

**AGENDA**  
**EAST GOSHEN TOWNSHIP**  
**BOARD OF SUPERVISORS**  
Tuesday, March 3, 2020  
7:00 PM

**Paoli Pike Trail Segment C to E Groundbreaking**  
**5:00 PM at Paoli Pike and Reservoir Road.**

1. Call to Order (7:00 PM)
2. Pledge of Allegiance
3. Moment of Silence
4. Announce that the meeting is being livestreamed
5. Chairman's Report (7:05 PM to 7:10 PM)
  - a. The Zoning Hearing Board hearing for the Malvern Institute has been scheduled for April 23, 2020 at 7:00PM.
  - b. [The Milltown Dam Hazard Reduction and Reservoir Enhancement application was submitted to PA DEP on February 18, 2020](#)
6. Public Comment on non-agenda items – 30 minutes - (7:10 PM to 7:40 PM)
7. Emergency Services Reports (7:40 PM to 7:45 PM)
  - a. WEGO – Chief Brenda Bernot
  - b. Goshen Fire Co – None
  - c. Malvern Fire Co – None
  - d. Good Fellowship – None
  - e. Fire Marshal – None
8. Financial Report – None
9. Approval of Minutes and Treasurer's Report (7:45 PM to 7:50 PM)
  - a. [Minutes – February 18, 2020](#)
  - b. [Treasurers Report – February 27, 2020](#)
10. Public Hearings - None
11. Old Business
  - a. [Consider applying for a grant for gas leak detector \(7:50 PM to 7:55 PM\)](#)
  - b. [Consider Parking Restrictions for Larch Lane \(7:55 PM to 8:05 PM\)](#)
  - c. [Consider ABC Goals \(8:05 PM to 8:15 PM\)](#)
12. New Business
  - a. [Comments from Abbas Rahbari regarding WEGO \(8:15 PM to 8:25 PM\)](#)
  - b. [Consider Stormwater Agreement for 1210 Burning Bush Lane \(8:25 to 8:30 PM\)](#)
  - c. [Consider Resolution 2020-191 Disposal of Records \(8:30 PM to 8:35 PM\)](#)
  - d. [Consider replacing stair treads \(8:35 PM to 8:40 PM\)](#)
  - e. [Consider West Chester Area 100% Renewable Energy Transition Study. \(8:40 PM to 8:50 PM\)](#)
13. Any Other Matter
14. Public Comment (if necessary)
15. Liaison Reports – none
16. Correspondence, Reports of Interest (8:50 PM to 8:55 PM)
  - a. [December 31, 2019 Firemen's' Pension Plan Financial Statement](#)
  - b. [December 31, 2019 Township Defined Contribution Pension Plan Financial Statement.](#)

c. December 31, 2019 Township Defined Benefit Plan Financial Statement

17. Adjournment (8:55 PM)

**Meetings & Dates of Importance**

Mar 03, 2020	Paoli Pike Groundbreaking Segment C-E Reservoir Road and Paoli Pike	05:00pm
Mar 03, 2020	Board of Supervisors	07:00pm
Mar 04, 2020	Planning Commission	07:00pm
Mar 05, 2020	Park & Rec Commission	07:00pm
Mar 09, 2020	Municipal Authority	07:00pm
Mar 11, 2020	Conservancy Board	07:00pm
Mar 12, 2020	Pipeline Task Force	05:00pm
Mar 12, 2020	Historical Commission	07:00pm
Mar 17, 2020	Board of Supervisors	07:00pm
Mar 19, 2020	Futurist Committee	07:00pm
Mar 23, 2020	Sustainability Committee	07:00pm
Mar 24, 2020	Sustainability Workshop Event	06:00pm
Mar 25, 2020	Pipeline Task Force	05:00pm

Newsletter Deadline for Summer 2020: May 1, 2020

The Chairperson, in his or her sole discretion, shall have the authority to rearrange the agenda accommodate the needs of other board members, the public or an applicant.

**Public Comment** – Pursuant to Section 710.1 of the Sunshine Act the Township is required to include an opportunity for public comment agenda which is intended to allow residents and/or taxpayers to comment on matters of concern, official action or deliberation which are or may be before the Board of Supervisors. Matters of concern which merit additional research will be placed on the agenda for the next meeting. The Board of Supervisors will allocate a maximum of 30 minutes for public comment at the beginning of each meeting. If necessary, there will be a second period for public comment prior to the end of the meeting.

**Constant Contact** - Want more information about the latest news in the Township and surrounding area? East Goshen Township and Chester County offer two valuable resources to stay informed about important local issues. East Goshen communicates information by email about all Township news through Constant Contact. To sign up, go to [www.eastgoshen.org](http://www.eastgoshen.org), and click the “E-notification & Emergency Alert” button on the left side of the homepage.

**ReadyChesco** - Chester County offers an emergency notification system called ReadyChesco, which notifies residents about public safety emergencies in the area via text, email and cell phone call. Signing up is a great way to keep you and your loved ones safe when disaster strikes. Visit [www.readychesco.org](http://www.readychesco.org) to sign up today!

**Smart 911** – Smart 911 is a new service in Chester County that allows you to create a Safety Profile at [www.smart911.com](http://www.smart911.com) that includes details you want the 9-1-1 center and public safety response teams to know about your household in an emergency. When you dial 9-1-1, from a phone associated with your Safety Profile that information automatically displays to the 9-1-1 call taker allowing them to send responders based on up-to-date location and emergency information. With your Safety Profile, responders can arrive aware of many details they would not otherwise know. Fire crews can arrive knowing exactly how many people live in your home and where the bedrooms are located. EMS personnel can know family members' allergies or specific medical conditions. And police can access a photo of a missing family member in seconds rather than minutes or hours, helping the search start faster.

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**GANNETT FLEMING, INC.**  
P.O. Box 67100  
Harrisburg, PA 17106-7100

Location:  
207 Senate Avenue  
Camp Hill, PA 17011

Office: (717) 763-7211  
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[www.gannettfleming.com](http://www.gannettfleming.com)

February 18, 2020

Mr. Desmond Reynolds, Chief Eastern Section  
Pennsylvania Department of Environmental Protection  
Bureau of Waterways Engineering and Wetlands  
Division of Dam Safety  
Rachel Carson State Office Building  
400 Market Street  
Harrisburg, PA 17101

Dear Mr. Reynolds;

Re: East Goshen Township  
Milltown Dam (DEP ID No. D15-146)  
Hazard Reduction and Reservoir Enhancements  
Dam Permit Application

East Goshen Township (Township) owns and operates Milltown Dam (DEP ID No. D15-146) as a recreational facility. Located on East Branch Chester Creek, the dam is situated along the east side of Reservoir Road between Route 3 to the south and East Strasburg Road to the north. To address dam safety concerns, the most significant of which is inadequate spillway capacity, the Township is proposing to modify the dam such that the storage capacity of the dam is essentially eliminated. With elimination of the reservoir pool, no downstream consequences would be expected in the unlikely event of a dam failure, reducing the Hazard Classification from a high hazard (C-1) to a low hazard (C-4) structure which reduces the spillway design flood from the half Probable Maximum Flood (PMF) to the 100-year storm event.

The project includes, but is not limited to, the following:

- Lower the crest of the principal spillway to the elevation of the sediment level within the reservoir, thus eliminating the permanent pool and converting the reservoir from a wet pond to a dry pond.
- Lower the crest of the right embankment to eliminate the impounding capability of the structure.
- Flatten the downstream face of the right embankment to 3H:1V and armor the slope with Articulating Concrete Blocks (ACBs). The lowered principal spillway in combination with the armored right embankment will safely pass the 100-year storm event.
- To address public concern over the elimination of the open water resource, the Township is also proposing various reservoir enhancements to convert the dewatered reservoir into a public park setting. Enhancements include reestablishing East Branch Chester Creek through the reservoir, creation of an offline open water feature, walking paths, signage and landscaping features.

Mr. Desmond Reynolds  
PA DEP Division of Dam Safety

-2-

February 18, 2020

On behalf of the Township, we are pleased to submit herein an Application for a Dam Permit for the proposed modifications to Milltown Dam and the associated reservoir enhancements. As discussed during our pre-application meeting held on August 6, 2019, the enclosed permit application also includes a General Permit Registration Form to authorize the weir structures associated with the offline open water feature under General Permit No. 4 for intake and outfall structures (refer to Section 1 of the permit application).

Please find enclosed the following information in support of this request:

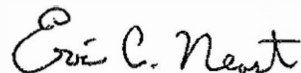
1. Three copies of a three-ring-bound Dam Permit Application for the Milltown Dam Hazard Reduction and Reservoir Enhancements Project.
2. Three half size copies of the permit drawings (64 sheets) for the Milltown Dam Hazard Reduction and Reservoir Enhancements Project.

As a municipal government agency, it is our understanding that the Township is exempt from the Chapter 105 fee(s).

We respectfully request a review from your office to determine if the proposed modifications to Milltown Dam and the associated reservoir enhancements as described within this permit application are in compliance with PA Code, Title 25, Chapter 105 Dam Safety and Waterway Management. Should you have any questions or concerns regarding the enclosed information, please do not hesitate to contact either me at 717-886-5453, or Mr. Rick Smith, Township Manager, at 610-692-7171.

Very truly yours,

GANNETT FLEMING, INC.



ERIC C. NEAST, P.E.  
Environmental Resources Division

Enclosures

xc: Rick Smith, Township

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**EAST GOSHEN TOWNSHIP  
BOARD OF SUPERVISORS MEETING  
1580 PAOLI PIKE  
TUESDAY, FEBRUARY 18, 2020  
DRAFT MINUTES**

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14  
15  
16  
17

**Present:** Chairman Marty Shane; Vice-Chairman David Shuey; Members Michele Truitt, John Hertzog and Mike Lynch; Township Manager Rick Smith; Assistant Township Manager and Finance Director Jon Altshul; Erich Meyer (Conservancy Board); Fire Marshal Carmen Battavio; Police Chief Brenda Bernot; Christina Morley (Pipeline Task Force)

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19  
20  
21

**Call to Order & Pledge of Allegiance**

22  
23  
24  
25  
26  
27  
28

Marty called the meeting to order at 7:00 p.m. and asked Mike to lead the pledge of allegiance. Mike also called for a moment of silence in honor of our troops and first responders.

29  
30  
31  
32  
33  
34

**Recording**

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36  
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Marty reported that the meeting was being livestreamed on the Township's YouTube channel.

44  
45  
46

**Westtown East Goshen Police Report**

Chief Bernot reported that WEGO is currently sponsoring a charity drive for toys and clothes for children and infants impacted by domestic violence. She reported on a recent incident in Westtown Township in which an intruder attacked a woman in her home and indicated that the woman is now okay. David asked whether check fraud was on the increase, to which the Chief responded that indeed it is.

**Chairman's Report**

Marty reported that the Board met in Executive Session prior to tonight's meeting for a personnel matter; that the Boot Road Geophysical Survey is available for review on the Township website; and that the Zoning Hearing Board will conduct a public hearing concerning the Malvern Institute on April 23, 2020, at 7pm.

**Fire Marshall Report**

Carmen reported that in January in East Goshen, the Goshen Fire Company responded to 25 fire calls, 10 fire police calls and 177 BLS calls and the Malvern Fire Company responded to 5 BLS calls and 25 ALS calls. In addition, Good Fellowship responded to 652 ALS calls in 2019 in East Goshen. He added that he met with Bellingham recently about the need for corrective signage, as the sprinkler stand pipes are hard to see. He also noted that a recent multi-alarm fire alarm at Bellingham turned out to be smoke from a faulty air handler and that no damage occurred.

Christina Morley noted a University of Pittsburgh study entitled "Minutes Matter" that encourages residents to adopt best practices in emergencies so as to better assist first responders. She asked Carmen whether the Township or Fire Company had adopted the

1 recommendations contained in that report. Carmen responded that various area  
2 organizations including the Chester County Hospital and the Fire Company take steps to  
3 educate residents about various public health issues. David suggested that this information  
4 be included in the next newsletter.

5  
6 **Financial Report**

7 Jon reported that as of January 31, the General Fund had a deficit of \$681,968 and a budget  
8 surplus of \$57,859. He noted that the Township always has a deficit in January due to the  
9 timing of real estate tax payments, but that it was too early to draw conclusions about the  
10 Township's financial performance at this point.

11  
12 **Approval of Minutes and Treasurer's Report**

13 David made a motion to approve the minutes of January 28 and February 4, 2020. John  
14 seconded. The motion passed 5-0. Mike made a motion to approve the Treasurer's Report  
15 of February 13, 2020. Michele seconded. The motion passed 5-0.

16  
17 **Consider Recommendation for Community Day**

18 Based on Jason Lang's February 14<sup>th</sup> memo, David made a motion to select Bixler  
19 Pyrotechnics and One Stop Party Shop for Community Day services. John seconded. The  
20 motion passed 5-0.

21  
22 **Consider Request to Support Redistricting Legislation**

23 Carole Rubley, 1515 Ulster Way, requested that the Board consider adopting a resolution  
24 spearheaded by Fair Districts PA, in support of pending legislation that would address  
25 gerrymandering and ensure fairness in the legislative re redistricting process. Marty asked  
26 Rick to provide the Board with copies of the various PA House and Senate bills on this  
27 issue so that the Board could review and make a decision at a future meeting.

28  
29 Christina Morley asked how Township residents can become educated on the issue. Mike  
30 noted that the Township has no legislative authority over redistricting. John and Michele  
31 raised concerns that the existing process for redistricting is outlined in the Pennsylvania  
32 Constitution. Michele noted that she took an oath to defend the Constitution.

33  
34 Patricia Rooney, representing Fair Districts PA, stated that when the Pennsylvania  
35 Constitution was written over 200 years ago, computer mapping was never envisioned.

36  
37 David noted that both parties are engaged in gerrymandering and that this is the time to  
38 address the issue.

39  
40 Kay Whittle, 1626 E. Strasburg Road, stated that she thinks the Board is selling itself short  
41 if it thinks that its position on redistricting doesn't matter.

42  
43 Mike asked about the status of the bills, to which Patricia responded that the House bills,  
44 which have more sponsors than the Senate bills, stand a better chance of getting out of  
45 Committee.

1 Marty thank Carol and Patricia for their comments, and advised this matter would  
2 be placed an upcoming agenda.

3  
4 **Consider Construction Ordinance**

5 Rick updated the Board on a proposed ordinance that would prohibit any  
6 construction activity between the hours of 10:00 pm and 7:00 am. The ordinance  
7 could be enforced by the township staff or a police officer. He then reviewed the  
8 exemptions in the ordinance, noting that while public utilities could make emergency  
9 repairs at night they could not install new facilities. By way of example, if Aqua needs  
10 to repair a broken water line they could do that at night. However, if Aqua was  
11 replacing a section of water main, the work would have to take place during the day.  
12 This would create more of a disruption in traffic than if the work was being done at  
13 night.

14  
15 Christina Morley asked the Board to consider changing the time from 10:00 pm to  
16 7:00 pm.

17  
18 Marty provided background on the noise ordinance, noting that 10:00 pm to 7:00am  
19 limits were to protect the “normal sleeping hours”. The Board recognized that some  
20 residents work on their own homes, typically after they have come home from their  
21 job and that these hours were consistent with the hours for other prohibitions in the  
22 ordinance.

23  
24 Graepel Whittle, 1626 E. Strasburg Road, asked if the township could have different rules  
25 for contractors and residents and Rick advised it could not.

26  
27 Mike suggested that the terms “public utilities” and “governmental agencies” be  
28 defined. David made a motion to advertise the ordinance for adoption. Michele  
29 seconded. The motion passed 5-0.

30  
31 Marty asked about the status of the ordinance amendment to remove the noise  
32 provisions from the Zoning Ordinance, and Rick advised he would begin working on  
33 that next.

34  
35 **Consider Applying for Grant for Gas Leak Detectors**

36 Rick advised the Board that township staff has recommended that the Township  
37 apply for a grant in the amount of \$6,487.05 from the Energy Transfers First  
38 Responder Fund to purchase two Sensit Gold G2 gas detection meters for use by the  
39 Public Works Department. The meters would be able to detect butane, propane and  
40 ethane. David asked if the price included a “survey drag tube” and Rick stated he did  
41 not know. The Board agreed to table this until this information was available.

42  
43 **Consider Recommendation for Tri-Axle Dump Truck Rental**

44  
45 Rick advised the Board that the township had opened bids for the rental of tri-axle  
46 dump trucks and that we had received one bid in the amount of \$100.00 per hour



1 from Ethan Patton Transport, LLC. In response to questions from John, Rick advised  
2 that this cost included the driver, and that the actual hours would be based on the  
3 time the Public Works Department spent paving. Rick added that during a paving  
4 project, we had a lot of money wrapped up in equipment and manpower, and that  
5 having plenty of trucks enabled the paving to be completed faster, which in turn  
6 reduced the cost.

7  
8 Mike made a motion to award the bid to Ethan Patton Transport LLC in the amount  
9 of \$100 per hour. John seconded. The motion passed 5-0.

10  
11 **Any Other Matter**

12 David made a motion to appoint Bryan Hutchinson to the Sustainability Advisory  
13 Committee. Mike seconded. The motion passed 5-0.

14  
15 **Correspondence, Reports of Interest**

16 The Board acknowledged the following correspondence and report of interest:

- 17 • Green Region Letter of January 28, 2020, regarding grant application.
- 18 • PHMSA February 6, 2020, Notice of Proposed Rulemaking, comments due  
19 April 6, 2020.

20  
21 **Review ABC Goals and Comp Plan Update**

22 Rick stated that historically the Board has reviewed goals submitted by the various  
23 ABCs and has provided guidance about specific goals that support one or more of the  
24 objectives in the Comp Plan.

25  
26 To facilitate this review he suggested that the Board first review the Comp Plan  
27 Update, dated 2/10/20, which listed the actions taken to achieve the objectives set  
28 forth in the Comp Plan.

29  
30 Rick noted that under the Housing Plan the Board had considered and rejected  
31 allowing semi-detached homes in the R-2 Zoning District and apartments in the BP  
32 Zoning District. Under the Land Use Plan he noted that the TND Ordinance was still  
33 pending, that Segments F & G of the Paoli Pike Trail were under construction, the new  
34 traffic signal has been installed at the Park Entrance, the contract for Segments C, D &  
35 E had been awarded to Allan Meyers, with construction scheduled for this spring, and  
36 that a new day care facility has been constructed on Wilson Drive.

37  
38 Rick stated that pursuant to the Economic Development Strategy, the Board had  
39 adopted an incubator ordinance, allowed alcohol sales at the Food Truck Festival, and  
40 the TND Ordinance was still pending. He said he has received calls about the status of  
41 the TND Ordinance and asked if the Board had any thoughts about what it wanted to  
42 do with it.

1 Michele said we should to postpone doing anything with it until after the trail was  
2 completed. This would allow residents want to see how the ordinance would fit in  
3 with the trail.

4  
5 John said he agreed with Michele, adding that this was a very decisive issue with the  
6 resident.

7  
8 David felt it would be beneficial to have some informational session or open houses  
9 in the spring in order to counteract some of the misinformation that is out there.

10  
11 Rick advised that the dentist has purchased the dental office on the corner, so there  
12 would be no changes to that property and the Township had not received any calls  
13 about the former M&T Bank.

14  
15 Mike believed the TND ordinance had value from a planning perspective, which  
16 needed to be communicated to the residents: however he was ambivalent about the  
17 time frame.

18  
19 Marty stated that since the likelihood for any new development on Paoli Pike in the  
20 near future was unlikely, he would be ok with waiting to the fall.

21  
22 Rick said he would post a notice summarizing the Board's action on the website.

23  
24 Mike offered to write an article about the TND Ordinance for the Summer Newsletter.

25  
26 Marty commented that the hour was getting late and asked Rick to provide  
27 recommendations for the ABC Goals.

28

29 **Public Comment**

30 None

31

32 **Adjournment**

33 The meeting was adjourned at 9:50.

34

35 Respectfully submitted,  
36 *Jon Altshul & Louis F. Smith*  
37 *Recording Secretary*

38

39 Attached: February 13, 2020 Treasurer's Report

40

TREASURER'S REPORT  
RECEIPTS AND BILLS

January 30, 2020 - February 13, 2020

**GENERAL FUND**

Real Estate Tax	\$255,571.11
Earned Income Tax	\$797,850.54
Local Service Tax	\$70,600.26
Transfer Tax	\$50,101.02
General Fund Interest Earned	\$5,559.34
Total Other Revenue	\$76,154.60

Total General Fund Receipts: \$1,255,836.87

Accounts Payable	\$572,791.34
Electronic Pmts:	
Credit Card	\$0.00
Postage	\$1,000.00
Debt Service	\$0.00
Payroll	\$132,594.95

Total Expenditures: \$706,386.29

**STATE LIQUID FUELS FUND**

Receipts	\$0.00
Interest Earned	\$1.67
Total State Liquid Fuels Receipts:	<u>\$1.67</u>

Accounts Payable \$0.00  
Total Expenditures: \$0.00

**CAPITAL RESERVE FUND**

Receipts	\$0.00
Interest Earned	\$4,228.90
Total Capital Reserve Fund Receipts:	<u>\$4,228.90</u>

Accounts Payable \$280,855.61  
Total Expenditures: \$280,855.61

**TRANSPORTATION FUND**

Receipts	\$0.00
Interest Earned	\$737.66
Total Transportation Fund Receipts:	<u>\$737.66</u>

Accounts Payable \$0.00  
Total Expenditures: \$0.00

**SEWER OPERATING FUND**

Receipts	\$234,660.70
Interest Earned	\$956.55

Total Sewer Operating Fund Receipts: \$235,617.25

Accounts Payable \$295,576.21  
Electronic Pmts:  
    Credit Card \$0.00  
Debt Service \$0.00  
Total Expenditures: \$295,576.21

**REFUSE FUND**

Receipts	\$45,431.66
Interest Earned	\$394.55
Total Refuse Fund Receipts:	<u>\$45,826.21</u>

Accounts Payable \$67,029.29  
Total Expenditures: \$67,029.29

**BOND FUND**

Receipts	\$0.00
Interest Earned	\$6,657.96
Total Bond Fund Receipts:	<u>\$6,657.96</u>

Accounts Payable \$70,309.00  
Total Expenditures: \$70,309.00

**SEWER CAPITAL RESERVE FUND**

Receipts	\$0.00
Interest Earned	\$1,216.34
Total Sewer Capital Reserve Fund Receipts:	<u>\$1,216.34</u>

Accounts Payable \$0.00  
Total Expenditures: \$0.00

**OPERATING RESERVE FUND**

Receipts	\$0.00
Interest Earned	\$808.24
Total Operating Reserve Fund Receipts:	<u>\$808.24</u>

Accounts Payable \$0.00  
Total Expenditures: \$0.00

1

**TREASURER'S REPORT  
RECEIPTS AND BILLS**

February 14, 2020 - February 27, 2020

**GENERAL FUND**

Real Estate Tax	\$197,894.30
Earned Income Tax	\$60,000.00
Local Service Tax	\$3,500.00
Transfer Tax	\$0.00
General Fund Interest Earned	\$0.00
Total Other Revenue	\$86,002.15

**Total General Fund Receipts: \$347,396.45**

Accounts Payable	\$110,718.25
Electronic Pmts:	
Credit Card	\$7,088.56
Postage	\$0.00
Debt Service	\$5,413.95
Payroll	\$123,633.95

**Total Expenditures: \$246,854.71**

**STATE LIQUID FUELS FUND**

Receipts	\$0.00
Interest Earned	\$0.00
<b>Total State Liquid Fuels Receipts:</b>	<b><u>\$0.00</u></b>

Accounts Payable	\$0.00
<b>Total Expenditures:</b>	<b><u>\$0.00</u></b>

**CAPITAL RESERVE FUND**

Receipts	\$0.00
Interest Earned	\$0.00
<b>Total Capital Reserve Fund Receipts:</b>	<b><u>\$0.00</u></b>

Accounts Payable	\$5,353.84
<b>Total Expenditures:</b>	<b><u>\$5,353.84</u></b>

**TRANSPORTATION FUND**

Receipts	\$0.00
Interest Earned	\$0.00
<b>Total Transportation Fund Receipts:</b>	<b><u>\$0.00</u></b>

Accounts Payable	\$0.00
<b>Total Expenditures:</b>	<b><u>\$0.00</u></b>

**SEWER OPERATING FUND**

Receipts	\$248,189.10
Interest Earned	\$0.00

**Total Sewer Operating Fund Receipts: \$248,189.10**

Accounts Payable	\$22,719.54
Electronic Pmts:	
Credit Card	\$299.95
Debt Service	\$25,377.21
<b>Total Expenditures:</b>	<b><u>\$48,396.70</u></b>

**REFUSE FUND**

Receipts	\$79,980.33
Interest Earned	\$0.00
<b>Total Refuse Fund Receipts:</b>	<b><u>\$79,980.33</u></b>

Accounts Payable	\$13,919.42
<b>Total Expenditures:</b>	<b><u>\$13,919.42</u></b>

**BOND FUND**

Receipts	\$0.00
Interest Earned	-\$3.00
<b>Total Bond Fund Receipts:</b>	<b><u>-\$3.00</u></b>

Accounts Payable	\$0.00
<b>Total Expenditures:</b>	<b><u>\$0.00</u></b>

**SEWER CAPITAL RESERVE FUND**

Receipts	\$0.00
Interest Earned	\$0.00
<b>Total Sewer Capital Reserve Fund Receipts:</b>	<b><u>\$0.00</u></b>

Accounts Payable	\$0.00
<b>Total Expenditures:</b>	<b><u>\$0.00</u></b>

**OPERATING RESERVE FUND**

Receipts	\$0.00
Interest Earned	\$0.00
<b>Total Operating Reserve Fund Receipts:</b>	<b><u>\$0.00</u></b>

Accounts Payable	\$0.00
<b>Total Expenditures:</b>	<b><u>\$0.00</u></b>

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**EAST GOSHEN TOWNSHIP  
MEMORANDUM**

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**TO:** BOARD OF SUPERVISORS  
**FROM:** JON ALTSHUL  
**SUBJECT:** PROPOSED PAYMENTS OF BILLS  
**DATE:** FEBRUARY 27, 2020

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Attached please find the Treasurer's Report for the weeks of February 14, 2020 – February 27, 2020.

**Recommended motion:** Mr. Chairman, I move that we graciously accept the receipts and approve the expenditures as presented in the Expenditure Register and as summarized in the Treasurer's Report.

EAST GOSHEN TOWNSHIP  
MONTHLY DEBT PAYMENT BREAKDOWN  
February 25, 2020

**GENERAL FUND:**

Interest payment	Principal payment	Year of Issuance	Loan Description	Original loan amount	Remaining Principal	Retirement Date
\$5,251.02	\$0.00	<b>2003</b>	Multi purpose 9 projects	\$5,500,000.00	\$1,462,000.00	2023
\$162.93	\$0.00	<b>2000</b>	Spray Irrigation	\$287,000.00	47,000.00	2021
\$0.00	\$0.00	<b>2017</b>	G Playground , Dams, & Paoli Pike Trail	\$5,310,000.00	\$5,300,000.00	2037

**SEWER FUND:**

Interest payment	Principal payment	Year of Issuance	Loan Description	Original loan amount	Remaining Principal	Retirement Date
\$20,529.30	\$0.00	<b>2008</b>	RCSTP Expansion	\$9,500,000	\$6,221,000.00	2032
\$4,847.91	\$0.00	<b>2013</b>	Diversion Projects	\$2,500,000	\$1,908,000.00	2033
\$0.00	\$0.00	<b>2017</b>	S West Goshen STP	\$2,840,000	\$2,705,000.00	2037

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MARP05 run by BARBARA 1 : 15 PM

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01		GENERAL FUND								
2695	61232	1	01454 3100	BRICKHOUSE ENVIRONMENTAL PROFESSIONAL SERVICES JANUARY 2020 WINTER WATER SAMPLING	2874	02/19/20	02/19/20	02/19/20	18966	325.16
										325.16
3249	61233	1	01401 3210	COMCAST 8499-10-109-0107712 COMMUNICATION EXPENSE 0107712 2/5-3/4/20 E.G.PARK LED	020420	02/19/20	02/19/20	02/19/20	18967	108.35
										108.35
4228	61235	1	01454 3707	COMMONWEALTH OF PA CLEAN WATER FUND BOW TREE POND 1 BOW TREE POND PERMIT	021820	02/19/20	02/19/20	02/19/20	18968	300.00
										300.00
418	61236	1	01430 2330	EAGLE POWER AND EQUIPMENT VEHICLE MAINT AND REPAIR TURBO HOSE UPDATE	W01739	02/19/20	02/19/20	02/19/20	18969	434.52
										434.52
813	61237	1	01454 3740	MAIN LINE CONCRETE EQUIPMENT MAINT. & REPAIR #3 X 10' RODS	456049	02/19/20	02/19/20	02/19/20	18970	50.00
										50.00
2371	61238	1	01462 3000	NATIONAL TRUST FOR HISTORIC PRESERVATION MEMBERSHIPS/SUBS 2020 MEMBERSHIP RENEWAL	021920	02/19/20	02/19/20	02/19/20	18971	60.00
										60.00
2231	61240	1	01409 3740	ULINE TWP. BLDG. - MAINT & REPAIRS ULINE LATEX GLOVES	116374934	02/19/20	02/19/20	02/19/20	18972	26.94
										26.94

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Vendor	Req #	Budget#	Sub#	Description	Invoice Number	Req Date	Check Dte	Recpt Dte	Check#	Amount
05				SEWER OPERATING						
1876	61234	1 05420	3702	FOLEY INC. C.C. COLLEC.-MAINT. & REPR. EXCAVATOR, COUPLER & BUCKET RENTAL 1/20-1/24/20	A6575301	02/19/20	02/19/20	02/19/20	4103	2,216.00
										2,216.00
3151	61239	1 05420	3702	TRENCHTECH INC. C.C. COLLEC.-MAINT. & REPR. SHORING RENTAL 1/17-1/27/20	531150	02/19/20	02/19/20	02/19/20	4104	1,230.00
										1,230.00
										4,750.97
9 Printed, totaling										4,750.97

FUND SUMMARY

Fund	Bank Account	Amount	Description
01	01	1,304.97	GENERAL FUND
05	05	3,446.00	SEWER OPERATING
		4,750.97	

PERIOD SUMMARY

Period	Amount
2002	4,750.97
	4,750.97



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<b>01 GENERAL FUND</b>										
1941	61251	1	01430 2330	AG-INDUSTRIAL INC VEHICLE MAINT AND REPAIR CLEVIS HIT FOR BAT WING MOWER	IN52497	02/27/20	02/27/20	02/27/20	18979	175.95
										175.95
1903	61252	1	01401 3300	ALTHOUSE, GARY AUTO ALLOWANCE MILEAGE REIMBURSEMENT - 59 @ 57.5 CONCORDVILLE, PA	022020	02/27/20	02/27/20	02/27/20	18980	33.92
										33.92
119	61253	1	01401 3210	BEE.NET INTERNET SERVICES COMMUNICATION EXPENSE MARCH 2020 BEE MAIL ACCTS.	202003009	02/27/20	02/27/20	02/27/20	18981	600.00
										600.00
3033	61256	1	01437 2460	BLUE TARP FINANCIAL- NORTHERN TOOL & GENERAL EXPENSE - SHOP STEEL WAGON/CART	44223802	02/27/20	02/27/20	02/27/20	18982	365.64
										365.64
4176	61257	1	01401 3120	CADMUS GROUP LLC, THE CONSULTING SERVICES WCCOG ENERGY PLANNING -JANUARY 2020	INV-279392	02/27/20	02/27/20	02/27/20	18983	2,201.36
	61257	2	01116 1000	CLEARING ACCOUNT WCCOG ENERGY PLANNING -JANUARY 2020	INV-279392	02/27/20	02/27/20	02/27/20	18983	9,888.64
										12,090.00
233	61258	1	01401 3080	CCATO CCATO EXPENSES CCATO SPRING 2020 CONFERENCE - J. ALTSHUL, M.GORDON, M.LYNCH, M.SHANE & R.SMITH	022620	02/27/20	02/27/20	02/27/20	18984	325.00
										325.00
266	61259	1	01462 5000	CCHPN EVENTS SPRING WORKSHOP - MARY URBINE	022120	02/27/20	02/27/20	02/27/20	19031	10.00
										10.00

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235				CHESTER COUNTY CONSORTIUM OF MANAGERS						
	61260	1	01401 3000	GENERAL EXPENSE R.SMITH 2020 MANAGER'S CONSORTIUM DUES	021020-S	02/27/20	02/27/20	02/27/20	19032	250.00
	61260	2	01401 3000	GENERAL EXPENSE J.ALTSHUL 2020 MANAGER'S CONSORTIUM DUES	021020-A	02/27/20	02/27/20	02/27/20	19032	150.00
										400.00
3488				CINTAS CORPORATION #287						
	61262	1	01409 3740	TWP. BLDG. - MAINT & REPAIRS WEEK END 2/19/20 CLEAN MATS	4043172129	02/27/20	02/27/20	02/27/20	18987	70.92
	61262	2	01487 1910	UNIFORMS WEEK END 2/19/20 CLEAN UNIFORMS	4043172129	02/27/20	02/27/20	02/27/20	18987	547.56
										618.48
3322				COHEN LAW GROUP						
	61263	1	01404 3140	LEGAL - ADMIN LEGAL SERVICE - VERIZON FRANCHISE RENEWAL SERVICE	2-2/11/20	02/27/20	02/27/20	02/27/20	18988	1,990.98
										1,990.98
292				COLLINSON INC.						
	61267	1	01438 2450	MATERIALS & SUPPLIES-HIGHWAYS GUIDE RAIL FORREST LANE	C8594	02/27/20	02/27/20	02/27/20	18989	25,600.00
										25,600.00
2491				COMCAST 8499-10-109-0107472						
	61265	1	01401 3210	COMMUNICATION EXPENSE 0107472 2/17-3/16/20 PW TV	021020	02/27/20	02/27/20	02/27/20	18990	34.77
										34.77
3250				COMCAST 8499-10-109-0107704						
	61264	1	01401 3210	COMMUNICATION EXPENSE 0107704 2/23-3/22/20 P&BOOT LED	021520	02/27/20	02/27/20	02/27/20	18991	108.35
										108.35
317				CONTRACTOR'S CHOICE						
	61269	1	01454 3740	EQUIPMENT MAINT. & REPAIR BOARDWALK REPAIR	00244969	02/27/20	02/27/20	02/27/20	18992	168.42
										168.42

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1670	61270	1	01436 3000	CRC WATERSHEDS STORMWATER MGMT.EXPENSE MS4 2020 CRC STREAMS CLEANUP (MS4)	020720	02/27/20	02/27/20	02/27/20	18993	500.00
										500.00
364	61271	1	01401 3000	DELCHESTER PUBLIC WORKS ASSOC GENERAL EXPENSE 2020 MEMBERSHIP RENEWAL S.BIONDI, K.MILLER, V.D'AMICO, D.KILGORE, & S.WALKER	021320	02/27/20	02/27/20	02/27/20	18994	25.00
61271	2	01401 3000		GENERAL EXPENSE 2020 MEMBERSHIP RENEWAL M.ENNIS, WM MINIHAN, P.GROFF, M.HOLMES, C. LINDER AND M.MILLER	021320	02/27/20	02/27/20	02/27/20	18994	60.00
										85.00
3872	61276	1	01454 3100	EAGLE TERMITE & PEST CONTROL PROFESSIONAL SERVICES	214482	02/27/20	02/27/20	02/27/20	18995	25.00
61277	1	01409 3740		TWP. BLDG. - MAINT & REPAIRS PEST CONTROL FEBRUARY 2020	214476	02/27/20	02/27/20	02/27/20	18995	105.00
61278	1	01409 3745		PW BUILDING - MAINT REPAIRS PEST CONTROL FEBRUARY 2020	214478	02/27/20	02/27/20	02/27/20	18995	45.00
61279	1	01409 3840		DISTRICT COURT EXPENSES PEST CONTROL FEBRUARY 2020	214479	02/27/20	02/27/20	02/27/20	18995	50.00
										225.00
4229	61281	1	01409 3740	ESCH'S FENCING LLC TWP. BLDG. - MAINT & REPAIRS RED CEDAR PICKET FENCING	43063	02/27/20	02/27/20	02/27/20	18996	354.24
										354.24
1731	61282	1	01409 3740	FARINOLA INC, MV TWP. BLDG. - MAINT & REPAIRS PA CODE INSPECT.-HYDRAULIC ELEVATOR	2000058	02/27/20	02/27/20	02/27/20	18997	110.00
										110.00
510	61283	1	01430 2600	FRAMES POWER EQUIPMENT & MULCH MINOR EQUIP. PURCHASE 2 WEED EATERS	29496	02/27/20	02/27/20	02/27/20	18998	772.00
61284	1	01430 2330		VEHICLE MAINT AND REPAIR EXMARK MOWER PARTS	29492	02/27/20	02/27/20	02/27/20	18998	3,443.50
										4,215.50

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<b>01 GENERAL FUND</b>										
2631				GRAPHIC IMPRESSIONS OF AMERICA INC.						
	61286	1	01401 2110	STATIONERY	20-241	02/27/20	02/27/20	02/27/20	18999	494.00
				BOS LETTERHEAD & ENVELOPES						
	61286	2	01401 2100	MATERIALS & SUPPLIES	20-241	02/27/20	02/27/20	02/27/20	18999	52.00
				BUSINESS CARDS - MIKE HOLMES						
										546.00
3131				GREAT AMERICA FINANCIAL SERVICES						
	61287	1	01401 3840	RENTAL OF EQUIP. -OFFICE	26473496	02/27/20	02/27/20	02/27/20	19000	160.00
				FEBRUARY 2020 LANIER MP COPIER						
										160.00
1849				HICKS BROTHERS LLC						
	61293	1	01436 2450	STORMWATER MATERIALS & SUPPLIES	50616	02/27/20	02/27/20	02/27/20	19001	187.50
				25 SMALL BALES STRAW - JACKSON LN.						
										187.50
2717				HIGGINS & SONS INC., CHARLES A.						
	61294	1	01433 2500	MAINT. REPAIRS.TRAFF.SIG.	51260	02/27/20	02/27/20	02/27/20	19002	65.00
				TRAF.LIGHT REPAIR - RT.3 & ROSEHILL						
	61295	1	01433 2500	MAINT. REPAIRS.TRAFF.SIG.	51315	02/27/20	02/27/20	02/27/20	19002	130.00
				TRAF.LIGHT REPAIR - RT.3 & ROSEHILL						
	61296	1	01433 2500	MAINT. REPAIRS.TRAFF.SIG.	51226	02/27/20	02/27/20	02/27/20	19002	65.00
				TRAF.LIGHT REPAIR - RT.3 & ROSEHILL						
	61297	1	01433 2500	MAINT. REPAIRS.TRAFF.SIG.	51221	02/27/20	02/27/20	02/27/20	19002	137.00
				TRAF.LIGHT REPAIR YELLOW FLASHER -						
				N.CHESTER RD.@ HIGHLAND AVE.						
										397.00
638				HOME DEPOT CREDIT SERVICES						
	61298	1	01437 2460	GENERAL EXPENSE - SHOP	021320	02/27/20	02/27/20	02/27/20	19003	63.30
				NEOMASK NEOPRENE CARBON, REPLACEMNT						
				FILTERS, SHELF & CUP HOOKS FOR SHOP						
	61298	2	01438 2450	MATERIALS & SUPPLIES-HIGHWAYS	021320	02/27/20	02/27/20	02/27/20	19003	159.40
				CURB FORMS						
	61298	3	01454 3740	EQUIPMENT MAINT. & REPAIR	021320	02/27/20	02/27/20	02/27/20	19003	157.22
				SCREWS, BITS, CLOROX, PLAYGRND SET,						
				WOOD BISCUITS & SANDING DISCS.						
	61298	4	01454 3740	EQUIPMENT MAINT. & REPAIR	021320	02/27/20	02/27/20	02/27/20	19003	374.47
				WEATHERSHIELD LUMBER, PLYWOOD &						
				SUPPLIES FOR APPLEBROOK BRIDGE						
	61298	5	01454 3740	EQUIPMENT MAINT. & REPAIR	021320	02/27/20	02/27/20	02/27/20	19003	149.09
				WEATHERSHIELD LUMBER FOR BOARDWALK						
				REPAIRS, DECKMATE FOR PARK TABLES &						
				GEESE DOGS						

