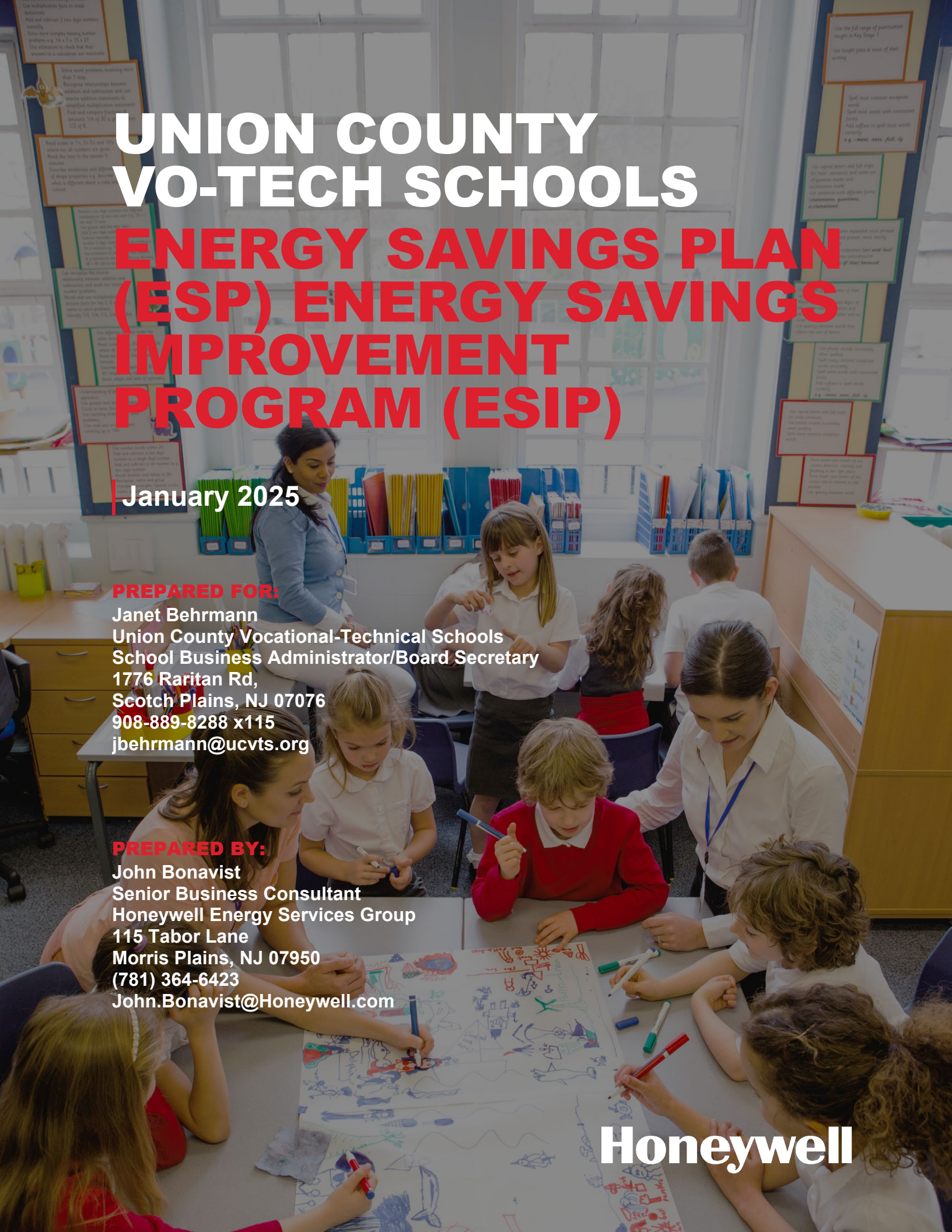

UNION COUNTY VO-TECH SCHOOLS

ENERGY SAVINGS PLAN (ESP) ENERGY SAVINGS IMPROVEMENT PROGRAM (ESIP)

January 2025

PREPARED FOR:
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Honeywell

HONEYWELL PROPRIETARY

Non-Disclosure Statement

This proposal or qualification data includes data that shall not be disclosed outside **Union County Vo-Tech Schools** ("the County") and shall not be duplicated, used or disclosed — in whole or part — for any purposed other than to evaluate this proposal or quotation. If, however, a contract is awarded to this Offeror as a result of — or in connection with — the submission of this data, **the County** shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit **the County's** right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in all sheets.

Right to Negotiate

Honeywell has reviewed the Request for Proposals and, if selected, reserves the right to negotiate mutually acceptable terms and conditions of any resulting contract.

Budgetary Proposal

Notwithstanding any other provision of this document, this budgetary proposal is provided for information and planning purposes only, is non-binding, and does not constitute an offer capable of acceptance. Honeywell will be pleased to provide a firm price proposal upon request, subject to its internal approval requirements.

Honeywell reserves the right, in its discretion, to increase the price(s) set forth in this Proposal in the event that tariffs (or similar governmental charges) imposed by the United States or other countries result in any increase in the costs that Honeywell used to determine such price(s).

Equitable Extension of Time

Notwithstanding anything to the contrary, in light of the COVID-19 pandemic, the effects of which cannot be foreseen, the parties agree that Honeywell shall be entitled to an equitable extension of time to deliver or perform its work and appropriate additional compensation to the extent Honeywell's delivery or performance, or the delivery or performance of its suppliers and/or subcontractors, is in any way delayed, hindered or otherwise affected by the COVID-19 pandemic.

General Disclaimer about Pre-Contract Information

HONEYWELL MAKES NO REPRESENTATION OR WARRANTY REGARDING ANY FINANCIAL PROJECTIONS, DATA OR INFORMATION PROVIDED, EXCEPT AS MAY BE EXPRESSLY SET FORTH IN A DEFINITIVE AGREEMENT.

Municipal Advisor Disclaimer

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To ensure compliance with requirements imposed by the IRS under Circular 230, we inform you that any U.S. federal tax advice contained in this communication (including any attachments), unless otherwise specifically stated, was not intended or written to be used, and cannot be used, for the purpose of (1) avoiding penalties under the Internal Revenue Code or (2) promoting, marketing or recommending to another party any matters addressed herein. The information contained herein is general in nature and based on authorities that are subject to change. Honeywell Building Solutions, a strategic business unit of Honeywell International Inc., recommends that you consult your tax adviser to understand its applicability to specific situations.

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SECTION A
EXECUTIVE SUMMARY

SECTION A – EXECUTIVE SUMMARY

Thank you for choosing to engage Honeywell to develop an Energy Savings Plan for the Union County Vo-Tech Schools (the County) via your Omnia Co-op Membership.

It is understood that in order to remain compliant with the services of the Co-op for the Union County Vo-Tech Schools; that ALL public works in conjunction with the School District and in accordance with NJ Public Contract Law (NJSA 18A:18A-1 et seq.) will be procured according to State requirements. To clarify further, this applies to a public works projects including and not limited to installing electrical, lighting, plumbing, HVAC, BMS systems etc.

During the development of the Energy Savings Plan, Honeywell has completed a thorough investment grade energy audit of the Union County Vo-Tech Schools buildings and grounds. Based on the audit findings and Honeywell's extensive experience in working with school districts, we can confidently state this plan can identify a project that is financially viable in a comprehensive manner to address the District's facility concerns and goals.

This Energy Savings Plan includes projects that achieve energy and operational efficiencies, create a more comfortable and productive environment and are actionable via the New Jersey Energy Savings Improvement Program (NJ ESIP) in accordance with NJ PL2012, c.55.

ESIP PROJECT SPECIFICS

- Model type: ESCO Model
- Architect of Record: DI Group Architecture
- Engineer of Record: Colliers
- Independent Auditor of the ESP: Whitman Engineering

The Energy Savings Plan is the core of the NJ ESIP process. It describes the energy conservation measures that are planned and the cost calculations that support how the plan will pay for itself through the resulting energy savings. Under the law, the Energy Savings Plan must address the following elements:

- A description of the energy conservation measures (ECMs) that will comprise the program.
- An estimate of greenhouse gas reductions resulting from those energy savings.
- Identification of all design and compliance issues and identification of who will provide these services.
- An assessment of risks involved in the successful implementation of the plan.
- Identify the eligibility for, and costs and revenues associated with, the PJM Independent System Operator for demand response and curtail-able service activities.
- Schedules showing calculations of all costs of implementing the proposed energy conservation measures and the projected energy savings.
- Maintenance requirements necessary to ensure continued energy savings, and describe how they will be provided; and

Additionally, the use of Omnia Cooperative in the selection of Honeywell is allowed under NJ Public Contracts law as outlined in LFN 2012-10 and consists of the following elements and authorized by DLGS/DCA as well as the following elements:

- An organization (profit or not-for-profit) that coordinates and aggregates contracts from different state and local governments and promotes their use."
- In the context of the LPCL and PSCL, the provisions of this notice apply when the aggregate value of the goods or services (see N.J.A.C. 5:34-8.2) exceeds the contracting unit's bid threshold."
- The national cooperative contract must have been advertised as a national or regional cooperative and awarded pursuant to a competitive bidding process that complies with the laws applicable.
- The LFN requires that if a national cooperative contract is chosen, the calculation of cost savings from using this approach must be documented: The Law requires that a contracting unit can use national cooperatives only when the contracting unit determines "that the use of the cooperative purchasing agreement shall result in cost savings after all factors, including charges for service, material, and delivery, have been considered."
- The LFN states that if using an online ordering system, local officials must put "appropriate internal controls" in place to ensure that purchases are documented and that an audit trail exists
- Per the LFN, the Union County Vo-Tech Schools BOE must verify that the selected vendor complies with applicable New Jersey procurement documentation requirements. The following required and other forms can be found in **Appendix 4** of this document:
  - New Jersey Business Registration Certificate for the contractor and any subcontractors (i.e., copy of certificate)
  - Statement of Corporate Ownership (an original form prepared for the contracting agency awarding the contract)
  - Public Contract EEO Compliance (Employee Information Report form or proof of participation in a federally approved affirmative action program)
  - Non-collusion Affidavit

The purpose of this document is to provide all the information required for the Union County Vo-Tech Schools to determine the best path forward in the implementation of a District-Wide NJ ESIP Project. It is important to note that the Energy Savings Plan provides a comprehensive evaluation of ALL potential ECMs within the District. This is not meant to infer that all the ECMs identified can be implemented. However, if the ECM is part of this plan, it may be implemented later as additional funding becomes available or technology changes to provide for an improved financial return.

This Energy Savings Plan is structured to clearly demonstrate compliance with the NJ ESIP law, while also presenting the information in an organized manner which allows for informed decisions to be made. The information is divided into the following sections:

A. **Executive Summary** (This Section)

B. **Preliminary Utility Analysis** – The Preliminary Utility Analysis (PUA) defines the utility baseline for the Union County Vo-Tech Schools buildings included in the Energy Savings Plan. It provides an overview of the current usage and a cost per square foot by building of utility expenses.

The report also compares the Union County Vo-Tech Schools' utility consumption to that of other districts in the same region on a per square foot basis.

C. **Energy Conservation Measures** – This section includes a detailed description of the ECMs we have identified for your School District. It is specific to your facilities in scope, savings methodology and environmental impact. It is intended to provide a basis of design for each measure in narrative form. It is not intended to be a detailed specification for construction. ALL

potential ECMs for the Union County Vo-Tech Schools are identified for the purposes of potential inclusion in the program. Final selected ECMs are to be determined solely by the Union County Vo-Tech Schools and the financial goals outlined within the ESIP program to be self-funding within existing budget guidelines. The sample ECM selections and preliminary financials are based on the selections noted in Form II in the Technical and financial summary.

D. **Technical and Financial Summary** – This section includes an accounting of all technical and financial outcomes associated with the ECMs as presented. The information detailed on the forms includes projected implementation hard costs, projected energy savings, projected operational savings and projected environmental impact. Form VI: Annual Cash Flow Analysis provides a "rolled-up" view of the overall project financials, inclusive of financing costs, on an annual basis as well as over the entire 15-year term of the agreement.

E. **Measurement & Verification and Maintenance Plan** – This section identifies the intended methods of verification and measurement for calculating energy savings. These methods are compliant with the International Measurement and Verification Protocols (IMVP), as well as other protocols previously approved by the Board of Public Utilities (BPU) in New Jersey. This section also includes the recommended maintenance requirements for each type of equipment. Consistent maintenance is essential to achieving the energy savings projected in this plan.

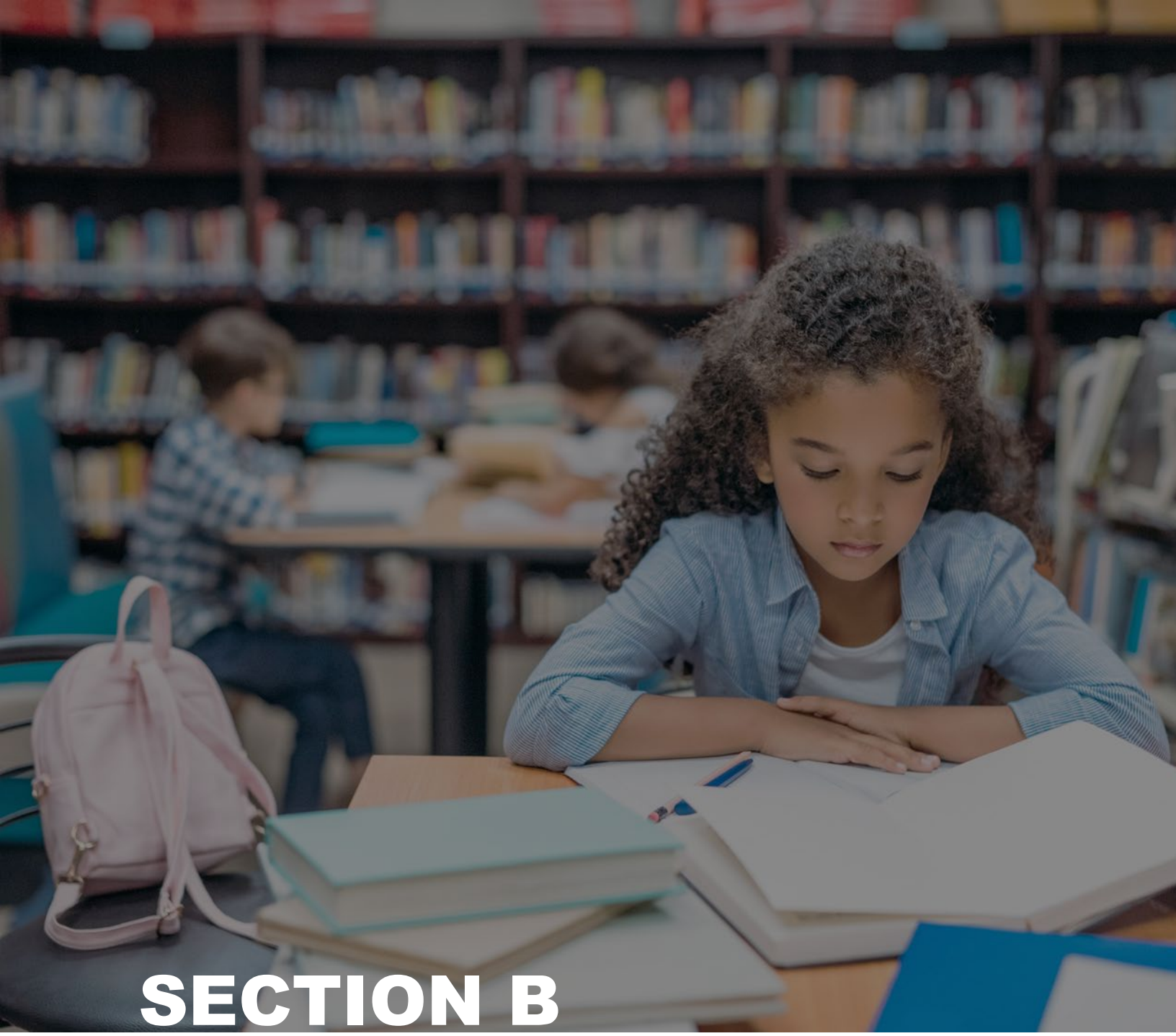
Appendices 1-6 – The following files have been uploaded to a Teams Folder once reviewed will be provided on a USB drive to be included with our final submission:

- **Appendix 1** —Local Government Energy Audits
- **Appendix 2**— ECM Calculations
- **Appendix 3**— Equipment Cut Sheets
- **Appendix 4**— Required Forms & Omnia Cooperative / NJ Procurement Documentation

BENEFITS

The measures investigated in this Energy Savings Plan could result in an annual utility savings of 896,750 kWh of electricity and 69,056 therms. Additionally, these energy savings will result in a net reduction of greenhouse gases and will reduce the school district's carbon footprint by 633 MTE of CO_2 annually. This is equivalent to removing 134 cars from the road annually and /or 600 forested acres per year. All these savings are achieved while improving the classroom environment and renewing many items that have been in service beyond useful life expectancy.

Overall, it is evident that the Union County Vo-Tech Schools is well positioned to implement a program that will upgrade your facilities, while funding itself within the requirements of the law and with zero impact on your taxpayer base. We appreciate the opportunity to provide the District with this guideline to improve the comfort and efficiency of your facilities through the successful implementation of this Energy Savings Plan should the district decide to move forward with a project.



SECTION B
UTILITY DASHBOARDS BY SCHOOL BUILDING & PRELIMINARY

SECTION B – PRELIMINARY UTILITY ANALYSIS (PUA)

Honeywell

Preliminary Utility Analysis

Union County Vocational-Technical Schools
Scotch Plains, NJ

Helping customers manage energy resources to improve financial performance

Executive Summary

Honeywell would like to thank you for the opportunity of providing you with this Preliminary Utility Analysis. A one year detailed billing analysis was completed for all utility data provided by your staff. The facility's electric and gas consumption were compared to a benchmark of typical facilities of similar use and location. It should be noted however, that some of Buildings which make up the benchmarking standards are not equipped with mechanical cooling (air conditioning). Therefore, these buildings may unjustly appear to be less efficient in comparison.

Through our Energy Services offerings, Honeywell's goal is to form a long term partnership for the purpose of meeting your current infrastructure needs by focusing to:

- Improve Operational Cost Structures
- Ensure Satisfaction
- Upgrade Infrastructure While Reducing Costs
- Meet Strategic Initiatives
- Leverage Teamwork
- Pursue Mutual Interests
- Provide Financing Options

How does it work?

Under an energy retrofit solution, Honeywell installs new, energy efficient equipment and optimizes your facility, as part of a multi-year service contract. Most of these improvements are cost-justified by energy and operational savings. Some of the energy conservation measures provide for a quick payback, and as such, would help offset other capital intensive energy conservation measures such as, boilers, package rooftop units, domestic hot water heaters, etc. The objective is to provide you with reduced operating costs, increased equipment reliability, optimized equipment use, and improved occupant comfort.

After review of the utility analysis, you can authorize Honeywell to proceed with the development of a detailed engineering report. The report development phase allows Honeywell to prepare an acceptable list of proposed energy conservation measures, which are specific to the selected facility. Some examples of typical Energy Conservation Measures include:

- Lighting
- Control Systems
- Boilers
- AC Units/Condensers
- Building Enevelope
- Package Rooftop Units
- Domestic Hot Water Heaters
- Plug Load Management

Why Honeywell?

- Honeywell is one of the world leaders in providing infrastructure improvements
- With Honeywell as your building partner, you gain the advantage of more than 115 years of leadership in building services
- Honeywell has the infrastructure and manpower in place to manage and successfully implement your project
- Honeywell has over 30 years experience in the energy retrofit marketplace with over $5 Billion in customer energy savings
- Honeywell provides you with "Single Source Responsibility" - from Engineering to Implementation, Servicing and Financing (if desired)

Energy Benchmarking

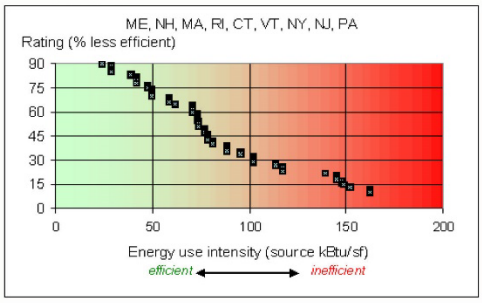
The calculation of EUI (Energy Use Intensity) is shown below. EUI, expressed in kBtu/sf, is normalized for floor area, the most dominant influence on energy use in most buildings. Its use usually provides a good approximation of how your building's energy performance compares to others. Site EUI indicates the rate at which energy is used at your building (the point of use). Source EUI indicates the rate at which energy is used at the generation sources serving your building (the point of source) and indicates the societal energy penalty due to your building The lower the EUI, the higher the rating, indicating that the building is more efficient than other buildings. The greater the EUI, the lower the rating, indicating that there is an opportunity for higher potential benefits from operational improvements.

The Source EUI below has been applied to a Department of Energy statistical model from the Oak Ridge National Laboratory. The Department of Energy has estimated energy use and cost reductions for building source EUI ratings (percentiles) in the table below. Please see the DOE Regional Source EUI Comparison graph below to rate your building in relation to the regional distribution of similar type buildings. (Note: The Source EUI includes the inefficiencies of electrical generation and transmission. A reduction in 'electrical' source EUI includes a benefit in terms of reduction of air pollution emissions and green house gases, and is thus an indicator of societal benefit.)

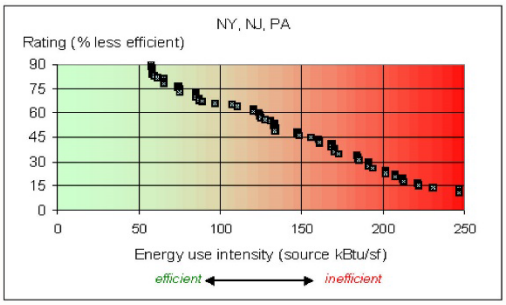
Source EUI Rating for your Building	Energy use and cost reduction potential (%)	Walk-thru energy assessment recommended?
above 60%	below 25%	No
40 to 60%	20 to 35%	Maybe
20 to 40%	35 to 50%	Yes
Below 20%	above 50%	Definitely

Site EUI Rank		Annual Total Electrical Use (kWh)	Annual Total Non-Electrical Fuel Use (Therms)	Building Gross Floor Area (sq-ft)	Site EUI Rating	Source EUI: Annual Total Source Energy Use per Sq-Ft (kBtu/sf)	Rating (Regional Source EUI Comparison)
1	West Hall	3,781,621	236,128	223,059	**164**	**281**	5%
2	Academy of Performing Arts	770,466	29,750	43,341	**129**	**252**	5%
3	Mancuso Hall	1,101,038	0	47,308	**79**	**241**	5%
4	Bistocchi Hall	794,377	454	68,500	**40**	**121**	30%
5	Administration Building	197,680	3,951	6,824	**157**	**357**	5%
6	Baxel Hall	795,071	5,139	55,733	**58**	**157**	15%
		7,440,253					

School Facilities



Offices



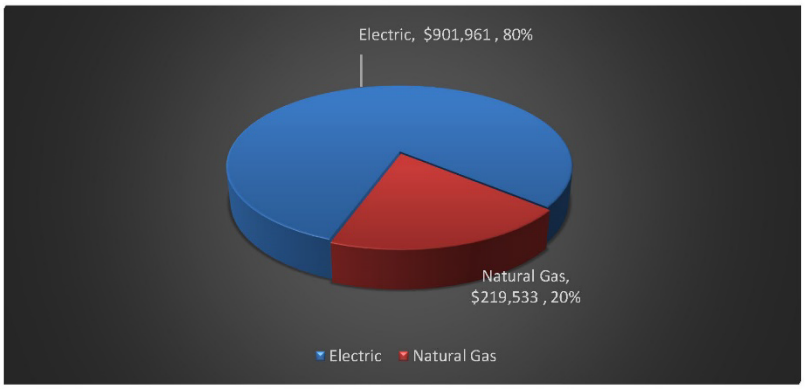
Historical Summary

Utility Analysis Period:
March 2021 - Feb 2022

	Electric	Natural Gas
Utility Costs*	$901,961	$219,533
Utility Usage (kWh, Therms)	7,440,253	275,422
$ Cost/Unit (kWh, Therms)	$0.12123	$0.797
Annual Electric Demand (kW)	19,040	

* Costs include energy and demand components, as well as taxes, surcharges, etc.

