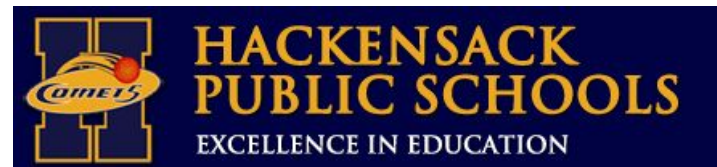




# Sustainable Infrastructure & Energy Savings Improvement Program

Presented to:  
Hackensack Board of Education

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# Energy Savings Improvement Program



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Energy Savings Improvement Program (ESIP)

ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

NJ's ESIP is a form of energy performance contracting that allows government entities to make energy-related improvements to their facilities using the value of energy savings that result from the improvements. The ESIP law was enacted in 2009 and updated in 2012. It provides all types of government entities – from school boards to municipalities to state governments – with a flexible tool to lessen their environmental impact, save money, and reduce their energy usage for minimal costs.


What's Your Retrofit Strategy?

ESIP can help accomplish any retrofit strategy (major HVAC, minor HVAC, onsite generation, facility improvements, etc.), but can also leverage multiple strategies. ESIP can be used as a way to find energy savings; upgrade equipment; and improve indoor air quality. As government entities struggle to offset these costs, a performance contract can be a solution to afford the upgrades. ESIP is based on financing today's improvements off of tomorrow's savings for little to no cost.





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# Energy Savings Improvement Program Overview

- Initial Project Investment: \$13,670,259
- Construction Period: April 2021 – April 2024
- Guarantee Term: 20 Years
- Estimated Construction Period Project Savings

<b>Total Projected Energy Savings</b>	<b>\$465,973</b>
<b>Operational Savings</b>	<b>\$186,086</b>
<b>SSB Grant</b>	<b>\$2,110,174</b>
<b>PSE&amp;G Rebates &amp; EE Credit</b>	<b>\$153,679</b>
<b>Solar PPA Savings</b>	<b><u>\$68,123</u></b>
<b>Total Estimated Savings</b>	<b>\$2,984,035</b>

# Project Rebates

Rebate	FY 23	FY 24	FY 25	FY 26	Total
Lighting	\$118,301				\$118,301
VFD in NP		\$7,000			\$7,000
Boiler	\$29,057				\$29,057
School and Small Business (SSB) Grant	\$28,149	\$2,082,025			\$2,110,174
Energy Efficiency Credit	\$4,214	\$4,214	\$4,214	\$4,214	\$16,854
<b>Total</b>	<b>\$179,721</b>	<b>\$2,093,239</b>	<b>\$4,214</b>	<b>\$4,214</b>	<b>\$2,281,387</b>



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# Johnson Controls - Sustainable Infrastructure Partner Spotlight



## BUILDING IMPROVEMENTS COMPLETED:

- New building controls system and energy management system
- LED lighting retrofits, both inside and out
- Pipe & Valve insulation
- Building envelope upgrades
- New boiler plant
- Building envelope and insulation upgrades
- Chiller replacements and HVAC upgrades
- Air Handler replacement
- Steam trap replacements
- Roof upgrades
- Combined heat and power units
- Variable Speed Drives

# Notable District Wide solutions and outcomes... Gold Star Items

- ***100% Deep lighting LED retrofit throughout all facilities*** accompanied by advanced sensor controls. Increased light levels boost morale and performance.



