

# Noyes Energy Modernization

*Finance and Budget Committee*



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**City Engineer**

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# Background Information

- Designed by Daniel Burnham
- Constructed in 1892 as the Noyes Street School
- Acquired by the City in 1980 for \$1.1M
- Generally used as an art incubator, providing studios to artists, sculptors, actors and musicians
- Auditorium is used by the Fleetwood Theatre Program

# Legacy Facilities Challenges

Building	Systems in Failure <sup>1</sup>	Future Costs <sup>4</sup>
Police Fire HQ	Building Insufficiency <sup>2</sup> , Security, Electrical, Envelope	\$75M - \$95M
Civic Center	Building Insufficiency <sup>2</sup> , Security, Electrical, Envelope	\$50M - \$70M
<b>Noyes</b>	<b>HVAC, Electrical, Envelope</b>	<b>\$22M</b>
Service Center <sup>3</sup>	Fuel System, Structural, HVAC, Electrical	\$28M
Animal Shelter <sup>3</sup>	Building Insufficiency <sup>2</sup> , HVAC	Regular Investment
Ecology Center <sup>3</sup>	Structural Subfloor, Security, Crawlspace Moisture	Regular Investment
<b>Total</b>		<b>\$175M - \$215M</b>

Notes:

1. All buildings on the list also require significant work to meet ADA requirements, CARP goals and modern building codes.
2. Building Insufficiency indicates the building is not adequate to support current operations.
3. These facilities are “below the line” in that the City Council has provided guidance on a plan to renovate or replace these facilities that is currently being implemented.
4. Costs are in 2024 dollars.

# Building Evaluation

The following were evaluated and are included in this study:

- HVAC system
- Electrical system
- Building envelope, as it relates to energy improvements (windows, insulation)
- Lighting modernization
- Onsite energy generation capacity
- Building code compliance
- ADA compliance
- Climate Action Resilience Plan

Examples of items that are NOT included:

- Building layout changes
- Changes needed for operational change
- Significant improvements in finishes
- Security

# HVAC Evaluation

## HVAC Options Considered:

- Updating existing gas steam boilers to all electric + adding air conditioning
- Heat pumps (both air source and water source)
- Variable refrigerant flow (VRF) systems (both air source and water source)
- Dedicated outdoor air supply units for ventilation
- Geothermal system

# Recommended Improvement - HVAC

Name	Net Present Value Cost (HVAC Only)	Energy Usage Intensity <sup>1</sup>
Air Source Heat Pump + DOAS	\$6,569,000	33
Air Source VRF + DOAS	\$7,324,000	30
Water Source Heat Pump + Geothermal + DOAS	\$7,919,000	22 <sup>2</sup>
Water Source VRF + Geothermal + DOAS	\$8,258,000	25 <sup>2</sup>

- Add outdoor air ventilation to meet building code requirements
- Utilize a water source heat pump + geothermal installation
  - Lower maintenance requirements
  - Better aligns with CARP
  - More likely to be offset with grants

# Recommended Improvements - Other

1. Upgrade roof insulation to R-30
2. Install double pane windows and new doors
3. Utilize air sealing to reduce infiltration
4. Modernize lighting to LED
5. Add outdoor air ventilation to meet building code requirements
6. Utilize a water source heat pump + geothermal installation
7. Floor-by-floor installation and renovation

# Project Phases / Schedule

Year	Scope	Est. Cost (2024 dollars)
Phase 1 (2025)	Major Infrastructure New electric service, geothermal, hydronic distribution	\$4.4M
Phase 2 (2027)	Renovation of basement Facade upgrades (windows, sealing, insulation) Install Dedicated Outside Air System (DOAS) Unit 1	\$4.4M
Phase 3 (2029)	Renovation of 1st floor	\$4.4M
Phase 4 (2031)	Renovation of 2nd floor and attic Install DOAS Unit 2	\$4.4M
Phase 5 (2033)	Final decommissioning and removal of old systems (boiler, etc.) Installation of PV systems sized to achieve net zero energy	\$4.4M
<b>Total</b>		<b>\$22M</b>



# Project Phases / Schedule

Complete as one multi-year project

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# Revised Schedule Proposal

## Project Phase

## Schedule

Planning and Design  
(Phases 1-4 - HVAC, Electrical,  
Code Update, ADA)

2025

Construction (Phases 1-4)

2026 - 2027

Planning and Design (Phase 5 - Solar)

2030

Construction (Phase 5)

2031

# Next Steps

- Ongoing - Project undergoing review with Historic Preservation Commission
- April 29 - Discussion with City Council

## Questions and Comments?