

GUARANTEED ENERGY SAVINGS
PERFORMANCE CONTRACT

THIS GUARANTEED ENERGY SAVINGS PERFORMANCE CONTRACT (herein sometimes “Agreement” and sometimes “Contract”), made this ____ day of _____, 2019, by and between Lower Merion Township, (hereinafter called “Owner”) and Energy Systems Group, LLC, an Indiana limited liability company (hereinafter called “Contractor” or “ESG”),

WITNESSETH, That:

WHEREAS, on or about October 4, 2018, Owner publicly solicited competitive sealed proposals for energy conservation measures through a guaranteed energy savings contract pursuant to the requirements of **Pennsylvania’s Guaranteed Energy Savings Act (the “Act”)**, 62 Pa.C.S. §3751-3758 (**the “RFP”**);

WHEREAS, Contractor submitted to Owner a proposal in response to the RFP for the construction and/or installation of energy related upgrades at facilities owned by Owner and located in Montgomery County, Pennsylvania (**herein the “Facilities”**); and

WHEREAS, Owner wishes to accept Contractor’s proposal to perform the work and services described in Exhibit A Scope of Work, and Owner and Contractor desire to enter into this Agreement to memorialize their respective agreements and undertakings with respect to the Project.

WHEREAS, Contractor and Owner have previously entered into a certain Project Development Agreement (**the “PDA”**), whereby Contractor performed a detailed engineering evaluation for the purpose of submitting to Owner a final proposal for the construction and/or installation of energy-related upgrades, and post-construction measurement and verification services pursuant to the Act; and

NOW, THEREFORE, in consideration of the mutual covenants, promises, and agreements herein contained, the parties hereto agree as follows:

1. Contract Documents. The parties hereby incorporate by reference, as if fully set forth herein, the following documents and instruments, all of which together with this Agreement are herein referred to as the “Contract Documents”:

- Schedule 1 - Final Acceptance Certificate
- Schedule 2 - Anticipated Payment Request Draw Schedule
- Exhibit A - Scope of Work
- Exhibit B - Energy Savings Guarantee and Measurement and Verification Plan
- Exhibit C - **Opinion of Owner’s Counsel**
- Exhibit D - State Specific Statutory Requirements

Exhibit E - Prevailing Wage Determination

The Contract Documents also shall include any permissible change orders issued pursuant to this Agreement.

Unless otherwise stated to the contrary in this Agreement, if there is a conflict between the provisions of this Agreement and any other Contract Document, the provisions of this Agreement shall control with respect to the subject matter hereof.

2. Scope of Project. For purposes hereof, the term “Project” shall mean and include the installation of the energy conservation measures and related upgrades (“ECMs” or “Measures”) at Owner’s Facilities, which are defined in Exhibit A, Scope of Work.

2.1 Dodd-Frank Municipal Advisor Rule Statement: ESG is retained by Owner as an engineering and energy services firm to design and deliver energy-related and other infrastructure solutions described in the Scope of Work. Owner acknowledges that ESG is not a financial advisor or municipal advisor as contemplated under the U.S. securities laws, is not providing recommendations regarding any municipal financial product or the issuance of municipal securities, and does not owe a fiduciary duty to Owner under section 15B of the Securities Exchange Act, or otherwise. Owner acknowledges that as a commercial entity ESG is influenced by its own interests, which will not always be the same as Owner’s. Owner has had the opportunity to retain and consult with such financial, municipal, legal or other advisors as it may deem appropriate regarding this Project.

3. General Obligations and Rights of Contractor. Contractor shall do all acts and provide all things necessary to perform and complete the Project properly, in a good and workmanlike manner, and in compliance with all applicable laws and regulations. Contractor shall apply for, secure, and obtain all necessary permits and licenses which may be required in connection with the Project.

3.1 Warranty. Contractor hereby warrants to Owner that all materials furnished by Contractor, if any, and all workmanship performed by Contractor in connection with the Project, shall be in accordance with the general industry standards of the construction industry; shall be performed in a competent, good and workmanlike manner and in compliance with the Contract Documents, and all applicable laws, rules and regulations; and shall be free from any and all faults or defects in

material and workmanship. Contractor shall promptly remedy any and all defective materials or workmanship furnished by Contractor or any subcontractor upon receipt of written notice thereof from Owner. If required by Owner, Contractor shall furnish satisfactory evidence as to kind and quality of materials and equipment used in connection with the Project.

The warranty set forth herein shall continue to be effective for a period of one year following Owner's acceptance or beneficial use of each ECM, acceptance of a particular Facility, or acceptance of the Project, whichever comes first. Owner shall give Contractor written notice of all defective work, specifically detailing the deficiencies to be corrected, and Contractor shall repair or otherwise remedy such defective work in an expeditious manner.

CONTRACTOR MAKES NO OTHER WARRANTIES, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. To the extent possible, Contractor shall assign to Owner all warranties that Contractor receives from its vendors and/or subcontractors for any materials or equipment, which are or are to become permanent features of the Project, which shall be in addition to the other warranties provided herein.

3.2 Approvals. Upon completion of the Project, Contractor shall obtain all required approvals of the installation of the Measures constituting the Project.

3.3 Indemnification. Contractor shall indemnify, defend, and hold harmless Owner, the agents, officers, employees, and representatives of Owner (**herein the "Indemnified Owner Parties"**) against all liability and loss including reasonable attorney's fees and expenses to the extent resulting from the negligence or willful misconduct in connection with the Project by Contractor, any subcontractor, or the agents, employees, or representatives of Contractor or any subcontractor, including any injury (including death) sustained by or any damage to the property of, any person; provided however, that Contractor shall not be responsible for any injury (including death), damage, or loss (including reasonable attorneys' fees and expenses) that is caused by the sole negligence of an Indemnified Owner Party, nor shall Contractor be held responsible for the concurrent negligence of an Indemnified Owner Party.

Contractor agrees to indemnify, defend and hold Owner, its successors and assigns, and any assignee of Contractor, harmless from the payment of any sum of money whatsoever (including reasonable attorneys' **fees and expenses**) on account of any laborer's, mechanic's, materialmen's

or any other lien against Owner's property related to Contractor's performance of the Project, unless the lien is caused by some fault of Owner or some person or entity acting on Owner's behalf.

Owner shall indemnify, defend and hold harmless Contractor, and the agents, officers, shareholders, directors, and employees of Contractor and any assignee of Contractor (herein the **"Indemnified Contractor Parties"**) against all liability and loss including reasonable attorney's fees and expenses to the extent resulting from the negligence or willful misconduct in connection with the Project by Owner and agents, employees or representatives of Owner, including any injury (including death) sustained by or any damage to the property of, any person; provided, however, that Owner shall not be responsible for any injury (including death), damage or loss (including reasonable attorneys' fees and expenses) which is caused by the sole negligence of an Indemnified Contractor Party, nor shall Owner be held responsible for the concurrent negligence of an Indemnified Contractor Party.

As a condition precedent to the duties to indemnify, defend and/or hold harmless (collectively **"Indemnification"**) established in this Contract, the indemnified party must provide prompt notice to the indemnitor of a claim or matter for which Indemnification is sought, must allow the indemnitor to select counsel and control the defense, must cooperate with indemnitor at indemnitor's expense, and must allow the indemnitor to settle the matter at its expense.

3.4 Bonds. Before entering upon the performance of this Agreement, Contractor shall execute for the benefit of Owner, a Performance Bond and Payment Bond, in form acceptable to Owner. Each bond shall be in an amount equal to the Contract Price (as defined below in Section 5 of this Agreement).

The Performance Bond shall also be a guarantee for the repair or replacement of any portion of the Project that is defective to and including the date of Owner's Final Acceptance of the Project. The Payment Bond shall be a guarantee for the payment for labor, materials and equipment furnished for use in the performance of Contractor's obligations hereunder. The Performance and Payment Bond will terminate effective the date of Owner's Final Acceptance of the Project. Effective immediately thereafter, a Maintenance Bond will be provided for the one-year period commencing on the date of Owner's Final Acceptance of the Project in the amount of 10% of the total Contract Price. The surety which executes the Performance Bond and Payment Bond will waive any right to independent notice under this Agreement if Contractor receives such notice, and consents to any

extensions of time, modification, waiver, forbearance, or change which may be made in any of the terms and conditions of the Agreement by the parties or by their successors or assigns. Notwithstanding any other provision of this Agreement or the bonds, in no event and in no manner shall coverage under the Performance Bond and Payment Bond extend to Section 3.5, Guaranteed Savings, as set forth in Exhibit B Energy Savings Guarantee and Measurement and Verification Plan, or any related provisions.

3.4.1 Energy Savings Bond. Contractor shall provide an annually renewing Energy Savings Bond in the amount of the Guaranteed Annual Energy Cost Savings for the applicable Guarantee Year shown in Table A, Section 4.0, of Exhibit B (for example, for Guarantee Year 2, the amount of the Energy Savings Bond shall be \$158,389). This Energy Savings Bond will be provided on an annual basis at the beginning of each successive Guarantee Year for the term of the Guarantee or until the Guarantee is canceled or allowed to expire/terminate by the Owner, whichever comes first. Notwithstanding any other provision of this Agreement or the bonds, in no event and in no manner shall coverage under the Energy Savings Bond extend to the successful completion of the Scope of Work, the repair or replacement of any portion of the Project that is defective, the payment **for labor, materials and equipment furnished for use in the performance of Contractor's** contract obligations and/or any non-energy savings guaranteed in this Agreement.

3.5 Guaranteed Savings. The Project will result in energy savings in the total amount of \$3,508,349 and operational savings in the total amount of \$786,012, as outlined in Exhibit B - Energy Savings Guarantee and Measurement and Verification Plan, during the 20 year period following Final Acceptance of the Project (**herein the "Total Guaranteed Savings"**). Contractor represents and warrants that such Total Guaranteed Savings **exceed Owner's total cost of the** Project. After the First Guarantee Year (as defined in Exhibit B), the savings in every subsequent year during the Term (as defined in Exhibit B) are guaranteed to the extent necessary for Owner to make payments under the Agreement during that year.

It is agreed that the **Contractor's** obligation to deliver the operational savings described in Table A of Exhibit B will be fully **satisfied upon Owner's Final Acceptance of the Project based on the**

documentation and data approved by Owner and included herein. Contractor represents and warrants the requirements set forth in Exhibit D will be met.

3.6 Limitation of Liability. The total liability of Contractor on all claims made by Owner (excluding third party claims), whether in contract, warranty, tort, strict liability, indemnity, or otherwise, arising out of the performance of this Agreement, shall not exceed the greater of (1) the Contract Price, or (2) the insurance proceeds received by Contractor to cover such claim. NOTWITHSTANDING ANY OTHER PROVISION HEREIN TO THE CONTRARY, IN NO EVENT SHALL CONTRACTOR BE LIABLE FOR INDIRECT, CONSEQUENTIAL, SPECIAL, SPECULATIVE, PUNITIVE, OR REMOTE DAMAGES INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS OR REVENUE, COST OF CAPITAL, AND DOWN TIME COST.

3.7 Insurance.

3.7.1 Obtaining Proper Insurance. Contractor shall not commence performance hereunder until (i) it has obtained and Owner has approved all insurance coverage required by this Section 3.7; and (ii) Owner has been furnished with a certificate of insurance properly evidencing and confirming that Owner is an additional insured (on a primary and non-contributory basis) **on Contractor's public liability**, automobile liability, and excess liability policies. In the event that subcontractors are not covered by Contractor's **policies of** insurance, each subcontractor shall secure policies of insurance which meet the requirements of this Section 3.7, except that subcontractors shall not be required to carry the excess liability insurance and the professional liability insurance specified below.

3.7.2 Amount of Insurance. Contractor shall take out and maintain, at its sole cost and expense, the following insurance coverage during the term of this Agreement and all other times during which Contractor, its employees, agents, or subcontractors shall be present at the Facilities, whether performing or correcting any portion of the Project:

(A) Worker's Compensation, Employer's Liability, and Occupational Disease Insurance. Statutorily required worker's compensation insurance, including **employer's liability** (\$100,000.00 each accident, \$100,000.00 disease each employee, and \$500,000.00 disease policy limit), and occupational disease

coverage, to the extent mandated by applicable state law, on all of Contractor's employees engaged in the Project;

(B) Public Liability. Commercial general liability insurance (including contractual liability, independent contractors, XCU (explosion, collapse and underground), and product/completed operations coverages) against damage because of bodily injury, including death, or damage to property of others, such insurance to afford protection to the limit of not less than One Million Dollars (\$1,000,000.00) in one occurrence, and to the limit of not less than Three Million Dollars (\$3,000,000.00) annual aggregate;

(C) Automobile Liability. Automobile liability insurance against damage because of bodily injury, including death, or damage to property of others as the result of the operation of any automobile owned or hired by Contractor, with such insurance to afford protection to the limit of not less than Five Hundred Thousand Dollars (\$500,000.00) for any one person, not less than One Million Dollars (\$1,000,000.00) in respect to any one accident, and not less than One Hundred Thousand Dollars (\$100,000.00) for property damage.

(D) Excess Liability. Excess liability insurance in an amount not less than Five Million Dollars (\$5,000,000.00), which shall be specifically endorsed to be in excess of the above-required required public liability, the employers' liability coverage portion on the workers' compensation policy, and the automobile liability coverage.

(E) Professional (E&O) Liability. Professional liability insurance affording protection against claims associated with professional errors and omissions sufficient to afford protection of not less than \$2,000,000 aggregate.

3.8 Project Advisory and Coordination Services. The Owner has selected Provident Energy Consulting ("PEC") as the Owner's project manager for the Project. ESG shall fund the

services of the Owner's project manager (PEC), as required by Owner's RFP. PEC's work and services shall be performed consistent with PEC's professional responsibilities to the Owner.

3.8.1 ESG Direct Payments to PEC. As a matter of administrative efficiency and as required by Owner's RFP, ESG agrees to pay PEC directly for services performed by PEC, consistent with the terms of this Section 3.8.1. ESG shall be responsible for making payments directly to PEC as set forth herein. The total advisory and coordination fee to be paid to PEC is 5.5% of the Contract Price (as defined in Section 5.1 below). ESG will make payments to PEC according to the following schedule:

- 10% Upon Contract Signing
- progress billing each month
- 10% Upon Owner's Final Acceptance of the Project.

ESG's payments to PEC will be made within thirty (30) days of ESG's receipt of a sufficiently detailed invoice.

3.8.2 No Obligation to Ensure Performance; PEC Disputes Handled Exclusively By and Between Owner and PEC. Nothing contained within this Agreement shall be construed as creating an obligation or responsibility of any kind on the part of ESG to ensure or confirm in any way PEC's compliance with or performance of its professional services on behalf of the Owner. As a result, any assertion, claim, or dispute between PEC and the Owner concerning PEC's performance of its professional services or PEC's right to receive payment for performing the same (herein, a "PEC-Owner Dispute") shall be handled exclusively by and between the Owner and PEC, and ESG's obligation to remit payment to PEC hereunder shall not be eliminated or altered by reason of any such PEC-Owner Dispute.

3.8.3 No Liability Related to PEC's Performance of Services. Notwithstanding any other provision in this Contract to the contrary, in no event shall ESG be liable to the Owner for PEC's failure to properly perform its services for or on behalf of the Owner. Owner agrees to look solely to PEC for any deficiencies in the services provided by PEC.

4. Builder's Risk Insurance. Contractor shall maintain a Builder's Risk Insurance policy, providing coverage for the risk of physical loss or damage to the Measures installed, in an amount equal to the completed value of the Work contracted hereunder. Such Builder's Risk Insurance

policy shall not insure against damage to existing property, but only the Measures installed pursuant to this Agreement. If any of the Measures are damaged or destroyed after they are installed to **Owner's Facilities, but prior to Substantial Completion of the Project, the proceeds of such insurance** shall be provided to Contractor, and Contractor shall repair or replace such equipment, materials or Measures. In addition, if any of the Measures are damaged or destroyed after Substantial Completion of the Project and during the Performance Guarantee period, Owner shall be obligated to promptly repair or replace the damaged or destroyed Measures. The Owner as well as **Contractor's subcontractors shall be considered "Additional Named Insureds," insofar as their interests appear, pursuant to ESG's Builder's Risk Insurance** policy.

4.1. Title and Risk of Loss. Notwithstanding the foregoing, the risk of loss for all equipment and materials provided by Contractor or any subcontractor shall transfer to the Owner upon installation and beneficial use of the relevant equipment and materials. Title to a Measure shall vest with Owner upon installation and payment to Contractor. It is the intent of all parties that any transfer of title to Owner pursuant to this Agreement shall occur automatically without the necessity of any bill of sale, certificate of title, or other instrument of conveyance.

Owner shall be responsible for operating and maintaining all Measures that are installed. Owner shall also be responsible for any real or personal property taxes related to the Measures.

4.2 Waiver of Subrogation. Owner and Contractor hereby release each other **and each other's employees, agents, and subcontractors from any and all liability for any loss of or** damage or injury to person or property arising during the Project by reason of fire or other casualty or any other risk or cause which is or which is required to be insured against under this Agreement, regardless of cause, including the negligence of Owner or Contractor and their respective employees, agents, and subcontractors, and agree that all insurance carried by either of them shall contain a clause whereby the insurer waives its right of subrogation against the other party. Because the provisions of this paragraph are intended to preclude the assignment of any claim mentioned herein by way of subrogation or otherwise to an insurer or any other person, each party to this Agreement shall give to each insurance company which has issued to it one or more policies of insurance required by this Agreement notice of the provisions of this paragraph and have such insurance policies properly endorsed, if necessary, to prevent the invalidation of such insurance by reason of the provisions of this paragraph.

5. Contract Price and Payments.

5.1 Contract Price. In consideration of Contractor's performance of the work necessary for the completion of the Project, Owner shall pay Contractor the sum of Three Million Seven Hundred Sixty Thousand Dollars (\$3,760,000.00) (herein the "Contract Price"), in accordance with the provisions of this Section 5. Per the requirements in Owner's RFP, Contractor's Contract Price includes a 5.5% fee to cover the cost of project management services for the Project (which project management services will be performed by PEC and paid by Contractor).

5.2 Concerning Payment of the Contract Price. The following provisions shall apply to payment of the Contract Price:

5.2.1 Applications for Payment. Payment of the Contract Price shall be made in monthly installments based upon Contractor's progress in completing the installation of the Project, except that Contractor shall be paid an "Initial Payment" equal to 10% of the Contract Price, which shall compensate Contractor for preconstruction Work and services performed at Contractor's sole cost and risk prior to the execution of this Agreement. The request for such Initial Payment shall be submitted to Owner upon the execution and delivery of this Agreement. Contractor shall not submit to Owner any additional invoices until such time as Contractor has performed Work with a cumulative value in excess of the Initial Payment described herein.

With respect to monthly progress payments, Contractor shall submit to Owner each month, an application for payment on a form mutually agreeable to Contractor and Owner. Owner shall pay or cause to be paid such invoice within 30 days of receipt. For payments not timely made, interest shall accrue at 10% per annum.

