Barton Malow BUILDERS

MIDLAND PUBLIC SCHOOLS

NORTHEAST MIDDLE SCHOOL REPORT ON FACILITY FINDINGS

June 4, 2023

MIDLAND PUBLIC SCHOOLS (MPS) - NORTHEAST MIDDLE SCHOOL
Report on Facility Findings

Midland Public Schools faces an important decision regarding the future of Northeast Middle School. At 75 years old, the facility requires significant infrastructure upgrades and programming enhancements to meet modern educational standards and remain functional for future generations. A bond proposal is necessary to fund these large-scale investments, potentially extending the school lifespan by up to 30 years. This would mean a long-term commitment to the facility, keeping it in use until at least 2051—its centennial year—when it will be 101 years old.

By that time, critical issues such as structural integrity, foundational stability, outdated technology, and aging mechanical, electrical, and safety systems will require extensive restoration or full replacement. These factors make the eventual replacement of the facility inevitable under every scenario outlined below.

The 2003 sinking fund provided foundational support for facility improvements at Northeast, though its scope was limited. Later, investments from the 2015 bond program helped MPS maintain functionality while avoiding over-investment, ensuring the district remained prepared for this decision point. Looking ahead, sustaining high-quality facilities will require further investment, as detailed below.

SCENARIOS FOR THE FUTURE

This section outlines the potential paths Midland Public Schools (MPS) can take to address the aging Northeast Middle School facility.

Each scenario represents a different balance of initial investment and long-term financial commitment. While lower initial investments may seem appealing, they come with the trade-off of continued reinvestment and the inevitability of a full replacement down the line. Conversely, higher upfront costs may provide a more sustainable solution by addressing long-term needs more comprehensively.

These scenarios highlight critical questions for MPS: When is the right time to make significant investments, and how do these decisions align with the district's goals for educational quality, fiscal responsibility, and facility longevity? By analyzing the lifecycle costs over 30 years, MPS can weigh the benefits and limitations of each scenario and determine the best path forward for students, staff, and the community.

To support this analysis, charts, graphs and additional information are provided below and attached to this write-up, offering a detailed breakdown of costs, reinvestments, and projected financial impacts for each scenario.

INVESTMENT SCENARIOS FOR MIDLAND PUBLIC SCHOOLS - NORTHEAST ELEMENTARY

1. **Maintain Status Quo**

- Prior Investments: $5.2M
- Initial Investment: $6.1M
- Life Cycle Reinvestments: $178.7M
- **Total 30-Year Investment: $190M**

Focus on critical repairs to keep the facility operational and code compliant, with periodic reinvestments to prevent further decline. While this scenario avoids significant upgrades, it ensures the building remains functional and viable for continued use.

2. **Build a New Replacement Facility**

- Prior Investments: $5.2M
- Initial Investment: $84.4M
- Life Cycle Reinvestments: $12.2M
- **Total 30-Year Investment: $101.8M**

Construct a state-of-the-art facility designed to support long-term educational needs. This comprehensive solution addresses existing deficiencies, enhances operational efficiency, and positions MPS for future success with added cost savings.

3. **Update Infrastructure**

- Prior Investments: $5.2M
- Initial Investment: $26.4M
- Life Cycle Reinvestments: $180.6M
- **Total 30-Year Investment: $212.2M**

Replace critical systems, equipment, and finishes that have reached the end of their useful life. This scenario ensures functionality but does not modernize the learning environment or align it with current educational standards.