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										903.48
679	61299	1	01430 2330	INTERCON TRUCK EQUIPMENT VEHICLE MAINT AND REPAIR BEARING KIT & MANUAL AIR VALVE-#40	1077450-IN	02/27/20	02/27/20	02/27/20	19004	38.84
										38.84
719	61300	1	01437 2460	KEEN COMPRESSED GAS COMPANY GENERAL EXPENSE - SHOP VARIOUS GAS CYLINDERS	83262714	02/27/20	02/27/20	02/27/20	19005	74.51
										74.51
739	61301	1	01438 3840	KNOX EQUIPMENT RENTALS INC. EQUIPMENT RENTAL	50554.1.2	02/27/20	02/27/20	02/27/20	19006	379.50
	61302	1	01436 3840	CHIPPER RENTAL 2/7-2/10/20 STORMWATER EQUIPMENT RENTAL	50391.1.3	02/27/20	02/27/20	02/27/20	19006	709.50
	61303	1	01438 3840	BOMAG ROLLER RENTAL - GOSHEN DOWN BASIN 1/30-2/6/20 EQUIPMENT RENTAL	50626.1.2	02/27/20	02/27/20	02/27/20	19006	709.50
										1,798.50
756	61304	1	01436 2450	LANE ENTERPRISES INC. STORMWATER MATERIALS & SUPPLIES ALUMINUM PIPING - JACKSON LN.BASIN	481489	02/27/20	02/27/20	02/27/20	19007	2,894.76
										2,894.76
765	61307	1	01409 3745	LEC - LENNI ELECTRIC CORPORATION PW BUILDING - MAINT REPAIRS	200159	02/27/20	02/27/20	02/27/20	19008	895.00
	61308	1	01409 3745	REPLACE 4 LED FIXTURES - PW PW BUILDING - MAINT REPAIRS	200153	02/27/20	02/27/20	02/27/20	19008	344.92
	61310	1	01434 3610	CORN COB LAMPS FOR STOCK STREET LIGHTING	200176	02/27/20	02/27/20	02/27/20	19008	1,240.00
	61311	1	01409 3840	STREET LIGHT REPLACEMENTS DISTRICT COURT EXPENSES	200146	02/27/20	02/27/20	02/27/20	19008	241.16
	61313	1	01434 3610	INSTALL BALLASTS - DIST.CT. STREET LIGHTING	200217	02/27/20	02/27/20	02/27/20	19008	117.00
										2,838.08

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2913	61314	1	01409 3745	LUBRICATING & LIFTS EQUIPMENT LLC PW BUILDING - MAINT REPAIRS OIL REEL	17011	02/27/20	02/27/20	02/27/20	19009	868.95
										868.95
3862	61318	1	01438 2450	MILLER CONCRETE LLC MATERIALS & SUPPLIES-HIGHWAYS DW ENDWALL FOR 24' PIPE - EMERGENCY ACCESS	10898	02/27/20	02/27/20	02/27/20	19010	1,900.00
										1,900.00
1554	61319	1	01401 2100	OFFICE DEPOT MATERIALS & SUPPLIES BINDERS & LETTER EXPANDING FILES	442979006001	02/27/20	02/27/20	02/27/20	19011	18.51
61320	1	01401 2100	MATERIALS & SUPPLIES POST-ITS, DUSTER & TAPE	442682929001	02/27/20	02/27/20	02/27/20	02/27/20	19011	43.78
61321	1	01401 2100	MATERIALS & SUPPLIES PRINT CARTRIDGE & TONER	436419327001	02/27/20	02/27/20	02/27/20	02/27/20	19011	145.50
										207.79
2593	61322	1	01454 3600	PECO - 18510-39089 UTILITIES 18510-39089 1/3-2/4/20 BOW TREE PMP	021120	02/27/20	02/27/20	02/27/20	19012	71.97
										71.97
4091	61323	1	01454 3717	PECO 02280-03067 MARYDELL POND REHAB 02280-03067 1/2-2/3/20 MARYDELL	021120	02/27/20	02/27/20	02/27/20	19013	56.79
										56.79
1005	61326	1	01438 2450	PENNSYLVANIA ONE CALL SYSTEM MATERIALS & SUPPLIES-HIGHWAYS MONTHLY ACTIVITY FEE - JAN.2020	0000845730	02/27/20	02/27/20	02/27/20	19014	73.44
										73.44
1087	61327	1	01436 2450	PIPE XPRESS INC. STORMWATER MATERIALS & SUPPLIES PLAIN END SOLID PIPE & COUPLING - TAYLOR AVENUE	103685	02/27/20	02/27/20	02/27/20	19015	2,857.30
										2,857.30

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2539	61328	1	01409 3745	PRECISION MECHANICAL SERVICES PW BUILDING - MAINT REPAIRS INSTALL NEW BLOWER MOTOR	SC-19072	02/27/20	02/27/20	02/27/20	19016	658.95
										658.95
1212	61329	1	01430 2330	SAYRE INC., G.L. VEHICLE MAINT AND REPAIR SWITCH MIRROR - TRUCK #44	1-200380050	02/27/20	02/27/20	02/27/20	19017	167.75
										167.75
1707	61332	1	01437 2460	SCREENING ROOM INC GENERAL EXPENSE - SHOP HELMET DECALS	24422	02/27/20	02/27/20	02/27/20	19018	411.00
										411.00
3258	61333	1	01430 2330	SENN REPAIRS VEHICLE MAINT AND REPAIR REPLACE INJECTOR LINES -2005 FREIGH TRUCK	4958	02/27/20	02/27/20	02/27/20	19019	359.83
										359.83
3834	61335	1	01486 1560	STANDARD INSURANCE CO., THE HEALTH, ACCID. & LIFE MARCH 2020 PREMIUM	030120	02/27/20	02/27/20	02/27/20	19020	3,682.24
	61335	2	01213 1010	VOL. LIFE INSURANCE W/H MARCH 2020 PREMIUM	030120	02/27/20	02/27/20	02/27/20	19020	143.91
										3,826.15
3120	61336	1	01430 2330	STTC SERVICE TIRE TRUCK CTRS INC. VEHICLE MAINT AND REPAIR RADIAL TRAILER TIRES (2)	559744-17	02/27/20	02/27/20	02/27/20	19021	155.62
	61337	1	01430 2330	VEHICLE MAINT AND REPAIR RADIAL TRAILER TIRES (2) -T2	565833-17	02/27/20	02/27/20	02/27/20	19021	164.44
	61338	1	01430 2330	VEHICLE MAINT AND REPAIR 4 GOODYEAR WRANGLER TIRES #14	552915-17	02/27/20	02/27/20	02/27/20	19021	895.16
										1,215.22
2878	61340	1	01483 5315	TD AMERITRADE FBO 913-022866 PENSION - DC NON-UNIFORM FOB 913022866 FEBRUARY 2020	022720	02/27/20	02/27/20	02/27/20	19022	12,043.00
										12,043.00

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3659	61339	1	01483 5320	TD AMERITRADE FBO 913074154 FF PENSION - EXPENSE FOB 913074154 FEBRUARY 2020	022720	02/27/20	02/27/20	02/27/20	19023	17,895.00
										17,895.00
2055	61341	1	01486 3500	UNIVEST INSURANCE LLC INSURANCE COVERAGE -PREM. TAX COLLECTOR BOND - GIULIO PERILLO	10885	02/27/20	02/27/20	02/27/20	19024	193.00
										193.00
1389	61342	1	01414 3141	UNRUH TURNER BURKE FREES LEGAL - ZONING HEARING BOARD LEGAL SERV. MALVERN INST.- 12/17/19 -1/22/20	170198	02/27/20	02/27/20	02/27/20	19025	1,125.75
										1,125.75
2050	61343	1	01487 1500	VILLAGE MEDICAL MISC. EMPLOYEE BENEFITS HEP A&B - C.SPENCER	00162170-00	02/27/20	02/27/20	02/27/20	19026	125.00
										125.00
3806	61344	1	01487 1910	WEAVER'S STORE INC. UNIFORMS WORK BOOTS - PJ GROFF	012400003184	02/27/20	02/27/20	02/27/20	19027	105.75
										105.75
1470	61345	1	01438 2450	WESTTOWN TOWNSHIP MATERIALS & SUPPLIES-HIGHWAYS DTN WEATHER SERVICE 50%	5691336	02/27/20	02/27/20	02/27/20	19028	1,860.00
										1,860.00
1983	61347	1	01409 3740	YALE ELECTRIC SUPPLY CO TWP. BLDG. - MAINT & REPAIRS FLOOD LIGHTS	S115022343.001	02/27/20	02/27/20	02/27/20	19029	15.00
	61348	1	01409 3745	PW BUILDING - MAINT REPAIRS LED LAMPS WALL PACK	S115060067.001	02/27/20	02/27/20	02/27/20	19029	362.87
										377.87



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Vendor	Req #	Budget#	Sub#	Description	Invoice Number	Req Date	Check Dte	Recpt Dte	Check#	Amount
4207				YOUNG REMBRANDTS - CHESTER CNTY. PA						
	61349	1	01452 3508	ART	7639759	02/27/20	02/27/20	02/27/20	19030	459.00
				ART INSTRUCTION - PRESIDENTS DAY						
										459.00

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Expenditures Register  
GL-2002-72712

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Vendor	Req #	Budget#	Sub#	Description	Invoice Number	Req Date	Check Dte	Recpt Dte	Check #	Amount
<b>03 SINKING FUND</b>										
317				CONTRACTOR'S CHOICE						
	61268	1	03460 7407	PAOLI PK.TRAIL - SEGMENT G SOCK NETTING - SEGMENT G	00244800	02/27/20	02/27/20	02/27/20	1338	382.20
										382.20
1876				FOLEY INC.						
	61285	1	03460 7407	PAOLI PK.TRAIL - SEGMENT G EXCAVATOR, COUPLER & BUCKERT RENTAL 2/3/20 - 2/5/20	A6592001	02/27/20	02/27/20	02/27/20	1339	1,486.00
										1,486.00
598				HANSON AGGREGATES PENNSYLVANIA LLC						
	61291	1	03460 7407	PAOLI PK.TRAIL - SEGMENT G 19.07 TONS 114371 STONE	3674015	02/27/20	02/27/20	02/27/20	1340	283.19
	61292	1	03460 7407	PAOLI PK.TRAIL - SEGMENT G 17.61 TONS 114371 STONE	3673736	02/27/20	02/27/20	02/27/20	1340	261.51
										544.70
1052				PENNONI ASSOCIATES INC.						
	61324	1	03410 7400	POLICE BUILDING ROOF SERV. THRU 02/02/20 - POLICE BLDG. ROOF	1012214	02/27/20	02/27/20	02/27/20	1341	454.94
										454.94
1212				SAYRE INC., G.I.						
	61330	1	03430 7400	CAPITAL REPLACEMENT - HWY EQUIP ENG.COMPRESSION BRAKE FOR CHASSIS # MM721405	08301	02/27/20	02/27/20	02/27/20	1342	1,243.00
	61331	1	03430 7400	CAPITAL REPLACEMENT - HWY EQUIP ENG.COMPRESSION BRAKE FOR CHASSIS # MM721406	08302	02/27/20	02/27/20	02/27/20	1342	1,243.00
										2,486.00

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Vendor	Req #	Budget#	Sub#	Description	Invoice Number	Req Date	Check Dte	Recpt Dte	Check#	Amount
<b>05 SEWER OPERATING</b>										
151				BLOENSKI DISPOSAL CO, CHARLES						
	61254	1	05422 4502	R.C. SLUDGE-LAND CHESTER SWITCH 20 YDS WITH LINER 2/3/20	178015	02/27/20	02/27/20	02/27/20	4105	181.00
	61255	1	05422 4502	R.C. SLUDGE-LAND CHESTER SWITCH 20 YDS WITH LINER 2/10/20	178039	02/27/20	02/27/20	02/27/20	4105	181.00
										362.00
2960				COMMONWEALTH OF PENNSYLVANIA						
	61266	1	05422 3700	R.C. STP-MAINT. & REPAIRS 2020 ANNUAL FEE - NPDES PERMITS UNDER CHAP.92A	1137904	02/27/20	02/27/20	02/27/20	4106	500.00
										500.00
3872				EAGLE TERMITE & PEST CONTROL						
	61273	1	05420 3705	ASHBRIDGE-MAINT.&REPR PEST CONTROL FEBRUARY 2020	214480	02/27/20	02/27/20	02/27/20	4107	25.00
	61274	1	05422 3701	R.C. COLLEC.-MAINT. & REPR PEST CONTROL FEBRUARY 2020	214481	02/27/20	02/27/20	02/27/20	4107	25.00
	61275	1	05422 3700	R.C. STP-MAINT. & REPAIRS PEST CONTROL FEBRUARY 2020	214477	02/27/20	02/27/20	02/27/20	4107	45.00
										95.00
431				EJ USA INC. (EAST JORDAN)						
	61280	1	05420 3702	C.C. COLLEC.-MAINT. & REPR. MANHOLE COVERING	110200007044	02/27/20	02/27/20	02/27/20	4108	345.50
										345.50
583				HACH COMPANY						
	61288	1	05422 3700	R.C. STP-MAINT. & REPAIRS LOGGER ANALYZER	11824250	02/27/20	02/27/20	02/27/20	4109	3,275.69
	61289	1	05422 3700	R.C. STP-MAINT. & REPAIRS CABLE ASSEMBLY	11838286	02/27/20	02/27/20	02/27/20	4109	243.74
	61290	1	05422 3700	R.C. STP-MAINT. & REPAIRS 8"DIAMETER PIPE RINGS	11811793	02/27/20	02/27/20	02/27/20	4109	428.74
										3,948.17
1624				L/B WATER SERVICE INC						
	61305	1	05420 3702	C.C. COLLEC.-MAINT. & REPR. 6" FLANGED ACESSORY SETS -ASHBRIDGE	3364455	02/27/20	02/27/20	02/27/20	4110	138.86
	61306	1	05422 3701	R.C. COLLEC.-MAINT. & REPR 4" FLANGED ACESSORY SETS - HM PS	3363988	02/27/20	02/27/20	02/27/20	4110	84.09
										222.95

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Vendor	Req #	Budget#	Sub#	Description	Invoice Number	Req Date	Check Dte	Recpt Dte	Check#	Amount
<b>05 SEWER OPERATING</b>										
765				LEC - LENNI ELECTRIC CORPORATION						
61309	1	05422	3700	R.C. STP-MAINT.& REPAIRS INSTALL 5 LIGHTS - TOP OF OLD TANKS	200148	02/27/20	02/27/20	02/27/20	4111	376.00
61312	1	05422	3700	R.C. STP-MAINT.& REPAIRS WIRE UP MOTIVE PUMP -SBR TANK 2	200156	02/27/20	02/27/20	02/27/20	4111	203.00
										579.00
797				M&S SERVICE COMPANY						
61315	1	05422	3701	R.C. COLLEC.-MAINT.& REPR ADDRESS METER DISPLAY ISSUES - HER. MILL PS	10130-19JL	02/27/20	02/27/20	02/27/20	4112	300.00
										300.00
3043				MAIN POOL & CHEMICAL COMP. INC.						
61316	1	05422	2440	R.C. STP- CHEMICALS 216 50LB BAGS SODIUM CARBONATE	2081253	02/27/20	02/27/20	02/27/20	4113	4,104.00
61317	1	05422	2440	R.C. STP- CHEMICALS 2100 GALS. ALUM. SULFATE SOLUTION	2081167	02/27/20	02/27/20	02/27/20	4113	3,108.00
										7,212.00
1005				PENNSYLVANIA ONE CALL SYSTEM						
61326	2	05420	3701	C.C. INTERCEPT.-MAINT.&REP MONTHLY ACTIVITY FEE - JAN.2020	0000845730	02/27/20	02/27/20	02/27/20	4114	73.43
61326	3	05420	3702	C.C. COLLEC.-MAINT.& REPR. MONTHLY ACTIVITY FEE - JAN.2020	0000845730	02/27/20	02/27/20	02/27/20	4114	73.43
										146.86
1983				YALE ELECTRIC SUPPLY CO						
61346	1	05422	3700	R.C. STP-MAINT.& REPAIRS WIRE NUTS	S115005136.001	02/27/20	02/27/20	02/27/20	4115	36.70
										36.70
										123,811.45
										68 Printed, totaling 123,811.45

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Expenditures Register  
GL-2002-72712

Vendor	Req #	Budget#	Sub#	Description	Invoice Number	Req Date	Check Dte	Recpt Dte	Check#	Amount
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FUND SUMMARY

Fund	Bank Account	Amount	Description
01	01	104,709.43	GENERAL FUND
03	03	5,353.84	SINKING FUND
05	05	13,748.18	SEWER OPERATING
		-----	
		123,811.45	

PERIOD SUMMARY

Period	Amount
2002	123,811.45
	-----
	123,811.45

Legend:  
 Expenditures Register Spooling to Windows Printers  
 Print those ready to UPDATE  
 Sorting by vendor  
 Printing for GL Period 2002  
 Doing a page break  
 Archiving to Expenditures Register-2002.txt  
 MARP05 run by BARBARA 4 : 45 PM

MARP17 run by BARBARA 5 : 08 PM

Per	Budget #	Sub#	Description	Vendr	Vendor Name	Invoice #	Inv Date	Credit	Src	Trx #	#	U
2002			CREDIT CARD PAYMENT									
	01401	3400	NOTICE - WCCOG MEETING	2226	21ST CENT.MEDIA NEWS #884433	1954914	02/03/20	104.75	PC	72713	1	
	01401	3400	NOTICE - E.GOSHEN FUTURIST	2226	21ST CENT.MEDIA NEWS #884433	1954616	02/04/20	60.72	PC	72713	2	
	01401	3400	NOTICE - E.GOSHEN SEALED BIDS	2226	21ST CENT.MEDIA NEWS #884433	1948687	02/03/20	242.02	PC	72713	3	
	05422	3702	STAND BY TIME 1/23/20	4045	ACE DISPOSAL CORPORATION	158892	02/03/20	562.50	PC	72713	4	
	05422	3701	STAND BY TIME 1/7,1/14,1/21,1/28/20	4045	ACE DISPOSAL CORPORATION	158893	02/03/20	150.00	PC	72713	5	
	06427	4502	WEEK 2/3/20 - 2/6/20	241	C.C. SOLID WASTE AUTHORITY	56263-R	02/07/20	3,277.64	PC	72713	6	
	05422	4502	WEEK 2/3/20 - 2/6/20	241	C.C. SOLID WASTE AUTHORITY	56263-S	02/07/20	543.03	PC	72713	7	
	06427	4502	WEEK 2/17/20 - 2/21/20	241	C.C. SOLID WASTE AUTHORITY	56388-R	02/22/20	5,475.17	PC	72713	8	
	05422	4502	WEEK 2/17/20 - 2/21/20	241	C.C. SOLID WASTE AUTHORITY	56388-S	02/22/20	601.68	PC	72713	9	
	06427	4502	WEEK 2/10/20 - 2/14/20	241	C.C. SOLID WASTE AUTHORITY	56325-R	02/15/20	4,387.27	PC	72713	10	
	05422	4502	WEEK 2/10/20 - 2/14/20	241	C.C. SOLID WASTE AUTHORITY	56325-S	02/15/20	525.78	PC	72713	11	
	01401	2100	COFFEE & LIQUID CREAMER	1990	CRYSTAL SPRINGS	3154612 021420	02/14/20	84.43	PC	72713	12	
	01430	2330	STAINLESS STEEL FLAT WASHERS	2442	KENT AUTOMOTIVE	9307347162	01/30/20	259.84	PC	72713	13	
	01454	3740	SCREWS & WASHERS - FOOT BRIDGE AT	2442	KENT AUTOMOTIVE	9307380178	02/12/20	327.75	PC	72713	14	
	01430	2330	BLACK MAINTENANCE PAINT	2442	KENT AUTOMOTIVE	9307376614	02/11/20	154.31	PC	72713	15	
	01430	2330	LAG BOLTS	2442	KENT AUTOMOTIVE	9307365410	02/06/20	40.39	PC	72713	16	
	01430	2330	WASHERS, SCREWS & NUTS	2442	KENT AUTOMOTIVE	9307372754	02/10/20	89.65	PC	72713	17	
	01454	3740	PICNIC TABLE HARDWARE	2442	KENT AUTOMOTIVE	9307380177	02/12/20	895.55	PC	72713	18	
	01430	2320	120.6 GALS. GASOLINE	1161	REILLY & SONS INC	181012-530	02/12/20	232.88	PC	72713	19	
	01430	2320	368.3 GALS. DIESEL	1161	REILLY & SONS INC	181013-531	02/12/20	732.55	PC	72713	20	
	01430	2320	10.2 GALS. DIESEL	1161	REILLY & SONS INC	180834-531	02/11/20	37.73	PC	72713	21	
	01430	2320	220.3 GALS. DIESEL	1161	REILLY & SONS INC	180835-531	02/11/20	814.89	PC	72713	22	
	05420	3705	118.0 GALS. DIESEL -ASHBRIDGE	1161	REILLY & SONS INC	180831-531	02/11/20	436.48	PC	72713	23	
	05420	3706	20.3 GALS. DIESEL - BARKWAY	1161	REILLY & SONS INC	180830-531	02/11/20	75.09	PC	72713	24	
	05422	3700	438.9 GALS. DIESEL	1161	REILLY & SONS INC	180832-531	02/11/20	1,623.49	PC	72713	25	
	01409	3605	2/15-3/14/20	2273	VERIZON - 0527	7504491-021420	02/14/20	209.11	PC	72713	26	
	01409	3840	2/16-3/15/20	2868	VERIZON-1420	7504490-021520	02/15/20	81.60	PC	72713	27	
	05422	3601	2/7-3/6/20	2439	VERIZON -7041	6524805-020620	02/06/20	227.97	PC	72713	28	

22,254.27

22,254.27

GENERAL LEDGER SUMMARY

GL Account #	Debit	Credit	Description
014XX-XXXX	4,368.17		GENERAL FUND Expense Account
01107-1010		4,368.17	GENERAL FUND Bank Account
054XX-XXXX	4,746.02		SEWER OPERATING Expense Account
05100-1005		4,746.02	SEWER OPERATING Bank Account
064XX-XXXX	13,140.08		REFUSE Expense Account
06100-1005		13,140.08	REFUSE Bank Account

**ACH DEBITS TO GENERAL FUNDS**

**EXPENSE REPORT**

*Attachment 2 OF 2*

Meeting Date

**3/3/2020**

**2/1/20 - 2/29/20**

<b>01</b>	<b>Amount</b>				
<b>TRX#</b>	<b>Charged</b>	<b>Date</b>	<b>Name</b>		<b>Description</b>
72544	\$32.30	2/19/2020	AUTHNET FEES	January 2020	CRED.CARD BANK CHARGES
72543	\$303.38	2/19/2020	BANKCARD FEES	January 2020	CRED.CARD BANK CHARGES
	<b>335.68</b>				
<b>05</b>					
<b>TRX#</b>					
72354	\$350.00	2/4/2020	REIMBURSMENT of BANK FEE	January 2020	LOCK BOX FEE
72665	\$429.34	2/26/2020	REIMBURSMENT of Credit Card Fee	January 2020	Paymentus
	<b>779.34</b>				
<b>06</b>					
<b>TRX#</b>					
72355	\$350.00	2/4/2020	REIMBURSMENT BANK FEE	January 2020	LOCK BOX FEE
72666	\$429.34	2/26/2020	REIMBURSMENT of Credit Card Fee	January 2020	Paymentus
	<b>779.34</b>				
	<b>\$ 1,894.36</b>				

PLGIT 1107.1010

DATE	DESCRIPTION	TOTAL	1116.1000	1401.2100	1401.3000	1401.3070	1407.2130	1413.3720	1452.2010	1452.3000	1452.3020	1454.3740	1487.1910	1487.4600
	<b>RICK SMITH</b>		5422.3700											
12/27/2019	Amazon - Ipad case and mouse - M.Truitt	50.93					50.93							
1/2/2020	Provantage - Tripp Lite 2-port display port	170.50					170.50							
1/6/2020	Panera Bread - Meeting 1/6/20	89.77			89.77									
1/7/2020	Amazon -USB Wired soundbar	124.68					124.68							
1/7/2020	Apple - cloud Storage	0.99					0.99							
1/8/2020	Uniform Construction - Qtr.4 2019 Filing Fees	679.50						679.50						
1/9/2020	Amazon - Office heaters & gloves for Gabrielle	76.68		76.68										
1/14/2020	PSATS - Rick's Sunshine Books	90.00		90.00										
1/15/2020	PSATS - Mark Gordon Course	125.00												125.00
1/15/2020	PSATS - PSATS conference	1,405.00				1,405.00								
1/16/2020	B&H Photo - Laser Printer	218.89		218.89										
1/17/2020	Somerset Studios - 2 Framed Prints	236.04			236.04									
1/25/2020	Microsoft Store - Office 365 subscription	105.99					105.99							
		<b>\$3,373.97</b>												
	<b>MARK MILLER</b>													
12/28/2019	Red Wing Shoes - Safety Work Boots	199.99											199.99	
1/3/2020	Weaver's Store - Work Boots - PW	2,395.65											2,395.65	
1/8/2020	PCCA - International Building Code Plan Course - M.Holmes	195.00												195.00
1/8/2020	PCCA - Fire Inspections & Code Enforcement Course - M.Holmes	125.00												125.00
1/13/2020	AT& T DATA - to be cancelled	35.00					35.00							
1/21/2020	Weather Flow Shop - Weather Station	299.95	299.95											
1/21/2020	Moultrie Mobile - Camera Data	42.38										42.38		
		<b>\$3,292.97</b>												
	<b>JASON LANG</b>													
1/2/2020	Klein Transportation - Deposit Baltimore Trip	161.00									161.00			
1/2/2020	Klein Transportation - Deposit New York Trip	188.00									188.00			
1/3/2020	PosterMyWay - TBD	7.99								7.99				
1/9/2020	Apple.com - IPAD software	10.59					10.59							
1/15/2020	7 Springs Lodging - PRPS Conference	253.00								253.00				
1/17/2020	Arnolds Family Fun Center - Deposit Summer Camp Field Trip	100.00							100.00					
1/25/20	Apple.com - Cloud Storage	0.99					0.99							
		<b>\$721.57</b>												
	<b>GRAND TOTAL</b>	<b>7,388.51</b>	<b>299.95</b>	<b>385.57</b>	<b>325.81</b>	<b>1,405.00</b>	<b>499.67</b>	<b>679.50</b>	<b>100.00</b>	<b>260.99</b>	<b>349.00</b>	<b>42.38</b>	<b>2,595.64</b>	<b>445.00</b>

J/E's made

Add to Master Cred.Card List

x
x

299.95 05 to reimburse 01 for 05 Credit Card Expense

x



# Memo

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To: Board of Supervisors

From: Jon Altshul

Re: Consider grant application for gas leak detectors through Energy Transfer First Responder Fund

Date: February 13, 2020

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Energy Transfer has a First Responder Fund that provides grants for first responder organizations. While East Goshen Township is not technically a first responder organization, given the unique role that our Public Works Department plays for the Goshen Fire Company, as well as the length of the Mariner East pipelines in the Township and the proximity of those lines to densely populated areas, we believe that we may be competitively positioned to receive a grant.

Specifically, this fund could provide funding for two gas leak detectors and calibration equipment. Based on his conversations with area fire companies, Mark Miller believes the handheld Sensit Gold G2 leak detection system, which can detect butane, propane and ethane, is appropriate for our needs. We have received a quote of \$6,487.05 for the equipment.

To clarify from discussion at the last BOS meeting, the Sensit meters are designed for pinpointing leaks and therefore are appropriate for the Township's needs—the detector audibly clicks when pointed at a leak. **In addition, an attachable drag tube is included with each meter.**

**Recommended motion:** Mr. Chairman, I authorize staff to apply for funding through the Energy Transfer First Responder Fund for two gas leak detectors and calibration equipment.

# Memo

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To: Board of Supervisors  
From: Jon Altshul  
Re: Consider Parking Restrictions on Larch Lane  
Date: February 20, 2020

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In November, the Township received a petition signed by a number of residents of Larch Lane requesting that the Township prohibit non-residents from parking on Larch Lane. According to the spokesperson for the residents of Larch Lane, the property owner at 600 Reservoir Road has frequent house guests that routinely park overnight on Larch Lane, rather than in their driveway. Because the Township cannot legally discriminate against certain cars, but not others from parking on a public street, it was suggested that the Township instead consider prohibiting all parking on Larch Lane.

At its meeting on January 6, 2020, the Board directed staff to develop a recommendation for next steps. Accordingly, staff convened a meeting on January 22 with the Fire Marshall, Mark Miller, Mark Gordon and Sgt. Lewis from the Westtown East Goshen Police Department Traffic Safety Unit. Residents of Larch Lane were invited, but none were able to attend. However, the owner of 600 Reservoir Road did attend. At this meeting, it was determined that a fire truck could safely get through Larch Lane and that a live fire hose could be operated with cars parked on one side of the street. In addition, Sgt. Lewis agreed to surveil Larch Lane during the evening and overnight hours to ascertain whether parked cars on the street posed a public safety risk. After several weeks of extra patrols, Sgt. Lewis reported that he does not believe that parking on Larch Lane poses a public safety risk sufficient to prohibit parking.

Accordingly, Township staff does not believe that parking restrictions on Larch Lane are warranted at this time. However, to the extent that residents believe that parking on Larch Lane ever becomes a problem, they should be encouraged to contact the police.

# Memo

## East Goshen Township

Date: February 25, 2020  
To: Board of Supervisors  
From: Rick Smith, Township Manager  
Re: 2020 ABC Goals

RS

As requested at your meeting on February 4, 2020 the goals listed below are a summation of what was presented at the Planning Session. Where applicable I have noted the appropriate objective from the Comp Plan.

If the Board approves the goals I will send a cover letter to each ABC encouraging them to focus on the goals that will achieve the objectives in the Comp Plan.

### Conservancy Board

Keep East Goshen Beautiful Day on April 18, 2020. **Comp Plan Objective 11.4**

Continue maintenance of the blue bird houses in Applebrook

Continue maintaining Clymer's Woods – replacing dead trees and reapplying wood chips around the trees.

Maintain the riparian buffer along the creeks **Comp Plan Objective 11.1**

Continue invasive species control. **Comp Plan Objective 11.6**

Continue assisting with the pond restoration projects as needed.

### Futurist Committee

Community outreach meetings and resident communications to gather feedback on what residents want to see or not see in East Goshen.

Business Park Strategic Plan **Comp Plan Objective 7.3 & 7.5**

Revisit the Futurist Committee Vision statement with the Board of Supervisors to ensure alignment.

### Municipal Authority

Continue to monitor the upgrades at West Goshen Sewer Treatment Plant and Westtown Way Pump Station. **Comp Plan Objective 10.1**

Continue to implement the Inflow and Infiltration Plan for the Sewer System **Comp Plan Objective 10.1**

Continue to operate the Sewer Treatment Plant in compliance with PADEP permit requirements. **Comp Plan Objective 10.1**

Implement Planned Projects Program:

- Ridley Creek Sewer Treatment Plant
  - Emergency Generator Replacement
  - Caustic Soda Project

- Pump Stations

- Hershey's Mill Pump Station Generator replacement
  - Hunt Country Pump Station Mag Meter replacement
  - Hunt Country Pump Station Muffin Monster replacement
  - Hunt Country Pump Station Bypass Pump

- Sewer System

- Two (2) new Ridley Creek Sewer System Permanent Flow Meters

### **Park and Recreation Commission**

Develop marketing, programming and trail rules for the Paoli Pike Trail. **Comp Plan Objective 8.6**

Develop plan for 2021 Full Day summer camp program at East Goshen Elementary. **Comp Plan Objective 9.4**

Finalize design elements for the amphitheater band shell in preparation for 2021 grant applications. **Comp Plan Objective 9.3**

Offer nature and art focused programming. **Comp Plan Objective 9.4**

Host West Chester University's Carnival of Ruin. **Comp Plan Objective 9.4**

### **Pipeline Task Force**

Review and assess regulatory and technical aspects of pipeline infrastructure projects. **Comp Plan Objective 10.6**

Provide comments to BOS on relevant pipeline legislation (State and Federal) and regulatory documentation (PUC, FERC, PHMSA, DEP). **Comp Plan Objective 10.6**

Advise BOS regarding pipeline incidents such as inadvertent returns during drilling, sinkhole formation, ground water issues, noise ordinance violations, spills, leaks and any other environmental violations.

Recommend securing services of a licensed professional geologist for consultation on relevant documentation, legislation and issues.

Address questions and concerns from residents regarding pipeline activities.

Provide input to BOS on communications (i.e. Newsletters, Constant Contact Notifications) to residents regarding pipeline issues and activities.

Continue investigation of Boot Road Geophysical Survey Reports.

Provide recommendations to BOS and Planning Commission regarding pipeline setbacks and consultation zones for zoning ordinances. **Comp Plan Objective 6.4**

Fill vacancy on Task Force.

Meet with state representatives, state senators, and county commissioners on pipeline issues.

Provide input to Chester County Pipeline Safety Advisory Board. Contribute to development of an emergency response plan.

Continue investigation of air quality monitoring and leak detection systems for areas surrounding pipelines.

Continue investigation of dust monitoring and dust control measures at pipeline construction areas.

Interact with the Sustainability Advisory Committee.

### **Historical Commission**

Invite local scouting troops for a tour of Blacksmith Shop. **Comp Plan Objective 13.1**

Have a blacksmith challenge to see who could win the title making an 18<sup>th</sup> century knife or tool. **Comp Plan Objective 13.1**

Interact with other historical groups. **Comp Plan Objective 13.1**

Do "The Battle of the Clouds" presentation again. **Comp Plan Objective 13.1**

Connect the Blacksmith Shop with the Paoli Pike Trail. **Comp Plan Objective 6.2 & 8.6**

Reorganize the HC office in the township building.

Coordinate our activities with are other events in the area. **Comp Plan Objective 13.1**

### Planning Commission

Continue support for following Comprehensive Plan implementing strategies:

Objective 6.1 & 6.2 to develop the Town Center and Paoli Pike Corridor

Objective 6.3 transforming the West Chester Pike Corridor into a more functional and attractive artery.

Objective 7.2 promoting the enhancement of business opportunities along the West Chester Pike Corridor.

Objective 9.1 maintaining and expanding the Open Space, Recreation, and Trails Network.

Objective 9.2 developing the Paoli Pike Trail to create the linkage between West Chester and Malvern through East Goshen from West Goshen to Willistown.

Business Park Vitalization – review BP ordinance for possible enhancements to promote Business Park Longevity **Comp Plan Objective 7.3 & 7.5**

Support BOS request for any review of Zoning Ordinance to support Pipeline Safety **Comp Plan Objective 6.4**

Support BOS request to review existing township Zoning Ordinances for possible revision and updates. **Comp Plan Objective 6.4**

### Sustainability Advisory Committee

Work with the Boy and Girl Scouts to help our youngest residents become future environmentalists.

Charging stations for current owners of electric and hybrid vehicles is a goal of our committee. **Comp Plan Objective 12.2**

Work on a proposal for an East Goshen Community Garden which would lead to a home grown Farmer's Market in 2021. A special component of this will be a designated section of plots for children and teens with training sessions to help them.

A parallel program of educational modules for elementary students at our 2 schools is another work in progress. These will be offered as in classroom opportunities, before and after school programs, and assembly presentations.

In March, we are offering at least 4 educational sessions.

The first will focus on Solar and Geothermal options for homeowners and businesses. **Comp Plan Objective 10.5**

The second will provide information on composting, pesticide free lawns and gardens and advice on buying organic products and produce. **Comp Plan Objective 10.5**

The third subject will concentrate on water management, to cover storm drains, watering lawns and gardens sustainably, and the purchase and utilization of rain barrels. **Comp Plan Objective 10.5**

The fourth presentation will cover how to recycle everything we possibly can to responsibly help protect our environment. **Comp Plan Objective 10.2**

Collaboration with other East Goshen ABCs on potential joint projects.

Once we have a number of workshops under our belts for young people in our elementary schools and park, we aim for a joint program with adjacent townships for the junior and high schools in our area.

Work with other Environmental and Sustainability Advisory Committees from nearby municipalities.

02-06-2020

ABBAS RAHBARI

1613 MANLEY ROAD

WEST CHESTER PA. 19380

484-880-0276



PLEASE PLACE ME ON YOUR FORMAL B.O.S., AGENDA  
TO DISCUSS YOUR CORRUPT POLICE DEPARTMENT.

THANK YOU

On 2/10/20 Mr. Rahbari  
called to advise me that  
he was going to Westtown  
on 2/18/20 and asked that  
I put him on the 3/3/20 agenda.  
Rick Smith

CC: CORRUPT POLICE DEPARTMENT

- I WILL NOT GO AWAY -




# Memorandum

---

East Goshen Township  
1580 Paoli Pike  
West Chester, PA 19380  
Voice: 610-692-7171  
Fax: 610-692-8950  
E-mail: [mgordon@eastgoshen.org](mailto:mgordon@eastgoshen.org)

---

Date: 2/25/2020  
To: Board of Supervisors  
From: Mark Gordon, Township Zoning Officer   
Re: SWM O&M Agreement

---

Dear Board Members:

The Code Department has received the following Stormwater Management Operation and Maintenance agreement for authorization by the Board of Supervisors:

1. 1210 Burning Bush Ln. (Garage Addition and Driveway Expansion)

**Staff Recommendation:**

Staff has reviewed this project and the SWM O&M Agreement and recommends that the Board authorize the Chairman to sign the SWM agreement.

**Draft Motion:**

Mr. Chairman, I move that the Board authorize the Chairman to execute the storm water management operation and maintenance agreement for 1210 Burning Bush Ln.

**EAST GOSHEN TOWNSHIP  
CHESTER COUNTY, PENNSYLVANIA**

**RESOLUTION 2020-191**

**A RESOLUTION AUTHORIZING DISPOSAL OF EAST  
GOSHEN TOWNSHIP RECORDS**

**WHEREAS**, the general guidelines issued for the Pennsylvania Local Government Records Committee by the Pennsylvania Historical and Museum Commission, Bureau of the Pennsylvania State Archives (“the State Guidelines”) require that most Township records be retained for a minimum of seven years;

**WHEREAS**, certain documents must be retained for more than seven years, including personnel files (105 years from employee’s date of birth); minute books (permanently); loan and bond documents (7 years after the loan or bond is paid off); and planning, zoning and building documents (generally permanently);

**WHEREAS**, the East Goshen Township (“the Township”) record retention policy is consistent with the State Guidelines;

**BE IT RESOLVED THAT** this year, the Township will dispose of (shred) records that can be disposed pursuant to the State Guidelines on Wednesday, March 11, 2020.

**RESOLVED AND ADOPTED**, this \_\_\_\_\_ day of \_\_\_\_\_, 2020.

ATTEST:

**EAST GOSHEN TOWNSHIP  
BOARD OF SUPERVISORS**

\_\_\_\_\_  
Secretary

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# Memo

---

To: Board of Supervisors  
From: Jon Altshul  
Re: Consider Replacing treads in Stairwells  
Date: February 28, 2020

---

As you've probably observed, the treading in the three stairwells in the Township building are falling apart. The front stairwell obviously gets the most use, while the side stairwell connecting the activity room area to the side entrance is heavily trafficked by the public on Election Day. A third stairwell that connects the Public Works office hallway with the Public Works breakroom is only used by Township staff.

We would like to replace the treading prior to the 2020 Primary Election Day on April 28. Chas Linder from Public Works reached out to a number of flooring vendors in the area, but only received the following quote from Bob Wagner's Flooring America.

Area	Cost
Front Stairwell	\$3,180
Side Stairwell	\$5,257
Public Works Stairwell	\$3,526
<b>Total</b>	<b>\$11,963</b>

The other flooring vendors contacted were uninterested in a commercial job this small.