5.2.2 Completion and Inspection; Acceptance. When Contractor reasonably believes that the Project is substantially complete, it shall notify Owner that the Project is ready for inspection and acceptance (or, ESG's "Notice of Substantial Completion"). Within five business days following such notification, the Owner shall commence to conduct such inspections as it deems necessary or appropriate in order to determine that the Project, as the case may be, is free from defects and that the installation of the Project, has been completed in conformity with the Contract Documents. If any aspect of the Project, shall be

incomplete as of the date of such inspection, Owner shall notify Contractor in writing as to the items that **render the Project incomplete (such writing herein referred to as the “Punch List”)**.

Contractor shall, at its expense and without further cost to Owner, undertake to perform such work as will complete the Punch List in compliance with the Contract Documents as soon as practicable. Contractor retains the right to dispute that an item or items on the Punch List is required by the Contract Documents. If Contractor does not satisfactorily complete the Punch List by a date **30 days following Owner’s submission of the Punch List (herein the “Completion Date”)**, **Owner shall have the right to order Contractor to stop any further work in respect of the Project, and Owner shall be entitled to complete the Punch List.** In such event, Contractor shall be responsible for all costs incurred by Owner in completing the Punch List and Owner shall have the right to deduct all costs from any payment then or thereafter due to Contractor. If such cost exceeds the balance of the Contract Price then or thereafter due Contractor, Contractor shall pay such excess to Owner within **10 days following Owner’s demand therefor.**

. Following the Completion Date, Owner agrees to provide Contractor prompt written notice of its acceptance of the entire Project by executing and delivering Schedule 1 **to the Contractor (the Owner’s “Final Acceptance Certificate”)** upon satisfaction of the following conditions:

- A. **Contractor shall have completed the Punch List to Owner’s reasonable satisfaction and** Contractor shall have corrected any other non-conforming items or condition, if any, reported to it by Owner;
- B. **Contractor shall have furnished to Owner’s reasonable satisfaction,** evidence that all equipment and labor costs incurred or accrued in connection with a particular ECM or Facility have been or will be promptly paid; and
- C. Contractor shall have delivered to Owner all drawings and documents required to be furnished by Contractor pursuant to the Contract Documents.

If Owner is required to complete the Punch List, the date of Final Acceptance shall be extended to the date upon which the Project is completed by Owner, or any person retained by Owner, in accordance with the Contract Documents.

5.2.3 Final Payment. Any sums due and owing in respect of the Contract Price shall be payable to Contractor within 10 calendar days after the date Owner delivers a signed **Schedule 1 to the Contractor, signifying the Owner's** Final Acceptance of the entire Project.

6. Independent Contractor. It is understood and agreed by the parties hereto that Contractor shall perform the Project according to its own means and methods and shall for all purposes be an independent contractor. All persons employed by Contractor in connection with the Project shall be paid **directly by Contractor, and shall be subject to Contractor's orders and supervision.**

7. Inspection; Defective Work. Contractor shall provide sufficient, safe, and proper facilities at all times for the inspection of the work by Owner. It shall, within forty-eight hours after receiving written notice from Owner to that effect, proceed to remove from the Facilities all materials that fail to conform to the Contract Documents.

8. Termination.

8.1 Owner's Right to Terminate. Should Contractor fail to perform any material term or condition of the Contract Documents, Owner shall be at liberty, after 30 days written notice to Contractor **and Contractor's failure to remedy the problem within that time period, to terminate this** Agreement and to enter upon the Facilities and take possession of the equipment and materials for the purpose of completing the work to be done under this Contract, to use all materials of Contractor available for such work, and to employ any other person or persons to finish the work and to provide such additional materials therefor as may be necessary; and in case of such termination of the employment of Contractor, Contractor shall not be entitled to receive any further payment under this Contract until the work shall be wholly finished, at which time if the unpaid balance of the amount to be paid under the Contract shall exceed the expense incurred by Owner in finishing the work, such excess shall be paid by Owner to Contractor, but if such expense shall exceed such unpaid balance, Contractor shall pay the excess to Owner. The expenses incurred by Owner as herein provided, either for the furnishing of materials or for finishing the work, and any damage incurred through such fault of Contractor shall be certified by Owner, and payment shall be made upon such certification.

Pursuant to 62 Pennsylvania Consolidated Statutes 3755, the Owner shall have the right to terminate this Agreement if in any fiscal year during the Term (as defined in Exhibit B) the Owner does not receive sufficient funds in its annual appropriations to make the payments required in this Agreement.

8.2 Contractor's Right to Terminate or Stop Work. Should Owner fail to perform any material term or condition of the Contract Documents, Contractor shall be at liberty, after 30 days written notice to Owner and Owner's failure to remedy the problem within that time period, to terminate this Agreement or stop work. If Contractor elects to stop work, Contractor shall not be required to recommence work until such time as Owner has completely remedied its breach.

9. Delays. Should Contractor be obstructed or delayed in the prosecution or completion of the Project by the act, negligence, delay, or default of Owner or by any other damage, act or cause beyond the reasonable control of Contractor or any subcontractor, then the time herein fixed for the completion of the work shall be extended for a period equivalent to the time lost by reason of such event. If Contractor is delayed by actions or inactions of Owner or its agents or employees, Owner shall be required to reimburse Contractor for its additional costs incurred as a result of such delay.

10. Contractor to Furnish Required Statements. Contractor shall provide all statements, affidavits, waivers, and other instruments required by state or federal law or regulation or by local ordinances or rules, at such times and in the form required by said laws, regulations, ordinances, or rules, and Contractor hereby acknowledges receipt of notice from Owner to furnish same.

11. Nondiscrimination in Hiring Employees.

A. **In addition to Contractor's agreement to comply with the applicable provisions of the Pennsylvania Human Relations Act,** Contractor, any subcontractor, any supplier or any sub-supplier of a party to this Contract shall not discriminate against any employee or applicant for employment to be employed in the performance of this Contract with respect to his or her hire, tenure, terms, conditions, or privileges of employment or any matter directly or indirectly related to employment, because of their race, color, religious

creed, ancestry, age, sex, national origin, physical or mental disability, use of guide or support animals because of the blindness, deafness or physical or mental disability of the user or because the user is a handler or trainer of support or guide animals, or because of a person's sexual orientation, gender identity or gender expression. Breach of this provision may be regarded as a material breach of this Contract.

B. Since this Contract involves the construction, alteration, or repair of a public building or public work, Contractor agrees:

(1) That in the hiring of employees for the performance of work under this Contract or any subcontract hereunder, Contractor, subcontractor or any person acting on behalf of Contractor or subcontractor shall not, by reason of race, religion, color, sex, national origin, or ancestry, discriminate against any citizen of the State of Pennsylvania who is qualified and available to perform the work to which the employment relates;

(2) That Contractor, a subcontractor, or any person on his or their behalf shall not, in any manner, discriminate against or intimidate any employee hired for the performance of work under this Contract on account of race, religion, color, sex, national origin, or ancestry;

C. Contractor or any subcontractor of Contractor shall be required to pay for each class of work on such project a scale of wages which shall in no case be less than the prevailing wages being paid in the immediate locality for such class of work. As part of this Contract, if applicable, there is incorporated by reference herein a prevailing scale of wages.

12. Miscellaneous Provisions.

12.1. Governing Law. This Agreement shall be construed in accordance with and governed by the laws of the State of Pennsylvania.

12.2. Notices. Unless otherwise specifically provided herein, any notice, consent, request, demand, report or statement (herein "Notice"), which is required or permitted to be given to or served upon either party hereto by the other party hereto under any of the provisions of this Agreement shall be in writing and deemed to be duly delivered when (i) personally delivered to

Contractor, or personally delivered to Owner in the case of a Notice to be given to Owner, or (ii) deposited in the United States mail, registered or certified, postage prepaid, and properly addressed as follows:

If to Owner: Daniel Bernheim, Esq., President
Lower Merion Township
75 East Lancaster Avenue
Ardmore, PA 19003

With a copy to: Ernie B. McNeely, Township Manager
Lower Merion Township
75 East Lancaster Avenue
Ardmore, PA 19003

If to Contractor: Steven W. Spanbauer, President
Energy Systems Group LLC
9877 Eastgate Court
Newburgh, Indiana 47630

Either party may change its address or its designated representative for receipt of notices by submitting a notice in compliance with this Section.

If Owner has questions about billing, invoices or any other accounting or related administrative issues, it can make contact (which will not constitute Notice) with:

Drew Bailey, Vice President, Finance & Accounting
Energy Systems Group, LLC
9877 Eastgate Court
Newburgh, IN 47630
(812) 492-3754
dbailey@esg.email

12.3. Allocation of IRC 179D or Similar Income Tax Deduction Benefits. As a result of **ESG's design and implementation of this Project, a federal income tax deduction under Section 179D of the Internal Revenue Code ("IRC 179D") may become available** to ESG as the party primarily responsible for designing energy efficiency improvements implemented at **Owner's** Facilities. Congress provided in IRC 179D(d)(4) for government owners, which do not pay income tax and are thus ineligible to use this deduction, to allocate the deduction to the party primarily responsible for designing the energy efficiency improvements, here ESG. Owner hereby agrees to allocate to ESG such deduction and any similar deduction enacted by Congress to replace IRC 179D. Owner agrees to cooperate with ESG by executing annually during the construction of the

Measures, and promptly returning to ESG, a written allocation and declaration required by IRC 179D. ESG will prepare and is responsible for the accuracy of any allocation documents and all accompanying documentation supplied for **Owner's** signature. Notwithstanding anything to the contrary herein, Owner makes no representation concerning the availability or applicability of any such tax deduction benefits or of their ability to be allocated to or claimed by ESG. ESG assumes all risk related to such allocation and deduction.

12.4. Claims for Damages. Any claims by either party hereto for bodily injury or damage to personal property caused by any act or omission of the other party hereto or by any of such party's employees or agents or others for whose acts it is legally liable shall be made in writing to such other party within a reasonable time after the occurrence or first knowledge of such injury or damage.

12.5. Assignment. Neither party shall assign, transfer, pledge, or grant any security interest in, or otherwise dispose of, this Agreement or the equipment or any interest in this Agreement **or the Equipment without first obtaining the other party's written** consent. Subject to the foregoing, this Agreement shall inure to the benefit of and is binding upon the heirs, executors, administrators, successors, and assigns of the parties hereto.

12.6. Waivers. The failure of either party hereto to insist upon strict performance of any of the provisions of this Agreement or to take advantage of any of its rights hereunder shall not be construed as a waiver of any such provision or the relinquishment of any such rights unless such waiver is in writing and signed by both parties.

12.7. Remedies Cumulative. Each remedy provided for by the Contract shall be cumulative and in addition to every other remedy provided for herein, by law or in equity. Upon the occurrence of a default, hereunder, either party, or its assignee, may, at its option, exercise any right, remedy, or privilege which may be available to it under applicable law, including the right to (i) proceed by appropriate court action to enforce the terms of this Agreement, and (ii) recover damage for breach of this Agreement. Notwithstanding the exercise of any right, remedy or privilege, the parties shall remain liable for all covenants and indemnities under this Agreement.

12.8. Tests. If the Contract Documents or the laws, ordinances, rules, or regulations of any public authority having appropriate jurisdiction require inspection, testing, or approval of any of

the work, Contractor shall give Owner timely notice of Contractor's readiness for such inspection, testing, or approval and of the date thereof so that Owner may be present to observe such inspection, testing, or approval by such public authority. Contractor shall be responsible for and pay all costs for any such inspection, testing, or approval unless otherwise provided for herein. All required licenses, permits, or certificates applicable to any such inspection, testing, or approval shall be obtained by Contractor and promptly delivered to Owner.

12.9. Hazardous Materials. If during the performance of the services related to the Project, the presence of Hazardous Materials is discovered or reasonably suspected, Contractor shall notify Owner of such discovery or suspicion and shall be permitted to immediately cease all work that may require contact with or exposure to such hazardous materials until Owner has inspected the same and Owner has made arrangements for the removal of the same at its expense. Contractor shall be entitled to an extension of the time fixed for the completion of the work equivalent to the time required to remediate such **Hazardous Material**. **"Hazardous Materials" includes all** hazardous or toxic substances or materials as may be so designated by federal, state or local governmental entities including, without limitation, asbestos, mold, lead paint and soil or water contamination of any kind, unless expressly included within the Scope of Work.

12.10. Steel Products Procurement Act Compliance. Unless otherwise exempt, ESG shall and shall require its subcontractors to use or supply only those products defined as **"steel products" within Pennsylvania's Steel Products Procurement Act, 73 Pa. C.S. §§ 1881 et seq., in the** performance of this Agreement. Steel Product Act Compliance shall not be required with respect to: (i) any steel product not produced in the United States in sufficient quantities, as determined in writing by the Owner; or (ii) any steel product appearing on the Pennsylvania Department of General **Services' list of exempt machinery and equipment** steel products that were not produced in the United States in sufficient quantities in the previous calendar year. The 2018 list of exempt machinery and equipment steel products may be found on the Internet at the following website address: <<https://www.dgs.pa.gov/Businesses/Design-and-Construction/Steel-Products-Act-Exemptions/Documents/2018%20Exemption%20List%2006%2005%202018.pdf>>.

12.11. E-Verify Compliance. Prior to the performance of any Work hereunder, ESG shall and shall require its subcontractors to certify participation in the E-Verify Program operated by the Department of Homeland Security, which electronically verifies employment eligibility for employees.

12.12. Prompt Payment Act Compliance. ESG shall comply, in the rendering of payments to subcontractors performing Work hereunder, with the Pennsylvania Prompt Payment Act, 62 Pa. C.S. §§ 3931-3939, as amended. ESG shall advise its subcontractors and suppliers in writing that no third party rights arise against the Owner for any reason associated with non-payment for Work or services supplied hereunder. ESG agrees to include terms consistent with this Section within its subcontract agreements with all of its subcontractors providing work or services consistent with the Work to which **this Agreement relates. This includes a provision requiring that Subcontractor's sub-subcontractors and suppliers notify, in writing, any lower-tier entities and suppliers of the requirements of this Section.**

12.13. Dispute Resolution. It is the intent of both parties that disputes be resolved as quickly, inexpensively and efficiently as possible. To that end the parties agree on the following process as the exclusive and mandatory process to be used to resolve disputes that are not resolved at the project manager level. The first mandatory step is for either party to submit to the other a written request for an executive meeting to attempt to resolve an identified dispute. An executive representative of each party must attend such a meeting within 15 days of the request. The meeting may be telephonic or in person, as the parties deem appropriate. If the executive meeting fails to resolve the dispute then either party may demand mediation before the American Arbitration Association in the locale of the Project. The parties will agree upon a mediator with construction experience. The parties agree to split all mediation fees 50/50. Each party will pay its own attorney fees for mediation. If the mediation fails to resolve the dispute then either party may commence litigation in any court having subject matter jurisdiction and located in the county in which the project is located. Each party hereby submits to the personal jurisdiction of such courts.

12.14. Amendments. No amendment, supplement, or modification hereof shall be effective for any purpose unless the same is in writing and signed by both parties hereto.

12.15. Headings. The headings of sections and subsections of this Agreement are for convenience of reference only and shall not affect the meaning or construction of any provision hereof.

12.16. Entire Agreement. This Agreement, together with the Contract Documents, represents the entire agreement between the parties hereto with respect to the subject matter hereof and supersedes all prior negotiations, representations and agreements whether written or oral.

12.17. Severability. In the event any clause or provision of this Agreement or any part hereof shall be declared invalid by any court having jurisdiction, such invalidity shall not affect the validity or enforceability of the remaining portions of this Agreement.

12.18. Non-Appropriation. This Contract shall be deemed executory only to the extent of the monies appropriated and available for the purpose of the Contract, and no liability on account therefor shall be incurred beyond the amount of such monies.

12.19. Third Party Beneficiaries. Except as may be specifically provided for in this Agreement, the parties hereto do not intend to create any rights for, or grant any remedies to, any third party beneficiary of this Agreement.

12.20. Non-Collusive Bidding Certification. By this Agreement, ESG herein warrants and certifies to the best of its knowledge and understanding and subject to the penalties for perjury that its proposal was accepted by Owner independently and without collusion aimed at restricting competition.

12.21. Review by Counsel. This Contract has been reviewed by counsel selected by the Owner, who has issued an opinion consistent with the form **Opinion of Owner's Counsel, identified** within Exhibit C, hereto.

[Remainder of page intentionally left blank; signature page to follow.]

12.22. Authority to Execute Contract. This Contract is executed by Owner pursuant to a resolution of Owner duly adopted at its regular meeting called and held on the ____ day of _____, 2019.

LOWER MERION TOWNSHIP

By _____
Daniel Bernheim, Esq.

Its _____
President

ATTEST:

By _____

Its _____

ENERGY SYSTEMS GROUP, LLC

By _____
Scott Prochazka

Its _____
CEO

ATTEST:

By _____

Its _____

SCHEDULE 1

FINAL ACCEPTANCE CERTIFICATE

*(The parties agree and acknowledge that this Final Acceptance Certificate shall be used to signify the
Owner's Final Acceptance of the Project pursuant to Section 5.2.2 of the Agreement.)*

Energy Systems Group, LLC
9877 Eastgate Court
Newburgh, IN 47630

Re: Guaranteed Energy Savings Performance Contract, dated as of _____, 2019 (the "Agreement"),
between Energy Systems Group, LLC (the "Contractor") and Lower Merion Township Pennsylvania (the
"Owner").

Ladies and Gentleman:

In accordance with the Agreement, Owner hereby certifies and represents to, and agrees with, Energy Systems
Group, LLC as follows:

The entire Project (as defined in the Agreement) has been delivered, installed, and accepted as of _____
_____ (the "Final Acceptance Date").

Owner has conducted such inspection and/or testing of the entire Project, as it deems necessary and appropriate,
and hereby acknowledges that it accepts the entire Project for all purposes.

No event or condition that constitutes, or with notice or lapse of time, or both, would constitute, an Event of Default
(as defined in the Agreement) exists at the date hereof.

Sincerely,

LOWER MERION TOWNSHIP

By: _____

Its: _____

Date: _____

SCHEDULE 2

ANTICIPATED PAYMENT REQUEST DRAW SCHEDULE

Start Date	Amount
12/15/2019	10%
Progress Billing to Completion	

EXHIBIT A
SCOPE OF WORK

Energy Conservation Measure "ECM" Description	Ardmore Pool Complex	Ardmore Public Library	Bala Avenue Gymnasium	Belmont Hills Community Center	Belmont Pool Complex	Belmont Hills Library	Bryn Mawr Community Center	Koegel Complex	Ludington Library	Parks	Public Safety Building	Street Lighting	Township Administration Building	Vernon Park
Street Lighting – Upgrade to LED												X		
Tear Drop Pole Painting												X		
Interior LED Lighting			X					X						
LED Site Lighting	X				X			X						X
Parks Lighting - Upgrade to LED										X				
Replace Boiler with 1 Condensing Boiler				X										
Replace Boiler with 2 Condensing Boilers		X	X											
Board Room RTU Replacement													X	
Controls update to Carrier Comfort Network		X				X					X		X	
Controls Recommission		X		X			X		X		X		X	

LED Street Lights

The majority of the street lighting fixtures at Lower Merion Township are cobra head fixtures with several decorative fixtures. A variety of lamps are used including the following:

- High Pressure Sodium
- LED
- Metal Halide
- Mercury Vapor

Because the street lighting fixtures are generally mounted to utility poles, there is no regular spacing to the lighting system. In practice, fixtures are located at intersections with occasional fixtures interspersed between in areas with wide gaps. Addition of new poles and lighting fixtures to improve uniformity is not included in the scope of work.