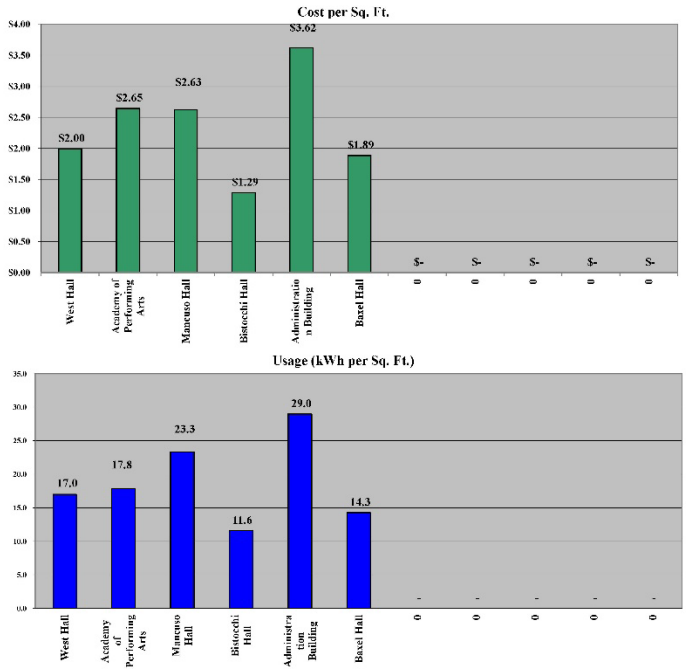
Actual Cost by Utility
March 2021 - Feb 2022



Total Cost
$1,121,494

Utility Analysis
Electric

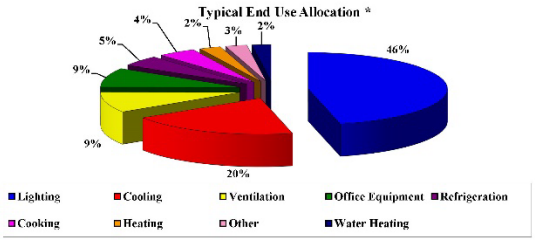
Square Footage Analysis



Note. Average kWh/SF for School buildings in this climate zone is 9.0

Electric

Sources of Electric Consumption

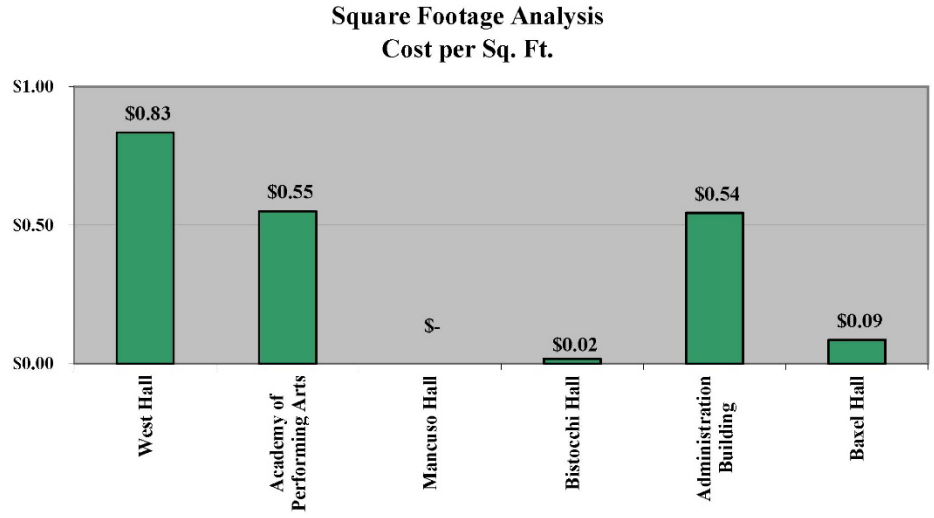


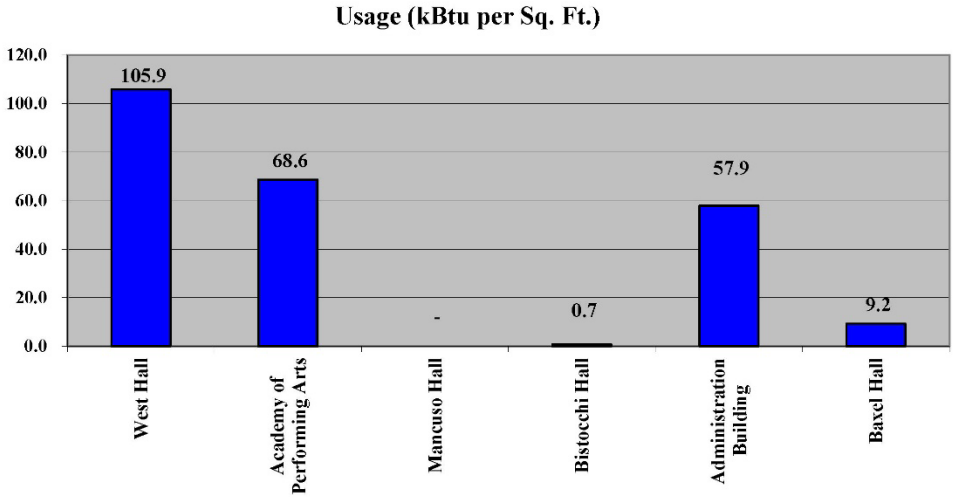
**This allocation is generic and is not a representation of the actual end use in your buildings included in this report.

Typical Allocation Applied to Your Electric Cost**

Lighting	$417,608
Cooling	$176,784
Ventilation	$82,980
Office Equipment	$77,569
Refrigeration	$42,392
Cooking	$39,686
Heating	$22,549
Other	$22,549
Water Heating	$19,843
Your Total Cost March 2021 - Feb 2022	**$901,961**

Utility Analysis
Natural Gas

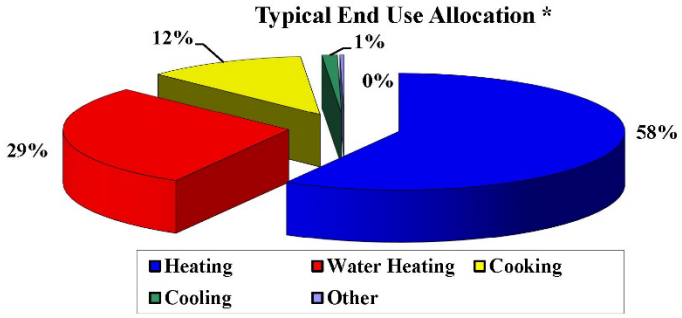




Note: Average kBTU/SF for School buildings in this climate zone is 46.1

Utility Analysis
Natural Gas

Sources of Usage
Natural Gas



**This allocation is generic and is not a representation of the actual end use in your buildings included in this repor

Typical Allocation Applied to Your Cost**
Natural Gas

Heating	$127,988
Water Heating	$63,445
Cooking	$25,027
Cooling	$2,415
Other	$659
Your Total Cost March 2021 - Feb 2022	**$219,533**

Annual Emissions & Environmental Impact

Union County Vocational-Technical Schools

March 2021 - Feb 2022

Based on the US Environmental Protection Agency -
Greenhouse Gas Equivalencies Calculator
http://www.epa.gov/cleanenergy/energy-resources/calculator.html

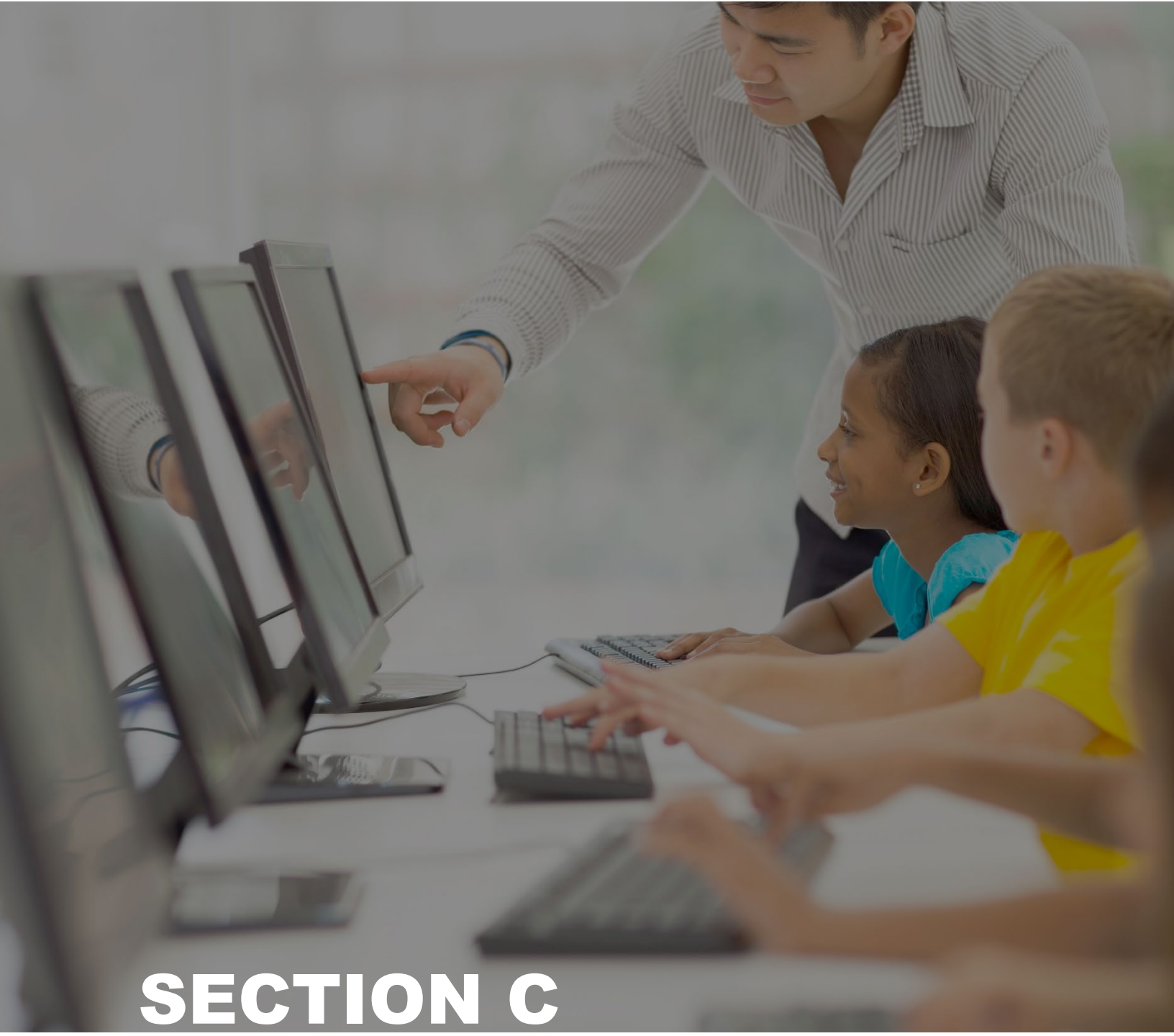
The following energy usage, cost and pollution have been quantified:

Total Annual Electric usage	7,440,253	kWh
Annual Natural Gas usage	275,422	Therms

Electric Emissions	
0.00070742	$MTeCO_2$ per kWh saved
Natural Gas Emissions	
0.05302541	$MTeCO_2$ per MMBtu saved
Equillivent Cars	
0.214132762	Cars/ 1MTeCO2
Forrested Acres	
1.3063142	Forested Acres Factor/ 1MTeCO2

Annual Greenhouse Gas Emissions (Metric tons of equivalent of CO2)		
eCO2 (Electric)	5,263	MT
eCO2 (Gas)	1,458	MT
Total eCO2	6,721.820	MT

This is equivalent to one of the following:	
1442	No. of passenger vehicles - annual greenhouse gas emissions
8781	No. of acres of U.S. forests - carbon sequestered annually



SECTION C
ENERGY CONSERVATION MEASURES

SECTION C – PRELIMINARY ENERGY SAVINGS PLAN: ENERGY CONSERVATION MEASURES

INTRODUCTION

The information used to develop this section was obtained through the independent energy audit building surveys to collect equipment information, interviews with operators and end users, and an understanding of the components to the systems at the sites. The information obtained includes nameplate data, equipment age, condition, the system's design and actual load, operational practices and schedules, and operations and maintenance history.

Honeywell has done a review of the Energy Conservation Measures (ECMs) which would provide energy and cost savings the District. This report aims to be an assessment of the feasibility and cost effectiveness of such measures, and an indication of the potential for their implementation. The ECMs listed below have been reviewed throughout your facilities for consideration within a complete Energy Savings Plan. What follows is a general description of the energy auditing process and the detailed descriptions of the ECMs for your facilities.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
1A LED Lighting	●	●	●	●	●	●
1B Destratification Fans		●		●		
2A Boiler Replacements	●					
2B Domestic Water Heater Replacements	●					
2C Roof Top Unit Upgrades	●		●			
2D Split System Upgrades			●			
2E Premium Efficiency Motors and VFDs	●		●			
2F Chiller Replacements	●					
2G AHU Replacements	●			●		
2H Boiler Controls	●					
3A Building Management Controls	●	●	●	●		●
3B Carbon & Energy Management (CEM)	●	●	●	●	●	●
4A Building Envelope Improvements	●	●	●	●	●	●
4B Roof Replacements		●				
5A Cogeneration CHP	●					
6A Solar PPA		●				
6B Community Solar	●	●	●	●	●	●
6C Solar PV		●				

ECM 1A LED Lighting Upgrades

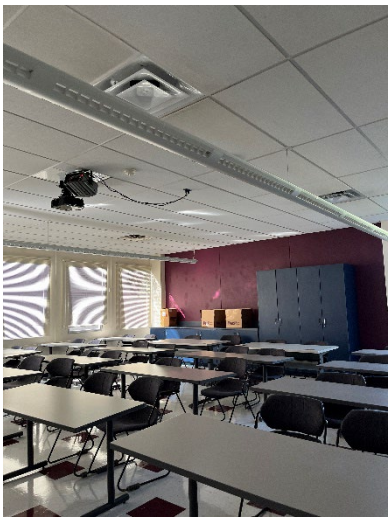
The key benefits of this ECM include:

- **Energy savings** from reducing total energy consumption with more efficient, state of the art technology. Today's most efficient way of illumination and lighting has an estimated energy efficiency of 80%-90% when compared to traditional lighting and conventional light bulbs. Lighting controls reduce or eliminate reliance on occupants or staff to turn lights off when spaces are unoccupied by automatically turning lighting fixtures off thereby reducing electrical energy consumption.
- **Improved teacher and student performance** from enhanced lighting quality that translates to an enhanced learning working environment.
- I**mproved equipment longevity** by reducing amount of light usage and extending the useful life of your lighting system. LED bulbs and diodes have an outstanding operational lifetime expectation of up to 100,000 hours. This is 11 years of continuous operation, or 22 years of 50% operation. Operational savings in terms of bulb and ballast replacement are significant based on this technology.
- **Reduced maintenance and operational costs** by modernizing your lighting system, reducing the runtime of lighting system and components, and providing for longer lasting and technologically advanced lights, without the need to address deficient or bad ballasts.
- **Ecologically friendly** LED lights are free of toxic chemicals. Most conventional fluorescent lighting bulbs contain a multitude of materials like mercury that are dangerous for the environment. LED lights contain no toxic materials and are 100% recyclable and will help to reduce carbon footprint by up to a third. The long operational lifetime span mentioned above means also that one LED light bulb can save material and production of 25 incandescent light bulbs. A big step towards a greener future!

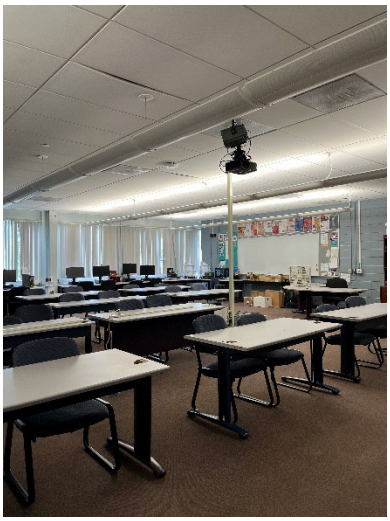
ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
1A LED Lighting	●	●	●	●	●	●

EXISTING CONDITIONS

Indoor lighting predominantly consists of high efficiency Light Emitting Diode (LED) lamps. A LED lighting upgrade has been recently completed throughout the District. In general, lighting is mostly operated on switches with motion sensors in larger spaces.



Lighting at Baxel Hall



Lighting at Mancuso Hall

SCOPE OF WORK

The proposed lighting system is based on the most recent lighting system audit where existing lighting systems were analyzed, inventoried and upgraded. Honeywell will credit the savings of this most recent upgrade to benefit the District to upgrade equipment and controls.

CHANGES IN INFRASTRUCTURE

New LED lamps and fixtures were installed as part of this ECM. Existing poles and shoe box fixtures were utilized where possible.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will not be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced electric energy usage. A slight increase in heating energy is resultant from the reduced heat output of more efficient lamps.
Waste Production	None
Environmental Regulations	No environmental impact is expected.

ECM 1B De-Stratification Fans

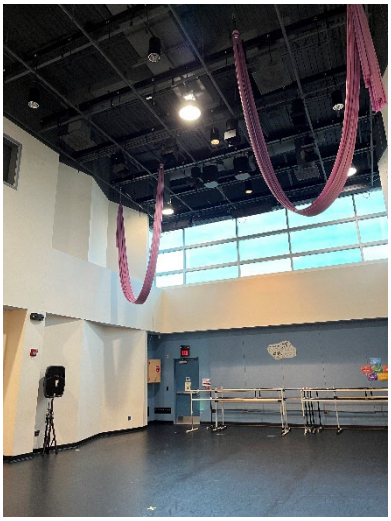
The key benefits of this ECM include:

- **Improved efficiency and energy savings** through more equal distribution of conditioned air space.
- **Equipment longevity** due to lower utilization of equipment to condition air.
- **Increased comfort** of students and teachers.

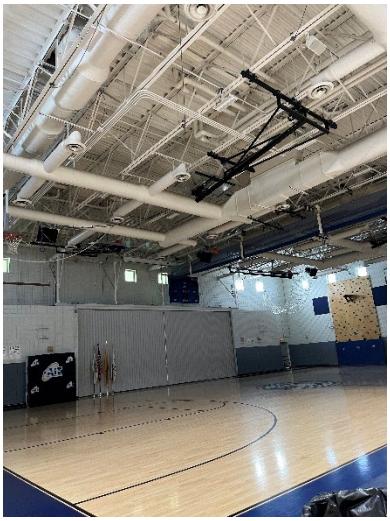
ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
1B Destratification Fans		●		●		

EXISTING CONDITIONS

Warm air stratifies close to the ceiling in high ceiling areas such as in a gymnasium or auditorium. Elevated levels of heat transfer through the high walls and roof causes elevated heat loss.



Academy of Performing Arts – Studio D



Bistocchi Hall - Gym

PROPOSED SOLUTION

In areas with 20+ foot ceiling heights, there is approximately a 15°F+ temperature difference between the floor and the ceiling. With higher ceilings, it is even greater. That means to generate the heat necessary to maintain a comfortable 70°F temperature at the floor level, where student activities occur, the ceiling could be 85°F or higher.

De-stratification fans even out the air temperature to a zero to 3°F differential from floor to ceiling and wall to wall. This will allow HVAC systems to run for a shorter duration because of the absence of extreme temperatures to heat or cool, thus allowing the local thermostats to be satisfied for longer periods of time.

Systems Evaluation and Selection

An energy-efficient motor drives a near-silent fan that forces a column of hotter air from the ceiling to the cooler floor below. As this column of warm air nears the floor, it begins to flare out in a circular pattern and rise again creating a torus. While doing so, it warms the cooler air and mixes with air near the floor, increasing the temperature and comfort of occupants. Through a natural law of physics, this torus will continue to re-circulate air, mixing warmer air from the ceiling with cooler air near the floor until the ceiling and air temperatures are nearly equal. As this happens, it will require less and less energy to comfortably heat the work area, allowing thermostats to be lowered and energy savings to be realized. Once started, the entire process of "thermal equalization" will take on average less than 24 hours.

Airius airflow circulation fan system will be used to eradicate stratification in larger spaces. As the fans continue to circulate internal atmosphere, the AirPear also provides all the features and benefits of a destratification and airflow circulation fan, balancing temperatures, improving comfort, reducing heating and cooling costs and reducing carbon emissions.

Based on preliminary site investigation conducted by our staff, we propose to install the de-stratification fans as indicated in the table below.

Table 1B.1 Proposed De-Stratification Fans

Building	Location	Airius Model	Qty AirPear
Bistocchi Hall	Main Gym	(1) A-25-SP-STD-120-W	8
Academy of Performing Arts	Studio D	(1) A-25-SP-STD-120-W	6
Total			**14**

SCOPE OF WORK

Per De-Stratification Fan:

- Shut off the main electric power to the area in which the unit(s) will be installed.
- Install new de-stratification fan and wiring.
- Re-energize.
- Inspect unit operation by performing electrical and harmonics testing.

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. The District and Honeywell will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New de-stratification fans will be installed as part of this ECM.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced thermal energy usage. A slight increase in electrical energy is resultant from the operation of the fan motors.
Waste Production	Proper disposal of any waste generated.
Environmental Regulations	No environmental impact is expected.

ECM 2A Boiler Replacements

The key benefits of this ECM include:

- **Reduced energy usage** from improved boiler efficiency resulting from replacement of older equipment, and in certain instances, oversized boilers.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
2A Boiler Replacements	●					

EXISTING CONDITIONS

Some boilers within the School District have frequent maintenance and operational issues. These boilers can be replaced with high efficiency condensing boilers.

West Hall - Boilers

EXISTING BOILERS TO BE UPGRADED

Table 2A.1 Existing Boilers

Building	Type	Manufacturer	Model	Qty	Capacity (MBH)	Fuel
West Hall	Hot Water	Aerco	Benchmark 2.0	6	2000	NG

PROPOSED SOLUTION

It is recommended that the boilers listed in the table above be replaced with boilers operating at higher efficiency as provided in table below. New condensing hot water boilers have thermal efficiencies that range from 88% – 95% depending on the return hot water temperature from the heating loop. With proper design, it is typical to see thermal efficiencies of around 92%. Thermal efficiency is only one part of the equation that makes up the seasonal efficiency of a boiler.

New boiler sizes and quantities will be based on the heat load of the building with redundancy, taking into account the existing system sizing and level of redundancy.

Table 2A.2 Proposed Boilers

Building	Type	Manufacturer	Model	Qty	Capacity (MBH)	Fuel
West Hall	Hot Water	Fulton	EDR-2000	6	2000	NG

SCOPE OF WORK

The following outlines the boiler replacement:

- Disconnect gas back to shutoff valve and electric back to source panelboard.
- Remove existing boilers.
- Install new boilers.
- Connect gas and heating hot water appurtenances to new boilers.
- Terminate and power new boiler electric circuiting.
- Start up, commissioning, and operator training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

In general, Honeywell uses the following approach to determine savings for this specific measure:

Existing Boiler Efficiency	*= Existing Heat Production/ Existing Fuel Input*
Proposed Boiler Efficiency	*= Proposed Heat Production/ Proposed Fuel Input*
Energy Savings $	*= Heating Production (Proposed Efficiency – Existing Efficiency)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. The District and Honeywell will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New boilers will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

O&M IMPACT

The new boilers will decrease the O&M cost for maintaining the boilers.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods. Continuity of service must be maintained for the customer.

