State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

NEW JERSEY PINELANDS COMMISSION MEETING AGENDA
Friday, April 8, 2022 - **9:30 a.m.**
Pinelands Commission YouTube link:
https://www.youtube.com/channel/UCBgpC8sbR3Acrjo7ppxs3Uw
To Provide Public Comment, Please Dial: 1-929-205-6099 Meeting ID: 823 0697 2572

1. Call to Order

   - Open Public Meetings Act Statement
   - Roll Call
   - Pledge Allegiance to the Flag

2. Adoption of Minutes

   - March 11, 2022

3. Committee Chairs' and Executive Director's Reports

4. Matters for Commission Consideration ***Where the Record is Closed***

   A. Permitting Matters

   - Office of Administrative Law
     - None
   - Review of Local Approvals
     - None
   - Public Development Projects and Waivers of Strict Compliance:

     Resolution Approving With Conditions (**2**) Applications for Public Development:

     - Application No. 2018-0163.001 - Weston Solutions, Inc.
       Installation of 2,200 linear feet of water main within the Route 70 and Ridgeway Boulevard rights-of-way
       Lakehurst Borough, Manchester Township

     - Application No. 2021-0284.001 - New Jersey Department of Transportation
       Installation of 534 linear feet of four-foot-wide sidewalk within the Route 30

right-of-way
Hammonton Town

Resolution Approving With Conditions (**1**) Application for a Waiver of Strict Compliance:

- Application No. 2020-0238.001 - 0 Cannon Road, LLC
  Single family dwelling
  Jackson Township

B. Planning Matters

- Municipal Master Plans and Ordinances
  - None
- Other Resolutions
  - None
- CMP Amendments
  - None

5. Public Comment on Public Development Applications and Waivers of Strict Compliance ***Where the Record is Not Closed***

A. Public Development Projects

- Application No. 1997-0045.013 – Lenape Regional High School District
  Installation of a synthetic turf athletic field at the Seneca High School
  Tabernacle Township

B. Waivers of Strict Compliance

- None

6. Master Plans and Ordinances Not Requiring Commission Action

- Jackson Township Ordinance 06-22
- Vineland City Ordinance 2022-13

7. Other Resolutions

- None

8. Presentation: Local Government Energy Audit Reports

9. General Public Comment

10. Resolution to Retire into Closed Session (if needed) – Personnel, Litigation and Acquisition Matters *(The Commission reserves the right to reconvene into public session to take action on closed session items.)*

11. Adjournment

Upcoming Meetings

Fri., April 29, 2022	Policy & Implementation (P&I) Committee Meeting (9:30 a.m.)
Fri., May 13, 2022	Pinelands Commission Meeting (9:30 a.m.)

To ensure adequate time for all members of the public to comment, we will respectfully limit comments to three minutes. Questions raised during this period may not be responded to at this time but where feasible, will be followed up by the Commission and its staff.

Pinelands Commission and Committee meeting agendas are posted on the Commission's Website and can be viewed at www.nj.gov/pinelands/ for more information on agenda details, e-mail the Public Programs Office at Info@pinelands.nj.gov.

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PINELANDS COMMISSION MEETING

MINUTES
March 11, 2022

The March 11, 2022 Pinelands Commission meeting was conducted remotely. All participants were present via Zoom conference and the meeting was livestreamed through YouTube: https://www.youtube.com/watch?v=bZqYtYnOcjk

Commissioners Participating in the Meeting

Alan W. Avery Jr., John Holroyd Jr., Jerome H. Irick, Theresa Lettman, Ed Lloyd, Mark Lohbauer, Jonathan Meade, Davon McCurry, Jane Jannarone, William Pikolycky, Gary Quinn and Chair Laura E. Matos. Also participating were Acting Executive Director Susan R. Grogan, Deputy Attorney General (DAG) Nicolas Seminoff and Governor's Authorities Unit representative Janice Venables.

Commissioners Absent

Daniel Christy & Shannon Higginbotham.

Call to Order

Chair Matos called the meeting to order at 9:32 a.m.

DAG Seminoff read the Open Public Meetings Act Statement (OPMA).

Acting Executive Director (ED) Grogan called the roll and announced the presence of a quorum. Twelve Commissioners participated in the meeting.

The Commission pledged allegiance to the Flag.