ESG will install LED fixtures ranging mainly from 2500 to 10000 Lumens to replace the existing lighting sources on existing poles in existing locations. The design for the new fixtures is based on a photometric analysis of typical streets found within the Township, our expectation is to meet or exceed the average foot-candles compared to the surveyed lighting systems at those locations. New fixtures installed under this scope will include 7-PIN receptacles.

The tables below summarizes the replacements within the scope of work:

Cobra head Street Lighting Fixtures

Existing Fixture Type	Existing Lamp type	Existing Lamp Watts	Proposed Fixture Lumens	Quantity
Cobra head	HPS	70	2500	32
Cobra head	HPS	70	3000	668
Cobra head	HPS	70	7500	28
Cobra head	HPS	70	8500	74
Cobra head	HPS	100	2500	24
Cobra head	HPS	100	3000	204
Cobra head	HPS	100	7500	29
Cobra head	HPS	100	8500	173
Cobra head	HPS	100	10000	3
Cobra head	HPS	150	3000	19
Cobra head	HPS	150	6500	42
Cobra head	HPS	150	7500	5
Cobra head	HPS	150	8500	41
Cobra head	HPS	175	2500	2
Cobra head	HPS	175	3000	11
Cobra head	HPS	175	6500	7
Cobra head	HPS	175	7500	9

Existing Fixture Type	Existing Lamp type	Existing Lamp Watts	Proposed Fixture Lumens	Quantity
Cobra head	HPS	175	8500	52
Cobra head	HPS	175	10000	13
Cobra head	HPS	200	7500	1
Cobra head	HPS	250	3000	7
Cobra head	HPS	250	6500	4
Cobra head	HPS	250	8500	134
Cobra head	HPS	250	10000	141
Cobra head	HPS	400	8500	10
Cobra head	HPS	400	10000	96
Cobra head	LED	18	TBD	1
Cobra head	LED	39	TBD	1
Cobra head	LED	40	TBD	2
Cobra head	LED	41	TBD	6
Cobra head	LED	51	TBD	1
Cobra head	LED	51	TBD	13
Cobra head	LED	82	TBD	5
Cobra head	LED	82	TBD	5
Cobra head	LED	143	TBD	1
Cobra head	MH	70	2500	3
Cobra head	MH	70	3000	90
Cobra head	MH	70	7500	1
Cobra head	MH	70	8500	15
Cobra head	MH	100	2500	68
Cobra head	MH	100	3000	896
Cobra head	MH	100	7500	25
Cobra head	MH	100	8500	83
Cobra head	MH	100	10000	19
Cobra head	MH	150	2500	2
Cobra head	MH	150	3000	75
Cobra head	MH	150	6500	118
Cobra head	MH	150	7500	29
Cobra head	MH	150	8500	61
Cobra head	MH	150	10000	2
Cobra head	MH	175	3000	58
Cobra head	MH	175	6500	51
Cobra head	MH	175	7500	7
Cobra head	MH	175	8500	76
Cobra head	MH	175	10000	42
Cobra head	MH	250	3000	18
Cobra head	MH	250	6500	4

Existing Fixture Type	Existing Lamp type	Existing Lamp Watts	Proposed Fixture Lumens	Quantity
Cobra head	MH	250	7500	16
Cobra head	MH	250	8500	100
Cobra head	MH	250	10000	74
Cobra head	MH	400	8500	20
Cobra head	MH	400	10000	135
Cobra head	MV	175	6500	1
Cobra head	MV	175	7500	1
Cobra head	MV	175	8500	2
Cobra head	MV	400	10000	1
Total				3,957

4-Sided / 8 Sided Colonial Street Lighting Fixtures

Existing Fixture Type	Existing Lamp type	Existing Lamp Watts	Proposed Fixture Wattage	Quantity
Decorative: 4 Sided Colonial	HPS	400	45	1
Decorative: 4 Sided Colonial	MH	100	45	802
Decorative: 4 Sided Colonial	MH	175	45	4
Decorative: 4 Sided Colonial	MV	100	45	4
Decorative: 8 Sided Colonial	MH	100	45	7
Grand Total				818

Decorative Street Lighting Fixtures

Existing Fixture Type	Existing Lamp type	Existing Lamp Watts	Proposed Fixture Wattage	Quantity
Decorative: Lantern 2	MH	100	45	22
Decorative: Lantern 2	MH	100	45	59
Decorative: Lantern 4	HPS	70	45	3
Decorative: Tear Drop 1-	MH	100	45	6

Existing Fixture Type	Existing Lamp type	Existing Lamp Watts	Proposed Fixture Wattage	Quantity
Low (3 Head Low)				
Decorative: Tear Drop 1-High	MH	100	45	1
Decorative: Tear Drop 1-High (2 Head High)	MH	100	45	8
Decorative: Tear Drop 1-High (2 Head High/Low)	MH	100	45	11
Decorative: Tear Drop 1-High (2 Head High/Low)	MH	250	90	1
Decorative: Tear Drop 1-Low	MH	100	45	38
Decorative: Tear Drop 1-Low	MH	250	90	1
Decorative: Tear Drop 1-Low (2 Head High/Low)	MH	100	45	10
Decorative: Tear Drop 1-Low (2 Head High/Low)	MH	250	90	2
Grand Total				162

In addition to the above fixture replacements and/or re-lamping, ESG will provide Lower Merion Township with 25 Cobrahead fixtures for inventory for frequently used fixtures.

Equipment Warranty

Manufacturer Warranty: After the first full year of ESG's warranty period, Lower Merion Township will administer the warranty directly with the manufacturer and will be responsible for any and all labor costs associated with lamp repairs or replacements through the manufacturer. The manufacturer's warranty for the street lighting fixtures is 10 years,

Clarifications/Exclusions

- Installation of additional poles is not included for areas that may be required to meet the IESNA (Illuminating Engineering Society of North America) standards for street lighting.
- The addition of light fixtures in poorly lit areas is not covered under this Scope of Work.
- Luminaire types and quantities shown are based on the audit completed in April of 2019. Actual field conditions may vary at the time of retrofit.
- If present, existing fuse disconnects (fuse holders) will be left in place. Replacing defective fuses and fuse holders will be the responsibility of Lower Merion Township.
- Any repairs to electrical primary and secondary feeds will be the responsibility of Lower Merion Township.
- ESG will notify Lower Merion Township of any maintenance issues during the installation period.
- Lower Merion Township will provide ESG a location for fixture storage and distribution for the life of the project, if needed. ESG will deliver and distribute new fixtures from this location; storage boxes and dumpsters to be provided by ESG. ESG will retain ownership and responsibility and liability for all fixtures, material and equipment during storage and distribution of same and at all times prior to final installation of same.
- ESG will remove and dispose of the existing street light fixtures that have been identified in the table above; Lower Merion Township will provide ESG with an area where dumpsters or containers can be located.
- ESG assumes all poles and arms are structurally sound and capable of accepting the new fixtures.
- ESG will not be responsible for trimming trees that hinder the placement or the distribution of new light.
- ESG will not be responsible for major snow removal.
- Lower Merion Township to receive updates on fixture installation progress at regularly scheduled construction meetings.
- ESG will coordinate with Lower Merion Township, which will provide to ESG reasonable assistance, for the use of traffic control measures for agreed upon Street Lighting installation schedules.

- Any fixtures on the local utility provider's street lighting inventory list (PECO) that were not found during the street lighting audit will be removed from the utility bill and any work excluded.
- Existing light poles will be re-used. Repair of wiring to poles, if required, is not included.
- Customer is responsible for pole maintenance, repair and replacement throughout the term of the guarantee.
- Lighting Poles will be checked for contact voltage. If any hazardous voltage is noted, work on that pole will be stopped and the customer and/or the utility company be notified immediately to correct the fault before any work will be performed.
- Repair or replacement of defective equipment, other than the equipment specifically described above is excluded. ESG will identify the location of defective equipment and notify the owner.
- Repair or upgrades required to rectify existing lighting or electrical system code violations is excluded unless specifically described in this scope of work

Tear Drop Pole Painting

There are a total of 58 teardrop style poles/decorative fixtures located in the Rittenhouse area of Lower Merion Township. The existing street lighting poles have aged and the pole finish has begun to peel from the surface.

Scope of work:

- Spot rust removal from each pole
- Apply primer to pole
- Apply one coat of semi-gloss paint
- Lower Merion Township to select color prior to start of work

Interior LED Lighting

Sites Included:

- Bala Ave Gymnasium
- Koegel Complex

Scope of Work:

Bala Ave Gym

EXISTING FIXTURE DESCRIPTION	PROPOSED RETROFIT DESCRIPTION	QUANTITY
Downlight/Light Emiting Diode/10.0W/1 Lamp	No Retrofit	3
Downlight/Light Emiting Diode/15.0W/1 Lamp (Auditor Assumption)	No Retrofit	7
Downlight/Light Emiting Diode/16.0W/1 Lamp	No Retrofit	2
Highbay/T5/54.0W/4 Lam	150W LED Highbay with Occupancy	8
Wrap/Light Emiting Diode/15.0W/2 Lamp	No Retrofit	7
Grand Total		27

Koegel Complex Interior

EXISTING FIXTURE DESCRIPTION	PROPOSED RETROFIT DESCRIPTION	QUANTITY
100 Watt Incandescent Canopy Fixture	Re-Lamp with (1) 15 Watt LED A19	1
100 Watt Incandescent RLM Fixture	Re-Lamp with (1) 15 Watt LED A19	1
100 Watt Incandescent RLM Fixture; Difficult Access	Re-Lamp with (1) 15 Watt LED A19; Difficult Access	3
150 Watt Incandescent A-Lamp Fixture	Re-Lamp with (1) 15 Watt LED A19	1
150 Watt Incandescent RLM Fixture	Re-Lamp with (1) 15 Watt LED A19	3
175 Watt Metal Halide High bay Fixture	Re-Lamp with (1) 54 Watt LED Omni-Cob Lamp; Hardwire Ballast	18
25 Watt LED Fixture	No Retrofit	2
250 Watt Metal Halide High Bay Fixture; Very Difficult Access	No Retrofit	3

EXISTING FIXTURE DESCRIPTION	PROPOSED RETROFIT DESCRIPTION	QUANTITY
250 Watt Metal Halide High bay Fixture	New 135 Watt LED High Bay Fixture	24
40 Watt Incandescent RLM Fixture	Re-Lamp with (1) 15 Watt LED A19	3
40 Watt Induction Fixture	No Retrofit	2
400 Watt Metal Halide High bay Fixture	New 135 Watt LED High Bay Fixture	47
60 Watt Incandescent A-Lamp Fixture	Re-Lamp with (1) 10 Watt LED A19	7
60 Watt Incandescent A-Lamp Jelly Jar Fixture	Re-Lamp with (1) 10 Watt LED A19	8
60 Watt Incandescent RLM Fixture	Re-Lamp with (1) 10 Watt LED A19	5
LED 1x8 4-Lamp Industrial Strip Fixture	No Retrofit	3
LED 1x8 4-Lamp Strip Fixture	No Retrofit	3
LED 2-Lamp Fixture	No Retrofit	12
LED Cob Highbay Fixture	No Retrofit	26
LED RLM Fixture	No Retrofit	5
Snack Vending Machine	New Snack Machine Vending Miser Occupancy Sensor	1
T12 1x4 2-Lamp Fixture	Retrofit with (2) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	22
T12 1x4 2-Lamp Industrial Strip Fixture	Retrofit with (2) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	9
T12 2x4 2-Lamp Troffer Fixture	Retrofit with (2) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	10
T12 2x4 2-Lamp Vaportight Fixture; Vaportight Lens Missing/Damaged	New 2x4 2-Lamp Vaportight Fixture with (2) 12.5 Watt LED T8 4' Lamps; Direct Wire Socket	1
T12 2x4 4-Lamp Troffer Fixture	Retrofit with (4) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	6
T12HO 1x8 2-Lamp Industrial Strip Fixture with 110 Watt Lamps	New 1x8 2-Lamp Industrial Fixture with (4) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	12
T12HO 1x8 2-Lamp Industrial Strip Fixture with 95 Watt Lamps	Retrofit with (4) 10.5 Watt LED T8 4' Lamps and (1) 1x8 4-Lamp Industrial Strip Kit; Direct Wire to Socket	1
T12HO 1x8 2-Lamp Strip Fixture with 95 Watt Lamps	Retrofit with (4) 10.5 Watt LED T8 4' Lamps and (1) 1x8 4-Lamp Commercial Strip Kit; Direct Wire to Socket	5
T5HO 2x4 4-Lamp High Bay Fixture	New 135 Watt LED High Bay Fixture	16
T5HO 2x4 6-Lamp High Bay Fixture	New 135 Watt LED High Bay Fixture	18
T5HO 2x4 6-Lamp High Bay Fixture; Occupancy Sensor	New 135 Watt LED High Bay Fixture	28
T8 1x4 2-Lamp Strip Fixture	Retrofit with (2) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	1
T8 1x4 2-Lamp Vaportight Fixture	Retrofit with (2) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	23
T8 1x8 4-Lamp Industrial Fixture	Retrofit with (4) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	16
T8 1x8 4-Lamp Vaportight Fixture	Retrofit with (4) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	15
T8 2x4 2-Lamp Industrial Fixture; Turret	New 2x4 2-Lamp Industrial Fixture with (2) 12.5 Watt LED T8 4' Lamps; Direct Wire Socket	17

EXISTING FIXTURE DESCRIPTION	PROPOSED RETROFIT DESCRIPTION	QUANTITY
T8 2x4 2-Lamp Troffer Fixture	Retrofit with (2) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	50
T8 2x4 3-Lamp Troffer Fixture	Retrofit with (3) 12.5 Watt LED T8 4' Lamps; Direct Wire to Socket	11
Vending Machine	New Soda Machine Vending Miser Occupancy Sensor	1
Grand Total		440

Clarifications/Exclusions

- Repair or replacement of defective electrical, other than the equipment specifically described in the ECM description is excluded. (ESG will identify the location of any defective equipment found and notify the owner.)
- Repair or upgrades required due to rectify existing code violations unless specifically described in this Scope of Work is excluded.
- Engineered drawings are excluded.
- Existing switching capability to remain the same.
- Ceiling tile replacements are excluded.
- Replacement of Lenses are excluded.
- Egress and emergency lighting unless specified above are excluded.
- No new circuitry is included as part of this scope, unless otherwise noted above.

LED Site Lighting

Sites Included:

- Ardmore Pool Complex
- Belmont Pool Complex
- Koegel Complex
- Vernon Park

Scope of Work:

Ardmore Pool Complex

EXISTING FIXTURE DESCRIPTION	PROPOSED RETROFIT DESCRIPTION	QUANTITY
100 Watt Canopy Fixture; Decorative	Re-Lamp with (1) 15 Watt LED A19	6
1000 Watt Metal Halide Flood Fixture	New 300 Watt LED Flood Fixture	1
250 Watt Metal Halide Post-Top Fixture	New 78 Watt LED Spider Mount Post Top Fixture	5
400 Watt Mercury Vapor 4-Head Flood Fixture	(4) New 150 Watt LED Flood Fixtures	1
400 Watt Metal Halide 2-Head Shoebox Fixture	(2) New 150 Watt LED Shoebox Fixture	5
400 Watt Metal Halide Cobra Head Fixture	New 150 Watt LED Cobra Head Fixture	1
400 Watt Metal Halide Shoebox Fixture	New 150 Watt LED Shoebox Fixture	4

70 Watt Metal Halide Wall Pack Fixture	New 24 Watt LED Wall Pack Fixture; Non-Dark Sky	13
Grand Total		36

Belmont Pool Complex

EXISTING FIXTURE DESCRIPTION	PROPOSED RETROFIT DESCRIPTION	QUANTITY
175 Watt Metal Halide 3-Head Shoebox Fixture	New 50 Watt LED 3-Head Shoebox Fixture	6
32 Watt CFL Jelly Jar Fixture	Re-Lamp with (1) 15 Watt LED A19	1
32 Watt Plug-In CFL 2-Lamp Canopy Fixture	New 10 Watt LED Canopy Fixture	6
400 Watt Metal Halide 3-Head Shoebox Fixture; Shield	New 150 Watt LED 3-Head Shoebox Fixture	4
Grand Total		17

Koegel Complex

EXISTING FIXTURE DESCRIPTION	PROPOSED RETROFIT DESCRIPTION	QUANTITY
150 Watt Metal Halide 2-Lamp Flood Fixture; Trunnion	New 39 Watt LED 2-Head Flood Fixture; Trunnion Mount	1
150 Watt Metal Halide Wall Pack Fixture	New 37 Watt LED Wall Pack Fixture; Non-Dark Sky	58
175 Watt High Pressure Sodium Flood Fixture	New 52 Watt LED Flood Fixture	8
175 Watt Metal Halide 2-Head Shoebox	New 78 Watt LED 2-Head Shoebox Fixture	1
175 Watt Metal Halide Flood Fixture	New 52 Watt LED Flood Fixture	5
175 Watt Metal Halide Flood Fixture; Trunnion	New 52 Watt LED Flood Fixture; Trunnion Mount	2
175 Watt Metal Halide Shoebox Fixture	New 78 Watt LED Shoebox Fixture	1
250 Watt Metal Halide Canopy Fixture	New 40 Watt LED Canopy Fixture	1
250 Watt Metal Halide Flood Fixture; Trunnion	New 125 Watt LED Flood Fixture; Trunnion	3
400 Watt Metal Halide Flood Fixture	New 150 Watt LED Flood Fixture	2
70 Watt Metal Halide Wall Pack Fixture	New 24 Watt LED Wall Pack Fixture; Non-Dark Sky	5
Jelly Jar Fixture; Jelly Jar Lens Missing/Damaged; Missing Lamp	New 13 Watt LED Jelly Jar Fixture	3
LED Flood Fixture	No Retrofit	1
LED Wall Pack Fixture; Security	No Retrofit	1
Grand Total		92

Vernon Park

EXISTING FIXTURE DESCRIPTION	PROPOSED RETROFIT DESCRIPTION	QUANTITY
Pole Top-HPS150	New 40w Acorn LED Pole Top	5
Pole-Flood-HPS150	New 78w LED Flood	4
Grand Total		9

Clarifications/Exclusions

- Repair or replacement of defective electrical, other than the equipment specifically described in the ECM description is excluded. (ESG will identify the location of any defective equipment found and notify the owner.)
- Repair or upgrades required due to rectify existing code violations unless specifically described in this Scope of Work is excluded.
- Engineered drawings are excluded.
- Existing switching capability to remain the same.
- Ceiling tile replacements are excluded.
- Replacement of Lenses are excluded.
- Egress and emergency lighting unless specified above are excluded.
- No new circuitry is included as part of this scope, unless otherwise noted above.
- Existing light poles will be re-used. Repair of wiring to poles, if required, is not included.