ENVIRONMENTAL ISSUES

Resource Use	Annual savings will result from greater combustion efficiency, reduced maintenance costs, and better control and setback.
Waste Production	Existing boilers scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected; all regulations will be adhered to in accordance with EPA and local code requirements.

ECM 2B Domestic Hot Water Heater Replacement

The key benefits of this ECM include:

- **Reduced energy usage** from improved efficiency resulting from replacement of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
2B Domestic Water Heater Replacements	●					

EXISTING CONDITIONS

Existing Domestic Hot Water (DHW) heaters are close to the end of useful life.

West Hall – Water Heater

West Hall – Water Heater

EXISTING WATER HEATERS TO BE REPLACED

Table 2B.1 Existing Water Heaters

Building	Manufacturer	Model	Output (MBH)	Storage	Fuel	Qty
West Hall	Ruud	G100-200	199	100	NG	3

PROPOSED SOLUTION

Honeywell proposes replacing the existing DHW heater at the above locations with highly efficient condensing DHW heaters. New condensing DHW heaters have efficiencies between 97% - 98%. They provide better control with capabilities as night setback, temperature adjustments and demand control hot water.

Table 2B.2 Proposed Water Heaters

Building	Manufacturer	Model	Output (MBH)	Storage	Fuel	Qty
West Hall	AO Smith	BTH-199- 300	199	100	NG	3

SCOPE OF WORK

The following outlines the Domestic Hot Water Heater replacement:

- Demolish and remove old water heaters.
- Furnish and install condensing gas fired domestic hot water heaters as specified in the table above.
- Install all required piping, controls, and breeching as needed.
- Install mixing valve.
- Install circulators where needed for building use and kitchen supply.
- Test and commission.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings are calculated from the domestic hot water heater efficiency differences.

Existing Efficiency	= Existing Efficiency + Existing Heat Exchanger Efficiency
Proposed Efficiency	= Efficiency of the New Domestic Hot Water Heater
Energy Savings $	= DHW Load x (Existing Equipment Efficiency – New Equipment Efficiency)

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available.
Equipment Identification	As part of the measure design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

A new controller for each DHW heater will be installed and programmed. In addition to the controllers, training for maintenance personnel will be required.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from improved thermal efficiency.
Waste Production	Proper disposal of any waste generated.
Environmental Regulations	No environmental impact is expected.

ECM 2C Roof Top Unit Upgrades

The key benefits of this ECM include:

- **Reduced energy usage** from improved efficiency resulting from replacement of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
2C Roof Top Unit Upgrades	●		●			

EXISTING CONDITIONS

Some Roof Top Units serving the buildings are inefficient or past their useful lives. Replacing these units with new, high efficiency units will save energy costs over the long term while reducing repair costs that would otherwise have been necessary to keep the old RTUs in operation.

West Hall - RTU

Mancuso Hall - RTU

EXISTING ROOFTOP UNITS TO BE REPLACED

Table 2C.1 Existing RTUs

Building	Location Served	Manufacturer	Model	Tons	Qty
West Hall	West Hall	AAON	RN-031-3-0-0W0K-2A4	31	1
West Hall	West Hall	AAON	RN-031-3-0-0W0K-2A4	31	1
Mancuso Hall	Mancuso Hall	McQuay	RPS030CLW	30	1

PROPOSED SOLUTION

Honeywell proposes replacing the existing RTU units in the above table. Existing electrical power supply will be reconnected to the new units. The new units will be equipped with factory-installed microprocessor controls that improve unit efficiency. The units will also communicate with the building management system.

Table 2C.2 Proposed RTUs

Building	Location Served	Manufacturer	Model	Tons	Qty
West Hall	West Hall	Daikin	MPS030J	30	1
West Hall	West Hall	Daikin	MPS030J	30	1
Mancuso Hall	Mancuso Hall	Daikin	DPSA030	30	1

SCOPE OF WORK

The following outlines the scope of work to install the HVAC units stated in the above table:

- Disconnect existing electric connections.
- Disconnect piping and air ducts from the unit.
- Remove unit from the base.
- Modify base for new unit if necessary.
- Rig and set new unit at the base.
- Inspect piping and air ducts before reconnecting them to the unit.
- Reconnect piping and air ducts.
- Repair duct and piping insulation.
- Connect electric power.
- Start up and commissioning of new unit.
- Maintenance operator(s) training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based on the energy efficiency between the existing and new units. The savings are generally calculated as:

Electric Energy Savings	*= Existing unit energy consumption (kWh) – replacement unit energy consumption (kWh)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. Honeywell and the customer will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New units will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher efficiency units.
Waste Production	Existing unit scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 2D Split System Replacements

The key benefits of this ECM include:

- **Reduced energy usage** from improved unit efficiency resulting from replacement of older equipment, and in certain instances, oversized units.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
2D Split System Upgrades			●			

EXISTING CONDITIONS

Honeywell identified some split systems as being inefficient and having exceeded their useful service life. Replacing old units with new, high efficiency units will save energy costs over the long term, while reducing repair costs that would otherwise have been necessary to keep the old units in operation.

Mancuso Hall – Split System

Mancuso Hall – Split System

EXISTING SPLIT SYSTEMS TO BE REPLACED

Table 2D.1 Existing Split Systems

Building	Area Served	Manufacturer	Model	Tons	Qty
Mancuso Hall	AC-1-3 Robotics 113, IT Office 115	McQuay	ALP015D	15	1

PROPOSED SOLUTION

Honeywell proposes replacing both the existing condensing units and air handling units in the table above with new units. The new units will be installed in the same location as the existing units. Existing electrical power supply will be reconnected to the new motors. The new units will be equipped with factory-installed microprocessor controls that improve unit efficiency. The units will also communicate with the existing or enhanced BMS.

Table 2D.2 Proposed Split Systems

Building	Area Served	Manufacturer	Model	Tons	Qty
Mancuso Hall	AC-1-3 Robotics 113, IT Office 115	Daikin	RCS015	15	1

SCOPE OF WORK

The following outlines the scope of work to install the condensing units listed in the Proposed Split Systems table above.

- Disconnect existing electric connections.
- Disconnect piping from the unit.
- Remove unit from the base.
- Modify base for new unit if necessary.
- Rig and set new unit at the base.
- Inspect piping and air ducts before reconnecting them to the unit.
- Reconnect piping and air ducts.
- Repair duct and piping insulation.
- Connect electric power.
- Start up and commissioning of new unit.
- Maintenance operator(s) training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based on the energy efficiency between the existing and new units. The savings are generally calculated as:

Electric Energy Savings	*= Existing unit energy consumption (kWh) – replacement unit energy consumption (kWh)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. The District and Honeywell will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New split systems will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher efficiency units.
Waste Production	Existing condensing units scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 2E Premium Efficiency Motors, Pumps and VFDs

The key benefits of this ECM include:

- **Energy savings** from reduced run hours and reduced motor speeds.
- **Equipment longevity** due to more efficient and less wasteful equipment utilization and reduced startup wear.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
2E Premium Efficiency Motors and VFDs	●		●			

EXISTING CONDITIONS

Honeywell has identified standard efficiency electric motors on several pumps. Energy savings can be obtained by replacing the standard efficiency motors with premium efficiency motors as well as by installing VFDs on systems that have two-way control valves.

West Hall – Motor

Mancuso Hall – Motor

EXISTING MOTORS TO BE REPLACED

Table 2E.1 Existing Motors

Building	Type	Qty	Motor HP	Existing Efficiency	Add VFD
Mancuso Hall	HW Pump	1	3.0	89.5%	N
Mancuso Hall	HW Pump	1	5.0	85.0%	N
Mancuso Hall	HW Pump	1	5.0	85.0%	N
West Hall	West Hall HW	1	1.0	88.5%	N
West Hall	Baxel Hall HW	1	1.0	88.5%	N
West Hall	Magnet HW	1	1.0	88.5%	N
West Hall	CHW Supply	4	30.0	94.1%	N
West Hall	CHW Return	2	30.0	91.0%	N

PROPOSED SOLUTION

Honeywell observed that several motors and pumps that are sized to meet peak heating or cooling conditions. However, we've learned that most operating hours occur during conditions that require less than peak loads.

Honeywell proposes replacement of all above-mentioned single speed standard efficiency motors (that do not have VFDs) with new premium efficiency motors and installing new couplings where applicable. In addition, Honeywell recommends installing VFDs on these pumps. Energy used by the motor can be reduced by varying the flow in response to varying loads in the space. Motor speed may be controlled either based on the pressure in the distribution system or based on time of day.

Honeywell recommends fitting unit ventilators with two-way valves (provided that unit ventilators located at end of piping branches are fitted with three-way valves to keep hot water moving through the distribution piping at all times).

Honeywell also recommends installing VFDs on the heating hot water pumps and chilled water pumps to better match pumping output to system requirements and reduce energy waste. Each motor will be equipped with new selector relays that will allow one drive to operate per pump with the VFD drive. Honeywell also recommends installation of new differential pressure sensors and tying them to the control system to allow you to regulate the speed of the pump per load requirements. Lastly, we recommend installation of VFDs on the cooling system pump motors that have higher horsepower. VFDs will maintain temperatures in the unit by adjusting the speed of both the motor and the pump and can be connected to your BMS.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The energy consumed by electric motors varies inversely with the cube of the motor speed. Variable frequency drives reduce motor speed (in response to load) thus reducing energy consumption exponentially.

CHANGES IN INFRASTRUCTURE

New motors will be installed in place of the old motors. No expansion of the facilities will be necessary.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will also be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reducing electrical usage by operating higher efficiency motors for the same horsepower output. The equipment uses no other resources.
Waste Production	This measure will produce waste by-products. Old motors shall be disposed of in accordance with all federal, state, and local codes.
Environmental Regulations	No environmental impact is expected.

ECM 2F Chiller Replacements

The key benefits of this ECM include:

- **Reduced energy usage** from improved efficiency due to replacement of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
2F Chiller Replacements	●					

EXISTING CONDITIONS

Chillers serving some schools are near the end of useful life and are costly to maintain. Replacing with new, high efficiency unit will save energy costs over the long term while reducing repair costs that would otherwise have been necessary to keep the old units in operation.

West Hall - Chiller

West Hall – Chiller

EXISTING CHILLER UNITS

Table 2F.1 - Existing Chillers

Building	Location Served	Manufacturer	Model	Tons	Qty
West Hall	Campus	McQuay	ALS218C27-ER11	218.0	1
West Hall	Campus	McQuay	AGS320B27-ER10	320.0	1

PROPOSED SOLUTION

Honeywell proposes replacing the existing chillers in the table above. Existing electrical power supply will be reconnected to the new units. The unit will communicate with the existing or enhanced BMS.

Table 2F.2 – Proposed Air-Cooled Chillers

Building	Location Served	Manufacturer	Model	Tons	Qty
West Hall	Campus	Daikin	AGZ104F	214.8	1
West Hall	Campus	Daikin	AWB026B	310.0	1

SCOPE OF WORK

The following outlines the scope of work to install the chiller unit listed in the table above.

- Disconnect existing electric connections.
- Disconnect piping from the unit.
- Remove existing unit.
- Rig and set new unit.
- Inspect piping before reconnecting them to the unit.
- Reconnect piping.
- Repair piping insulation.
- Connect electric power.
- Start up and commissioning of new unit.
- Maintenance operator(s) training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based on the energy efficiency between the existing and new units. The savings are generally calculated as:

Electric Energy savings	*= Existing unit energy consumption (kWh) – replacement unit energy consumption (kWh)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New chillers will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher efficiency units.
Waste Production	Existing units scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 2G Air Handling Unit Replacements

The key benefits of this ECM include:

- **Reduced energy usage** from improved efficiency resulting from replacement of older equipment.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
2G AHU Replacements	●			●		

EXISTING CONDITIONS

Some Air Handling Units serving the buildings are inefficient or past their useful lives. Replacing these units with new, high efficiency units will save energy costs over the long term while reducing repair costs that would otherwise have been necessary to keep the old AHUs in operation.

Bistocchi Hall - AHU

West Hall - AHU

EXISTING ROOFTOP UNITS TO BE REPLACED

Table 2G.1 Existing AHUs

Building	Location Served	Manufacturer	Model	Tons	Qty
West Hall	Classrooms	PETRA	PAHHC150C4H1	37.5	1
West Hall	Classrooms	PETRA	PAHHC150C4H1	37.5	1
West Hall	Classrooms	PETRA	PAHHC120C4H1	25.0	1
West Hall	Classrooms	PETRA	PAHHC150C4H1	37.5	1
West Hall	Kitchen	PETRA	PAHHC150C4H1	37.5	1
West Hall	Classrooms	PETRA	PAHHC150C4H1	37.5	1
Bistocchi Hall	Classrooms	McQuay	RDS802CYW	35.0	1
Bistocchi Hall	Classrooms	McQuay	RDS802CYW	25.0	1
Bistocchi Hall	Classrooms	McQuay	RDS802CYW	35.0	1
Bistocchi Hall	Classrooms	McQuay	RAH047CSW	42.5	1

Building	Location Served	Manufacturer	Model	Tons	Qty
Bistocchi Hall	Classrooms	McQuay	RAH047CSW	50.0	1
Bistocchi Hall	Classrooms	McQuay	RDS802CYW	35.0	1
Bistocchi Hall	Classrooms	McQuay	RDS802CYW	27.5	1
Bistocchi Hall	Classrooms	McQuay	RDS800CYW	20.0	1
Bistocchi Hall	Classrooms	McQuay	RDS802CYW	27.5	1

PROPOSED SOLUTION

Honeywell proposes replacing the existing AHU units in the above table. Existing electrical power supply will be reconnected to the new units. The new units will be equipped with factory-installed microprocessor controls that improve unit efficiency. The units will also communicate with the building management system.

Table 2G.2 Proposed AHUs

Building	Location Served	Manufacturer	Model	Tons	Qty
West Hall	Classrooms	Daikin	OAH048	37.5	1
West Hall	Classrooms	Daikin	OAH048	37.5	1
West Hall	Classrooms	Daikin	OAH048	37.5	1
West Hall	Classrooms	Daikin	OAH048	37.5	1
West Hall	Kitchen	Daikin	OAH048	37.5	1
West Hall	Classrooms	Daikin	OAH035	25.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB34	35.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB34	35.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB34	35.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB34	35.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB34	35.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB34	35.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB34	35.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB29	20.0	1
Bistocchi Hall	Classrooms	Daikin	DAHAB34	35.0	1

SCOPE OF WORK

The following outlines the scope of work to install the AHU units stated in the above table:

- Disconnect existing electric connections.
- Disconnect piping and air ducts from the unit.
- Remove unit from the base.
- Modify base for new unit if necessary.
- Rig and set new unit at the base.
- Inspect piping and air ducts before reconnecting them to the unit.
- Reconnect piping and air ducts.

- Repair duct and piping insulation.
- Connect electric power.
- Start up and commissioning of new unit.
- Maintenance operator(s) training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The savings approach is based on the energy efficiency between the existing and new units. The savings are generally calculated as:

Electric Energy savings	*= Existing unit energy consumption (kWh) – replacement unit energy consumption (kWh)*

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. Honeywell and the customer will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

New units will be installed in itemized locations; in addition, training for maintenance personnel will be required, as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Coordination of the electrical tie-in will be required.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from higher efficiency units.
Waste Production	Existing unit scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 2H Boiler Burner Controls

The key benefits of this ECM include:

- **Reduced energy usage** from improved boiler efficiency resulting from replacement of older equipment, and in certain instances, oversized boilers.
- **Lower operational costs** through less frequent maintenance and operational issues.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
2H Boiler Controls	●					

EXISTING CONDITIONS

Honeywell has identified some boiler burners are the best candidates for burner replacements and controls.

West Hall – Burners

West Hall – Burners

EXISTING BURNERS TO BE REPLACED

Table 2H.1 Existing Burners

Building	Make	Model	MBH	Qty
West Hall	Cleaver Brooks	CB Lance Type	16,738	1

PROPOSED SOLUTION

Typically, boilers are sized to accommodate the coldest days (approximately 5% of the year). During these periods of maximum demand, the burner is constantly on and operating at maximum capacity. The burner cycles on and off, maintaining temperature or pressure in the boiler. It is during these periods of lesser demand, that the controller will monitor the boiler make up rate, and efficiently manage the firing of the boiler.

The length of the burner's off-cycle is the best measure of total heating demand or load. In other words, the load is directly related to the time it takes for water (or steam) in the boiler to drop from its high-limit temperature (or pressure) to its low-limit or "call" setting. When demand is high, these off-cycles are short, and the on-cycles are longer. When demand is lower, off-cycles are longer, and on-cycles are reduced.

The device, which is a microprocessor-based computer, constantly monitors the demand on the boiler by assimilating all factors affecting a building's heating requirements, including occupancy, climate, wind chill, solar gain, type of building, and many others.

PROPOSED SYSTEMS AND SCOPE OF WORK

Honeywell will replace the burners on the boilers listed above with new, natural gas-fired burners, utilizing advanced controls.

HONEYWELL SLATE™

SLATE™ from Honeywell brings together configurable safety and programmable logic for the first time ever. It's one platform from one vendor that can easily be customized for almost any application – in less time with less complexity.

This upgrade will provide a combustion curve and light-off points including minimum/maximum firing rate points resulting in a precise firing rate control over the entire firing rate of the burner. Combustion efficiency will be maximized throughout the combustion curve and will provide a fuel curve to achieve maximum efficiency.

MODULATING BURNER CONTROL

The Modulating Burner integrates flame safeguard control, fuel-air ratio control, O2 Trim, VFD control, and proportional integral derivative (PID) control into a single, integrated, user-friendly system.

The features integrated into the burner provide energy savings, reduced emissions, reduced installation costs and enhanced safety.

FUEL METERING

- Reduced fuel use.
- Increased burner efficiency.
- Greenhouse gas emissions reduction.

EASY ACCESS PANELS

- Total access to components.
- Easy maintenance.

GRAPHIC BURNER MANAGEMENT SYSTEM

- Graphic annunciation of critical burner functions.

SCOPE OF WORK

The following outlines the boiler burner controls:

- Disconnect electrical and gas from existing boiler burner.
- Install new burner controls on existing burner (where applicable).
- Start up, commissioning and operator training.

ENERGY SAVINGS METHODOLOGY AND RESULTS

In general, Honeywell uses the following approach to determine savings for this specific measure:

Existing Boiler Efficiency	*= Existing Heat Production/ Existing Fuel Input*
Proposed Boiler Efficiency	*= Proposed Heat Production/ Proposed Fuel Input*
Energy Savings $	*= Heating Production (Proposed Efficiency – Existing Efficiency)*

CHANGES IN INFRASTRUCTURE

New combustion controls will be installed and programmed in the locations listed above; in addition, training for maintenance personnel will be required as well as on-going, annual preventive maintenance.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods. Continuity of service must be maintained for the customer.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from greater boiler load control, reduced maintenance costs control and setback.
Waste Production	Existing equipment scheduled for removal will be disposed of properly.
Environmental Regulations	No environmental impact is expected; all regulations will be adhered to in accordance with EPA and local code requirements.

ECM 3A Building Management Controls

The key benefits of this ECM include:

- **Improve Air Quality** by more precise control of air filtration, air composition and ultra-violet cleaning to create a healthier school building environment.
- **Operational efficiency** resulting from better control and system wide visibility.
- **Remote operation** of HVAC systems via mobile phone or off-site computer.
- **Energy savings** from reducing total energy consumption with more efficient, state of the art technology.
- **Occupancy comfort and productivity** resulting from enhanced temperature and humidity control throughout your buildings.
- **Deliver a comprehensive open protocol Building Management System**. Verify design is customized for each building yet uniform throughout the district. Assure longevity of control system with proper commissioning and training.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
3A Building Management Controls	●	●	●	●		●

ECM OVERVIEW

Honeywell has performed a survey of the existing temperature controls throughout the campus. Upon inspection, it was noted that the level of controls technology varies throughout the campus. Regardless of the systems in place, the building control systems can benefit from upgrades and implementing energy conservation enhancements.

EXISTING CONDITIONS

The campus's current Enterprise Building Integrator (EBI) software, EBI 430, was released over 10 years ago and is no longer being supported. The following list identifies each of the campus buildings, how they are identified on the existing BMS. The Administration building has a self-contained Trane control system, and the West Hall addition has an Automated Logics controls system in place.

Existing Buildings visible on the current Enterprise Building Integrator R430:

Building Name	Building Name (EBI)
West Hall HS / Vocational Technical Building	West Hall Building
West Hall HS / Vocational Technical Building	Vocational Center Building
Bistocchi Hall / New Academic Building	Academic Building
Baxel Hall	Baxel Hall
Mancuso Hall / Magnet High School	Magnet Hall
Academy of Performing Arts	Honeywell controls – Not on existing EBI.
Administration Building	Not included – Self-contained Trane controls

Note: The Administration Building and West Hall Addition have separate controls systems and are not visible on the existing EBI building management system.

West Hall includes the Vocational Technical Center building and has an existing CPO-PC-400 running panel bus communications to Honeywell CPO-PC-6A controllers. The existing hot water boiler plant, chillers and ice making systems have upgraded controls installed, including the primary and secondary hot and chilled distribution pumps that serve the campus. The air handlers serving the cafeterias below deck re-heat coils have also been upgraded from the original XL level controls and the energy recovery units and vav's serving the beauty salon have updated Honeywell BACnet controls.

The remaining equipment throughout the building consist of either legacy XL level DDC controls with pneumatic end devices or self-contain pneumatic controls. DDC space sensors have been added where pneumatic controls are present to provide temperature monitoring in occupied spaces.

Mancuso Halls existing building level controls and air handling equipment have all been previously upgraded with Honeywell CPO controls. The building has an existing building JACE 8000 controller running panel bus communications to Honeywell CPO PC-6A controllers. Legacy Honeywell XL10 controls remain on the variable air volume boxes and two (2) cabinet unit heaters serving individual classrooms and entry way vestibules.

Bistocchi Hall's existing building automation controls for the hot and chilled water pumps, roof top air handlers, exhaust fans and domestic HW system have all been upgraded with newer Honeywell CPO controls. Legacy Honeywell XL10 controls remain on the variable air volume boxes serving the individual classroom and occupied spaces.

Baxel Hall has an existing building JACE800, but the remaining controls installed on the existing rooftop air handlers, constant and variable air volume boxes with reheats through the building are legacy Honeywell XL controls.

The Academy for Performing Arts has a Legacy R2 Building JACE controller and Honeywell XL controls on the building existing heat and ventilation equipment. Due to the age and software on the existing R2 Jace, the Academy for Performing is currently not visible through the existing EBI.

PROPOSED SOLUTION

DISTRICT-WIDE BMS UPGRADES

- Upgrade the existing campus Enterprise Building Integrator (EBI) software from EBI 430 to EBI R700. This upgrade is not only a critical, but necessary for the control's upgrades being proposed in the following scope of work document. The existing Window server 2008 R2 and EBI R430 software is currently configured on a standalone Window server. The proposed upgrade includes a new Windows server with the latest Windows Server 2022 software required for the EBI R700. The existing database will be migrated into the new version of EBI retaining the existing trends, alarms and global scheduling and new 5-star graphics will be created to update the existing legacy EBI R430 graphics.

WEST HALL / VOCATIONAL TECHNICAL BUILDING

- **New Equipment – DDC Upgrades**
  - Provide BACnet integration for two (2) Chillers, two (2) roof top air handlers and six (6) hot water boilers that are being replaced as part of this project. The new roof top air handler will be replacing the existing roof top air handlers referenced as AHU-W001 and AHU-W002. These two air handlers currently have gas heat and serve HW reheats in the space below. The new roof top air handler will come with DX cooling versus the existing chilled water coils that are currently in place.