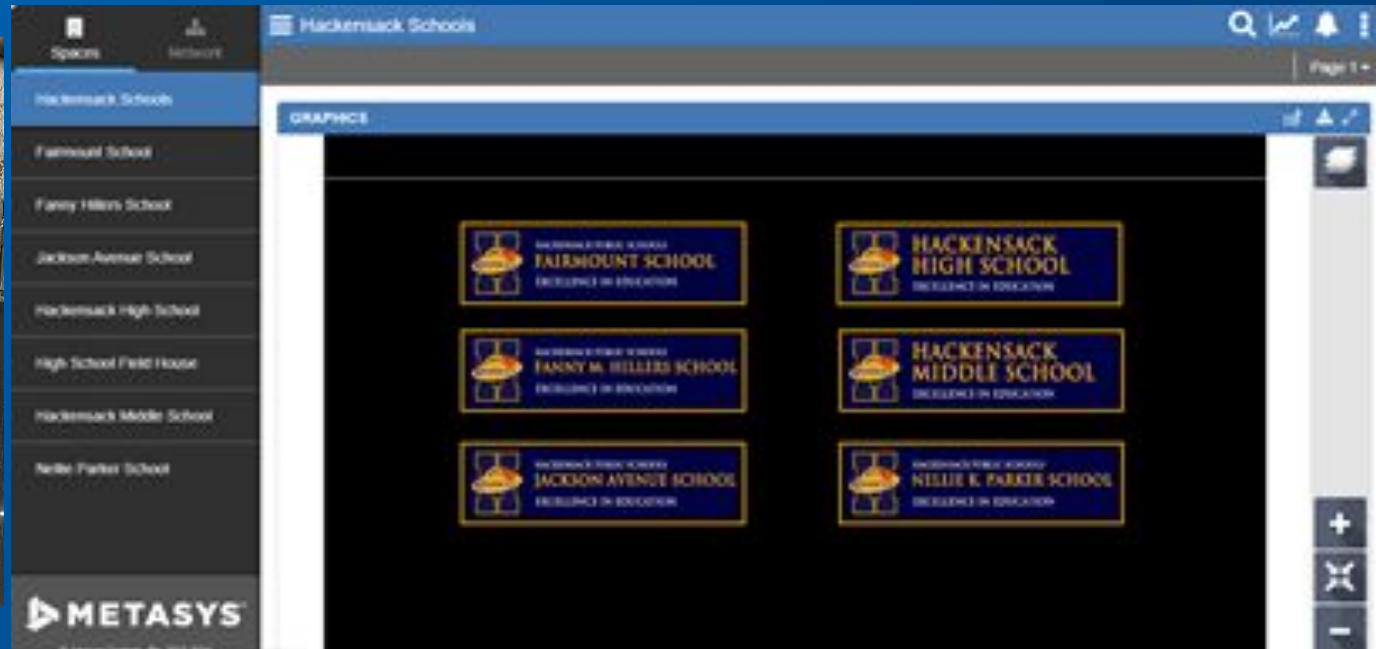
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# Notable District wide solutions and outcomes...

## Gold Star Items

- ***Building automation system upgrades*** to ensure system wide focused controls to reduce manual adjustments causing stress on the system and the operating budget.



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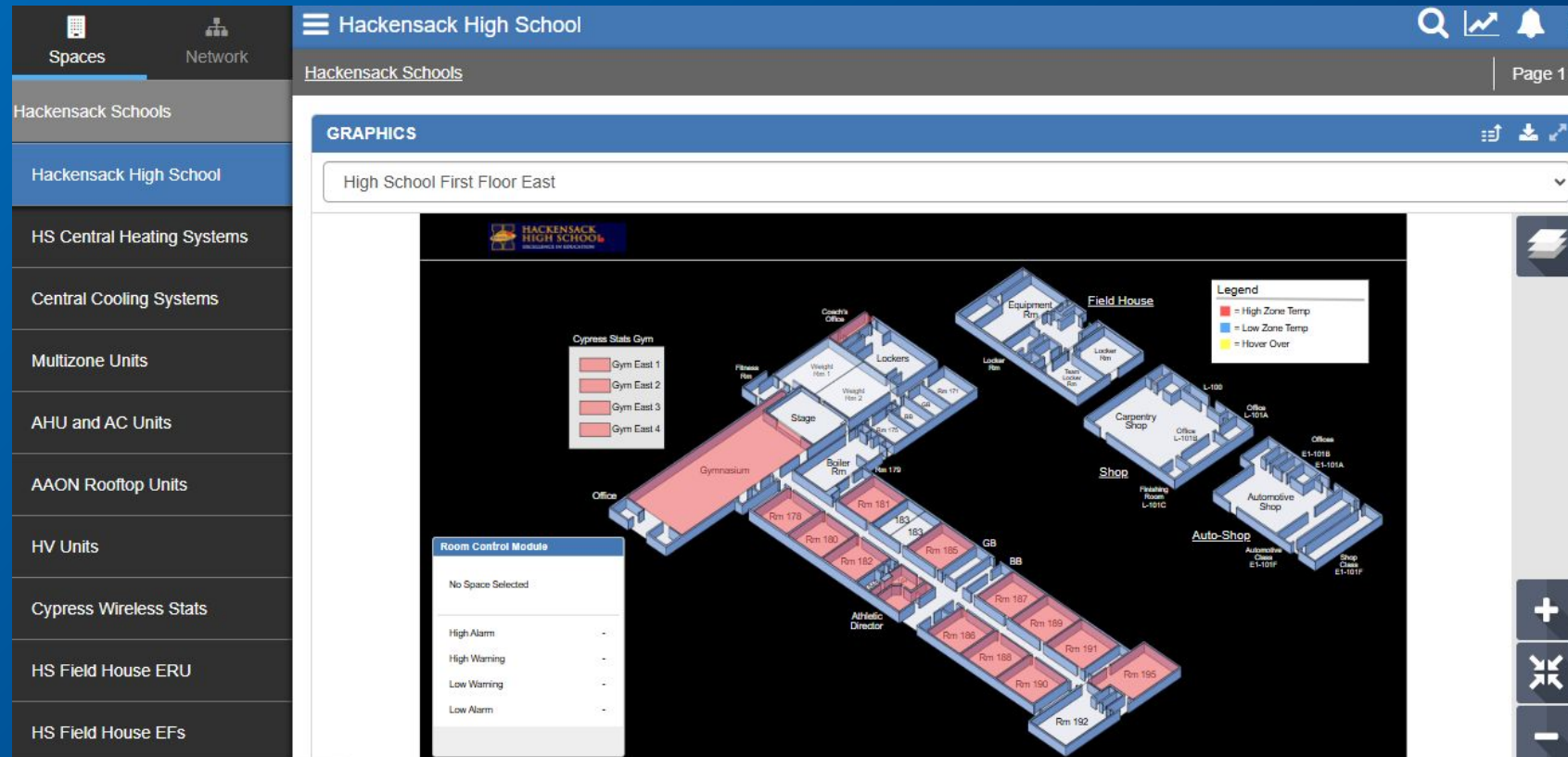
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# Notable District wide solutions and outcomes...

