



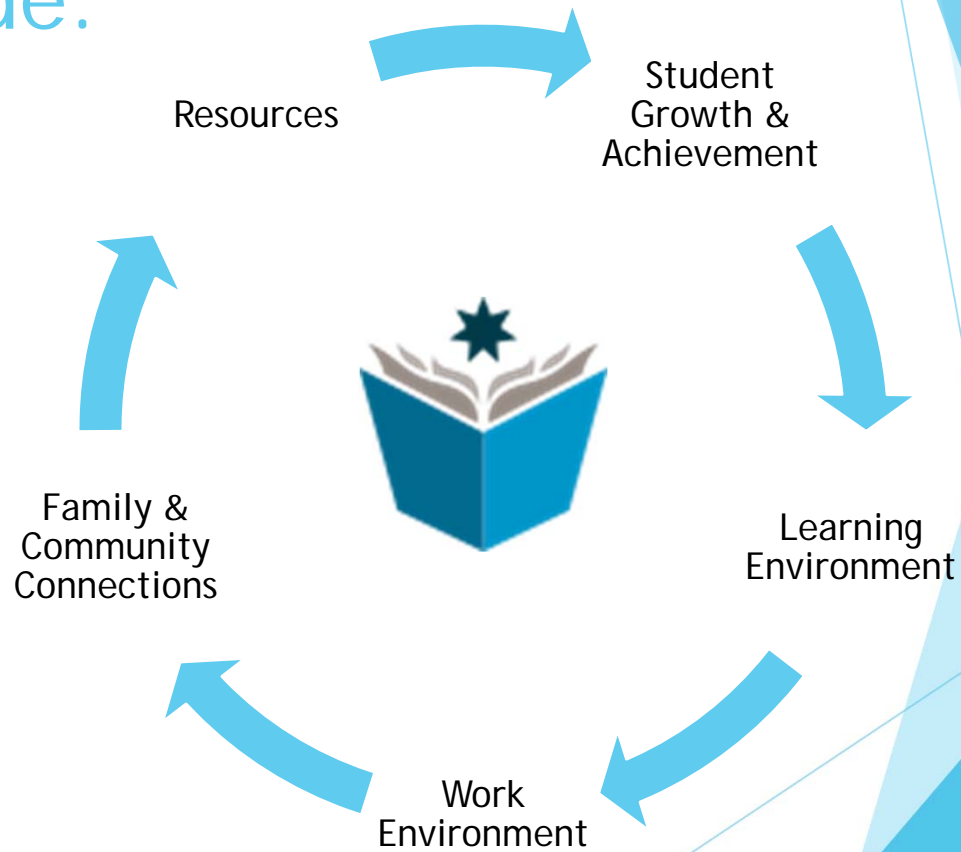
**DISTRICT 89**

# Heating, Ventilation, and Air Conditioning (HVAC) Options

A presentation to the Board of Education

Wednesday, October 30, 2019

The school system of choice and community pride.



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# What environmental factors that impact our students and staff?

- Light
- Noise/Acoustics
- Temperature/Comfort





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## How does temperature impact the learning environment?

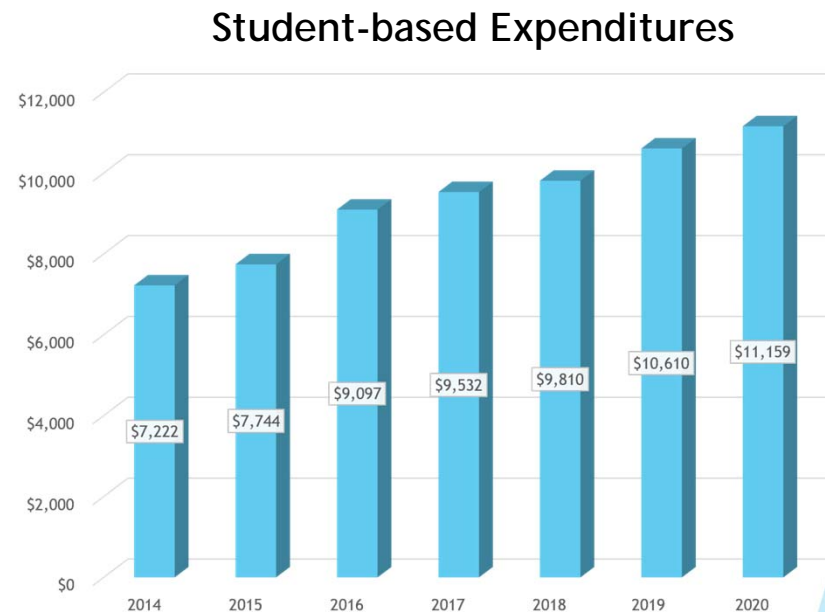
When temperatures are too hot or too cold, the brain is constantly reminding the body to do something about that condition

- There's a decrease in learning during the hotter days of the school year, with extreme heat being particularly damaging
- Each degree of increase leads to a reduced learning rate
- The harmful consequences of high temperatures generally don't exist in schools that have adequate air conditioning

*National Bureau of Economic Research, 2018*

# Why now - Financial Consideration

- Conservative fiscal practices
- Highest category in ISBE's School District Financial Profile
- S&P bond rating increased by three levels in 2018
- Favorable municipal bond market conditions