Parks Lighting - Upgrade to LED

Existing Fixture Type	Existing Lamp type	Existing Lamp Watts	Proposed Fixture Lumens /(Wattage)	Quantity
Cobrahead	HPS	70	3000	1
Cobrahead	HPS	100	3000	2
Cobrahead	HPS	150	3000	1
Cobrahead	HPS	250	6500	2
Cobrahead	HPS	400	8500	1
Cobrahead	MH	250	6500	1
Decorative: 4 Sided Colonial	MH	100	(45)	13
Decorative: Acorn	LED	70	(45)	2
Decorative: Acorn	LED	100	(45)	7

Clarifications/Exclusions

- Repair or replacement of defective electrical, other than the equipment specifically described in the ECM description is excluded. (ESG will identify the location of any defective equipment found and notify the owner.)
- Repair or upgrades required due to rectify existing code violations unless specifically described in this Scope of Work is excluded.
- Engineered drawings are excluded.
- Existing switching capability to remain the same.
- No new circuitry is included as part of this scope, unless otherwise noted above.
- Existing light poles will be re-used. Repair of wiring to poles, if required, is not included.

Replace Boiler with 1 Condensing Boiler

Sites Included:

- Belmont Hills Community Center

Existing:

The current boiler plant contains one (1) Weil McLain Model 78 Cast Iron boiler that provides hot water to heating zones in the building via two (2) 1.5HP circulating pumps. The boiler is rated at 400,000 MBH output and is fired by a power flame burner rated at 480 max MBH.

Scope of work:

- Demolition of Weil McLain sectional cast iron hot water boilers and dispose
- Furnish and install (1) one new high efficiency condensing boiler wall mount, in accordance with the manufacturer's instructions
- Furnish and install new flue and vent to exterior of the building.
- Furnish and install new Victaulic type pipe and fittings to connect boiler hot water supply and return lines to existing hot water supply and return piping.
- Connect boiler to existing natural gas supply and electric circuit.
- Coordinate with controls contractor to reconnect new boiler controls to existing building automation system, communications board shall allow third party Building Automation System (BAS) to control and monitor the boiler via BMS Gateway to LON or BacNet communications
- Fill hot water system
- Reconnect existing chemical feed system
- Start up and check out system

Exclusions

- Asbestos abatement and removal for this project is entirely the responsibility of the owner, except where explicitly stated in the above scope of work. If hazardous materials are encountered during the implementation phase, ESG will immediately stop work, take measures to reduce any contamination, and notify the owner of the possible hazardous material condition and location. ESG will then request that the owner remove and dispose of the hazardous materials prior to any continuation of work. Hazardous materials encountered during ongoing service phase of the project will remain the property and disposal responsibility of owner.
- Excluded: Hazardous material abatement or removal, such as mold or lead paint that is not currently specified in the engineering scope of work.
- Excluded: Work associated with the Fire Alarm System.
- Excluded: Repair or replacement of defective mechanical, electrical or controls equipment, except the equipment described in the scope description (ESG will identify the location of defective equipment and notify the owner)
- Excluded: Repair or upgrades required to bring to Code any adjacent Systems – such as Walls, Partitions, Doors, Electrical and Mechanical not specified in the above scope of work.
- Excluded: Resolution of existing design, service, and or distribution conditions known or unknown.

Replace Boiler with 2 Condensing Boilers

Sites Included:

- Ardmore Public Library
- Bala Ave Gym

Ardmore Public Library

Existing:

The current boiler plant contains one (1) Weil McLain Cast Iron boiler that provides hot water to heating zones in the building via two (2) 1.5HP circulating pumps. The boiler is fired by a power flame burner rated at 714 max MBH.

Scope of work:

ESG recommends replacing one (1) existing hot water boiler and installing two (2) new high efficiency condensing hot water Boilers.

- Demolition of Weil McLain sectional cast iron hot water boilers and dispose
- Modify existing pad to accept new boilers as required
- Furnish and install (2) new high efficiency condensing hot water boilers on pad, in accordance with the manufacturer's instructions
- Furnish and install new flue and vent to exterior of the building. The exhaust manifold shall be of polypropylene with a 4" diameter flue connection for 399-500. The exhaust manifold shall terminate in a condensate trap. The condensate trap shall have a gravity drain for the elimination of the condensation into an integrated condensate neutralizer.
- Furnish and install new Victaulic type pipe and fittings to connect boiler hot water supply and return lines to existing hot water supply and return piping.
- Connect boiler to existing natural gas supply and electric circuit
- Coordinate with controls contractor to reconnect new boiler controls to existing building automation system, communications board shall allow third party Building Automation System (BAS) to control and monitor the boiler via Modbus RS-485 communications
- Indoor/Outdoor Reset: Boiler shall include integral factory wired operating controls to control all operation and energy input of the boiler plant. The individual thermal module controllers shall vary their respective thermal module's input throughout its full range to maximize the condensing capability of the boiler and without header temperature swings. The boiler will operate to vary header temperature setpoint on an inverse ratio in response to outdoor temperature to control discharge temperature +2°F. The boiler shall be furnished with an outdoor air temperature sensor.
- Fill hot water system

- Reconnect existing chemical feed system
- Start up and check out system

Exclusions

- Asbestos abatement and removal for this project is entirely the responsibility of the owner, except where explicitly stated in the above scope of work. If hazardous materials are encountered during the implementation phase, ESG will immediately stop work, take measures to reduce any contamination, and notify the owner of the possible hazardous material condition and location. ESG will then request that the owner remove and dispose of the hazardous materials prior to any continuation of work. Hazardous materials encountered during ongoing service phase of the project will remain the property and disposal responsibility of owner.
- Excluded: Hazardous material abatement or removal, such as mold or lead paint that is not currently specified in the engineering scope of work.
- Excluded: Work associated with the Fire Alarm System.
- Excluded: Repair or replacement of defective mechanical, electrical or controls equipment, except the equipment described in the scope description (ESG will identify the location of defective equipment and notify the owner)
- Excluded: Repair or upgrades required to bring to Code any adjacent Systems – such as Walls, Partitions, Doors, Electrical and Mechanical not specified in the above scope of work.
- -Excluded: Resolution of existing design, service, and or distribution conditions known or unknown.

Bala Ave Gym

Existing:

The current boiler plant contains one (1) Weil McLain Model 88 Steam boiler that provide steam to radiators throughout the gym.

Scope of work

ESG recommends replacing one (1) existing steam boiler and installing two (2) new high efficiency condensing hot water Boilers.

- Demolition of (1) existing Weil McLain series 88, section cast iron steam boilers and dispose
- Modify existing pad to accept new boilers as required
- Furnish and install (2) new high efficiency condensing hot water boilers on pad with hot water pumps, in accordance with the manufacturer's instructions
- Furnish and install new flue from boiler and direct vent to outside of building.

- Re-pipe existing steam system and replace with new hot water piping for new unit heaters and radiators.
- Furnish and install new Victaulic type pipe and fittings to connect boiler hot water supply and return lines to new hot water supply and return piping.
- Furnish and install 6 new hot water radiators located in the office and bathroom areas of the building
- Furnish and install 4 new ceiling mount unit heaters located in the Gym area.

Exclusions

- Asbestos abatement and removal for this project is entirely the responsibility of the owner, except where explicitly stated in the above scope of work. If hazardous materials are encountered during the implementation phase, ESG will immediately stop work, take measures to reduce any contamination, and notify the owner of the possible hazardous material condition and location. ESG will then request that the owner remove and dispose of the hazardous materials prior to any continuation of work. Hazardous materials encountered during ongoing service phase of the project will remain the property and disposal responsibility of owner.
- Excluded: Hazardous material abatement or removal, such as mold or lead paint that is not currently specified in the engineering scope of work.
- Excluded: Work associated with the Fire Alarm System.
- Excluded: Repair or replacement of defective mechanical, electrical or controls equipment, except the equipment described in the scope description (ESG will identify the location of defective equipment and notify the owner)
- Excluded: Repair or upgrades required to bring to Code any adjacent Systems – such as Walls, Partitions, Doors, Electrical and Mechanical not specified in the above scope of work.
- Excluded: Resolution of existing design, service, and or distribution conditions known or unknown.

Board Room RTU Replacement

Sites Included:

- Administration

Existing Conditions:

The rooftop unit on the Township Building that serves the board room is approaching the end of useful life. This unit operate with R22 refrigerant with is scheduled to be phased out by 2020 after which it will no longer be manufactured. This rooftop is part of a constant volume reheat system that provides conditioned space through the building.

Scope of work

- Demo one (1) existing Carrier Roof Top Units
- Modified roof curbs as need for new unit
- Provide and install one (1) new Carrier Package Rooftop Units or equivalents on roof curbs (15 ton unit)
- Connect power
- Provide start up and warranty

Exclusions

- Asbestos abatement and removal for this project is entirely the responsibility of the owner, except where explicitly stated in the above scope of work. If hazardous materials are encountered during the implementation phase, ESG will immediately stop work, take measures to reduce any contamination, and notify the owner of the possible hazardous material condition and location. ESG will then request that the owner remove and dispose of the hazardous materials prior to any continuation of work. Hazardous materials encountered during ongoing service phase of the project will remain the property and disposal responsibility of owner.
- Excluded: Hazardous material abatement or removal, such as mold or lead paint that is not currently specified in the engineering scope of work.
- Excluded: Work associated with the Fire Alarm System.
- Excluded: Repair or replacement of defective mechanical, electrical or controls equipment, except the equipment described in the scope description (ESG will identify the location of defective equipment and notify the owner)
- Excluded: Repair or upgrades required to bring to Code any adjacent Systems – such as Walls, Partitions, Doors, Electrical and Mechanical not specified in the above scope of work.
- Excluded: Resolution of existing design, service, and or distribution conditions known or unknown.

Controls update to Carrier Comfort Network

Sites Included:

- Township Administration Building
- Public Safety Building
- Ardmore Public Library
- Belmont Hills Library

Township Administration Building

Scope of Work:

- Install OA temperature sensor wired to master boiler
- Install HW supply temperature sensor
- Furnish and install new BACnet LINK panel
- Integrate BACnet package RTU controller
- Update software to current revisions

Public Safety Building

- Install OA temperature sensor
- Install HW supply temperature sensor
- Network boilers together
- Furnish and install new BACnet LINK panel
- Update software to current revisions

Ardmore Public Library

- Furnish and install new ATC enclosure, controller, router & 120VAC power
- Install OEM OA temperature sensor
- Install OEM HW supply temperature sensor
- Network boilers together then to ATC panel
- Furnish and install pump S/S relay & status CT (qty 2)
- Ethernet drop for BAS will be by Owner IT Department

Belmont Hills Library

- Furnish and install new ATC enclosure, controller, router & 120VAC power
- Furnish and install (1) OAT sensor, (1) boiler enable relay, status relay & alarm status relay
- Furnish and install HW supply temp sensor (1)
- Furnish and install pump S/S relay & status CT (qty 1)
- Ethernet drop for BAS will be by Owner IT Department

Exceptions:

- Asbestos abatement and removal for this project is entirely the responsibility of the owner, except where explicitly stated in the above scope of work. If hazardous materials are encountered during the implementation phase, ESG will immediately stop work, take measures to reduce any contamination, and notify the owner of the possible hazardous material condition and location. ESG will then request that the owner remove and dispose of the hazardous materials prior to any continuation of work. Hazardous materials encountered during ongoing service phase of the project will remain the property and disposal responsibility of owner.
- Excluded: Hazardous material abatement or removal, such as mold or lead paint that is not currently specified in the engineering scope of work.
- Excluded: Work associated with the Fire Alarm System.
- Excluded: Repair or replacement of defective mechanical, electrical or controls equipment, except the equipment described in the scope description (ESG will identify the location of defective equipment and notify the owner)
- Excluded: Repair or upgrades required to bring to Code any adjacent Systems – such as Walls, Partitions, Doors, Electrical and Mechanical not specified in the above scope of work.
- Excluded: Resolution of existing design, service, and or distribution conditions known or unknown.
- Repair or replacement of existing controls that are to remain is not included
- Low voltage (24V or less) control wiring. (Note: Exposed control wiring located outdoors installed in weatherproof EMT, exposed control wiring in mechanical rooms shall be in EMT, all other control wiring installed in open code rated cable above drop ceilings and hollow walls
- Installation of heat trace panel and accessories is not included
- Starters and VFD's are not included
- All required IT drops will be provided by owners IT Department
- Cutting, patching or painting not included
- 3rd Party Commissioning Assistance is included
- Smoke detectors or installation of smoke detectors not included
- Smoke & fire dampers or their wiring is not included
- Trenching is not included
- Water or air balancing not included

Controls Recommission**Sites Included:**

- Township Administration Building
- Public Safety Building
- Ludington Library
- Ardmore Public Library
- Bryn Mawr Community Center

- Belmont Hills Community Center

Scope of work:

- Verify equipment controller(s) are communicating
- Verify setpoints set per customer criteria
- Verify equipment is scheduled per customer criteria
- Verify economizer is operational
- Exercise control of end devices with software commands from BAS workstation verify proper response
- Document any defective controllers, sensors, valves and relays and report to customer

PA Act 129 Rebates

In an effort to curb the production of electricity and comply with Act 129, PECO has offered several incentives to Government/Public/ Non-Profit entities based on the implementation of energy conservation strategies. ESG will work with the Owner to complete all necessary submittals to PECO and work to obtain as many rebates as possible.

A listing of the potential rebates is included below:

Potential Act 129 Rebates from PECO	
Concept	Amount
Street Lighting	\$247,350
Interior / Exterior LED	\$15,920
RTU	\$440
BAS Controls	\$3,052
Controls Recommission	\$6,132
Total	\$272,895

Clarifications/Exclusions:

- The utility rebates given by the utility are subject to change and are not guaranteed by ESG.
- ESG's responsibility is to complete the rebate applications and help the Owner apply for the rebates listed above.

EXHIBIT B

ENERGY SAVINGS GUARANTEE AND MEASUREMENT AND VERIFICATION PLAN

1.0 DEFINITIONS

When used in this Energy Savings Guarantee and Measurement and Verification Plan (herein, the **“Performance Guarantee,” “Guarantee,” the “M&V Plan” or, simply the “Plan”**), capitalized words shall have the meanings ascribed to them below. Notwithstanding anything in the Agreement to the contrary, **terms defined within the parties’ Guaranteed Energy Savings Performance Contract (the “Agreement” or “Contract”) shall have the same meaning when used herein**; provided, however, that a conflict between the terms of the Agreement and this Guarantee shall be resolved by giving precedence to terms defined within this Section 1.0. Furthermore, for purposes of clarity, the term **“Project” or “project,” when used herein shall refer to the parties’ Project, identified and defined within the Agreement.**

“Acceptance of Installation” means an authorized representative of the Owner has inspected and accepted that ESG installed Energy Conservation Measures are operational and comply with contract performance requirements and specifications. **The Owner’s acceptance shall not relieve ESG from responsibility for continued compliance with contract requirements during the contract term. The Acceptance of Installation shall occur after Substantial Completion.**

“Annual Guaranteed Savings” or “Annual Savings” is defined as the amount of Energy and Operational Cost Savings achieved during a given Guarantee Year.

“Approval” means the Owner has completed review of submittals, deliverables or administrative documents (e.g., insurance certificates, installation schedules, planned utility interruptions, etc.) **and has determined that the documents conform to contract requirements. The Owner’s approval shall not relieve ESG from responsibility for complying with contract requirements.**

“Baseline Period” is defined as the twelve-month period beginning January 1, 2018 and ending December 31, 2018 for all ECMs.

“Construction Period” is the period of time commencing upon execution of the Agreement and concluding on the Final Acceptance Date.

“Energy Baseline” shall be the energy consumption and costs for the Baseline Period. The Energy Baseline will consist of all Baseline Period energy bills applicable to the meters in the Project. It may also consist of any estimated usage for unmetered energy consumption, provided such estimated usage is documented in Section 4.0, Table B, below. Energy Baseline information is included within Section 4.0 Table B, below.

“Energy Conservation Measure (ECM)” is defined as the installation of new equipment/facilities, modification and/or alteration of existing equipment/facilities or rate structures or revised operations and maintenance procedures intended to reduce energy consumption of facilities/energy systems, improve equipment efficiency or provide equipment that complies with existing standards, codes and applicable laws.

"Energy and Operational Savings" is the sum of the Energy Savings and Operational Savings. Energy and Operational Savings is further defined in Section 3.1 of this Exhibit B.

"Energy Costs" shall mean charges for fuel adjustments, base services, transmission, tariffs, and distributions. The Energy Costs will normally be derived or imputed from the **Facility's utility** bills. This method allows for updating savings calculations with changing rate schedules. In the event of a utility rate decrease, the utility rate(s) used to assign dollar cost will not drop below that of the escalated Baseline Period.

"Facilities" shall mean those buildings and equipment from which the Energy and Operational Savings will be realized.

"Final Acceptance Date" shall mean the date all of the ECMs comprising the Project (as defined in the Agreement) have been delivered, installed, configured and accepted by the Owner.

"First Guarantee Year" is defined as the period beginning on the first (1st) day of the month following the Final Acceptance Date and ending on the day prior to the first (1st) anniversary thereof.

"Guarantee Period" is defined as the period beginning on the first (1st) day of the First Guarantee Year and ending on the last day of the Term.

"Guarantee Year" is defined as each of the successive twelve (12) month periods commencing on the anniversary of the commencement of the First Guarantee Year and continuing throughout the Term.

"Guaranteed Savings" is defined as the amount of Energy and Operational Savings shown for each Guarantee Year in Table A below.

"Operational Costs" or **"Maintenance Costs"** or **"O&M Costs"** shall include the costs associated with operating and maintaining the Facilities. Examples include, without limitation, the cost of inside and outside labor to operate, repair and maintain systems and equipment, the cost of replacement parts, the cost of deferred maintenance, the cost of lamp and ballast disposal, and the cost of new capital equipment.

"Retrofit Isolation Method" (if applicable to this Project) refers to energy audit methodologies that require pre-retrofit and post-retrofit measurements to isolate energy consumption and costs of specific facility equipment and systems impacted exclusively by this Agreement.

"Term" shall be 20 years, commencing on the first day of the First Guarantee Year.

"Total Guarantee Year Savings" is defined as the amount of Energy and Operational Savings realized by Facilities in each Guarantee Year as a result of the Project.

2.0 TERM AND TERMINATION

The Term of this Guarantee shall commence on the first (1st) day of the First Guarantee Year and shall last for twenty (20) consecutive Guarantee Years, ending with the last day of the Guarantee Period.

3.0 SAVINGS GUARANTEE

3.1 Guarantee. ESG guarantees to the Owner that the Facilities will realize in each Guarantee Year savings in Energy Costs and Operational Costs (the "Energy and Operational Savings") collectively equal to the amounts shown on Table A below for each Guarantee Year. Within ninety (90) days of the end of the First Guarantee Year, ESG will present the Owner with an Energy Savings Guarantee Report. If there is a shortfall of the Guaranteed Savings in any Guarantee Year, ESG shall provide settlement within sixty (60) days of the acceptance of the report by the Owner.