Under PA procurement guidelines, non-COSTARS purchases and contracts costing between \$11,300 and \$21,000 require three price quotes, which we do not have. Because the Public Works Stairwell is very lightly trafficked, and never by the public, we would suggest holding off on any retreading in that location for another year. Therefore, the cost of replacing the treading in the front and side stairwells would be \$8,437.

**Recommended motion:** Mr. Chairman, I move that we authorize Bob Wagner's Flooring America to retread the front and side stairwells of the Township Building for \$8,437.

# Memo

---

To: Board of Supervisors  
From: Jon Altshul  
Re: Consider Implementation of Renewable Energy Strategies  
Date: February 28, 2020

---

As its meeting on February 27, the West Chester Area Council of Governments (COG) formally accepted the Energy Transition prepared by Cadmus (attached in Draft form). This plan identifies 17 separate strategies to get the West Chester region to 100% renewable electricity by 2035 and 100% renewable energy from all sources by 2050. Cadmus broke the 17 strategies down into four major categories: 1) Enabling Strategies; 2) Community Engagement Strategies; 3) Municipal Supply Mix Categories; and 4) State Level Options. Some of these strategies would need to be undertaken individually at the municipal level and some would need to be undertaken collectively as part of a joint initiative with one or more other COG municipalities. A list of the 17 strategies and whether they would be best undertaken “individually” or “collectively” is attached.

The COG also adopted the following motion at its last meeting: *I move that the [COG] undertake a project to implement the Community Engagement strategies set forth in the [Energy Transition Report] and to develop and issue an RFP for a Power Purchase Agreement.*

The COG has requested that the member municipalities be in a position to update the COG about its position on implementing each of the 17 strategies at the next COG meeting on April 23. Therefore, the Board has three additional meetings after tonight—March 17, April 7 and April 21—at which to deliberate East Goshen’s interest in implementing each of these strategies. Please refer to the report itself for an analysis of the impact and cost, as well as the technical and political feasibility, of each of the 17 strategies.

I would observe that there seems to be considerable interest among COG municipalities in pursuing a Power Purchase Agreement or PPA, whereby the COG municipalities (and potentially other local government entities, including the School District and the County) select an independent power producer to construct an off-site renewable energy supply source for municipal operations via an RFP. Recent PPAs for both the City of Philadelphia and SEPTA have resulted in substantial electricity savings, and Cadmus estimates that a PPA could save \$0.0125/kWh, which corresponds with annual savings of \$274,000 across all six municipalities. By the COG developing an RFP now, the municipalities will be better positioned to make a decision about their interest in participating in a regional PPA later.

Therefore, the questions for the Board are: 1) which of the 17 strategies is East Goshen interested in implementing either individually or collectively with other COG municipalities and 2) on what timeline should it attempt to do so?

In the meantime, I would recommend that the Board formally acknowledge receipt of the report and forward a copy of it in its final version to the Sustainability Advisory Committee for its recommendations so that the Board could act on the matter at its first meeting in April.

# STRATEGY IMPLEMENTATION PLAN

February 19, 2020

		Method of Implementation
<b>Enabling Strategies</b>		
1.1	Encourage Solar Ready Guidelines	Individual Municipality
1.2	Streamline Interconnection Processes	Individual Municipality
1.3	Pass EV- Ready Ordinance	Individual Municipality
1.4	Install Public Charging Stations for EVs	Individual Municipality
1.5	Develop a Building Electrification Roadmap	Individual Municipality
<b>Community Engagement Strategies</b>		
2.1	Initiate renewable energy educational campaigns	Collectively via WCACOG
2.2	Establish and/or participate in group purchasing campaigns	Collectively via WCACOG
2.3	Engage community in setting energy goals	Collectively via WCACOG
2.4	initiate renewable heating and cooling marketing campaigns	Collectively via WCACOG
<b>Municipal Supply Mix Strategies</b>		
3.1	Install renewable energy on-site to supply municipal operates	Individual Municipality
3.2	Procure renewable energy from retail energy providers	Individual Municipality
3.3	Power purchase agreement: partner with a third party to procure renewable energy	Collectively via WCACOG
3.4	Purchase renewable energy certificates (RECS)	Individual Municipality
3.5	Led by example in municipal facilities (building electrification)	Individual Municipality
3.6	Procure electric vehicles for municipal fleets	Individual Municipality
<b>State Level Options</b>		
4.1	Allow for Community Solar	On Hold
4.2	Allow for Community Choice Aggregation	On Hold
4.3	Increase the Alternative Energy Portfolio Standard (AEPS)	On Hold

**CADMUS**



**West Chester Area  
100% Renewable  
Energy Transition Study**

February 2020

**Prepared for:  
West Chester Area Council of Governments**

## Acknowledgements

The Cadmus Group developed this resource in collaboration with the West Chester Area Council of Governments and the project advisory group. Project participants are listed below:

### West Chester Area Council of Governments Councilmembers:

- Mike Lynch, East Goshen Township (Chair)
- Carol DeWolf, Westtown Township (Vice Chair)
- Don Braceland, West Chester Borough
- Patrick Davis, East Bedford Township
- Theresa Santalucia, West Whiteland Township
- Robin Stuntebeck, West Goshen Township

### Project Advisory Group Members:

- Jon Altshul, East Goshen Township
- Henry Alexander, Sierra Club
- Mandie Cantlin, East Bradford Township
- Liz Compitello, Delaware Valley Regional Planning Commission (DVRPC)
- Will Etheridge, Westtown Township
- Dianne Herrin, West Chester Borough
- Mimi Gleason, West Whiteland Township
- Paula Kline, Sierra Club
- Ed McConnell, East Bradford Township
- Rob Pingar, Westtown Township
- Robin Stuntebeck, West Goshen Township
- Shawn Walsh, West Goshen Township
- Will Williams, West Chester Borough
- Jim Wylie, Chester County Clean Energy Leaders

### The Cadmus Group Authors:

- Farrah Andersen
- Aurora Edington
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- Megan Lynch
- Divij Rajesh
- Zack Wyman

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## Introduction and Background

### *West Chester Area Renewable Energy Goals*

The Townships of East Bradford, East Goshen, West Goshen, Westtown, West Whiteland and the West Chester Borough, Pennsylvania, are working with the West Chester Area Council of Governments (WCACOG) to study the pathways for utilization of:

- 100% renewable electricity by 2035
- 100% renewable energy for heat and transportation by 2050.

West Chester Borough and East Bradford Township have formally adopted these goals via a 100% Renewable Energy Vision Resolution<sup>1,2</sup> and plan to utilize this report to consider pathways for achieving these goals. The remaining Townships plan to utilize the findings of this report in evaluating the potential adoption of these goals.

In 2019, the six participating municipalities collectively hired the Cadmus Group to complete a study on the feasibility, costs, and opportunities of this transition, and to create a long-term, actionable roadmap for realizing the community's goals.

### *Objective and Approach*

Local governments across the United States and globe employ a wide range of strategies to support the transition to renewable energy (RE). The viability and impact of these strategies varies depending on contextual factors, such as state-level regulation, utility type, and local factors. The purpose of this report is to provide the West Chester Area (WCA) municipalities with actionable strategies given their specific policy and regulatory context to achieve their renewable energy goals, along with targeted implementation guidance for pursuing the selected strategies. The Cadmus Team's process for identifying these strategies is summarized in Figure 1 below and outlined in more detail in the [Strategy Analysis and Findings](#) section:

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<sup>1</sup> East Bradford Township. Resolution #24-2018. <https://www.eastbradford.org/download/government/Res-2018-24-Energy-Resolution.pdf>

<sup>2</sup> West Chester Borough. Resolution No. 12-2017. <https://west-chester.com/DocumentCenter/View/9718/Resolution-12-2017?bidId=>



**Figure 1: Summary of Cadmus Process**

- Stakeholder and Community Engagement.** At the outset of the project, the Cadmus Team conducted a series of engagement efforts to ensure the forthcoming research and analysis is grounded in local goals and perspectives. A summary of these engagements is included below. For more detailed information, please see Appendix A.

  - Advisory Group Input:* Throughout the project, the Cadmus Team received continuous input from a 12-person Advisory Group comprised of individuals who represent participating municipalities of the Council of Governments (COG). Representatives from the Advisory Group met with the Cadmus Team weekly to provide guidance and input on key aspects of the study. Additionally, the full 12-person Advisory Group reviewed draft findings from each of the major components of methodology.
  - Interviews:* The Cadmus Team conducted one-hour intake interviews with six Advisory Group members and one additional stakeholder. During these conversations, interviewees provided feedback on what excites them and concerns them about renewable energy transition, as well as their vision for the West Chester Area’s energy future and strategies they feel will help them reach their goals.
  - Advisory Group Workshop:* The Cadmus Team facilitated an in-person 2.5-hour workshop with the full Advisory Group on July 11<sup>th</sup> to solicit further feedback from the Advisory Group and prepare for a Community Visioning Workshop held in the West Whiteland Township building later that day.
  - Community Workshop:* The Cadmus Team held a community visioning workshop during which the Advisory Group members and the Cadmus Team facilitated conversations with community members to begin to define a community energy vision for 2050, to identify different community priorities, and discuss the community’s specific needs, challenges, and desired outcome for the project. The workshop had approximately 60 attendees, who were divided into seven breakout groups for discussions.

2. **Policy and Strategy Analysis & Siting Review.** Based on stakeholder and community feedback, the Cadmus Team’s prior work with municipal governments nationwide, and desk research on the West Chester Area’s state, utility, and local context; the Cadmus Team compiled an initial list of 42 strategy options across the electricity, transportation, and building sectors that could be leveraged to achieve the West Chester Area’s 2035 and 2050 goals. The Cadmus Team shared this initial list of strategy options with the Advisory Group members, which then conducted a prioritization exercise to select the top 18 strategies to analyze further. For each of the top 18 strategies, the Cadmus Team analyzed and ranked each strategy on a scale of one (low) to three (high) against key criteria including potential scale of impact, technical and political feasibility, as well as financial impact. Further details on the criteria and results of the analysis can be found in the [Strategy Analysis and Findings](#) section and the full list of the initial 42 strategies can be found in Appendix B. Additionally, the Cadmus Team conducted a solar feasibility analysis for multiple municipally-owned sites across the WCA. The full details of this analysis can also be found in the Appendix.
3. **Energy and Financial Impacts Modeling.** At the outset of the modeling task, the Cadmus Team first conducted research on the current mix of electric power sources for the West Chester Area, and developed a business-as-usual forecast of likely changes in the electric power mix during the planning period (present-2050). Next, the Cadmus Team assessed the likely energy impacts each selected strategy would have toward increasing the share of renewable energy in the West Chester Area’s supply mix, as well as the potential costs associated with each strategy or policy. To conduct this modeling work, the Cadmus Team conducted research on local and state context, drawn on its existing database of local government policy impacts and experience in conducting energy sector modeling for cities, and consulted with the Advisory Group members to refine the model inputs. Further details on the modeling methodology and assumptions can be found in Appendix C.

### *Key Limitations*

This study focuses on strategies that will support a transformation of the WCA’s energy system. While energy efficiency (EE) plays a significant role in this transformation, actions to improve efficiency are not sufficient to achieve the WCACOG’s goals. Therefore, while gains in efficiency are not the focus of this report, they are considered in the baseline model. Additionally, the report includes high-level guidance on EE strategies and key resources for next steps in Appendix D. Furthermore, this study focuses on the changes needed to the renewable energy supply to transform the WCA energy system and is not a greenhouse gas emissions accounting exercise. Lastly, the results of this study should be refreshed periodically to account for local progress against initial strategies, technology advancement, electricity market changes, and other contextual updates.

## Electricity Landscape

### State Context

There are several state policies and programs that both support and limit renewable energy deployment in Pennsylvania. Key state policies are listed below.

- **Deregulated Market.** The state of Pennsylvania has a deregulated electricity market.<sup>3</sup> In deregulated electricity markets, investor-owned utilities are not permitted to own and operate power plants that generate electricity. Instead, retail customers are free to purchase electricity from a competitive supplier, and the utility continues to provide distribution services. Within the West Chester Area, PECO (formerly the Philadelphia Electrical Company) is the electric utility. There are several competitive energy suppliers active in Pennsylvania offering retail customers a range supply options that include different electricity sources and prices.<sup>4</sup>
- **Pennsylvania Alternative Energy Portfolio Standard (AEPS).** This standard requires all electric distribution companies and electric generation suppliers in the state to supply 18% of electricity with “alternative” energy sources by 2021. The APS mandates that 8% of electricity must be generated from Tier I resources,<sup>5</sup> while the remaining 10% must be generated from Tier II resources.<sup>6</sup> The AEPS also includes a solar carve-out, requiring 0.5% of electricity be generated from solar photovoltaic (PV) by 2021.<sup>7</sup>
- **Net Energy Metering.** State law requires investor-owned utilities to allow certain customers to net meter excess electricity that is produced by eligible systems. Customer groups eligible for net metering in Pennsylvania include residential customers with systems that generate up to 50 kW, non-residential customers with systems that generate up to 3 MW, and customers with systems generating between 3-5 MW that also serve as micro-grids and emergency systems. Systems eligible for net metering include solar PV, solar thermal, wind, hydropower, geothermal energy, biomass, fuel cells, combined heat and power, municipal solid waste, waste coal, coal-mine methane, and other forms of distributed generation as well as certain demand-side management technologies.<sup>8</sup> Customers who participate in net metering receive credits valued at the full retail rate for every excess kWh produced by the system each month, and excess credits roll over month-to-month.<sup>9</sup> Pennsylvania’s net metering rules also allow for meter aggregation and virtual

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<sup>3</sup> Cadmus. Pathways to 100. <https://cadmusgroup.com/papers-reports/pathways-to-100-an-energy-supply-transformation-primer-for-u-s-cities/>

<sup>4</sup> PA Power Switch. Shop for Electricity. <https://www.papowerswitch.com/>

<sup>5</sup> **Tier I resources** include: photovoltaic energy, solar-thermal energy, wind, low-impact hydro, geothermal, biomass, wood pulping and manufacturing byproducts from energy facilities within the state, biologically-derived methane gas, coal-mine methane, and fuel cells. (DSIRE)

<sup>6</sup> **Tier II resources** include new and existing waste coal, distributed generation systems less than 5 MW in capacity, demand-side management, large-scale hydro, municipal solid waste, wood pulping and manufacturing byproducts from energy facilities located outside of the state, useful thermal energy, and integrated gasification combined cycle coal technology. (DSIRE)

<sup>7</sup> DSIRE. July 2018. Alternative Energy Portfolio Standard. <https://programs.dsireusa.org/system/program/detail/262>.

<sup>8</sup> DSIRE. November 2019. Net Metering. <https://programs.dsireusa.org/system/program/detail/65>

<sup>9</sup> Energy Sage. January 2020. PECO Energy Net Metering. <https://www.energysage.com/net-metering/peco-energy/>.

meter aggregation for meters belonging to the same customer that are located within two miles of the customer's property within a single utility's service area.<sup>10</sup> Net metering is a useful policy for supporting the development of distributed renewable energy generation as it provides compensation for excess energy generation contributed to the grid.

- **Third Party Ownership.** The state permits third party ownership in the form of leases and power purchase agreements (PPAs). Both structures allow a third-party, such as a RE developer, to build, own, and operate a RE system on behalf of a host customer. This model enables customers to avoid the upfront costs of distributed RE installation and it allows tax-exempt entities (e.g., governments and non-profits) that do not have direct access to federal and state tax credits to leverage these incentives.
- **Community Solar.** House Bill 531 and its companion, Senate Bill 705, are currently under consideration, and, if passed, would allow for community solar in Pennsylvania.<sup>11</sup> Community solar projects, sometimes referred to as solar gardens, are usually large solar PV arrays, which produce clean electricity that community members across multiple properties are eligible to purchase.<sup>12</sup> Currently, solar energy in Pennsylvania and its benefits are only available to persons and entities who own property upon which solar can be installed. The proposed community solar program would expand access to solar energy significantly by enabling anyone with an electric bill, such as renters, to subscribe to a share of a solar array in a different location than their residence or business. Subscribers would receive a credit on their electricity bill for the share of renewable electricity to which they are subscribed.<sup>13</sup>
- **Solar Renewable Energy Certificates (SRECs).** An SREC is a Renewable Energy Certificate that denotes ownership of solar energy. Pennsylvania is one of seven U.S. states that have a solar carve-out that requires utilities to purchase Solar Renewable Energy Certificates to meet the renewable energy portfolio standards. The value of SRECs varies depending upon market supply and demand at any given time, as of February 2020, the value of one SREC in Pennsylvania was approximately \$40/MWh of electricity.<sup>14</sup> There have been recent changes within the Pennsylvania SREC market that may increase the value of SRECs in the state, and more changes may follow in the coming years.<sup>15</sup> Most recently, *2017 Act 40*<sup>16</sup> limits the ability of out of state electricity

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<sup>10</sup> DSIRE. November 2019. Net Metering. <https://programs.dsireusa.org/system/program/detail/65>

<sup>11</sup> Solar United Neighbors. Make Community Solar a Reality in Pennsylvania. <https://www.solarunitedneighbors.org/pennsylvania/take-action/community-solar-reality/>.

<sup>12</sup> EnergySage. *Community Solar*. <https://www.energysage.com/solar/community-solar/community-solar-power-explained/>

<sup>13</sup> Pennsylvania House of Representatives. January 2019. House Co-Sponsorship Memoranda: Community Solar Legislation. <https://www.legis.state.pa.us/cfdocs/Legis/CSM/showMemoPublic.cfm?chamber=H&SPick=20190&cosponId=27796>

<sup>14</sup> SRECTrade. *Pennsylvania*. <https://www.srectrade.com/markets/rps/srec/pennsylvania>

<sup>15</sup> EnergySage. *SRECs in Pennsylvania: prices, projections, and program status*. <https://news.energysage.com/srecs-in-pennsylvania-prices-projections-and-program-status/>

<sup>16</sup> Pennsylvania General Assembly. 2017 Act 40. <https://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2017&sessInd=0&act=40>

generators to participate in the Pennsylvania SREC market. In past years, out of state electricity generator participation was high in the Pennsylvania market, which drove down prices.

### *Utility Context*

The West Chester Area municipalities are located within PECO's service territory for electricity service. PECO is an investor-owned utility that provides electricity and natural gas service to 1.6 million electric customers and 511,000 natural gas customers across Southeastern Pennsylvania.<sup>17</sup> PECO supports renewable energy in Pennsylvania by offering net metering, as required by state policy, and through the provision of education materials on key renewable energy topics, including interconnection<sup>18</sup> and renewable energy financing options.<sup>19</sup> PECO also offers several energy efficiency (EE) focused incentives and programs, including home energy assessments and a range of discounts and rebates for energy efficient appliances.<sup>20</sup> The Pennsylvania Public Utilities Commission (PUC) regulates investor-owned utilities in Pennsylvania, including PECO, and is responsible for ensuring reliable service at reasonable rates.<sup>21</sup>

### *Local Policies and Initiatives*

In addition to state-level policies, local actions also shape the landscape for potential future energy actions. West Chester Area municipalities have taken steps to support the deployment of local renewable energy. Beyond supporting the 2035 and 2050 renewable energy goals and the development of this report, selected highlights across the municipalities include:

- West Chester Borough installed a **72-kW solar canopy** on the Chestnut Street Garage roof in 2009.
- East Goshen has formed a **Sustainability Advisory Committee** to discuss environmental, economic, and social sustainability.
- West Goshen applied for **funding to install 2 EV charging stations** at the Township building (if successful installation will happen spring 2020).
- **Solarize<sup>22</sup> Southeastern Pennsylvania** was established in 2019 and over 30 homeowners signed contracts for solar PV installations. Another campaign is anticipated in 2020 with a renewed focus on Chester County.<sup>23</sup>

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<sup>17</sup> PECO. Company Information. <https://www.peco.com/AboutUs/Pages/CompanyInformation.aspx>

<sup>18</sup> PECO. DER Interconnection Viability.

<https://www.peco.com/MyAccount/MyService/Pages/DERInterconnectionViability.aspx>

<sup>19</sup> PECO. Solar for Homes and Businesses.

<https://www.peco.com/SmartEnergy/MyGreenPowerConnection/Pages/SolarforHomeBusiness.aspx>

<sup>20</sup> PECO. For Your Home. <https://www.peco.com/WaysToSave/ForYourHome/Pages/Default.aspx>

<sup>21</sup> Pennsylvania Public Utility Commission. Mission Statement. [http://www.puc.state.pa.us/about\\_puc.aspx](http://www.puc.state.pa.us/about_puc.aspx)

<sup>22</sup> U.S. Department of Energy. Office of Energy Efficiency and Renewable Energy. Solarize Guidebook.

<https://www.energy.gov/eere/solarpoweringamerica/solarize-guidebook>

<sup>23</sup> Solarize Southeast PA. <https://solarizesoutheastpa.com/>

Additionally, the Sierra Club has an active Southeastern Pennsylvania chapter and Ready for 100 team that provides education opportunities to the local community. Some examples include:

- The Chester County 100% Renewable Energy Expo and Discussion
- Ready for 100 After the Resolution Conference and Discussion



Ready for 100 Parade



Solar PV on Westtown School Athletic Center

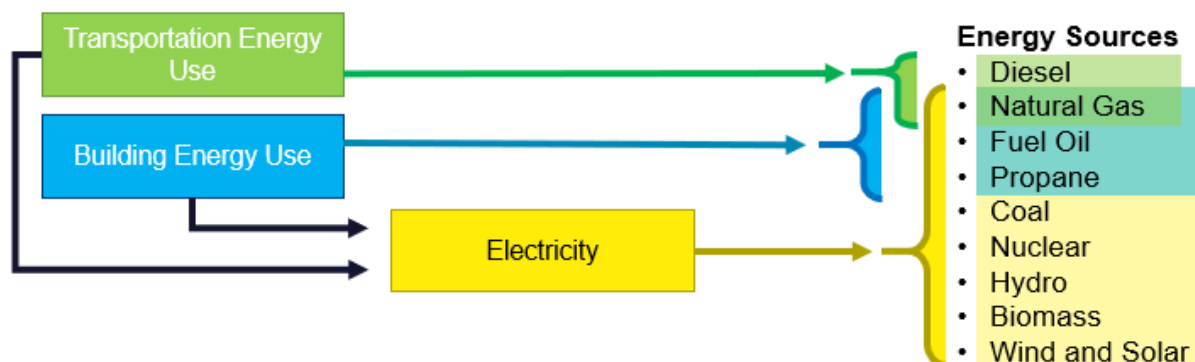


## Current Energy Consumption and Baseline Projections

### Overview and Methodology

To better assess the scale of change needed to achieve West Chester Area’s 2035 and 2050 renewable energy goals, it is important to understand the current breakdown of energy generation sources, utility projections for future electricity generation, and baseline forecasted energy consumption and supply. This analysis outlines the current energy generation sources throughout the West Chester Area and the expected changes to the electricity supply through the year 2050.

To determine the amount of energy consumed by the townships, the Cadmus Team began by aggregating data on energy use in the building and transportation sectors.<sup>24</sup> Next, the energy consumption of each sector was broken down to determine the source of energy (i.e. either electricity or another fuel source). The electricity mix for the region was then disaggregated into its composite sources. Figure 2 visually represents the baseline energy modeling methodology.



**Figure 2: Energy Model Workflow**

### Current Energy Consumption

Based on most recent available data, the West Chester Area consumes approximately 14,000 billion BTU annually. West Chester’s energy mix is 27 percent electrified, with the remaining energy coming from direct fossil fuel consumption. Over one third of the energy consumed is sourced from gasoline and diesel for the transportation sector. Natural gas, fuel oil, diesel, and propane are primarily used for heating in buildings, and account for about 36 percent of the mix. Of the heating fuels, natural gas is the most prominent, and is consumed significantly for electricity generation as well.

<sup>24</sup> Data sources used to figure the current consumption in the building sector was derived primarily from U.S. Census data and Delaware Valley Regional Planning Commission (DVRPC) 2015 Greenhouse Gas Emissions Summary. Data for the transportation sector are mainly sourced from U.S. Census data, Energy Information Administration (EIA), and the Southeastern Pennsylvania Transportation Authority (SEPTA).

West Chester’s electricity mix is heavily dependent on non-renewables. A third of the energy comes from nuclear power plants, and a slightly smaller share from natural gas plants. Coal consumption decreased significantly over the last decade but still supplies approximately 20 percent of electricity, more than renewables. Renewables, such as wind, solar, hydropower, and biomass, make up just over 1 percent of the overall energy mix. Figure 3 illustrates the energy consumption by fuel type and electricity source.

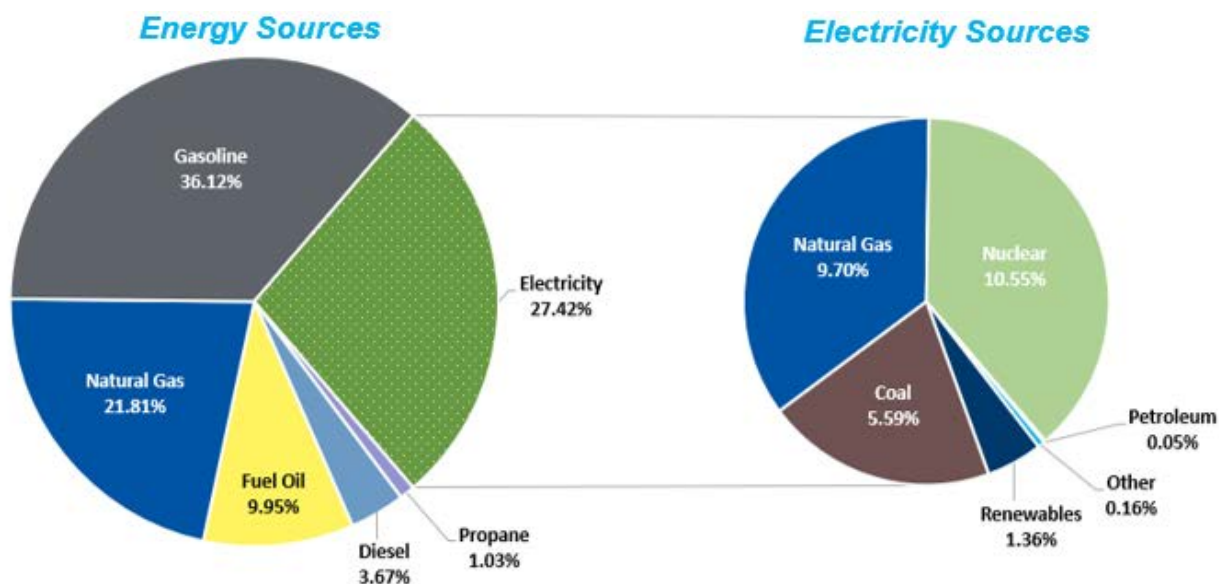
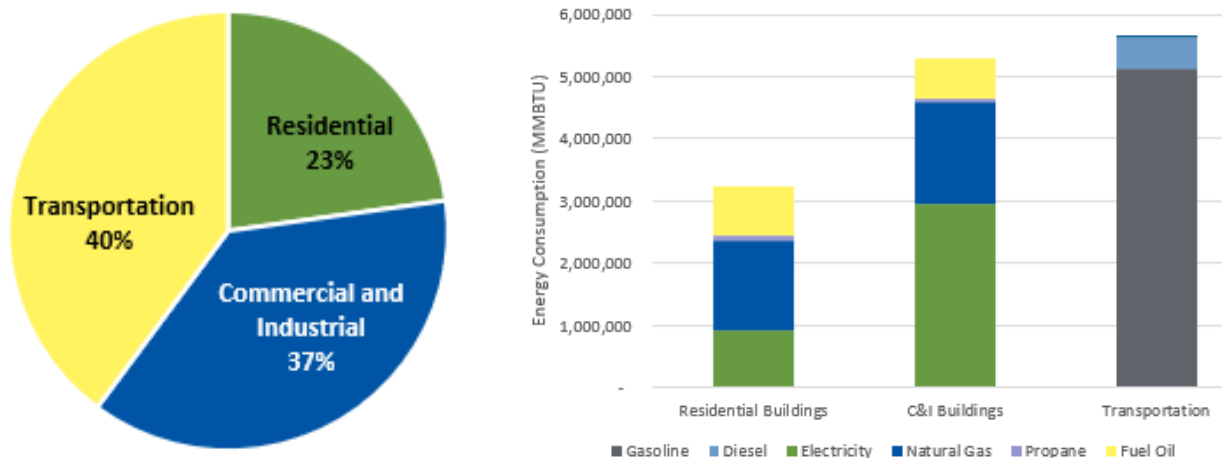


Figure 3: Energy Consumption by Fuel Type

As seen in Figure 4 below, the buildings sector constitutes 60% of all energy consumed in the West Chester Area. Of that 60%, 37% comes from commercial and industrial buildings, and the remaining 23% is consumed by residential buildings. Most of the energy consumed in commercial buildings comes from electricity and natural gas whereas residential buildings primarily consume natural gas. The transportation sector predominantly uses gasoline, with a relatively small share of diesel. Electric vehicles (EV) currently comprise a minimal amount of transportation energy consumption.

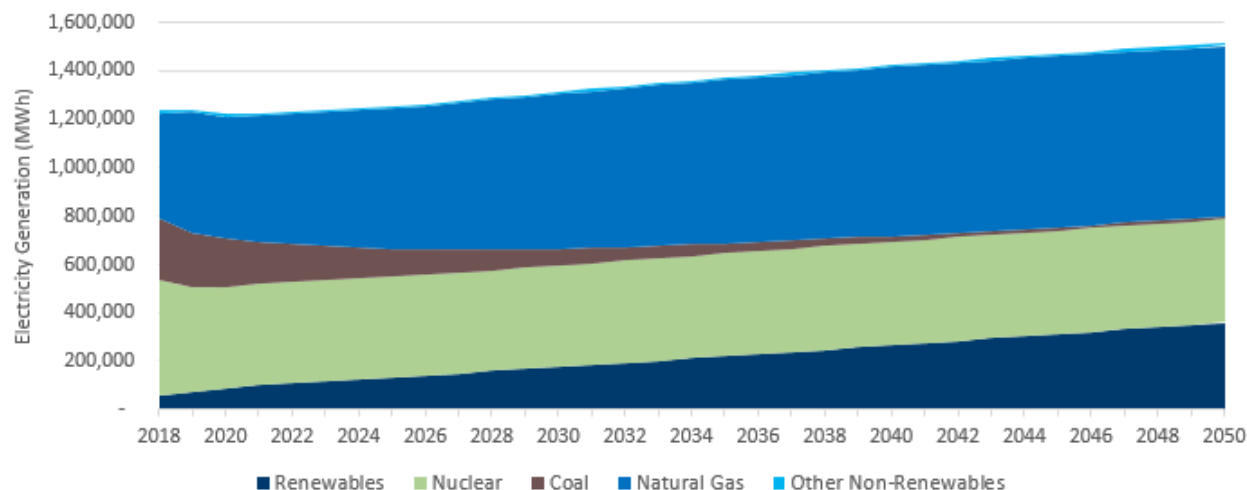


**Figure 4: Breakdown of Energy Consumption by Sector and Fuel Source in 2018**

*Baseline Scenario*

The purpose of a baseline scenario is to model West Chester Area’s likely electricity mix in 2035 and 2050 without any additional action from the municipalities or state. The baseline scenario projects West Chester Area’s community-wide electricity mix until 2050 based on planned additions and retirements in Pennsylvania’s electric grid. Given that the electricity sector offers the greatest near-term potential for renewables transformation, most of the strategies selected by the WCA participating municipalities focus on the electricity sector. As such, the baseline model also illustrates the electricity sector.

The baseline model accounts for the shutdown of the Three Mile Island nuclear power plant in 2019, which provided just over 3% of the state’s electricity generation. It also incorporates the phaseout of coal with a 10% compounded decrease every year moving forward, extending the trend seen in the past decade. Renewables are expected to increase based on targets set by the Pennsylvania Alternative Energy Portfolio Standard for Tier 1 resources and are projected to grow at a constant annual rate of 0.5% after the target of 8% Tier 1 renewables is reached by 2021.



**Figure 5: Current Projected Electricity Generation by Fuel Source**

### Key Takeaways from the Baseline Scenario

The model projects the following baseline milestones:

- Overall electricity consumption increases by 21 percent over the modeled period due to both projected population growth and electrification of the building and transportation sectors. The results of this baseline model account for a 3% reduction in electricity demand through 2050 due to energy efficiency gains as projected by the Energy Information Administration.
- **By 2019:** Natural gas overtakes nuclear as the primary fuel source for electricity. This is largely due to the planned retirement of the nuclear power plant on Three Mile Island.
- **By 2040:** Coal is almost entirely phased out of the electricity mix and replaced by natural gas.
- **By 2050:** Renewables make up 22.5 percent of the electricity mix. This increase is due to abiding by the Pennsylvania Alternative Energy Portfolio Standard (AEPS), and an assumed constant growth after the AEPS target year of 2021.

In sum, over the 30-year modeling period, West Chester Area’s building and transportation end-uses are progressively electrified, which increases overall electricity demand. Meanwhile, the electricity mix is projected to become more and more powered by renewable resources as coal is phased out and renewable prices decline. Collectively, these trends will support West Chester municipalities in their efforts to reach 2035 and 2050 renewable energy goals, but not at a sufficient scale. Currently, renewable energy generation is minimal in all sectors for the participating municipalities. Specifically, in the baseline scenario, renewables are projected to reach a 22.5 percent share of the electricity mix by the end of the 30-year modeling period. However, West Chester municipalities still have significant opportunity to accelerate and scale these trends through policy and programmatic action. Specifically, in the following section of the report, the Cadmus Team’s analysis focuses on pathways for municipalities to (1) increase renewable generation within the electricity supply mix in the near-term, and (2) accelerate electrification of building and transportation end-uses over the mid- to long-term.

The near-term policies that enable and increase the renewables in the electricity system are of great importance to reaching the WCA municipalities renewable electricity goals. Next, a longer-term goal to

electrify the building and transportation sectors is necessary to reach a fully renewable energy supply. This means that electricity will need to replace natural gas and fuel oil in the buildings sector and gasoline and diesel in the transportation sector.

## Strategy Analysis and Findings

### *Strategy Analysis Methodology*

#### Policy Analysis

There are numerous strategies that the West Chester Area Municipalities could undertake in an effort to achieve their renewable energy<sup>25</sup> goals. To identify a subset of strategies that would be appropriate and effective in the West Chester Area context, the Cadmus Team first compiled an initial list of 42 strategy options spanning the electricity, transportation, and building sectors. The selection of strategies on this list was informed by stakeholder and community feedback; the Cadmus Team's prior work with municipal governments nationwide; and desk research on the West Chester Area's state, utility, and local policy context, outlined in the Electricity Landscape section.

The Cadmus Team shared this initial list of strategy options with the Advisory Group members, which then conducted a prioritization exercise to select the top 18 strategies to analyze further. For each of the top 18 strategies, the Cadmus Team then qualitatively assessed and ranked each strategy one a scale of one (low) to three (high) against key criteria, summarized below:

- **Potential Scale of Impact:** Extent to which a strategy is expected to increase renewable energy supply in the electricity sector and/or increase the adoption of electrification technologies within the transportation or building sector within the West Chester Area.
- **Technical Feasibility:** Extent to which a strategy is feasible considering potential technical barriers (e.g. technology or policy).
- **Political Feasibility:** Extent to which a strategy is feasible considering local and state political barriers and social acceptability within participating municipalities.
- **Potential Financial Impact:** Extent to which a participating municipality will incur costs to implement the strategy.

For each strategy, the Cadmus Team also worked with the Advisory Group to identify key relevant examples in the West Chester Area or neighboring locales and categorized each strategy's implementation timeline as short- (0-1 years), medium (2-4 years), or long-term (5+ years). For more information on the top 18 strategies please see the strategy profiles below.

#### Energy and Financial Impact Modeling

The final component of the analysis involved quantitative energy and financial impact modeling. Of the 18 strategies identified as priorities in consultation with the Advisory Group, seven were deemed to have a minimal direct impact on the energy mix in the near-term. While these strategies play a key role in setting the foundation for future action, they are anticipated to have a minimal direct impact on the energy supply and therefore were not modeled.

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<sup>25</sup> For the purposes of this study, renewable energy sources include wind, solar, hydropower, and biomass.

The remaining 11 strategies were expected to have greater energy impacts. As such, the Cadmus Team modeled the likely energy impacts and calculated the approximate financial impacts each of these 11 selected strategies would have toward increasing the share of renewable energy in the West Chester Area’s supply mix. Some considerations for each modeled strategy include:

- **Year Started:** The year in which a strategy is expected to begin affecting distributed generation buildout or the power supply to the townships.
- **Area of Impact:** Area in which a strategy impacts the electricity supply. Strategies either increase distributed generation in the townships directly or cause broader impacts to the power mix supplying the townships.
- **Scale of Impact:** Extent to which a strategy affects renewable generation and how large the impact is assumed to be per year.

For more information on the modeling methodology and assumptions, **please see Appendix C.**

### *Synthesized Findings for Analyzed Strategies*

Based on the findings from the policy analysis and the results of the energy and financial impacts modeling work, four key categories emerged into which the 18 strategies can be divided depending on expected impact, local level of control, and overall role in the energy transition. These categories include 1) Enabling Strategies, 2) Community Engagement Strategies, 3) Municipal Supply Mix Strategies, and 4) State-Level Options.

Each of these categories and the associated strategies are explained in further detail in the following section. For each strategy, a one-page profile details information from the strategy analysis, including estimated energy impacts, technical feasibility, and political feasibility; as well as detailed implementation information, such as level of local control, timeline, implementation steps, and relevant resources and examples. The key below summarizes how to interpret the profiles:

Criteria	Description	Ranking
<b>Potential Scale of Impact</b>	Extent to which a strategy is expected to increase renewable energy supply in the electricity sector and/or increase the adoption of electrification technologies within the transportation or building sector within the West Chester Area.	<b>Low:</b> Action is expected to have minimal or no impact of the level of RE and/or adoption of electrification technologies in the West Chester Area.
		<b>Medium:</b> Action is expected to have a moderate impact on of the level of RE and/or adoption of electrification technologies in the West Chester Area.
		<b>High:</b> Action is expected to have a major impact on the level of RE and/or adoption of electrification technologies in the West Chester Area.
<b>Technical Feasibility</b>	Extent to which a strategy is feasible considering potential technical barriers (e.g. technology or policy).	<b>Low:</b> Action faces major technical barriers that jeopardize the action's ultimate implementation.

		<p><b>Medium:</b> Action faces moderate technical barriers, though these barriers are not considered fatal flaws.</p> <p><b>High:</b> Action is expected to be implemented without significant technical complications.</p>
<b>Political feasibility</b>	Extent to which a strategy is feasible considering local and state political barriers and social acceptability with participating municipalities.	<p><b>Low:</b> Action faces major political barriers and/or strong opposition from some stakeholders.</p> <p><b>Medium:</b> Action faces moderate political barriers and no strong response from stakeholders.</p> <p><b>High:</b> Action is expected to be implemented without significant political barriers and stakeholders are expected to be broadly supportive or ambivalent toward the action.</p>
<b>Local Level of Control</b>	Extent to which a strategy is within a participating municipality’s direct control.	<p><b>Low:</b> Action is outside of the direct control of a participating municipality</p> <p><b>Medium:</b> Action is partially within the direct control of a participating municipality, but requires coordination with other entities (e.g. the utility)</p> <p><b>High:</b> Action is within the direct control of a participating municipality</p>
<b>Timeline</b>	Categorization of a strategy’s implementation timeline.	<p><b>Short-Term:</b> 0-1 years</p> <p><b>Medium-Term:</b> 2-4 years</p> <p><b>Long-Term:</b> 5+ years</p>



## Category 1: Enabling Strategies

### Overview

This category includes strategies that set the foundation for future action. Many of these strategies ensure alignment with current and future renewable energy technologies in order to reduce costs and policy barriers associated with renewable energy integration. These strategies are typically highly local and within the direct control of the municipality, but are not expected to have a substantial, direct impact on the energy mix. As such, these strategies have not been included in the energy and financial impact modeling work. Lastly, while WCA municipalities are expected to incur costs for staff-time to implement these strategies in the near-term, there is strong potential for these strategies to also generate financial benefits and job creation for WCA communities in the long-term. Key strategies in this category are listed below:

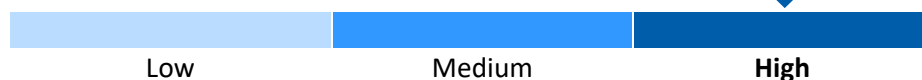
Strategies
1.1 Encourage solar ready guidelines
1.2 Streamline interconnection processes
1.3 Pass EV-ready ordinances
1.4 Install public charging stations for EVs
1.5 Develop a building electrification roadmap

## Strategy 1.1: Encourage Solar Ready Guidelines

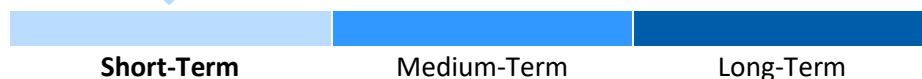
**Description:** *Participating municipalities encourage new buildings to be built in a way that accommodates future solar installations*

Criteria	Ranking	Description
Potential Scale of Impact	LOW	Limited direct energy impacts expected as the strategy does not directly generate clean energy and is limited to the rooftop solar and new construction market. However, this strategy reduces technical and financial barriers to solar implementation and will thus play an important role in the West Chester Area achieving its full solar potential over the medium- to long-term.
Technical Feasibility	MEDIUM-HIGH	No major technical barriers expected given the Delaware Valley Regional Planning Commission’s (DVRPC) existing guidelines. Additionally, several resources outlining best practices are available via SolSmart, National Renewable Energy Laboratory (NREL), and more. See below for more information on resources.
Political Feasibility	HIGH	No major political barriers expected. According to NREL, building owners and real estate developers stand to benefit from solar ready guidelines as it is a low-cost step that will position them to take advantage of lower costs of solar in the future.