- **West Hall Renovation (Room 319 and 320)**
  - Provide new DDC for two (2) new air handlers, six (6) variable air volume boxes, two (2) relief air dampers and one (1) exhaust fan that are being installed as part of the renovation to existing classrooms 319 and 320. Provide equipment graphics, occupancy schedule's and setpoints.
- **Legacy Controls Upgrades (Existing DDC End Devices)**
  - Provide new DDC to replace the existing Honeywell legacy XL10 controlled equipment in the building. Provide new space sensors to replace the existing sensor and re-use the existing DDC end devices. Provide updated equipment graphics, occupancy schedule's and setpoints. The equipment includes:
    - 6 - Existing roof top air handling units serving VAV boxes w/ re-heats.
      - RTU-1
      - RTU-2
      - RTU-3
      - RTU-4
      - RTU-5
      - RTU-6
        - 52 – Existing VAV's with re-heats and served by RTU's 1-6
        - 9 - Make-up air units with kitchen hood exhaust fans
        - 1 – Kitchen make-up air unit reference as MAU-1
        - 4 - Hot water re-heats served by AHU-W001 & W002
        - 2 – Toilet exhaust fans (TEF-1 & 2)
        - 1 – existing fan coil unit referred to as FCU-1
        - 2 – existing Split AC units (AC-1 & 2)
        - 3 - Walk-in refrigeration boxes (Temp and Alarm – monitoring only)
        - 3 – Unit ventilators (existing XL DDC - Not on BMS)
- **Legacy Controls and Pneumatic to DDC Upgrade**
  - Provide new DDC to replace the existing pneumatic controls and end devices on nine (9) classroom and one (1) classroom/corridor multi-zone air handling unit. These air handlers are enabled through the existing enterprise building integrator (EBI) and there are existing DDC space sensors for space temperature monitoring. The classroom AHUs are face and bypass units with no hot water coils and 2-way chilled water valves. The classroom/corridor unit is a multi-zone AHU serving 3 zones. New DDC, including new space sensors and DDC end devices will be provided to eliminate the pneumatics. Provide updated equipment graphics, occupancy schedule's and setpoints.
- **DDC Upgrades on Existing Pneumatic Equipment**
  - Provide new DDC for six (6) classroom air handlers, two (2) make-up air handling units and fourteen (14) pieces of finned tube radiation. The air handlers serve shop spaces located in the south section of the 1st floor and are conventional OA/RA units with HW coils. This equipment is not currently on the EBI BMS and identified as pneumatically controlled during the building survey. Provide updated equipment graphics, occupancy schedule's and setpoints.

- **Self-Contained Control Upgrades**
  - Provide new self-contained controls for thirteen (13) existing cabinet unit heaters that serve unoccupied areas such as hallways, entryways, stairwells, and bathrooms. Furnish and install thermostatic valves with remote bulb and locking cover. The units with fans shall be equipped with aquastat fan controllers. These self-contained control devices shall be configured to maintain a reduced setpoint.

MANCUSO HALL / MAGNET HIGH SCHOOL

- **New Equipment**
  - Provide BACnet integration for one (1) new split air handler and one (1) existing roof top air handler that are being replaced as part of this project. The existing split air handler is currently referred to as AC 1-3 serves classrooms 113 and 115. The roof top air handler is referred to as RTU-1 and it serve Administration and the auditorium. Provide updated equipment graphics, occupancy schedules and setpoints.
- **Legacy Controls Upgrades (existing DDC End Devices)**
  - Provide new DDC to replace the existing Honeywell legacy XL10 controls on fifty-nine (59) variable air volume, eighteen (18) constant air volume boxes and two (2) cabinet unit heaters. The existing VAV's and cabinet unit heater have existing DDC end devices. Provide new space sensors to replace the existing room space sensors. Provide updated equipment graphics, occupancy schedules and setpoints.

BISTOCCHI HALL – NEW ACADEMIC BUILDING

- **Legacy Controls Upgrades (Existing DDC End Devices)**
  - Provide new DDC to replace the existing Honeywell legacy XL10 controls on forty-two (42) variable air volume and eight (8) constant air volume boxes with existing hot water re-heats. The existing VAV's have DDC end devices that shall be reused. Provide new space sensors to replace the existing room space sensors. Provide updated equipment graphics, occupancy schedules and setpoints.

BAXEL HALL

- **Legacy Controls Upgrade (Existing DDC End Devices)**
  - Provide new DDC to replace the existing Honeywell legacy XL10 controls on eleven (11) rooftop air handlers, forty-two (42) variable air volume and eighteen (18) constant volume air volume boxes with existing hot water re-heats. The existing end devices are already DDC and shall be reused. Provide new space sensors to replace the existing room space sensors. Provide updated equipment graphics, occupancy schedules and setpoints.

ACADEMY FOR THE PERFORMING ARTS

- **Legacy Controls Upgrade (Existing DDC End Devices)**
  - Provide new building Supervisory controller to replace the existing legacy R2 Jace controller and the DDC controls to replace the existing Honeywell legacy XL controls on the existing central and terminal heat and ventilation equipment throughout the building. Provide new space sensors to replace the existing room space sensors. Provide floor plan and equipment graphics, occupancy schedules and setpoints. The equipment includes:
    - 1 – Hot water system: 1-HX, 2-Secondary HW pumps w/ VFD's and differential pressure control. – Existing XL50

- 8 – Roof top air handling units – existing XL800
- 5 – Roof top air handling units – existing XL50
- 21 – Variable air volume boxes w/ reheats. – Existing XL10
- 3 – Split air conditioning units – existing XL10

ENERGY SAVINGS METHODOLOGY AND RESULTS

In general, Honeywell uses the following approach to determine savings for this specific measure:

Existing Heating BTU and Cost per BTU	*= Metered data from existing meter readings*
Cost of Existing Heating	*= Average site data $/CCF or $/Gallon*
Reduction in Heating/Cooling BTU	*= Reduction in outside air CFM x 1.08 x Delta T x Operating Hours*
Cost of Proposed Heating/Cooling	*= Reduced BTU x Cost per BTU*
Energy Savings $	*= Existing Costs – Proposed Costs*

CHANGES IN INFRASTRUCTURE

None.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced energy
Waste Production	Any removed parts will be disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 3B Carbon & Energy Management (CEM)

The key benefits of this ECM include:

- **Cloud-Based Solution**.
- **Monitor Energy Consumption** to identify outliers and consolidates utility billing.
- **Estimates GHG emissions** at building portfolio and Site levels.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
3B Carbon & Energy Management (CEM)	●	●	●	●	●	●

EXISTING CONDITIONS

There is no user-friendly dashboard solution to visualize and track utility consumption throughout the District.

PROPOSED SOLUTION

Honeywell proposes to install continuous Carbon & Energy Management monitoring on the following meters including hardware and software as per Table 3B.1 –Meter Number and Type. This package will provide access to data that is populated from billing data synchronized with Union County Vo-Tech utility provider.

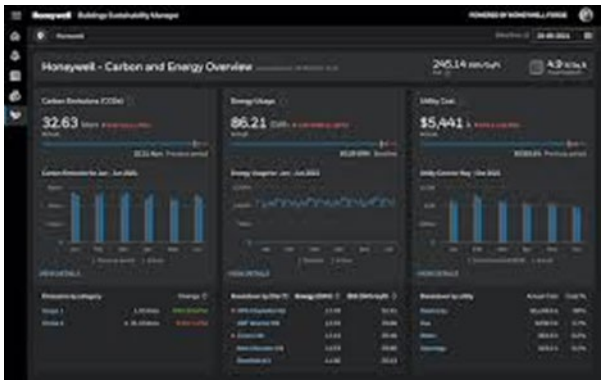
Table 3B.1 –Meter Number and Type

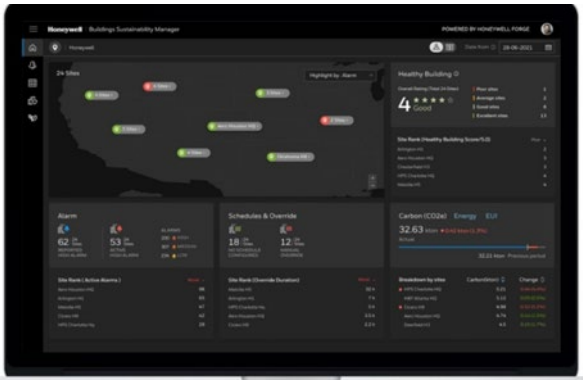
School Name	Meter	Meter Type
Academy of Performing Arts	9207854	Electric
Bistocchi Hall, Mancuso Hall, West Hall	9208998	Electric
West Hall	9209188	Electric
Administration Building	309020677	Electric
Baxel Hall	309007288	Electric
Academy of Performing Arts	2576918	Natural Gas
Mancuso Hall	3933621	Natural Gas
West Hall	2636977	Natural Gas
West Hall	3204508	Natural Gas
Administration Building	2278918	Natural Gas
Bistocchi Hall	2342161	Natural Gas
Baxel Hall	2788149	Natural Gas

The Monitor package includes base Carbon and Energy Management application that enables the ability to assess carbon and energy footprints, track energy costs (based on utility bills), track sustainability goals, measure and monitor emissions. CEM will provide a data baseline, monthly and annual trends and reduce manual data collection by consolidating Customer's utility billing data.

The Monitor package currently includes base Carbon and Energy Management application that enables the ability to:

- Assess carbon and energy footprints
- Track energy costs (based on utility bills)
- Track sustainability goals
- Measure and monitor emissions via easy-to-use visualization tools that provide a data baseline and monthly and annual trends
- Reduce manual data collection by consolidating Customer's utility billing data





CHANGES IN INFRASTRUCTURE

None.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

None.

ENVIRONMENTAL ISSUES

Resource Use	None.
Waste Production	No waste will be generated as a result of this ECM.
Environmental Regulations	No environmental impact is expected.

ECM 4A Building Envelope Improvements

The key benefits of this ECM include:

- **Energy savings** from reducing unwanted outside air infiltration.
- **Equipment longevity** due to more efficient and less wasteful equipment utilization.
- **Occupancy comfort and productivity** by way of enhanced temperature and humidity control throughout your buildings.
- **Improved building envelope** from addressing building gaps that allow unconditioned air penetration.

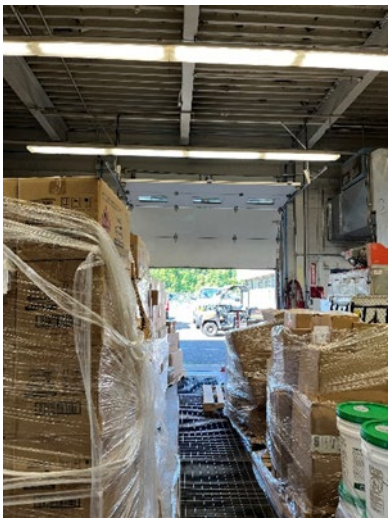
ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
4A Building Envelope Improvements	●	●	●	●	●	●

EXISTING CONDITIONS

Heat loss due to infiltration is a common problem, particularly in places with long and cold winter seasons such as NJ. This problem has been shown to represent the single largest source of heat loss or gain through the building envelopes of nearly all types of buildings. Our work has found 30% to 50% of heat loss attributable to air leaks in buildings.

Honeywell uncovered several leaks that allow for heat loss to occur during the winter season and unwanted heat gains during the summer season. These problems include door gaps, exhaust fans in poor condition, open windows or windows in poor condition, lack of air sealing, and insulation.

Academy of Performing Arts - Building Envelope



West Hall - Building Envelope

Honeywell has helped customers like you to address these problems with a comprehensive and thorough building envelope solution that seals up your buildings to improve occupancy comfort and help eliminate unwanted energy waste. We propose to conduct a comprehensive weatherization job to weatherproof

doors and windows, caulk and seal leaks, and install spray foam and rigid foam boards to stop unwanted air movement and provide a thermal barrier between spaces. Part of this process may include decoupling floor-to-floor and compartmentalizing of components of the building to equalize pressure differences.

PROPOSED SOLUTION

Table 4A.1 Proposed Building Envelope Scope

Building	Caulking (LF)	Door Weather Striping - Doubles (Units)	Door Weather Stripping - Singles (Units)	Overhang Air Sealing (LF)	Overhang Air Sealing (SF)	Roof-Wall Intersection Air Sealing (LF)	Roof-Wall Intersection Air Sealing (SF)	Wall Air Sealing (LF)
Academy of Performing Arts	106	5	5					
Administration Building		2						
Baxel Hall	42	10	1			36	2,475	
Bistocchi Hall		6	6					
Mancuso Hall		6	1			153	1,155	
West Hall		9	48	18	120	222		222
Total Quantity	**148**	**38**	**61**	**18**	**120**	**411**	**3,630**	**222**

Roof-Wall Joints

- Existing – Buildings throughout the School District were found to require roof-wall joint air sealing.
- Proposed – Honeywell recommends using a high-performance sealant. In some buildings, two-component foam will be used. Any cantilevers off the buildings will be sealed with backer rod and sealant. Finally, the inside vestibule corners should be sealed with backer rod and sealant.

Roof Penetrations

- Existing – There are many roof top exhaust fans that require damper cleaning, lubrication, and inspection for proper operation and to seal the roof deck to prevent penetration. Some units may be deemed to be too oversized for this service. Some buildings have roof-top AHUs with ducts that may show air leak during an IGA.
- Proposed – Honeywell recommends if there is leak, these duct penetrations will be sealed with two-component polyurethane foam. Skylights will also be sealed. Sealant will be injected behind the drip cap to eliminate airflow.

Roof Overhangs

- Existing – Roof overhangs at exterior doors are open to the drop ceilings, providing a pathway allowing heated and cooled air to escape between the interior and exterior of the building.
- Proposed – Honeywell proposes to install rigid foam boards and seal the perimeter and any penetrations with spray foam to prevent air leak and provide a sufficient thermal barrier between the spaces.

Doors

- Existing – Doors in the district need weather-stripping replacement and/or door sweeps.
- Proposed – Honeywell recommends new weather stripping and door sweeps to be installed where needed.

BENEFITS

This work will allow for more efficient operation of your buildings by reducing heating and cooling losses throughout the year. In addition, the draftiness of the buildings and hot and cold spots will be significantly reduced. A reduction in air infiltration will also minimize potential concerns for dirt infiltration or indoor air quality concerns including allergies.

ENERGY SAVINGS METHODOLOGY AND RESULTS

The energy savings for this ECM are realized at the buildings' HVAC equipment. The improved building envelope will limit conditioned air infiltration through openings in the building air barrier. Less infiltration means less heating required by the heating system.

EQUIPMENT INFORMATION

Manufacturer and Type	Several quality and cost-effective manufacturers are available. The District and Honeywell will determine final selections.
Equipment Identification	As part of the ECM design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

Building envelope will be improved with little or no noticeable changes.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minimal coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced HVAC energy usage and better occupant comfort.
Waste Production	Some existing caulking and weather-stripping will be removed and disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 4B Roof Replacements

The key benefits of this ECM include:

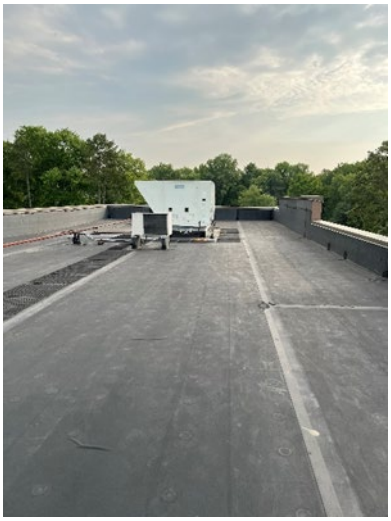
- **Energy savings** from reducing unwanted outside air infiltration.
- **Equipment longevity** due to more efficient and less wasteful equipment utilization.
- **Occupancy comfort and productivity** thanks to a tighter and more efficient building envelope.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
4B Roof Replacements		●				

EXISTING CONDITIONS

There are no warranties for most of the roofs. A section of the Seabrook School roof is due to expire in the near future. The heat loss and heat gains occurring due to low R-value of the existing roof insulation can be improved through sealing. Additionally, roofs in poor condition can lead to water migration and future building envelope problems. Potential problematic leakage areas can be around perimeters and equipment curbing.

Academy of Performing Arts – Existing Roof



Academy of Performing Arts – Existing Roof

PROPOSED SOLUTION

Honeywell proposes replacing existing roofs and installing a new roofing system in order to provide resistance to water intrusion, UV exposure and natural weathering. The roof upgrade will allow for less infiltration through the roof and air conditioning units to work less.

Table 4B.1 Existing Roof Area to Upgrade

Building	Approximate Roof Square Footage to Upgrade
Academy of Performing Arts	21,000
Total	**21,000**

ENERGY SAVINGS METHODOLOGY AND RESULTS

The energy savings for this ECM are realized at the buildings' HVAC equipment. The improved roof will limit conditioned air infiltration through openings in the building air barrier. Less infiltration means less heating and cooling required by HVAC systems.

Following approach is used to determine savings for this specific measure:

Existing Roof Efficiency	*= Existing U + Existing Infiltration Rate*
Proposed Roof Efficiency	*= Proposed U + Proposed Infiltration Rate*
Energy Savings $	*= UAdTproposed – UAdTexisting*
Winter Savings (Therms)	*= Energy Savings/Boiler Eff./100,000*
Summer Savings (Tons Cooling)	*= Energy Savings/12,000 Btu/Ton*

INTERFACE WITH BUILDING

The new roof sealing will be constructed to match existing, maintaining contours of the existing building.

CHANGES IN INFRASTRUCTURE

The existing roofing will be sealed at the above referenced roof locations.

SUPPORT AND COORDINATION WITH UTILITIES

Coordination efforts will be needed to reduce or limit impact to building occupants.

ENVIRONMENTAL ISSUES

Resource Use	Energy savings will result from reduced HVAC energy usage and better occupant comfort.
Waste Production	Existing roof material will be removed and disposed of properly.
Environmental Regulations	No environmental impact is expected.

ECM 5A Cogeneration CHP

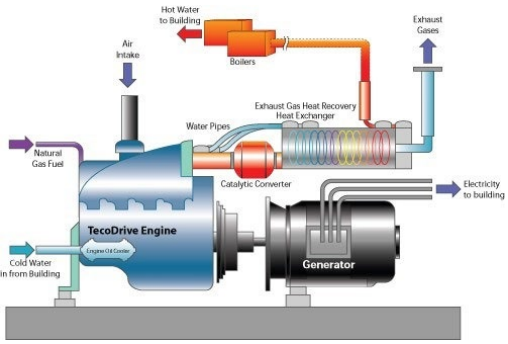
The key benefits of this ECM include:

- **Energy savings** from utilizing a Combined Heat and Power (CHP) system to supplement the existing heating system.
- **Operational savings** resulting from improved operational efficiencies unique to CHP technology.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
5A Cogeneration CHP	●					

EXISTING CONDITIONS

No working Combined Heat and Power (i.e. cogeneration) units are currently located within the School District.



Cogeneration Configuration

Tecopower CHP

PROPOSED SOLUTION

Honeywell recommends the installation of the Tecopower micro-cogeneration system provides heat and electrical power in a cost effective and environmentally friendly manner. Using a natural gas or propane fueled Marathon Engine, the system captures thermal energy for space heating or domestic hot water. The micro-CHP uses heat generated by an internal combustion engine to produce 450,000 BTU of heat per hour while simultaneously co-generating 75 kW of electricity per hour. The system is thermally driven. The Tecopower will anticipate the heat demand from sensors located in the house, buffer tank or outside and varies its output to satisfy the demand. It will modulate (slow down or speed up) to run at a level to maintain a constant heat requirement in order to keep the engine running as long as possible, ensuring maximum electrical generation.

SCOPE OF WORK

Table 5A.1 Proposed Cogeneration Units

Building	Manufacturer	Model	kW	Qty.
West Hall	Tecogen	Tecopower	75	1

ENERGY SAVINGS METHODOLOGY AND RESULTS

Savings are based on energy conversion of natural gas to thermal and electrical energy.

EQUIPMENT INFORMATION

Manufacturer and Type	Axiom Ecopower, Electrical Output 75 kW, Thermal Output 450,000 Btu/hr, Overall efficiency 93%
Equipment Identification	Product cut sheets and specifications for generally used are available upon request. As part of the measure design and approval process, specific product selection will be provided for your review and approval.

CHANGES IN INFRASTRUCTURE

The proposed micro-generator unit would reside in or near the boiler room.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods. The customer and Honeywell will decide upon the exact location of the CHP installation.

ENVIRONMENTAL ISSUES

Resource Use	Energy will be generated to supplement energy purchased from the electrical utility.
Waste Production	Any removed parts will be disposed of properly.
Environmental Regulations	Aside from the environmental benefits from on-site energy generation, no other environmental impact is expected.

ECM 6A Solar PPA

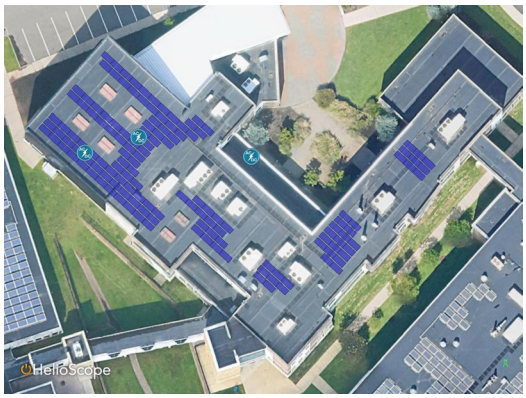
The key benefits of this ECM include:

- **Reduced utility costs**.
- **Guaranteed utility rates** for 15 years to provide a valuable hedge against future price volatility and deliver greater budgetary certainty utilizing clean electricity.
- **Additional savings** from solar can provide the schools with more potential ESIP funding to expand the overall project scope and include additional projects.
- **Educational asset** to provide additional tools for teachers to engage students on sustainability and the environment.
- **Low risk** given that maintenance is provided by the 3rd party system owner.
- **No upfront costs**.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
6A Solar PPA		●				

ECM OVERVIEW

Honeywell recommends that the District further assess the feasibility of a solar photovoltaic system on District owned roofs to generate on-site renewable electricity. This could be provided at no upfront cost via a Power Purchase Agreement (PPA). A PPA is a public-private partnership financial arrangement in which a third-party solar company owns, operates, and maintains your photovoltaic system, while the host customer agrees to provide the site for the system on its property. The solar system's power production is purchased by you for a predetermined price ($/kWh) and for a predetermined period. This stable price for electricity will be lower than the utilities and third-party suppliers, thereby allowing you to benefit from lower electricity prices, on-site renewable energy generation, a reduction in greenhouse gas emissions and a powerful educational tool for your teachers and students. Meanwhile, the system will not add any additional maintenance costs since it is owned by the third-party solar company. One of the more significant benefits of this potential ECM is that it will provide for a rate change, helping to deliver greater savings within your ESIP project to help fund other measures



Potential Roof Mount Solar - Academy of Performing Arts

Honeywell will oversee the design and construction of the system. We will assist in the feasibility study during your IGA, in conjunction with your technical consultant and legal team, to provide RFP development, solicitation, and oversight of the installation of a solar photovoltaic system.

PROPOSED SOLUTION

Honeywell proposes to install a new roof mount solar PPA system. The system will provide power to the potential buildings listed in the chart below.

Table 6A.1 Proposed Solar PPA System

Building	Type	kW DC	kWh AC Generated
Academy of Performing Arts	Roof Mount	70.8	94,942.5
Total		**70.8**	**94,942.5**

ENERGY SAVINGS METHODOLOGY AND RESULTS

Savings are based on the difference in kWh price between the PPA and the District's current electrical supplier.

CHANGES IN INFRASTRUCTURE

The proposed solar array would be roof-mounted only.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	None.
Waste Production	None.
Environmental Regulations	Aside from the environmental benefits of increasing energy awareness no other environmental impact is expected.

ECM 6B Remote Solar - Net Metering

The key benefits of this ECM include:

- **Reduced utility costs**.
- **Additional savings** from solar can provide the District with more potential ESIP funding to expand the overall project scope and include additional projects.
- **Educational asset** to provide additional tools for teachers to engage students on sustainability and the environment.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
6B Community Solar	●	●	●	●	●	●

ECM OVERVIEW

Similar to Solar PPA, customers who are unable to install solar system on their site due to shading, interconnection, roof conditions and other factors can install Remote Solar. This solution is especially important for end users whose ability to install solar on the premises is limited.