Minutes

Chair Matos presented the minutes from the Commission's February 11, 2022 meeting. Commissioner Pikolycky moved the adoption of the minutes. Commissioner Lohbauer seconded the motion.

The minutes from the February 11, 2022 Commission meeting were adopted by a vote of 11 to 0. Commissioner Quinn abstained from the vote.

Committee Reports

Chair Matos provided an update on the February 25, 2022 Policy & Implementation (P&I) Committee meeting:

The Committee adopted the minutes of its November 19, 2021 meeting.

The Committee reviewed and recommended certification of an ordinance from Tabernacle Township that will permit solar energy facilities on former sand and gravel mines located in the Preservation Area District.

The Committee reviewed and recommended approval of a resolution requesting continued PILOT (Payment in Lieu of Taxes) funding for Pinelands municipalities.

The Committee received an update on upcoming policy and agenda content for the spring, including a new round of Pinelands Conservation Fund land acquisition and draft CMP amendments concerning the Electric Transmission Right-of-Way (ROW) Pilot Program and Kirkwood-Cohansey water supply policies.

Commissioner Lohbauer provided an update on the February 25, 2022 Climate Committee meeting:

The Committee received an update on the status of the Local Government Energy Audit and the rain garden project.

The Committee received an update on the following state initiatives that the Commission hopes to be involved in: the Governor's Interagency Council on Climate Resilience, Senator Smith's newly formed Forest Stewardship Task Force and the New Jersey Department of Environmental Protection (NJDEP) and New Jersey Department of Agriculture's Natural and Working Lands Strategy.

He said the Committee also discussed a resolution which incorporates climate change as it relates to the Pinelands Commission. He said that resolution is on today's agenda.

Staff Member Introductions

Acting ED Grogan introduced three new staff members who recently joined the Planning Office: Katie Elliot, Trent Maxwell and Steve Simone. She also introduced Devin Walker, who has joined the Regulatory Programs Office. She noted that another new employee will be joining the Regulatory Programs office at the end of March.

Acting Executive Director's Report

Acting ED Grogan provided information on the following matters:

- The Commission has received approval to replace two employees who are set to retire on June 1st and July 1st.

- The Governor has announced that state agencies can once again hold in-person public meetings as long as the same opportunity is afforded to members of the public. Staff will be meeting internally to discuss how it will conduct meetings going forward.

- The Commission has received a draft report from the consultant who performed the Energy Audit and a meeting has been scheduled with them to review the report before the issuance of the final report. The consultant provided two reports, one for the Richard J Sullivan Center and another for the historic buildings. A formal presentation on the findings of the reports will be shared at an upcoming Commission meeting.

Chuck Horner, Director of Regulatory Programs, provided information on the following regulatory matters:

- Tabernacle Township has determined that its current municipal building is structurally unsafe and has requested emergency authorization from the Commission to permit the placement of three office trailers on the existing parcel to use in the interim. The Township has been in discussions with staff about potential sites for the construction of the new municipal building.

- Staff is currently reviewing an application for a 205,000 square foot cannabis growing facility in Galloway Township at the former site of Lenox china plant.

- An application was submitted proposing the construction of 350 single family dwellings on an abandoned sand mine in Manchester Township. Previously there was an interest to develop a large warehouse on the site but that would have required a zoning change.

Commissioner Irick asked about the Commission's ability to participate on Senator Smith's Forest Stewardship Task Force.

Stacey Roth, the Commission's Chief of Legal and Legislative Affairs, said staff has reached out to the legislative aide to the Senate Environmental and Energy Committee regarding the Commission's interest in participating on the Task Force. She added that she has been in contact with Senator Smith's aide and he is aware of the Commission's interest as well.

She noted that the State Ethics Commission will be sending an email out soon regarding filing Financial Disclosure Statements. She said the deadline to file is May 15th.

She said the Executive Director of the State Agricultural Development Committee met with the P&I Committee a few years ago to discuss special occasion events at preserved farms. She said a bill is moving through the Legislature, and the February Management report includes details on how the number of events is calculated.

Paul Leakan, the Commission's Communications Officer, said more than 400 participants have registered for the 33rd Annual Pinelands Short Course.

He said the drawings for the rain garden may be completed later this month, with the hopes of installing the garden this spring. He said he shared a list of native Pinelands plants with the design team.