Level of Local Control:



Timeline:



### Financial Information

**Costs** Implementation costs are expected to be largely limited to staff time.

Implementation Steps		Resources and Examples
1.	Review template solar ready guidelines and adapt for WCA context, if needed	<ul style="list-style-type: none"> <li>DVRPC: <a href="#">Solar Ready New Construction Checklist</a></li> <li>West Chester Borough: <a href="#">Green Building Certification Checklist</a></li> <li>NREL: Solar Ready: <a href="#">An Overview of Implementation Practices</a></li> </ul>

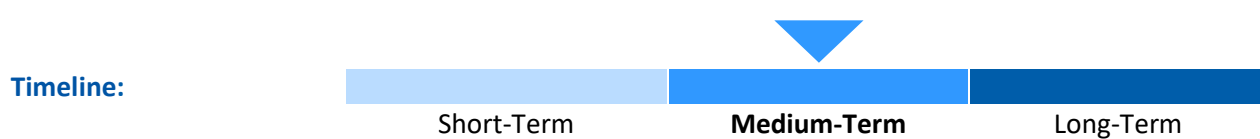
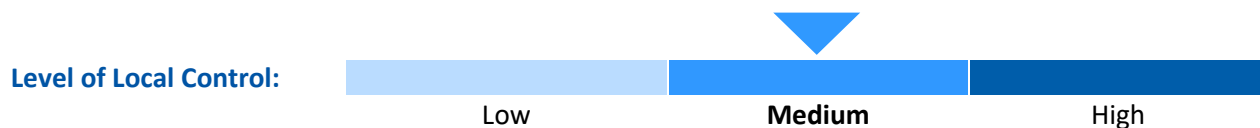
2. Consider joining SolSmart for additional technical assistance related to best practices and implementation

- SolSmart: [Technical Assistance](#)

## Strategy 1.2: Streamline Interconnection Processes

**Description:** *Participating municipalities collaborate with PECO to simplify utility interconnection procedures.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW	Limited direct energy impacts expected as the strategy does not directly generate clean energy. However, this strategy reduces technical barriers to solar implementation and will thus play an important role in the West Chester Area achieving its full solar potential over the medium- to long-term.
Technical Feasibility	MEDIUM	Some technical barriers expected. Potential barriers may include municipal staff and community members needing to become more familiar with interconnection processes in order to engage effectively with the utility. Additionally, there may be barriers related to the need for infrastructure upgrades.
Political Feasibility	MEDIUM	There are no major political barriers expected. Addressing interconnection would likely generate support from homeowners and solar developers who wish to install solar. This strategy has the potential to strengthen the community's relationship with utility. While some homeowners and solar contractors have publicly published complaints about PECO's interconnection costs, streamlining the interconnection process could help realize a mutually beneficial arrangement for all parties involved.



Financial Information	
<b>Costs</b>	Implementation costs are expected to be largely limited to staff time.
<b>Savings</b>	Strategy is expected to produce direct savings in the installation cost of residential solar at approximately \$125 for an average 5 kW residential solar system. Note that this savings is reflective of the soft cost savings after the interconnection process has been streamlined.

Implementation Steps		Resources
1.	Review interconnection best practices; identify challenges and concerns regarding the existing interconnection process	<ul style="list-style-type: none"> <li>Interstate Renewable Energy Council: <a href="#">Model Interconnection Procedures</a></li> </ul>
2.	Engage PECO and hold a collaborative discussion to discuss concerns and potential solutions. Set up a process for ongoing communication between PECO and the WCA.	<ul style="list-style-type: none"> <li>DVRPC &amp; SolSmart: <a href="#">Addressing Solar PV Interconnection Challenges: Lessons for Local Governments and Utilities</a></li> </ul>
3.	Consider joining SolSmart for additional technical assistance related to best practices and implementation	<ul style="list-style-type: none"> <li>SolSmart: <a href="#">Technical Assistance</a></li> </ul>

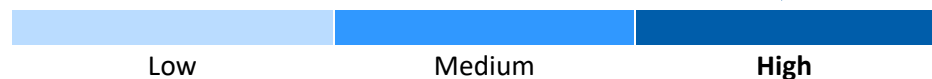
### Strategy 1.3: Pass EV-Ready Ordinances

**Description:**

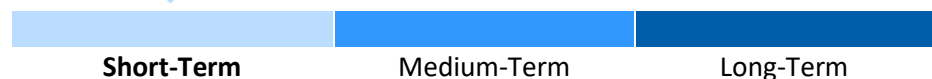
*Participating municipalities encourage EV readiness measures in new construction and/or renovations of a certain level, including providing adequate electrical capacity to support EV charging or installing charging stations in a certain percentage of parking spaces.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW-MEDIUM	Strategy is not expected to increase the adoption of EVs in the near term since the strategy focuses on the new construction market and does not address the much larger share of existing buildings. Voluntary measures will also have a lesser impact than mandated ones. However, increased access to charging infrastructure in all new construction will help reduce range anxiety and encourage EV adoption in the medium to long-term as additional new development occurs.
Technical Feasibility	HIGH	No major technical barriers expected. Additionally, there are several resources outlining best practices via the Alternative Fuels Data Center.
Political Feasibility	MEDIUM	No major political barriers expected as EV ready ordinances are a suggested strategy in the PA Electric Vehicle Roadmap. Level of political feasibility may vary depending on local interest in voluntary options (like current West Chester example) as opposed to mandates. Developers might push back on having to comply with new EV Ready codes if they are mandated.

**Level of Local Control:**



**Timeline:**



#### Financial Information

**Costs** Implementation costs to pass the ordinance are expected to be largely limited to staff time.

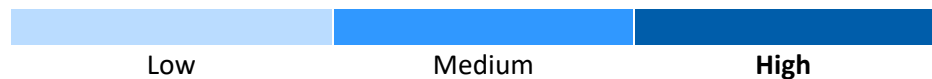
Implementation Steps		Resources and Examples
1.	Develop EV-Ready voluntary codes, zoning ordinances, or parking requirements	<ul style="list-style-type: none"> <li>Alternative Fuels Data Center: <a href="#">Pennsylvania EV Roadmap</a></li> <li>City of Atlanta, GA: <a href="#">EV Ready Ordinance</a></li> </ul>
2.	Implement the new methods to support EV Readiness	<ul style="list-style-type: none"> <li>City of Richmond, BC: <a href="#">Residential EV Charging, A Guide for Local Governments</a></li> </ul>

## Strategy 1.4: Install Public Charging Stations for EVs

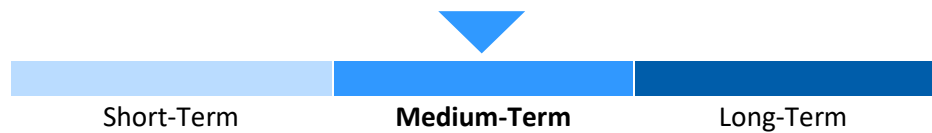
**Description:** *Participating municipalities build out EV charging infrastructure in publicly owned buildings, parking lots, or in the right-of-way.*

Criteria	Ranking	Description
<b>Potential Scale of Impact</b>	<b>MEDIUM-HIGH</b>	Strategy is expected to increase the adoption of electric vehicles in the West Chester Area. A noted barrier to entry in the PA Electric Vehicle Roadmap is access to charging infrastructure for residents without a garage or dedicated parking.
<b>Technical Feasibility</b>	<b>MEDIUM</b>	Strategy is expected to face moderate technical barriers as adequate electrical infrastructure is necessary to support charging. Adding electrical capacity can potentially be an expensive, time consuming, and disruptive process.
<b>Political Feasibility</b>	<b>MEDIUM</b>	Little political and stakeholder opposition is expected as public chargers are already a common topic of discussion across the municipalities. One potential point of contention is determining the source of funding as charging infrastructure has high upfront costs. Another contentious topic may be the impact on available parking. If space for parking is already constrained, designating some parking spots as "EV only" might incur pushback.

**Level of Local Control:**



**Timeline:**



### Financial Information

<b>Costs</b>	Implementation costs include staff time, as well as upfront costs for infrastructure and installation. Costs for infrastructure, installation, and network services vary (see NYSERDA Best Practices Guide and US Department of Energy [DOE] Report below for more information).
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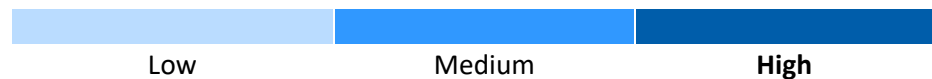
Implementation Steps		Resources
1.	Identify potential sites in municipal lots and/or right of way spaces for public charging stations	<ul style="list-style-type: none"> <li>• NYSERDA: <a href="#">Best Practices for Charging Stations</a></li> <li>• City of Richmond, BC: <a href="#">Electric Vehicle Charging Infrastructure in Shared Parking Areas: Resources to Support Implementation &amp; Charging Infrastructure Requirements</a></li> <li>• PA Department of Environmental Protection (DEP): <a href="#">VW Settlement Funds</a></li> <li>• US DOE <a href="#">Costs Associated with Non-Residential Electric Vehicle Supply Equipment</a></li> </ul>
2.	Analyze the sites to determine electrical upgrade requirements and potential utilization rates; possibly connect with local utility for site analysis	
3.	Conduct an economic analysis to determine final list of sites	
4.	Apply for known grants or consider other funding sources to help offset expected upfront costs	
5.	Work with a vendor to determine best business model and begin installation	

## Strategy 1.5: Develop a Building Electrification Roadmap

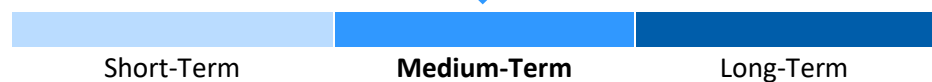
**Description:** *Participating municipalities create a plan to guide building electrification efforts, including policy and program recommendations, near and/or long-term targets for building electrification, and metrics for success.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW-MEDIUM	Strategy is expected to indirectly support the adoption of building electrification technologies over time as a roadmap is a vital first step towards building electrification by organizing and guiding municipal efforts. While strategy is not expected to have a major impact on technology adoption in the near-term, it plays an important role in the overall transition to 100% RE.
Technical Feasibility	MEDIUM	Some barriers are expected including the need for greater state and local expertise in the building sector. However, several municipalities in a similar climate have made building electrification plans that the municipalities can use as a guide for their own plan, where publicly available.
Political Feasibility	MEDIUM	Creating the building electrification roadmap itself is not anticipated to face significant political barriers. However, generating buy-in from municipal partners in the roadmap creation and in implementing policy and program recommendations could face substantial political challenges. Some stakeholders may push to slow electrification below what is necessary to achieve RE goals, citing high costs of replacing fossil fuel systems. Municipalities can work to build stakeholder and public buy-in by citing electrification benefits, including improved indoor air quality, improved home comfort, and lower emissions.

Level of Local Control:



Timeline:



### Financial Information

Implementation costs are expected to be largely limited to staff time, but may expand to include hiring technical support for some and/or all aspects of the roadmap.

Implementation Steps		Resources
1.	Conduct baseline analysis to evaluate local building electrification market conditions (existing building stock, economics of heat pumps for different building-types, state-level policy and regulatory conditions, and major local supply chain players).	<ul style="list-style-type: none"> <li>• Building Decarbonization Coalition: <a href="#">A Roadmap to Decarbonize California Buildings</a></li> <li>• Burlington Electric Department: <a href="#">Net Zero Energy Roadmap for the City of Burlington, Vermont</a></li> <li>• Rocky Mountain Institute: <a href="#">The Economics of Electrifying Buildings</a></li> </ul>
2.	Engage relevant state-level decision-making bodies (e.g. PA DEP, PA Public Utilities Commission, and PECO) to evaluate their capacity and willingness to support building electrification. Engagement may be individual or collectively through a working group or workshop.	
3.	Compile analysis and potential conversations into an actionable building electrification roadmap.	

### Category 2: Community Engagement Strategies

This category includes strategies that generate awareness of renewable energy and electrification options, and provide opportunities for residents, local businesses, and other stakeholders to engage in the process. These strategies are generally within the direct control of the municipalities, but are not expected to have a substantial, direct impact on the energy mix. As such, these strategies have not been included in the energy and financial impact modeling work, with the exception of Strategy 2.2. Lastly, while WCA municipalities are expected to incur costs for staff-time to implement these strategies in the near-term, there is strong potential for these strategies to also generate financial benefits and job creation for WCA communities in the long-term. Key strategies in this category are listed below:

Strategies
2.1 Initiate renewable energy educational campaigns
2.2 Establish and/or participate in group purchasing campaigns
2.3 Engage the community in setting energy goals
2.4 Initiate renewable heating and cooling marketing campaigns

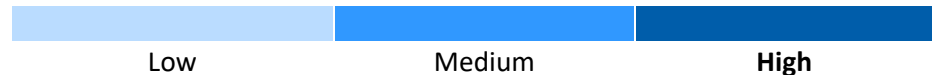
## Strategy 2.1: Initiate Renewable Energy Educational Campaigns

**Description:**

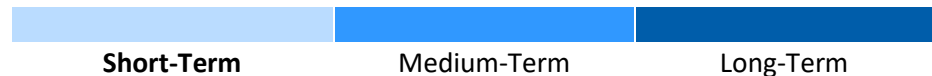
*Participating municipalities develop educational campaigns to create community support for RE strategies and to encourage voluntary action at an individual or private business level. A campaign may be led by a municipality directly or could provide funding to another organization that has complementary expertise, for example in community outreach.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW	This strategy is not expected to directly increase the amount of RE in the West Chester Area's energy supply in the near-term as it does not directly generate clean energy. However, it may have a greater impact on renewable energy supply in the long-term by increasing local awareness of the benefits of RE and lowering existing political barriers surrounding the implementation of RE in the area. The scale of impact may be slightly larger if the campaign is executed at the COG or County-level.
Technical Feasibility	HIGH	Strategy is not expected to face major technical barriers given the efforts already in place in the West Chester Area and the number of resources available to support implementation.
Political Feasibility	MEDIUM-HIGH	An educational program that has little costs and places little burden on staff is anticipated to have political support. However, strategy may face limited opposition from some stakeholders who do not support using municipal funds for RE outreach.

**Level of Local Control:**



**Timeline:**



### Financial Information

**Costs** Implementation costs are expected to be largely limited to staff time.

Implementation Steps		Resources
1.	Review existing educational materials and adapt to the WCA context, if needed.	<ul style="list-style-type: none"> <li>Chester County Ready for 100 Team: <a href="#">Chester County Clean Energy Tour Program</a></li> </ul>
2.	Hold public educational events and share information via community outreach on potential	

opportunities for businesses and residents to participate municipality RE plans.

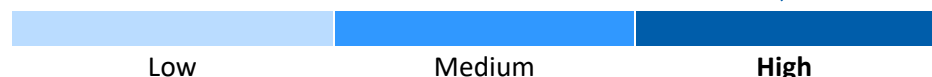
- West Chester Area Council of Governments: [West Chester Area Renewable Energy Transition Project Site](#)
- Sierra Club: [100% Clean Energy School Districts Campaign Organizing Toolkit](#)

## Strategy 2.2: Establish and/or Participate in Group Purchasing Campaigns

**Description:** *Host or support group purchasing programs for renewable electricity (e.g. Solarize campaigns) to reduce costs and support market development.*

Criteria	Ranking	Description
Potential Scale of Impact	MEDIUM	By reducing upfront costs and providing education, this strategy will reduce barriers to distributed renewable energy generation, but is not expected to have a major impact on the West Chester energy mix in the near-term. However, it should be noted that it is possible for this strategy to have greater reach with a higher level of investment from the participating municipality(s). Campaigns can be undertaken repeatedly to increase participation and reach of the program.
Technical Feasibility	MEDIUM	Strategy is not expected to face major technical barriers, given their prevalence and success in similar locations across the US, as well as current action being taken in the West Chester Area. Furthermore, there are a number of existing resources on group purchasing campaigns, especially throughout New England and the Northeast, and the number of Pennsylvania campaigns has grown in recent years. Potential technical barriers to the success of a group purchasing campaigns may include interconnection challenges.
Political Feasibility	MEDIUM-HIGH	No major political barriers expected given current action in the West Chester Area. Additionally, the community education and engagement components of group purchasing are expected to reduce any opposition from stakeholders.

Level of Local Control:

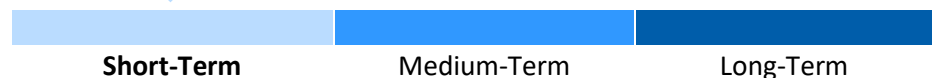


Low

Medium

High

Timeline:



Short-Term

Medium-Term

Long-Term

### Financial Information

Costs	Implementation costs are expected to be largely limited to staff time to select a non-profit partner to run program, coordinate action with nonprofit, and conducting outreach in community for solarize program
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Implementation Steps		Resources and Examples
1.	Research the process for developing a group purchasing campaign and train staff as needed.	<ul style="list-style-type: none"> <li>• Solarize Southeast PA: <a href="#">Overview</a></li> <li>• <a href="#">Solarize Northern Virginia (NOVA): Overview</a></li> <li>• National Renewable Energy Laboratory: <a href="#">The Solarize Guidebook</a></li> </ul>
2.	Develop a team to support campaign activities, including city staff and/or community volunteers. Staff responsibilities include program coordination, marketing, and installer and utility relations.	
3.	Issue a request for proposals (RFP) for installers, evaluate responses, and select an installer.	
4.	Promote the campaign through community outreach.	



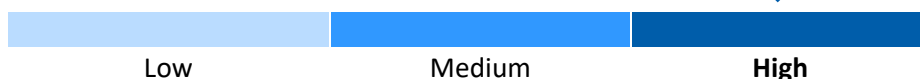
## Strategy 2.3: Engage the Community in Setting Energy Goals

**Description:**

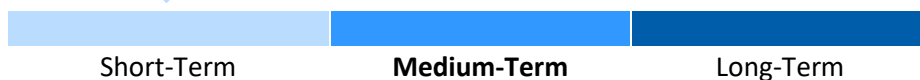
*Convene, facilitate, and/or support on-going public discussions with the community around energy goals and/or encourage local businesses and institutions to set renewable electricity goals of their own.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW	Although engaging the community around energy goals is unlikely to directly result in a large number of RE installations, such a strategy promotes awareness among community members, increases resident buy-in to the other proposed RE strategies, and encourages voluntary action at an individual or private business level. Furthermore, municipalities could encourage local businesses and institutions to develop RE goals of their own.
Technical Feasibility	MEDIUM-HIGH	No major technical barriers expected given the history of action in the West Chester Area. However, the community engagement process may affect the timeline to implement renewable energy strategies as it will lengthen the time needed to develop plans and policies. Engaging the community will also require staff time to implement.
Political Feasibility	MEDIUM-HIGH	An engagement program that is relatively low cost and places little burden on staff is anticipated to have political support.

**Level of Local Control:**



**Timeline:**



### Financial Information

**Costs**

Implementation costs are expected to be largely limited to staff time.

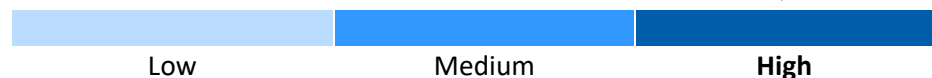
Implementation Steps		Resources
1.	Develop a plan to optimize community engagement, drawing upon best practices on clean energy program design.	<ul style="list-style-type: none"> <li>Urban Sustainability Directors Network: <a href="#">A Guidebook on Equitable Clean Energy Program Design for Local Governments and Partners</a></li> <li>Rocky Mountain Institute: <a href="#">Community Energy Resource Guide</a></li> </ul>
2.	Create opportunities for public engagement throughout the WCA and clearly indicate how public engagement will be factored into final goals, plans, and policies.	
3.	Advertise the opportunities through community outreach. Incentivize and encourage ongoing community development	

## Strategy 2.4: Initiate Renewable Heating and Cooling Marketing Campaigns

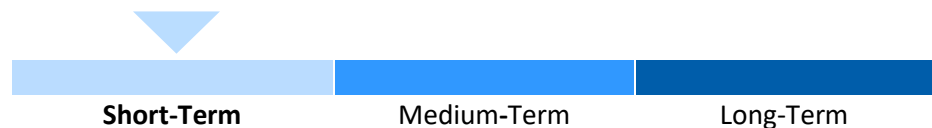
**Description:** *Establish and/or strengthen marketing, educational, and group purchasing campaigns to raise awareness and expand implementation of building electrification technologies.*

Criteria	Ranking	Description
Potential Scale of Impact	MEDIUM	Strategy is expected to reduce barriers to building electrification in the near-term and increase adoption of renewable heating and cooling technologies. The success of these programs in encouraging adoption of electrification technologies has varied by municipality, but it is generally limited to a subset of homes and businesses that opt-in to building electrification instead of widespread adoption or market transition. Leve of uptake will vary based on existing heating fuel type for existing homes and businesses.
Technical Feasibility	MEDIUM	Strategy is expected to face some technical barriers given the lack of experience hosting these types of campaigns. Municipal staff may need to be trained in specialized content related to electrification technologies or installer recruitment. Participating municipalities could consider leveraging lessons learned and key takeaways from past campaigns in New York and Massachusetts or local Solarize campaigns to decrease these challenges.
Political Feasibility	MEDIUM	Strategy is expected to face moderate political and stakeholder opposition. In some cases, stakeholders may question the technologies or be reluctant to switch from traditional fuels.

Level of Local Control:



Timeline:



### Financial Information

<b>Costs</b>	Implementation costs will include staff time, as well as costs for marketing materials. Additional costs may include rebates for customers, should they be incorporated into the program.
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Implementation Steps		Resources and Examples
1.	Research the process for establishing a marketing campaign, train staff as needed.	<ul style="list-style-type: none"> <li>Meister Consultants Group: <a href="#">Key Findings from Pilot Renewable Heating and Cooling Campaigns</a></li> <li>Clean Energy States Alliance: <a href="#">Community Campaigns for Renewable Heating and Cooling Technologies - Case Studies</a></li> </ul>
2.	Develop a team to support campaign activities.	
3.	Issue a request for proposals (RFP) for HVAC installers, evaluate responses, and select an installer.	
4.	Promote the campaign through community outreach in conjunction with installers	
5.	Manage incoming leads and updates leads over time and collect participation metrics to determine program efficacy and use to apply for funding for future campaigns.	

### Category 3: Municipal Supply Mix Strategies

Strategies in this category allow the municipalities to lead by example by taking direct action to increase the renewable share of the municipal energy mix (e.g. energy that supplies local government operations). These strategies are within the direct control of the municipality and can have a substantial impact on municipal operations. However, they will have a more limited impact on the community-wide energy mix. Key strategies in this category are listed below:

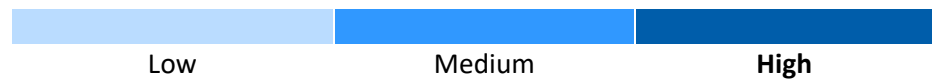
Strategies
3.1 Install renewable energy on-site to supply municipal operations
3.2 Procure renewable energy from retail electricity providers
3.3 Power purchase agreement: partner with a third party to procure renewable energy
3.4 Purchase renewable energy certificates (RECs)
3.5 Lead by example in municipal facilities (building electrification)
3.6 Procure electric vehicles for municipal fleets

### Strategy 3.1: Install Renewable Energy On-Site to Supply Municipal Operations

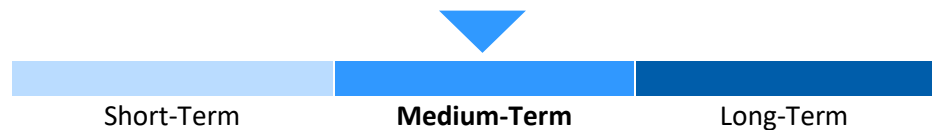
**Description:** *Install renewable energy projects on municipal facilities and land to power municipal operations with renewable electricity. The municipality could directly own the installation or consider a third-party ownership model via a solar lease or power purchase agreement (PPA).*

Criteria	Ranking	Description
Potential Scale of Impact	LOW-MEDIUM	This strategy is not expected to greatly increase the amount of RE in the West Chester Area's energy supply as municipal facilities may be limited in on-site space to host RE projects. Additionally, municipal facilities account for a small percentage of the West Chester Area's building and land stock. Impact could be increased by encouraging other entities, such as the County government, school districts, or large commercial customers to install RE on-site via education, outreach, and the improvement of local processes (e.g. streamlined permitting, inspection, and zoning).
Technical Feasibility	MEDIUM	Strategy is not expected to face major technical barriers given the history of action in the West Chester Area. Potential technical barriers may include interconnection challenges and site-specific barriers (e.g., shading, roof age, etc.).
Political Feasibility	MEDIUM-HIGH	Strategy is not expected to face major political barriers given history of action in the West Chester Area. Strategy may face opposition from some stakeholders who do not support using city funds to install RE; however, these barriers could be reduced by on-going education and outreach on the benefits of RE, including long-term cost savings.

Level of Local Control:



Timeline:



Financial Information	
<b>Option 1: Own and Install System</b>	Costs include staff time to select and coordinate with an installer. The system would require an upfront cost of \$2.1/watt, for a total of ~\$171,000 per 81.5 kW of installed solar, the assumed average solar potential for municipal buildings in the WCA. Net metering savings from an 81.5 kW system are estimated at ~\$5,700 per year.
<b>Option 2: to Lease Panels and Establish PPA</b>	Costs include staff time to select and coordinate with an installer. At a fixed price PPA rate of \$0.06/kWh, an 81.5 kW solar PV array would add an additional cost of \$300 per year.

Implementation Steps		Resources
1.	Identify potential sites for solar installation	<ul style="list-style-type: none"> <li>SolSmart: <a href="#">Guide to Implementing Solar PV for Local Governments</a></li> </ul>
2.	Conduct technical and economic feasibility analysis for each site, considering financing options and available incentives, and select a site	
3.	Determine preferred ownership model and issue an RFP or contact solar installers directly to receive proposals	<ul style="list-style-type: none"> <li>US Environmental Protection Agency (EPA): <a href="#">Solar Project Development Pathway and Resources</a></li> </ul>
4.	Review proposals, award bid, and construct systems	

## Strategy 3.2: Procure Renewable Energy from Retail Electricity Providers

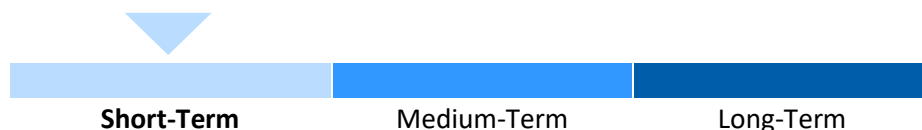
**Description:** *Purchase electricity from a competitive supplier to supply municipal operations with renewable energy.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW-MEDIUM	This strategy would enable a participating municipality to supply municipal operations with up to 100% renewable energy. According to the Pennsylvania Power Switch website, there are a number of suppliers currently offering green products with varying percentages of renewable energy in the PECO service territory. Impact is limited as municipal operations constitute a limited percentage of community-wide consumption.
Technical Feasibility	HIGH	Strategy is not expected to face major technical barriers given available resources, such as the PA Power Switch website and resources available via the PA Municipal Utility Alliance. Some minor technical barriers may include the need for staff to be trained in specialized content and constraints related to duration of existing contracts.
Political Feasibility	MEDIUM	Strategy is not expected to face major political barriers given history of action in the West Chester Area. However, strategy may face limited opposition from some stakeholders who do not support using city funds to purchase RE.

Level of Local Control:



Timeline:



### Financial Information

Costs	Annual costs are associated with selecting a 100% renewable electric supplier with an increased cost equal to Tier 1 PA renewable energy certificates (RECs). This would include a rate increase of \$0.006/kWh for municipal facility electric costs, or approximately \$135,500 across all six township municipal facilities.
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Implementation Steps		Resources
1.	Identify electricity suppliers serving the West Chester Area and research their renewable energy offerings	<ul style="list-style-type: none"><li>PA Power Switch: <a href="#">Electric Shopping Platform</a></li><li>PA Power Switch: <a href="#">How to Shop and Switch Electricity in PA</a></li></ul>
2.	Compare supplier offerings, noting the pricing, fees, contract length, and percentage of renewable energy	
3.	Select a supplier and contact to enroll in their retail program offering	

### Strategy 3.3: Power Purchase Agreement: Partner with a Third Party to Procure Renewable Energy

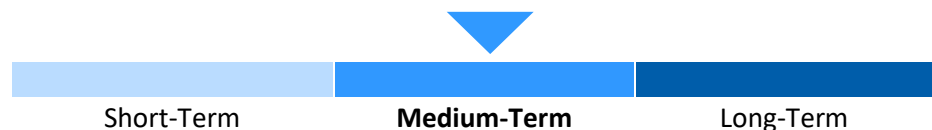
**Description:** *Participating municipality(s) partner with an independent power producer (IPP) to procure renewable electricity for municipal operations through a power purchase agreement. There are multiple strategies for entering into a power purchase agreement, including a physical PPA versus a virtual PPA. For the purpose of this analysis, the Project Team focused on physical PPAs for offsite renewables.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW-MEDIUM	This strategy would enable a participating municipality to supply municipal operations with greater percentages of renewable energy. However, impact is somewhat limited given the space available within the PECO service territory for large RE developments.
Technical Feasibility	MEDIUM-HIGH	Strategy is not expected to face major technical barriers given nearby examples with processes and lessons learned that can be leveraged in the WCA. Some technical barriers may include the need for staff to be trained in specialized content related to RE procurement.
Political Feasibility	MEDIUM-HIGH	Strategy may face some opposition from stakeholders who oppose use of municipal resources to support RE purchases. These barriers may be mitigated by educating stakeholders about the potential benefits, including decreased electricity costs.

Level of Local Control:



Timeline:



Financial Information	
Costs	Costs include time spent selecting and contracting a PPA and coordinating potential C&I participation.
Savings	Electricity costs would decrease by \$0.0125/kWh through the fixed price PPA rate for municipal facility energy use. This corresponds to savings of approximately \$274,000 annually across all six township municipal facility bills.

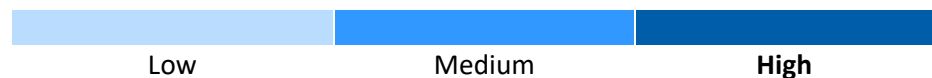
Implementation Steps		Resources and Examples
1.	Identify independent power producers (IPPs) within PECO territory.	<ul style="list-style-type: none"> <li>Environmental Protection Agency: <a href="#">Physical Power Purchase Agreements</a></li> <li>NREL: <a href="#">Power Purchase Agreement Checklist for State and Local Governments</a></li> <li>Center for Climate and Energy Solutions: <a href="#">How Cities Benefit from Power Purchase Agreements</a></li> <li>City of Philadelphia: <a href="#">Solar Power Purchase Agreement with Community Energy</a></li> </ul>
2.	Negotiate and enter contract with the IPP, ensuring RECs will be conveyed to the participating municipalities.	
3.	IPP builds, maintains, and continues to operate the RE system, while the municipalities receive title to the electricity and RECs.	

### Strategy 3.4: Purchase Renewable Energy Certificates (RECs)

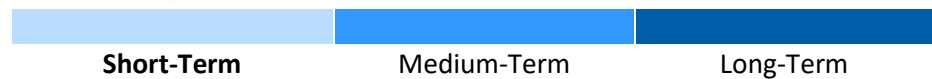
**Description:** *Purchase RECs to realize local energy targets. Participating municipalities could also provide information to residents and businesses to support them with the potential purchase of RECs.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW-MEDIUM	Strategy is expected to have a substantial impact on the West Chester Area’s energy mix, as purchasing RECs could potentially cover a municipality's entire RE target. It is important to note that local benefit will be dependent on where the RE projects that generate the RECs are located and if the REC purchases spur additional RE development.
Technical Feasibility	HIGH	Strategy is not expected to face technical barriers given the history of action in the West Chester Area and presence of established REC markets. Additionally, a number of resources explaining REC purchases are publicly available, such as the EPA's Guide to Purchasing Green Power.
Political Feasibility	LOW-MEDIUM	Strategy may face some opposition from stakeholders who oppose the use of municipal funds to support RE purchases.

Level of Local Control:



Timeline:



#### Financial Information

<b>Costs</b>	Costs include the annual cost to purchase RECs to cover municipal energy use, estimated in 2035 when REC purchases cover the difference between baseline renewable supply and 100% of municipal facility electricity. Costs to purchase PA Tier 1 RECs for all six townships are estimated at \$129,000 per year, and costs to purchase TX wind RECs for all six townships are estimated at \$16,000 per year.
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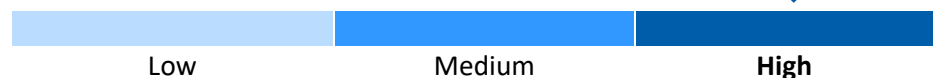
Implementation Steps		Resources
1.	Determine the number of RECs the city needs to purchase by subtracting the percentage of electricity generated by renewable sources from the current renewable energy target and multiplying by annual electricity usage	<ul style="list-style-type: none"> <li>• Environmental Protection Agency: <a href="#">Guide to Purchasing Green Power</a></li> <li>• Green-e: <a href="#">Certified Green Power</a></li> <li>• Evolution Markets: <a href="#">REC Trading 101</a></li> </ul>
2.	City staff contact a competitive electricity supplier and request they buy RECs on the municipality’s behalf to meet the current energy target, updating REC needs on an annual basis.	
3.	Alternatively, city staff contact a renewable energy broker (e.g., Evolution Markets) and coordinate REC purchase through broker, updating REC needs on an annual basis.	

### Strategy 3.5: Lead by Example in Building Facilities (Building Electrification)

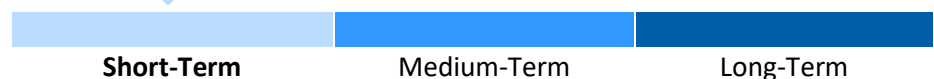
**Description:** *Participating municipalities establish "lead by example" programs to design and implement electrification projects and retrofit strategies in public facilities.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW-MEDIUM	Lead by example projects are not expected to have a major direct impact on technology adoption in the near-term. However, this strategy is expected to support the adoption of building electrification technologies by improving awareness of renewable thermal systems and supporting market development.
Technical Feasibility	MEDIUM	Technical feasibility will vary significantly by building/facility, and implementation timeline will vary based on when existing systems are due for replacement. The resources section below provides case studies of different building types that have been successfully electrified. Generally, GSHPs are the most applicable for larger facilities that have open space surround them (e.g., large parking lots). ASHPs or VRFs are most applicable for municipal buildings that currently lack central cooling and could benefit from heat pump technologies to improve occupant comfort.
Political Feasibility	MEDIUM-HIGH	Strategy is expected to face some political and stakeholder opposition, particularly regarding the source of funding for implementing upgrades. Renewable thermal systems have high upfront costs and can have higher operating costs than gas heating systems. However, emphasizing "high-efficiency heating and cooling" will be important, and sourcing rebates from PECO or the Commonwealth of Pennsylvania should help reduce the political barriers related to high perceived costs.

Level of Local Control:



Timeline:



Financial Information	
<b>Heat Pump Water Heater and VRF Heat Pump Systems</b>	Costs for a typical municipal building in the WCA could include approximately \$100,000 in capital costs and annual operating costs of \$9,800. Operating costs include current electricity usage and the new electricity usage for heat pump systems.
<b>Natural Gas Heating Unit</b>	Costs for a typical building in the WCA include approximately \$43,000 in capital costs and annual operating costs of \$10,200. Operating costs include current electricity usage and gas for heating based on the typical building. As a note, operating costs do not include the costs of cooling building, which does not currently appear to have a cooling system. Gas system capital cost would increase significantly to cover the cost of adding central cooling to the building, whereas VRF system provides both heating and cooling in one system

Implementation Steps		Resources
1.	Conduct inventory of existing building heating systems to identify buildings that have heating systems that will require replacement in the near-term (0-2 years).	<ul style="list-style-type: none"> <li>Metropolitan Area Planning Council: <a href="#">Hot, Clean, Cool</a></li> <li>Marc Rosenbaum, P.E. at Energysmiths: <a href="#">Prototype Classroom – A Deep Energy Retrofit at the Plainfield, NH School</a></li> <li>U.S. Green Building Council: <a href="#">Zero Energy Buildings in Massachusetts</a></li> <li>Northeast Sustainable Energy Association: <a href="#">Bennington Superior Courthouse and State Office Building</a></li> </ul>
2.	Perform high-level cost-benefit analysis to evaluate the economics of installing building electrification technologies to further prioritize buildings for upgrades. Concurrently, evaluate municipal capacity for financing upgrades.	
3.	Identify and conduct outreach to renewable thermal installers in the area to further evaluate the financial and technical feasibility of building electrification upgrades.	
4.	Finalize and complete prioritized building electrification installations.	

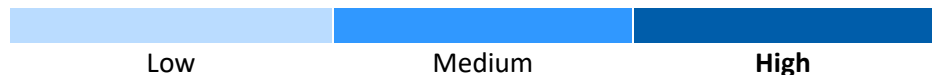
### Strategy 3.6: Procure Electric Vehicles for Municipal Fleet

**Description:**

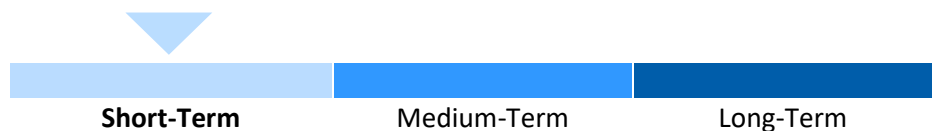
*Participating municipalities can integrate EVs as part of their municipal fleets. This may also include efforts to electrify school bus fleets, and/or support electrification of transit bus fleets if not owned/controlled by the municipality.*

Criteria	Ranking	Description
Potential Scale of Impact	LOW-MEDIUM	Procuring Electric Vehicles for Municipal Fleets will increase overall public exposure and visibility of EVs, and demonstrate leadership by example. The size and scope of municipal fleets are limited though and only account for a small percentage of vehicles in the area.
Technical Feasibility	LOW-MEDIUM	Strategy is not expected to face major technical barriers as the technology exists and other cities have implemented similar strategies. The primary technical concern will be building adequate charging infrastructure to support these electric fleets.
Political Feasibility	MEDIUM	This strategy has the potential to mark municipalities as leaders in this space and demonstrate actionable measures taken to increase electrification. EV procurement is a high initial cost and moderate time commitment strategy to implement though as it will require tangential electrical infrastructure buildout. But given the smaller size of the municipal fleet, this has the potential to be easier. Strategy could face opposition from stakeholders who oppose using municipal funds and staff time to plan and design the infrastructure support and procure EVs that adequately support current needs.