3.2 Savings Report. Within ninety (90) days following the end of each of the first three (3) Guarantee Years, **ESG will provide the Owner with an annual "Energy Savings Guarantee Report."** If the Energy Savings Guarantee Report shows that the annual Guaranteed Savings have been met or exceeded in the first three (3) Guarantee Years, then it is agreed upon between ESG and Owner that the Guaranteed Savings have been met in full for all remaining years in the Guarantee Period, unless the Term is extended as per 3.2.1, below. The Owner will assist ESG in generating the Energy Savings Guarantee Report by authorizing ESG to contact utility companies directly for true copies of all bills pertaining to Energy Costs and consumption together with access to the **Owner's relevant accounting** records and Facilities, to monitor any installed equipment relating to such Energy Costs, consumptions, and Savings pertaining to the Energy Guarantee. Data and calculations utilized by ESG in the preparation of its Energy Savings Guarantee Report will be made available to the Owner, along with such explanations and clarifications as the Owner may reasonably request. In the event that ESG is not provided immediate access to utility bills from the Utility, ESG will contact a Representative from the Owner to obtain this information. If there is a delay in receiving the information the ninety (90) day period will be reasonably extended to gain said access.

3.2.1 Termination or Extension

The Owner at its discretion may choose to discontinue or extend the M&V Plan. In order to extend the M&V Plan beyond the first three Guarantee Years, the Owner must provide written notice to **ESG within 60 days of ESG's delivery of the Report.** If Owner gives such notice, then ESG will bill for such Guarantee extension, to be paid by the Owner upon completion of any such **subsequent Guarantee and Reporting obligations (generally, the "M&V" Services).** Owner acknowledges all such extensions of M&V Services shall be continuous and unbroken and the failure to extend the M&V Services in any single Guarantee Year shall preclude any extension of such M&V Services in any future Guarantee Year, whether or not such Guarantee Year falls **within ESG's projected savings and Guarantee, identified in Table A below.** If at any point the Owner declines to extend the M&V Services in compliance with this Section 3.2.1, it agrees that ESG shall no longer be obligated to perform the remaining M&V Services, the total Guaranteed Savings shall be considered fully satisfied and the Agreement will be terminated.

3.2.2 Operational Savings. Operational savings have been reviewed and accepted by the Owner and are described in Table A - Guaranteed Savings. No further verification is required for these

savings. Operational savings will begin to accrue on the date of completion and acceptance of each ECM.

- 3.3 Additional Savings. ESG may identify other Energy and Operational Savings opportunities during the Construction Period or during any Guarantee Year. Additional Energy and Operational Savings that can be demonstrated as a result of ESG efforts that result in no additional costs to the Owner beyond the costs identified in the Agreement will be included in the annual Energy Savings Guarantee Report for the applicable Guarantee Year(s).
- 3.4 Savings Prior to Final Acceptance Date. All Energy and Operational Savings realized by the Owner that result from activities undertaken by ESG prior to the Final Acceptance Date, including Construction Period savings, any utility rebates or other incentives earned as a direct result of the installed Energy Conservation Measures provided by ESG, will be applied toward all savings shortfalls before payment is made. Energy and Operational Savings that are achieved by the ECMs prior to completion of the Project will be added to the Total Guarantee Year Savings for the First Guarantee Year. Savings will be calculated as outlined in exhibit B for the various ECMs and will be based on the number of months the ECMs are installed and operational to the time of project acceptance.
- 3.5 Cumulation of Savings. The Guaranteed Savings in each Guarantee Year are considered satisfied if the Total Guarantee Year Savings for such Guarantee Year equals or exceeds the Guaranteed Savings for that Guarantee Year, as set forth in Section 4.0 – Table A.
- 3.6 Hours and Practices. To achieve these energy savings, ESG and the Owner agreed upon the building operating hours specified in Section 6.0 of this Exhibit.
- 3.7 Activities and Events Adversely Impacting Savings. The Owner shall promptly notify ESG of any activities or events **known to the Owner, which adversely impact ESG's ability to realize the Guaranteed Savings.** If this type of situation occurs over the Guarantee Period, ESG shall be entitled to reduce its Guaranteed Savings, or make necessary adjustments to the Energy Baseline in order to quantify such impacts. This will allow ESG and the Owner to recognize and **document any such adverse impact to the extent that such adverse impact is beyond ESG's reasonable control.**
- 3.8 **Contractor's Obligation in Event of a Shortfall in the Total Guarantee Year Savings.** In the event the Energy Savings Guarantee Report shows a Total Guarantee Year Savings shortfall, ESG may (a) pay to the Owner the amount of such shortfall in accordance with Section 3.1; or (b) **cure, at ESG's sole and exclusive cost with 90 days after the delivery of such Report, the Guarantee shortfall in all areas consistent to the Project through the provision of additional energy conservation or generating measures. Following ESG's curative efforts pursuant to this Section 3.8, ESG shall perform additional M&V Activities for the purpose of supplying an amended Report to the Owner. ESG shall not be granted a third opportunity to cure, and an amended Report shall constitute ESG's final Report hereunder. "M&V Activities" pursuant to this Section 3.8 may include,** but are not necessarily limited to, drafting an amended Energy Savings Guarantee Report, performing diagnostic analyses utilizing controls installed as a part of the Project and evaluating the current status of the Measures to determine whether maintenance activities are required to be performed by the Owner.

4.0 SAVINGS GUARANTEE

ESG guarantees that the Project will result in the following sum of Total Guaranteed Year Savings over the Term as outlined in Table A¹:

Table A – Guaranteed Savings

Year	Annual Energy Savings		Annual Operational Savings	Total
	Guaranteed Annual Energy Cost Savings	Agreed Upon Annual Energy Cost Savings (see Table D)	O & M Savings (see Table A, Exhibit B)	
1	\$153,392	\$5,941	\$29,252	\$188,585
2	\$154,926	\$6,000	\$30,130	\$191,056
3	\$156,475	\$6,060	\$31,033	\$193,569
4	\$158,040	\$6,121	\$31,964	\$196,125
5	\$159,620	\$6,182	\$32,923	\$198,726
6	\$161,216	\$6,244	\$33,911	\$201,371
7	\$162,829	\$6,306	\$34,928	\$204,063
8	\$164,457	\$6,369	\$35,976	\$206,803
9	\$166,101	\$6,433	\$37,056	\$209,590
10	\$167,762	\$6,497	\$38,167	\$212,427
11	\$169,440	\$6,562	\$39,312	\$215,315
12	\$171,134	\$6,628	\$40,492	\$218,254
13	\$172,846	\$6,694	\$41,706	\$221,246
14	\$174,574	\$6,761	\$42,958	\$224,293
15	\$176,320	\$6,829	\$44,246	\$227,395
16	\$178,083	\$6,897	\$45,574	\$230,554
17	\$179,864	\$6,966	\$46,941	\$233,771
18	\$181,663	\$7,036	\$48,349	\$237,048
19	\$183,479	\$7,106	\$49,800	\$240,385
20	\$185,314	\$7,177	\$51,294	\$243,785
Total	\$3,377,536	\$130,813	\$786,012	\$4,294,361

Note: The Guaranteed Savings is for total dollars saved not by Option, fuel type, or building.

¹ For reference, the initial Guaranteed Savings were as follows. The final numbers are listed in Table A above.

Annual Energy Savings		Annual Operational Savings	Total
Guaranteed Annual Energy Cost Savings	Agreed Upon Annual Energy Cost Savings (see Table D)	O & M Savings (see Table A, Exhibit B)	
\$151,873	\$5,882	\$28,400	\$186,155

Table B – Baseline Information (January to December 2018)

Facility Name	M&V Option	Square Feet	Annual kWh	Electric Total \$	\$/kwh	Therms	Therms Total \$	\$/therm	Total Utility Cost
Street Lighting	A	N/A	2,966,736	\$623,146	\$0.210	0	\$0	N/A	\$623,146
Township Administration Building	A	45,650	894,880	\$82,459	\$0.092	34,527	\$24,082	\$0.70	\$106,541
Ardmore Public Library	A	5,800	75,120	\$7,645	\$0.102	5,000	\$4,161	\$0.83	\$11,806
Ardmore Pool Complex	A	3,500	80,256	\$7,785	\$0.097	5,380	\$4,354	\$0.81	\$12,139
Bala Avenue Gymnasium	A	5,625	13,673	\$2,171	\$0.159	2,950	\$2,584	\$0.88	\$4,755
Belmont Hills Community Center	A	8,165	20,973	\$2,799	\$0.133	4,910	\$4,053	\$0.83	\$6,852
Bryn Mawr Community Center	A	9,350	63,400	\$6,428	\$0.101	3,360	\$2,902	\$0.86	\$9,330
Koegel Complex	A	73,510	768,000	\$68,391	\$0.089	16,420	\$3,106	\$0.80	\$81,497
Ludington Library	Agreed	40,000	623,424	\$42,477	\$0.092	16,160	\$12,027	\$0.74	\$69,527
Public Safety Building	A	13,670	488,480	\$42,674	\$0.087	10,313	\$7,193	\$0.70	\$49,867
Parking Lots	A	N/A	116,316	\$15,554	\$0.134	0	\$0	N/A	\$15,554

Table B1. Utility account numbers

Facility Name	Electric Account #	Natural Gas Account #
Street Lighting	5893001501	N/A
Township Administration Building	4935200804	5244500102
Ardmore Public Library	9881701202	9881701202
Ardmore Pool Complex	3105601702	8954301505
Bala Avenue Gymnasium	9906601707	5234701609
Belmont Hills Community Center	8014500302	8014500302
Bryn Mawr Community Center	6482300403	6482300403
Koegel Complex	6172300302	4005001004
Ludington Library	4030300304	4030300304
Public Safety Building	4625901108	5244500102
Parking Lots	6202300101	N/A

Table B2. Baseline Utility Rates

These rates are the post procurement utility rates. (November 2018)

Building Name	Electric			Natural Gas	
	Distribution	Distribution \$/W	Supply \$/kWh	Distribution \$/DKTh	Supply \$/DKTh
Street Lighting	\$0.00918	N/A	\$0.03413	N/A	N/A
Parking Lots	\$0.00918	N/A	\$0.03413	N/A	N/A
Buildings	N/A	\$8.24	\$0.05519	\$5.18760	\$3.58400

4.1 Adjustments to The Guarantee. The Guaranteed Savings will be adjusted to account for material changes, where material is defined as any change or changes that may increase or decrease the energy consumption of the Project , including, but not limited to the following

- a. Changes in the hours of operation of any buildings constituting any part of the Facilities.
- b. Changes in the occupancy of the buildings constituting any part of the Facilities.
- c. Changes in the structure of buildings constituting any part of the Facilities, such as architectural features or building components.
- d. Modifications or renovations to the buildings constituting any part of the Facilities, which may or may not change the conditioned space.
- e. Changes to the ECM's installed as part of project.
- f. Addition or deletion of energy consuming equipment at the site.
- g. Weather variance from Baseline Period to current year.
- h. **Owner's failure to adhere to operating and maintenance responsibilities as defined by the equipment manufacturer.**
- i. Adjustments necessary to account for lighting burnouts as documented before retrofit.
- j. New outside air ventilation needed to bring any buildings constituting any part of the Facilities up to state government code.
- k. Required increases in light levels to bring any buildings constituting any part of the Facilities up to state government code.
- l. Any condition, which affects the energy demand or consumption of Facilities, caused by Owner or its agents.

Owner will be responsible for providing ESG notice of actual or proposed material changes to the site and its anticipated effect on energy usage and consumption. Owner must promptly notify ESG before a planned material change occurs.

Owner agrees to:

- a. **Not make any changes to the initial building control's system program without prior notice to ESG.**
- b. Not place the **building control system in a permanent 'on' status, nor will Owner manually operate or override any part of the building control system except upon equipment failure or emergency conditions.**
- c. Provide access for the COMPANY to adjust the ECMs to ensure optimal operation and

maximum energy savings.

- d. Maintain the space temperature settings for heating between 68°F and 72°F during occupied hours. Maintain space temperature settings for cooling between 72°F and 76°F during occupied hours. A heating setback temperature of 55°F and a cooling setback temperature of 80°F are to be used during non-occupied hours.

- 4.2 Escalation Rates. The annual Escalation Rates listed below (as per RFP) are agreed upon as part of the Guaranteed Savings listed in Table A and for the O&M costs listed in the financial section of the proposal. ESG and Owner agree to the escalation rates listed in Table B2 below:

Table B3 – Escalation Rates

ENERGY COST ESCALATION/YR – Electric	1%
ENERGY COST ESCALATION/YR – Natural Gas	1%
OPERATIONAL COST ESCALATION/YR	3%

The actual escalation of energy savings that will be applied in the M&V Report will be the higher of:

- (1) Table B3 above
- (2) CPI (Consumer Price Index) for the geographical region, or
- (3) Actual energy cost rate

The Escalation Rates include the general rate of inflation. The escalation of Baseline Period Energy Costs for utility and maintenance rates begins the year following the end of the *Baseline Period* for this Project.

- 5.0 BASELINE UNIT ENERGY COSTS – Are outlined in Section 4.0 – Table B2 and were used for all calculations made for the First Guarantee Year under this Exhibit.

- 6.0 HOURS OF USE

The hours of operation for the Guarantee are set forth below for buildings and street lighting, interior lighting hours of operation are per RFP date 10/4/2018 and were used for all calculations made in this Exhibit. These hours were agreed upon between the Owner and ESG.

Table C – Hours of Use

Facility	Annual Operating Hours	
	Baseline	Post Retrofit
Street Lighting	4380	4380
Parking Lots	4380	4380
Township Administration Building	M to F - 8:15AM to 4:30PM, Closed Sat. & Sun.	M to F - 8:15AM to 4:30PM, Closed Sat. & Sun.
Ardmore Public Library	M,T,Th,F,Sat. – 10AM to 5PM, W – 1PM to 8PM, Sun. Closed	M,T,Th,F,Sat. – 10AM to 5PM, W – 1PM to 8PM, Sun. Closed

Ardmore Pool Complex	M to F – 12PM to 8PM, Sat. & Sun. 11AM to 8PM	M to F – 12PM to 8PM, Sat. & Sun. 11AM to 8PM
Bala Avenue Gymnasium	M – F, 6AM to 10PM, Sat. & Sun. 10AM – 6PM	M – F, 6AM to 10PM, Sat. & Sun. 10AM – 6PM
Belmont Hills Community Center	M – F, 6AM to 10PM, Sat. & Sun. 10AM – 6PM	M – F, 6AM to 10PM, Sat. & Sun. 10AM – 6PM
Bryn Mawr Community Center	M – F, 6AM to 10PM, Sat. & Sun. 10AM – 6PM	M – F, 6AM to 10PM, Sat. & Sun. 10AM – 6PM
Koegel Complex	M – F 8AM to 3PM, Sat. 9AM to 2:30PM, Sun Closed	M – F 8AM to 3PM, Sat. 9AM to 2:30PM, Sun Closed
Public Safety Building	24 hrs/day, 365 days	24 hrs/day, 365 days
Parking Lots	4380	4380

7.0 M&V APPROACH

IPMVP (September 2010) Option A and Agreed Upon Savings are the approaches used in the M&V process for verifying savings related to this Project. Option A and Agreed Upon Savings are being used with consideration of the characteristics of the specific ECMs, acceptable accuracy, and reasonable cost. Option A will be used for the verification methodology of Lighting Upgrades, Boiler Replacements, and Building Controls, Agreed Upon Savings have been used as the verification methodology for BAS Controls Recommissioning & RTU replacement.

AGREED UPON ENERGY SAVINGS

The following savings have been negotiated and agreed upon between the Owner and ESG and are documented in Table A of this Exhibit B. The table below outlines the source of the agreed upon savings. Upon the Final Acceptance Date for the Project, all values presented in Table D will also be accepted and are deemed achieved as the final savings values requiring no further verification or reporting.

Table D – Source of Year 1 - Annual Agreed Upon Energy Savings

Building	Description	Unit Savings – Electric	Unit Savings - Therms	Cost Savings
Township Administration Building	Board Room RTU Replacement	4,233	-	\$236
Township Administration Building	BAS Controls Recommission	17,898	1,726	\$2,527
Public Safety Building	BAS Controls Recommission	9,770	516	\$1001

Ludington Library	BAS Controls Recommission	12,468	808	\$1,411
Ardmore Public Library	BAS Controls Recommission	1,502	250	\$305
Bryn Mawr Community Center	BAS Controls Recommission	1,268	168	\$220
Belmont Hills Community Center	BAS Controls Recommission	419	246	\$241
Total		47,559	3,714	\$5,941

*Savings are agreed to escalate annually throughout the Term as outlined in Section 4.0 of this Exhibit B. Details of escalation are found in Section 4.2 of this Exhibit B.

Option A

The verification techniques for Option A, "Retrofit Isolation: Key Parameter Measurement", savings are determined by partial field measurement of the energy use of the system(s) to which an ECM was applied, separated from the energy use of the rest of the facility. Measurement may be either short term or "continuous". In this approach, some but not all parameters may be stipulated fairly to represent the probable actual value. This approach is the least expensive with acceptable accuracy.

Option A will be used in the verification of Lighting Upgrades, Boiler Replacements, and Building Controls for this Contract. The verification of savings will be done for lighting by utilizing a pre & post measurement on a random sample of 2% of the lighting fixtures and agreed upon hours of operation; for boilers by utilizing a pre & post measurement of the combustion efficiency of the boiler plants; and, for building controls by documenting the setpoint changes to space temperature along with the changes in operating schedule. The calculations for savings are as follows:

OPTION A – STREET LIGHTING

The purpose of Option A, is to provide savings analysis for utility costs, comparing a base year (base year month) to a current year (current month) post retrofit.

STREET LIGHTING UPGRADES TO LED

ESG conducted a thorough field audit to determine the number and type of street lighting fixtures installed in the township, which also defines the scope of work. The streetlights are non-metered by the local utility (PECO) and therefore the hours of operation have been set by the utility to be 4,380 hours per year.

SAVINGS METHODOLOGY

Savings will be based on a comparison of a street lighting utility bill from the baseline period and a utility bill post installation and acceptance by the utility. This one month bill comparison of savings will be multiplied by 12 to determine the annual benefit of the street lighting project.

Baseline Energy Usage (kWh / yr) – Estimated Energy Usage (kWh / yr) = Energy Savings (kWh / yr)
Example: 3,709,934 – 1,095,464 = 2,614,470 kwh X Rate (\$0.04331) = \$113,233

BASELINE PERIOD ADJUSTMENTS

If the local utility (PECO) changes the street lighting rate structure after 2018 and before post installation and acceptance by the utility, ESG will adjust the street lighting baseline utility bill with the new street lighting rates and then compare the adjusted baseline line utility bill with the current utility bill.

LIGHTING UPGRADES – INTERIOR / EXTERIOR

Facilities Recommended for this Measure

- Bala Avenue Gymnasium
- Ardmore Pool Complex
- Belmont Pool Complex
- Koegel Complex
- Vernon Park

ESG conducted a thorough, room-by-room field audit to determine the number and type of fixtures, which also defines the scope of work. The burn time values for various space types, **provided in “Table C2 – Hours of Use – Lighting”** above, are agreed upon factors for the term of the Contract. Savings calculations will be reviewed and accepted by both parties and will be validated as required. The calculations for lighting are as follows:

Savings Methodology

Option A: One-time pre and post-retrofit kW measurement.

Pre M&V: Lighting power readings will be taken on a sample of lighting fixtures.

Post M&V: Lighting power readings will be taken on a sample of lighting fixtures per IPMVP protocols. Measurements will occur once at the outset of the Agreement.

Energy Savings: Energy savings will be calculated using the actual measured wattage reduction and measured burn-hours.