Public Development Projects and Other Permit Matters

Chair Matos introduced a resolution recommending approval for the construction of a 10,240 square foot maintenance building and two storage yards at the Atlantic County Institute of Technology High School in Hamilton Township.

Commissioner Lohbauer made a motion Approving With Conditions an Application for Public Development (Application Number 1981-2437.017) (See Resolution # PC4-22-09). Commissioner Irick seconded the motion.

Director Horner said in addition to the development of the maintenance building, the application resolves a violation regarding the establishment of storage yards used for vegetative debris.

The Commission adopted the resolution by a vote of 12 to 0.

Chair Matos said the next resolution is for the construction of six tolling stations along the Atlantic City Expressway, the construction of a fire station in Monroe Township and the installation of four wind cones at the Atlantic City International Airport.

Commissioner Irick made a motion Approving With Conditions Applications for Public Development (Application Numbers 1984-0655.033, 1987-1058.083 & 1986-1336.004)(See Resolution # PC4-22-10). Commissioner Lohbauer seconded the motion.

Director Horner explained that South Jersey Transportation Authority (SJTA) is constructing tolling stations along the Expressway, and the structures span across the travel lanes to capture E-ZPass information.

He said Monroe Township is proposing to demolish its existing fire station and rebuild a larger fire station on the same parcel. He said the Commission has received a number of letters from the Township supporting the application for the reconstruction of the fire station.

He said as part of SJTA's other development application, they are proposing to remove four existing wind cones from the airport and replace them with four new wind cones away from the runway for safety concerns. He said the wind cones are used by pilots to determine wind speed and direction. He said the report outlines the specific steps that must be taken to protect the threatened and endangered bird species at the airport.

Commissioner Lohbauer said the Commission recently permitted some changes to its Memorandum of Agreement (MOA) with SJTA and he doesn't consider this application to be new construction or tied to the performance of the MOA but he wants SJTA to be aware that the Commission is paying close attention. He asked if there are any updates on the progress of the new Grassland Conservation Management Area (GCMA).

Ms. Roth said all the structures at the former horse farm have been removed. She said an application to regrade and construct the new GCMA has been submitted to the Commission. She said SJTA continues to submit their monthly status reports. She added that the MOA covers specific development, and the wind cones were not subject of the MOA. She said the MOA specifically states that the Authority can submit a public development application for any development not covered by the MOA, and that is what they have done in this instance.

Director Horner said that Ernest Deman of the Regulatory Programs Office recently conducted a site inspection at the future site of the new GCMA and he can provide a quick overview of what he saw.

Mr. Deman said he visited the site to review the wetlands line. He said concrete slabs of where the structures sat remain. He added that the regrowth of the grasses in the open areas looks very promising.

The Commission adopted the resolution by a vote of 12 to 0.

Planning Matters

Chair Matos introduced a resolution to certify Tabernacle Township's Ordinance 2021-10.

Commissioner Lohbauer made a motion Issuing an Order to Certify Ordinance 2021-10, Amending Chapter XVII (Zoning) of the Code of Tabernacle Township (See Resolution # PC4-22-11). Commissioner Avery seconded the motion.

Acting ED Grogan said the Township has made zoning map changes specifically in its Infill District. She said when the Commission certified Tabernacle's ordinance in the mid-1980's, the town created an unusual Infill Commercial District that has caused problems over the years. The Township has decided to eliminate the Infill Commercial District and rezone a portion to the Infill Residential District and one lot to the Preservation Area District. The Township has elected to permit solar energy facilities on the lot that is being rezoned back to a Preservation Area District. The Township has adopted an ordinance that outlines a set of standards for solar facilities and is similar to what is required by the Comprehensive Management Plan (CMP) but included other standards related to setback, firebreaks, facility size limitations and other related local issues.

She said non-developed portions of the solar energy facility site will be permanently preserved through a deed restriction. She added that the Township is using the municipal flexibility provision of the CMP. She said siting a solar energy facility on a parcel that is under a restoration obligation is typically not permitted. She said based on the unique approach the Township has taken – which included tailoring certain standards – while still maintaining the goals of the CMP, staff is comfortable with the outcome of Tabernacle's approach. She noted that restoration on the parcel will occur on the portion of the parcel not being utilized by the solar energy facility. She said restoration on the solar energy facility portion of the lot will occur when the solar facility ceases operation.