4. **Update Infrastructure and Programming**

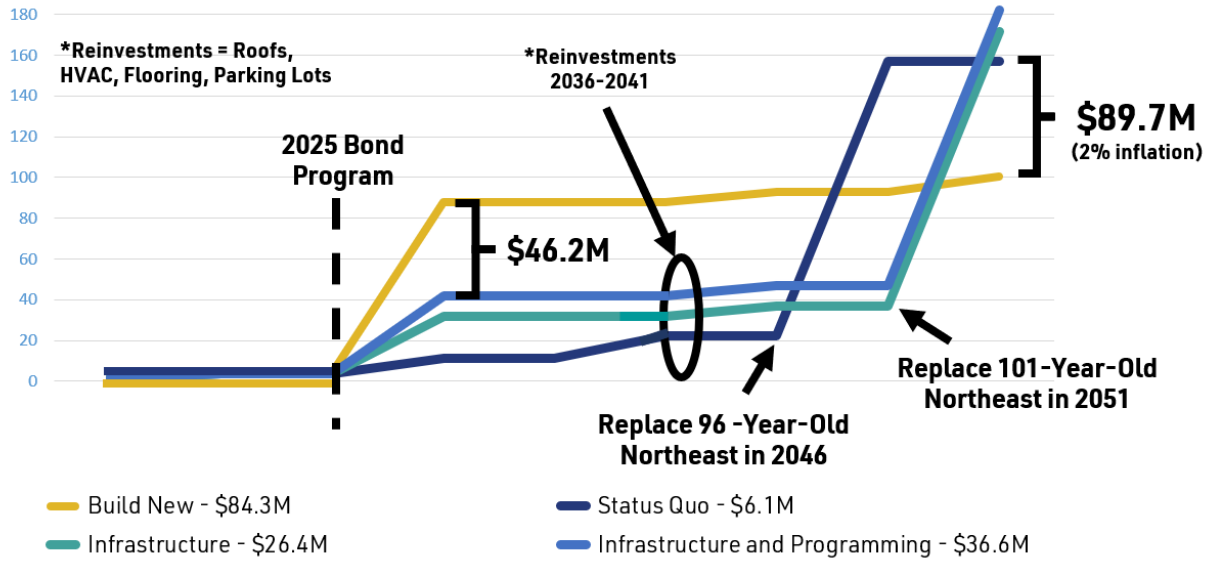
- Prior Investments: $5.2M
- Initial Investment: $36.6M
- Life Cycle Reinvestments: $180.6M
- **Total 30-Year Investment: $222.4M**

Integrate essential infrastructure upgrades with programming enhancements to align the facility with modern educational standards while upholding MPS's tradition of excellence.

ADDITIONAL CONSIDERATIONS

- The lifecycle replacement overview (below) outlines the reinvestments required under all scenarios, including necessary periodic investments to maintain functionality and extend the facility's lifespan. These investments are reflected in the lifecycle cost graph for middle schools.
- Total 30-year costs include reinvestments and inflation (assumed at conservative 2% annually) to provide a comprehensive view of each scenario's financial impact.
- Committing to substantial capital investment in an aging facility effectively extends its use for another 20–25 years, reinforcing the importance of aligning the district's strategic vision with this decision.
- When the facility reaches 100 years of age, critical structural concerns outlined in the lifecycle replacement overview—such as foundational integrity and the modernization of essential systems—highlight why replacement becomes necessary under all scenarios.

FACILITY SCENARIOS COMPARISON



Investment Scenario	Prior Investments ($M)	Initial Investment ($M)	Life Cycle Reinvestments ($M)	Total 30-Year Investment ($M)	Key Notes
Maintain Status Quo	5.2	6.1	178.7	190.0	Focus on critical repairs to maintain functionality but avoids major upgrades.
Build a New Replacement Facility	5.2	84.4	12.2	101.8	Modern, state-of-the-art facility addressing current deficiencies and future needs.
Update Infrastructure	5.2	26.4	180.6	212.2	Replaces critical systems but does not modernize the learning environment.
Update Infrastructure & Programming	5.2	36.6	180.6	222.4	Combines infrastructure upgrades with programming improvements for a more modern environment.

LIFECYCLE REPLACEMENT OVERVIEW

5 Years

Within the first five years, high-use items and systems begin to show wear. Essential updates are required to maintain functionality, aesthetics, and compatibility with technological advancements. Proactive maintenance at this stage prevents disruptions and supports daily operations. **Specific replacements:**

- Classroom technology (e.g., projectors, interactive whiteboards)

10 Years

At the ten-year mark, systems such as HVAC and fire alarms often require replacement to maintain efficiency, safety, and compliance with updated codes. High-traffic areas also show wear, requiring updates to flooring and other surfaces to ensure safety and usability.
Specific replacements:

- HVAC units (e.g., rooftop units, unit ventilators)
- Flooring (rubber, carpet, vinyl tile)
- Door hardware (closers)

25 Years

By 25 years, many systems reach the end of their designed lifecycle. Replacements of roofing, plumbing, HVAC systems, and windows are necessary to ensure functionality, safety, and alignment with modern standards. This period may also include the modernization of interior spaces to support evolving educational practices.
Specific replacements:

- Roofing systems
- Plumbing infrastructure (e.g., pipes, fixtures)
- HVAC systems (e.g., boilers, chillers)
- Windows and exterior doors
- Interior renovations (e.g., classroom layouts, finishes)

100 Years

At 100 years, extensive restoration or replacement becomes necessary to ensure structural integrity and compliance with modern safety and accessibility standards. Updates to core systems and spaces ensure continued functionality and usability for future generations. The critical concerns outlined here, such as structural integrity and foundational issues, form the basis for the recommendation to replace the facility at this milestone under all scenarios.
Specific replacements:

- Structural components (e.g., foundations, masonry)
- Electrical and plumbing systems (full overhauls)
- Comprehensive HVAC and energy systems (e.g., ductwork, piping)
- Accessibility and safety upgrades (e.g., elevators, ramps, sprinklers)

EVALUATING THE FUTURE: RENOVATION VS. NEW CONSTRUCTION:

The decision for Midland Public Schools (MPS) regarding Northeast Middle School centers on a commitment to the building and the district's long-term programming needs. Renovating the existing facility offers a way to improve its functionality, but it would also require ongoing reinvestments as

systems age. This raises the question of whether it is worth continuing to invest in an aging facility, which will inevitably face increased maintenance and efficiency challenges over time. On the other hand, building a new facility involves a larger initial investment but creates a modern, state-of-the-art school that will serve the community for another 100 years, addressing both current deficiencies and future needs.

ENERGY COSTS CONSIDERATION AND BUILDING OPTIONS FOR NORTHEAST MIDDLE SCHOOL: RENOVATION VS. NEW BUILD

Current Building Condition and Energy Efficiency

Northeast Middle School, a 76-year-old facility, currently holds an Energy Star Score of 63, which is below average but still indicates some energy efficiency. The school is considering two potential options for improving energy efficiency and addressing long-term operational needs:

1. Renovating the existing building to improve its Energy Star score to 70 over the next 15 years at a cost of $41.7 million.
2. Building a new facility that could achieve an Energy Star score of 85, which is considered above average for a new school building.

ENERGY EFFICIENCY AND COST SAVINGS ESTIMATES

Renovation Option (Energy Star 70):

- Energy Star Score After Renovation: 70
- Estimated Annual Energy Cost:
    - $97,500–$104,000 (estimated cost after improvements, reflecting 25% reduction in energy costs).
- Estimated Annual Savings:
    - Savings = $130,000 × 25% = $32,500 annually
    - Over 10 years, this would result in savings of $325,000.

New Build Option (Energy Star 85):

- Energy Star Score: 85
- Estimated Annual Energy Cost:
    - $72,500–$78,000 (estimated cost after improvements, reflecting 40–45% reduction in energy costs).
- Estimated Annual Savings:
    - Savings = $130,000 × 40–45% = $52,000–$58,500 annually
    - Over 10 years, this would result in savings of $520,000–$585,000.

Cost Comparison: Renovation vs. New Build

Scenario	Energy Star Score	Annual Energy Cost	Estimated Savings	Key Considerations	Cost
Renovate Existing Building	70	$97,500–$104,000	$32,500 annually (25%)	Requires significant investment in retrofitting (HVAC, lighting, insulation)	$41.7M over 15 years
New Build	85	$72,500–$78,000	$52,000–$58,500 annually (40–45%)	Higher upfront cost but greater long-term savings and efficiency	$84.3M

KEY INSIGHTS

1. **Energy Cost Savings:**
    - Renovating the existing building (Energy Star 70) results in 25% savings, translating to annual savings of $32,500.
    - A new build (Energy Star 85) results in 40–45% savings, translating to annual savings of $52,000–$58,500.
2. **Long-Term Savings (Over 10 Years):**
    - **Renovation**:
        - Savings = $32,500 annually × 10 years = $325,000.
    - **New Build**:
        - Savings = $52,000 × 10 years = $520,000 (lower estimate).
        - Savings = $58,500 × 10 years = $585,000 (higher estimate).
3. **Costs:**
    - **Renovation**: At a total cost of $41.7 million over 15 years, renovating the existing building to improve energy efficiency is a more affordable option. However, it is constrained by the existing design and structure of the building.
    - **New Build**: Requires an upfront investment of $84.3 million but offers significantly greater energy efficiency and lower operational costs over time.
4. **Other Considerations:**
    - **Renovation**: The energy efficiency improvements are limited by the building's age and existing design. While the upfront costs are much lower, diminishing returns may occur as the building continues to age.

- **New Build**: Although the upfront investment is higher, the new facility will meet modern energy standards, offering better insulation, HVAC systems, and overall efficiency, leading to lower maintenance costs and a longer lifespan.

TOTAL PROJECT COST BREAKDOWN (15-YEAR PERIOD)

1. Renovation Option (Energy Star 70):

- Total Investment: $41.7M over 15 years.
- Estimated Annual Energy Savings:
  - $32,500 annually (25% savings from the current energy cost of $130,000).