In general, savings calculations for lighting retrofits are calculated using the following methodology:

Table E – Savings Calculation Methodology

Savings Calculation Method		
Baseline Energy Usage (kWh / yr)	=	Existing Fixture Watts x Operating Hours / yr x 1 kW / 1000 Watts
Estimated Energy Usage (kWh / yr)	=	Proposed Fixture Watts x Operating Hours/yr x 1 kW / 1000 Watts
Energy Savings (kWh / yr)	=	Baseline Energy Usage – Estimated Energy Usage

Baseline Energy Usage (kWh / yr) – Estimated Energy Usage (kWh / yr) = Energy Savings (kWh / yr)

Baseline and post-retrofit wattage values for various lighting fixtures are presented in Exhibit A. The methodology, inputs and assumptions presented for the lighting retrofit savings calculations are stipulated for the Contract Term. The annual hours of operation are listed in Table C2 above.

BOILER REPLACEMENT

FACILITIES RECOMMENDED FOR THIS MEASURE

- **Bala Avenue Gymnasium**
- **Ardmore Public Library**
- **Belmont Hills Community Center**

Savings Methodology

Option A: Baseline energy consumption based on collected field data and combustion efficiency of existing boilers. Post installation energy consumption based on combustion efficiency of new boilers.

Pre M&V: Energy Systems Group will take a one-time full load combustion efficiency test to verify the efficiency of boilers and estimate the fuel consumption of the boilers based on collected field data and utility bills.

Post M&V: Energy Systems Group will take a combustion efficiency test to verify the efficiency of new boilers.

Energy Savings: Savings for the new boilers will be determined using the base heating load and the difference in efficiencies between the existing boilers and new boilers..

Detailed Energy Cost Savings Calculations

Boiler efficiency and system heat losses are compared to calculate overall building heating system efficiency. Total energy savings is the difference between the existing overall building heating system efficiency and the new one.

Savings Calculation Method		
Existing Boiler Efficiency	=	$\sum_{i=1}^{8760} (Q_i \div \eta_E)$

Proposed Boiler Efficiency	=	$\sum_{i=1}^{8760} (Q_i \div \eta_p)$
Energy Savings	=	Existing Boiler Efficiency – Proposed Boiler Efficiency
Annual Cost Savings	=	Energy Savings x Fuel Rate
Q _i	=	Hourly heating demand, modeled as a linear fit of OA DBT (dry-bulb temperature), with a cut-off temperature above which there is no heating
η	=	Combustion efficiency of heating system based on field data, manufacturer's rating

Technical Data and Assumptions Used in This Analysis

- The existing boiler efficiency was assumed at 65%
- The new boiler efficiency (91%) was obtained from the manufacturer catalog

BUILDING AUTOMATION INSTALLATION

FACILITIES RECOMMENDED FOR THIS MEASURE

- **Township Administration Building**
- **Public Safety Building**
- **Ardmore Public Library**
- **Belmont Hills Library**

There were several possible savings generated with upgrading controls. Energy efficiency measures like incorporating effective night setback with improved scheduling, demand control ventilation and hot **water reset will contribute to it. The savings modeling utilizes ASHRAE's bin method. This method** begins with recording the average temperature for every hour of the year, then tallying those values by temperature **range. These ranges become thus “bins.”**

Pre M&V: Accepted engineering practices / building simulations will be used to calculate energy consumption baselines. Operating parameters of the system were verified through BAS system (where applicable).

Post M&V: Various control points within the building management system will be trended and/or totalized. This data will be used to verify that all control strategies are in place and functioning as intended.

Energy Savings: Savings are from updated controls and implementing control strategies.

Demand Control Ventilation Savings

Cooling Savings (kWh) = $\Sigma 4.5 \times \text{CFM}_{\text{OA}} \times (\text{Existing Occ. (\%)} - \text{Proposed Occ. (\%)}) \times (\text{Outdoor Air Enthalpy (btu/lbm)} - \text{Supply Air Enthalpy (btu/lb)}) / (12000 \times \text{Cooling (kw/Ton)})$

Heating Savings (Btu) = $\Sigma 1.08 \times \text{CFM}_{\text{OA}} \times (\text{Existing Occ. (\%)} - \text{Proposed Occ. (\%)}) \times (\text{Heating Supply Air Temp. set point (F)} - \text{OA DB Temp. (F)}) / \text{Heating Plant Eff.}$

Equipment Schedule Savings

Existing Fan Energy (kWh) = $\Sigma ((\text{Existing Equipment (HP)}/\eta) \times \text{Min (Max (Slope (\% \text{ flow}) \times \text{OA Air Temp. (F)} + \text{Intercept})} ^{2.5 \times \text{Motor Load (\%)}})$

Existing Cooling Energy (kWh) = $\Sigma (\text{Cooling Capacity (Tons)} \times \text{Cooling (\%)} \times \text{Min (Max (Slope (\% \text{ flow}) \times \text{OA Air Temp. (F)} + \text{Intercept})} \times \text{Min (Max (Slope (kW/Ton)} \times \text{OA Air Temp. (F)} + \text{Intercept})$

Existing Heating Energy (Therm) = $\Sigma (\text{Heating Capacity (MBTU)} \times 1000/100000 \times \text{Heating Load (\%)} / \text{Min (Max (Slope (\% \text{ Output}) \times \text{OA Air Temp. (F)} + \text{Intercept})$

Fan Energy Savings (kWh) = Existing (kWh) – Retrofit (kWh)

Cooling Savings (kWh) = Existing Cooling (kWh) – Retrofit Cooling (kWh)

Heating Savings (Therm) = Existing Heating (Therm) – Retrofit Heating (Therm)

Temperature Setback

Based on Occupied and Unoccupied Hours and using Hourly Bin data

Existing Cooling (kWh) = Cooling Load (%) x Total Cooling Capacity (Tons) x Cooling Plant Eff. (kW/Ton) x (Outdoor Air (F) – Occupied Temp. (F)) or Cooling Load (%) x Total Cooling Capacity (Tons) x Cooling Plant Eff. (kW/Ton) x (Outdoor Air (F) – Unoccupied Temp. (F))

Existing Heating (MBtu) = Heating Capacity (MBH) x Heating Load (%) x (Heating Occupied (F) – Outdoor Air (F)) / Heating Plant Eff. or Heating Capacity (MBH) x Heating Load (%) x (Heating Unoccupied (F) – Outdoor Air (F)) / Heating Plant Eff.

Cooling Savings (kWh) = Existing Cooling (kWh) – Proposed Cooling (kWh)

Heating Savings (Therms) = (Existing Heating (MBtu) – Proposed Heating (MBtu)) / 100

Hot water reset & Scheduling

Heating Demand (HP) = Occ. Temp. (F) – OA Temp. (F) / OA Design (F) x (Boiler Output (HP) x Design Oversize)

Est. % ON time hrs with no Reset = Heating Demand (HP) / (Boiler Output (HP) x Design Oversize)

Est. % ON time hrs - with Reset = Hot Water Reset Supply (F) x (HW Supply Temp. (F) Slope + HW Supply Temp. (F) Intercept)

Est. Avg. # hrs with no reset = 1 / Est. %ON time hrs - no reset

Est. Avg. # hrs with reset = 1 / Est. %ON time hrs - With reset

$\Delta (\% \text{ Purging Loss}) = (\text{Est. Avg. \# / hrs with no reset} \times (\text{Slope (Cycling Losses)} + \text{Intercept (Cycling Losses)})) - ((\text{Est. Avg. \# hrs with reset} \times (\text{Slope (Cycling Losses)} + \text{Intercept (Cycling Losses)}))$

Estimated Loss (HP) = Heating Demand (HP) / Boiler Efficiency x $\Delta (\% \text{ Purging Loss})$

Savings = Σ Estimated Loss (HP) x Boiler (Btu/h-hp) / 10^5

Technical Data and Assumptions Used in This Analysis

The assumptions made in the above calculations are listed below:

Township Administration Building Public Safety Building

Boiler Efficiency	91%	
Chiller Performance	1.50	kW/Ton
Air Infiltration & Leakage	0.20	cfm/ft2
Occupied Indoor Heating Temperature Setpoint	70	Degrees F
Unoccupied Indoor Heating Temperature Setpoint	60	Degrees F
Occupied Indoor Cooling Temperature Setpoint	72	Degrees F
Unoccupied Indoor Cooling Temperature Setpoint	80	Degrees F

Ardmore Public Library

Boiler Efficiency	91%	
Chiller Performance	1.25	kW/Ton
Air Infiltration & Leakage	0.03	cfm/ft2
Occupied Indoor Heating Temperature Setpoint	70	Degrees F
Unoccupied Indoor Heating Temperature Setpoint	60	Degrees F
Occupied Indoor Cooling Temperature Setpoint	72	Degrees F
Unoccupied Indoor Cooling Temperature Setpoint	80	Degrees F

Belmont Hills Library

Boiler Efficiency	91%	
Chiller Performance	1.25	kW/Ton
Air Infiltration & Leakage	0.10	cfm/ft2
Occupied Indoor Heating Temperature Setpoint	70	Degrees F
Unoccupied Indoor Heating Temperature Setpoint	60	Degrees F
Occupied Indoor Cooling Temperature Setpoint	72	Degrees F
Unoccupied Indoor Cooling Temperature Setpoint	80	Degrees F

Option A savings will be verified through one-time pre and post measurements and engineering calculations as outlined in this Exhibit. Those savings will be carried forward escalating annually as outlined in Section 4.2 of this Exhibit B for Guarantee Years two through three of the Guarantee Period. Details of measurements are presented below:

1. ESG or the subcontractor (ESG team) will measure pre- and post-retrofit lighting wattage (kw) in a sample number of lighting fixtures;
2. ESG team will perform one-time measurements of combustion efficiency for the original boilers and at the time of installation of the new boilers. The pre-retrofit boilers will be measured before they are removed and the post-retrofit boilers will be measured after they are installed;
3. ESG team will measure approximately 2% of each type of lighting fixtures in the project scope;
4. ESG team will use a calibrated meter, if applicable, for performing the one-time measurements;

8.0 GLOBAL ASSUMPTIONS

8.1 Energy Prices.

Either the Baseline Period utility unit cost escalating as outlined in Section 4.2 of this Exhibit B or the current period utility unit cost, whichever is greater, will be used in determining the adjusted base period utility unit cost. In no case, however, shall the unit cost used to calculate the Guaranteed Savings be lower than the escalated Baseline Period utility unit costs rate.

8.2 Performance Period Utility Rate Adjustment Factors, if applicable.

Generally ESG is not responsible for any utility rate changes other than those defined in the post-installation energy policy. A rate adjustment factor will be applied to calculate actual savings regarding the changes of the utility rates. The actual energy cost savings will be the product of the calculated energy savings from defined rates and the utility adjustment factor when applicable. In no case, however, shall the rate used to calculate the Guaranteed Savings be lower than Base Period utility rate.

8.3. Schedule of Verification Reporting Activities.

Item	Time for Submission	Owner's Review & Acceptance Period
Annual Report	Annual Report 90 days following the end of the first 3 Guarantee Years.	* 30 days

*** Owner's Acceptance becomes automatic if not provided by the end of the Owner's Review & Acceptance Period.**

8.3.1 Content and Format of Reports.

ESG is responsible for the periodic Energy Savings Guarantee Reports as outlined in Section 3.2 of this Exhibit.

9.0 OPERATIONAL SAVINGS

The Operational Savings shown in Table A of this Exhibit B for this Project, derived from Owner-provided information, are negotiated, agreed upon, accepted by the Owner, and are deemed achieved in full at the Final Acceptance Date. There is no need to verify the agreed upon Operational Savings.

Operational Savings: Table A of this Exhibit B

Source of Year 1 Savings		Annual Agreed Upon Operational Savings
Description	Unit	Dollar Savings
Operational cost related to the reduction in the purchase of lighting material needed to maintain existing system	Dollars	\$21,527
Operational cost related to the reduction in the service and repair of the heating boilers material needed to maintain existing system	Dollars	\$3,090
Operational cost related to the reduction in the service and repair of the control system material needed to maintain existing system	Dollars	\$4,635
TOTAL		\$29,252

The Operational Savings are escalated as outlined in Section 4.2 of this Exhibit.

10.0 ASSIGNMENT OF ENVIRONMENTAL ATTRIBUTES

As a result of the implementation of this Project, certain Environmental Attributes may be available, either now or in the future. This section specifies the process whereby the Owner will assign such Environmental Attributes to ESG.

“Environmental Attributes” means any and all credits, deductions, benefits, emission reductions, incentives, offsets, and allowances, howsoever entitled, attributable to and arising from the implementation of this Project, whether such Environmental Attributes now exist or are developed in the future. Environmental Attributes include but are not limited to: (1) Any avoided emissions of pollutants to the air, soil, or water; (2) Any avoided emissions of carbon dioxide (CO₂), methane (CH₄) and other greenhouse gases (GHGs); (3) Section 45 credits; (4) green tags; (5) renewable energy credits; and (6) The reporting rights to these avoided emissions such as White Tag Reporting Rights. Environmental Attributes also include any energy, capacity, reliability, or other energy reduction attributes that result from the implementation of this Project.

All Environmental Attributes arising from the implementation of this Project shall be owned by ESG. Owner agrees to execute all required documentation to assign all Environmental Attributes to ESG. If any filings are required with the Internal Revenue Service or some other governmental entity to obtain the benefits of the Environmental Attributes, Owner hereby instructs ESG to prepare and file such documents.

11.0 PROJECT INFORMATION:

Owner NAME: Lower Merion Township

ESCO Name: *Energy Systems Group, LLC (ESG)*
ESG Contact Person for M&V: Donna Wicks

Street Address: 9877 Eastgate Court, Newburgh, IN 47630

Phone: (812) 492-3714 Fax: (833) 834-0321 E-mail: dwicks@EnergySystemsGroup.com

Owner Contact for M&V : Ernie B. McNeely

Address of Owner: 75 E. Lancaster Avenue Ardmore, PA 19003-2323

Phone: 610.645.6103 E-mail: emcneely@lowermerion.org

12.0 DISPUTE RESOLUTION

The M&V Plan has been reviewed and accepted by Owner. It is the primary document for the M&V process. If a dispute arises under this M&V Plan, the parties shall promptly attempt in good faith to resolve the dispute by negotiation. If not settled by negotiation, this M&V Plan will be referred to as the means to solve related disputes.

13.0 POST-INSTALLATION DATA COLLECTED

Owner will provide access to site locations at reasonable times to perform on-site tests to verify performance, changes in use, and to verify modification of Facilities as necessary. *ESG* will not unreasonably interfere with Owner's operation on the site.

ESG will collect before and after construction measurements for applicable Option A ECMs. In the case of lighting, pre and post measurements will be taken on fixture kW for 2% of the total number of fixtures retrofit. This data will be used to calculate energy savings, based on agreed upon hours of operation and baseline utility rates.

All devices employed to meter electric power use shall be capable of metering continuous RMS power at accuracy of +/-5.0% actual value, over the entire load range; Metering of polyphase loads shall include independent measurement of each phase.

14.0 COST OF M&V ACTIVITIES

For **Owner's** Project, the M&V Plan and Energy Savings Guarantee Reporting is intended to continue for Guarantee Year 1 (one) for the Street lighting & parking lot lighting ECM and for the first three (3) Guarantee Years for all other ECMs. Owner, at its discretion, may choose to discontinue the M&V Plan or to extend the M&V Plan for additional Guarantee Years. See Section 3.2.1 of this Exhibit B for

additional details. Proper notification of extension or termination procedures must be followed if such action is considered.

The costs for the Energy Savings Guarantee Reporting for the first year of the street lighting & parking lot lighting and three (3) Guarantee Years have been included for all other ECMs in the Contract Price. The table below lists costs for M&V Activities for Years 1-3 for information only. A Year 4 cost is provided below if owner requested extension of M&V service is desired; and it will be billed accordingly after appropriate notification.

Owner acknowledges and agrees that if, for any reason, it (i) cancels or terminates receipt of M&V Services, (ii) fails to pay for M&V Services, (iii) fails to fulfill any of its responsibilities necessary to enable ESG to complete the Work and provide the M&V Services, or (iv) otherwise cancels, terminates or materially breaches this Agreement, the Guarantee shall automatically terminate and ESG shall have no liability hereunder. The cost for the annual M&V Services and Energy Savings Guarantee Reporting are as follows:

Cost of M&V Activities

Guarantee Year	Street Lighting	Additional ECMs	Total Cost
*1	\$2,020	\$8,108	\$10,128
*2	\$2,081	\$8,351	\$10,432
*3	\$2,143	\$8,602	\$10,745
**4	\$2,207	\$8,860	*\$11,067

*Provided for information only. If owner terminates early, M&V cost will be refunded or available for other energy / facilities related services.

****Four (4) Years have been shown at the Owner's request.**

If the Owner decides to extend the Guarantee beyond Guarantee Year 4, the Total Cost of the M&V Activities shown in the previous paragraph shall escalate at 3% per year for as long as the Guarantee continues.

[Remainder of page intentionally left blank; signature page to follow.]

LOWER MERION TOWNSHIP PENNSYLVANIA

By _____
Daniel Bernheim, Esq.

Its _____
President

ENERGY SYSTEMS GROUP, LLC

By _____
Scott Prochazka

Its _____
CEO

EXHIBIT C

OPINION OF OWNER'S COUNSEL
(TO BE TYPED ON COUNSEL'S LETTERHEAD)

Energy Systems Group, LLC
And Its Assignee
9877 Eastgate Court
Newburgh, IN 47630

Ladies and Gentlemen:

I am counsel for the Lower Merion Township Pennsylvania ("Owner"). In order to render this opinion I have reviewed the Guaranteed Energy Savings Performance Contract (the "Agreement"), dated as of _____, 2019, between Owner and Energy Systems Group, LLC ("Contractor"), and other documents and instruments related to the Agreement or otherwise necessary to render this opinion, as well as all proceedings taken by Owner in connection with the Agreement. Capitalized terms not otherwise defined herein shall have the meanings ascribed to them in the Agreement. Based upon the foregoing it is my opinion that:

1. Owner is a duly organized and validly existing political subdivision of the State of Pennsylvania and is a political subdivision within the meaning of Section 103 of the Internal Revenue Code and related regulations and rulings.
2. Owner has the power and authority to execute and perform the Agreement and to purchase ECMs from Contractor thereunder.
3. The Agreement and related instruments and documents:
 - (a) Have been duly authorized by appropriate resolutions;
 - (b) Do not contravene and will not violate or result in a default under any charter, certificate of incorporation, by-laws, indenture, or any other agreement or instrument by which Owner or its property is bound or to which Owner is a party;
 - (c) The Agreement has been duly executed by the duly authorized officers of Owner, and do and will constitute the legal, valid, and binding obligations of Owner enforceable against Owner in accordance with their respective terms.
4. No approval or consent is required from any governmental authority with respect to the entering into or performance by Owner of the Agreement and the transactions contemplated thereby or if any such approval is required it has been duly obtained.
5. No litigation or other proceedings are pending or, to the best of my knowledge, threatened against Owner which would adversely affect Owner's legal title to the ECMs or, if decided adversely to Owner, would materially affect its financial condition.

This opinion is for the benefit of the addressee and any Assignee, and you and such Assignee and any counsel engaged by you or such Assignee shall be entitled to rely hereupon, including such counsel's reliance hereupon in giving its opinion addressed to other persons.