Commissioner Meade ask for clarification about the placement of solar energy facilities.

Acting ED Grogan said the entire site is 60 acres. Approximately 14 acres of the already disturbed area will be used for the solar energy facility. She said the entire site is subject to the CMP's restoration requirements. She said this is a good outcome. She said that encouraging solar facilities on already disturbed land while meeting the CMP's environmental standards is challenging.

The Commission adopted the resolution by a vote of 12 to 0.

Public Comment on Public Development Applications and Items Where the Record is Open

Chair Matos read the list of applications up for comment. No comment was provided.

Ordinances Not Requiring Commission Action

Acting ED Grogan said there were no ordinances or master plans to note this month.

Other Resolutions

Chair Matos introduced a resolution to approve the Commission's 2021 Annual Report.

Commissioner Irick made a motion To Approve the Pinelands Commission's 2021 Annual Report (See Resolution # PC4-22-12). Commissioner Lohbauer seconded the motion.

Acting ED Grogan said the Annual Report is required by the Pinelands Protection Act and Executive Order. A few presentations slides were displayed to show the many highlights of 2021, which included the adoption of stormwater amendments, National Scenic Byway designation of the Pine Barrens Byway, Pinelands Development Credit (PDC) activity, development applications reviewed by the Regulatory Programs office, educational and social media activity, and the celebration of the CMP's 40th anniversary. (See attached presentation slides.)

The Commission adopted the resolution by a vote of 11 to 0. Commissioner McCurry abstained from the vote.

Chair Matos introduced a resolution authorizing the submission of a grant application to the New Jersey Historic Trust.

Commissioner Avery made a motion To Authorize the Acting Executive Director to Submit an Application to the New Jersey Historic Trust for a 2022 Preserve New Jersey Historic Preservation Fund Grant and to Certify the Availability of Matching Funds (See Resolution # PC4-22-13). Commissioner Lohbauer seconded the motion.

Acting ED Grogan said two years ago the Commission applied for a capital fund grant to the New Jersey Historic Trust, which it did not receive. It was suggested the Commission apply for a different grant in hopes of hiring consultants to prepare a preservation plan for Fenwick Manor. The plan will detail the long-term maintenance of both the interior and exterior of the building and hopefully assist with future grant funding. She added that the Commission has also submitted a request to the Governor's office for a special appropriation for Fenwick Manor in the FY 2023 or 2024 budget.

Commissioner Avery thanked Chair Matos for agreeing to bypass the Personnel & Budget Committee's review and recommendation and place this on today's agenda.

The Commission adopted the resolution by a vote of 12 to 0.

Chair Matos introduced a resolution expressing its appreciation to the Governor for restoring PILOT funds to Pinelands municipalities.

Ms. Roth, Ethics Liaison Officer, asked that Commissioner Pikolycky be placed in a Zoom waiting room while the resolution is discussed since he is the Chairman of the Pinelands Municipal Council and the resolution is associated with the Council.

Commissioner Lloyd made a motion Expressing the Pinelands Commission's Gratitude for the Restoration of Payment in Lieu of Taxes Funding to Pinelands Municipalities in Fiscal Year 2022 and Supporting the Pinelands Municipal Council's Request for Continued

Funding in Future Fiscal Years (See Resolution # PC4-22-14). Commissioner Irick seconded the motion.

Acting ED Grogan said so many Pinelands municipalities have a large amount of land in state ownership and don't receive the tax revenue they need.

Commissioner Lohbauer thanked Commissioner Pikolycky for his role on the Pinelands Municipal Council.

The Commission adopted the resolution by a vote of 11 to 0.

Commissioner Pikolycky rejoined the meeting.

Chair Matos introduced a resolution related to the Commission's climate change goals.

Commissioner Jannarone made a motion Amending and Supplementing Resolution PC4-20-37 to Clarify the Objectives of the Pinelands Commission Relative to Climate Change in the Pinelands Area and the Responsibilities of the Pinelands Climate Committee (See Resolution # PC4-22-15). Commissioner Lohbauer seconded the motion.