With Remote Solar, the solar system is developed in a geographic location within the end user's utility territory through a Power Purchase agreement. Solar energy is obligated by the customer and transferred thereto in the form of utility credits as if solar were connected at their facilities.

Honeywell will assist in the feasibility study during your IGA, in conjunction with your technical consultant and legal team, to provide RFP development, solicitation, and oversight of the Remote Solar Net Metering Program.

Honeywell will solicit proposals from qualified providers who are able to provide this solution within a 24- to 36-month window from time of engagement.

PROPOSED SOLUTION

Honeywell proposes the District to install Remote Solar Net Metering in order to reduce utility costs.

Table 6B.1 Potential Solar Energy Purchased from Community Solar Program

Building	kWh Purchased
West Hall	1,962,782
Academy of Performing Arts	475,634
Mancuso Hall	751,579
Bistocchi Hall	252,174
Administration Building	126,231
Baxel Hall	457,621
Total	**4,026,021**

ENERGY SAVINGS METHODOLOGY AND RESULTS

Savings are based on the difference in kWh price between the Remote Solar rate and the District's current electrical rate.

CHANGES IN INFRASTRUCTURE

None.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

None.

ENVIRONMENTAL ISSUES

Resource Use	None.
Waste Production	None.
Environmental Regulations	Aside from the environmental benefits of increasing energy awareness no other environmental impact is expected.

ECM 6C Solar PV Purchase

The key benefits of this ECM include:

- **Reduced utility costs**.
- **Additional savings** from solar can provide the schools with more potential ESIP funding to expand the overall project scope and include additional projects.
- **Educational asset** to provide additional tools for teachers to engage students on sustainability and the environment.

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin. Building	Baxel Hall
6C Solar PV		●				

ECM OVERVIEW

Similar to Solar PPA, another option is a self-owned solar project. Energy storage projects were previously ineligible for tax credits unless they were connected directly to solar power projects.

The Inflation Reduction Act removes these requirements and allows energy storage projects to receive the same 30% tax credit, even if they are stand-alone facilities. Batteries connected to a solar power project will continue to qualify for the credit, even if they are no longer being charged by solar power. Solar power projects eligible for the full 30% tax credit can increase their tax credit by an additional 10% – to 40% in total – by purchasing domestically produced hardware. Per the document, 100% of steel and iron must be US manufactured in the United States. For manufactured goods – like solar panels, inverters, and electrical gear – the goods must initially be 40% US manufactured, though this percentage will increase in the future.

Historically, the federal solar tax credit has only been available to for-profit businesses that pay taxes. Because of this, solar ownership has been less viable for tax-exempt organizations, and power purchase agreements have been the only real option.

Thanks to the Inflation Reduction Act, tax-exempt organizations can now receive a direct payment worth 30% of their solar installation costs, making solar installation and ownership a more viable option for public schools, government buildings, and non-profit organizations.

Honeywell will evaluate the two methods of Solar Procurement for the District to further assess the feasibility of a solar photovoltaic system on District owned roofs to generate on-site renewable electricity.

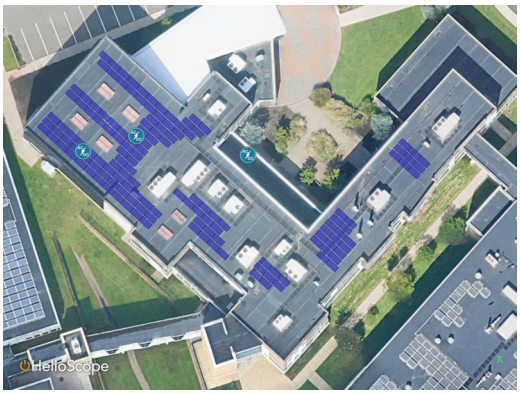
Honeywell will oversee the design and construction of the system. We will assist in the feasibility study during your IGA, in conjunction with your technical consultant and legal team, to provide RFP development, solicitation, and oversight of the installation of a solar photovoltaic system.

PROPOSED SOLUTION

Honeywell proposes to install a new solar PV system at the potential buildings listed in the chart below.

Table 6C.1 Proposed Solar PV System

Building	Type	kW DC	kWh AC Generated
Academy of Performing Arts	Roof Mount	70.8	94,942.5
Total		**70.8**	**94,942.5**



Potential Roof Mount Solar - Academy of Performing Arts

ENERGY SAVINGS METHODOLOGY AND RESULTS

Savings are based on the current District's kWh price. A 0.83 DC to AC safety factor is assumed base on efficiency of DC to AC invertors.

CHANGES IN INFRASTRUCTURE

The proposed solar array would be roof-mounted only.

CUSTOMER SUPPORT AND COORDINATION WITH UTILITIES

Minor support will be required for the interruption of utilities for brief tie-in periods.

ENVIRONMENTAL ISSUES

Resource Use	None.
Waste Production	None.
Environmental Regulations	Aside from the environmental benefits of increasing energy awareness no other environmental impact is expected.

SECTION D
TECHNICAL & FINANCIAL SUMMARY

SECTION D – TECHNICAL & FINANCIAL SUMMARY

1. RECOMMENDED ESIP PROJECT

Form II: Recommended Project — Energy Conservation Measures (ECMs) Summary Form

FORM II
ESCO's PRELIMINARY ENERGY SAVINGS PLAN (ESP):
ENERGY CONSERVATION MEASUREs (ECMs) SUMMARY FORM
UNION COUNTY VOCATIONAL-TECHNICAL SCHOOLS
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: Honeywell International

Proposed Preliminary Energy Savings Plan: ECMs (Base Project)	Estimated Costs $	Estimated Annual Savings $	Estimated Simple Payback (years)
1A LED Lighting	$ -	$ 185,506	-
2C Roof Top Unit Upgrades	$ 632,150	$ 11,412	55.39
2F Chiller Replacements	$ 1,678,005	$ 23,609	71.07
3A Building Management Controls	$ 230,405	$ 34,963	6.59
4A Building Envelope Improvements	$ 136,771	$ 17,263	7.92
Add additional lines as needed* **Project Summary:**	$ 2,677,332	$ 272,754	9.82

Optional ECMs Considered, but not included with base project at this time	Estimated Costs $	Estimated Annual Savings $	Estimated Simple Payback (years)
1B Destratification Fans	$ 59,133	$ 3,258	18.15
2A Boiler Replacements	$ 1,441,819	$ 26,870	53.66
2B Domestic Water Heater Replacements	$ 183,905	$ 651	282.57
2D Split System Upgrades	$ 223,027	$ 10,480	21.28
2E Premium Efficiency Motors and VFDs	$ 223,091	$ 147	1,513.23
2G AHU Replacements	$ 5,837,377	$ 36,966	157.91
2H Boiler Controls	$ 69,597	$ 2,076	33.52
3B Carbon & Energy Management (CEM)	$ 35,988	$ -	-
4B Roof Replacements	$ 1,406,956	$ 963	1,461.39
5A Cogeneration CHP	$ 1,085,325	$ 33,636	32.27
6A Solar PPA	$ 33,208	$ 6,170	5.38
6B Community Solar	$ 0	$ 135,982	0.00
6C Solar PV	$ 221,705	$ 9,968	22.24

Form III: Recommended Project — Projected Annual Energy Savings Data Form

FORM III

ESCO's PRELIMINARY ENERGY SAVINGS PLAN (ESP)
PROJECTED ANNUAL ENERGY SAVINGS DATA FORM
UNION COUNTY VOCATIONAL-TECHNICAL SCHOOLS
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: **Honeywell International**

The projected annual savings for each fuel type MUST be completed using the following format. Data should be given in the form of fuel units that appear in the utility bills.

Energy/Water	ESCO Developed Baseline (Units)	ESCO Developed Baseline (Costs $)	Proposed Annual Savings (Units)	Proposed Annual Savings (Costs $)
Electric Demand (KW)	19,040	$38,059	2,375	$5,477
Electric Energy (KWH)	7,440,253	$901,961	1,546,252	$179,910
Natural Gas (therms)	275,422	$219,533	15,034	$13,191
Fuel Oil (Gal)	0	$0	0	$0
Steam (Pounds)				
Water (gallons)				
Other (Specify Units)				
Other (Specify Units)				
Avoided Emissions (1)	Provide in Pounds (Lbs)			
NOX	1,422			
SO2	1,036			
CO2	1,189,454			

(1) ESCOs are to use the rates provided as part of this RFP to calculate Avoided Emissions. Calculation for all project energy savings and greenhouse gas reductions will be conducted in accordance with adopted NJBPU protocols

(2) "ESCOs Developed Baseline": Board's current annual usages and costs as determined by the proposing ESCO; based off Board's utility information as provided to proposing ESCO.

(3) "Proposed Annual Savings": ESCOs proposed annual savings resulting from the Board's implementation of the proposed ESP, as based upon "ESCOs Developed Baseline".

Form IV: Recommended Project — Projected Annual Energy Savings Data Form in MMBTUs

FORM IV

ESCO's PRELIMINARY ENERGY SAVINGS PLAN (ESP):
PROJECTED ANNUAL ENERGY SAVINGS DATA FORM IN MMBTUs
UNION COUNTY VOCATIONAL-TECHNICAL SCHOOLS
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: **Honeywell International**

The projected annual energy savings for each fuel type MUST be completed using the following format. Data should be given in equivalent MMBTUs.

ENERGY	ESCO Developed Baseline	ESCO Proposed Savings Annual	Comments
Electric Energy (MMBTUs)	25,386	5,276	
Natural Gas (MMBTUs)	27,542	1,503	
Fuel Oil (MMBTUs)	0	0	
Steam (MMBTUs)			
Other (Specify) (MMBTUs)			
Other (Specify)			

NOTE: MMBTU Defined: A standard unit of measurement used to denote both the amount of heat energy in fuels and the ability of appliances and air conditioning systems to produce heating or cooling.

Form VI: Recommended Project — Preliminary Annual Cash Flow Analysis Forms

FORM VI

ESCO's PRELIMINARY ENERGY SAVINGS PLAN (ESP):
ESCO's PRELIMINARY ANNUAL CASH FLOW ANALYSIS FORM
UNION COUNTY VOCATIONAL-TECHNICAL SCHOOLS
ENERGY SAVING IMPROVEMENT PROGRAM

ESCO Name: **Honeywell International**

Note: Proposers must use the following assumptions in all financial calculations:
(a) The cost of all types of energy should be assumed to inflate at: **2.4%** gas, **2.2%** electric per year

1. Term of Agreement: **15** (Years) (Months)
2. Construction Period [2] (months): **12**
3. Cash Flow Analysis Format:

Capital Project	$	2,677,332
Rebates Administration	$	58,000
Project Costs [1]	$	2,735,332
Bond Counsel Muni Advisor	$	35,000
Financed Value:	$	2,770,332

Interest Rate to Be Used for Proposal Purposes: **4.25%**

Year	Annual Energy Savings [5]	Solar Savings	Annual Operational Savings	Energy Rebates/Incentives [4]		Total Annual Savings	Annual Project Costs	Board Costs	Annual Service Costs	Net Cash-Flow to Client	Cumulative Cash Flow
				Value	Utility						
Installation						$ -	$ -	$ -	$ -	$ -	$ -
1	$ 258,151	$ -	$ 74,177	$ 157,285	PSE&G	$ 489,612	$ (473,612)	$ (473,612)	$ -	$ 16,000	$ 16,000
2	$ 202,973	$ -	$ 74,177			$ 277,149	$ (261,149)	$ (261,149)	$ -	$ 16,000	$ 32,000
3	$ 207,465	$ -	$ 39,177			$ 246,642	$ (230,642)	$ (230,642)	$ -	$ 16,000	$ 48,000
4	$ 212,057	$ -	$ 39,177			$ 251,234	$ (235,234)	$ (235,234)	$ -	$ 16,000	$ 64,000
5	$ 216,751	$ -	$ 39,177			$ 255,927	$ (239,927)	$ (239,927)	$ -	$ 16,000	$ 80,000
6	$ 221,548	$ -				$ 221,548	$ (205,548)	$ (205,548)	$ -	$ 16,000	$ 96,000
7	$ 226,452	$ -				$ 226,452	$ (210,452)	$ (210,452)	$ -	$ 16,000	$ 112,000
8	$ 231,465	$ -				$ 231,465	$ (215,465)	$ (215,465)	$ -	$ 16,000	$ 128,000
9	$ 236,588	$ -				$ 236,588	$ (220,588)	$ (220,588)	$ -	$ 16,000	$ 144,000
10	$ 241,825	$ -				$ 241,825	$ (225,825)	$ (225,825)	$ -	$ 16,000	$ 160,000
11	$ 247,178	$ -				$ 247,178	$ (231,178)	$ (231,178)	$ -	$ 16,000	$ 176,000
12	$ 252,649	$ -				$ 252,649	$ (236,649)	$ (236,649)	$ -	$ 16,000	$ 192,000
13	$ 258,241	$ -				$ 258,241	$ (242,241)	$ (242,241)	$ -	$ 16,000	$ 208,000
14	$ 263,958	$ -				$ 263,958	$ (247,958)	$ (247,958)	$ -	$ 16,000	$ 224,000
15	$ 269,801	$ -				$ 269,801	$ (254,637)	$ (254,637)	$ -	$ 15,164	$ 239,164
Totals	$ 3,547,102	$ -	$ 265,883	$ 157,285		$ 3,970,269	$ (3,731,106)	$ (3,731,106)	$ -	$ 239,164	$ 239,164

NOTES:
(1) Includes: Hard costs and project service fees defined in ESCO's PROPOSED "FORM V"
(2) No payments are made by during the construction period.
(3) This figure should equal the value indicated on the ESCO's PROPOSED "FORM V". DO NOT include in the Financed Project Costs.
(4) As of July 1, 2021, all of former NJ Clean Energy Program incentive programs transitioned over to the investor-owned gas and electric utility companies. Subsequently, the BPU is requiring that all ESIP projects consult with the DCA and follow all DCA guidance regarding the procurement of all subcontractors.
(5) 30% Installation Savings is included in year 1.

HONEYWELL IS NOT ACTING AS A MUNICIPAL ADVISOR OR FIDUCIARY ON YOUR BEHALF. ANY MUNICIPAL SECURITIES OR FINANCIAL PRODUCTS INFORMATION PROVIDED IS FOR GENERAL INFORMATIONAL AND EDUCATIONAL PURPOSES ONLY AND YOU SHOULD OBTAIN THE ADVICE OF A LICENSED AND QUALIFIED FINANCIAL ADVISOR REGARDING SUCH INFORMATION.

Building-by-Building Simple Payback Summary

Building & ECM	kWh Savings ($)	kW Savings ($)	Natural Gas Savings ($)	Fuel Oil Savings ($)	Annual Energy Cost Savings ($)	Annual Operational Savings ($)	Estimated Costs ($)	Simple Payback
Academy of Performing Arts	**$ 11,676**	**$ 5,194**	**$ 1,122**	**$ -**	**$ 18,685**	**$ 693**	**$ 13,388**	**0.5**
1A LED Lighting	$ 10,978	$ 5,194	$ (528)	$ -	$ 16,337	$ 693	$ -	-
4A Building Envelope Improvements	$ 699	$ -	$ 1,650	$ -	$ 2,349	$ -	$ 13,388	3.8
Administration Building	**$ 2,135**	**$ 283**	**$ 1,849**	**$ -**	**$ 5,159**	**$ 891**	**$ 2,108**	**0.3**
1A LED Lighting	$ 1,448	$ 283	$ (83)	$ -	$ 2,539	$ 891	$ -	-
4A Building Envelope Improvements	$ 688	$ -	$ 1,932	$ -	$ 2,620	$ -	$ 2,108	0.5
Baxel Hall	**$ 20,848**	**$ -**	**$ 1,029**	**$ -**	**$ 22,053**	**$ 176**	**$ 17,216**	**0.5**
1A LED Lighting	$ 19,968	$ -	$ (882)	$ -	$ 19,262	$ 176	$ -	-
4A Building Envelope Improvements	$ 880	$ -	$ 1,911	$ -	$ 2,791	$ -	$ 17,216	4.1
Bistocchi Hall	**$ 29,035**	**$ -**	**$ 1,233**	**$ -**	**$ 43,231**	**$ 12,964**	**$ 21,160**	**0.3**
1A LED Lighting	$ 28,297	$ -	$ (4,378)	$ -	$ 36,882	$ 12,964	$ -	-
4A Building Envelope Improvements	$ 738	$ -	$ 5,611	$ -	$ 6,349	$ -	$ 21,160	2.2
Mancuso Hall	**$ 20,623**	**$ -**	**$ -**	**$ -**	**$ 21,173**	**$ 550**	**$ 14,614**	**0.5**
1A LED Lighting	$ 19,872	$ -	$ -	$ -	$ 20,422	$ 550	$ -	-
4A Building Envelope Improvements	$ 751	$ -	$ -	$ -	$ 751	$ -	$ 14,614	12.9
West Hall	**$ 95,592**	**$ -**	**$ 7,958**	**$ -**	**$ 162,453**	**$ 58,903**	**$ 2,608,846**	**10.7**
1A LED Lighting	$ 69,070	$ -	$ (2,909)	$ -	$ 90,064	$ 23,903	$ -	-
2C Roof Top Unit Upgrades	$ 1,412	$ -	$ -	$ -	$ 11,412	$ 10,000	$ 622,910	36.2
2F Chiller Replacements	$ 13,609	$ -	$ -	$ -	$ 23,609	$ 10,000	$ 1,685,587	47.4
3A Building Management Controls	$ 10,717	$ -	$ 9,247	$ -	$ 34,963	$ 15,000	$ 231,446	4.4
4A Building Envelope Improvements	$ 783	$ -	$ 1,620	$ -	$ 2,403	$ -	$ 68,904	19.0
Project Total	**$ 179,910**	**$ 5,477**	**$ 13,191**	**$ -**	**$ 272,754**	**$ 74,177**	**$ 2,677,332**	**6.5**

2. UTILITY AND OTHER REBATES & INCENTIVES

Summary of Total Rebates and Incentives

Year	Prescriptive & Custom HVAC	Total Incentives
Installation		
Year 1	$157,285	$157,285
Year 2		
Year 3		
Year 4		
Year 5		
Totals	**$157,285**	**$157,285**

Incentives, Rebates and Grants

Honeywell has determined that the District is eligible for **$157,285** in estimated total incentives for the projects included in the Prescriptive and Custom Programs. Please refer to the tables on below for a breakdown of incentive levels on a building-by-building basis for each type of incentive.

REBATES & INCENTIVES

Location	Prescriptive & Custom HVAC
West Hall	$134,560
Academy of Performing Arts	$4,442
Mancuso Hall	$4,849
Bistocchi Hall	$7,021
Administration Building	$699
Baxel Hall	$5,713
Totals	**$157,285**

3. OPERATIONAL SAVINGS

Summary of Total Operational Savings

Year	Lighting Operation Savings	Controls & HVAC Maintenance Cost Savings	Total Operational Savings
1	$39,177	35,000	$74,177
2	$39,177	35,000	$74,177
3	$39,177		$39,177
4	$39,177		$39,177
5	$39,177		$39,177
Totals	**$195,885**	**$70,000**	**$265,885**

Lighting Energy Savings (5 Years)

This Lighting Operational Savings category calculates the existing material costs for lamps and ballasts considering failure rate and average costs and compares to the reduced maintenance costs with all new LEDs to establish the operational savings.

School	Annual Maintenance Savings
West Hall	$23,903
Academy of Performing Arts	$693
Mancuso Hall	$550
Bistocchi Hall	$12,964
Administration Building	$891
Baxel Hall	$176
Totals	**$39,177**

Controls and HVAC Equipment Maintenance Cost Savings (2 Years)

The following schools have been included in this sample project:

School	Annual Maintenance Savings Allocation
West Hall	$35,000
Academy of Performing Arts	
Mancuso Hall	
Bistocchi Hall	
Administration Building	
Baxel Hall	
Totals	**$35,000**

4. TECHNICAL ENERGY AUDIT & PROJECT DEVELOPMENT

The key benefits of this work include:

- **Identify potential improvement and energy conservation measures**
- **Identify baseline energy use**
- **Identify preliminary costs and savings**

ECM Description	West Hall	Academy of Performing Arts	Mancuso Hall	Bistocchi Hall	Admin.	West Hall
Technical Energy Audit & Project Development	●	●	●	●	●	●

EXISTING CONDITIONS

The District has completed a Local Government Energy Audit and needs to complete an Energy Savings Plan to move forward with an Energy Savings Improvement Program.

PROPOSED SOLUTION

The Technical Energy Audit, or Energy Savings Plan (ESP) is the cornerstone of the ESIP program. It lays out what measures will be implemented to save energy, the expected payback period, and how it fits into the overall plan to reduce consumption. The ESP gives a snapshot of the project financial structure. Furthermore, the ESP must be approved by the Board and remain cash flow positive throughout the term of the project. These plans have a lifespan of 15 to 20 years depending on the ECMs being installed.

PROCESS

Honeywell's approach to the engineering portion of an ESPC is detailed below and will be led by identified engineering team member. A technically sound solution that addresses the District's current needs and future goals is the cornerstone to a successful Energy Savings Improvement Program.

PRELIMINARY AND INVESTMENT GRADE AUDIT

Preliminary Energy Audit Procedure

- This phase begins the process of identifying possible energy saving measures and infrastructure improvements at the facilities. All possible opportunities will be explored at this stage. These will be evaluated both technically and financially. We also begin to examine the current maintenance procedures taking place at the facility during this audit. The preliminary audit follows the steps below to get to the 30% review with the district.
- Conduct an initial walk-through inspection to become familiar with the buildings, systems equipment, maintenance, operation status, etc.
- Study the plans and specifications and become familiar with the buildings, systems, capacities, equipment, etc.
- Talk with the key decision makers within the District, building operating personnel, occupants, etc. about energy efficiency goals, sustainability goals, HVAC systems, comfort, problems, etc.
- Examine the overall building energy consumption history from the District. Compile a complete energy consumption history on gas, oil, electrical, etc., from utility companies and fuel suppliers. Compare the BTU consumption per square foot per year with other similar buildings and determine degree of variance. 8, 2017 49

- Evaluate current maintenance procedures. Examine future maintenance associated with additional equipment that may be installed.
- Develop a list of existing energy savings opportunities.
- Further develop the most promising energy improvements, based on success criteria.
- Perform preliminary energy savings calculations for the various energy improvements, estimate retrofit costs and calculate estimated paybacks.
- Complete energy baseline analysis for all utilities using the past year of utility data.
- Jointly select with the District at the 30% review which improvements to proceed with and assign priorities. Properly engineer retrofit work and proceed.

Upon completion of this phase of the audit process (equivalent to an ASHRAE Level 1 audit), we will review our findings with the District personnel. Candidate measures will be reviewed on the basis of energy, financial and operational impact. Together with your personnel, we will prioritize facility improvements and energy conservation measures. This is the 30% review identified in the diagram above. Based on the 30% review, a final list of energy conservation measures will then be developed for the in-depth energy audit. Typical financial payback periods are used in this step for the process and are refined as the audit progresses.

Investment Grade Audit Procedures to Final Design

During the investment grade audit phase, we conduct a thorough evaluation of the finalized list of improvements and energy conservation measures that have been mutually agreed upon between Honeywell and Region 4 ESC. This is done to verify project goal requirements along with savings figures, project costs, and maintenance requirements (equivalent to an ASHRAE Level 3 audit). This process comprises five major categories of activity, shown below.

Field Surveys

1. Make a thorough inspection of building systems and equipment and become thoroughly familiar with them. Check out operations, performance, maintenance, malfunctions, comfort, problems, etc.
2. Check nameplate data on equipment.
3. Conduct in-depth interviews with building personnel. Review maintenance, scheduling, performance, comfort, and problems of building, equipment, and systems.
4. Become familiar with actual hours of operation of systems and equipment, and the hours of occupancy of the personnel.