Level of Local Control:



Timeline:





Financial Information	
<b>Costs</b>	Costs include staff time spent on EV procurement. The difference in municipal total cost of ownership for single EV over a current standard internal combustion engine vehicle is approximately \$11,000 in 2020 and \$6,000 in 2050.
<b>Savings</b>	Average fuel savings for an EV are approximately \$1,000 per vehicle per year.

Implementation Steps		Resources and Examples
1.	Identify the size, age, and duty cycle of the municipal fleets	<ul style="list-style-type: none"> <li>• <a href="#">Alternative Fuels Data Center Municipalities Case Studies</a></li> <li>• Climate Mayors: <a href="#">Electric Vehicle Purchasing Collaborative</a></li> <li>• EV Smart Fleets Initiative: <a href="#">Public Sector Fleet EV Procurement Examples</a></li> </ul>
2.	Apply for local/state grants and incentives where applicable	
3.	Develop a procurement schedule based on the expiration of the current fleet, and needs for the vehicles	
4.	Set up long term procurement contract with vendor	
5.	Plan and design necessary charging infrastructure to support the changing fleet	

### Category 4: State Level Options

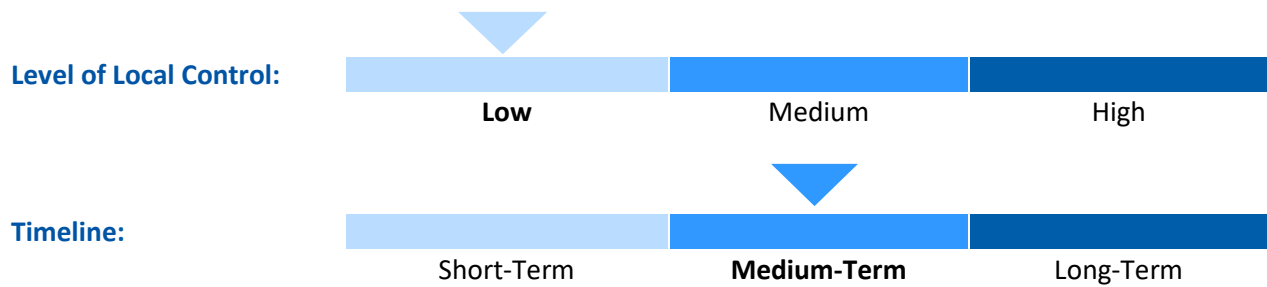
This category includes changes to state policies that are expected to have a significant impact on the local energy mix. While municipalities do not have direct control over the implementation of these strategies, they can continue to engage with state-level actors to support policies that will help them accomplish comprehensive change. Key strategies in this category are listed below:

Strategies
4.1 Allow for Community Solar
4.2 Allow for Community Choice Aggregation
4.3 Increase the Alternative Energy Portfolio Standard (AEPS)

## Strategy 4.1: Allow for Community Solar

**Description:** *The State enacts legislation that allows for community solar in Pennsylvania.*

Criteria	Ranking	Description
<b>Potential Scale of Impact</b>	<b>MEDIUM</b>	Allowing community solar in Pennsylvania is expected to increase the renewable energy supply within the West Chester Area in the medium- to long-term. Moreover, this strategy will increase access to solar for certain segments of the population who do not have equitable access to rooftop solar PV, such as renters, LMI households, or those with roofs unsuitable for solar. Overall impact will depend on the number and size community solar projects open for participation.
<b>Technical Feasibility</b>	<b>MEDIUM</b>	Executing community solar legislation would represent a significant policy at the state level. Specific technical barriers to engaging from the municipal level may include the need for staff to be trained in specialized content in order to support state legislation.
<b>Political Feasibility</b>	<b>MEDIUM</b>	Strategy may face opposition from some stakeholders who oppose the use of municipal staff time and resources to support state level legislation related on accelerating renewable generation, and may perceive this action as too advocacy oriented. The need for significant state-wide policy change also poses a barrier.



Financial Information	
<b>Costs</b>	Costs depend on the implementation method used and the role the municipality plays. Potential costs include staff time spent doing outreach, coordinating community action and executing the municipality’s share of the project.
<b>Savings</b>	Potential ongoing savings include an approximately 10% reduction in electricity price per kWh of community solar paid to utility.

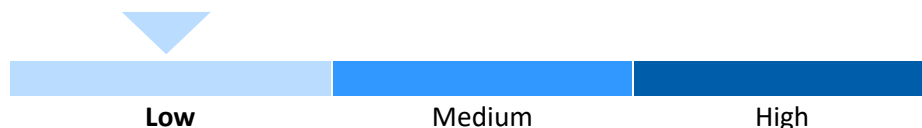
Implementation Steps		Resources
1.	Review proposed legislation regarding community solar and assign staff to track legislation progress	<ul style="list-style-type: none"> <li>PA General Assembly: <a href="#">House Bill 531</a></li> <li>PA General Assembly: <a href="#">Senate Bill 705</a></li> </ul>
2.	Conduct outreach and education to encourage community members to advocate for community solar legislation; encourage outreach to elected representatives and electricity providers	<ul style="list-style-type: none"> <li>Coalition for Community Solar Access: <a href="#">Resources</a></li> <li>Solar Energy Industries Association: <a href="#">Community Solar</a></li> </ul>

## Strategy 4.2: Allow for Community Choice Aggregation

**Description:** *The State enacts legislation that allows for community choice aggregation in Pennsylvania.*

Criteria	Ranking	Description
Potential Scale of Impact	HIGH	Enabling CCA is expected to increase the renewable energy supply within the West Chester Area in the medium- to long-term. CCA's allow communities to have greater control over their electricity sources and to negotiate better electricity rates.
Technical Feasibility	MEDIUM	Executing CCA legislation would represent a significant policy at the state level. Specific technical barriers to engaging from the municipal level may include the need for staff to be trained in specialized content in order to support state legislation, particularly given that CCA policy and design involves a relatively high level of technical policy background.
Political Feasibility	MEDIUM	Strategy may face opposition from some stakeholders who oppose the use of municipal staff time and resources to support state level legislation related to RE and may perceive this action as too advocacy oriented. Furthermore, in 2011, the PA PUC expressed concern regarding the potential negative impacts of municipal aggregation, including limited competition and innovation among suppliers.

Level of Local Control:



Timeline:



### Financial Information

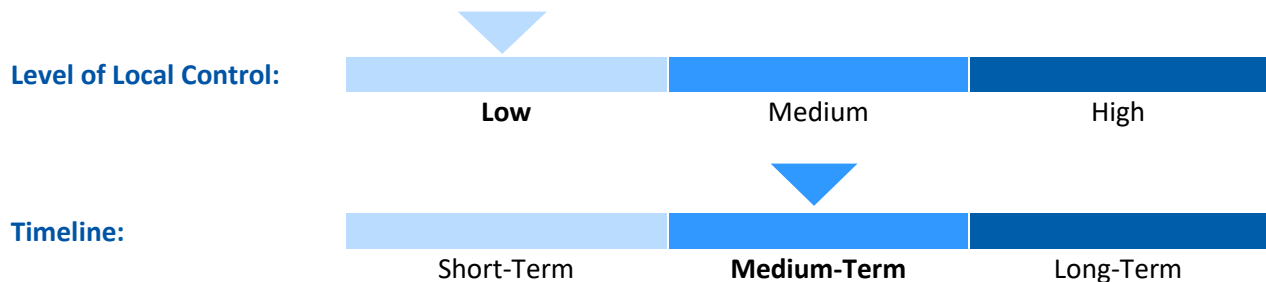
<b>Municipal Costs</b>	Costs include initial staff time to establish the CCA, including time researching, advocating for statewide legislation, and passing a local law. Once established, a CCA would increase in electricity price by \$0.006/kWh, for a total increase of approximately \$137,500 annually across all six townships' municipal electricity consumption. Note that it is possible that renewable energy costs will continue to decline over time, in which case the expected costs to implement this strategy could be lower than projected here.
<b>Residential Costs</b>	Costs include an increase in electricity price of \$0.006/kWh, or a total increase of approximately \$40 annually per household.

Implementation Steps		Resources and Examples
1.	Train staff on CCA, including review of legislation and programs in other states that have enabled CCAs.	<ul style="list-style-type: none"> <li>Environmental Protection Agency: <a href="#">Community Choice Aggregation</a></li> <li>EnergySage: <a href="#">States with Approved CCA Legislation</a></li> </ul>
2.	Identify key partners to create an advocacy group and support legislation or progress toward developing CCA opportunities statewide	<ul style="list-style-type: none"> <li>California Community Choice Association: <a href="#">CCA Resources</a></li> <li>New York State Energy Research and Development Authority: <a href="#">Community Choice Aggregation</a></li> </ul>
3.	Raise awareness through community outreach and education; encourage contacting legislators and utilities asking to support CCA legislation	
4.	Upon passage of statewide CCA legislation, hold public hearings and pass a local law authorizing a CCA	

### Strategy 4.3: Increase the Alternative Energy Portfolio Standard

**Description:** *The State enacts legislation increasing utility commitments for renewable energy purchasing.*

Criteria	Ranking	Description
Potential Scale of Impact	HIGH	An increase in Pennsylvania's Alternative Energy Portfolio Standard (AEPS) is expected to have a significant impact on the energy mix in the West Chester Area. A higher standard would require utilities to increase their renewable sources, promoting clean energy use in consumer buildings. According to the National Conference of State Legislatures, "roughly half of the growth in US renewable energy generation since 2000 can be attributed to state renewable energy requirements." The specific level of gains would depend on the level defined in the legislation.
Technical Feasibility	MEDIUM	Pennsylvania's AEPS currently requires 18% of electricity come from alternative-energy resources by 2020. There is a significant gap between the current policy and an RPS that would align with 100% RE goals. Limited technical barriers exist related to municipal involvement. Some minor barriers may include the need for staff to be trained in specialized content in order to collaborate on action related to state legislation. Many states have mandates between 10 and 45%, and seven states have requirements set at 50% or more.
Political Feasibility	LOW-MEDIUM	An increase in PA's RPS requires action on the state-level. Significant opposition to the measure overall as well as to the engagement of West Chester municipalities would be expected, for example from stakeholders such as utility companies and those against mandatory measures.



**Financial Information**

<b>Costs</b>	Initial costs would include staff time spent researching, advocating for an increased AEPS, and conducting community outreach. Upon enacting and meeting an increased AEPS, electricity costs are anticipated to increase by \$0.02/kWh, or \$11 per month for the average residential household. Note that it is possible that renewable energy costs will continue to decline over time, in which case the expected costs to implement this strategy could be lower than projected here.
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<b>Implementation Steps</b>		<b>Resources and Examples</b>
1.	Train staff and review existing legislation establishing the AEPS	<ul style="list-style-type: none"> <li>PA General Assembly: <a href="#">Alternative Energy Portfolio Standards Act - Enactment</a></li> <li>PA Public Utilities Commission: <a href="#">AEPS Act Implementation Order</a></li> <li>PA State Senate: Memorandum on Modernizing Pennsylvania’s Renewable Energy Standards</li> <li>State of Oregon: <a href="#">Renewable Portfolio Standard</a></li> </ul>
2.	Identify key partners to create or support an advocacy group in favor of increasing the AEPS	
3.	Raise awareness through community outreach and education; encourage contacting legislators to support increasing the AEPS	
4.	PA General Assembly passes legislation increasing the AEPS, and local utilities develop plan and resources to meet mandate	



### *Summary of Modeling Findings*

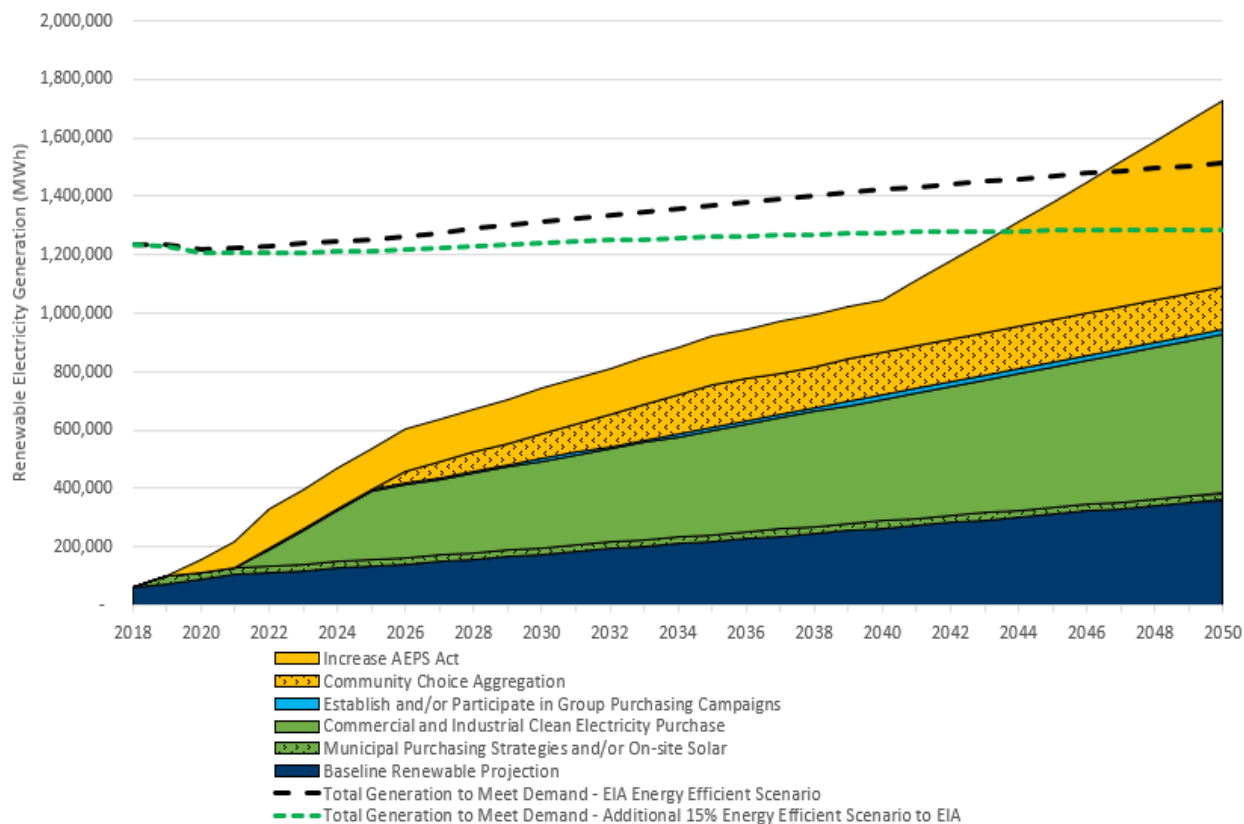
Figure 6 below outlines the West Chester Area's projected electricity demand through 2050 and the anticipated impact of strategies on the share of renewable energy. This impact has been displayed for select strategies that are expected to drive substantial increases in the level of renewables.

Note that the two dotted lines in Figure 6 represent the West Chester Area's forecasted electricity demand of the communities of the six townships assuming two different levels of energy efficiency. Notably, increased energy efficiency measures taken by the townships counteracts the increase in demand expected due to increases in electrification and population. The distinctions between the two lines are further described below:

- The black dotted line represents forecasted electricity generation required to meet the total community demand accounting for the intrinsic energy efficiency projections from the U.S. Energy Information Administration (EIA). These projections are pulled from the 2019 U.S. EIA Annual Energy Outlook.
- The green dotted line represents forecasted electricity generation required to meet the community demand accounting for EIA energy efficiency projections and an additional 15%<sup>26</sup> of energy efficiency gains due to potential energy efficiency actions in the West Chester Area.

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<sup>26</sup> The number selected for energy efficiency should be interpreted as a placeholder. Indeed, it could be lower or higher depending on the time and resources invested towards energy efficiency measures. Potential high-level strategies for energy efficiency are noted in Appendix D. The placeholder value was selected to be realistic and as referenced it aligns with Boise, Idaho's energy plan. <https://www.cityofboise.org/media/7676/ef-report.pdf>



**Figure 6: Projected Power Mix by Year: Effect on Renewable Share by Strategy Type<sup>27</sup>**

Key takeaways based on the draft modeling outputs include:

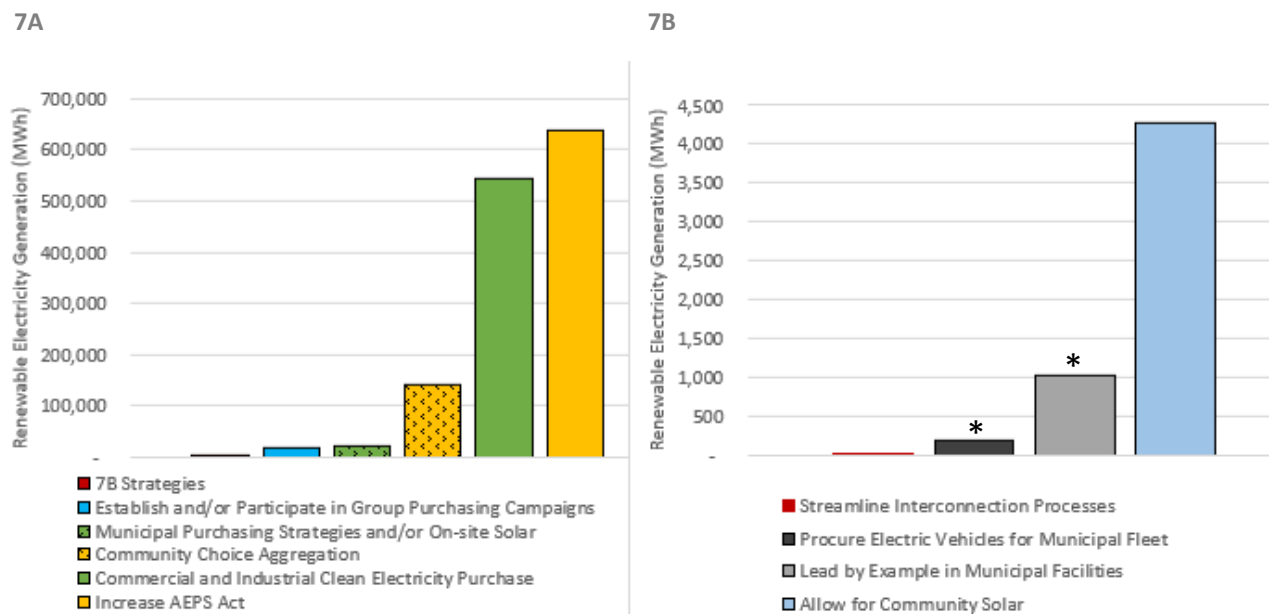
- In Figure 6, per our assumptions, the West Chester Area’s electricity demand will be met by 100% renewable sources by 2043 and 2047 if all strategies are implemented for cases with and without additional efficiency measures by the townships, respectively.
- As shown in the stacked individual projected impacts of each policy in Figure 6, the strategies having the greatest effect on increasing renewable generation are establishing a community choice aggregation program, coordinating clean electricity purchasing for commercial and industrial customers, increasing the alternative energy portfolio standard, and a purchasing

<sup>27</sup> Municipal purchasing accounts for a limited percent of the West Chester Area’s electricity demand. This demand can be met through a variety of strategies. For simplicity, the municipal purchasing policy wedge is currently represented assuming the entirety of municipal electricity demand, approximately 2% of total electricity demand by the community. Strategies that could be chosen to meet municipal electricity demand include procuring renewable energy from retail electricity providers, purchasing renewable energy credits, setting up an off-site PPA, and installing renewable energy on-site to supply municipal operations. Note that we assume that RECs are retired from all strategies for which RECs or SRECs would be created or purchased.

strategy that gets the municipal to 100% clean energy. Establishing and/or participating in group purchasing campaigns also can be seen in Figure 6 and has a as small yet visible contribution to increasing renewable electricity.

- Though not visible in Figure 6, a strategy that adds over 1,000 MWh of additional renewable electricity per year by 2050 includes allowing for community solar.

Figure 7 provides a snapshot view of the effect that each strategy has on increasing the level of renewable electricity, as illustrated Figure 6. Note that there are two bar plots separating high-impact strategies (greater than 10,000 MWh) and additional strategies (less than 10,000 MWh) into two categories. The additional strategies are also shown in Figure 7A as an aggregate value named “7B”.

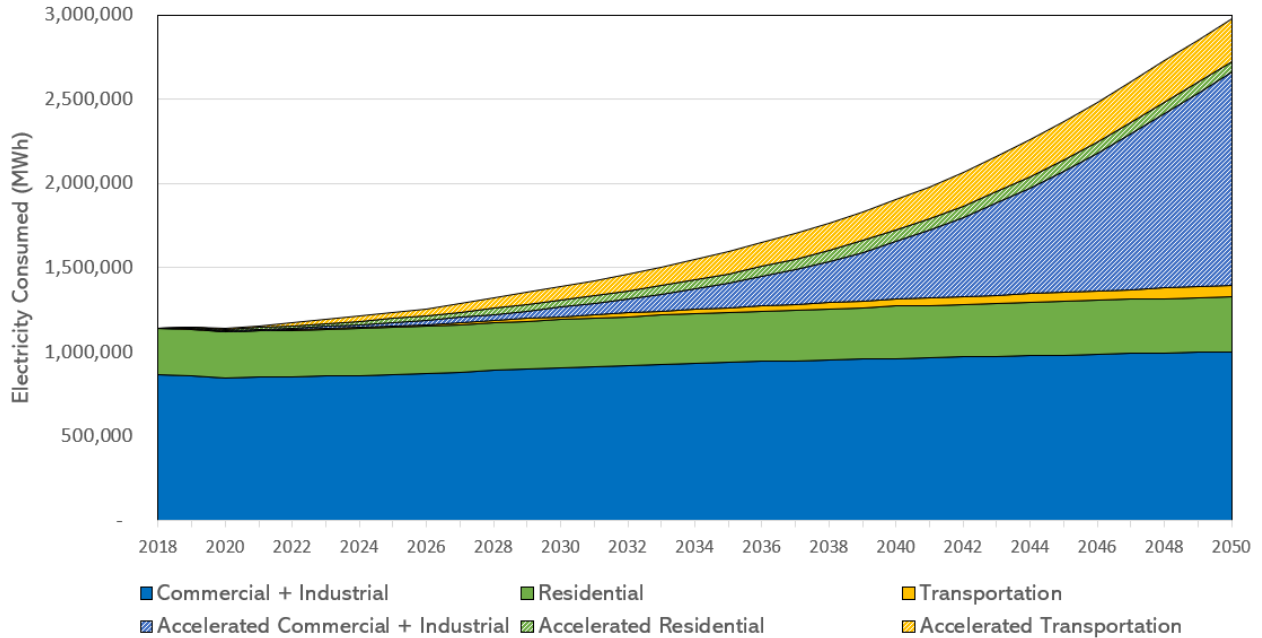


Columns marked with an asterisk (\*) indicate strategies that are not generating renewable electricity. These bars instead represent the quantity of renewable electricity that would be demanded by these strategies as assumed. The share of renewable energy that contributes to their electricity demand is dependent on the share of renewable energy in the electricity mix. The cleaner the electricity mix, the cleaner these strategies will become.

**Figure 7: Renewable Energy Generation by Strategy in 2050**  
**7A. High Impact Strategies (Greater than 10,000 MWh impact)**  
**7B. Additional Strategies (Less than 10,000 MWh Impact)**

Given the importance of adding renewables to the supply mix in advance of pursuing electrification, this analysis largely focused on near-term opportunities to increase the amount of renewables within the electricity supply, in addition to a few select strategies that aim to electrify municipal buildings and the municipally owned vehicle fleet. Yet, in addition to what the townships can focus on in the next 5 to 10 years, and being mindful of the full renewable energy goal by 2050, Figure 8 below represents a scenario in which broader electrification occurs in the townships. Figure 8 shows electricity consumption by sector due to the electrification of the building and transportation sectors. The solid colors represent the

forecasted electricity consumption by sector in the baseline while the cross-hatched wedges forecast the additional electricity consumption under the accelerated electrification scenarios. A key take-away from this electrification sensitivity scenario is to further emphasize the importance of near-term actions to enable and facilitate increasing renewables supplying the electricity mix.



**Figure 8: Effect on Electricity Consumption by Sector due to Electrification of Buildings and Transportation**

## Next Steps & Conclusion

### WCA-Wide Collaboration

While maintaining individual local government decision-making, participating municipalities can increase both impact and resource efficiency through collaboration. Continued collaboration of local-level action may take several forms:

- **Continued connection.** The WCACOG Advisory Group that has supported review of this Renewable Energy study can continue to meet to share best practices and potential for collaboration by preserving regular meetings and sharing mutual learnings with COG members.
- **Aligning on strategy-specific inputs.** Fostering alignment on areas such as procurement requirements, building codes, and other areas can increase ease of doing business across the municipalities, which can support streamlined interaction with other parties such as solar installers, PECO, or others.
- **Direct partnership on procurement.** WCA municipalities may be able to benefit from economies of scale through joining energy or EV fleet procurements in the event that participating municipalities choose to implement these strategies. The WCACOG may choose to set up a standing joint procurement vehicle to enable ease of pursuing this type of partnership.

### State-Level Collaboration

When extending beyond action under the direct control of WCA municipalities, collaboration at the WCACOG-level or even at the County-level would provide for a stronger and unified voice to advance supportive policy implementation at the state-level. Potential pathways and resources follow below:

- **Joint WCACOG or County perspectives.** At the state-level, representing a joint perspective can offer a greater opportunity for impact.
- **Connect with municipalities outside of WCA.** WCACOG municipalities can consider collaborating through forums such as Sierra Club forums, or the Urban Sustainability Directors Network (USDN).

### Initial Next Steps

While strategy-specific implementation steps are provided earlier in the report, Table 1 provides a set of initial steps that can set the groundwork for strategy-level implementation.

**Table 1: Strategy-Level Implementation Next Steps**

Near-Term Step	Enabling	Community Engagement	Municipal Supply Mix	State-Level
<b>WCACOG to consult with the Advisory Group</b> on their recommendations based on the Cadmus Report.	✓	✓	✓	✓

Near-Term Step	Enabling	Community Engagement	Municipal Supply Mix	State-Level
<b>Engage the community</b> to review the findings of this study and offer avenues for engagement on strategies that each municipality prioritizes. Ensure engagements include previously consulted stakeholders.		✓		✓
<b>Review the results</b> of the Cadmus Team’s solar siting exercise with decision-makers.			✓	
<b>Access technical assistance</b> by joining SolSmart.	✓	✓	✓	
<b>Engage with other local governments and groups</b> (e.g. Sierra Club or Solar United Neighbors) to uncover how WCACOG municipalities can collaborate on existing efforts at the state-level, and learn from others’ local-level efforts.	✓	✓	✓	✓

## Conclusion

This report acknowledges that the municipalities are some of many important actors in the WCA. As such, the report is oriented around supporting the WCA municipalities with an actionable set of strategies to illuminate, inspire, and facilitate the transition of the broader WCA community’s energy system. The WCA municipalities participating in this study have taken a critical step by supporting the development of this report and review of potential pathways to achieve 100% renewable electricity by 2035 and 100% renewable energy by 2050. While the current energy trajectory (without additional action by the municipalities) is not expected to support the achievement of these goals, concerted action from the municipalities can support achieving these goals. This report outlines a suite of 18 first steps and no-regret actions that the WCA municipalities can undertake to make strong progress against these goals. The near-term opportunity for the West Chester Area lies primarily in increasing the renewable electricity supply. In the medium and long-term, electrifying the transportation and building sectors can a deeper shift to renewable energy. As such, most of the strategies in this report focus on increasing the renewable electricity supply, and a subset begin to lay the groundwork for electrification. Across strategies targeting both electricity supply and electrification, the strategies aim to enable local action, engage the community, demonstrate municipal leadership on renewable energy, and engage the municipalities at the state-level. In executing these strategies, the West Chester Area municipalities have the opportunity to build upon successes of other local governments in pursuing similar renewable energy goals; many of these examples are noted in this report. Lastly, as the West Chester Area continues to work towards its goals, it is recommended that this study should be periodically revised to account for technological, political, and economic shifts and local progress against renewable energy goals.

## Appendix A. Summary of Findings from Stakeholder and Community Engagement Process

### *Overview of WCACOG’s Energy Planning Process Stakeholder and Community Engagement*

The Cadmus Team is supporting the West Chester Area Council of Governments (WCACOG) with a study to inform the development of the West Chester Area Regional Community Energy Transition Plan. Throughout the research and planning process, the Cadmus Team is engaging with an Advisory Group comprised of representatives from each WCACOG municipality that is participating in the study as well as the Delaware Valley Regional Planning Commission (DVRPC). The purpose of the Advisory Group is to provide critical input, feedback, and local knowledge to the Cadmus Team throughout the Renewable Energy Planning process.

In addition to the ongoing input from the Advisory Group, the Cadmus Team recently conducted a series of engagement efforts to ensure that forthcoming research and analysis is grounded in local goals and perspectives. These engagements included:

- **Interviews:** Conducted one-hour intake interviews with six Advisory Group members and one additional stakeholder. During these conversations, interviewees provided feedback on what excites them and concerns them about the transition to 100% renewable energy, as well as their vision for the West Chester Area’s energy future and strategies they feel will help them reach their goals. A full list of interviewees is included in the table below:

Name	Title	Organization
<b>Kerry Campbell</b>	Environmental Program Manager	Pennsylvania Department of Environmental Protection
<b>Liz Compitello</b>	Manager, Local Initiatives	DVRPC
<b>Mimi Gleason</b>	Township Manager	West Whiteland Township
<b>Dianne Herrin</b>	Mayor	West Chester Borough
<b>Scott Neumann</b>	External Affairs Manager	PECO
<b>Shaun Walsh</b>	Supervisor	West Goshen Township
<b>Will Williams</b>	Sustainability Director	West Chester Borough
<b>Jim Wylie</b>	Executive Committee Chair	Sierra Club, Southeastern PA Chapter

- **Advisory Group workshop:** Facilitated an in-person 2.5-hour workshop with the full Advisory Group on July 11<sup>th</sup> to solicit further feedback from members and prepare for a Community Visioning Workshop held in West Whiteland Township later that day. The workshop provided a forum for the group to discuss their priorities for the Renewable Energy Plan, determine an appropriate bounding definition of clean energy for the purposes of this study, and consider renewable energy pathways the West Chester Area may pursue.
- **Community workshop:** Held a Community Visioning Workshop during which the Advisory Group members and the Cadmus Team facilitated conversations with community members to begin

defining a community energy vision for 2050, to identify different community priorities for municipal energy goals and priorities, and to discuss the community's specific needs, challenges, and desired outcome for the project. The workshop had approximately 60 attendees, who were divided into seven breakout groups for discussions.

- **Advisory Group conducted stakeholder interviews:** To further complement Cadmus Team's above-listed engagements, the Advisory Group members also conducted additional interviews with several stakeholders from local businesses, institutions, and municipalities.

## *Key Themes from the Stakeholder and Community Engagement Process*

The key themes from the above engagement efforts are grouped into five categories that together comprise the remainder of the document:

1. Energy Planning Process
2. Results of the Energy Planning Process
3. Vision for the West Chester Area's Energy Future
4. Barriers and Solutions to Vision for the West Chester Area's Energy Future
5. Pathways and Policies to Enable the West Chester Area's Energy Future

## **Energy Planning Process**

This section covers the key priorities and opportunities shared by stakeholders and community members related to the study and associated energy planning process. The following qualities of an ideal energy planning process emerged from the discussions:

- **Collaborative and fostering a sense of community.** Stakeholders and community members envisioned municipalities within the COG working together to achieve shared goals and fostering a greater sense of community in the process.
- **Transparent.** A clear priority for the process of renewable energy planning and execution was openness and transparency. Community members would like to be informed on the process and involved where possible.
- **Leading.** The planning process offers the chance for the WCACOG jurisdictions to become local and regional leaders on climate action. Stakeholders and community members expressed hope that this process can serve as a model for other communities working towards similar goals and as an opportunity to be creative to address barriers. Due to their role on the energy planning process, Advisory Group members expressed excitement to be a part of the process by providing local context and, in some instances, technical expertise. Most Advisory Group members view this as a learning process for themselves and expect to bring this knowledge back to their communities.
- **Addressing climate change.** Constituents have expressed growing concern over climate change due to increasingly unusual weather and greater awareness of the issue. This greater awareness is partially due to the efforts of an active Ready for 100 Team that is dedicated to educating the community on the importance of renewable energy. As such, it will be critical to ensure that the energy transition serves as an opportunity to address climate change and communicate on that topic with community members.



## Characteristics of the Energy Plan

This section highlights key priorities voiced by stakeholders and community members related to the renewable energy transition plan itself (e.g. what they envision for the overall structure of the plan). Key priorities include:

- **Action-oriented.** Advisory Group members articulated that they would like a Renewable Energy transition plan that includes both a long-term roadmap, and concrete, actionable, feasible, short-term steps they can take. They would like the plan to be collaborative and sufficiently granular by party so that they can begin advancing their transition immediately. Advisory Group members also feel like an actionable plan with clear steps will set them up best for success. One component of an actionable plan is clearly denoting what actions lie within as well as beyond local control or sphere of influence. Some discussions provided specific examples of what actions may entail, such as updating building codes or drafting new legislation with specific renewable energy goals.
- **Includes both near-term and long-term strategies.** In line with their vision of a plan that includes a long-term roadmap and short-term steps, Advisory Group members discussed strategies, policies, and programs that they expect will come out of the energy transition planning process in both the near-term and the long-term. In the near-term, they envision pursuing strategies within the electricity sector, such as public education, energy purchasing options, and a solar PPA that is similar to the City of Philadelphia’s PPA. In the long-term, Advisory Group members envision pursuing strategies focused on decarbonizing other sectors, including buildings and transportation. Relatedly, the long-term strategies would necessarily involve building institutional infrastructure for meeting local renewable energy goals.
- **Emphasizes consensus and community engagement.** Advisory Group members stated that they hoped the plan would help develop consensus and drive community engagement with residents and businesses. They hope that the regional collaboration would drive continued meetings on implementation. Similarly, both community members and Advisory Group members emphasized that to build consensus, it will be important to frame this work as generating more energy options, rather than a mandate for individual-level actions.

## Vision for the West Chester Area’s Energy Future

The below section outlines themes that arose regarding what an ideal energy future would look like for the West Chester Area.

- **Utilization of renewable sources of energy generation.** Stakeholders and community members described an energy future in which conventional sources of electricity have been retired, and clean renewable energies dominate the industry. Wind and solar energy were frequently cited as the leading energy sources in West Chester’s energy future.
- **Large-scale electrification.** Discussions highlighted the importance of transitioning to a greater reliance on electricity as a means to improve the utilization of renewable energy sources. Community members also described complimentary key advancements, such as improved energy efficiency and grid reliability, that will support such a transition. Transportation and building electrification were noted as likely challenges given the region’s context.

- **Improved quality of life and public health.** Improved public health and quality of life came up in several breakout groups and interview discussions. Key concepts such as clean air, clean water, less pollution (including noise pollution), and easily accessible and efficient public transit systems were often mentioned, in addition to a sense of community pride and accomplishment.
- **Affordable and equitably distributed resources.** Financially viable energy sources that enabled equitable access to renewable energy and technologies was another key theme. Equity was defined to encompass both equitable outreach in target communities and equitable access to renewable energy resources. Community members envisioned a future in which clean energy resources are affordable and cost-effective, perhaps supported by local incentives.
- **Enhanced resilience.** Advisory Group members highlighted the importance of a resilient energy supply system that will remain constant and reliable even in the face of natural disasters or other potential threats.

## Barriers and Solutions to the Vision for the West Chester Area Energy Future

Throughout the community and stakeholder engagement process, the Cadmus Team sought input on what barriers may exist to achieving the community’s envisioned energy future. Additionally, the Cadmus Team solicited input on the types of solutions that could address key barriers. Table 1 outlines the key barriers and solutions discussed.

**Table 1: Key Barriers and Potential Solutions**

Category	Barriers	Solutions/Strategies
<b>Technological Barriers</b>	Technological barriers of renewable energy were described as a principal roadblock to a successful energy transition. These barriers include intermittency and siting issues with wind and solar, storage capacity, the amount of renewable energy that would be necessary to replace the nuclear baseload, and how to manage excess energy, land requirements, and aging infrastructure.	Solutions to many of these key barriers, like intermittency and storage, were not always identified. To address the land requirements barrier, participants proposed more abundant and accessible federal and state grants for land purchase or conservation easements for solar arrays. One suggestion was establishing community solar when rooftop solar is unattainable, due to climatic/geographic variables or otherwise.
<b>Dual Barriers of Lack of Awareness and Technical Complexity</b>	<p>The general lack of awareness for existing renewable energy programs, benefits, and alternatives was noted as a key barrier. Additionally, there was a concern that the challenge is complex and could overwhelm people who are new to the issue, thereby derailing action.</p> <p>The information gap spans from property owners, who may not know where to start or have fundamental questions about cost, to elected officials with insufficient</p>	Many participants proposed community outreach efforts to promote greater awareness and incentivize action. These educational events would bring greater understanding of renewable energy, its costs and benefits, what incentives or programs are available, etc. Suggestions for increasing awareness ranged from public campaigns led by local representatives, establishing a sustainability coordinator or committee, greater social media outreach and digital marketing (e.g. factsheets or videos with easily reproducible steps). Additionally, some participants mentioned energy and

	<p>knowledge of the industry. Some participants also highlighted the lack of education and even misinformation around climate change and renewable energy technologies as a barrier.</p>	<p>environmental education in schools. To bridge the knowledge gap on climate change, participants suggested clearly outlining the consequences of climate change and relating the impact in monetary values.</p>
<p><b>Political Barriers</b></p>	<p>Political barriers, particularly at the state and national government levels, were cited as a chief barrier to largescale adoption of renewable energy. For example, lack of support from the federal government and pushback from climate change opposers makes it challenging to draft effective policies.</p> <p>Political barriers also exist at the local level. Advisory Group members pointed out that some local officials are wary of clean energy investments and that additional political buy-in from these officials is necessary. Furthermore, limited ability to drive change at the local government level, and the challenge of working across jurisdictions were also cited as political barriers.</p>	<p>Holding open discussions with elected officials was mentioned as a strategy to generate greater awareness and attention that could lay the groundwork for political action. Greater outreach and education for the general public was consistently posed as means of reducing resistance for climate change legislature. Additionally, queued State Bill 630,<sup>28</sup> currently pending in the legislature, was mentioned as a favorable example of forward thinking and proactive policies.</p> <p>Fostering a sense of generational responsibility frequently came up as a priority and value. Community members noted a sense of obligation to preserve the planet for future generations. Building on this sentiment may help address barriers of political will among the general population.</p> <p>Additional solutions include hiring a sustainability coordinator and/or establishing a legal body that is responsible for executing the solutions identified in the plan.</p>
<p><b>Regulatory Barriers</b></p>	<p>Some stakeholders flagged that due to Pennsylvania’s deregulated electricity market context, PECO does not own electricity generation, and its energy procurement process is highly regulated. These factors pose some limitations to the utility’s ability to support renewable energy goals (note: these limitations do not apply to all pathways to support renewable energy goals, such as opportunities to improve interconnection of distributed generation).</p>	<p>Stakeholders cited actions the utility has taken to support renewables. These actions include: starting both a Distributed Energy Group that facilitates the installation of renewables and a Utility of the Future team that is studying the implications of distributed energy on the utility business model, as well as the future needs of the grid, which may be impacted by the integration of distributed energy resources, aging infrastructure, or extreme climate events.</p> <p>Stakeholders also raised that PECO’s ability to support renewables is largely influenced by the regulatory environment in which it is operating.</p>

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<sup>28</sup> This Bill paves the way for the transition to renewable energy by imposing duties on the Department of Environmental Protection and other agencies regarding energy consumption and renewable energy generation. Bill 630 also establishes a Clean Energy Transition Task Force, Just Transition Advisory Committee, Clean Energy Workforce Development Fund, among others, and provides for interim limits on energy produced from nonrenewable resources.