## Gold Star Items

- *Building automation system upgrades*



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# Hackensack High School

## BUILDING IMPROVEMENTS COMPLETED:



- Deep lighting retrofit and advanced sensor controls
- Weatherization and building envelope
- Building automation system upgrades
- Steam boiler replacement
- Air handling and rooftop unit replacement
- Chiller replacements
- Steam trap replacement
- Pipe and valve insulation
- Roof upgrade and repairs
- Micro combined heat and power
- Commercial kitchen hood controls

# Hackensack High School - Sustainable Infrastructure Spotlight



•Chiller replacements and HVAC upgrades



•Air Handler replacements



•Combined Heat & Power Generator

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# Hackensack Middle School

## BUILDING IMPROVEMENTS COMPLETED:

- Deep lighting retrofit and advanced sensor controls
- Weatherization and building envelope
- Building automation system upgrades
- Office area ventilation upgrade
- Radiator and unit ventilator replacement
- Steam trap replacement
- Pipe and valve insulation
- Roof upgrade and repairs



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# Hackensack Middle School - Sustainable Infrastructure Spotlight



•UnitVent Installation



•Outside Air Louver



•Main Office  
Split System Installation

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# Fanny Meyer Hillers Elementary School

## BUILDING IMPROVEMENTS COMPLETED:



- Deep lighting retrofit and advanced sensor controls
- Weatherization and building envelope
- Window replacement
- Building automation system upgrades
- Media Center ventilation addition
- Radiator and unit ventilator replacement
- Air handling and rooftop unit replacement
- Steam trap replacement
- Pipe and valve insulation
- Roof upgrade and repairs

# Fanny Meyer Hillers - Sustainable Infrastructure Spotlight



- Airedale HVAC Unit Installation
- Heating/Cooling



- Outside Air Louver



- Building Electrical Upgrade – 500 KVA



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# Jackson Avenue

## BUILDING IMPROVEMENTS COMPLETED:

- Deep lighting retrofit and advanced sensor controls
- Weatherization and building envelope
- Building automation system upgrades
- Pipe and valve insulation
- Roof upgrade and repairs



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# Nellie K. Parker School

## BUILDING IMPROVEMENTS COMPLETED:



- Deep lighting retrofit and advanced sensor controls
- Weatherization and building envelope
- Building automation system upgrades
- Variable speed drives
- Steam trap replacement
- Transformer replacement
- Roof upgrade and repairs

# Nellie K. Parker School - Sustainable Infrastructure Spotlight



- Variable Frequency Drive Installation

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# Fairmount School



## BUILDING IMPROVEMENTS COMPLETED:

- Deep lighting retrofit and advanced sensor controls
- Weatherization and building envelope
- Building automation system upgrades
- Steam boiler replacement
- Steam trap replacement
- Pipe and valve insulation
- Roof upgrade and repairs

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# Fairmount School - Sustainable Infrastructure Spotlight



- New boiler plant

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# Padovano Administration Building

## BUILDING IMPROVEMENTS COMPLETED:




- Deep lighting retrofit and advanced sensor controls
- Weatherization and building envelope



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- Greenhouse Gas reductions

3,206		
Metric Tons of CO <sub>2</sub> Emissions equates to:		
GHG emissions from:	CO <sub>2</sub> emissions from:	Carbon sequestered by:
		
763	360,693	53,003
Passenger vehicles driven for one year	Gallons of gasoline consumed	Tree seedlings grown for 10 years



# Thank you!

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## Questions??

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