Commissioner Lohbauer said this resolution supplements a resolution the Commission adopted in 2020 to make reference to the Global Warming Response Act, which calls for the reduction of greenhouse gas emissions. He said going forward this resolution will help define goals for the Commission and the Climate Committee and let the public and applicants know this Commission takes climate change seriously.

The Commission adopted the resolution by a vote of 11 to 0. Commissioner Meade was muted during the vote.

Guest Speaker

Chair Matos welcomed New Jersey Department of Environmental Protection (NJDEP) Commissioner Shawn LaTourette.

Commissioner Shawn LaTourette said he was excited to see some familiar faces and welcomed the new Commissioners. He said the NJDEP and the Pinelands Commission share an important common mission: protection of the environment and the maintenance of natural resources and public lands. He introduced Sean Moriarty, who serves as his first Deputy and previously served as the Commission's Deputy Attorney General.

Commissioner LaTourette said he has an environmental law degree and spent 20 years working in the private sector. He said he joined the NJDEP about three years ago when Commissioner McCabe asked him to serve as Chief Counsel. He said the NJDEP has an obligation to the people of New Jersey. He said our natural resources belong to the people.

Commissioner LaTourette noted some of NJDEP's key priorities:

- Reduce and respond to the climate crisis. He said he recently provided testimony to the Senate Environmental and Energy Committee about the Global Warming Response Act and the goals of reducing emissions. He said every agency has a role and everyone needs to be engaged in fighting the climate crisis. He said $20 million was recently invested in an Atlantic White Cedar restoration project. He said saltwater intrusion destroyed numerous spans of Atlantic White Cedar and that is why the planting was pushed inland. He said nature sends us important messages.

- Lower income, minority and indigenous communities have suffered the most environmental injustice, even though the pollution was created by all. He said environmental agencies in New Jersey should create policy together to achieve maximum good.

- NJDEP and the Commission should consider execution of a new Memorandum of Agreement to identify shared priorities and better align regulations on such matters as the protection of wetlands, threatened and endangered species and water quality. Having a consistent approach is important.

Commissioner LaTourette noted that NJDEP has almost no land use authority. By contrast, he said the Commission has significant land use and zoning power over a large portion of the State. Therefore, the Commission can likely achieve things that NJDEP cannot.

Commissioner Lohbauer noted that NJDEP has enforcement capabilities that the Commission does not have.

Mr. Moriarty said he is excited to be working with the Commission again and said that aligning policies is a good step forward.

Commissioner Pikolycky thanked Commissioner LaTourette for restoring funds for open space projects. He asked Commissioner LaTourette if he could provide any guidance or financial assistance for the painting and restoration of historic Fenwick Manor.

Commissioner LaTourette said he would be happy to provide insight and assistance and welcomed the opportunity to visit the Pinelands headquarters.

Acting ED Grogan noted that Chair Matos left the meeting due to prior travel arrangements and that Commissioner Jannarone had also left the meeting.

Vice Chair Avery stepped in to conduct the remainder of the meeting.

Commissioner Lloyd said this is the first time a sitting NJDEP Commissioner has attended a meeting. He expressed his gratitude. He said he looks forward to working with the Department on common goals and he agreed with the Commissioner's earlier comment, that the Commission can do certain things that the Department does not have the authority to do. He added that he looks forward to working with the Department on environmental justice issues.

Commissioner LaTourette said there are many layers to environmental justice and the goal is to limit bad things in the first place. He said sea-level rise will impact the residents of the Delaware Bayshore this decade and the state will see the first climate refugees. He said environmental injustice is not always occurring in urban areas; it affects everyone.

Commissioner Lohbauer said he is encouraged for the future. He said the Commission and the Department should work collaboratively and take advantage of each agency's power and authority.

Vice Chair Avery said he would like to shift gears and discuss the Off-Road Vehicle (ORV) issue on public and private lands. He said he was curious if Park Police and Park Rangers ever requested or suggested a tool that would make their job easier to manage illegal ORV use.

Commissioner LaTourette said the Department is working on a three-point plan that includes:

- Enhanced mapping that highlights the permitted uses;
- An ORV permitting system; and
- Enforcement with progressive fines

He said the Department will embark on public engagement sessions this summer so that it can hear from the users.