		<p>Changes to the regulatory environment may enable, or in some cases require, PECO to take more action. One example cited by stakeholders is Act 129.<sup>29</sup> This Act currently focuses on energy efficiency, but some stakeholders expect it may be expanded to include renewable energy targets as well. This may be an opportunity for West Chester Area jurisdictions to collaborate with the utility to advance renewables. Stakeholders flag, however, that changes to the regulatory environment are often under the authority of decisionmakers, such as the Public Utility Commission.</p> <p>Stakeholders from a variety of backgrounds also indicated an interest in open communication and collaboration between the utility, local governments, and community members.</p>
<b>Cost Barrier</b>	<p>Cost arose as a barrier that prevents households, particularly low-to-moderate households, from participating in renewable energy programs. In addition to the high upfront costs, economic uncertainty from financial incentive programs and technologies were also presented as deterring participation.</p>	<p>Technological improvements and innovations were often cited as a means of improving performance and therefore minimizing the costs. Furthermore, community members proposed more funding for financial incentives and subsidies, in addition to federal grants for land purchase, to increase access to renewable energy for a broad spectrum of the population.</p>

## Pathways and Policies to Enable the Vision for the West Chester Area’s Energy Future

While the focus of community and stakeholder engagement efforts was not to generate specific policy options for increasing renewable energy, one aspect of the Advisory Group workshop was a focused policy discussion. Table 2 summarizes core areas of interest from the Advisory Group, segmented into three categories (represented by three columns). These areas will be researched in depth during the policy and strategy analysis that the Cadmus Team will undertake during the coming months.

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<sup>29</sup> Act 129, passed by the General Assembly and implemented by the PUC, requires electric distribution companies, such as PECO, to develop energy efficiency and conservation plans to achieve electricity consumption and peak demand reduction targets. The Act is implemented in phases, and is currently in Phase III until 2021. Stakeholders interviewed shared the Phase IV negotiations will begin soon.

**Table 2: Advisory Group Areas of Interest**

Local Government	Collaboration Beyond Local Government	Alternative Purchasing Options
<ul style="list-style-type: none"> <li>• Building permit form changes</li> <li>• Local incentives</li> <li>• Zoning ordinances (uniform)</li> <li>• Incentives</li> <li>• Multi-municipal aggregation</li> <li>• Aggregation with universities, shopping complexes</li> <li>• SolSmart participation</li> <li>• Simplify permitting and inspection processes for renewable energy installations</li> </ul>	<ul style="list-style-type: none"> <li>• Work with developers</li> <li>• Work with the state legislature</li> <li>• Bulk purchasing</li> <li>• Demonstration project with PECO</li> <li>• Educational Institutions</li> </ul>	<ul style="list-style-type: none"> <li>• Virtual Power Purchase Agreement (PPA)</li> <li>• Renewable Energy Certificates (RECs)</li> </ul>

Finally, the Advisory Group workshop also included a brief discussion on the appropriate definition of renewable energy in the context of this study. While the Advisory Group recognized that it is a nuanced question, it recommended focusing less on nuclear, biomass, and RECs for the purposes of this study. In contrast, some other stakeholders highlighted the role of nuclear in the renewable energy transition and expect it will be necessary to fill some of the gaps caused by the intermittency of renewables. One nuance raised was that the low cost of natural gas may forestall use of nuclear and renewables.

### Next Steps

The Cadmus Team will utilize the results from the stakeholder and community engagement exercises to inform its policy and strategy research and evaluation process the WCACOG.

In the immediate term, a survey will be distributed to community members as a follow-up to the community workshop. In the Fall, the Cadmus Team and the Advisory Group will host a second open workshop to share the results of the research and analysis.

## Appendix B. Full List of Potential Renewable Energy Strategies

The project Advisory Group prioritized 18 strategy options from an initial list of 42 strategy options, listed below:

ID	Strategy	Description
<b>Electricity Sector Strategies</b>		
1	<b>Reduce Permitting, Zoning, and Inspection Barriers to Renewable Energy</b>	Streamline the permitting, zoning and inspection processes so that processing time and expenses are reduced. This may include streamlining permitting processes for specific technologies that meet certain standards, and eliminating redundancies from inspection protocols.
2	<b>Adopt or Promote Solar Ready Guidelines</b>	Encourage or require new buildings to be built in a way that accommodates future solar installations.
3	<b>Local Requirements for Local Renewable Energy Production</b>	Require renewable energy development in certain cases, such as new construction. This may be implemented through zoning code review, which SolSmart technical assistance could support.
4	<b>Lease Public Land for Renewable Energy Development</b>	Offer property for lease to utilities or developers to host renewable energy projects.
5	<b>Purchase Renewable Energy On-Site to Supply City Operations</b>	Install renewable energy projects on municipal facilities and land.
6	<b>Establish Renewable Energy Educational Campaigns</b>	Employ education campaigns to create community support for other RE strategies and to encourage voluntary action at an individual or private business level.
7	<b>Engage the Community in Setting Energy Goals</b>	Convene, facilitate, and/or support on-going public discussions with the community around energy goals
8	<b>Establish and/or Participate in Group Purchasing Campaigns</b>	Host or support group purchasing programs for renewable electricity (e.g. Solarize campaigns) to reduce costs and support market development.
9	<b>Local Renewable Energy Non-Financial Incentive Program(s)</b>	Participating municipalities establish programs to incentivize renewable energy for residents and businesses. These programs may include local competitions where the primary incentive would be public recognition of achievement.
10	<b>Local Renewable Energy Financial Incentive Program(s)</b>	Establish programs to incentivize renewable energy for residents and businesses. Such programs could include tax rebates for renewable energy installations, tax credits, exemptions from property taxes, and zero interest and forgivable loans.

11	<b>Procure Renewable Energy from Retail Electricity Providers</b>	Purchase electricity from a competitive supplier to supply municipal operations with renewable energy.
12	<b>Partner with a Third Party to Procure Renewable Energy</b>	Partner with an independent power producer to directly procure renewable energy for municipal operations through a power purchase agreement.
13	<b>Virtual Power Purchase Agreements (VPPAs) (aka Financial PPAs)</b>	"A financial PPA (Financial PPA) is a financial arrangement between a renewable electricity generator (the seller) and a customer, that enables both parties to hedge against electricity market price volatility. Unlike with a physical power purchase agreement (PPPA), there is no physical delivery of power from the seller to the customer. Rather, it is a hedge arrangement that offers buyers cost predictability for their electricity use and promotes growth in the renewable energy sector by offering project developers long-term contracts with predictable revenues — a key element to attracting project financing and investment. Financial PPAs are also sometimes known as virtual or synthetic PPAs, a contract for differences, or a fixed-for-floating swap. Financial PPAs are an innovative and useful procurement option for organizations, particularly those in traditionally regulated electricity markets that generally do not permit PPPAs" - EPA definition
14	<b>Renewable Energy Credit (REC)-based Purchasing</b>	Purchase RECs as a means to realize local energy targets. Participating municipalities could also provide information to residents and businesses to consider them to purchase RECs.
15	<b>Allow for Community Solar</b>	The State enacts legislation that allows for community solar in Pennsylvania.
16	<b>Allow for Community Choice Aggregation (CCA)</b>	The State enacts legislation that allows for community choice aggregation in Pennsylvania.
17	<b>Increase Alternative Energy Portfolio Standards Act</b>	The State enacts legislation increasing utility commitments for renewable energy purchasing.
18	<b>Establish formal COG-Utility Partnership</b>	Form a partnership with PECO to jointly set goals and develop programs for implementation locally.
19	<b>Work with PECO to Develop a Demonstration Project</b>	Collaborate with PECO to develop a demonstration project. A demonstration project could alleviate distribution-level congestion, reduce peak demand, and install storage.
20	<b>Streamline Interconnection Processes</b>	Collaborate with PECO to simplify utility interconnection procedures.

Transportation Sector Strategies

<p>21</p>	<p><b>Reduce Permitting Costs and Timeline</b></p>	<p>Participating municipalities can streamline permitting and inspection processes for the installation of electric vehicle supply equipment (EVSE) so processing time and expenses are reduced. Some best practices for streamlining EVSE permitting include 1) Making permits available online or over-the-counter, 2) Issuing required permits in under 48 hours, 3) Offering reduced or free permitting fees, 4) Creating guidance documents such as a checklist to guide applicants through the process, 5) Limiting the number of inspections required, 6) Limiting requirements for supporting materials and site plans.</p>
<p>22</p>	<p><b>Pass EV-Ready Ordinances</b></p>	<p>Participating municipalities can require (through their building code) new buildings and/or major renovations to require certain levels of EV readiness, such as requirements for pre-wiring, full circuit installations, sufficient electric panel capacity and/or actual charger installation in a certain percentage of parking spaces.</p>
<p>23</p>	<p><b>EV-Ready Zoning</b></p>	<p>Participating municipalities can use their zoning code to incentivize or require additional EV readiness actions. The city could enable EV parking (or e-bike and e-scooter parking/charging) to count towards minimum parking requirements, or count for multiple parking spaces to combine objectives for lower parking and EV use. Additionally, the city could utilize the zoning code to incentivize developers to install more chargers (e.g. through density bonuses) or require charger installations (in addition to just pre-wiring and other provisions required by the building code).</p>
<p>24</p>	<p><b>Procure Electric Vehicles for Municipal Fleet</b></p>	<p>Participating municipalities can integrate EVs as part of their municipal fleets. Multiple municipalities could consider making an aggregated purchase or lease of EVs for their public fleet. These purchases may also capture the full value of incentives at the state and federal level via leasing arrangements with private entities. This may also include efforts to electrify school bus fleets, and/or support electrification of transit bus fleets if not owned/controlled by the municipality.</p>
<p>25</p>	<p><b>Install Public Charging Stations</b></p>	<p>Participating municipalities could build out EV charging infrastructure in publicly owned buildings, parking lots, or in the right-of-way. Increased availability could spark public interest, reduce range anxiety, and present an opportunity to educate municipal employees and public stakeholders about the benefits of EVs.</p>



26	<b>Establish Electric Vehicle Educational Campaigns</b>	Participating municipalities establish a variety of educational campaigns to increase consumer awareness and interest in EVs. This may entail activities, such as "ride and drives" where EV owners, dealers, or manufacturers showcase vehicles and allow interested participants to drive an EV.
27	<b>Establish and/or Support EV Group Purchasing Programs</b>	Participating municipalities could organize or support group purchasing programs for EVs to reduce costs and support market development.
28	<b>Workplace Charging Challenge</b>	Participating municipalities could develop a workplace charging challenge, or an awareness and information campaign focused on expanding EV charging access in commercial buildings, targeting employers and building managers of commercial properties. The program would recognize employers who commit to workplace charging and could highlight employers who have done the most to increase EV charging. The program could also provide technical assistance to workplaces.
29	<b>Establish Local EV Financial Incentive Program(s)</b>	Participating municipalities can establish programs, such as rebates, to incentivize EVs or EVSE for residents, multi-family residential building owners, and businesses/institutions.
30	<b>Integrate Utility into Interconnection Procedures</b>	Participating municipalities can engage PECO throughout permitting and related interconnection process to identify premium locations that require minimal electrical infrastructure updates.
31	<b>Establish and/or Support Electric Carsharing Program</b>	Through public-private partnerships with car-sharing business entities and local community stakeholder groups, participating municipalities can pilot an electric car-sharing program that allows individuals with a license to access a network of shared EVs and chargers at a low rate.
32	<b>Electrifying Taxis and Ridesharing Companies</b>	In partnership with transportation commissions, COG/participating municipalities could establish pilot programs for the integration of, or provide financial incentive for, the electrification of taxis and/or ridesharing vehicles.
<b>Building Sector Strategies</b>		
33	<b>Complete a Building &amp; Market Segmentation Analysis</b>	Participating municipalities create an inventory of city-wide buildings drawing from a variety of sources, including utility, assessor, permitting, census, and other datasets to conduct a segmentation analysis of building inventory to identify key barriers and opportunities for heat pump deployment.
34	<b>Develop Local Building Electrification Roadmap</b>	Participating municipalities create a plan to guide building electrification efforts, including policy and program

		recommendations, as well as near and/or long-term targets for building electrification, along with metrics for success.
35	<b>Lead by Example in Municipal Facilities</b>	Participating municipalities establish "lead by example" programs to design and implement electrification projects and retrofit strategies in public facilities.
36	<b>Support Building Electrification Supply Chain Development</b>	Participating municipalities design and implement programs and policies that will support the development of a building electrification supply chain that can support market development. Relevant programs could include, contractor training and recruitment, the standardization of contractor qualification requirements, or contractor pipeline development programs.
37	<b>Renewable Heating and Cooling Marketing and Educational Campaigns</b>	COG/participating municipalities establish and/or strengthen marketing and educational campaigns to raise awareness and understanding of building electrification technologies.
38	<b>Renewable Heating and Cooling Group Purchasing Campaigns</b>	COG/participating municipalities host or support a community group purchasing campaign that aims to raise awareness, educate residents, and connect prospective customers with qualified contractors that may be able to offer heat pump installations at a discounted rate.
39	<b>Renewable Heating and Cooling Financial Incentives</b>	Participating municipalities provide incentives to reduce the upfront costs of building electrification technologies.
40	<b>Implement District (Large- or Micro-Scale) Geothermal</b>	Participating municipalities develop distribution networks to supply buildings with heat from geothermal energy. District geothermal could be implemented on a large- or micro-scale. A preliminary step may involve hiring a geothermal consultant to perform district feasibility assessments.
41	<b>Establish a Formal City-Utility Partnership</b>	Participating municipalities establish a formal partnership with PECO to create a framework for shared municipality-utility building electrification goals.
42	<b>Collaborate to Advance State Building Code</b>	Collaborate with other actors to advance exploration of code-based interventions to encourage electrification of buildings.

## Appendix C. Modeling Assumptions

The tables on the following pages summarize the energy modeling methodology and the assumptions related to both the energy impact modeling and financial calculations of the modeled strategies.

### Strategy 2: Install Renewable Energy On-Site to Supply Municipal Operations

Install renewable energy projects on municipal facilities and land. The municipality could directly own the installation or consider a third-party ownership model via a solar lease or power purchase agreement (PPA).

Energy Modeling Methodology	Modeling and Financial Assumptions
<p>This strategy first establishes estimates for rooftop solar installation using average solar potential of municipal buildings. Then we assume that each municipality adds solar to two buildings each year for five years.</p>	<ul style="list-style-type: none"> <li>• Assume we install rooftop solar.</li> <li>• Assume average solar potential of municipal buildings of 100 MWh (sourced from Cadmus siting task excluding the Public Works Annex &amp; Court which is the largest building at 400 MWh). This is about equal to an 81.5 kW system per building.</li> <li>• Assume each roof has a solar capacity factor equal to PA solar availability of 14%.</li> <li>• Assume each municipality adds solar to 10 buildings (60 installations total)</li> <li>• Assume solar is added to municipal buildings over a 5-year period. This results in adding solar to two buildings in each township every year.</li> </ul> <p><b>Direct Ownership Financial Assumptions</b></p> <ul style="list-style-type: none"> <li>• Assume the cost of installing commercial scale municipal solar systems is \$2.1/watt (NREL).</li> <li>• Calculate levelized cost of energy assuming a 30-year solar system lifespan, a 3% discount rate, and using the installation cost as the only cost.</li> <li>• Assume the total municipal electricity rate is \$0.079/kWh (Rate is sourced from supply and distribution rate data provided by the townships: supply rate from Constellation Energy of \$0.057/kWh and a distribution rate from PECO of ~\$0.022/kWh).</li> <li>• While SRECs could lower the cost of owning and installing solar systems at a rate of ~\$40/MWh, this potential source of revenue is not included because selling SRECS would preclude the municipalities from claiming the renewable generation.</li> <li>• Assume that net metering (and therefore savings) applies only to the energy supply portion of the electricity bill (\$0.057/kWh) per the commercial tariff. Assume there is no Federal Investment Tax Credit (FITC) as, per law, it does not apply to municipalities.</li> </ul> <p><b>Lease Solar Panels from Developer Financial Assumptions</b></p> <ul style="list-style-type: none"> <li>• Assume the total municipal electricity rate is \$0.079/kWh (Rate is sourced from supply and distribution rate data provided by</li> </ul>

	<p>the townships: supply rate from Constellation Energy of \$0.057/kWh and a distribution rate from PECO of ~\$0.022/kWh).</p> <ul style="list-style-type: none"> <li>• Note that we only consider the energy supply rate of \$0.057/kWh when comparing to the fixed price PPA, given that the commercial tariff in PA only allows commercial solar projects to be credited for supply and not distribution charges.</li> <li>• Assume that the townships set up a fixed price PPA that comes in 35% higher than the City of Philadelphia’s PPA established in late 2018.</li> <li>• Given that the Philadelphia PPA is \$0.0445/kWh, assume that the townships pay \$0.06/kWh over the lifetime of the project for all municipal facility electricity use.</li> <li>• Thus, for leasing a solar PPA, the townships will pay an extra \$0.003/kWh.</li> </ul>
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**Strategy 5: Establish and/or Participate in Group Purchasing Campaigns**  
 Host or support group purchasing programs for renewable electricity (e.g. Solarize campaigns) to reduce costs and support market development.

Energy Modeling Methodology	Modeling and Financial Assumptions
<p>The effect of this strategy is based on the annual solar installation rate for the townships in 2018. From this installation rate we assumed that a Solarize program would be designed to increase the solar installation rate by 50%.</p>	<ul style="list-style-type: none"> <li>• Find the rate of solar installations in Chester County in 2018 using PJM Generation Attribute Tracking Systems (GATS) data</li> <li>• Scale this rate of new installations to the West Chester Area by population.</li> <li>• Estimate that a solar system installation is 5 kW on average.</li> <li>• Assume that the program is designed to increase installation over the baseline growth rate by 50%. (Note that increasing the solar installation rate by 50% results in an installation of ~116 residential systems across the townships per year.)</li> <li>• Assume that this program occurs every year through 2050.</li> <li>• Assume that the program installation rate increases by 0.5% each year due to improved solar technology, reduced costs, streamlined permitting, and program popularity.</li> <li>• Assume the townships partner with a non-profit to run the solarize campaign and that municipal costs will be due to time spent selecting a non-profit, coordinate action with them, and outreach in community for solarize program. Otherwise the cost to the townships to run the entire program themselves may be about \$15,000 per campaign.</li> </ul>

**Strategy 6: Procure Renewable Energy from Retail Electricity Providers**  
 Purchase electricity from a competitive supplier to supply municipal operations with renewable energy.

Energy Modeling Methodology	Modeling and Financial Assumptions
<p>The effect of this strategy is determined by setting a target of municipal electricity to be purchased through retail providers. This target is then met through retail electricity provider procurement.</p>	<ul style="list-style-type: none"> <li>Assume that the township municipalities purchase renewable energy from retail electricity providers to meet 100% of their municipal operations.</li> <li>Assume these purchases start in 2019 and go through 2050.</li> <li>Assume that the townships choose an electric supplier which offers a 100% renewable electricity supply option. Assume that the cost of this supply is a pass-on of the PA Tier 1 REC cost of \$6/MWh.</li> <li>Thus, the rate increase to purchase 100% renewable supply is \$0.006/kWh.</li> </ul>

**Strategy 7A: Power Purchase Agreement - Partner with a Third Party to Procure Renewable Energy**  
 Participating municipality(s) partner with an independent power producer (IPP) to procure renewable electricity for municipal operations through a power purchase agreement. There are multiple strategies for engaging in a power purchase agreement, including a physical PPA versus a virtual PPA. For the purpose of this analysis, the Project Team focused on physical PPAs.

Energy Modeling Methodology	Modeling and Financial Assumptions
<p>The effect of this strategy is determined by setting a target of municipal electricity to be purchased through a PPA. This target quantity is procured and incorporated into the renewable energy mix supplying the townships.</p>	<ul style="list-style-type: none"> <li>Municipal facility electricity demand in 2018 is ~23 GWh (township data scaled by population from West Chester Borough municipal facility electricity load in 2018).</li> <li>Assume WCA wishes to purchase 100% of existing non-renewable electricity share through PPAs by 2035.</li> <li>Assume municipal non-renewable electricity demand is ~22 GWh.</li> <li>Assume first PPA purchase occurs in 2025 and covers all municipal facility electricity.</li> <li>Assume that PPA prices are stable through 2050.</li> <li>Assume that the townships set up a fixed price PPA similar to the City of Philadelphia’s PPA established in late 2018.</li> <li>Assume the townships pay the same rate as the Philadelphia PPA of \$0.0445/kWh over the lifetime of the project for all municipal facility electricity use.</li> <li>Assume the total municipal electricity rate is \$0.079/kWh (Rate is sourced from supply and distribution rate data provided by the townships: supply rate from Constellation Energy of \$0.057/kWh and a distribution rate from PECO of ~\$0.022/kWh).</li> <li>Assume that only the supply portion of the rate (\$0.057/kWh) is credited from an offsite PPA.</li> </ul>

**Strategy 7B: Commercial and Industrial Purchasing\***  
 Assume that the actions and encouragement of the townships inspire C&I customers to set up clean purchasing strategies for meeting a share of C&I electricity demand.  
*\*Note that energy modeling was conducted for C&I sector purchasing at the request of the Advisory Group; corresponding policy feasibility or financial analysis were not included given that the C&I sector may pursue renewable purchasing through a variety of avenues as outlined in other strategy options for the participating municipalities.*

Energy Modeling Methodology	Modeling Assumptions
<p>The effect of this strategy is determined by setting targets for commercial and industrial electricity to become clean through some renewable energy purchasing mechanism (RECs, Offsite PPA, etc).</p>	<ul style="list-style-type: none"> <li>• In 2015, DVRPC data shows C&amp;I users representing ~76% of total electricity demand for the townships.</li> <li>• Assume that C&amp;I customers start purchasing clean electricity in 2021 with a linear rate of increase until 25% of C&amp;I customers purchase 100% clean electricity by 2025.</li> <li>• Assume that by 2050, 50% of C&amp;I customers purchase 100% clean electricity.</li> <li>• Note that 10% of C&amp;I electricity load is equal to ~86,200 MWh, which would require a PPA about the size of the Philadelphia Adams PPA (a 70 MW solar plant), which produces about 86,000 MWh of electricity per year.</li> </ul>

**Strategy 8: Renewable Energy Credit (REC)-based Purchasing**  
 Purchase RECs as a means to realize local energy targets. Participating municipalities could also provide information to residents and businesses to consider them to purchase RECs.

Energy Modeling Methodology	Modeling and Financial Assumptions
<p>The effect of this strategy is determined by setting a target of municipal electricity to be purchased through internal RECs. Apply the RECs purchased to the electricity mix as renewable energy.</p>	<ul style="list-style-type: none"> <li>• Assume WCA purchases 100% of existing non-renewable electricity share through internal RECs by 2035.</li> <li>• Assume that REC purchases increase linearly by 10% year over year to reach 100% by 2035.</li> <li>• Assume that each REC purchase contract lasts 1 year, and that prices are stable through 2050.</li> <li>• Assume the price of a PA Tier 1 REC of \$6/MWh (2019 Evolution Markets Data)</li> <li>• Assume the price of a TX Wind REC of \$0.75/MWh (2019 Evolution Markets Data)</li> </ul>

**Strategy 9: Allow for Community Solar**  
 The State enacts legislation that allows for community solar in Pennsylvania.

Energy Modeling Methodology	Modeling and Financial Assumptions
<p>The effect of this strategy is determined by assuming a consistent level of involvement from residents in the</p>	<ul style="list-style-type: none"> <li>• Assume that community solar is enacted in 2021 and the first program begins in 2022.</li> <li>• Assume that one community solar program occurs every year from 2022 to 2050.</li> </ul>

townships. The number of residents involved in a program each year is scaled per residential electricity use to determine the size of the community solar installation each year.

- Assume that in the first year 100 residents sign up and that, by 2050, the number of residents participating each year increases to 200 per year.
- Assume the increase in participation occurs linearly over the 28 years from 2022 to 2050.
- Assume that the average resident in the townships has an annual electricity consumption of ~2.6 MWh (based on DVRPC data) and that they enroll in the community solar program to cover half of their electricity use.
- Determine the community solar to add per program each year based on the number of people and their energy consumption.
- **Cost depends on how community solar program is implemented. One option is for community members to subscribe to the project and receive a rebate on their electricity rate through net-metering. This results in about a 10% decrease on average in their electricity rate.**

## Strategy 10: Allow for Community Choice Aggregation (CCA)

The State enacts legislation that allows for community choice aggregation in Pennsylvania.

### Energy Modeling Methodology

The effect of this strategy is determined by using opt-in and opt-out CCA program timeline and residential adoption information based on feedback from the WCA Advisory Group.

### Modeling and Financial Assumptions

- Assume an opt-in program is enacted in the townships in 2023 and 200 residents sign on each year from 2023 to 2026.
- Assume the opt-in program provides a 30% renewable premium above the baseline mix.
- Assume an opt-out program is enacted in the townships in 2026.
- Assume that the townships renegotiate their CCA every year in an aggressive manner to reach a 100% CCA mix by 2035. This results in the townships increasing their CCA mix by 7% each year until it is 100% renewable in 2035.
- Assume that 50% of residents continue participation in the CCA, 50% of residents opt-out.
- Assume that the opt-out mix is equivalent to the baseline renewables mix in each year.
- **Assume the electric supplier to provide 100% renewable electricity passes on the renewables premium at the same rate as the price for PA Tier 1 REC in 2019 of \$6/MWh (Evolution Markets Data).**
- **Assume the average monthly consumption for a residential home in PA is 568 kWh (2018 DVRPC data on residential electricity use and residential household building count).**
- **Assume the municipal facility electricity demand in 2018 is ~23 GWh (township data scaled by population from West Chester Borough municipal facility electricity load in 2018).**

**Strategy 11: Increase Alternative Energy Portfolio Standard**  
 The State enacts legislation increasing utility commitments for renewable energy purchasing.

Energy Modeling Methodology	Modeling and <b>Financial</b> Assumptions
<p>This strategy makes assumptions about potential legislative changes to the AEPS and applies it to the Pennsylvania electricity mix. Doing so illustrates the effect that more aggressive state energy policy can have on local electricity supply.</p>	<ul style="list-style-type: none"> <li>• Assume that the PA state legislature increases the AEPS targets as follows:                             <ul style="list-style-type: none"> <li>○ 20% Tier 1 by 2030 - enacted by 2022</li> <li>○ 50% renewable by 2040 - enacted by 2028</li> <li>○ 80% Tier 1 by 2050 - enacted by 2035</li> </ul> </li> <li>• Given the above, we model the energy impacts of the AEPS to increase renewables to 40% by 2040 and 80% by 2050.</li> <li>• Note that NREL/LBNL estimates that electricity price increase due to a high renewables RPS for the Middle Atlantic region is anticipated to range from \$0.004/kWh to \$0.036/kWh.</li> <li>• Assume the median of the lower and upper bounds of electricity price increase resulting in \$0.020/kWh. This represents an increase in electricity prices for all electricity rates.</li> <li>• Assume the average monthly consumption for a residential home in PA is 568 kWh (2018 DVRPC data on residential electricity use and residential household building count).</li> </ul>

**Strategy 12: Streamline Interconnection Processes**  
 Collaborate with PECO to simplify utility interconnection procedures.

Energy Modeling Methodology	Modeling and <b>Financial</b> Assumptions
<p>The effect of this strategy is determined by finding the cost savings through streamlining interconnection processes. These savings are converted to an increase in solar demand which is applied as an increase in the renewables mix.</p>	<ul style="list-style-type: none"> <li>• Assume that streamlining interconnection processes decreases the interconnection cost of new solar by 50%.</li> <li>• Assume the solar energy price elasticity of demand is <math>-0.65</math>. (2017 Yale study on solar PV)</li> <li>• Current costs for residential solar PV systems for interconnection are \$0.05/W (NREL). Commercial costs differ for this strategy and are not modeled.</li> <li>• We assume a 50% decrease in this cost resulting in a cost decrease in solar PV installation of \$0.025/W.</li> <li>• This cost savings is applied on top of any solar installation.</li> </ul>



**Strategy 14: Procure Electric Vehicles for Municipal Fleet**

Participating municipalities can integrate EVs as part of their municipal fleets. Multiple municipalities could consider making an aggregated purchase or lease of EVs for their public fleet. These purchases may also capture the full value of incentives at the state and federal level via leasing arrangements with private entities. This may also include efforts to electrify school bus fleets, and/or support electrification of transit bus fleets if not owned/controlled by the municipality.

**Energy Modeling Methodology**

This effect of this strategy is based on how many municipal vehicles the townships wish to electrify. These inputs are used to determine the number of vehicles to procure each year. The effect on the energy mix is directly related to the share of vehicles being electrified with a corresponding decrease in municipal vehicle gas use.

**Modeling and Financial Assumptions**

- Assume EV procurement applies to only the municipal fleet.
- Assume a desire to electrify 100% of the municipal fleet by 2050.
- Note that electrifying the entire fleet results in the need for ~10 municipal vehicles to be electrified per year each year until 2050. To reflect improving technology and decreasing costs, we model this by assuming that 5 vehicles are electrified per year for the first 10 years, then 10 vehicles per year for the following 10 years, and 15 vehicles per year for the years leading up to 2050.
- Note that we consider an EV to be plug-in or full electric vehicles but do not consider hybrid vehicles to be EVs. Given this, the townships currently have 4 EV vehicles.
- The 2019 Nissan Leaf was chosen as the electric vehicle to model in consultation with the Advisory Group. The AG also suggested using Nissan Kicks for the gas counterpart, but there is no total cost of ownership (TCO) data available to use for financial estimations (as it is a relatively new car). The reasoning for changing the vehicles we compare was driven by 1) price comparability and 2) trim/features comparability. While there weren't other vehicles with comparable trim in the Nissan line to the Nissan Leaf, we chose the most comparable car with respect to price for the analysis, the 2019 Nissan Sentra. Note that we also considered the Nissan Versa, however based on price comparability with the Nissan Leaf, chose the Sentra.
- Project the costs of these vehicles out to 2050 (using existing data to establish the compound annual growth rates for cost).
- Calculate the difference in costs based on our projections.
- For the Total Cost to Own (TCO) analysis, we looked at factors that would differ between gasoline and electric vehicles. These factors include upfront price, maintenance and repairs, fuel, and depreciation.
- Upfront price forecasts projected using a compound annual growth rate determined by using the last six years of data.
- All remaining factors calculated using Edmunds 5-year TCO studies as foundations for the 2050 projections. Edmunds conducted the study for both the 2019 Nissan Leaf and the 2019 Nissan Sentra.

**Strategy 17: Lead by Example in Municipal Facilities**  
 Participating municipalities establish "lead by example" programs to design and implement electrification projects and retrofit strategies in public facilities.

Energy Modeling Methodology	Modeling and Financial Assumptions
<p>This effect of this strategy is based on retrofitting a mid-sized municipal building. Assume that each township electrifies a similar building every four years through 2050. The effect on the energy mix is directly related to the fuel use replaced by electricity.</p>	<ul style="list-style-type: none"> <li>• Use the "1st Fire" building in West Chester Borough as the model for a mid-sized building. 1<sup>st</sup> Fire has approximately median gas and electricity use of all West Chester Borough buildings.</li> <li>• Assume that each township electrifies one similar sized building every four years.</li> <li>• Note that this results in a total of 48 municipal buildings being retrofit between 2020 and 2048 (one building retrofit per township every four years).</li> <li>• Assume the municipalities replace the entire existing heating system for 100% electrification.</li> <li>• Assume that the typical municipal building uses gas (boiler or furnace) for space heating and water heating (standalone system) and does not have central cooling (may have window units in offices).</li> <li>• Assume electrification of space heating to air source heat pumps (ASHP)/variable refrigerant flows (VRFs) and water heating through heat pump water heating.</li> <li>• Assume the 1<sup>st</sup> Fire building is 6500 square feet.</li> <li>• Assume heat pump water heater costs \$6,000/unit (commercial scale 100 gallon)</li> <li>• Assume ASHP/VRF cost of \$5,000/ton, which does not include heat recovery for simultaneous heating/cooling (30+% premium)</li> <li>• Heat pump technologies for heating/cooling are expected to be double or more of the cost of a baseline gas system. However, the incremental cost difference would be expected to be closer to 20-50% if the municipality were also planning on retrofitting buildings for central cooling. Given the age of some of municipal buildings, installation of ductless ASHP systems to provide cooling may be a driver for encouraging electrification of heating.</li> <li>• Pairing heating electrification with cost-effective energy efficiency retrofits (focused on building envelope improvements) can reduce the installed and operating cost of the systems.</li> <li>• Assume that buildings being electrified have heating systems that are at end of life to reduce stranded asset costs.</li> </ul>

## Appendix D. Energy Efficiency Strategies

### *Energy Efficiency*

Although not a focus of this report, energy efficiency (EE) is a key first step in achieving RE targets as it reduces the overall amount of energy consumed at the economy-wide level. There are opportunities for efficiency improvements in all sectors of the economy that the WCA could consider pursuing. High-level guidance and resources on some key areas for EE advancement at the local level are summarized below:

### **Buildings**

Buildings constitute a high proportion of energy usage in West Chester, as is true throughout the country. A selection of strategies for increasing efficiency (and associated resources) in both new and existing buildings are outlined in Table 1 below.

**Table 1: Efficiency Strategies for New and Existing Buildings**

Building Type	Potential Strategies	Resources
New Buildings	<p><b>Building Energy Codes:</b> WCA can consider revising building codes to ensure the most stringent codes are adopted. These include:</p> <ul style="list-style-type: none"> <li>• For the <b>residential</b> sector, the 2015 International Energy Conservation Code (IECC) is already in place in Pennsylvania. The 2021 IECC is expected to be released later in 2020, at which time WCA can consider opportunities to align with the updated code.<sup>30,31</sup></li> <li>• For the <b>commercial</b> sector, The American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) Standard 90.1-2016</li> </ul> <p><b>Code Compliance:</b> WCA can pursue a baseline study of EE, develop compliance goals, and continuously assess progress against goals. Pittsburgh is an example of a city that has dedicated staff to EE code compliance.</p>	<p>The <a href="#">US Department of Energy</a> tracks state level commercial and residential adoption of building codes at the state level through quantitative progress on energy savings impacts.</p> <p>ACEE tracks <a href="#">code compliance by different cities</a> that WCA may seek to connect with.</p>
Existing Buildings	<p><b>Improvement Measures:</b> WCA can build on its benchmarking ordinance to include improvement measures, such as energy audits and retrofits/retro-commissioning projects. Energy audits identify potential for energy savings, and retro-commissioning projects implement the energy savings.</p> <p><b>Benchmarking and Transparency Rules:</b> WCA can also consider encouraging or requiring buildings (or segments of building types) to publicly disclose consumption data.</p>	<p>American Council for an Energy Efficient Economy (ACEEE) <a href="#">Strategies for Energy Savings in Buildings</a>.</p> <p>PECO provides various <a href="#">incentives for business customers</a> as well as for its <a href="#">residential customers</a> to support implementation of EE measures.</p>

<sup>30</sup> Smart Energy International. January 2020. U.S. Local Governments Vote in Favour of New 2021 Buildings Efficiency Code. <https://www.smart-energy.com/industry-sectors/business-finance-regulation/us-local-governments-vote-in-favour-of-new-2021-buildings-efficiency-code/>

<sup>31</sup> New Buildings Institute. 2021 IECC national Model Energy Code. [https://newbuildings.org/code\\_policy/2021-iecc-base-codes/](https://newbuildings.org/code_policy/2021-iecc-base-codes/)

Future of Mobility

Reducing energy usage in the transportation sector will come through increasing mobility in a variety of less energy-intensive sectors, such as ridesharing, mass transit, and active transit, as outlined in Table 2.

**Table 2: Transit Strategies**

Transit Mode	Potential Strategies	Resources
Ridesharing	<p><b>Ridesharing:</b> Implementing ridesharing programs encourage people to travel together and to reduce traffic and travel costs. There are multiple avenues to pursue ridesharing, including WCA encouraging Employee Rideshare programs with financial incentives, or preferred parking spots for carpooling. Additionally, popular ridesharing apps such as Uber and Lyft can allow commuters traveling similar directions to carpool and thereby reduce traffic.</p>	<p>Shared Used Mobility Center <a href="#">overview of shared mobility</a></p>
Mass Transit	<p><b>Bus routes:</b> WCA and SEPTA can devote resources and improvements to the bus systems, with ideas such as dedicated bus lanes and the use of HOV lanes. Employee passes and transit subsidies can be effective methods in encouraging greater mass transit use.</p>	<p>Alternative Fuels Data Center <a href="#">overview of mass transit</a></p>
Active Transit	<p><b>Study viability of active transit</b> (e.g. walking, biking) <b>in select places and promote development where possible:</b> West Chester Borough is currently pursuing a potential Bike Lane Demonstration, and has conducted a Multimodal Traffic and Circulation Study with DVRPC. Participating municipalities could consider expanding on these initiatives to. Active transportation creates significant co-benefits such as healthier public spaces.</p>	<p>The U.S. Department of Transportation <a href="#">overview of Active Transportation</a></p>

## Additional Resources

Further details on the guidance in this section as well as additional resources for pursuing EE can be found at the below links.

**Table 3: Energy Efficiency Resources**

Resource	Description
<a href="#">American Council for an Energy Efficient Economy: Local Technical Assistance Toolkit</a>	<p>In addition to the buildings and electricity sector guidance, this toolkit also contains implementation support related to on EE in specific sectors and settings. Highlights include EE at lighting in public outdoor spaces, EE at wastewater treatment plants, increasing participation in utility EE programs and more. Of particular note is the Energy Efficiency Calculator that allows a user to evaluate the impact of potential EE actions in their locale.</p>
<a href="#">American Council for an Energy Efficiency Economy: State and Local Policy Database</a>	<p>This database provides information on energy policies enacted by state and local governments across the US. These include policies for buildings and transportation sectors, as well as information on combined heat and power, utilities, and appliance standards.</p>
<a href="#">American Council for an Energy Efficient Economy: Energy Efficiency Portals</a>	<p>This is a list of ACEEE’s portals focused on energy efficiency. They cover state and local policies, but also programs in the commercial and industrial sectors.</p>
<a href="#">State and Local Energy Efficiency Action Network (SEE Action)</a>	<p>SEE Action, a state and local-led effort, is facilitated by the US DOE and EPA. It builds off of the EPA’s <a href="#">National Action Plan for Energy Efficiency</a>, and provides resources and technical assistance to state and local policy makers who intend to focus on energy efficiency.</p>

## Appendix E. Solar Siting Analysis

### Introduction

Cadmus generated an overview of nine preliminary solar photovoltaic (PV) array designs for multiple municipally-owned sites in the Townships of East Bradford, East Goshen, West Goshen, Westtown, and West Whiteland, and the Borough of West Chester, Pennsylvania. This memo details both the physical design and pertinent technical details at this stage of the project, such as estimated capacity, production, and performance, based on publicly available satellite images and site-specific information provided by the communities mentioned above. The estimated annual production offered in this analysis is used to project annual energy savings across all potential PV arrays. Finally, note that this analysis intends to support municipalities with decision-making regarding near-term solar developments. For this reason, the assumptions used in the analysis reflect current PV market conditions, and do not project potential future changes in the regulatory framework or available incentives.

### Technical Specifications for the Proposed Solar Sites

This analysis was conducted using Helioscope,<sup>32</sup> a web-based PV design software, to generate a conceptual PV system design for each of the nine sites. For the models, Cadmus assumed industry standard LG 365W panels and Solectria or Enphase inverters depending upon the system’s size. It is important to note that Cadmus did not try to maximize the total number of panels at each site, but instead aimed to design arrays that maximize solar efficiency and effective use of each space. Table 1 below displays a compiled list of all nine sites for which Cadmus designed arrays, as well as key system assumptions derived from the spatial design modeling exercise.