Energy History

1. Field Tests
2. Take test readings of actual flows, temperatures, pressures, rpm's, amps, volts, etc. at HVAC equipment.
3. Monitor readings over a period of time with test and recording equipment (data loggers) where appropriate.
4. Check lighting levels.

Evaluation of Improvements

1. List all project opportunities within the buildings, systems, and equipment.
2. Investigate/apply any applicable grants, incentives, rebates.

3. Develop potential improvements and develop those with most potential in full cooperation with the District write out list of improvements.
4. Calculate the potential energy savings in terms of BTU's and kWh and in cost, using current utility rate structures.
5. Calculate paybacks and return on investments using +/- 10% costs of work data and estimates.

Evaluation of Ongoing Service Needs

1. Review existing maintenance being performed at the facilities.
2. Discuss any gaps in existing equipment maintenance.

Review and Decisions

1. Review with the District. This is the 60% review indicated in the above diagram.
2. Costs of improvements/Improvement Options
3. Energy improvement options
4. Reaffirm Financial Payback Criteria
5. Return on investment
6. Potential savings
7. Select, with the District approval, improvements to proceed with and assign priorities. These final selections will be the outcome of the 90% review described in the diagram above. At the 90% review, final estimated costs will be developed.

After all the technical and financial parameters of the program are identified and the responsibilities of Honeywell and the District are clearly delineated, the contract would be offered to the District. It is structured such that the annual energy cost reductions will, at a minimum, equal or as in most cases, exceed the amortized implementation costs.

5. FINANCING THE ESIP

In accordance with P.L.2012, c.55 an ESIP can be financed through energy savings obligations. The term refers to the two primary financing tools, debt, and lease-purchase instruments. Each of these options is discussed below.

Energy savings obligations shall not be used to finance maintenance, guarantees, or the required third-party verification of energy conservation measures guarantees. Energy saving obligations, however, may include the costs of an energy audit and the cost of verification of energy savings as part of adopting an energy savings plan or upon commissioning. While the audit and verification costs may be financed, they are not to be considered in the energy savings plan as a cost to be offset with savings.

In all cases, maturity schedules of lease-purchase agreements or energy savings obligations shall not exceed the estimated average useful life of the energy conservation measures.

An ESIP can also include installation of renewable energy facilities, such as solar panels. Under an energy savings plan, solar panels can be installed, and the reduced cost of energy reflected as savings.

The law also provides that the cost of energy saving obligations may be treated as an element of the local unit's utility budget, as it replaces energy costs.

Debt Issuance

The law specifically authorizes municipalities, school districts, cities, counties, and fire facilities to issue refunding bonds as a general obligation, backed with full faith and credit of the local unit to finance the ESIP. Because an ESIP does not effectively authorize new costs or taxpayer obligations, the refunding bond is appropriate, as it does not affect debt limits, or in the case of a board of education, require voter approval. The routine procedures for refunding bonds found in the Local Bond Law and Public-School Bond Law would be followed for issuance of debt, along with any required Bond Anticipation Notes as authorized pursuant to law.

Regarding bonds for public schools, the Department of Education (DOE) has concluded that debt financed ESIP projects are not covered by State aid for debt service or a "Section 15 EFFCA Grant" as there is no new local debt being authorized.

Tax-Exempt Lease Purchase Financing

The tax-exempt lease is a common form of financing for ESIP projects. Tax-exempt leasing is a tool that meets the basic objectives of debt, spreading the cost of financing over the life of an asset, while avoiding constitutional or statutory limitations on issuing public debt. If structured properly, by including non-appropriation language in the financing documents, the tax-exempt lease will not be considered debt for state law purposes but will be considered debt for federal income tax purposes. Thus, for federal purposes, the interest component of the lease payment is tax-exempt.

Under the New Jersey Energy Savings Improvement Program (ESIP), the District may authorize a lease purchase agreement between the District and a financier. Ownership of the equipment or improved facilities will pass to the District when all the lease payments have been made. There are legal expenses and other minimal closing costs associated with this type of structure. The lease purchase agreement may not exceed 15 years (commencing upon completion of the construction work), or 20 years where a combined heat and power or cogeneration plant is included in the project. The primary benefits of a lease are lower rates and the acquisition of essential use property without creating debt.

Under a lease there is typically a single investor. The lease may have non-appropriation language that allows the District to access low tax-exempt rates. Some previous customers have chosen to remove the non-appropriation language which has resulted in lower competitive rates.

Repayment of the lease payments is tailored to meet the requirements of the District Payments are typically scheduled to commence after the construction is complete and acceptance of the project has been received by the District Typically, payment terms are structured so there is no up-front capital expense to the District and payments are aligned within your cash flow and fiscal limits.

Certificates of Participation (COP's)

Certificates of Participation are another form of a lease purchase agreement with the differentiating factor being that there are multiple investors participating in the purchase of the lease. COP's require financial disclosure and are typically utilized on higher value projects where one investor does not have the capacity to hold a high value lease for a single customer.

Energy Savings Obligations

Energy Savings Obligations can be issued as refunding bonds in accordance with the requirements of N.J.S.A 40A:11-4.6(c)(3). These bonds may be funded through appropriation for the utility services in the annual budget of the contract unit and may be issued as refunding bonds pursuant to N.J.S.40A:2-52 et seq., including the issuance of bond anticipation notes as may be necessary, provided that all such bonds and notes mature within the periods authorized for such energy savings obligations. Energy savings obligations may be issued either through the contracting unit or another public agency authorized to undertake financing on behalf of the unit but does not require bond referendum.

SECTION E
MEASUREMENT & VERIFICATION AND MAINTENANCE PLAN

SECTION E — MEASUREMENT & VERIFICATION AND MAINTENANCE PLAN

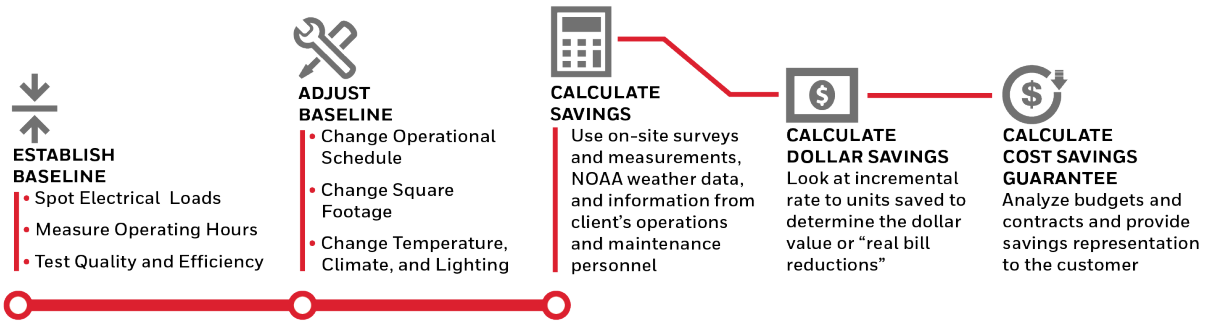
1. BASELINE

The purpose for establishing a baseline for an energy performance project is to accurately predict what the energy consumption and costs would have been as if the energy project was never completed. The baseline can then be used to measure the improvement in efficiency and determine the overall energy savings of the project. Since the energy consumption of all facilities is somewhat affected by variable weather conditions, a baseline for heating and cooling systems is typically dependent on degree-days or outside temperature. A baseline also needs to incorporate changes in facility use, such as a change in hours of operation or increased levels of outside air. Once again, if these changes would have occurred in the absence of the energy project, they should be incorporated into the project's baseline.

Honeywell calculated the baseline based on the systems and operating conditions as they currently exist prior to the pandemic. The baseline was established from 3/2021-2/2022 in accordance with BPU guidelines as being considered a pre-pandemic baseline. Baseline development is most accurate if specific measurements are taken on equipment over a period of time (early in the audit phase) to determine actual kW, kWh, oil and gas consumption, cfm, gpm, hours of use, etc.

A summary of some of the methods, which was used by Honeywell to establish baselines and support, calculated savings are listed below.

1. Spot measurements of electrical loads such as lighting, fan and pump motors, chillers, electric heat, etc.
2. Measurement of equipment operating hours using electric data recorders.
3. Measurement of existing operating conditions using data recorders for space temperature and humidity, air handler temperatures (mixed, return, cooling, and heating coil discharges), and space occupancy using lighting loggers.



4. Spot measurement for boiler efficiencies, water use.
5. Running measurements of chiller operation, including simultaneous measurement of input kWh or steam flow, and chilled water supply and return temperatures and flow (gpm).
6. Records of operating conditions from building management systems and utility-grade meters.

The data from the above is used to calculate existing energy use, which is then reconciled with current facility utility bills, and adjusted as required to provide a mutually agreed baseline.

To provide valid savings evaluations, Honeywell's maintains a significant inventory of metering equipment utilized by its auditors and Energy Engineers to ascertain critical data about the operation of the facility.

Typically, auditors use the following equipment for their onsite measurements:

1. Recording and instantaneous power and harmonic analyzers.
2. Data loggers for pressures, temperatures, flow rates, humidity, and CO2.
3. Lighting level and recording profile/run-hour and occupancy meters.
4. Multimeters, handheld kW meters.
5. Combustion analyzers.
6. Ultrasonic flow meters.
7. Infrared thermometers

The ECMs installed in many projects allow for energy savings to be identified by direct metering or a combination of metering and calculations with accepted assumptions. In the case of lighting, for example, it is relatively easy to meter representative samples of unique fixture types, both before and after a retrofit, to determine the power consumption difference in Watts. When multiplied by the quantity of each fixture type, the total connected load reduction can be derived. In combination with run time assumptions, or meters, the electrical reduction can be accurately determined. Where possible, direct measurement of ECMs during construction (before and after the retrofit) coupled with energy savings calculations is a method considered to be very accurate and cost-effective.

Due to the nature of some ECMs, or when a combination of ECMs is installed, individual (discrete) metering may not be either possible or able to fully document a baseline and calculate savings. Many of these situations can be handled by combining results from metering along with either engineering-based calculations or output from nationally recognized building simulation programs such as DOE II, ASEAM, TRACE or HAP. This method would be used for ECMs such as night setback, and where no other ECMs have significant interaction with the setback measure.

Formulas exercised in energy savings calculations follow the laws of physics, and many are included in the ASHRAE Handbook of Fundamentals. However, such calculations (i.e., equipment operation profiles) must be tempered by experience, past retrofit practice, and expectations of future operating conditions to arrive at achievable values in practice. The result is a coupled project where the final savings are equal to or greater than anticipated.

2. ADJUSTMENT TO BASELINE METHODOLOGY

The methodology for establishing and adjusting the baseline is determined by the characteristics of the facility, the conservation technology being installed, the technology being replaced, the type of measurement and verification the District requires and the needs of the District for future changes in facility use.

The purpose of this flexible approach is to make the most accurate possible measurement of the changes in energy uses that are specifically attributable to the installed ECMs. This creates the ability over the life of the contract to continue measuring only savings achieved by the ECM and leaves the District free to make future changes to the building or systems without affecting the savings agreement. It also necessitates fewer provisions for adjusting the baseline.

Modifications to the energy baseline or savings will be made for any of the following:

3. ENERGY SAVINGS CALCULATIONS

In calculating energy savings, Honeywell's highly experienced audit staff uses onsite surveys and measurements, National Oceanic and Atmospheric Administration weather data, detailed discussions with the client's operations and maintenance personnel and engineers, utility records, and other sources to ensure accurate energy, water, and O&M savings.

Typically, the following data is gathered:

- Local weather data.
- Utility bills and sub-metered consumption trends.
- Utility rate structure.
- Facility use and occupancy data.
- Internal equipment loads.
- Interviews of operations and maintenance staff and management.
- Building construction, age, use and layout.
- Schematics of energy and water distribution systems.
- Identification and inventory of HVAC equipment.
- Identification and inventory of process equipment.
- Design, configuration, and operating characteristics of HVAC systems.
- Design, configuration, and operating characteristics of process systems.
- Control strategies and sequences of operation for HVAC and other process equipment.
- Identification and count of all lighting fixtures and determination of power consumption for each type.
- Identification and inventory of lighting control methods.
- Measurement of foot-candle levels at sample locations.
- Power quality and harmonics, power factor.
- Indoor air quality issues.

Calculating the units of energy saved is a critical measure of energy efficiency improvements, but it does not indicate the actual dollars saved. To do this, Honeywell has established the base rates that will act as "floor" rates in calculating the savings. These are usually the rates that are in effect at the time of the start of the contract or rates used for audit estimated savings.

The equation below will be used to calculate the annual savings in dollars.

$$\text{Annual Savings (\$)} = \sum_{m=1}^{12} \{(Rate_{kWH,Base} \times kWH_{saved,m}) + (Rate_{fuel\ oil,\ Base} \times Fuel\ Oil_{saved,\ gal,\ m}) + (Rate_{Steam,\ Base} \times Steam_{Saved,\ klbs,\ m}) + (Rate_{NG} \times NG_{Saved,\ MCF,\ m})\} + (Agreed\ (\$))$$

Where

Rate$_{kWH,Base}$= defined base rate for kWh consumption
kWh$_{saved,m}$= calculated kWh savings for month *m*

Rate$_{Fuel\ Oil\ Base}$= defined base rate for fuel Oil Savings (XX/gal.)
Fuel Oil$_{saved,m}$= calculated chilled water savings in gal. for month *m*

Rate$_{Steam,\ Base}$= defined base rate for steam consumption ($XX/MMBtu.)
Steam$_{saved,m}$= calculated steam savings in MMBtu. for month *m*

Rate$_{NG,\ Base}$= defined base rate for natural gas consumption ($XX/Therm)
NG$_{saved,m}$= calculated natural gas savings in Therms for month *m*

Agreed($)= Annual savings in dollars (water, sewer, maintenance, etc.)

Honeywell assigns dollar values to the true incremental value of savings for energy and water. In other words, we do not combine for example, demand and consumptions numbers so that there is an average value to savings. Honeywell looks at each incremental rate to units saved to properly determine the value (dollar) to the District or “real bill reductions.” As noted in the cash flow, energy escalation rates will be established in accordance with New Jersey Board of Public Utility guidelines.

Based on this, Honeywell has reviewed all utility bills (hourly data), tariffs, special contracts, and commodity contracts to develop the incremental value (costs) of each utility.

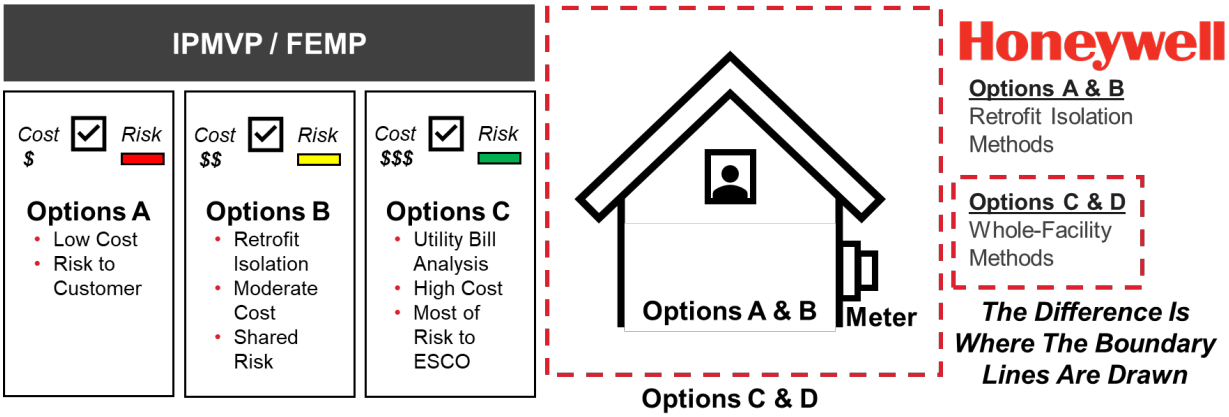
The O&M savings is typically a function of existing the District’s budgets (labor & direct costs), maintenance contracts and operations (supplier) contracts. Honeywell has analyzed the information to provide a conservative savings representation for the District’s review and acceptance. The information will include all calculations and assumptions.

4. MEASUREMENT & VERIFICATION

The purpose of performing any monitoring and verification is to establish an agreed upon process that provides the customer both a level of satisfaction that the improvements have been delivered and ongoing information as to their operation and performance. Additionally, this effort will be used to assess the actual dollars of savings versus the guarantee level.

It is essential for the success of this program that Honeywell and the District agree on a mutually acceptable methodology for measuring and verifying energy savings that are attributable to the energy conservation measures (ECMs) Honeywell installs. This M&V plan provides the procedures to document the energy and cost savings of each of the proposed ECMs.

The plan for monitoring and verifying energy savings for the proposed ECMs is based on the methods described in the ***International Performance Measurement and Verification Protocol (IPMVP)***[1]. Our approach to M&V is directly consistent with, and in compliance with, the IPMVP. This protocol provides a framework for the most widely accepted and used M&V methods by the industry.



Engineering calculations of energy and cost savings for the project are based on operating parameters (such as weather, temperature settings, run hours, occupancy patterns, and space usage) and equipment performance characteristics. The M&V plan uses the operating parameters established in the baseline for all savings calculations during the term of the project. The intent of the M&V plan is to verify that the ECMs installed by Honeywell will provide the expected energy savings. Therefore, Honeywell will collect data and relative information during the post-retrofit period to demonstrate that the installed equipment is performing at expected levels. It is assumed that the District will continue to be a dynamic institution adding or renovating buildings and desiring to retain the right to set comfort and operating characteristics. To accommodate this, Honeywell will develop its M&V plan in a way that allows the District to adapt to the demands of future campus growth and changes without the need for the District and Honeywell to negotiate energy baseline adjustments.

Our typical M&V plan will utilize broadband Internet access to the appropriate the District's control interfaces to both confirm operating status and to download trend data to verify proper equipment maintenance.

[1] www.ipmvp.org.

One year after the commencement date of the ECMs, Honeywell will submit a report verifying and calculating the energy and cost savings for the first year. This report will be submitted for facility review and approval. For the remaining contract term, Honeywell will provide annual reports. These reports will include results of inspections of the installed equipment/systems, energy and cost savings, and recommendations to provide optimum energy performance.

All permanent measurement equipment will be purchased new with a calibration certificate from the manufacturer. The power multi-meter and the TSI multi-meter will be calibrated annually before using them in the annual inspection.

M&V Options

The IPMVP guidelines classify the M&V procedures into four categories, Options A, B, C and D. As shown in the table below, these options differ in their approach to the level of complexity of the M&V procedures.

M&V Option	Performance Verification Techniques
Option A Verifying that the measure has the potential to perform and to generate savings.	**Option A** is appropriate for ECMs that have energy use that can be readily quantified, such as the use of high efficiency lighting fixtures, high efficiency constant speed motors, and other standard engineering calculations. Engineering calculations before and after installation spot measurements and use of EMS data points with stipulated values.
Option B Verifying that the measure has the potential to perform and verifying actual performance by end use.	**Option B** is appropriate for ECMs that require periodic or on-going measurements to quantify energy use, such as the use of variable frequency drives on pump or fan motors. Engineering calculations with metering and monitoring strategy throughout term of the contract.
Option C Verifying that the measure has the potential to perform and verifying actual performance (whole building analysis.)	**Option C** is used for ECMs for which the energy use or energy savings cannot be measured directly, such as building envelope modifications. Option C is based on the use of utility meters to quantify building energy use. Utility meter billing analysis-using techniques from simple comparison to multivariable regression analysis.
Option D Verifying actual performance and savings through simulation of facility components and/or the whole facility	**Option D** is used for ECMs for which the energy use or energy savings cannot be measured directly, or savings for individual ECMs are heavily interdependent. Calibrated building simulation is used to separate the energy savings attributable to each ECM. Calibrated energy simulation/modeling; calibrated with hourly or monthly utility billing data and/or end-use metering.

In general,

> *ECM Energy Savings = Baseline Energy Use - Post-Installation Energy Use*
>
> and
>
> *Energy Cost savings ($) = Total Energy Savings x Contractual Energy Rates*

Exceptions to this simple equation are as follows:

Projects where an on/off M&V method is used. For example, after a new energy management system is installed, control features are turned off for a set period of time to recreate baseline conditions. Thus, savings are determined after installation by comparing energy use with and without the control features activated.

Since energy use at a facility is rarely, if ever, constant, another way to define M&V is as a comparison of a facility's post-installation energy use with its usage if the ECM or system had not been installed. This considers situations in which baseline energy use must be adjusted to account for changing conditions, such as changes in facility operation, occupancy, or use or external factors such as weather.

Post-Retrofit M&V Activities

There are two components associated with M&V of performance contract projects:

1. Verifying the potential of the ECM to generate savings also stated as confirming that the proper equipment/systems were installed, are performing to specification and have the potential to generate the predicted savings.
2. Determining/verify energy savings achieved by the installed ECM(s).

Verifying The Potential To Generate Savings

Verifying baseline and post-installation conditions involves inspections (or observations), spot measurements, and/or commissioning activities. Commissioning includes the following activities:

- Documentation of ECM or system design assumptions
- Documentation of the ECM or system design intent for use by contractors, agencies, and operators
- Functional performance testing and documentation necessary for evaluating the ECM or system for acceptance
- Adjusting the ECM or system to meet actual needs within the capability of the system

Post-Installation Verification

Post-installation M&V verification will be conducted by both Honeywell and the District to ensure the proper equipment/systems that were installed are operating correctly and have the potential to generate the predicted savings. Verification methods may include surveys, inspections, and/or spot or short-term metering.

Regular Interval Post-Installation Verification

At least annually, Honeywell will verify that the installed equipment/systems have been properly maintained, continue to operate correctly, and continue to have the potential to generate the predicted savings. Savings report for all the installed ECMs will be submitted each year after the acceptance date of the work performed by Honeywell.

Computation Of Energy Savings

After the ECMs are installed, energy and cost savings will be determined annually by Honeywell in accordance with an agreed-upon M&V approach, as defined in a project-specific M&V plan.

Construction/Interim Savings

Construction or Interim savings are usually measured by using the same methodology as described in the detail M&V plan for each ECM. The start and the completion time for each ECM must be agreed to between Honeywell and the District

Electricity and thermal savings from the ECMs where no detailed long-term data is required to be collected will be stipulated and will be based on the starting and the final completion dates and verification of the operation of the ECMs. For other ECMs where long-term data collection is required by the M&V plan, data will be used to calculate the savings using the same equations as described in the detail plan. For example, to calculate electricity savings for the installation of a VFD, the kW is spot measured at a set speed for selected motors through a sampling plan. The measured kW is subtracted from the baseline kW to calculating the savings. Thermal savings are tied to the electrical savings in the manner described in the detail M&V plan. The results are extrapolated to cover all the VFDs installed by Honeywell.

The savings for each of the monitored VFD is calculated on an interval basis as follows:

$kW_{Saved} = (kW_{Base} – kW_{Spot\ Measured})$

kWh_{Saved} = Estimated operating hours during the interim period * kW_{Saved}

The total kWh savings is the sum of the kWh_{Saved} for all the installed VFDs.

1. Changes in the number of days in the annual review cycle.
2. Changes in the square footage of the facilities.
3. Changes in the operational schedules of the facilities.
4. Changes in facility indoor temperatures.
5. Significant changes in climate.
6. Significant changes in the amount of equipment or lighting utilized in the facility.

Examples of situations where the baseline needs to be adjusted are: i) changes in the amount of space being air conditioned, ii) changes in auxiliary systems (towers, pumps, etc.) and iii) changes in occupancy or schedule. If the baseline conditions for these factors are not well documented it becomes difficult, if not impossible, to properly adjust them when they change and require changes to payment calculations. To compensate for any addition and deletion of buildings and impact on the baseline model, An M&V report should use sound technical methodologies to adjust the baseline. An example would be to add or delete building energy impact via the calculated cooling load in tons as a percentage of the existing campus tonnage baseline or use indices like W/ft2 and Btu/ft2 to calculate the energy consumption of the building and then add or subtract the energy usage to or from the baseline energy consumption.