Very truly yours,

EXHIBIT D

STATE SPECIFIC STATUTORY REQUIREMENTS

This Agreement must be performed in conformance with the requirements of the Guaranteed Energy Savings **Act, as amended, which is otherwise referred to as** “Act 57” of 1998, 62 Pa. C.S. §3751-3758, as amended under Act 77 of 2004 and Act 39 of 2010.

EXHIBIT E

PREVAILING WAGE DETERMINATION

BUREAU OF LABOR LAW COMPLIANCE PREVAILING WAGES PROJECT RATES

Project Name:	ESCO Project - Street Lighting & Building ECMS
Awarding Agency:	Lower Merion Township
Contract Award Date:	9/15/2019
Serial Number:	19-05141
Project Classification:	Building/Highway
Determination Date:	8/25/2019
Assigned Field Office:	Philadelphia
Field Office Phone Number:	(215)560-1858
Toll Free Phone Number:	
Project County:	Montgomery County

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Asbestos & Insulation Workers	5/29/2017		\$47.30	\$34.85	\$82.15
Asbestos & Insulation Workers	5/1/2018		\$49.30	\$35.85	\$85.15
Asbestos & Insulation Workers	5/1/2019		\$51.20	\$36.95	\$88.15
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2017		\$28.52	\$18.22	\$46.74
Boilermaker (Commercial, Institutional, and Minor Repair Work)	3/1/2018		\$29.52	\$18.22	\$47.74
Boilermaker (Commercial, Institutional, and Minor Repair Work)	1/1/2019		\$29.26	\$18.48	\$47.74
Boilermakers	1/1/2018		\$46.26	\$33.36	\$79.62
Boilermakers	3/1/2018		\$45.89	\$33.73	\$79.62
Boilermakers	1/1/2019		\$45.51	\$34.11	\$79.62
Bricklayer	5/1/2017		\$40.98	\$26.78	\$67.76
Bricklayer	5/1/2018		\$43.73	\$26.78	\$70.51
Bricklayer	5/1/2019		\$46.48	\$26.78	\$73.26
Carpenter - Chief of Party (Surveying & Layout)	5/1/2017		\$45.25	\$27.59	\$72.84
Carpenter - Chief of Party (Surveying & Layout)	5/1/2018	4/30/2019	\$45.83	\$27.59	\$73.42
Carpenter - Chief of Party (Surveying & Layout)	5/1/2019	4/30/2020	\$46.54	\$27.59	\$74.13
Carpenter - Chief of Party (Surveying & Layout)	5/1/2020		\$47.73	\$27.59	\$75.32
Carpenter - Instrument Person (Surveying & Layout)	5/1/2017		\$39.35	\$27.59	\$66.94
Carpenter - Instrument Person (Surveying & Layout)	5/1/2018	4/30/2019	\$39.85	\$27.59	\$67.44
Carpenter - Instrument Person (Surveying & Layout)	5/1/2019	4/30/2020	\$40.47	\$27.59	\$68.06
Carpenter - Instrument Person (Surveying & Layout)	5/1/2020		\$41.50	\$27.59	\$69.09
Carpenter - Rodman (Surveying & Layout)	5/1/2017		\$19.88	\$19.64	\$39.32
Carpenter - Rodman (Surveying & Layout)	5/1/2018	4/30/2019	\$19.93	\$19.49	\$39.42
Carpenter - Rodman (Surveying & Layout)	5/1/2019	4/30/2020	\$20.24	\$19.69	\$39.93
Carpenter - Rodman (Surveying & Layout)	5/1/2020		\$20.75	\$19.49	\$40.24
Carpenters	5/1/2017		\$39.35	\$27.59	\$66.94
Carpenters	5/1/2018	4/30/2019	\$39.85	\$27.59	\$67.44
Carpenters	5/1/2019	4/30/2020	\$40.87	\$27.59	\$68.46
Carpenters	5/1/2020		\$41.90	\$27.59	\$69.49
Cement Masons	5/1/2017		\$36.45	\$31.76	\$68.21
Cement Masons	5/1/2018		\$37.50	\$32.26	\$69.76
Cement Masons	5/1/2019		\$38.50	\$32.81	\$71.31
Dockbuilder/Pile Drivers (Building, Heavy & Highway)	5/1/2018		\$43.45	\$34.47	\$77.92
Dockbuilder/Piledriver (Building, Heavy, Highway)	11/1/2017		\$43.45	\$33.22	\$76.67
Dockbuilder/Piledriver (Building, Heavy, Highway)	5/1/2018		\$44.70	\$33.22	\$77.92
Drywall Finisher	5/1/2017		\$37.11	\$26.75	\$63.86
Drywall Finisher	5/1/2018	4/30/2019	\$39.27	\$27.49	\$66.76
Electricians	4/30/2017		\$56.50	\$36.24	\$92.74
Electricians	4/29/2018		\$58.33	\$37.41	\$95.74
Elevator Constructor	1/1/2018		\$55.76	\$33.05	\$88.81
Floor Coverer	5/1/2019		\$44.37	\$28.44	\$72.81
Floor Coverer	5/1/2020		\$46.01	\$28.44	\$74.45
Floor Layer	5/1/2017		\$42.51	\$27.91	\$70.42

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Floor Layer	5/1/2018		\$43.11	\$28.09	\$71.20
Glazier	5/1/2017		\$41.30	\$31.80	\$73.10
Glazier	5/1/2018	4/30/2019	\$43.32	\$32.33	\$75.65
Glazier	5/1/2019		\$43.87	\$33.38	\$77.25
Iron Workers - Reinforcing Steel Mesh - Rebar	7/1/2017		\$42.58	\$29.30	\$71.88
Iron Workers - Reinforcing Steel Mesh - Rebar	7/1/2018		\$51.48	\$30.60	\$82.08
Iron Workers (Riggers)	7/1/2017		\$39.83	\$27.92	\$67.75
Iron Workers	7/1/2017		\$47.30	\$32.91	\$80.21
Iron Workers	7/1/2018		\$42.88	\$30.60	\$73.48
Iron Workers	7/1/2019		\$32.76	\$29.88	\$62.64
Laborers (Class 01 - See notes)	5/1/2017		\$28.65	\$24.95	\$53.60
Laborers (Class 02 - See notes)	5/1/2017		\$30.85	\$25.65	\$56.50
Laborers (Class 03 - See notes)	5/1/2017		\$28.92	\$25.18	\$54.10
Laborers (Class 04 - See notes)	5/1/2017		\$28.95	\$24.95	\$53.90
Laborers (Class 05 - See notes)	5/1/2017		\$28.65	\$24.95	\$53.60
Landscape Laborer	5/1/2017		\$22.71	\$23.08	\$45.79
Marble Finisher	5/1/2017		\$35.55	\$24.17	\$59.72
Marble Finisher	5/1/2018		\$37.55	\$24.17	\$61.72
Marble Finisher	5/1/2019		\$39.75	\$24.17	\$63.92
Marble Mason	5/1/2017		\$40.36	\$26.99	\$67.35
Marble Mason	5/1/2018		\$43.11	\$26.99	\$70.10
Marble Mason	5/1/2019		\$45.88	\$26.99	\$72.85
Millwright	7/1/2017		\$41.35	\$32.24	\$73.59
Millwright	5/1/2018		\$43.33	\$32.96	\$76.29
Millwright	5/1/2019		\$45.50	\$33.29	\$78.79
Operators (Building, Class 01 - See Notes)	5/1/2017		\$44.87	\$28.14	\$73.01
Operators (Building, Class 01 - See Notes)	5/1/2018		\$46.41	\$28.60	\$75.01
Operators (Building, Class 01 - See Notes)	5/1/2019		\$47.95	\$29.06	\$77.01
Operators (Building, Class 01 - See Notes)	5/1/2020		\$49.50	\$29.51	\$79.01
Operators (Building, Class 01 - See Notes)	5/1/2021		\$51.04	\$29.97	\$81.01
Operators (Building, Class 01A - See Notes)	5/1/2017		\$47.86	\$29.03	\$76.89
Operators (Building, Class 01A - See Notes)	5/1/2018		\$49.41	\$29.49	\$78.90
Operators (Building, Class 01A - See Notes)	5/1/2019		\$50.96	\$29.94	\$80.90
Operators (Building, Class 01A - See Notes)	5/1/2020		\$52.50	\$30.40	\$82.90
Operators (Building, Class 01A - See Notes)	5/1/2021		\$54.05	\$30.85	\$84.90
Operators (Building, Class 02 - See Notes)	5/1/2017		\$44.62	\$28.07	\$72.69
Operators (Building, Class 02 - See Notes)	5/1/2018		\$46.16	\$28.53	\$74.69
Operators (Building, Class 02 - See Notes)	5/1/2019		\$47.70	\$28.99	\$76.69
Operators (Building, Class 02 - See Notes)	5/1/2020		\$49.25	\$29.44	\$78.69
Operators (Building, Class 02 - See Notes)	5/1/2021		\$50.80	\$29.89	\$80.69
Operators (Building, Class 02A - See Notes)	5/1/2017		\$47.61	\$28.97	\$76.58
Operators (Building, Class 02A - See Notes)	5/1/2018		\$49.16	\$29.42	\$78.58
Operators (Building, Class 02A - See Notes)	5/1/2019		\$50.71	\$29.87	\$80.58
Operators (Building, Class 02A - See Notes)	5/1/2020		\$52.26	\$30.31	\$82.57

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators (Building, Class 02A - See Notes)	5/1/2021		\$53.81	\$30.77	\$84.58
Operators (Building, Class 03 - See Notes)	5/1/2017		\$40.53	\$26.87	\$67.40
Operators (Building, Class 03 - See Notes)	5/1/2018		\$42.07	\$27.33	\$69.40
Operators (Building, Class 03 - See Notes)	5/1/2019		\$43.62	\$27.78	\$71.40
Operators (Building, Class 03 - See Notes)	5/1/2020		\$45.17	\$28.24	\$73.41
Operators (Building, Class 03 - See Notes)	5/1/2021		\$46.71	\$28.69	\$75.40
Operators (Building, Class 04 - See Notes)	5/1/2017		\$40.24	\$26.78	\$67.02
Operators (Building, Class 04 - See Notes)	5/1/2018		\$41.78	\$27.22	\$69.00
Operators (Building, Class 04 - See Notes)	5/1/2019		\$43.32	\$27.69	\$71.01
Operators (Building, Class 04 - See Notes)	5/1/2020		\$44.86	\$28.14	\$73.00
Operators (Building, Class 04 - See Notes)	5/1/2021		\$46.41	\$28.60	\$75.01
Operators (Building, Class 05 - See Notes)	5/1/2017		\$38.51	\$26.27	\$64.78
Operators (Building, Class 05 - See Notes)	5/1/2018		\$40.05	\$26.73	\$66.78
Operators (Building, Class 05 - See Notes)	5/1/2019		\$41.60	\$27.18	\$68.78
Operators (Building, Class 05 - See Notes)	5/1/2020		\$43.14	\$27.64	\$70.78
Operators (Building, Class 05 - See Notes)	5/1/2021		\$44.69	\$28.10	\$72.79
Operators (Building, Class 06 - See Notes)	5/1/2017		\$37.52	\$25.98	\$63.50
Operators (Building, Class 06 - See Notes)	5/1/2018		\$39.07	\$26.43	\$65.50
Operators (Building, Class 06 - See Notes)	5/1/2019		\$40.61	\$26.89	\$67.50
Operators (Building, Class 06 - See Notes)	5/1/2020		\$42.16	\$27.35	\$69.51
Operators (Building, Class 06 - See Notes)	5/1/2021		\$43.70	\$27.80	\$71.50
Operators (Building, Class 07A- See Notes)	5/1/2017		\$54.14	\$32.47	\$86.61
Operators (Building, Class 07A- See Notes)	5/1/2018		\$55.99	\$33.02	\$89.01
Operators (Building, Class 07A- See Notes)	5/1/2019		\$57.84	\$33.57	\$91.41
Operators (Building, Class 07A- See Notes)	5/1/2020		\$59.70	\$34.10	\$93.80
Operators (Building, Class 07A- See Notes)	5/1/2021		\$61.55	\$34.65	\$96.20
Operators (Building, Class 07B- See Notes)	5/1/2017		\$53.84	\$32.40	\$86.24
Operators (Building, Class 07B- See Notes)	5/1/2018		\$55.70	\$32.92	\$88.62
Operators (Building, Class 07B- See Notes)	5/1/2019		\$56.00	\$35.03	\$91.03
Operators (Building, Class 07B- See Notes)	5/1/2020		\$59.40	\$34.03	\$93.43
Operators (Building, Class 07B- See Notes)	5/1/2021		\$61.26	\$34.58	\$95.84
Painter	5/1/2018	4/30/2019	\$38.64	\$27.64	\$66.28
Painter	5/1/2019		\$39.04	\$28.99	\$68.03
Painters Class 1 (see notes)	5/1/2017		\$37.82	\$26.46	\$64.28
Painters Class 1 (see notes)	2/1/2018		\$43.18	\$27.23	\$70.41
Painters Class 1 (see notes)	2/1/2019		\$44.56	\$28.35	\$72.91
Painters (Bridges, Stacks, Towers)	2/1/2018	1/31/2019	\$54.15	\$27.52	\$81.67
Painters (Bridges, Stacks, Towers)	2/1/2019		\$55.52	\$28.39	\$83.91
Painters (Brush and Roller)(Industrial)	2/1/2018	1/31/2019	\$43.18	\$27.23	\$70.41
Painters (Brush and Roller)(Industrial)	2/1/2019		\$44.56	\$28.35	\$72.91
Painters Class 2 (see notes)	2/1/2017		\$53.67	\$26.09	\$79.76
Painters Class 2 (see notes)	2/1/2018		\$54.14	\$27.27	\$81.41
Painters Class 2 (see notes)	2/1/2019		\$55.52	\$28.39	\$83.91
Painters Class 3 (see notes)	5/1/2017		\$38.20	\$26.46	\$64.66

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Plasterers	5/1/2017		\$37.42	\$28.83	\$66.25
Plasterers	5/1/2018		\$37.42	\$30.04	\$67.46
Plasterers	5/1/2019		\$37.72	\$30.74	\$68.46
plumber	5/1/2018	4/30/2019	\$53.45	\$33.54	\$86.99
plumber	5/1/2019		\$55.45	\$34.54	\$89.99
Plumbers	5/1/2017		\$51.42	\$32.57	\$83.99
Pointers, Caulkers, Cleaners	5/1/2017		\$42.26	\$25.69	\$67.95
Pointers, Caulkers, Cleaners	5/1/2018		\$45.01	\$25.69	\$70.70
Pointers, Caulkers, Cleaners	5/1/2019		\$47.76	\$25.69	\$73.45
Roofers (Composition)	5/1/2017		\$36.15	\$30.22	\$66.37
Roofers (Composition)	5/1/2018		\$37.15	\$31.27	\$68.42
Roofers (Shingle)	5/1/2016		\$25.70	\$19.17	\$44.87
Roofers (Shingle, Slate, Tile)	5/1/2018		\$27.50	\$20.37	\$47.87
Roofers (Slate & Tile)	5/1/2016		\$28.70	\$19.17	\$47.87
Roofers (Slate & Tile)	5/1/2018		\$30.50	\$20.37	\$50.87
Sheet Metal Workers	5/1/2017		\$46.42	\$39.51	\$85.93
Sheet Metal Workers	5/1/2018		\$47.58	\$41.60	\$89.18
Sheet Metal Workers	5/1/2019		\$49.79	\$42.89	\$92.68
Sprinklerfitters	4/1/2017		\$37.40	\$21.74	\$59.14
Sprinklerfitters	4/1/2018		\$38.80	\$22.74	\$61.54
Sprinklerfitters	5/1/2019		\$57.20	\$28.32	\$85.52
Steamfitters	5/1/2017		\$54.64	\$32.53	\$87.17
Steamfitters	5/1/2018		\$56.37	\$34.39	\$90.76
Steamfitters	5/1/2019		\$58.17	\$35.99	\$94.16
Stone Masons	5/1/2017		\$40.36	\$26.99	\$67.35
Stone Masons	5/1/2018		\$43.11	\$26.99	\$70.10
Stone Masons	5/1/2019		\$45.86	\$26.99	\$72.85
Terrazzo Finisher	5/1/2017		\$39.06	\$22.73	\$61.79
Terrazzo Finisher	5/1/2018		\$41.31	\$22.73	\$64.04
Terrazzo Finisher	5/1/2019		\$43.61	\$22.73	\$66.34
Terrazzo Grinder	5/1/2017		\$39.33	\$22.73	\$62.06
Terrazzo Grinder	5/1/2018		\$41.58	\$22.73	\$64.31
Terrazzo Grinder	5/1/2019		\$43.88	\$22.73	\$66.61
Terrazzo Mechanics	5/1/2017		\$43.71	\$24.81	\$68.52
Terrazzo Mechanics	5/1/2018		\$46.46	\$24.81	\$71.27
Terrazzo Mechanics	5/1/2019		\$49.21	\$24.81	\$74.02
Tile Finisher	5/1/2017		\$35.55	\$24.17	\$59.72
Tile Finisher	5/1/2018		\$37.55	\$24.17	\$61.72
Tile Finisher	5/1/2019		\$39.75	\$24.17	\$63.92
Tile Setter	5/1/2017		\$43.71	\$24.81	\$68.52
Tile Setter	5/1/2018		\$46.46	\$24.81	\$71.27
Tile Setter	5/1/2019		\$49.21	\$24.81	\$74.02
Truckdriver class 1(see notes)	5/1/2017		\$30.46	\$17.96	\$48.42
Truckdriver class 1(see notes)	5/1/2018		\$31.93	\$17.96	\$49.89

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Building	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Truckdriver class 1 (see notes)	5/1/2019		\$32.21	\$19.19	\$51.40
Truckdriver class 1 (see notes)	5/1/2020		\$34.93	\$17.96	\$52.89
Truckdriver class 1 (see notes)	5/1/2021		\$36.48	\$17.96	\$54.44
Truckdriver class 2 (see notes)	5/1/2017		\$30.56	\$17.96	\$48.52
Truckdriver class 2 (see notes)	5/1/2018		\$32.03	\$17.96	\$49.99
Truckdriver class 2 (see notes)	5/1/2019		\$32.31	\$19.19	\$51.50
Truckdriver class 2 (see notes)	5/1/2020		\$35.03	\$17.96	\$52.99
Truckdriver class 2 (see notes)	5/1/2021		\$36.58	\$17.96	\$54.54
Truckdriver class 3 (see notes)	5/1/2017		\$30.56	\$17.96	\$48.52
Truckdriver class 3 (see notes)	5/1/2018		\$32.28	\$17.96	\$50.24
Truckdriver class 3 (see notes)	5/1/2019		\$32.56	\$19.19	\$51.75
Truckdriver class 3 (see notes)	5/1/2020		\$35.28	\$17.96	\$53.24
Truckdriver class 3 (see notes)	5/1/2021		\$36.83	\$17.96	\$54.79