**Table 1: Estimated PV Potential by Site**

Township/Borough	Site Name	Location	Capacity (kW-DC)	Annual Solar Production (kWh)
East Bradford	Township Office	666 Copeland School Road	8.76	12,000
East Goshen	Public Works Annex	1570 Paoli Pike	78.8 <sup>33</sup>	102,144
West Chester	Borough Hall	401 E Gay Street	178.1	247,100
West Goshen	Public Works Building	1025 Paoli Pike	145.6	197,200
	Wastewater Treatment Plant	848 S Concord Road	215.7	281,300
West Whiteland	House at Boot Road Park	110 W Boot Road	8.76	12,250
	Municipal Building	101 Commerce Drive	47.5	62,990
Westtown	Sewer Co. Inc.	950 Westtown Road	27.7	38,580
	Pleasant Grove Pump Station	1147 S Concord Road	90.5 <sup>34</sup>	124,600

<sup>32</sup> [Helioscope](#) is a cloud-based solar photovoltaic design modeling software that integrates system design and performance modeling to develop preliminary layouts and energy yield calculations for measuring solar PV feasibility.

<sup>33</sup> Sized to onsite load, as detailed in Technical Analysis section

<sup>34</sup> Sized to onsite load, as detailed in *Technical Analysis* section

The total collective capacity of the sites as currently designed is estimated to total approximately 800 kW-DC, with a projected annual production potential of over 1,000 MWh. These projections take into consideration an average performance ratio of roughly 84%, which represents the total efficiency of a system considering electrical conversion, local weather patterns, shading, and typical panel degradation. The remaining assumptions we made surrounding PV in Pennsylvania are summarized in **Table 2**.

**Table 2: Summary of Key Assumptions**

Annual Utility Escalation Rate	1% <sup>35</sup>
Discount Rate	4%
Install Cost/Watt	\$2.50 <sup>36</sup>
Annual O&M Cost/kW	\$20.00
Annual Performance Degradation	0.5% <sup>37</sup>
Project Term Years	25
State Tax Rate	9.990% <sup>38</sup>
Federal Tax Credit in 2020	26% <sup>39</sup>
Value of SRECs in PA per MWh	\$40.00 <sup>40</sup>
Retail Rate of Electricity per kWh	\$0.057

## Technical Analysis

The section below lists the findings of a site-by-site solar feasibility analysis. The analysis aims to provide decision-makers with support to better understand the extent to which solar development is technically and economically feasible. For each site, Cadmus provides a summary of key takeaways, including images representing potential PV array designs at each of the municipal sites and a table on the estimated PV potential. In the designs, each panel is represented by a single blue rectangle, while any orange zones have been identified as “keepouts” due to visible obstructions, standard setback restrictions, or necessary maintenance corridors. The financial details included in this section are calculated assuming the project is financed through a fixed price power purchase agreement (PPA) at a site-specific rate financially reasonable for a developer to pursue. Projected PPA savings figures are detailed in this section, as this financing option is most common for municipally owned properties. However, more details on power purchase agreements, direct purchasing, and incentives are explained in greater depth in the *Ownership Options and Incentives* section.

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<sup>35</sup> Cadmus assumed a conservative 1% annual utility escalation rate given recent market trends. However, if electricity prices rise at a faster rate, it will result in additional savings to the municipalities.

<https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf>

<sup>36</sup> Average between PA residential and commercial install cost/Watt. <https://www.energysage.com/solar-panels/solar-panel-cost/pa/>

<sup>37</sup> <https://financere.nrel.gov/finance/content/insights-pv-lcoe-through-new-degradation-study>

<sup>38</sup> <http://www.tax-rates.org/pennsylvania/corporate-income-tax>

<sup>39</sup> <https://seia.org/initiatives/solar-investment-tax-credit-itc>

<sup>40</sup> SREC Trade in Pennsylvania. <https://www.srectrade.com/markets/rps/srec/pennsylvania>



## 1. East Bradford Township Office

The East Bradford Township Office has limited roof space compatible with solar development given the unique roof shape and the presence of large trees over the northeast facing side of the roof. Despite this shading, the Township Office still has enough roof space to support an array of nearly 9 kW-DC capacity, with the potential to produce roughly 12,000 kWh of electricity annually. This generation is enough to offset approximately 29% of the current onsite electricity usage. Given the estimated production potential of an array at the Township Office, pursuing a PPA at this time will be less attractive until the value of SRECs and other incentives increase, or electricity rates rise.



**Site 1. East Bradford Township Office Estimated PV Potential**

DC Capacity (kW)	8.76
AC Capacity (kW)	6.96
No. Modules	24
Estimated Annual Production (kWh)	12,000
Percent of Current Electricity Load Offset	29%

## 2. East Goshen Public Works Annex

The southwest orientation of the East Goshen Public Works Annex makes it an excellent candidate for solar development. The Public Works Annex can support an array at least 78.8 kW-DC in size with the electricity generating potential of 102,144 kWh annually. The system's generation potential is enough to offset 100% of onsite electricity consumption, which currently costs East Goshen \$7,527 each year. Given the estimated production potential of an array at the Public Works Annex, pursuing a PPA at this time will be less attractive until the value of SRECs and other incentives increase, or electricity rates rise. It is important to note that this system was scaled to onsite load. If solar incentives do improve, further development may be financially viable in the future.



**Site 2. East Goshen Public Works Annex Estimated PV Potential**

DC Capacity (kW)	78.8
AC Capacity (kW)	62.6
No. Modules	216
Estimated Annual Production (kWh)	102,144
Percent of Current Electricity Load Offset	100%

### 3. West Chester Borough Hall

Two of the three primary roof structures at the West Chester Borough Hall site are optimal for a PV installation. The third roof space seems a less-likely candidate for a developer to pursue development atop due to its dimensions and visible obstructions. However, the parking lot offers West Chester Borough the opportunity to install a solar carport, which could produce roughly 160,000 kWh annually, while simultaneously providing other benefits like shading in the summer and snow cover during winter months. As designed, the roof-mounted arrays could likely support an additional 60 kW-DC of PV, as they are positioned well for clean energy generation. The arrays modeled below have the potential to offset about 75% of onsite electricity consumption, saving the municipality an estimated \$1,600 each year.



Site 3. West Chester Borough Hall Estimated PV

DC Capacity (kW)	178.1
AC Capacity (kW)	141.5
No. Modules	488
Estimated Annual Production (kWh)	247,100
Percent of Current Electricity Load Offset	77%

### 4. West Goshen Public Works Building

The West Goshen Public Works Building has the available roof space to support a 145.6 kW-DC solar installation. In total, the arrays designed on the three best positioned roof spaces could hold about 400 panels, enough to generate nearly 200,000 kWh of clean energy each year. The site currently consumes approximately 224,000 kWh of electricity annually, which could be reduced by approximately 88% if a PV installation of this magnitude is pursued. Currently, a PPA could save the municipality upwards of \$920 each year over the lifetime of the system.



Site 4. West Goshen Public Works Building Estimated PV Potential

DC Capacity (kW)	145.6
AC Capacity (kW)	115.7
No. Modules	399
Estimated Annual Production (kWh)	197,200
Percent of Current Electricity Load Offset	88%

### 5. West Goshen Wastewater Treatment Plant

The West Goshen Wastewater Treatment Plant has enough space onsite to support two ground-mounted arrays. The array currently modeled at the top of the site plan is sized at 117 kW-DC, and the southwest array is estimated at about 100 kW-DC. This image appears to show the site during the winter months, when there is minimal shading from surrounding trees, so it is important to note that the generation capabilities of some panels currently included in the design may be compromised in the summer and excluded by a developer as a result. Fortunately, this would likely only impact a few panels, so the annual solar production estimate of roughly 280,000 kWh is within reason. This level of generation has the potential to offset 10% of the Plant’s large electricity load, enough to save West Goshen about \$265 each year under a PPA.



**Site 5. West Goshen Wastewater Treatment Plant  
Estimated PV Potential**

<b>DC Capacity (kW)</b>	215.7
<b>AC Capacity (kW)</b>	171.4
<b>No. Modules</b>	591
<b>Estimated Annual Production (kWh)</b>	281,300
<b>Percent of Current Electricity Load Offset</b>	10%

### 6. West Whiteland House at Boot Road Park

The small building at the center of West Whiteland Boot Road Park could likely support an 8.76 kW-DC roof-mounted array. This system would have the electricity generating capacity to produce 12,250 kWh annually, which is 100% of the site’s current consumption. Given the estimated production potential of an array atop the House at Boot Road Park, pursuing a PPA at this time will be less attractive until the value of SRECs and other incentives increase, or electricity rates rise.

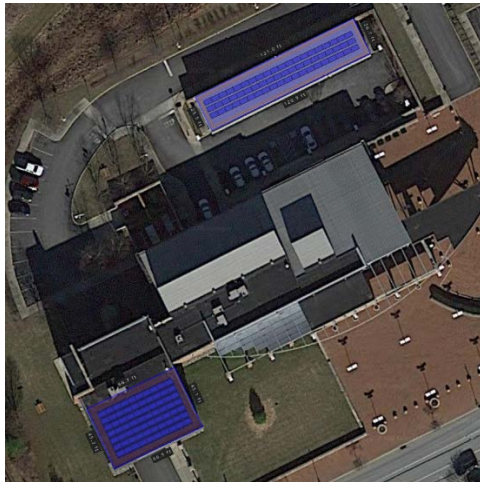


**Site 6. West Whiteland Boot Road Park Estimated PV  
Potential**

<b>DC Capacity (kW)</b>	8.76
<b>AC Capacity (kW)</b>	6.96
<b>No. Modules</b>	24
<b>Estimated Annual Production (kWh)</b>	12,250
<b>Percent of Current Electricity Load Offset</b>	100%

### 7. West Whiteland Municipal Building

The flat roof space at the West Whiteland Municipal Building could support two arrays, with one installed on each of the two buildings depicted. Though moderate in size, the simplicity of the design and lack of roof obstructions leave few barriers to an installation at the location. A developer would likely be able to install 47.5 kW-DC of PV, capable of producing over 60,000 kWh of electricity annually. This electricity production would offset roughly 9% of the site’s current 682,000 kWh annual electricity load. However, pursuing a PPA at this time will be less attractive due to the current incentives available and low electricity rates.

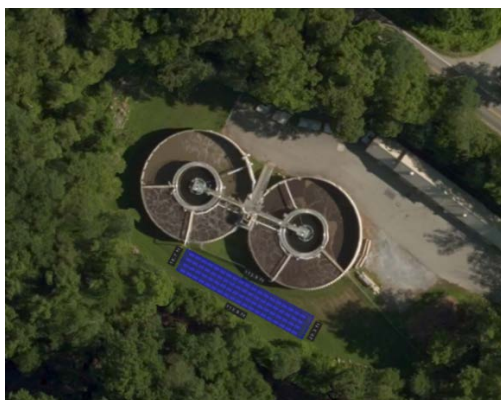


**Site 7. West Whiteland Municipal Building  
Estimated PV Potential**

<b>DC Capacity (kW)</b>	47.5
<b>AC Capacity (kW)</b>	37.7
<b>No. Modules</b>	130
<b>Estimated Annual Production (kWh)</b>	62,470
<b>Percent of Current Electricity Load Offset</b>	9%

### 8. Westtown Sewer Co. Inc.

The Westtown Township Sewer Co. Inc. is a relatively small site with significant tree cover, as shown in the image below. Despite visible shading, it is possible a small ground-mounted system could be successful at the southern edge of the property, though a developer would have to ensure the facility’s tanks and surrounding trees would not significantly shade the panels. If the system could exist as currently designed, it would generate 38,850 kWh of electricity annually. This 6% electricity offset at a site that uses upwards of 650,000 kWh of electricity each year is not enough to save Westtown significantly on an annual basis under a PPA until incentives or electricity rates change.



**Site 8. Westtown Township Sewer Co. Inc.  
Estimated PV Potential**

<b>DC Capacity (kW)</b>	27.7
<b>AC Capacity (kW)</b>	22.0
<b>No. Modules</b>	76
<b>Estimated Annual Production (kWh)</b>	38,580
<b>Percent of Current Electricity Load Offset</b>	6%

### 9. Westtown Pleasant Grove Pump Station

The 18-acre open space at Westtown Township’s Pleasant Grove Pump Station is capable of supporting a large ground-mounted array with a capacity over 700 kW-DC. However, developing a site of this size would involve high upfront costs. Moreover, the land appears to be neighboring both a residential area and possibly wetlands, which are often accompanied by development restrictions regarding zoning and permitting, which a developer would have to navigate. As such, Cadmus has provided two analyses. The first shows the theoretical potential of the large site as modeled in **Figure A**. In this case, the system would generate almost 1,000 MWh annually, nearly 800% of the Station’s current onsite load. Based on this analysis, the Station could be a potential candidate for a community solar project. Separately, as an example that would help the municipality meet its current load while avoiding navigating land development restrictions, PECO net metering regulations, and potential limits to available funding, Cadmus also modeled a system at the site capped at 100% of the 124,600 kWh onsite load. This smaller system, represented in **Figure B**, will meet regulatory and zoning requirements and come in at a fraction of the cost. The projections associated with **Figure B** were used for all financial projections, as this system faces fewer barriers to entry.



Figure A: Solar PV Potential

Site 9A. Westtown Township Pleasant Grove Pump Station Estimated PV Potential

DC Capacity (kW)	719.4
AC Capacity (kW)	571.9
No. Modules	1,971
Estimated Annual Production (kWh)	984,000
Percent of Current Electricity Load Offset	790%



Figure B: Solar PV Scaled to Onsite Usage

Site 9B. Westtown Township Pleasant Grove Pump Station PV Scaled to Onsite Usage

DC Capacity (kW)	90.5
AC Capacity (kW)	71.9
No. Modules	248
Estimated Annual Production (kWh)	124,600
Percent of Current Electricity Load Offset	100%

## Ownership Options and Incentives

Given that it is common for municipalities to opt for a PPA financing structure, this option has been used for the findings outlined in the section above. However, installing solar PV at the nine sites could be pursued through other mechanisms. The two most likely financing methods, direct purchase and PPA are outlined below, accompanied by savings breakdowns for each site and additional information on key solar incentives in Pennsylvania.

### Direct Ownership

Purchasing the PV arrays directly would allow the municipality to accrue all the savings from the electricity generated onsite, while simultaneously maximizing the value of incentives available to public entities. If purchased directly, savings would be generated through:

- Collecting full value of electricity produced at each site, thereby offsetting a greater percentage of utility bills than possible under other financing methods
- Selling SRECS, which are accrued based on electricity production and currently sold at a rate of \$40/MWh in Pennsylvania <sup>41</sup>. The value of SRECs in the state are projected to rise, as long as current legislative trends continue to benefit the Pennsylvania SREC market. For more information on the Pennsylvania SREC market, see [Solar Siting Analysis Appendix](#).
- Net metering revenues when applicable.<sup>42</sup> This assumes each site will be able to net meter at the \$0.057 retail rate of electricity specified by the municipalities.

Table 3 below represents savings estimates if the municipalities choose to purchase PV arrays directly, accounting for the estimated capital costs of installing a solar PV array in Pennsylvania. Cadmus assumed an install cost of \$2.5/Watt and standard operations and management expenses for the purposes of this analysis.<sup>43</sup> The *25-Year Estimated Savings* column provides an estimate based on each site’s annual electricity savings and the current value of SRECs. It should be noted that solar PV installations have repeatedly proven they benefit from economies of scale, with larger commercial systems in PA costing nearly \$2.00/Watt and smaller residential systems costing over \$3.00/Watt on average.

**Table 3: Projected Savings Generated if Systems are Purchased Directly**

Site Name	Annual Solar Production Potential (kWh)	Current Annual Electricity Usage (kWh)	Annual Electricity Usage Offset by Solar PV System	Annual Projected SREC Revenue	Annual Electricity Value Generated by Solar PV System <sup>44</sup>	25-Year Estimated Savings <sup>45</sup>
East Bradford Township Office	12,000	42,080	29%	\$480	\$994	\$13,762

<sup>41</sup> SREC Trade in Pennsylvania. <https://www.srectrade.com/markets/rps/srec/pennsylvania>

<sup>42</sup> PECO. Net Metering. <https://www.peco.com/SiteCollectionDocuments/January%201,%202016%20-%20Rate%20RS-2.pdf>

<sup>44</sup> This value represents nominal dollars not real dollars, as it has not been adjusted for depreciation over time.

<sup>45</sup> This value represents nominal dollars not real dollars, as it has not been adjusted for depreciation over time.

East Goshen Public Works Annex	102,144	102,144	100%	\$4,085	\$7,353	\$81,842
West Chester Borough Hall	247,100	322,240	77%	\$9,884	\$16,879	\$205,912
West Goshen Public Works Building	197,200	224,064	88%	\$7,888	\$19,281	\$289,997
West Goshen Wastewater Treatment Plant	281,300	2,831,540	10%	\$11,252	\$19,058	\$201,020
West Whiteland House at Boot Road Park	12,250	12,250	100%	\$498	\$858	\$11,046
West Whiteland Municipal Building	62,990	692,400	9%	\$2,520	\$4,351	\$48,777
Westtown Sewer Co. Inc.	38,580	653,952	6%	\$1,543	\$2,548	\$30,392
Westtown Pleasant Grove Pump Station	124,600	124,600	100%	\$4,984	\$10,437	\$146,536

### Power Purchase Agreement

A PPA is a contract between a private third-party developer and a property owner, the municipality in this case. Under a PPA, the developer installs, owns, and operates the PV system on the property at no cost to the property owner. Upon completion of the array installation, the third-party developer then serves as the electricity provider to the municipality. The PPA rate is often lower than what can be expected from the retail electric rate offered by the utility, though this is not always economically feasible for a developer. The lower rate (and municipal electricity savings) are created because the third-party financier is able to monetize:

- The Federal Investment Tax Credit, which will cover 26% of a PV system’s cost in 2020
- SRECS, which are accrued based on electricity production and currently sold at a rate of \$40/MWh, though projected to rise. For more information on the Pennsylvania SREC market, see [Solar Siting Analysis Appendix](#).
- Net Metering revenues when applicable.<sup>46</sup>

Table 4 provides estimated PPA savings and the projected 25-year net value of installing PV at each of the nine locations, accounting for major incentives like the ITC and SRECs. Cadmus estimated a likely PPA rate for each of the nine sites based on what would produce a realistic and acceptable return on investment for a developer. The target return, or IRR, for the developer was set between 10%-11%, as this is likely the minimum threshold that must be met in order for a developer to consider pursuing a project. The target IRR value was used to estimate a feasible PPA rate, regardless of whether or not it resulted in a lucrative 25-year investment for the municipality. Under a PPA, the municipality realizes savings when the PPA rate they pay, coupled with the value of SRECs, falls below the utility rate they would otherwise pay the utility for electricity. For example, \$0.09/kWh (PPA value) - \$0.04/kWh (value of SRECs) = \$0.05/kWh, which

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<sup>46</sup> PECO. Net Metering. <https://www.peco.com/SiteCollectionDocuments/January%201,%202016%20-%20Rate%20RS-2.pdf>

means the municipality will save approximately \$0.007/kWh given their current electric utility rate of \$0.057/kWh.

**Table 4: Projected Savings Generated by the System Under a PPA**

Site Name	Potential Solar Production (kWh)	Fixed \$/kWh PPA Rate/Net Metering Credit Agreement <sup>47</sup>	25-Year Value of the PV Installation <sup>48</sup>
East Bradford Township Office	12,000	\$0.076	-\$5,371
East Goshen Public Works Annex	102,144	\$0.060	-\$7,218
West Chester Borough Hall	247,100	\$0.050	\$40,745
West Goshen Public Works Building	197,200	\$0.052	\$23,226
West Goshen Wastewater Treatment Plant	281,300	\$0.056	\$6,626
West Whiteland House at Boot Road Park	12,460	\$0.070	-\$3,816
West Whiteland Municipal Building	62,990	\$0.058	-\$1,484
Westtown Sewer Co. Inc.	38,580	\$0.055	\$1,818
Westtown Pump Station Open Space	124,600	\$0.054	\$10,272

### Summary & Conclusion

Each of the nine sites highlighted by the participating municipalities are potential candidates for solar development, as each site can support a solar PV array capable of producing at least 12,000 kWh annually. **Each of the municipalities will have to decide which financing option is most suitable for its needs**, and the information provided in this memo can support the decision-making process. It can be informative to note that most municipalities around the country pursuing solar PV opt for a PPA given the value of the ITC and the added benefits of eliminating operations and management burdens. Additionally, it is uncommon for municipalities to have adequate funding to finance a significant investment like a large solar PV installation. However, given the value of SRECs and net metering regulations in Pennsylvania, it is difficult for developers to offer PPA rates lower than the current electric utility rates. Until in-state generation is made economically viable through higher SREC values, or electricity prices increase, purchasing solar PV systems directly will likely continue to generate significantly more savings over a 25-year timeline than available under a PPA, if funding is available.

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<sup>47</sup> This value represents a rate assuming the developer is monetizing the value of the SRECs available.

<sup>48</sup> This value represents nominal dollars, not real dollars, as it has not been adjusted for depreciation over time.



## *Solar Siting Analysis Appendix: Pennsylvania SREC Market Background Information*

Pennsylvania is one of 7 U.S. states that utilize Solar Renewable Energy Credits as a method of meeting their energy portfolio standards. The Pennsylvania Alternative Energy Portfolio Standard (AEPS) was established in part to incentivize the adoption of clean energy resources, setting minimum clean energy standards that electricity distribution companies (EDCs) and electric generation suppliers (EGS) must comply with or face a penalty.<sup>49</sup> The Pennsylvania AEPS currently requires 18% of the state’s electricity supply to come from alternative energy sources, with a small carve-out specifically for solar generation.<sup>50</sup> One way EDCs and EGSs meet the state’s solar RPS standards is through the purchasing of SRECs. One SREC is generated for every MWh of solar electricity produced by a PV system, which can then be sold on the SREC market.<sup>51</sup> The value of SRECs varies depending upon market supply and demand at any given time, but Cadmus’ estimates in the *Annual Projected SREC Revenue* column in Table 3 and 4 assume a \$40/MWh SREC value based on recent market trends.<sup>52</sup>

It should also be noted that recent and potential changes within the Pennsylvania SREC market will likely increase the value of SRECs in the state. First, the recently implemented *2017 Act 40*<sup>53</sup> minimizes the ability for out of state electricity generators to participate in the Pennsylvania SREC market. Previously, out of state electricity generator participation was high in the Pennsylvania the market, which drove down prices. Pennsylvania SRECs will likely increase in value as it becomes more difficult to purchase cheaper out of state SRECs. This more lucrative revenue stream produced from SRECs is expected to make in-state solar more economically viable. Additionally, the state has recently indicated it will likely implement further regulations that will only work to increase the value of SRECs moving forward, including aspirations to raise the standards defined in the state AEPS to incentivize more rapid adoption of solar technology and other renewables.<sup>54</sup>

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<sup>49</sup> NC Clean Energy Technology Center. DSIRE. Solar Alternative Energy Credits.

<https://programs.dsireusa.org/system/program/detail/5682>

<sup>50</sup> EnergySage. SRECs in Pennsylvania: prices, projections, and program status. <https://news.energysage.com/srecs-in-pennsylvania-prices-projections-and-program-status/>

<sup>51</sup> SRECTrade. *Pennsylvania*. <https://www.sretrade.com/markets/rps/srec/pennsylvania>

<sup>52</sup> SRECTrade. *Pennsylvania*. <https://www.sretrade.com/markets/rps/srec/pennsylvania>

<sup>53</sup> Pennsylvania General Assembly. 2017 Act 40.

<https://www.legis.state.pa.us/cfdocs/legis/li/uconsCheck.cfm?yr=2017&sessInd=0&act=40>

<sup>54</sup> EnergySage. *SRECs in Pennsylvania: prices, projections, and program status*. <https://news.energysage.com/srecs-in-pennsylvania-prices-projections-and-program-status/>

**EAST GOSHEN TOWNSHIP  
FIREMENS' PENSION PLAN  
FINANCIAL STATEMENTS  
DECEMBER 31, 2019**

Date Prepared: February 24, 2020

The accompanying financial statements and notes were prepared based upon information provided by the municipality, its financial institution(s), and actuary. The Statement of Fiduciary Net Position was prepared as of December 31, 2019. The Statement of Changes in Fiduciary Net Position was prepared for the year ended December 31, 2019. The financial statements and notes should not be considered an Audit, Review, or Compilation Report as defined by the American Institute of Certified Public Accountants.

*James P. Kennedy, President*

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**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**

**FINANCIAL STATEMENTS**

**DECEMBER 31, 2019**

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**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**

**Statement of Fiduciary Net Position  
as of December 31, 2019**

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<b><u>ASSETS</u></b>	<b><u>2019</u></b>
Cash and short-term investments	71,749
Receivables:	
Employee Contributions	969
Employer Contribution	46,000
State Aid Due From Non-Uniformed Plan	1,583
Total Receivables	<u>48,552</u>
Investments, at fair value:	
Exchange Traded Funds	<u>1,827,520</u>
Total Investments	1,827,520
<b>TOTAL ASSETS</b>	<b>1,947,820</b>

<b>Net Position Restricted for Pensions</b>	<b>1,947,820</b>
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**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**

**Statement of Changes in Fiduciary Net Position  
for the year ended December 31, 2019**

<u>ADDITIONS</u>	<u>2019</u>
Contributions:	
Employer	46,000
Employee	35,013
Commonwealth	117,434
Total Contributions	198,447
Investment Income:	
Net appreciation (depreciation) in fair value of investments	282,447
Interest Income	88
Dividend Income	41,358
Total Investment Income	323,894
Less Investment Expenses	(9,068)
Net Investment Income	314,826
<b>TOTAL ADDITIONS</b>	<b>513,273</b>
 <u>DEDUCTIONS</u>	
Pension Payments	39,365
Administrative Expenses	7,900
<b>TOTAL DEDUCTIONS</b>	<b>47,265</b>
 <b>Net Increase in Net Position</b>	 <b>466,008</b>
 Net Position Restricted for Pensions:	
Beginning of Year 2019	1,481,812
<b>End of Year 2019</b>	<b>1,947,820</b>

**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

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**NOTE 1 – PLAN DESCRIPTION**

**Plan Administration**

The East Goshen Township Firemen Pension Plan is a single-employer defined benefit pension plan covering the East Goshen Fire Company full-time paid fire company personnel. The Plan was established by Ordinance No. 78 effective January 1, 1987. The Plan was amended by Resolution No. 04-26 effective June 15, 2004. The Plan is governed by the Board of Township Supervisors. The Board of Township Supervisors has delegated the authority to manage Plan assets to CBIZ InR Advisory Services, LLC.

**Plan Membership**

As of December 31, 2019, membership consisted of:

Inactive Plan Members Currently Receiving Benefits	3
Inactive Plan Members Entitled to but not yet Receiving Benefits	2
Active Plan Members	<u>12</u>
 TOTAL	 17

**Benefits Provided**

The following is a summary of the Plan benefit provisions:

- **Eligibility Requirements:**
  - Normal Retirement: Later of age 55 or 5 years of service, whichever occurs later.
  - Early Retirement: Age 52.
  - Vesting: Full vesting after 5 years of service.
- **Retirement Benefit:** 1.25% of final 60 month average salary multiplied by years and completed months of service. Offset by 0% social security; length of service increment – none.
- **Survivor Benefit:** 50% of participants' vested pension amount.
- **Disability Benefit Service & Non-Service Related:** 50% of final average salary, starting 90 days after the disability occurred.

**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**  
**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

- Post Retirement Adjustments: None
- Members Contributions: Amount or Rate: 2.25% of base pay.  
Interest Rate Credited to Member Contributions: 2%

**Contributions and Funding Policy**

Act 205 of 1984, the Municipal Pension Plan Funding Standard and Recovery Act, initiated actuarial funding requirements for Pennsylvania municipal pension plans. Under Act 205 provisions, a municipal budget must provide for the full payment of the minimum municipal obligation (MMO) to each employee pension fund of the municipality. Act 189 of 1990 amended Act 205 and redefined the calculation used to determine the MMO to employee pension funds. The MMO is now defined as the total financial requirements to the pension fund, less funding adjustments and estimated member contributions.

As a condition of participation, full-time employees are required to contribute 2.25% of base pay to the Plan. This contribution is governed by the Plan's ordinance & resolution. In accordance with Act 205, as amended, the Township was not required to contribute to the Plan for the year 2019 as shown in the exhibit below:

**Financial Requirement and Minimum Municipal Obligation Budget for 2019:**

Total Annual Payroll .....	\$961,494
Normal Cost as a Percentage of Payroll .....	10.82%
Normal Cost .....	\$104,034
Estimated Administrative Expenses .....	\$ 5,900
Funding Adjustment .....	<\$ 500>
Estimated Members' Contributions .....	<\$ 16,454>
Minimum Municipal Obligation .....	\$ 92,980
<Less Actual State Aid Deposited into Plan> .....	<u>&lt;\$117,434&gt;</u>
<b>REQUIRED MUNICIPAL OBLIGATION</b>	<b>\$ 0</b>

**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

---

**Three Year Funding Trend**

<u>Year Ended</u> <u>December 31</u>	<u>Annual</u> <u>Pension</u> <u>Cost (APC)</u>	<u>Percentage of</u> <u>APC Contributed</u>	<u>Net Pension</u> <u>Obligation</u>
2017	59,720	100%	0
2018	65,465	100%	0
2019	92,980	100%	0

**NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**Basis of Accounting**

The Plan's financial statements are prepared using the accrual basis of accounting. Plan pension payments and member/employer contributions are recognized in the period in which they are due. Benefits and refunds are recognized when due and payable in accordance with the terms of the Plan.

**Method Used to Value Investments**

Investments are reported at fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates.

**Expenses**

Investment expenses consist of investment management, custodial fees, and other significant investment related costs. Administrative expenses consist of consulting, actuarial, legal, and accounting services, along with any other significant Plan related costs. The above expenses are allowable pension Plan expenditures in accordance with Act 205 and may be funded with Plan assets.

**Adoption of Accounting Standards**

GASB Statement 40, Deposit and Investment Risk Disclosures, was effective for periods beginning after June 15, 2004. GASB Statement 67, Financial Reporting for Pension Plans, was effective for fiscal years beginning after June 15, 2013. The Plan has adopted GASB 40 in previous financial statements and GASB 67 beginning with the 2014 financial statements.



**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

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**NOTE 3 – INVESTMENTS**

The deposits and investments of the Plan are held separately from those of the Township and are governed by Title 20 of the Pennsylvania Consolidated Statutes, Chapter 73 Municipalities Investments, Section 7302.

**Investment Policy Summary**

The Plan's investment policy in regard to the allocation of invested assets is established and may be amended by the Board of Supervisors and Pension Board. The objective of the investment strategy is to reduce risk while maximizing returns through the prudent diversification of the portfolio in order to maintain a fully funded status and meet the benefit and expense obligations when due. The Plan's formal Investment Policy Statement which is revised periodically provides more comprehensive details on investment strategy and authorized investments.

The Plan's investment policy establishes the following target allocation across asset classes:

<u>Asset Class</u>	<u>Target</u>	<u>Long Term Expected Real Rate of Return</u>
Equities	70%	5.78%
Fixed Income	27%	1.35%
Cash	3%	-0.31%
Total Net Blended Return		3.85%*

\*- Excludes 2.25% inflation assumption.

Long Term Expected Rate of Return (Including Inflation) 6.10%

The long-term expected rate of return on the Plan's investments was determined using an asset allocation study conducted by the Plan's investment management consultant in December 2019 in which best-estimate ranges of expected future real rates of return (net of pension plan investment expense and inflation) were developed for each major asset class. These ranges were combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best-estimates or arithmetic real rates of return for each major asset class included in the Plan's target asset allocation as of December 31, 2019 are listed in the table above.

**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**  
**NOTES TO THE FINANCIAL STATEMENTS**  
**December 31, 2019**

---

**Concentration of Credit Risk**

Concentration of credit risk is the risk of loss attributable to the magnitude of a Plan's investment in a single issuer. Investments issued or explicitly guaranteed by the U.S. government and investments in mutual funds, external investment pools, and other pooled investments are excluded from this requirement. The Plan does have a formal investment policy that addresses concentration of credit risk. As of December 31, 2019, no investment in any one organization represented five percent (5%) or more of the Plan's fiduciary net position.

**Rate of Return**

For the year ended December 31, 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 20.59 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Deposits and Investments**

The Plan's deposits and investments are governed by Title 20 of the Pennsylvania Consolidated Statutes, Chapter 73 Municipalities Investments, Section 7302.

**Deposits**

The Plan does not have a formal deposit policy that addresses custodial credit risk or foreign currency risk, however, the Plan held no deposits that were exposed to custodial credit risk or foreign currency risk as of December 31, 2019. As of December 31, 2019, the carrying amount of the Plan's bank balance was \$35,403. The bank balance is categorized as follows:

Insured, or collateralized with securities held by the Plan or by its agent in the Plan's name	\$ 35,403
Collateralized with securities held by the pledging financial institution	\$ 0
Collateralized with securities held by the pledging financial institution's trust department or agent but not in the pension plan's name	\$ 0
Uninsured and uncollateralized	<u>\$ 0</u>
<b>TOTAL BANK BALANCE</b>	<b><u>\$ 35,403</u></b>

EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN

NOTES TO THE FINANCIAL STATEMENTS

December 31, 2019

**Credit Risk**

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The Plan does not have a formal investment policy that addresses credit risk. The credit risk of a debt instrument as measured by a Nationally Recognized Statistical Rating Organization (NRSRO). (Morningstar for bond mutual funds or Moody's for bonds and mortgages) is as follows:

<b><u>Investment Type</u></b>	<b><u>Fair Value</u></b>	<b><u>Quality</u></b>
Exchange Traded Bond Fund	\$ 98,269	AAA
Exchange Traded Bond Fund	\$ 236,821	AA
Exchange Traded Bond Fund	\$ 92,735	A
Exchange Traded Bond Fund	\$ 48,131	BBB
Money Market Fund	<u>\$ 36,345</u>	Not Rated
<b>TOTAL</b>	<b><u>\$ 512,301</u></b>	

**Custodial Credit Risk**

Custodial credit risk for investments is the risk that in the event of the failure of the counterparty to a transaction, the Plan will not be able to recover the value of investment or collateral securities that are in the possession of an outside party. The Plan does not have a formal investment policy that addresses custodial credit risk, however, the Plan held no investments that were exposed to custodial credit risk at December 31, 2019.

**Foreign Currency Risk**

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The Plan does not have a formal investment policy that addresses foreign currency risk, however, the Plan held no investments that were exposed to foreign currency risk as of December 31, 2019.

**Interest Rate Risk**

Interest rate risk is the risk that changes in interest rates that will adversely affect the fair value of an investment or a deposit. Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment or a deposit. The Plan does not have a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates. As of December 31, 2019 the Plan's investment balance exposed to interest rate risk was as follows:

**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**  
**NOTES TO THE FINANCIAL STATEMENTS**  
**December 31, 2019**

<u>Investment Type</u>	<u>Investment Maturities (in Years)</u>				
	<u>Fair Value</u>	<u>Less Than 1</u>	<u>1 - 5</u>	<u>6 - 10</u>	<u>Greater Than 10</u>
Exchange Traded Bond Funds	\$475,956	\$ 98,269	\$ 0	\$377,687	\$ 0
<b>TOTAL</b>	<b><u>\$475,956</u></b>	<b><u>\$ 98,269</u></b>	<b><u>\$ 0</u></b>	<b><u>\$377,687</u></b>	<b><u>\$ 0</u></b>

**NOTE 4 – PENSION LIABILITY**

**Net Pension Liability**

The components of the net pension liability of the Plan as of December 31, 2019 were as follows:

Total Pension Liability (TPL)	\$2,187,612
Plan Fiduciary Net Position	\$1,947,820
Net Pension Liability (NPL)	\$ 239,792
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	89.0%

Update procedures were used to roll forward to the plan's fiscal year ending December 31, 2019. The total pension liability was determined as part of an actuarial valuation at January 1, 2019 and rolled forward to December 31, 2019.

**Actuarial Assumptions**

An actuarial valuation of the total pension liability is performed biennially. This report was based upon the Plan's actuarial assumptions, asset valuation method, and cost method as described below:

Actuarial Valuation Date	January 1, 2019
Actuarial Cost Method	Entry Age
Amortization Method	Level Dollar

**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**  
**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

Remaining Amortization Period	10 Years
Asset Valuation Method	Market
Assumptions:	
Inflation	2.25%
Salary Increases	5.00%
Investment Rate of Return	7.00% (Net of pension plan investment expense including inflation)
Retirement Age	55

Mortality rates were based on the Blue Collar RP-2000 Mortality Table projected to 2017 using Scale AA.

**Discount Rate**

The discount rate used to measure the total pension liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that municipal contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based upon the Plan's current target investment allocation and the associated long-term expected investment returns for its asset classes, the Plan's long-term returns may be less than its actuarial discount rate assumption used to determine its pension liability. This may result in future increased total and net pension liability.

**Net Pension Liability Sensitivity**

The following is a sensitivity analysis of the net pension liability to changes in the discount rate. The table below presents the net pension liability calculated using the discount rate of 7.00% as well as what the net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (6.00%) or 1 percentage point higher (8.00%) than the current rate.

	1% Decrease 6.00%	Current Discount Rate 7.00%	1% Increase 8.00%
Net Pension Liability	\$545,929	\$239,792	(\$15,387)

**NOTE 5 – RECONCILIATION OF MEMBERS' CONTRIBUTIONS**

Members' Contributions Deposited for 2019	\$35,013
<Less Members' Contributions Deducted from Members' Salaries>	<u>&lt;\$35,013&gt;</u>
Irreconcilable	\$ 0

**EAST GOSHEN TOWNSHIP FIREMENS' PENSION PLAN**

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

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**NOTE 6 – RECONCILIATION OF PENSION PAYMENTS**

Pensions Paid from Plan for 2019		\$39,365
<Less Pensioner Register>		<u>&lt;\$39,365&gt;</u>
	Irreconcilable	\$ 0

**EAST GOSHEN TOWNSHIP FIREMEN'S PENSION PLAN**  
**SCHEDULE OF CHANGES IN PLAN'S NET PENSION LIABILITY AND RELATED RATIOS**  
**Last 10 Fiscal Years\***

	2014	2015	2016	2017	2018	2019
<b>Total Pension Liability</b>						
Service Cost	\$ 49,337	\$ 50,055	\$ 52,558	\$ 54,854	\$ 57,597	\$ 120,201
Interest	72,308	75,948	83,697	90,803	99,945	144,402
Changes of Benefit Terms	-	-	-	-	-	483,083
Differences Between Expected and Actual Experience	-	(79,060)	-	(22,361)	-	(39,536)
Changes of Assumptions	-	20,953	-	3,143	-	-
Benefit Payments, Including Refunds of Member Contributions	(6,727)	(17,807)	(17,807)	(17,807)	(17,807)	(39,365)
Net Change in Total Pension Liability	114,918	50,089	118,448	108,632	139,735	668,785
<b>Total Pension Liability - Beginning</b>	<b>987,005</b>	<b>1,101,923</b>	<b>1,152,012</b>	<b>1,270,460</b>	<b>1,379,092</b>	<b>1,518,827</b>
<b>Total Pension Liability - Ending</b>	<b>\$ 1,101,923</b>	<b>\$ 1,152,012</b>	<b>\$ 1,270,460</b>	<b>\$ 1,379,092</b>	<b>\$ 1,518,827</b>	<b>\$ 2,187,612</b>
<b>Plan Fiduciary Net Position</b>						
Contributions - Employer	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 46,000
Contributions - State Aid	64,957	63,013	79,410	72,764	74,136	117,434
Contributions - Member	10,984	10,858	11,281	12,697	16,478	35,013
Net Investment Income	37,095	(23,146)	72,041	197,512	(100,700)	314,826
Benefit Payments, Including Refunds of Member Contributions	(6,727)	(17,807)	(17,807)	(17,807)	(17,807)	(39,365)
Administrative Expense	(2,975)	(6,600)	(4,300)	(7,500)	(4,200)	(7,900)
Net Change in Plan Fiduciary Net Position	103,334	26,318	140,625	257,666	(32,093)	465,008
<b>Plan Net Position - Beginning</b>	<b>985,962</b>	<b>1,089,296</b>	<b>1,115,614</b>	<b>1,256,239</b>	<b>1,513,905</b>	<b>1,481,812</b>
<b>Plan Net Position - Ending</b>	<b>\$ 1,089,296</b>	<b>\$ 1,115,614</b>	<b>\$ 1,256,239</b>	<b>\$ 1,513,905</b>	<b>\$ 1,481,812</b>	<b>\$ 1,947,820</b>
<b>Plan's Net Pension Liability</b>	<b>\$ 12,627</b>	<b>\$ 36,398</b>	<b>\$ 14,221</b>	<b>\$ (134,813)</b>	<b>\$ 37,015</b>	<b>\$ 239,792</b>
<b>Plan Fiduciary Net Position as a Percentage of the Total Pension Liability</b>	98.9%	96.8%	98.9%	109.8%	97.6%	89.0%
<b>Covered Employee Payroll</b>	<b>\$ 587,288</b>	<b>\$ 555,812</b>	<b>\$ 570,000</b>	<b>\$ 700,000</b>	<b>\$ 666,056</b>	<b>\$ 961,494</b>
<b>Plan's Net Pension Liability as a Percentage of Covered Employee Payroll</b>	2.2%	6.5%	2.5%	-19.3%	5.6%	24.9%

**Notes to schedules:**

Assumption Changes - In 2015, the mortality assumption was changed from the Blue Collar RP-2000 Table to the Blue Collar RP-2000 Table projected to 2015 using Scale AA. In 2017, the mortality assumption was changed from the Blue Collar RP-2000 Table projected to 2015 to the Blue Collar RP-2000 Table projected to 2017 using Scale AA.

