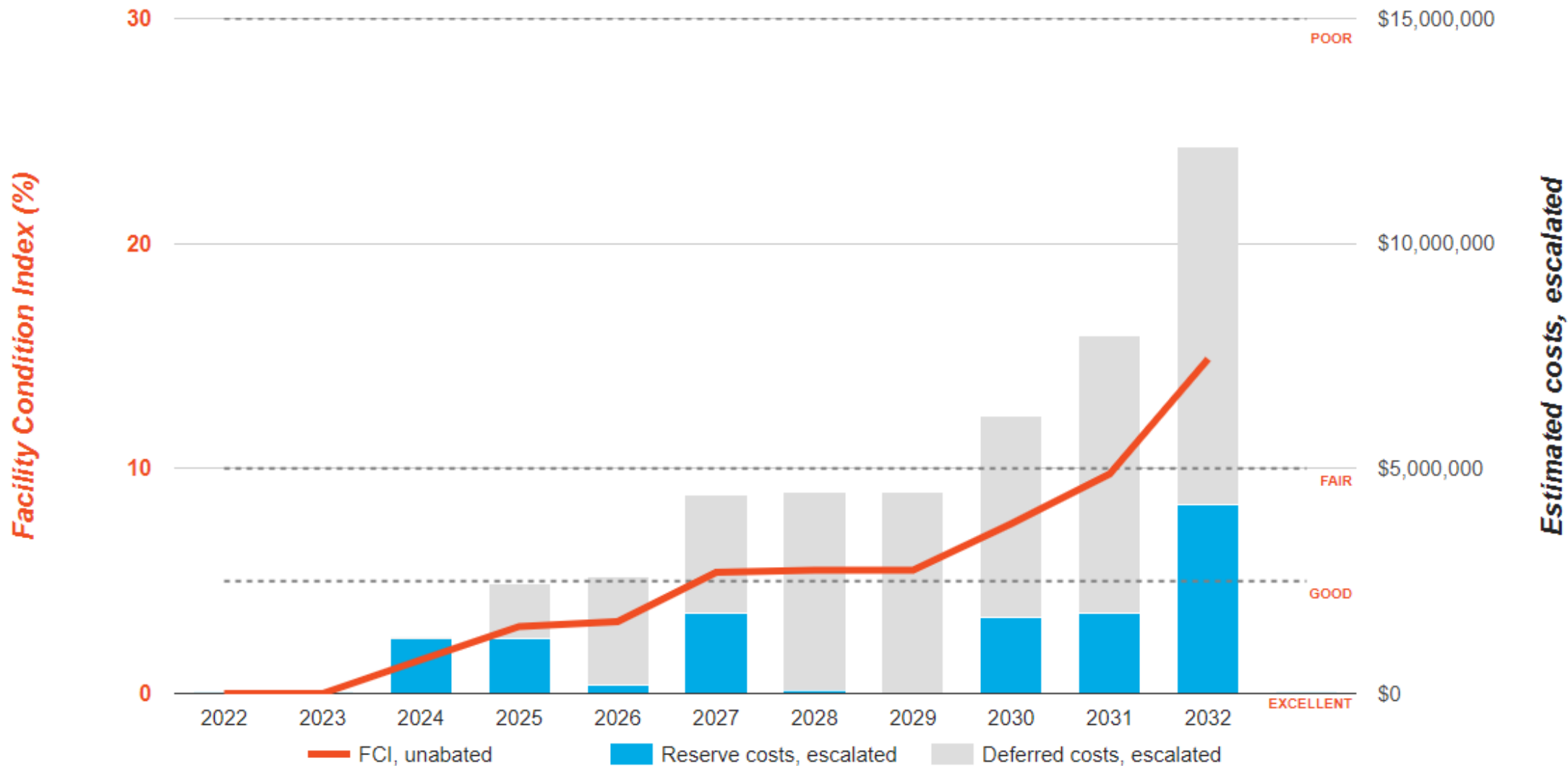
Hanover High School



Replacement Value: \$81,700,000

Inflation Rate: 3.0%

Average Needs per Year: \$1,104,400

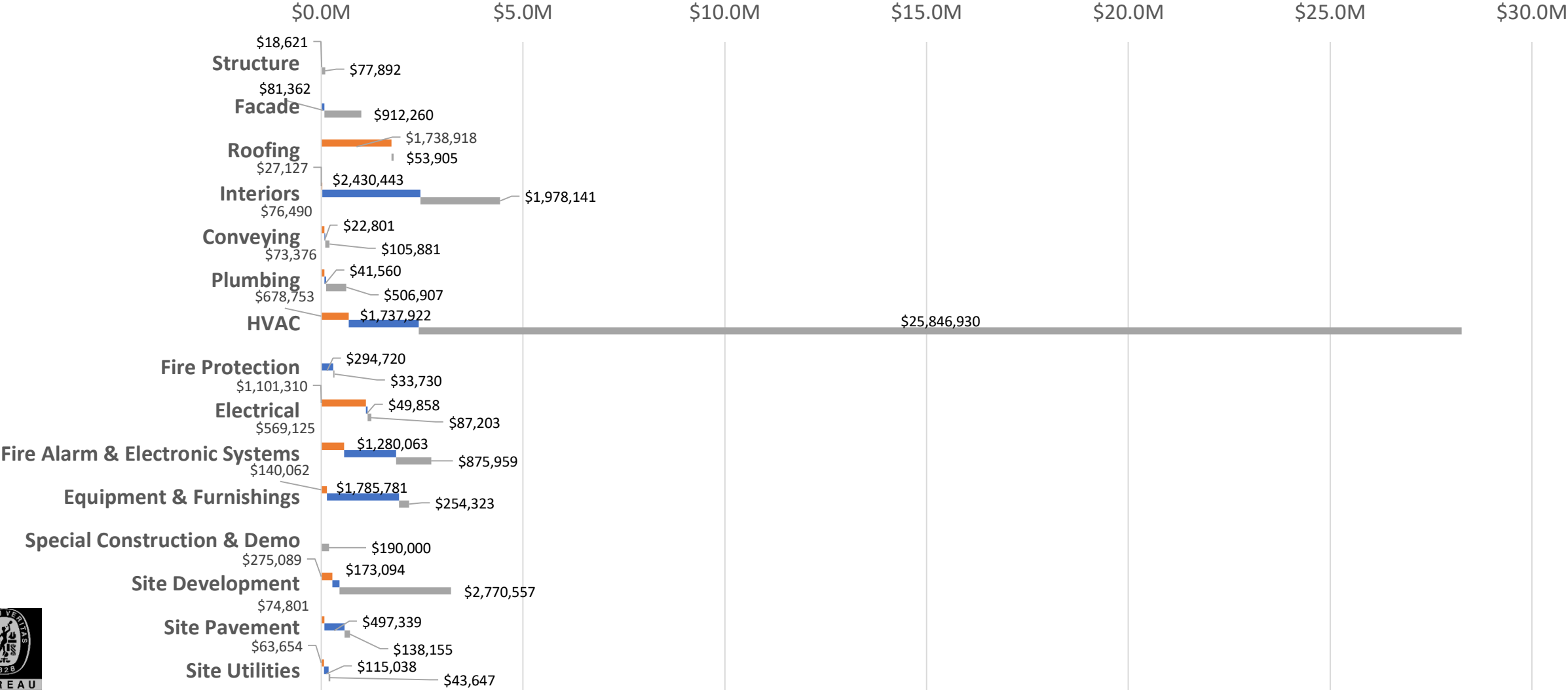


FORECAST BY TRADE

Hanover High School

Hanover High School

0-5 Year 6-10 Year 11-20 Year



KEY FINDINGS - *Priorities*



Roofing in Poor condition.

Single-Ply Membrane, TPO/PVC
Hanover High School Roof

Uniformat Code: B3010
Recommendation: **Replace in 2024**

Priority Score: **88.8**

Plan Type:
Performance/Integrity

Cost Estimate: \$567,800

\$\$\$\$

The white TPO areas of the roof were reportedly last replaced in 1991 and there are reported leaks that periodically arise. Overall, the membrane is still functional but given its age and the prevalence of leaks, roof replacement is forecast in the near-term timeframe. - AssetCALC ID: 4728420



Storage Tank in Poor condition.