5. SITE SPECIFIC M&V PLAN

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
1A LED Lighting Upgrades	Upgrade Lighting systems: ▪ Re-lamp/Re-ballast T8/T12 to LED, ▪ Incandescent to LED ▪ Metal Halide and Sodium Vapor to LED High Bays	Option A ▪ Pre and Post measurements ▪ Line by Line scope and engineering calculations	▪ Pre-M&V: Measurement of kW for 5% sample fixtures in each category ▪ Data log usage hours ▪ Data Log occupancy schedules ▪ Update Line by Line scope with measured kW and usage hours ▪ Post M&V: Measurement of kW for 5% sample fixtures in each category ▪ Usage Hours to remain same ▪ Occupancy schedules to remain same ▪ Energy Savings: Update Line by Line scope with measured kW and usage hours and compare to pre-retrofit calculated savings
1B De-Stratification Fans	Install De-Stratification fans in Gymnasiums to minimize stratification of hot air and maintain hot air flow below the fan level	Option A ▪ Electric energy savings - Engineering calculations based on programmed parameters. Option C ▪ Fuel Savings ▪ Utility Bill Comparison for all fuel related measures	▪ Pre-M&V: Verify existing operating parameters match the baseline calculation assumptions ▪ Post M&V: Verify that systems are installed as specified and controls are programmed to match the savings assumptions ▪ Electric Energy: Verify savings based on programmed parameters and engineering calculations ▪ Fuel: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days
2A Boiler Replacements	Replace boilers in select locations to handle base load	Option C ▪ Utility Bill Comparison for all fuel related measures	▪ Pre-M&V: Baseline annual fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform combustion efficiency test on boilers ▪ Post M&V: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform efficiency test on replaced boilers to ensure operating conditions are maintained

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
2B Domestic Hot Water Heater Replacements	Replace heaters in select locations to handle base load	Option C ▪ Utility Bill Comparison for all fuel related measures	▪ Pre-M&V: Baseline annual fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform combustion efficiency test on boilers ▪ Post M&V: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform efficiency test on replaced boilers to ensure operating conditions are maintained
2C RTU Upgrades	Replace antiquated Roof Top Units with new high efficiency Units.	Option A ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement units Option C: ▪ Fuel Savings Utility Bill Comparison for all fuel related measures	▪ Pre-M&V: Verify manufacturer provided data for existing unit efficiency (EER) ▪ Post M&V: Verify manufacturer provided data for new rooftop unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer ▪ Electric Energy: Verify savings based on programmed parameters and engineering calculations ▪ Fuel: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days
2D Split System Upgrades	Replace select split systems with new high efficiency units.	Option A ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement Units	▪ Pre-M&V: Verify manufacturer provided data for existing unit efficiency (EER) ▪ Post M&V: Verify manufacturer provided data for new split system unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer
2E Premium Efficiency Motors and VFDs	Install VFDs on select pumps to operate the pump motors in response to the system load. Replace motors with new premium efficiency motors.	Option A ▪ Engineering calculations for VFDs following pump affinity laws. ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement motors	▪ Pre-M&V: Verify manufacturer provided data for the pump performance data and motor efficiencies. ▪ Post M&V: Obtain trend data for VFD operation from the BMS system to verify baseline calculation assumptions on system loads ▪ Verify efficiency of new motors ▪ Verify manufacturer provided data for new VFDs – verify the new equipment and controls are installed and commissioned as recommended by manufacturer

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
2F Chiller Replacements	Replace antiquated Chiller with new efficient unit.	Option A ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement Units	▪ Pre-M&V: Verify manufacturer provided data for existing units efficiency ▪ Post M&V: Verify manufacturer provided data for new units verify the new equipment and controls are installed and commissioned as recommended by manufacturer
2G AHU Replacements	Replace antiquated Air Handling Units with new high efficiency Units.	Option A ▪ Engineering calculations based on nameplate and manufacturer supplied data for the existing and replacement units Option C: ▪ Fuel Savings Utility Bill Comparison for all fuel related measures	▪ Pre-M&V: Verify manufacturer provided data for existing unit efficiency (EER) ▪ Post M&V: Verify manufacturer provided data for new rooftop unit (EER) – verify the new equipment and controls are installed and commissioned as recommended by manufacturer ▪ Electric Energy: Verify savings based on programmed parameters and engineering calculations ▪ Fuel: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days
2H Boiler Burner Controls	Install advanced combustion controls, on existing burners.	Option C ▪ Utility Bill Comparison for all fuel related measures	▪ Pre-M&V: Baseline annual fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform combustion efficiency test on boilers ▪ Post M&V: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days ▪ Perform efficiency test on replaced boilers to ensure operating conditions are maintained
3A Building Management Controls	Upgrade Building Management Systems to DDC and integrate all systems to a central platform. Retro-commissioning existing control systems.	Option A ▪ Electric energy savings - Engineering calculations based on programmed parameters. Option C Fuel Savings Utility Bill Comparison for all fuel related measures	▪ Pre-M&V: Verify existing operating parameters match the baseline calculation assumptions ▪ Post M&V: Verify that systems are installed as specified and controls are programmed to match the savings assumptions ▪ Electric Energy: Verify savings based on programmed parameters and engineering calculations ▪ Fuel: Compare post installation M&V fuel cost based on fuel billing data and Metrix tuned to normalize to heating degree days

ECM # and Name	Summary of ECM	M&V Methodology / Recommendation	Description of M&V – Pre- and Post-Process
3B Carbon & Energy Management (CEM)	Install CEM to monitor energy consumption.	N/A	▪ Pre-M&V: N/A ▪ Post M&V: N/A
4A Building Envelope Improvements	Install weather stripping on doors, seal roof wall joints and roof penetrations	Option A ▪ Engineering calculations based on nameplate and manufacturer supplied data Option C ▪ Utility Bill Comparison for fuel related measures	▪ Pre-M&V: Verify existing conditions ▪ Post M&V: Visual inspection per scope of work
4B Roof Replacements	Replace existing roofs.	Option A ▪ Engineering calculations based on nameplate and manufacturer supplied data Option C ▪ Utility Bill Comparison for fuel related measures	▪ Pre-M&V: Verify existing conditions ▪ Post M&V: Visual inspection per scope of work
5A Cogeneration CHP	Install Cogeneration units	Option A ▪ Engineering calculations based on nameplate and manufacturer supplied data for the new unit.	▪ Pre-M&V: Verify manufacturer provided data for existing units efficiency ▪ Post M&V: Verify manufacturer provided data for new units verify the new equipment and controls are installed and commissioned as recommended by manufacturer
6A Solar PPA	Install Solar Power using Power Purchase Agreement	N/A	▪ Pre-M&V: N/A ▪ Post M&V: N/A
6B Remote Solar	Purchase solar energy virtually from the Community Solar Program	N/A	▪ Pre-M&V: N/A ▪ Post M&V: N/A
6B Solar PV	Install Solar Power owned by District	N/A	▪ Pre-M&V: N/A ▪ Post M&V: N/A

6. RECOMMENDED PREVENTIVE MAINTENANCE SERVICES

Per the NJ ESIP program, all services are required to be bid by the District for services as desired. Based on Honeywell's vast service organization, we are uniquely qualified to develop design specification for the public bidding per NJ Law.

Honeywell strongly believes that the long-term success of any conservation program is equally dependent upon the appropriate application of energy savings technologies, as well as solid fundamental maintenance and support. One of the primary contributors to energy waste and premature physical plant deterioration is the lack of operations, personnel training, and equipment maintenance.

Honeywell recommends routine maintenance on the following systems throughout the District for the duration of an energy guarantee of savings.

Maintenance, Repair and Retrofit Services

- Mechanical Systems
- Building Automation Systems
- Temperature Control Systems
- Air Filtration

Honeywell will work with the District to evaluate current maintenance practices and procedures. This information will be the basis of a preventive maintenance and performance management plan designed to maximize building operating efficiencies, extend the useful life of your equipment, and support the designed Energy Savings Plan.

At a minimum, we recommend the following tasks be performed on a quarterly basis with the District wide Building Management System.

SYSTEM SUPPORT SERVICES

1. Review recent mechanical system operation and issues with customer primary contact, on a monthly basis.
2. Review online automation system operation and event history logs and provide summary status to the customer primary contact. Identify systemic or commonly re-occurring events.
3. Check with customer primary contact and logbook to verify that all software programs are operating correctly.
4. Identify issues and prioritize maintenance requests as required.
5. Provide technical support services for trouble shooting and problem solving as required during scheduled visits.
6. Provide ongoing system review and operations training support; including two semi-annual lunches and learn sessions.
7. Establish dedicated, site-specific emergency stock of spare parts to ensure prompt replacement of critical components. These will be stored in a secure location with controlled access.

CONFIGURATION MANAGEMENT

1. Update documentation and software archives with any minor changes to software made during maintenance work.
2. Verify and record operating systems and databases.
3. Record system software revisions and update levels.

4. Archive software in designated offsite Honeywell storage facility, on an annual basis.
5. Provide offline software imaging for disaster recovery procedures, updated on a regular basis.

FRONT END / PC SERVICE

1. Verify operation of personal computer and software:
2. Check for PC errors on boot up
3. Check for Windows errors on boot up
4. Check for software operations and performance, responsiveness of system, speed of software
5. Routinely backup system files, on an annual basis:
6. Trend data, alarm information and operator activity data
7. Custom graphics and other information
8. Ensure disaster recovery procedures are updated with current files
9. Clean drives and PC housing, on an annual basis:
10. Open PC and remove dust and dirt from fans and surfaces
11. Open PC interface assemblies and remove dust and dirt
12. Clean and verify operation of monitors.
13. Verify printer operation, check ribbon or ink.
14. Initiate and check log printing functions.
15. Verify modem operation (if applicable).
16. Review IVR schedule for alarms and review (if applicable).

TEMPERATURE CONTROLS

Unit Vents

Services Performed

Annual Inspection

1. Inspect motor and lubricate.
2. Lubricate fan bearings.
3. Inspect coil(s) for leaks.
4. Vacuum interior.
5. Test operation of unit controls.

Pumps

Services Performed

Preseason Inspection

1. Tighten loose nuts and bolts.
2. Check motor mounts and vibration pads.
3. Inspect electrical connections and contactors.

Seasonal Start-up

1. Lubricate pump and motor bearings per manufacturer's recommendations.
2. Visually check pump alignment and coupling.
3. Check motor operating conditions.
4. Inspect mechanical seals or pump packing.
5. Check hand valves.

Mid-Season Inspection

1. Lubricate pump and motor bearings as required.
2. Inspect mechanical seals or pump packing.
3. Ascertain proper functioning.

Seasonal Shut-down

1. Switch off pump.
2. Verify position of hand valves.
3. Note repairs required during shutdown.

Packaged Air-Conditioning Systems

Services Performed

Preseason Inspection

1. Energize crankcase heater.
2. Lubricate fan and motor bearings per manufacturer's recommendations.
3. Check belts and sheaves. Adjust as required.
4. Lubricate and adjust dampers and linkages.
5. Check condensate pan.

Seasonal Start-up

1. Check crankcase heater operation.
2. Check compressor oil level.
3. Inspect electrical connections, contactors, relays, operating and safety controls.
4. Start compressor and check operating conditions. Adjust as required.
5. Check refrigerant charge.
6. Check motor operating conditions.
7. Inspect and calibrate temperature, safety, and operational controls, as required.
8. Secure unit panels.
9. Pressure-wash all evaporator and condenser coils (if applicable).
10. Log all operating data.

Mid-season Inspection

1. Lubricate fan and motor bearings per manufacturer's recommendations.
2. Check belts and sheaves. Adjust as required.
3. Check condensate pan and drain.
4. Check operating conditions. Adjust as required.
5. Log all operating data.

Seasonal Shut-down *

1. Shut down per manufacturer's recommendations.

* If no Shut-down is required then (2) Mid-season Inspections are performed

Boilers

Services Performed

Preseason Inspection

1. Inspect fireside of boiler and record condition.
2. Brush and vacuum soot and dirt from flues (not chimneys) and combustion chamber.
3. Inspect firebrick and refractory for defects.
4. Visually inspect boiler pressure vessel for possible leaks and record condition.
5. Disassemble, inspect, and clean low-water cutoff.
6. Check hand valves and automatic feed equipment. Repack and adjust as required.
7. Inspect, clean, and lubricate the burner and combustion control equipment.
8. Reassemble boiler.
9. Check burner sequence of operation and combustion air equipment.
10. Check fuel piping for leaks and proper support.
11. Review manufacturer's recommendations for boiler and burner start-up.
12. Check fuel supply.
13. Check auxiliary equipment operation.

Seasonal Start-up

1. Inspect burner, boiler, and controls prior to start-up.
2. Start burner and check operating controls.
3. Test safety controls and pressure relief valve.
4. Perform combustion analysis.
5. Make required control adjustments.
6. Log all operating conditions.
7. Review operating procedures and owner's log with boiler operator.

Mid-Season Inspection

1. Review operator's log.
2. Check system operation.
3. Perform combustion analysis.
4. Make required control adjustments.
5. Log all operating conditions.
6. Review operating procedures and log with boiler operator.

Seasonal Shut-Down

1. Review operator's log.
2. Note repairs required.

APPENDICES

APPENDICES

APPENDIX 1: LOCAL GOVERNMENT ENERGY AUDITS

Please see Appendix 1 provided as a separate accompaniment to this document entitled:
Appendix 1: Local Government Energy Audits

APPENDIX 2: ECM CALCULATIONS

Please see Appendix 2 provided as a separate accompaniment to this document entitled:
Appendix 2- ECM Calculations

APPENDIX 3: EQUIPMENT CUTSHEETS

Please see Appendix 3 provided as a separate accompaniment to this document entitled:
Appendix 3 - Equipment Cutsheets

APPENDIX 4: REQUIRED FORMS COOPERATIVE / NJ PROCUREMENT DOCUMENTATION

Per the LFN, the customer must verify the selected vendor complies with applicable New Jersey procurement documentation requirements by submitting the following required forms.

The following forms are included:

- **New Jersey Business Registration Certificate** for the contractor and any subcontractors (i.e., copy of certificate)

STATE OF NEW JERSEY
BUSINESS REGISTRATION CERTIFICATE

Taxpayer Name:	HONEYWELL INTERNATIONAL INC.
Trade Name:	ADI GLOBAL DISTRIBUTION
Address:	101 COLUMBIA RD MORRISTOWN, NJ 07960-4640
Certificate Number:	0073401
Effective Date:	August 19, 1985
Date of Issuance:	August 25, 2021

For Office Use Only:

20210825150427681

Certification 137

RENEWAL

CERTIFICATE OF EMPLOYEE INFORMATION REPORT

This is to certify that the contractor listed below has submitted an Employee Information Report pursuant to N.J.A.C. 17:27-1.1 et. seq. and the State Treasurer has approved said report. This approval will remain in effect for the period of 19 MAY 2021 to 19 MAY 2024

HONEYWELL INTERNATIONAL, INC.
115 TABOR ROAD
MORRISPLAINS NJ 07950

ELIZABETH MAHER MUOIO
State Treasurer

NJ Notice of Classification

HONEYWELL INTERNATIONAL INC
115 TABOR ROAD
MORRIS PLAINS, NJ 07950

State of New Jersey

DEPARTMENT OF THE TREASURY
DIVISION OF PROPERTY MANAGEMENT AND CONSTRUCTION
33 WEST STATE STREET - P.O. BOX 034
TRENTON, NEW JERSEY 08625-0034

NOTICE OF CLASSIFICATION

In accordance with N.J.S.A. 18A:18A-27 et seq (Department of Education) and N.J.S.A. 52:35-1 (Department of the Treasury) and any rules and regulations issued pursuant hereto, you are hereby notified of your classification to do State work for the Department (s) as previously noted.

Aggregate Amount	Trade(s) & License(s)	Effective Date	Expiration Date
Unlimited	C043 -CONTROL SYSTEMS	04/01/2023	03/31/2025
	C098 -ENERGY MANAGEMENT SYSTEMS	04/01/2023	
	C036 -ENERGY SERVICES/ESCO	04/01/2023	
	C049 -FIRE ALARM/SIGNAL SYSTEMS	04/01/2023	
	license #: 34BF00009500		
	C032 -HVACR	04/01/2023	
	license #: 19HC00404900		
	C050 -SECURITY/INTRUSION ALARMS	04/01/2023	

- Licenses associated with certain trades are on file with the Division of Property Management & Construction (DPMC).
- Current license information must be verified prior to bid award.
- A copy of the DPMC 701 Form (Total Amount of Uncompleted Projects) may be accessed from the DPMC website at https://www.nj.gov/treasury/dpmc/Assets/Files/DPMC701.pdf.

ANY ATTEMPT BY A CONTRACTOR TO ALTER OR MISREPRESENT ANY INFORMATION CONTAINED IN THIS FORM MAY RESULT IN PROSECUTION AND/OR DEBARMENT, SUSPENSION OR DISQUALIFICATION. INFORMATION ON AGGREGATE AMOUNTS CAN BE VERIFIED ON THE DPMC WEB SITE.

Exhibit A Non-Collusion Affidavit

EXHIBIT A:

NON-COLLUSION AFFIDAVIT

TO: Union County Vocational-Technical Schools
DATE:
FROM: Honeywell International Inc.
TELEPHONE: 781-364-6423
E-MAIL: john.bonavist@honeywell.com
FACSIMILE: NA

In signing this proposal, we certify that we have not, either directly or indirectly, entered into any agreement or otherwise colluded in any manner with any other person, or otherwise taken any action that would restrain or impede open and free competition and competitive bidding for this project; that no attempt has been made to induce any other person or firm to submit or not to submit a proposal; that this proposal has been independently arrived at without agreement or collusion with any other Proposer, competitor, potential competitor or other person; and that this proposal has not been knowingly disclosed prior to the opening of proposals to any other Proposer, competitor or person not affiliated with Proposer.

We further certify that no requirement or commitment, direct or indirect, was made to any person, or elected official and that no undisclosed benefit of any kind was promised to anyone connected with this project.

We further certify that no person or selling agent has been employed or retained to solicit or secure the contract that is the subject of this RFP upon an agreement or understanding for a commission, percentage, brokerage or contingent fee.

We certify that the foregoing statements are true and accurate under penalty of perjury.

The undersigned, by submitting this proposal, hereby agrees with all the terms, conditions, and specifications required by the New Jersey School District/Board of Education in this Request for Proposal, and declares that the attached proposal and pricing are in conformity therewith.

SIGNATURE:
DATE: December, 27, 2024
TYPE OR PRINT NAME: John Bonavist
TITLE: Sr Business Consultant
DATE: December, 27, 2024

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Exhibit B Ownership Disclosure Certification

EXHIBIT B:

OWNERSHIP DISCLOSURE CERTIFICATION TO BE SUBMITTED WITH PROPOSAL

In order to conform with N.J.S.A.52:25-24.2, all corporations or partnerships shall provide the following information:

1. Name of Firm: Honeywell International Inc.
2. Type of Business Organization (Check appropriate type)

Partnership____ Corporation X___ Sole Proprietorship ____
Limited Partnership_____ Limited Liability Corporation _____ Limited Liability Partnership ____
Subchapter S Corporation _____

3. Name of State in which Incorporated: Delaware

The following individuals own ten percent (10%) or more of any class stock in the corporation or are ten percent (10%) or more Partners in the Firm:

NAME	ADDRESS	TITLE	PERCENTAGE
None			

Or, I certify that no one stockholder or partner owns 10% or more of the issued and outstanding stock or interest in the business entity.

IF ANY OF THE AFOREMENTIONED STOCKHOLDERS ARE A CORPORATION, WHEREBY THEY HOLD 10% (TEN PERCENT) OR MORE OF ANY CLASS STOCK IN BIDDING CORPORATION, THEY SHALL ALSO PROVIDE THE INFORMATION REQUESTED ABOVE.

The above information is true and correct to the best of my knowledge.

(Signature)

(Name) John Bonavist

(Title) Sr Business Consultant

(Address) 115 Tabor Road, Morris Plains, NJ 07950

Subscribed and sworn to before me
This 13 day of Jan, 2025.
(Seal) Notary Public of New Jersey/
Specify Other State
My commission Expires 12/23, 2025.

Cathleen A Foote

CATHLEEN A. FOOTE
NOTARY PUBLIC OF NEW JERSEY
Commission # 2269845
My Commission Expires 12/22/2025

CATHLEEN A. FOOTE NOTARY PUBLIC NEW JERSEY

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Exhibit C Certificate Of Equal Opportunity

EXHIBIT C:

CERTIFICATE OF EQUAL OPPORTUNITY

INSTRUCTIONS

This certification is required pursuant to Executive Order 11246, Part II, 203(B), (30 C.F.R. 12319-25). Each Proposer is required to state in its Proposal whether it has participated in any previous contract or subcontract subject to the equal opportunity clause; and, if so, whether it has filed all compliance reports due under applicable filing requirements.

PROPOSER'S CERTIFICATE

Proposer's Name: Honeywell International Inc.
Address: 115 Tabor Road, Morris Plains, NJ 07950

1. Proposer has participated in previous contract or subcontract subject to the equal opportunity clause. Yes X No _____
2. Compliance reports were required to be filed in connection with such contract or subcontract. Yes X No _____
   If Yes, state what reports were filed and with what agency.
3. Proposer has filed all compliance reports due under applicable instructions. Yes X No _____
3. If answer to Item 3 is "No", please explain in detail on reverse side of this certification.

Certification: The information above is true and complete to the best of my knowledge and belief. I am aware that if any of the foregoing statements is willfully false,, I am subject to punishment.. (17 U.S. Code, Section 1001.)

(Name and Title of Signer - Please Type)
John Bonavist, Sr Business Consultant

Date: December 27, 2024
(Signature)


Certification 137

CERTIFICATE OF EMPLOYEE INFORMATION REPORT

RENEWAL

This is to certify that the contractor listed below has submitted an Employee Information Report pursuant to N.J.A.C. 17:27-1.1 et. seq. and the Treasurer has approved it. This approval will remain in effect for the period of 15 MAY 2021 to 15 MAY 2024

HONEYWELL INTERNATIONAL, INC.
115 TABOR ROAD
MORRISPLAINS NJ 07950

ELIZABETH MAHER MUOIO
State Treasurer

Exhibit D Affirmative Action Questionaire

EXHIBIT D:

AFFIRMATIVE ACTION QUESTIONNAIRE

The following question shall be answered by all Proposers.

Do you have a Federal Letter of Affirmative Action Plan Approval from the U.S. Department of Labor's Office of Federal Contract Compliance Programs (OFCCP)?

YES_____ NO__X__

If yes, please submit a photostatic copy of such approval. This letter cannot be more than one year old from the date of issuance.

If no, the Proposer may still submit a Proposal on the Project if the question is answered.

PROPOSER (Signature)

John Bonavist, Sr Business Consultant

PROPOSER (Print Name)

Exhibit E Affidavit Regarding List of Debarred, Suspended, or Disqualified Contractors

EXHIBIT E:

AFFIDAVIT REGARDING LIST OF DEBARRED, SUSPENDED OR DISQUALIFIED CONTRACTORS

STATE OF NEW JERSEY

COUNTY OF

State_____ (specify, if not NJ) of full age, being duly sworn according to law on my oath depose and
Say that:

I am John Bonavist, Sr Business Consultant of the firm of Honeywell International Inc. , the

Proposer making the Proposal for the above- named Project, and that I executed the said Proposal with full authority to do so; that said Proposer is not at the time of the making this bid included on the New Jersey State Treasurer's or any State or Federal Government's list of Debarred, Suspended or Disqualified Contractors .

Name of Proposer

By: John Bonavist, Sr Business Consultant

(Signature of Authorized Representative)

Subscribed and sworn to before me
this 13 day of Jan , 2025

CATHLEEN A. FOOTE
NOTARY PUBLIC OF NEW JERSEY
Commission # 2269845
My Commission Expires 12/22/2025

(Seal) Notary Public of New Jersey/
Specify Other State
My Commission Expires 12/22 2025.