Benefit Changes - In 2019, the normal retirement benefit was changed from 1.25% of final 60 month average salary for each year of service to 2% of final 60 month average salary for each year of service to a maximum of 50% of average salary.

\* This schedule will be presented on a prospective basis.

**EAST GOSHEN TOWNSHIP FIREMEN'S PENSION PLAN  
SCHEDULE OF EMPLOYER CONTRIBUTIONS  
Last 10 Fiscal Years\***

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Actuarially determined contribution	\$55,591	\$53,364	\$48,617	\$59,720	\$65,465	\$92,980
Contributions made	<u>\$64,957</u>	<u>\$63,013</u>	<u>\$79,410</u>	<u>\$72,764</u>	<u>\$81,308</u>	<u>\$163,434</u>
Contribution deficiency (excess)	(\$9,366)	(\$9,709)	(\$30,793)	(\$13,044)	(\$15,843)	(\$70,454)
Covered-employee payroll	\$587,288	\$555,812	\$570,000	\$700,000	\$666,056	\$961,494
Contributions as a percentage of covered-employee payroll	11.06%	9.59%	13.93%	10.39%	12.21%	17.00%

\* This schedule will be presented on a prospective basis.

**EAST GOSHEN TOWNSHIP FIREMEN'S PENSION PLAN  
SCHEDULE OF INVESTMENT RETURNS  
Last 10 Fiscal Years\***

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Annual money-weighted rate of return, net of investment expense	2.50%	-2.16%	6.46%	15.67%	-6.68%	20.59%

\* This schedule will be presented on a prospective basis.



**EAST GOSHEN TOWNSHIP FIREMEN'S PENSION PLAN  
GASB 68 SUPPLEMENT**

**Changes in Net Pension Liability**

The following table shows the changes in net pension liability recognized over the measurement period.

	Increase/(Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
<b>Balances at 12/31/2018</b>	\$ 1,518,827	\$ 1,481,812	\$ 37,015
<b>Changes for the year:</b>			
Service Cost	120,201	-	120,201
Interest	144,402	-	144,402
Changes in Benefit Terms	483,083	-	483,083
Differences Between Expected and Actual Experience	(39,536)	-	(39,536)
Changes of Assumptions	-	-	-
Contributions - Employer	-	46,000	(46,000)
Contributions - State Aid	-	117,434	(117,434)
Contributions - Member	-	35,013	(35,013)
Net Investment Income	-	314,826	(314,826)
Benefit Payments	(39,365)	(39,365)	-
Administrative Expense	-	(7,900)	7,900
Other Changes	-	-	-
<b>Net Changes</b>	668,785	466,008	202,777
<b>Balances at 12/31/2019</b>	\$ 2,187,612	\$ 1,947,820	\$ 239,792

**Pension Expense for Fiscal Year Ended December 31, 2019**

Service Cost	\$ 120,201
Interest on Total Pension Liability	144,402
Changes in Benefit Terms	483,083
Differences Between Expected and Actual Experience	(12,791)
Changes of Assumptions	2,161
Employee Contributions	(35,013)
Projected Earnings on Pension Plan Investments	(106,158)
Differences Between Projected and Actual Earnings on Investments	(510)
Administrative Expense	7,900
Other Changes in Fiduciary Net Position	-
<b>Total Pension Expense</b>	<b>\$ 603,275</b>

**EAST GOSHEN TOWNSHIP FIREMEN'S PENSION PLAN  
GASB 68 SUPPLEMENT**

**Deferred Outflows and Deferred Inflows of Resources**

For the year ended December 31, 2019, the municipality recognized a pension expense of \$603,275. At December 31, 2019, the municipality reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	<u>Deferred Outflows of Resources</u>	<u>Deferred Inflows of Resources</u>
Differences Between Expected and Actual Experience	\$ -	\$ (95,814)
Changes in Assumptions	13,925	-
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	<u>-</u>	<u>(84,352)</u>
Total	\$ 13,925	\$ (180,166)

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in the pension expense as follows:

Year Ended December 31:	
2020	\$ (31,147)
2021	(32,556)
2022	(10,807)
2023	(52,362)
2024	(10,630)
Thereafter	(28,739)

**EAST GOSHEN TOWNSHIP FIREMEN'S PENSION PLAN**

**ACTUARIAL CERTIFICATION**

This report provides disclosure and reporting information as required under Government Accounting Standards Board Statement 68 (GASB 68) for the measurement period ending December 31, 2019. This information should be used for the fiscal year beginning January 1, 2019 and ending on December 31, 2019.

Determinations for purposes other than financial accounting requirements may be significantly different from the results in this report. Thus, the use of this report for purposes other than those expressed here may not be appropriate.

This accounting valuation report relies on liabilities calculated as part of the January 1, 2019 funding valuation for the Plan. The census data and benefit provisions underlying the liabilities were prepared as of January 1, 2019. This report also relies on asset information as of December 31, 2019 as supplied by Thomas J. Anderson & Associates, Inc.

With the provided liability and asset information, the total pension liability, net pension liability and pension expense were developed for the measurement period using standard actuarial techniques. In addition, the results are based on our understanding of the financial accounting and reporting requirements under U.S. Generally Accepted Accounting Principles as set forth in GASB 68. The information in this report is not intended to supersede the advice and interpretations of the employer's auditor.

The undersigned is familiar with the near-term and long-term aspects of pension valuations and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. The information provided in this report is dependent upon various factors as documented throughout this report, which may be subject to change. Each section of this report is considered to be an integral part of the actuarial opinions.

BEYER-BARBER COMPANY



Lawrence C. Brisman, E.A. #17-04972  
Member American Academy Of Actuaries  
Member American Society Of Pension Professionals And Actuaries

2/24/2020  
Date

**EAST GOSHEN TOWNSHIP NON-UNIFORMED  
DEFINED CONTRIBUTION PENSION PLAN  
FINANCIAL STATEMENTS  
DECEMBER 31, 2019**

Date Prepared: February 21, 2020

The accompanying financial statements and notes were prepared based upon information provided by the municipality, its financial institution(s), and actuary. The Statement of Fiduciary Net Position was prepared as of December 31, 2019. The Statement of Changes in Fiduciary Net Position was prepared for the year ended December 31, 2019. The financial statements and notes should not be considered an Audit, Review, or Compilation Report as defined by the American Institute of Certified Public Accountants.

*James P. Kennedy, President*

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*Thomas J. Anderson & Associates, Inc.*

**THOMAS J. ANDERSON & ASSOCIATES, INC.**  
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**EAST GOSHEN TOWNSHIP NON-UNIFORMED  
DEFINED CONTRIBUTION PENSION PLAN  
FINANCIAL STATEMENTS  
DECEMBER 31, 2019**

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**EAST GOSHEN TOWNSHIP NON-UNIFORMED  
DEFINED CONTRIBUTION PENSION PLAN**

**Statement of Fiduciary Net Position  
as of December 31, 2019**

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<u>ASSETS</u>	<u>2019</u>
Cash and short-term investments	37,492
Receivables:	
State Aid Due From Fire Plan	8,154
Investment Income Due to Bank Error	955
	<hr/>
Total Receivables	9,109
Investments, at fair value:	
Exchange Traded Funds	985,930
	<hr/>
Total Investments	985,930
<b>TOTAL ASSETS</b>	<b>1,032,531</b>
<u>LIABILITIES</u>	
Transfer of State Aid to the Firemen Pension Plan	1,583

<b>Net Position Restricted for Pensions</b>	<b>1,030,949</b>
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**EAST GOSHEN TOWNSHIP NON-UNIFORMED  
DEFINED CONTRIBUTION PENSION PLAN**

**Statement of Changes in Fiduciary Net Position  
for the year ended December 31, 2019**

<u><b>ADDITIONS</b></u>	<u><b>2019</b></u>
Contributions:	
Employer	0
Commonwealth	117,839
Total Contributions	117,839
Investment Income:	
Net appreciation (depreciation) in fair value of investments	135,848
Interest & Dividend Income	23,780
Total Investment Income	159,628
Less Investment Expenses	(4,866)
Net Investment Income	154,762
<b>TOTAL ADDITIONS</b>	<b>272,600</b>
 <u><b>DEDUCTIONS</b></u>	
Administrative Expenses	5,900
Lump Sum Distributions	31,967
<b>TOTAL DEDUCTIONS</b>	<b>37,867</b>
<b>Net Increase in Net Position</b>	<b>234,734</b>
Net Position Restricted for Pensions:	
Beginning of Year 2019	796,215
<b>End of Year 2019</b>	<b>1,030,949</b>

**EAST GOSHEN TOWNSHIP NON-UNIFORMED  
DEFINED CONTRIBUTION PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
December 31, 2019**

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**NOTE 1 – PLAN DESCRIPTION**

**Plan Administration**

The East Goshen Township Non-Uniformed Pension Plan is a single-employer defined contribution pension plan. The Plan was established by Resolution No. 10-61 effective December 31, 2010. The Plan is governed by Board of Township Supervisors which may amend plan provisions, and which is responsible for the management of Plan assets. The Board of Township Supervisors has delegated the authority to manage Plan assets to CBIZ-InR Advisory Services, LLC.

**Plan Membership**

As of December 31, 2019, membership consisted of:

Inactive Plan Members Currently Receiving Benefits	0
Inactive Plan Members Entitled to but not yet Receiving Benefits	5
Active Plan Members	<u>25</u>
TOTAL	30

**NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**Basis of Accounting**

The Plan's financial statements are prepared using the accrual basis of accounting. Plan pension payments and member/employer contributions are recognized in the period in which they are due. Benefits and refunds are recognized when due and payable in accordance with the terms of the Plan.

**Method Used to Value Investments**

Investments are reported at fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates.

**Expenses**

Investment expenses consist of investment management, custodial fees, and other significant investment related costs. Administrative expenses consist of consulting, actuarial, legal, and accounting services, along with any other significant Plan related costs. The above expenses are allowable pension Plan expenditures in accordance with Act 205 and may be funded with Plan assets.



**EAST GOSHEN TOWNSHIP NON-UNIFORMED  
DEFINED CONTRIBUTION PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

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**Adoption of Accounting Standards**

GASB Statement 40, Deposit and Investment Risk Disclosures, was effective for periods beginning after June 15, 2004. GASB Statement 67, Financial Reporting for Pension Plans, was effective for fiscal years beginning after June 15, 2013. The Plan has adopted GASB 40 in previous financial statements and GASB 67 beginning with the 2014 financial statements.

**NOTE 3 – DEPOSITS AND INVESTMENTS**

**Deposits and Investments**

The deposits and investments of the Plan are held separately from those of the Township and are governed by Title 20 of the Pennsylvania Consolidated Statutes, Chapter 73 Municipalities Investments, Section 7302.

**Deposits**

The Plan does not have a formal deposit policy that addresses custodial credit risk or foreign currency risk, however, the Plan held no deposits that were exposed to custodial credit risk or foreign currency risk as of December 31, 2019. As of December 31, 2019, the carrying amount of the Plan's bank balance was \$17,653. The bank balance is categorized as follows:

Insured, or collateralized with securities held by the Plan or by its agent in the Plan's name	\$17,653
Collateralized with securities held by the pledging financial institution	\$ 0
Collateralized with securities held by the pledging financial institution's trust department or agent but not in the pension plan's name	\$ 0
Uninsured and uncollateralized	<u>\$ 0</u>
<b>TOTAL BANK BALANCE</b>	<b><u>\$17,653</u></b>

**Credit Risk**

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The Plan does not have a formal investment policy that addresses credit risk. The credit risk of a debt instrument as measured by a Nationally Recognized Statistical Rating Organization (NRSRO), (Morningstar for bond mutual funds or Moody's for bonds and mortgages) is as follows:

**EAST GOSHEN TOWNSHIP NON-UNIFORMED  
DEFINED CONTRIBUTION PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS  
December 31, 2019**

<u>Investment Type</u>	<u>Fair Value</u>	<u>Quality</u>
Exchange Traded Bond Fund	\$ 75,771	AAA
Exchange Traded Bond Fund	\$184,324	AA
Exchange Traded Bond Fund	\$ 72,932	A
Exchange Traded Bond Fund	\$ 37,719	BBB
Money Market Fund	<u>\$ 19,839</u>	Not Rated
<b>TOTAL</b>	<b><u>\$390,585</u></b>	

**Interest Rate Risk**

Interest rate risk is the risk that changes in interest rates that will adversely affect the fair value of an investment or a deposit. Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment or a deposit. The Plan does not have a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates. As of December 31, 2019 the Plan's investment balance exposed to interest rate risk was as follows:

**Investment Maturities (in Years)**

<u>Investment Type</u>	<u>Fair Value</u>	<u>Less Than 1</u>	<u>1 - 5</u>	<u>6 - 10</u>	<u>More Than 10</u>
Exchange Traded Bond Funds	<u>\$370,746</u>	<u>\$75,771</u>	<u>\$ 0</u>	<u>\$294,975</u>	<u>\$ 0</u>
<b>TOTAL</b>	<b><u>\$370,746</u></b>	<b><u>\$75,771</u></b>	<b><u>\$ 0</u></b>	<b><u>\$294,975</u></b>	<b><u>\$ 0</u></b>

**Custodial Credit Risk, Concentration of Credit Risk, Foreign Currency Risk**

The Plan held no investments that were exposed to custodial credit risk, concentration of credit risk, or foreign currency risk as of December 31, 2019.

**EAST GOSHEN TOWNSHIP NON-UNIFORMED  
DEFINED CONTRIBUTION PENSION PLAN  
NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

**NOTE 4 - CONTRIBUTION REQUIREMENTS**

**Act 205**

Act 205 of 1984, the Municipal Pension Plan Funding Standard and Recovery Act, initiated actuarial funding requirements for municipal pension plans. Under Act 205 provisions, a municipal budget must provide for the full payment of the minimum municipal obligation (MMO) to each employee pension fund of the municipality. Act 189 of 1990 amended Act 205 and redefined the calculation used to determine the MMO to employee pension funds. The MMO is now defined as the total financial requirements to the pension fund, less funding adjustments and estimated member contributions.

**Funding Policy**

The Township will contribute into the Plan, for each eligible Participant, an amount equal to 5.00% of their covered compensation, unless amended by annual resolution\*. Participants do not contribute to the Plan. In addition to the Township contribution made to Participant's account, their account will be credited annually with the pro rata share of the investment earnings or losses of the Plan and any investment related expenses. Participants who terminate for reasons other than death, disability, or retirement would not share in the allocations of contributions, earnings, or losses for the Plan year. The Township, if eligible, may allocate State Aid received from the Commonwealth of Pennsylvania to the Plan. Forfeitures due to non-vested terminations are to be used to reduce the Township's contributions to the Plan. To the extent that these fundings are not adequate to cover the Township's obligation to the Plan, the Township would then be required to contribute.

**Financial Requirement and Minimum Municipal Obligation Budget for 2019:**

Actual Contribution Cost .....	\$112,429*
Actual Administrative Expenses .....	<u>\$ 10,766</u>
Minimum Municipal Obligation .....	\$123,195
<Less Forfeiture Applied>.....	< \$ 5,356>
<Less Actual State Aid Deposited into Plan> .....	<u>&lt; \$117,839&gt;**</u>
<b>REQUIRED MUNICIPAL OBLIGATION</b>	<b><u>\$ 0</u></b>

\*- In 2019 the Township passed a resolution to contribute 5.5% of covered compensation.  
 \*\* - Due to a TD bank error, state aid of \$8,154 was deposited into another TD client account. The bank corrected the error in February 2020 and credited investment income to the plan of \$955.49. Excess state aid of \$1,583 is to be transferred to the Fire Pension Plan.

**EAST GOSHEN TOWNSHIP**  
**NON-UNIFORMED PENSION PLAN**  
**FINANCIAL STATEMENTS**  
**DECEMBER 31, 2019**

Date Prepared: February 24, 2020

The accompanying financial statements and notes were prepared based upon information provided by the municipality, its financial institution(s), and actuary. The Statement of Fiduciary Net Position was prepared as of December 31, 2019. The Statement of Changes in Fiduciary Net Position was prepared for the year ended December 31, 2019. The financial statements and notes should not be considered an Audit, Review, or Compilation Report as defined by the American Institute of Certified Public Accountants.

*James P. Kennedy, President*

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*Thomas J. Anderson & Associates, Inc.*

**THOMAS J. ANDERSON & ASSOCIATES, INC.**  
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West Chester, PA 19382  
(610) 430-3385 Fax (610) 430-3387

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**

**FINANCIAL STATEMENTS**

**DECEMBER 31, 2019**

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EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN

Statement of Fiduciary Net Position  
as of December 31, 2019

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<u>ASSETS</u>	<u>2019</u>
Cash and short-term investments	115,051
Receivables:	
Prepaid Pension Payment	2,149
Investments, at fair value:	
Exchange Traded Funds	<u>2,932,066</u>
Total Investments	2,932,066
<b>TOTAL ASSETS</b>	<b>3,049,266</b>

<b>Net Position Restricted for Pensions</b>	<b>3,049,266</b>
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EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN

Statement of Changes in Fiduciary Net Position  
for the year ended December 31, 2019

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<u>ADDITIONS</u>	<u>2019</u>
Investment Income:	
Net appreciation (depreciation) in fair value of investments	469,097
Interest Income	61
Dividend Income	67,898
	<hr/>
Total Investment Income	537,055
Less Investment Expenses	(15,268)
	<hr/>
Net Investment Income	521,788
 TOTAL ADDITIONS	 521,788
 <u>DEDUCTIONS</u>	
Pension Payments	23,376
Administrative Expenses	9,300
Lump-Sum Distribution	6,998
	<hr/>
TOTAL DEDUCTIONS	39,674
 <b>Net Increase in Net Position</b>	 <b>482,113</b>
 Net Position Restricted for Pensions:	
Beginning of Year 2019	2,567,152
 <b>End of Year 2019</b>	 <b>3,049,266</b>

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**  
**NOTES TO THE FINANCIAL STATEMENTS**  
**December 31, 2019**

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**NOTE 1 – PLAN DESCRIPTION**

**Plan Administration**

The East Goshen Township Non-Uniformed Pension Plan is a single-employer defined benefit pension plan covering the full-time non-uniformed employees. The Plan was established effective January 1, 1987. The Plan was amended by Resolution No. 10-59, which as of December 31, 2010, East Goshen Township elected to freeze the Plan for purposes of participation, benefit accrual, and vesting. The Plan is governed by the Board of Township Supervisors. The Board of Township Supervisors has delegated the authority to manage Plan assets to CBIZ-InR Advisory Services, LLC.

**Plan Membership**

As of December 31, 2019, membership consisted of:

Inactive Plan Members Currently Receiving Benefits	5
Inactive Plan Members Entitled to but not yet Receiving Benefits	24
Active Plan Members	<u>0</u>
 TOTAL	 29

**Benefits Provided**

The following is a summary of the Plan benefit provisions:

- **Eligibility Requirements:**
  - Normal Retirement: Age 65 and 10 years of service.
  - Early Retirement: Age 55 with 10 or more years of service.
  - Vesting: As of 1/1/11, all members are 100% vested; Plan is now frozen.
  
- **Retirement Benefit:** 1.25% times final average earnings times years and fractions of years. Final average is based on highest 5 calendar years out of the last 10 calendar years. Unmarried - life income; Married - life income, 50% to surviving spouse offset by 0% of social security.
  
- **Survivor Benefit:** Benefit to surviving spouse is automatic after participant is eligible for early retirement. Benefit is equal to 50% of the pension which would have been paid to the participant if he had retired.



EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN

NOTES TO THE FINANCIAL STATEMENTS

December 31, 2019

Disability Benefit Service & Non-Service Related: 10 years of service and receiving social security disability benefits. No reduction if benefit starts before age 65; same benefit as normal retirement.

- Post Retirement Adjustments: None.
- Members Contributions:
  - Amount or Rate: None.
  - Interest Rate Credited to Member Contributions: None.

**Contributions and Funding Policy**

Act 205 of 1984, the Municipal Pension Plan Funding Standard and Recovery Act, initiated actuarial funding requirements for Pennsylvania municipal pension plans. Under Act 205 provisions, a municipal budget must provide for the full payment of the minimum municipal obligation (MMO) to each employee pension fund of the municipality. Act 189 of 1990 amended Act 205 and redefined the calculation used to determine the MMO to employee pension funds. The MMO is now defined as the total financial requirements to the pension fund, less funding adjustments and estimated member contributions.

As a condition of participation, full-time employees are not required to contribute to the Plan. This contribution is governed by the Plan’s resolution. In accordance with Act 205, as amended, the Township was not required to contribute to the Plan for the year 2019 as shown in the exhibit below:

**Financial Requirement and Minimum Municipal Obligation Budget for 2019:**

Normal Cost .....	\$ 0
Estimated Administrative Expenses .....	\$ 6,850
Amortization Contribution .....	\$ 0
Funding Adjustment .....	<\$33,277>
Minimum Municipal Obligation .....	\$ 0
<Less Actual State Aid Deposited into Plan> .....	<\$ 0>
<b>REQUIRED MUNICIPAL OBLIGATION</b>	<b>\$ 0</b>

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**  
**NOTES TO THE FINANCIAL STATEMENTS**  
**December 31, 2019**

**Three Year Funding Trend**

<u>Year Ended</u> <u>December 31</u>	<u>Annual</u> <u>Pension</u> <u>Cost (APC)</u>	<u>Percentage of</u> <u>APC Contributed</u>	<u>Net Pension</u> <u>Obligation</u>
2017	0	N/A	0
2018	0	N/A	0
2019	0	N/A	0

**NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**Basis of Accounting**

The Plan's financial statements are prepared using the accrual basis of accounting. Plan pension payments and member/employer contributions are recognized in the period in which they are due. Benefits and refunds are recognized when due and payable in accordance with the terms of the Plan.

**Method Used to Value Investments**

Investments are reported at fair value. Securities traded on a national or international exchange are valued at the last reported sales price at current exchange rates.

**Expenses**

Investment expenses consist of investment management, custodial fees, and other significant investment related costs. Administrative expenses consist of consulting, actuarial, legal, and accounting services, along with any other significant Plan related costs. The above expenses are allowable pension Plan expenditures in accordance with Act 205 and may be funded with Plan assets.

**Adoption of Accounting Standards**

GASB Statement 40, Deposit and Investment Risk Disclosures, was effective for periods beginning after June 15, 2004. GASB Statement 67, Financial Reporting for Pension Plans, was effective for fiscal years beginning after June 15, 2013. The Plan has adopted GASB 40 in previous financial statements and GASB 67 beginning with the 2014 financial statements.

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

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**NOTE 3 – INVESTMENTS**

The deposits and investments of the Plan are held separately from those of the Township and are governed by Title 20 of the Pennsylvania Consolidated Statutes, Chapter 73 Municipalities Investments, Section 7302.

**Investment Policy Summary**

The Plan's investment policy in regard to the allocation of invested assets is established and may be amended by the Board of Township Supervisors. The objective of the investment strategy is to reduce risk while maximizing returns through the prudent diversification of the portfolio in order to maintain a fully funded status and meet the benefit and expense obligations when due. The Plan's formal Investment Policy Statement which is revised periodically provides more comprehensive details on investment strategy and authorized investments.

The Plan's investment policy establishes the following target allocation across asset classes:

<u>Asset Class</u>	<u>Target</u>	<u>Long Term Expected Real Rate of Return</u>
Equities	70%	5.78%
Fixed Income	27%	1.35%
Cash	3%	<u>-0.31%</u>
Total Net Blended Return		3.90%*

\*- Excludes 2.25% inflation assumption.

Long Term Expected Rate of Return (Including Inflation) 6.15%

The long-term expected rate of return on the Plan's investments was determined using an asset allocation study conducted by the Plan's investment management consultant in December 2019 in which best-estimate ranges of expected future real rates of return (net of pension plan investment expense and inflation) were developed for each major asset class. These ranges were combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best-estimates or arithmetic real rates of return for each major asset class included in the Plan's target asset allocation as of December 31, 2019 are listed in the table above.

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

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**Concentration of Credit Risk**

Concentration of credit risk is the risk of loss attributable to the magnitude of a Plan's investment in a single issuer. Investments issued or explicitly guaranteed by the U.S. government and investments in mutual funds, external investment pools, and other pooled investments are excluded from this requirement. The Plan does have a formal investment policy that addresses concentration of credit risk. As of December 31, 2019, no investment in any one organization represented five percent (5%) or more of the Plan's fiduciary net position.

**Rate of Return**

For the year ended December 31, 2019, the annual money-weighted rate of return on pension plan investments, net of pension plan investment expense, was 20.52 percent. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

**Deposits and Investments**

The Plan's deposits and investments are governed by Title 20 of the Pennsylvania Consolidated Statutes, Chapter 73 Municipalities Investments, Section 7302.

**Deposits**

The Plan does not have a formal deposit policy that addresses custodial credit risk or foreign currency risk, however, the Plan held no deposits that were exposed to custodial credit risk or foreign currency risk as of December 31, 2019. As of December 31, 2019, the carrying amount of the Plan's bank balance was \$57,505. The bank balance is categorized as follows:

Insured, or collateralized with securities held by the Plan or by its agent in the Plan's name	\$ 57,505
Collateralized with securities held by the pledging financial institution	\$ 0
Collateralized with securities held by the pledging financial institution's trust department or agent but not in the pension plan's name	\$ 0
Uninsured and uncollateralized	\$ 0
<b>TOTAL BANK BALANCE</b>	<b><u>\$ 57,505</u></b>

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**  
**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

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**Credit Risk**

Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligations. The Plan does not have a formal investment policy that addresses credit risk. The credit risk of a debt instrument as measured by a Nationally Recognized Statistical Rating Organization (NRSRO). (Morningstar for bond mutual funds or Moody's for bonds and mortgages) is as follows:

<b><u>Investment Type</u></b>	<b><u>Fair Value</u></b>	<b><u>Quality</u></b>
Exchange Traded Bond Fund	\$ 157,952	AAA
Exchange Traded Bond Fund	\$ 384,414	AA
Exchange Traded Bond Fund	\$ 150,220	A
Exchange Traded Bond Fund	\$ 77,904	BBB
Money Market Fund	<u>\$ 57,545</u>	Not Rated
<b>TOTAL</b>	<b><u>\$ 828,035</u></b>	

**Custodial Credit Risk**

Custodial credit risk for investments is the risk that in the event of the failure of the counterparty to a transaction, the Plan will not be able to recover the value of investment or collateral securities that are in the possession of an outside party. The Plan does not have a formal investment policy that addresses custodial credit risk, however, the Plan held no investments that were exposed to custodial credit risk at December 31, 2019.

**Foreign Currency Risk**

Foreign currency risk is the risk that changes in exchange rates will adversely affect the fair value of an investment or a deposit. The Plan does not have a formal investment policy that addresses foreign currency risk, however, the Plan held no investments that were exposed to foreign currency risk as of December 31, 2019.

**Interest Rate Risk**

Interest rate risk is the risk that changes in interest rates that will adversely affect the fair value of an investment or a deposit. Interest rate risk is the risk that changes in interest rates will adversely affect the fair value of an investment or a deposit. The Plan does not have a formal investment policy that limits investment maturities as a means of managing its exposure to fair value losses arising from increasing interest rates. As of December 31, 2019 the Plan's investment balance exposed to interest rate risk was as follows:

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

**Investment Maturities (in Years)**

<b><u>Investment Type</u></b>	<b><u>Fair Value</u></b>	<b><u>Less Than 1</u></b>	<b><u>1 - 5</u></b>	<b><u>6 - 10</u></b>	<b><u>Greater Than 10</u></b>
Exchange Traded Bond Funds	\$770,490	\$157,952	\$ 0	\$612,538	\$ 0
<b>TOTAL</b>	<b>\$770,490</b>	<b>\$ 157,952</b>	<b>\$ 0</b>	<b>\$612,538</b>	<b>\$ 0</b>

**NOTE 4 – PENSION LIABILITY**

**Net Pension Liability**

The components of the net pension liability of the Plan as of December 31, 2019 were as follows:

Total Pension Liability (TPL)	\$2,301,515
Plan Fiduciary Net Position	\$3,049,266
Net Pension Liability (NPL)	(\$ 747,751)
Plan Fiduciary Net Position as a Percentage of the Total Pension Liability	132.5%

Update procedures were used to roll forward to the plan's fiscal year ending December 31, 2019. The total pension liability was determined as part of an actuarial valuation at January 1, 2019 and rolled forward to December 31, 2019.

**Actuarial Assumptions**

An actuarial valuation of the total pension liability is performed biennially. This report was based upon the Plan's actuarial assumptions, asset valuation method, and cost method as described below:

Actuarial Valuation Date	January 1, 2019
Actuarial Cost Method	Entry Age
Amortization Method	Level Dollar
Remaining Amortization Period	N/A
Asset Valuation Method	Market Value

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

Assumptions:

Inflation	2.25%
Salary Increases	0.00%
Investment Rate of Return	7.00% (Net of pension plan investment expense including inflation)
Retirement Age	65

Mortality rates were based on the RP-2000 Mortality Table projected to 2017 using Scale AA.

**Discount Rate**

The discount rate used to measure the total pension liability was 7.00%. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the current contribution rate and that municipal contributions will be made at rates equal to the difference between actuarially determined contribution rates and the member rate. Based upon the Plan's current target investment allocation and the associated long-term expected investment returns for its asset classes, the Plan's long-term returns may be less than its actuarial discount rate assumption used to determine its pension liability. This may result in future increased total and net pension liability.

**Net Pension Liability Sensitivity**

The following is a sensitivity analysis of the net pension liability to changes in the discount rate. The table below presents the net pension liability calculated using the discount rate of 7.00% as well as what the net pension liability would be if it were calculated using a discount rate that is 1 percentage point lower (6.00%) or 1 percentage point higher (8.00%) than the current rate.

	1% Decrease 6.00%	Current Discount Rate 7.00%	1% Increase 8.00%
Net Pension Liability	(\$470,386)	(\$747,751)	(\$979,849)

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**

**NOTES TO THE FINANCIAL STATEMENTS**

**December 31, 2019**

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**NOTE 5 – RECONCILIATION OF PENSION PAYMENTS**

Pensions Paid from Plan for 2019	\$23,376
<Less Pensioner Register>	<u>&lt;\$23,376&gt;</u>
Irreconcilable	\$ 0



**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN**  
**SCHEDULE OF CHANGES IN PLAN'S NET PENSION LIABILITY AND RELATED RATIOS**  
 Last 10 Fiscal Years\*

	2014	2015	2016	2017	2018	2019
<b>Total Pension Liability</b>						
Service Cost	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Interest	146,061	151,866	155,548	164,144	162,956	151,560
Changes of Benefit Terms	-	-	-	-	-	-
Differences Between Expected and Actual Experience	-	(30,794)	-	(22,325)	-	(138,861)
Changes of Assumptions	-	323,943	-	7,114	-	-
Benefit Payments, Including Refunds of Member Contributions	(8,664)	(182,254)	(16,253)	(18,829)	(343,412)	(30,374)
<b>Net Change in Total Pension Liability</b>	<b>137,397</b>	<b>262,761</b>	<b>139,295</b>	<b>130,104</b>	<b>(180,456)</b>	<b>(17,675)</b>
<b>Total Pension Liability - Beginning</b>	<b>1,830,089</b>	<b>1,967,486</b>	<b>2,230,247</b>	<b>2,369,542</b>	<b>2,499,646</b>	<b>2,319,190</b>
<b>Total Pension Liability - Ending</b>	<b>\$ 1,967,486</b>	<b>\$ 2,230,247</b>	<b>\$ 2,369,542</b>	<b>\$ 2,499,646</b>	<b>\$ 2,319,190</b>	<b>\$ 2,301,515</b>
<b>Plan Fiduciary Net Position</b>						
Contributions - Employer	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Contributions - State Aid	-	-	-	-	-	-
Contributions - Member	-	-	-	-	-	-
Net Investment Income	106,960	(25,973)	187,198	431,723	(175,777)	521,788
Benefit Payments, Including Refunds of Member Contributions	(8,664)	(182,254)	(16,253)	(18,829)	(343,412)	(30,374)
Administrative Expense	(3,575)	(7,975)	(4,850)	(8,850)	(4,800)	(9,300)
<b>Net Change in Plan Fiduciary Net Position</b>	<b>94,721</b>	<b>(216,202)</b>	<b>166,095</b>	<b>404,044</b>	<b>(523,989)</b>	<b>482,114</b>
<b>Plan Net Position - Beginning</b>	<b>2,642,483</b>	<b>2,737,204</b>	<b>2,521,002</b>	<b>2,687,097</b>	<b>3,091,141</b>	<b>2,567,152</b>
<b>Plan Net Position - Ending</b>	<b>\$ 2,737,204</b>	<b>\$ 2,521,002</b>	<b>\$ 2,687,097</b>	<b>\$ 3,091,141</b>	<b>\$ 2,567,152</b>	<b>\$ 3,049,266</b>
<b>Plan's Net Pension Liability</b>	<b>\$ (769,718)</b>	<b>\$ (290,755)</b>	<b>\$ (317,555)</b>	<b>\$ (591,495)</b>	<b>\$ (247,962)</b>	<b>\$ (747,751)</b>
<b>Plan Fiduciary Net Position as a Percentage of the Total Pension Liability</b>	139.1%	113.0%	113.4%	123.7%	110.7%	132.5%
<b>Covered Employee Payroll</b>	N/A	N/A	N/A	N/A	N/A	N/A
<b>Plan's Net Pension Liability as a Percentage of Covered Employee Payroll</b>	N/A	N/A	N/A	N/A	N/A	N/A

**Notes to schedules:**

Assumption Changes - In 2015, the mortality assumption was changed from the RP-2000 Table to the RP-2000 Table projected to 2015 using Scale AA, and the interest rate assumption was changed from 8% to 7%. In 2017, the mortality assumption was changed from the RP-2000 Table projected to 2015 to the RP-2000 Table projected to 2017 using Scale AA.

Benefit Changes - None.

\* This schedule will be presented on a prospective basis.

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN  
SCHEDULE OF EMPLOYER CONTRIBUTIONS  
Last 10 Fiscal Years\***

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Actuarially determined contribution	\$0	\$0	\$0	\$0	\$0	\$0
Contributions made	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Contribution deficiency (excess)	\$0	\$0	\$0	\$0	\$0	\$0
Covered-employee payroll	\$0	\$0	\$0	\$0	\$0	\$0
Contributions as a percentage of covered-employee payroll	N/A	N/A	N/A	N/A	N/A	N/A

\* This schedule will be presented on a prospective basis.

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN  
SCHEDULE OF INVESTMENT RETURNS  
Last 10 Fiscal Years\***

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>
Annual money-weighted rate of return, net of investment expense	4.59%	-0.97%	7.92%	16.16%	-6.12%	20.52%

\* This schedule will be presented on a prospective basis.

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN  
GASB 68 SUPPLEMENT**

**Changes in Net Pension Liability**

The following table shows the changes in net pension liability recognized over the measurement period.

	Increase/(Decrease)		
	Total Pension Liability (a)	Plan Fiduciary Net Position (b)	Net Pension Liability (a) - (b)
<b>Balances at 12/31/2018</b>	\$ 2,319,190	\$ 2,567,152	\$ (247,962)
<b>Changes for the year:</b>			
Service Cost	-	-	-
Interest	151,560	-	151,560
Changes in Benefit Terms	-	-	-
Differences Between Expected and Actual Experience	(138,861)	-	(138,861)
Changes of Assumptions	-	-	-
Contributions - Employer	-	-	-
Contributions - State Aid	-	-	-
Contributions - Member	-	-	-
Net Investment Income	-	521,788	(521,788)
Benefit Payments	(30,374)	(30,374)	-
Administrative Expense	-	(9,300)	9,300
Other Changes	-	-	-
<b>Net Changes</b>	<b>(17,675)</b>	<b>482,114</b>	<b>(499,789)</b>
<b>Balances at 12/31/2019</b>	<b>\$ 2,301,515</b>	<b>\$ 3,049,266</b>	<b>\$ (747,751)</b>

**Pension Expense for Fiscal Year Ended December 31, 2019**

Service Cost	\$ -
Interest on Total Pension Liability	151,560
Changes in Benefit Terms	-
Differences Between Expected and Actual Experience	(33,682)
Changes of Assumptions	38,423
Employee Contributions	-
Projected Earnings on Pension Plan Investments	(178,312)
Differences Between Projected and Actual Earnings on Investments	(1,730)
Administrative Expense	9,300
Other Changes in Fiduciary Net Position	-
<b>Total Pension Expense</b>	<b>\$ (14,441)</b>

**EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN  
GASB 68 SUPPLEMENT**

**Deferred Outflows and Deferred Inflows of Resources**

For the year ended December 31, 2019, the municipality recognized a pension expense of -\$14,441. At December 31, 2019, the municipality reported deferred outflows of resources and deferred inflows of resources related to pensions from the following sources:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences Between Expected and Actual Experience	\$ -	\$ (137,950)
Changes in Assumptions	140,888	-
Net Difference Between Projected and Actual Earnings on Pension Plan Investments	-	(146,932)
Total	\$ 140,888	\$ (284,882)

Amounts reported as deferred outflows of resources and deferred inflows of resources related to pensions will be recognized in the pension expense as follows:

Year Ended December 31:	
2020	\$ (39,173)
2021	(36,879)
2022	12,039
2023	(75,816)
2024	(4,165)
Thereafter	-

## EAST GOSHEN TOWNSHIP NON-UNIFORMED PENSION PLAN

### ACTUARIAL CERTIFICATION

This report provides disclosure and reporting information as required under Government Accounting Standards Board Statement 68 (GASB 68) for the measurement period ending December 31, 2019. This information should be used for the fiscal year beginning January 1, 2019 and ending on December 31, 2019.

Determinations for purposes other than financial accounting requirements may be significantly different from the results in this report. Thus, the use of this report for purposes other than those expressed here may not be appropriate.

This accounting valuation report relies on liabilities calculated as part of the January 1, 2019 funding valuation for the Plan. The census data and benefit provisions underlying the liabilities were prepared as of January 1, 2019. This report also relies on asset information as of December 31, 2019 as supplied by Thomas J. Anderson & Associates, Inc.

With the provided liability and asset information, the total pension liability, net pension liability and pension expense were developed for the measurement period using standard actuarial techniques. In addition, the results are based on our understanding of the financial accounting and reporting requirements under U.S. Generally Accepted Accounting Principles as set forth in GASB 68. The information in this report is not intended to supersede the advice and interpretations of the employer's auditor.

The undersigned is familiar with the near-term and long-term aspects of pension valuations and meets the Qualification Standards of the American Academy of Actuaries necessary to render the actuarial opinions contained herein. The information provided in this report is dependent upon various factors as documented throughout this report, which may be subject to change. Each section of this report is considered to be an integral part of the actuarial opinions.

BEYER-BARBER COMPANY



Lawrence C. Brisman, E.A. #17-04972  
Member American Academy Of Actuaries  
Member American Society Of Pension Professionals And Actuaries

2/24/2020

\_\_\_\_\_  
Date