2. New Build Option (Energy Star 85):

- Total Investment: $84.3M upfront.
- Estimated Annual Energy Savings:
  - $52,000–$58,500 annually (40–45% savings from the current energy cost of $130,000).

ENERGY COST SAVINGS OVER 15 YEARS

Renovation Option (Energy Star 70):

- Annual Energy Savings: $32,500.
- Total Energy Savings Over 15 Years:
  Savings = $32,500 × 15 years = $487,500.

New Build Option (Energy Star 85):

- Annual Energy Savings: $52,000–$58,500.
- Total Energy Savings Over 15 Years:
  Savings = $52,000 × 15 years = $780,000 (lower estimate).
  Savings = $58,500 × 15 years = $875,000 (higher estimate).

NET INVESTMENT AFTER ENERGY SAVINGS

Renovation Option (Energy Star 70):

- Total Investment: $41.7M.
- Total Energy Savings Over 15 Years: $487,500.
- Net Investment = $41.7M - $487,500 = $41.21M.

New Build Option (Energy Star 85):

- Total Investment: $84.3M.
- Total Energy Savings Over 15 Years: $780,000–$875,000.
- Net Investment = $84.3M - $780,000 = $83.52M (lower estimate).
- Net Investment = $84.3M - $875,000 = $83.43M (higher estimate).

CONCLUSION

- **Renovation Option**: Offers a lower initial investment of $41.7M and moderate energy savings (25%), resulting in $487,500 in total savings over 15 years. The lower upfront cost makes this a more affordable option in the short term, but it is constrained by the existing design and structure of the building.
- **New Build Option**: Requires a higher initial investment of $84.3M but provides significantly better energy efficiency (40–45%) resulting in $780,000–$875,000 in total savings over 15 years. The long-term operational savings and sustainability of a new building make it a stronger long-term investment, despite the higher upfront cost.

If short-term financial considerations are a priority, renovation may be the better choice. However, for a long-term, sustainable investment with substantial operational benefits, building new would provide a more future-proof solution, despite the higher initial cost.

SUMMARY:

- **Renovation**: $41.7M investment, Energy Star Score 70, annual savings of $32,500 (25% reduction), $487,500 in total savings over 15 years.
- **New Build**: $84.3M investment, Energy Star Score 85, annual savings of $52,000–$58,500 (40–45% reduction), $780,000–$875,000 in total savings over 15 years.

MIDLAND PUBLIC SCHOOLS

Northeast Middle School

Cost Comparison *4-Jun-23*

	Year Built:	**1950**							
	Square Footage:	**145,847**							
	Age:	**53**	**68**		**76**	**81**	**86**	**91**	**96**	**101**
Scenario		**2003**	**2018**	**2025**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
1 Status Quo		$1,500,000	$3,706,601		$6,089,824	$0	$10,938,525	$0	$167,724,050	$0
	running total:	$1,500,000	$5,206,601		$11,296,425	$11,296,425	$22,234,950	$22,234,950	$189,959,000	$189,959,000
	Year Built:	**1950**							
	Square Footage:	**135,000**							
	Age:	**53**	**68**		**76**	**81**	**86**	**91**	**96**	**101**
Scenario		**2003**	**2018**	**2025**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
2 Build New		$1,500,000	$3,706,601		$84,372,039	$0	$0	$4,725,000	$0	$7,425,000
	running total:	$1,500,000	$5,206,601		$89,578,640	$89,578,640	$89,578,640	$94,303,640	$94,303,640	$101,728,640
	Year Built:	**1950**							
	Square Footage:	**145,847**							
	Age:	**53**	**68**		**76**	**81**	**86**	**91**	**96**	**101**
Scenario		**2003**	**2018**	**2025**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
3 Update Infrastructure		$1,500,000	$3,706,601		$26,384,511	$0	$0	$5,104,645	$0	$175,500,000
	running total:	$1,500,000	$5,206,601		$31,591,112	$31,591,112	$31,591,112	$36,695,757	$36,695,757	$212,195,757
	Year Built:	**1950**							
	Square Footage:	**145,847**							
	Age:	**53**	**68**		**76**	**81**	**86**	**91**	**96**	**101**
Scenario		**2003**	**2018**	**2025**	**2026**	**2031**	**2036**	**2041**	**2046**	**2051**
4 Update Infrastructure and Programming		$1,500,000	$3,706,601		$36,634,511	$0	$0	$5,104,645	$0	$175,500,000
	running total:	$1,500,000	$5,206,601		$41,841,112	$41,841,112	$41,841,112	$46,945,757	$46,945,757	$222,445,757