THIS FORM SHALL BE COMPLETED, SIGNED, AND NOTARIZED

CATHLEEN A. FOOTE NOTARY PUBLIC NEW JERSEY

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Exhibit F Certification Of Qualifications And Credentials

EXHIBIT F:

PROPOSER CERTIFICATION OF QUALIFICATIONS AND CREDENTIALS

STATE OF NEW JERSEY/Specify, of Other
COUNTY OF Morris, of the (City, Town, Borough) of State of New Jersey, of full age, being duly sworn according to law, on my oath, depose and say that:

I am John Bonavist of the firm of Honeywell International Inc., the Proposer submitting the Proposal herein and that I executed the said Proposal with full authority to do so. The firm of _____ possesses the qualifications and credentials to fully and completely perform the contract outlined in the Request for Proposal.

Name of Proposer

By: John Bonavist, Sr Business Consultant

(Signature of Authorized Representative)

Subscribed and sworn to before me
this 13 day of Jan, 2025
(Seal) Notary Public of New Jersey/
Specify Other State
My Commission Expires 12/23 2025

CATHLEEN A. FOOTE
NOTARY PUBLIC OF NEW JERSEY
Commission # 2269845
My Commission Expires 12/22/2025

THIS FORM SHALL BE COMPLETED, SIGNED, AND NOTARIZED

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Exhibit H Disclosure of Investment Activities In Iran

EXHIBIT H

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY
DIVISION OF PURCHASE AND PROPERTY

33 WEST STATE STREET, P.O. BOX 230
TRENTON, NEW JERSEY 08625-0230

DISCLOSURE OF INVESTMENT ACTIVITIES IN IRAN FORM

BID SOLICITATION #: _____ **VENDOR/BIDDER:** _____

PART 1
CERTIFICATION
VENDOR/BIDDER MUST COMPLETE PART 1 BY CHECKING ONE OF THE BOXES
FAILURE TO CHECK ONE OF THE BOXES WILL RENDER THE PROPOSAL NON-RESPONSIVE

Pursuant to Public Law 2012, c. 25, any person or entity that submits a bid or proposal or otherwise proposes to enter into or renew a contract must complete the certification below to attest, under penalty of perjury, that neither the person nor entity, nor any of its parents, subsidiaries, or affiliates, is identified on the Department of the Treasury's Chapter 25 list as a person or entity engaged in investment activities in Iran. The Chapter 25 list is found on the Division's website at http://www.state.nj.us/treasury/purchase/pdf/Chapter25List.pdf. Vendors/Bidders **must** review this list prior to completing the below certification. **Failure to complete the certification will render a Vendor's/Bidder's proposal non-responsive.** If the Director of the Division of Purchase and Property finds a person or entity to be in violation of the law, s/he shall take action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

CHECK THE APPROPRIATE BOX

A. X I certify, pursuant to Public Law 2012, c. 25, that neither the Vendor/Bidder listed above nor any of its parents, subsidiaries, or affiliates is listed on the N.J. Department of the Treasury's list of entities determined to be engaged in prohibited activities in Iran pursuant to P.L. 2012, c. 25 ("Chapter 25 List"). Disregard Part 2 and complete and sign the Certification below.

OR

B. I am unable to certify as above because the Vendor/Bidder and/or one or more of its parents, subsidiaries, or affiliates is listed on the Department's Chapter 25 list. I will provide a detailed, accurate and precise description of the activities in Part 2 below and sign and complete the Certification below. Failure to provide such information will result in the proposal being rendered as nonresponsive and appropriate penalties, fines and/or sanctions will be assessed as provided by law.

PART 2

PLEASE PROVIDE ADDITIONAL INFORMATION RELATED TO INVESTMENT ACTIVITIES IN IRAN

If you checked Box "B" above, provide a detailed, accurate and precise description of the activities of the Vendor/Bidder, or one of its parents, subsidiaries or affiliates, engaged in the investment activities in Iran by completing the boxes below.

ENTITY NAME: none
RELATIONSHIP TO VENDOR/BIDDER:
DESCRIPTION OF ACTIVITIES:
DURATION OF ENGAGEMENT:
ANTICIPATED CESSATION DATE:
VENDOR/BIDDER CONTACT NAME:
VENDOR/BIDDER CONTACT PHONE No.:

Attach Additional Sheets If Necessary.

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor/Bidder, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor/Bidder is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of my agreement(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

Signature _____ December, 27, 2024
Date

John Bonavist, Sr Business Consultant
Print Name and Title

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Exhibit I Political Contribution Disclosure Form

EXHIBIT I

POLITICAL CONTRIBUTION DISCLOSURE FORM

STATE OF NEW JERSEY
DEPARTMENT OF THE TREASURY
DIVISION OF PURCHASE AND PROPERTY

33 WEST STATE STREET, P.O. BOX 0230
TRENTON, NEW JERSEY 08625-0230

VENDOR/BIDDER CERTIFICATION AND POLITICAL CONTRIBUTION DISCLOSURE FORM
PUBLIC LAW 2005, CHAPTER 271

CONTRACT #: NA **VENDOR/BIDDER:** Honeywell International Inc.

At least ten (10) days prior to entering into the above-referenced Contract, the Vendor/Bidder must complete this Certification and Political Contribution Disclosure Form in accordance with the directions below and submit it to the State contact for the referenced Contract.

NOTE that the disclosure requirements under Public Law 2005, Chapter 271 are separate and different from the disclosure requirements under Public Law 2005, Chapter 51 (formerly Executive Order 134). Although no Vendor/Bidder will be precluded from entering into a contract by any information submitted on this form, a Vendor's/Bidder's failure to fully, accurately and truthfully complete this form and submit it to the appropriate State agency may result in the imposition of fines by the New Jersey Election Law Enforcement Commission.

DISCLOSURE

The following is the required Vendor/Bidder Disclosure of all Reportable Contributions made in the twelve (12) months prior to and including the date of signing of this Certification and Disclosure to: (i) any State, county, or municipal committee of a political party, legislative leadership committee, candidate committee of a candidate for, or holder of, a State elective office, or (ii) any entity that is also defined as a "continuing political committee" under N.J.S.A. 19:44A-3(n) and N.J.A.C. 19:25-1.

The Vendor/Bidder is required to disclose Reportable Contributions by: the Vendor/Bidder itself; all persons or other business entities owning or controlling more than 10% of the profits of the Vendor/Bidder or more than 10% of the stock of the Vendor/Bidder, if the Vendor/Bidder is a corporation for profit; a spouse or child living with a natural person that is a Vendor/Bidder; all of the principals, partners, officers or directors of the Vendor/Contractor and all of their spouses; any subsidiaries directly or indirectly controlled by the Vendor/Bidder; and any political organization organized under section 527 of the Internal Revenue Code that is directly or indirectly controlled by the Vendor/Bidder, other than a candidate committee, election fund, or political party committee.

"Reportable Contributions" are those contributions that are required to be reported by the recipient under the "New Jersey Campaign Contributions and Expenditures Reporting Act," P.L. 1973, c.83 (C.19:44A-1 et seq.), and implementing regulations set forth at N.J.A.C. 19:25-10.1 et seq. As of January 1, 2005, contributions in excess of $300 during a reporting period are deemed "reportable."

Name and Address of Committee to which a Reportable Contribution was made	Date of Reportable Contribution	Amount of Reportable Contribution	Contributor's Name
Indicate "NONE" if no Reportable Contribution was made.			
none		$	
		$	
		$	
		$	
Attach additional sheets if necessary			

CERTIFICATION

I, the undersigned, certify that I am authorized to execute this certification on behalf of the Vendor/Bidder, that the foregoing information and any attachments hereto, to the best of my knowledge are true and complete. I acknowledge that the State of New Jersey is relying on the information contained herein, and that the Vendor/Bidder is under a continuing obligation from the date of this certification through the completion of any contract(s) with the State to notify the State in writing of any changes to the information contained herein; that I am aware that it is a criminal offense to make a false statement or misrepresentation in this certification. If I do so, I will be subject to criminal prosecution under the law, and it will constitute a material breach of my agreement(s) with the State, permitting the State to declare any contract(s) resulting from this certification void and unenforceable.

Signature December, 27, 2024 **Date**

John Bonavist, Sr Business Consultant
Print Name and Title

DPP Rev. 7.10.17 Page 1 of 1

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Exhibit J Federal Debarment Certification

EXHIBIT J

FEDERAL DEBARMENT CERTIFICATION

Prior to awarding any contract for public work, a person must provide written certification to the contracting agency that neither the person nor the person's affiliates are debarred at the federal level from contracting with a federal government agency. The contracting agency shall not make, negotiate, or award a contract for public work to any person that does not provide such written certification as required by this subsection. The contracting agency shall verify the certification by consulting the federal System for Award Management, or its successor, prior to awarding a contract for public work.

John Bonavist, Sr Business Consultant

December, 27, 2024

Certification of Non-Involvement In Prohibited Activities In Russia or Belarus

CERTIFICATION OF NON-INVOLVEMENT IN PROHIBITED ACTIVITIES IN RUSSIA OR BELARUS

Pursuant to N.J.S.A. 52:32-60.1, et seq. (L. 2022, c. 3) any person or entity (hereinafter "Vendor[i]") that seeks to enter into or renew a contract with a State agency for the provision of goods or services, or the purchase of bonds or other obligations, must complete the certification below indicating whether or not the Vendor is identified on the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, available here: https://sanctionssearch.ofac.treas.gov/. If the Department of the Treasury finds that a Vendor has made a certification in violation of the law, it shall take any action as may be appropriate and provided by law, rule or contract, including but not limited to, imposing sanctions, seeking compliance, recovering damages, declaring the party in default and seeking debarment or suspension of the party.

I, the undersigned, certify that I have read the definition of "Vendor" below, and have reviewed the Office of Foreign Assets Control (OFAC) Specially Designated Nationals and Blocked Persons list, and having done so certify:

(Check the Appropriate Box)

(●) A. That the Vendor is not identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

( ) B. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list on account of activity related to Russia and/or Belarus.

OR

( ) C. That I am unable to certify as to "A" above, because the Vendor is identified on the OFAC Specially Designated Nationals and Blocked Persons list. However, the Vendor is engaged in activity related to Russia and/or Belarus consistent with federal law, regulation, license or exemption. A detailed description of how the Vendor's activity related to Russia and/or Belarus is consistent with federal law is set forth below.

(Attach Additional Sheets If Necessary.)

Signature of Vendor's Authorized Representative	December 27, 2024 Date
John Bonavist, Sr Business Consultant Print Name and Title of Vendor's Authorized Representative	22-2640650 Vendor's FEIN
Honeywell International Inc Vendor's Name	(781) 364-6423 Vendor's Phone Number
115 Tabor Lane Vendor's Address (Street Address)	 Vendor's Fax Number
Morris Plains, NJ 07950 Vendor's Address (City/State/Zip Code)	John.Bonavist@Honeywell.com Vendor's Email Address

[i] Vendor means: (1) A natural person, corporation, company, limited partnership, limited liability partnership, limited liability company, business association, sole proprietorship, joint venture, partnership, society, trust, or any other nongovernmental entity, organization, or group; (2) Any governmental entity or instrumentality of a government, including a multilateral development institution, as defined in Section 1701(c)(3) of the International Financial Institutions Act, 22 U.S.C. 262r(c)(3); or (3) Any parent, successor, subunit, direct or indirect subsidiary, or any entity under common ownership or control with, any entity described in paragraph (1) or (2).

NJ Rev. 1.22.2024

Federal Debarment Certification

EXHIBIT J

FEDERAL DEBARMENT CERTIFICATION

Prior to awarding any contract for public work, a person must provide written certification to the contracting agency that neither the person nor the person's affiliates are debarred at the federal level from contracting with a federal government agency. The contracting agency shall not make, negotiate, or award a contract for public work to any person that does not provide such written certification as required by this subsection. The contracting agency shall verify the certification by consulting the federal System for Award Management, or its successor, prior to awarding a contract for public work.

I confirm the above.

John Bonavist, Sr Business Consultant

Mandatory Equal Employment Opportunity Language

MANDATORY EQUAL EMPLOYMENT OPPORTUNITY LANGUAGE
N.J.S.A 10:5-31 *et seq*., N.J.A.C. 17:27
CONSTRUCTION CONTRACTS

During the performance of this contract, the contractor agrees as follows:

The contractor or subcontractor, where applicable, will not discriminate against any employee or applicant for employment because of age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Except with respect to affectional or sexual orientation and gender identity or expression, the contractor will ensure that equal employment opportunity is afforded to such applicants in recruitment and employment, and that employees are treated during employment, without regard to their age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex. Such equal employment opportunity shall include, but not be limited to the following: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The contractor agrees to post in conspicuous places, Available to employees and applicants for employment, notices to be provided by the Public Agency Compliance Officer setting forth provisions of this nondiscrimination clause.

The contractor or subcontractor, where applicable will, in all solicitations or advertisements for employees placed by or on behalf of the contractor, state that all qualified applicants will receive consideration for employment without regard to age, race, creed, color, national origin, ancestry, marital status, affectional or sexual orientation, gender identity or expression, disability, nationality or sex..

The contractor or subcontractor, where applicable, will send to each labor union or representative of workers will) which it has a collective bargaining agreement or other contract or understanding, a notice, to be provided by the agency contracting officer advising the labor union or workers' representative of (the contractor's commitments under this act and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

The contractor or subcontractor where applicable, agrees to comply with any regulations promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 *et seq*., as amended and supplemented from time to time and the Americans with Disabilities Act.

When hiring or scheduling workers in each construction trade, the contractor or subcontractor agrees to make good faith efforts to employ minority and women workers in each construction trade consistent with the targeted employment goal prescribed by N.J.A.C. 17:27-7.2; provided, however, that the Division may, in its discretion, exempt a contractor or subcontractor from compliance with the good faith procedures prescribed by the following provisions, A, B and C, as long as the Division is satisfied that the contractor or subcontractor is employing workers provided by a union which provides evidence, in accordance with standards prescribed by the Division , that its percentage of active "card carrying" members who are minority and women workers is equal to or greater than the targeted employment goal established in accordance with N.J.A.C. 17:27-7.2.

The contractor or subcontractor agrees that, a good faith effort shall include compliance with the following procedures:

(A). If the contractor or subcontractor has a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor shall, within three business days of the contract award, seek assurances from the union that it will cooperate with the contractor or subcontractor as it fulfills its affirmative action obligations under this contract and in accordance with the rules promulgated by the Treasurer pursuant to N.J.S.A. 10:5-31 *et. seq*., as supplemented and amended from time to time and the Americans with Disabilities Act. If the contractor or subcontractor is unable to obtain said assurances from the construction trade union at least five business days prior to the commencement of construction work, the contractor or subcontractor agrees to afford equal employment opportunities to minority and women workers directly, consistent with this chapter. If the contractor's or subcontractor's prior experience with a construction trade union, regardless of whether the union has provided said assurances, indicates a significant possibility that the trade union will not refer sufficient minority and women workers consistent with affording equal employment opportunities as specified in this chapter, the contractor or subcontractor agrees to be prepared to provide such opportunities to minority and women workers directly, consistent with this chapter, by complying with the procedures prescribed under (B) below; and the contractor or subcontractor further agrees to take said action immediately if it determines or is so notified by the Division that the union is not referring minority and women workers consistent with the equal employment opportunity goals set forth in this chapter.

(B). If good faith efforts to meet targeted employment goals have not or cannot be met for each construction grade by adhering to the procedures of (A) above, or if the contractor does not have a referral agreement or arrangement with a union for a construction trade, the contractor or subcontractor agrees to take the following actions:

1. To notify the public agency compliance officer, the Division, and minority and women referral organizations listed by the Division pursuant to N.J.A.C. 17:27-5.3, of its workforce needs, and request referral of minority and women workers;
2. To notify any minority and women workers who have been listed with it as awaiting available vacancies;
3. Prior to commencement of work, to request that the local construction trade union refer minority and , women workers to fill job openings, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade;
4. To leave standing requests for additional referral to minority and women workers with the local construction trade union, provided the contractor or subcontractor has a referral agreement or arrangement with a union for the construction trade, the State Training and Employment Service and other approved referral sources in the area;
5. If it is necessary to lay off some of the workers in a given trade on the construction site, layoffs shall be conducted in compliance with the equal employment opportunity and non-discrimination standards set forth in this regulation, as well as with applicable Federal and State court decisions;

6. To adhere to the following procedure when minority and women workers apply or are referred to the contractor or subcontractor:

    a. If said individuals have never previously received any document or certification signifying a level of qualification lower than that required in order to perform the work: of the construction trade, the contractor or subcontractor shall in good faith determine the qualifications of such individuals. The contractor or subcontractor shall hire or schedule those individuals who satisfy appropriate qualification standards in conformity with the equal employment opportunity and non-discrimination principles set forth in this chapter. However, a contractor or subcontractor shall determine that die individual at least possesses the requisite skills, and experience recognized by a union, apprentice program or a referral agency, provided the referral agency is acceptable to the Division, [if necessary, the contractor or subcontractor shall hire *or* schedule minority and women workers who qualify as trainees pursuant to these rules. All of the requirements, however, are limited by the provisions of (C) below,
    b. The name of any interested women or minority individual shall be maintained on a waiting list, and shall be considered for employment as described in paragraph (i) above, whenever vacancies occur. At the request of the Division, the contractor or subcontractor shall provide evidence of its good faith efforts to employ women and minorities from the list to fill vacancies.
    c. If, for any reason, said contractor or subcontractor determines that a minority individual or a woman is not qualified or if the individual qualifies as an advanced trainee or apprentice, the contractor or subcontractor shall inform the individual in writing of the reasons for the determination, maintain a copy of the determination in its tiles, and send a copy to the public agency compliance officer and to the Division.

7. To keep a complete and accurate record of all requests made for the referral of workers in any trade covered by the contract, on forms made available by the Division and submitted promptly to the Division upon request.

(C). The contractor or subcontractor agrees that nothing contained in (B) above shall preclude the contractor or subcontractor from complying with the union hiring hall or apprenticeship policies in any applicable collective bargaining agreement or union hiring hail arrangement, and, where required by custom or agreement, it shall send journeymen and trainees to the union for referral, or to the apprenticeship program for admission, pursuant to such agreement or arrangement. However, where the practices of a union or apprenticeship program will result in the exclusion of minorities and women or the failure to refer minorities and women consistent with the targeted county employment goal, the contractor or subcontractor shall consider for employment persons referred pursuant to (B) above without regard to such agreement or arrangement; provided further, however, that the contractor or subcontractor shall not be required to employ women and minority advanced trainees and trainees in numbers which result in the employment of advanced trainees and trainees as a percentage of the total workforce for the construction total, which percentage significantly exceeds the apprentice to journey worker ratio specified in the applicable collective bargaining agreement, or in the absence of a collective bargaining agreement, exceeds the ratio established by practice in the area for said construction trade. Also, the contractor or subcontractor agrees that,

in implementing the procedures of (B) above it shall, where applicable, employ minority and women workers residing within the geographical jurisdiction of the union.

After notification of award, but prior to signing a construction contract, the contractor shall submit to the public agency compliance officer and the Division an initial project workforce report (Form A 201) provided to the public agency by the Division for distribution to and completion by the contractor, in accordance with N.J.A.C. 17:27-7. The contractor also agrees to submit a copy of the Monthly project Workforce Report once a month thereafter for the duration of this contract to the Division and public agency compliance officer

The contractor agrees to cooperate with the public agency in the payment of budgeted funds, as is necessary, for on-the-job and/or off-the-job programs for outreach and training of minorities and women.

(D). The contractor and its subcontractors shall furnish such reports or other documents to the Division of Public Contracts Equal Employment Opportunity Compliance as may be requested by the Division from time to time in order to carry out the purposes of these regulations, and public agencies shall furnish such information as may be requested by the Division of Public Contracts Equal Employment Opportunity Compliance for conducting a compliance investigation pursuant to Subchapter 10 of New Jersey Administrative Code at N.J.A.C. 17:27.

Honeywell International Inc. acknowledges the Mandatory Equal Opportunity Language Requirements.

John Bonavist, Sr. Business Consultant
December 27, 2024

NJ Co-Op Purchasing Required Information

Since the Union County Board of Education is a member in good standing with the Omnia Cooperative, use of Omnia Cooperative in the selection of Honeywell under contract # R221502 is allowed under NJ Public Contracts law as outlined in LFN 2012-10 and consists of the following elements and authorized by DLGS/DCA as well as the following elements:

“an organization (profit or not-for-profit) that coordinates and aggregates contracts from different state and local governments and promotes their use.”

“in the context of the LPCL and PSCL, the provisions of this notice apply when the aggregate value of the goods or services (see N.J.A.C. 5:34-8.2) exceeds the contracting unit’s bid threshold.”

The national cooperative contract must have been advertised as a national or regional cooperative and awarded pursuant to a competitive bidding process that complies with the laws applicable.

The LFN requires if a national cooperative contract is chosen, the calculation of cost savings from using this approach must be documented: The Law requires a contracting unit can use national cooperatives only when the contracting unit determines “ the use of the cooperative purchasing agreement shall result in cost savings after all factors, including charges for service, material, and delivery, have been considered.”

The LFN states if using an online ordering system, local officials must put “appropriate internal controls” in place to ensure purchases are documented and that an audit trail exists

This document will certify Honeywell, and the use of this cooperative purchasing agreement will remain compliant with the services of the COOP for the Union County Vo-Tech Schools; that ALL public works in conjunction with the School District and in accordance with NJ Public Contract Law (NJSA 18A:18A-1 et seq.) will be procured according to State requirements. To clarify further, this applies to a public works projects including and not limited to installing electrical, lighting, plumbing, HVAC, BMS systems etc. Additionally, that no on-line ordering system will be used as part of this process.

Resolution to Select ESCO

UNION COUNTY VOCATIONAL - TECHNICAL SCHOOLS

1776 Raritan Road, Scotch Plains, New Jersey 07076-2997
(908)889-8288, Ext. 115 Fax: (908)889-7324 www.ucvts.org

EXTRACT OF OFFICIAL MINUTES

THIS IS A CERTIFIED TRUE COPY of a resolution adopted at the Special Board Meeting of the Union County Vocational-Technical School District Board of Education held at 5:04 p.m. on Thursday, August 22, 2024.

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Roll Call:
Present - Mr. Casais, Mr. Palmieri, Mr. Barr, and Mrs. Perkins
Absent - Mrs. Mirabella

Resolution:

II. FINANCE: G. Project Development Agreement – Honeywell International, Inc.

RESOLVED, the Board of Education approve a Project Development Agreement for an Energy Savings Improvement Program with Honeywell International, Inc., via the Omina Cooperative Purchasing Agreement Contract #R221502, where Honeywell will purchase HVAC equipment, at a cost of $ 576,000.00, and will perform an investment grade audit, at a cost of $110,277.00, to develop an Energy Savings Plan, (ESP), as recommended by the Superintendent.

Moved by Mr. Casais and Seconded by Mr. Barr.

Vote:
Ayes: Mr. Casais, Mr. Palmieri, Mr. Barr, and Mrs. Perkins
Nays: None
Abstains:

I, Janet Behrmann, Board Secretary of the Union County Vocational-Technical School District Board of Education in the County of Union and State of New Jersey, hereby certify that the foregoing extracts from the minutes of the meeting of the Union County Vocational-Technical School District Board of Education duly called and held on August 22, 2024 has been compared by me with the original minutes as officially recorded in my office in the minutes book of said Union County Vocational-Technical School District Board of Education is true complete copy thereof and of the whole of said original minutes so far as the same related to the subject matter referred to in said extract. In witness I have here unto set my hand and affixed the corporate seal of the Union County Vocational-Technical School District Board of Education this 27th day of August, 2024.

ATTEST:

Janet Behrmann, Board Secretary
August 27, 2024

mm

For more information

www.honeywell.com/us/en/industries/buildings-cities

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THE FUTURE IS WHAT WE MAKE IT

Honeywell