Site Fuel, Underground
Hanover High School Site

Uniformat Code: G3060
Recommendation: **Replace/Install in 2024**

Priority Score: **85.8**

Plan Type:
Performance/Integrity

Cost Estimate: \$60,000

\$\$\$\$

The underground fuel oil tank has exceeded its estimated useful life. The tank will require replacement in the near future to ensure the safety and performance of the system. - AssetCALC ID: 4728267

Hanover HS



Athletic Surfaces & Courts in Poor condition.

Track Surface, Rubber
Hanover High School Site

Uniformat Code: G2050
Recommendation: **Replace in 2023**

Priority Score: **82.9**

Plan Type:
Performance/Integrity

Cost Estimate: \$207,500

\$\$\$\$

The track surface is slated to be replaced. - AssetCALC ID: 4728301



Fences & Gates in Poor condition.

Fence, Chain Link 6'
Hanover High School Site

Uniformat Code: G2060
Recommendation: **Replace in 2023**

Priority Score: **81.9**

Plan Type:
Performance/Integrity

Cost Estimate: \$15,800

\$\$\$\$

There are sections of the chain link fence that are excessively aged and recommended for replacement. - AssetCALC ID: 4728228

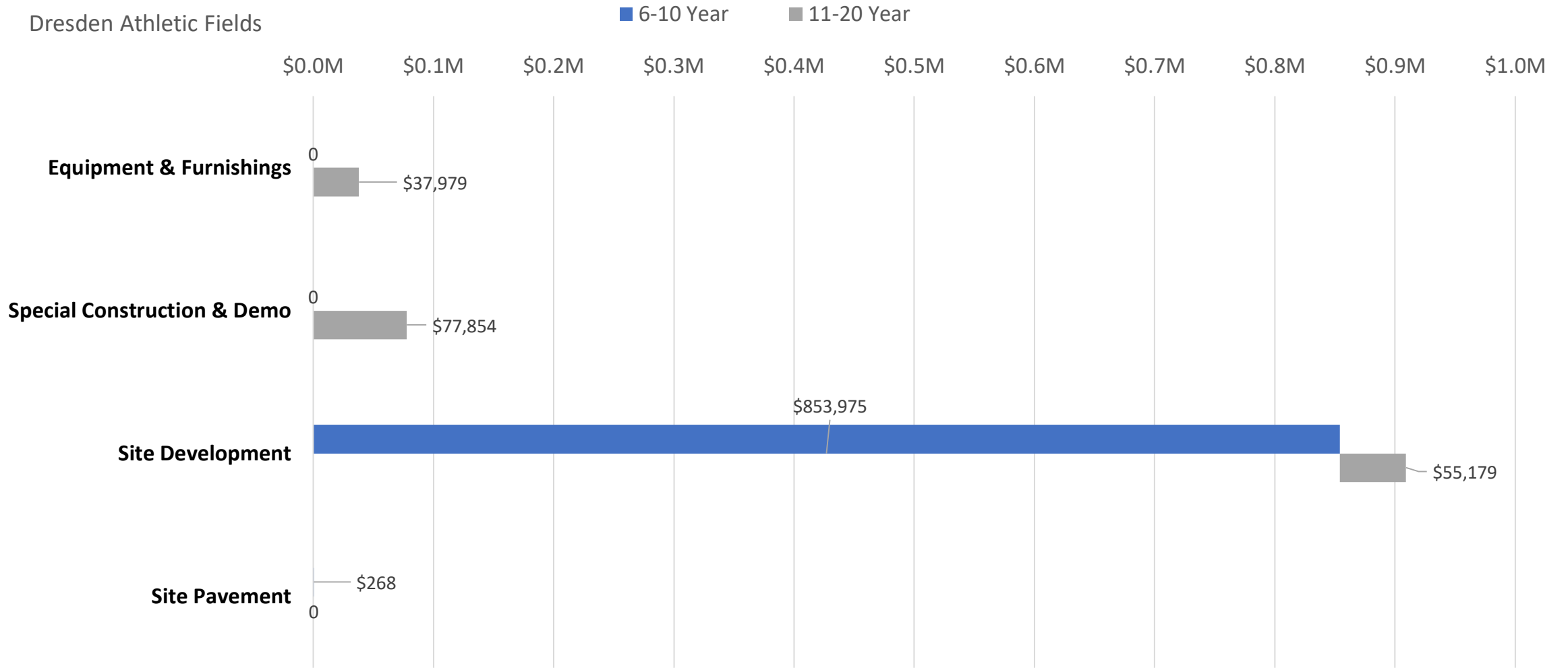




DRESDEN ATHLETIC FIELDS

FORECAST BY TRADE

Dresden Athletic Fields



KEY FINDINGS - *Priorities*

Dresden Athletic Fields



Roadways in Poor condition.

Pavement, Asphalt
Dresden Athletic Fields Roadway

Uniformat Code: G2010
Recommendation: **Repair in 2022**

Priority Score: **84.9**

Plan Type:
Performance/Integrity

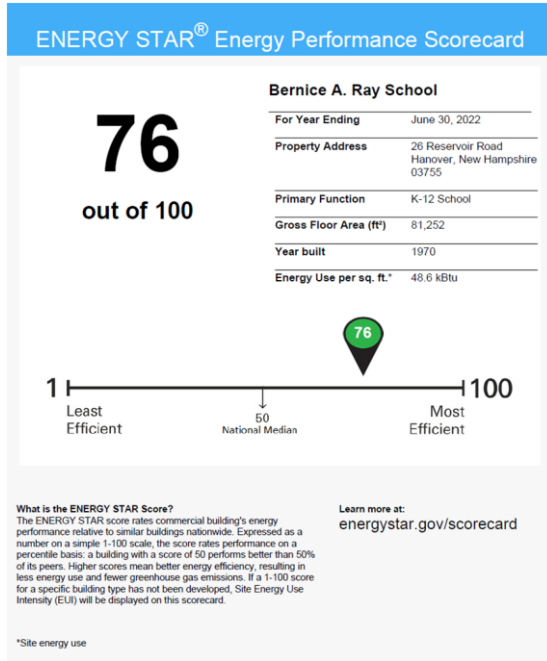
Cost Estimate: \$1,000

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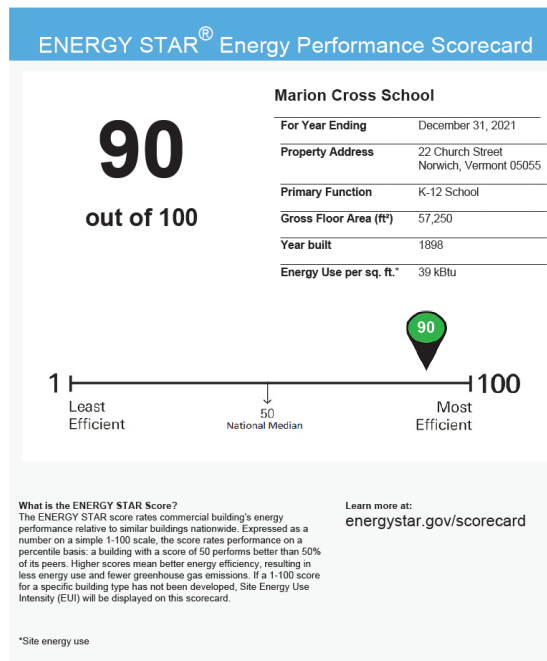