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Carpenter - Chief of Party (Surveying & Layout)	5/1/2017		\$51.42	\$27.39	\$78.81
Carpenter - Chief of Party (Surveying & Layout)	5/1/2018	4/30/2019	\$53.20	\$27.69	\$80.89
Carpenter - Chief of Party (Surveying & Layout)	5/1/2019	4/30/2020	\$54.98	\$28.04	\$83.02
Carpenter - Chief of Party (Surveying & Layout)	5/1/2020	4/30/2021	\$57.22	\$28.04	\$85.26
Carpenter - Chief of Party (Surveying & Layout)	5/1/2021		\$59.93	\$27.89	\$87.82
Carpenter - Instrument Person (Surveying & Layout)	5/1/2017		\$44.71	\$27.39	\$72.10
Carpenter - Instrument Person (Surveying & Layout)	5/1/2018	4/30/2019	\$46.26	\$27.69	\$73.95
Carpenter - Instrument Person (Surveying & Layout)	5/1/2019	4/30/2020	\$47.81	\$28.04	\$75.85
Carpenter - Instrument Person (Surveying & Layout)	5/1/2020	4/30/2021	\$49.76	\$28.04	\$77.80
Carpenter - Instrument Person (Surveying & Layout)	5/1/2021		\$52.11	\$27.69	\$79.80
Carpenter - Rodman (Surveying & Layout)	5/1/2017		\$35.77	\$21.19	\$56.96
Carpenter - Rodman (Surveying & Layout)	5/1/2018	4/30/2019	\$37.01	\$21.34	\$58.35
Carpenter - Rodman (Surveying & Layout)	5/1/2019	4/30/2020	\$38.25	\$21.34	\$59.59
Carpenter - Rodman (Surveying & Layout)	5/1/2020	4/30/2021	\$39.81	\$21.34	\$61.15
Carpenter - Rodman (Surveying & Layout)	5/1/2021		\$41.69	\$21.34	\$63.03
Carpenter	5/1/2018	4/30/2019	\$46.26	\$27.69	\$73.95
Carpenter	5/1/2019	4/30/2020	\$47.81	\$28.04	\$75.85
Carpenter	5/1/2020	4/30/2021	\$49.76	\$28.04	\$77.80
Carpenter	5/1/2021		\$51.76	\$28.04	\$79.80
Carpenters	5/1/2017		\$44.71	\$27.39	\$72.10
Carpenters	5/1/2018		\$46.56	\$27.39	\$73.95
Carpenters	5/1/2019		\$48.46	\$27.39	\$75.85
Carpenters	5/1/2020		\$50.41	\$27.39	\$77.80
Carpenters	5/1/2021		\$52.41	\$27.39	\$79.80
Cement Masons	5/1/2017		\$34.45	\$31.51	\$65.96
Cement Masons	5/1/2018		\$35.65	\$32.01	\$67.66
Cement Masons	5/1/2019		\$37.90	\$31.51	\$69.41
Cement Masons	5/1/2020		\$39.70	\$31.51	\$71.21
Cement Masons	5/1/2021		\$41.55	\$31.51	\$73.06
Electric Lineman	5/29/2017		\$52.60	\$26.37	\$78.97
Electric Lineman	5/28/2018		\$53.64	\$27.45	\$81.09
Electric Lineman	5/27/2019		\$54.66	\$28.56	\$83.22
Iron Workers (Bridge, Structural Steel, Ornamental, Precast, Reinforcing)	1/1/2017		\$44.20	\$31.26	\$75.46
Iron Workers	7/1/2017		\$47.30	\$32.91	\$80.21
Laborers (Class 01 - See notes)	5/1/2017		\$29.75	\$25.65	\$55.40
Laborers (Class 01 - See notes)	5/1/2018		\$31.25	\$25.65	\$56.90
Laborers (Class 01 - See notes)	5/1/2019		\$32.80	\$25.65	\$58.45
Laborers (Class 01 - See notes)	5/1/2020		\$34.45	\$25.65	\$60.10
Laborers (Class 01 - See notes)	5/1/2021		\$36.20	\$25.65	\$61.85
Laborers (Class 02 - See notes)	5/1/2017		\$29.95	\$25.65	\$55.60
Laborers (Class 02 - See notes)	5/1/2018		\$31.45	\$25.65	\$57.10
Laborers (Class 02 - See notes)	5/1/2019		\$33.00	\$25.65	\$58.65
Laborers (Class 02 - See notes)	5/1/2020		\$34.65	\$25.65	\$60.30
Laborers (Class 02 - See notes)	5/1/2021		\$36.40	\$25.65	\$62.05

Commonwealth of Pennsylvania
Report Date: 9/20/2019

Department of Labor & Industry
Page 7 of 11

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 03 - See notes)	5/1/2017		\$29.95	\$25.65	\$55.60
Laborers (Class 03 - See notes)	5/1/2018		\$31.45	\$25.65	\$57.10
Laborers (Class 03 - See notes)	5/1/2019		\$33.00	\$25.65	\$58.65
Laborers (Class 03 - See notes)	5/1/2020		\$34.65	\$25.65	\$60.30
Laborers (Class 03 - See notes)	5/1/2021		\$36.40	\$25.65	\$62.05
Laborers (Class 04 - See notes)	5/1/2017		\$24.55	\$25.65	\$50.20
Laborers (Class 04 - See notes)	5/1/2018		\$26.05	\$25.65	\$51.70
Laborers (Class 04 - See notes)	5/1/2019		\$27.60	\$25.65	\$53.25
Laborers (Class 04 - See notes)	5/1/2020		\$29.25	\$25.65	\$54.90
Laborers (Class 04 - See notes)	5/1/2021		\$31.00	\$25.65	\$56.65
Laborers (Class 05 - See notes)	5/1/2017		\$30.60	\$25.65	\$56.25
Laborers (Class 05 - See notes)	5/1/2018		\$32.10	\$25.65	\$57.75
Laborers (Class 05 - See notes)	5/1/2019		\$33.65	\$25.65	\$59.30
Laborers (Class 05 - See notes)	5/1/2020		\$35.30	\$25.65	\$60.95
Laborers (Class 05 - See notes)	5/1/2021		\$37.05	\$25.65	\$62.70
Laborers (Class 06 - See notes)	5/1/2017		\$30.65	\$25.65	\$56.30
Laborers (Class 06 - See notes)	5/1/2018		\$32.15	\$25.65	\$57.80
Laborers (Class 06 - See notes)	5/1/2019		\$33.70	\$25.65	\$59.35
Laborers (Class 06 - See notes)	5/1/2020		\$35.35	\$25.65	\$61.00
Laborers (Class 06 - See notes)	5/1/2021		\$37.10	\$25.65	\$62.75
Laborers (Class 07 - See notes)	5/1/2017		\$30.50	\$25.65	\$56.15
Laborers (Class 07 - See notes)	5/1/2018		\$32.00	\$25.65	\$57.65
Laborers (Class 07 - See notes)	5/1/2019		\$33.55	\$25.65	\$59.20
Laborers (Class 07 - See notes)	5/1/2020		\$35.20	\$25.65	\$60.85
Laborers (Class 07 - See notes)	5/1/2021		\$36.95	\$25.65	\$62.60
Laborers (Class 08 - See notes)	5/1/2017		\$30.25	\$25.65	\$55.90
Laborers (Class 08 - See notes)	5/1/2018		\$31.75	\$25.65	\$57.40
Laborers (Class 08 - See notes)	5/1/2019		\$33.30	\$25.65	\$58.95
Laborers (Class 08 - See notes)	5/1/2020		\$34.95	\$25.65	\$60.60
Laborers (Class 08 - See notes)	5/1/2021		\$36.70	\$25.65	\$62.35
Laborers (Class 09 - See notes)	5/1/2017		\$30.10	\$25.65	\$55.75
Laborers (Class 09 - See notes)	5/1/2018		\$31.60	\$25.65	\$57.25
Laborers (Class 09 - See notes)	5/1/2019		\$33.15	\$25.65	\$58.80
Laborers (Class 09 - See notes)	5/1/2020		\$34.80	\$25.65	\$60.45
Laborers (Class 09 - See notes)	5/1/2021		\$36.55	\$25.65	\$62.20
Laborers (Class 10- See notes)	5/1/2017		\$30.25	\$25.65	\$55.90
Laborers (Class 10- See notes)	5/1/2018		\$31.75	\$25.65	\$57.40
Laborers (Class 10- See notes)	5/1/2019		\$33.30	\$25.65	\$58.95
Laborers (Class 10- See notes)	5/1/2020		\$34.95	\$25.65	\$60.60
Laborers (Class 10- See notes)	5/1/2021		\$36.70	\$25.65	\$62.35
Laborers (Class 11 -See Notes)	5/1/2017		\$30.15	\$25.65	\$55.80
Laborers (Class 11 -See Notes)	5/1/2018		\$31.55	\$25.65	\$57.20
Laborers (Class 11 -See Notes)	5/1/2019		\$33.10	\$25.65	\$58.75
Laborers (Class 11 -See Notes)	5/1/2020		\$34.75	\$25.65	\$60.40

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Laborers (Class 11 -See Notes)	5/1/2021		\$36.50	\$25.65	\$62.15
Laborers (Class 12 -See Notes)	5/1/2017		\$31.85	\$25.65	\$57.50
Laborers (Class 12 -See Notes)	5/1/2018		\$32.45	\$25.65	\$58.10
Laborers (Class 12 -See Notes)	5/1/2019		\$34.00	\$25.65	\$59.65
Laborers (Class 12 -See Notes)	5/1/2020		\$35.65	\$25.65	\$61.30
Laborers (Class 12 -See Notes)	5/1/2021		\$37.40	\$25.65	\$63.05
Laborers (Class 13 -See Notes)	5/1/2017		\$33.88	\$25.65	\$59.53
Laborers (Class 13 -See Notes)	5/1/2018		\$35.38	\$25.65	\$61.03
Laborers (Class 13 -See Notes)	5/1/2019		\$36.93	\$25.65	\$62.58
Laborers (Class 13 -See Notes)	5/1/2020		\$38.58	\$25.65	\$64.23
Laborers (Class 13 -See Notes)	5/1/2021		\$40.33	\$25.65	\$65.98
Laborers (Class 14 -See Notes)	5/1/2017		\$30.00	\$25.65	\$55.65
Laborers (Class 14 -See Notes)	5/1/2018		\$31.50	\$25.65	\$57.15
Laborers (Class 14 -See Notes)	5/1/2019		\$33.05	\$25.65	\$58.70
Laborers (Class 14 -See Notes)	5/1/2020		\$34.70	\$25.65	\$60.35
Laborers (Class 14 -See Notes)	5/1/2021		\$36.45	\$25.65	\$62.10
Laborers Utility (PGW ONLY) (Flagperson)	5/1/2017		\$23.52	\$17.58	\$41.10
Laborers Utility (PGW ONLY)	5/1/2017		\$30.55	\$17.58	\$48.13
Landscape Laborer	4/1/2016		\$21.19	\$22.65	\$43.84
Operators Class 01 - See Notes (Building, Heavy, Highway)	5/1/2017		\$44.87	\$28.14	\$73.01
Operators Class 01 - See Notes (Building, Heavy, Highway)	5/1/2018		\$46.41	\$28.60	\$75.01
Operators Class 01 - See Notes (Building, Heavy, Highway)	5/1/2019		\$47.95	\$29.06	\$77.01
Operators Class 01 - See Notes (Building, Heavy, Highway)	5/1/2020		\$49.50	\$29.51	\$79.01
Operators Class 01 - See Notes (Building, Heavy, Highway)	5/1/2021		\$51.04	\$29.97	\$81.01
Operators Class 01a - See Notes (Building, Heavy, Highway)	5/1/2017		\$47.86	\$29.03	\$76.89
Operators Class 01a - See Notes (Building, Heavy, Highway)	5/1/2018		\$49.41	\$29.49	\$78.90
Operators Class 01a - See Notes (Building, Heavy, Highway)	5/1/2019		\$50.96	\$29.94	\$80.90
Operators Class 01a - See Notes (Building, Heavy, Highway)	5/1/2020		\$52.50	\$30.40	\$82.90
Operators Class 01a - See Notes (Building, Heavy, Highway)	5/1/2021		\$54.05	\$30.85	\$84.90
Operators Class 02 - See Notes (Building, Heavy, Highway)	5/1/2017		\$44.62	\$28.07	\$72.69
Operators Class 02 - See Notes (Building, Heavy, Highway)	5/1/2018		\$46.16	\$28.53	\$74.69
Operators Class 02 - See Notes (Building, Heavy, Highway)	5/1/2019		\$47.70	\$28.99	\$76.69
Operators Class 02 - See Notes (Building, Heavy, Highway)	5/1/2020		\$49.25	\$29.44	\$78.69
Operators Class 02 - See Notes (Building, Heavy, Highway)	5/1/2021		\$50.80	\$29.89	\$80.69
Operators Class 02a - See Notes (Building, Heavy, Highway)	5/1/2017		\$47.61	\$28.97	\$76.58

Commonwealth of Pennsylvania
Report Date: 9/20/2019

Department of Labor & Industry
Page 9 of 11

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Highway)					
Operators Class 02a - See Notes (Building, Heavy, Highway)	5/1/2018		\$49.16	\$29.42	\$78.58
Operators Class 02a - See Notes (Building, Heavy, Highway)	5/1/2020		\$52.26	\$30.31	\$82.57
Operators Class 02a - See Notes (Building, Heavy, Highway)	5/1/2021		\$53.81	\$30.77	\$84.58
Operators Class 03 - See Notes (Building, Heavy, Highway)	5/1/2017		\$40.53	\$26.87	\$67.40
Operators Class 03 - See Notes (Building, Heavy, Highway)	5/1/2018		\$42.07	\$27.33	\$69.40
Operators Class 03 - See Notes (Building, Heavy, Highway)	5/1/2019		\$43.62	\$27.78	\$71.40
Operators Class 03 - See Notes (Building, Heavy, Highway)	5/1/2020		\$45.17	\$28.24	\$73.41
Operators Class 03 - See Notes (Building, Heavy, Highway)	5/1/2021		\$46.71	\$28.69	\$75.40
Operators Class 04 - See Notes (Building, Heavy, Highway)	5/1/2017		\$40.24	\$26.78	\$67.02
Operators Class 04 - See Notes (Building, Heavy, Highway)	5/1/2018		\$41.78	\$27.22	\$69.00
Operators Class 04 - See Notes (Building, Heavy, Highway)	5/1/2019		\$43.32	\$27.69	\$71.01
Operators Class 04 - See Notes (Building, Heavy, Highway)	5/1/2020		\$44.86	\$28.14	\$73.00
Operators Class 04 - See Notes (Building, Heavy, Highway)	5/1/2021		\$46.41	\$28.60	\$75.01
Operators Class 05 - See Notes (Building, Heavy, Highway)	5/1/2017		\$38.51	\$26.27	\$64.78
Operators Class 05 - See Notes (Building, Heavy, Highway)	5/1/2018		\$40.05	\$26.73	\$66.78
Operators Class 05 - See Notes (Building, Heavy, Highway)	5/1/2019		\$41.60	\$27.18	\$68.78
Operators Class 05 - See Notes (Building, Heavy, Highway)	5/1/2020		\$43.14	\$27.64	\$70.78
Operators Class 05 - See Notes (Building, Heavy, Highway)	5/1/2021		\$44.69	\$28.10	\$72.79
Operators Class 06 - See Notes (Building, Heavy, Highway)	5/1/2017		\$37.52	\$25.98	\$63.50
Operators Class 06 - See Notes (Building, Heavy, Highway)	5/1/2018		\$39.07	\$26.43	\$65.50
Operators Class 06 - See Notes (Building, Heavy, Highway)	5/1/2019		\$40.61	\$26.89	\$67.50
Operators Class 06 - See Notes (Building, Heavy, Highway)	5/1/2020		\$42.16	\$27.35	\$69.51
Operators Class 06 - See Notes (Building, Heavy, Highway)	5/1/2021		\$43.70	\$27.80	\$71.50
Operators Class 07 (A) - See Notes (Building, Heavy, Highway)	5/1/2017		\$54.14	\$32.47	\$86.61
Operators Class 07 (A) - See Notes (Building, Heavy, Highway)	5/1/2018		\$55.99	\$33.02	\$89.01
Operators Class 07 (A) - See Notes (Building, Heavy, Highway)	5/1/2019		\$57.64	\$33.57	\$91.41

**BUREAU OF LABOR LAW COMPLIANCE
PREVAILING WAGES PROJECT RATES**

Project: 19-05141 - Heavy/Highway	Effective Date	Expiration Date	Hourly Rate	Fringe Benefits	Total
Operators Class 07 (A) - See Notes (Building, Heavy, Highway)	5/1/2020		\$59.70	\$34.10	\$93.80
Operators Class 07 (A) - See Notes (Building, Heavy, Highway)	5/1/2021		\$61.55	\$34.65	\$96.20
Operators Class 07 (B) - See Notes (Building, Heavy, Highway)	5/1/2017		\$53.84	\$32.40	\$86.24
Operators Class 07 (B) - See Notes (Building, Heavy, Highway)	5/1/2018		\$55.70	\$32.92	\$88.62
Operators Class 07 (B) - See Notes (Building, Heavy, Highway)	5/1/2019		\$56.00	\$35.03	\$91.03
Operators Class 07 (B) - See Notes (Building, Heavy, Highway)	5/1/2020		\$59.40	\$34.03	\$93.43
Operators Class 07 (B) - See Notes (Building, Heavy, Highway)	5/1/2021		\$61.28	\$34.58	\$95.86
Painters (Bridges, Stacks, Towers)	2/1/2017		\$53.87	\$26.09	\$79.76
Painters (Bridges, Stacks, Towers)	2/1/2018		\$54.14	\$27.27	\$81.41
Painters (Bridges, Stacks, Towers)	2/1/2019		\$55.52	\$28.39	\$83.91
Steamfitters (Heavy and Highway - Gas Distribution)	5/1/2017		\$51.91	\$32.53	\$84.44
Steamfitters	5/1/2018		\$56.37	\$34.39	\$90.76
Truckdriver class 1 (see notes)	5/1/2017		\$30.31	\$17.96	\$48.27
Truckdriver class 1 (see notes)	5/1/2018		\$31.78	\$17.96	\$49.74
Truckdriver class 1 (see notes)	5/1/2019		\$32.06	\$19.19	\$51.25
Truckdriver class 1 (see notes)	5/1/2020		\$34.78	\$17.96	\$52.74
Truckdriver class 1 (see notes)	5/1/2021		\$36.33	\$17.96	\$54.29
Truckdriver class 2 (see notes)	5/1/2017		\$30.41	\$17.96	\$48.37
Truckdriver class 2 (see notes)	5/1/2018		\$31.88	\$17.96	\$49.84
Truckdriver class 2 (see notes)	5/1/2019		\$32.16	\$19.19	\$51.35
Truckdriver class 2 (see notes)	5/1/2020		\$34.88	\$17.96	\$52.84
Truckdriver class 2 (see notes)	5/1/2021		\$36.43	\$17.96	\$54.39
Truckdriver class 3 (see notes)	5/1/2017		\$30.66	\$17.96	\$48.62
Truckdriver class 3 (see notes)	5/1/2018		\$32.13	\$17.96	\$50.09
Truckdriver class 3 (see notes)	5/1/2019		\$32.41	\$19.19	\$51.60
Truckdriver class 3 (see notes)	5/1/2020		\$35.13	\$17.96	\$53.09
Truckdriver class 3 (see notes)	5/1/2021		\$36.68	\$17.96	\$54.64