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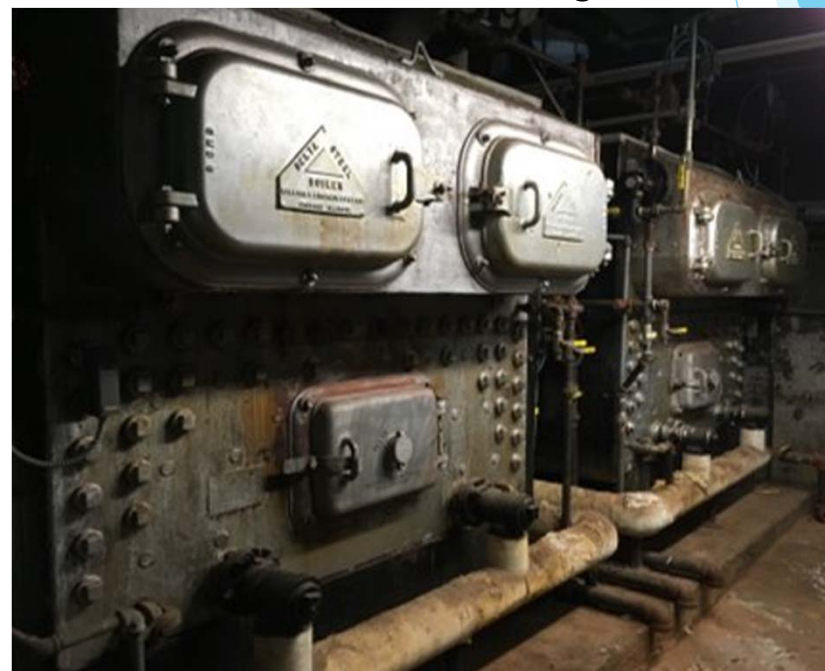
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## Why now - Facility Considerations

- The district has addressed items within the Health and Life Safety plan, but still needs to address the critical infrastructure of HVAC.

Building	Installed
Emerson	1964
Garfield	1964
Irving	1962
Melrose Park	1965
Roosevelt	1965
Washington	1963

Boiler at Washington



## What has been the timeline for discussion on HVAC?

- Board of Education began the discussion of HVAC in 2014, deciding to install Window Units at Irving Middle School
- October 2018, a Special Board of Education Meeting was held to discuss specific HVAC options for our schools.
- HVAC has been discussed during Finance Committee Meetings and regular Board of Education Meetings which are open to the public.

## What HVAC options have been reviewed?

- Geothermal Systems
- Traditional Air Conditioning Systems
- Window Units



# What HVAC options have been reviewed?

## Geothermal Systems

Advanced technology and clean energy system that would fully air condition the buildings as well as replace all of the boilers in our schools without air conditioning.

## Window Units

Similar to window air conditioning units found in many homes, but would meet specific requirements and would only be placed in classrooms.



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# How long will each of these systems last?

## Geothermal Systems

- 30-year life expectancy for the equipment.
- 50-year life expectancy for the piping.
- 50-year life expectancy for the well field.

## Window Units

- 7-year life expectancy

# What are the investments associated with these systems?

## Geothermal Systems

Installation: \$18,363,471

Commonwealth Edison Rebate: \$226,585

*Initial investment: \$18,136,886*

### Annual costs:

- Utilities: \$93,000

- Maintenance: \$105,000

## Window Units

Installation: \$3,960,000

Boiler replacement: \$2,800,000

*Initial Investment: \$6,760,000*

### Annual costs:

- Utilities: \$183,000

- Maintenance: \$144,160



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## How do the costs compare over time?



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	Geothermal	Traditional	Window Units
10-year	\$20,116,886	\$21,023,090	\$14,441,600
20-year	\$22,096,886	\$25,081,510	\$22,123,200
30-year	\$25,476,886	\$43,746,200	\$36,564,800

*All figures are based on current rates including utility and maintenance costs.*

## How do these costs compare over time?

### Geothermal System

Initial Investment: \$18,136,886

30-year Investment: \$25,247,886

Cost to the district after  
installation: ***\$7,111,000***

### Window Units

Initial Investment: \$6,760,000

30-year Investment: \$36,564,800

Cost to the district after  
installation: ***\$29,804,800***

# What criteria were used in making a recommendation?

- Create comfortable environments in all areas of the school
- Long-term sustainability
- Address aging boilers and HVAC infrastructure
- Short- and long-term financial implications to the district and community
- Consultation with experts in the field and other districts who have implemented similar projects



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## Based on the established criteria, what is the administration's recommendation?

Based on system longevity and sustainability, the administration is recommending Geothermal Systems to be installed at:

- Emerson
- Garfield
- Irving
- Lincoln
- Melrose Park
- Roosevelt
- Washington Dual Language Academy



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## Can the district afford a project of this scope?

Yes

- Thanks to a history of conservative budgeting and tight expenditure controls, the District has built its fund balance over time
  - Currently, the district is projected to have \$50 million in fund balance at the end of the 2019-20 school year

A \$12 million fund balance contribution would take the fund balance down to \$38 million

- Assumes HVAC projects completed in the current fiscal year
- Will leave the District in a healthy financial position



## How will the district fund this project?

- The district will fund the installation of Geothermal Systems at the 7 schools that currently do not have air conditioning using:
  - \$12,000,000 from current fund balance
  - \$6,400,000 in debt certificates
    - *Debt certificates are paid from the district's operating funds*



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## Will this project raise the taxes of our families and community?

No.

- The cost of this project will not be passed on to our families and community members.



## What would be the timeline for this project?

- The goal would be to complete the project during the summer of 2020.
- The timeline would depend on when the Board of Education approves the project and/or market conditions and availability.



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MAYWOOD | MELROSE PARK | BROADVIEW

*The mission of Maywood-Melrose Park-Broadview School District 89 is to empower, educate and inspire students to achieve personal excellence in a multi-cultural society.*