NET ZERO ENERGY AUDIT

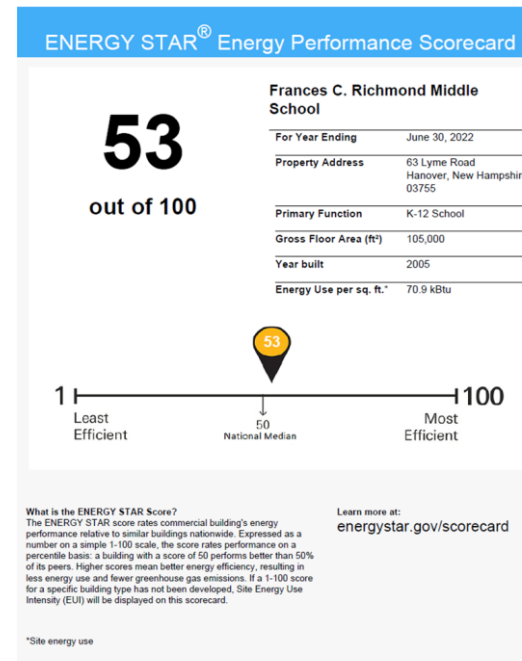
- Step 1: Reduce Energy Consumption
 - Reviewed current energy performance
 - Recommended energy upgrades



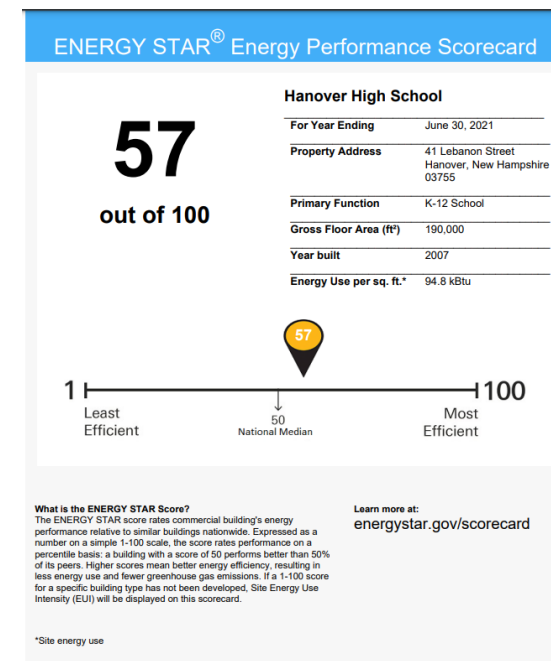
Date Generated: January 05, 2023



Date Generated: December 05, 2022



Date Generated: January 09, 2023



Date Generated: March 10, 2023



NET ZERO ENERGY AUDIT

- Step 2: Net-Zero Improvements
 - Evaluated replacement of **fossil fuel**-burning equipment
 - Reviewed adding **renewable** energy – Solar photovoltaic
 - Suggested **timeline** for implementation



Net-Zero Project Schedule																							
					0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	Total		
	Action	Attributes	Cost/Unit	Quantity	Initial Investment	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037		
1	Implement All Non-Renewable Measures	Package	\$76,868		\$76,868		\$76,868															\$76,868	
2	Install Solar PV System	571 kW	\$3,189,287	1	\$3,189,287				\$637,857	\$637,857	\$637,857	\$637,857	\$637,857	\$637,857	\$637,857								\$3,189,287
3	Install New Electrical Service/Switchboard	460V, 600A	\$51,210	1	\$51,210															\$51,210			\$51,210
4	Replace propane kitchen range with electric model	6-burner	\$10,500	1	\$10,500									\$10,500									\$10,500
5	Install Heat Pump Boilers	1,386 MBH	\$462,000	1	\$462,000																	\$462,000	\$462,000
6	Decommission Oil Boilers	4,835 MBH	\$12,500	3	\$12,500																	\$12,500	\$12,500
7	Remove Fuel Storage Tank 1	10,000 GAL	\$15,000	1	\$15,000																	\$15,000	\$15,000
8	Remove Fuel Storage Tank 2	1,000 GAL	\$1,000	1	\$1,000																	\$1,000	\$1,000
	Totals				\$3,818,365	\$0	\$76,868	\$0	\$637,857	\$0	\$637,857	\$0	\$637,857	\$10,500	\$637,857	\$0	\$637,857	\$0	\$0	\$51,210	\$490,500		\$3,818,365
	Escalated at 3% Inflation					\$0	\$78,483	\$0	\$664,944	\$0	\$673,082	\$0	\$678,916	\$11,215	\$683,477	\$0	\$687,225	\$0	\$0	\$55,544	\$533,043		\$4,065,931





THANK YOU

6021 University Blvd., Suite 200
Ellicott City, Maryland 21043