Mr. Moriarty added that he recently met with the Pinelands Preservation Alliance and New Jersey Conservation Foundation on this issue. He said he would like to engage directly with Commissioners and staff in April to discuss and exchange ideas about NJDEP's proposed ORV permitting model.

Commissioner McCurry asked Commissioner LaTourette about the status of NJDEP's Natural and Working Land Strategy.

Commissioner LaTourette said the Department is still in the scoping phase but he offered that the Commission staff could be involved in an advisory group when that step comes.

Acting ED Grogan expressed her gratitude for the Commissioner and Mr. Moriarty spending time with the Commission today.

Commissioner LaTourette offered his appreciation to the Commission staff for their work.

<u>General Public Comment</u>

Fred Akers of the Great Egg Harbor Watershed Association said he was hoping to ask Commissioner LaTourette some questions. He asked if the Commissioner had plans to allocate funds to the Infrastructure Trust Fund to replenish the Pinelands Infrastructure

Trust Fund. He also said coastal soils should not be dredged and dumped in the Pinelands. He noted that it's a climate change issue.

Rhyan Grech from the Pinelands Preservation Alliance said she appreciated the update from staff on the progress at the new GCMA site. She added that she hopes monitoring will occur to ensure that the created habitat is successful. She urged the Commission to require applicants to use independent experts rather than hire their own Threatened and Endangered (T&E) consultants. She added that survey methodologies may need to be revaluated to best protect T&E species since the CMP offers little guidance. She said that she appreciates Commissioner LaTourette's willingness to partner with the Commission and hopes the Commission will push for application of the most rigorous standards to protect natural resources in instances where the NJDEP and Commission's rules overlap, particularly in the CAFRA area.

Julie Akers of Newtonville, NJ, provided comments about the importance of proper restoration of abandoned resource extraction mines. She said if the mines are not properly restored, ORV users target them for misuse. She said it is a good idea to identify beneficial uses that can be developed on such sites as a way of reducing damage and encouraging restoration.

Adjournment

Commissioner Lohbauer moved to adjourn the meeting. Commissioner Irick seconded the motion. The Commission agreed to adjourn at 11:39 a.m.

Certified as true and correct:

_____ Date: March 18, 2022

Jessica Noble, Executive Assistant

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22- 09

TITLE: **Approving** With Conditions an Application for **Public Development** (Application Number 1981-2437.017)

Commissioner Lohbauer moves and Commissioner Irick seconds the motion that:

WHEREAS, the Pinelands Commission has reviewed the Public Development Application Report and the recommendation of the Acting Executive Director that the following application for Public Development be approved with conditions:

1981-2437.017	
Applicant:	**Atlantic County Vocational Technical School District**
Municipality:	Hamilton Township
Management Area:	Pinelands Regional Growth Area
Date of Report:	February 17, 2022
Proposed Development:	Construction of a 10,240 square foot maintenance building and two approximately 5,800 square foot storage yards at the Atlantic County Institute of Technology High School.

WHEREAS, two approximately 5,800 square foot storage yards, concrete sidewalks and approximately 8,219 square feet of concrete pads for electrical equipment were constructed on the parcel without application to, and approval by, the Commission and constitutes a violation of the application requirements of the Pinelands Comprehensive Management Plan (CMP); and

WHEREAS, the applicant proposes to address this violation by including the concerned development in this application; and

WHEREAS, no request for a hearing before the Office of Administrative Law concerning the Acting Executive Director's recommendation has been received for this application; and

WHEREAS, the Pinelands Commission hereby adopts the Conclusion of the Acting Executive Director for the proposed development; and

WHEREAS, the Pinelands Commission hereby determines that the proposed public development conforms to the standards for approving an application for public development set forth in N.J.A.C. 7:50-4.57 if the conditions recommended by the Acting Executive Director are imposed; and

WHEREAS, pursuant to N.J.S.A. 13A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period and Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Application Number 1981-2437.017 for public development is hereby **approved** subject to the conditions recommended by the Acting Executive Director.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

February 17, 2022

Lauren Flynn, Business Administrator (via email)
Atlantic County Vocational Technical School District
5080 Atlantic Avenue
Mays Landing, NJ 08330

Re: Application # 1981-2437.017
Block 994, Lot 47
Hamilton Township

Dear Ms. Flynn:

The Commission staff has completed its review of this application for the construction of a 10,240 square foot maintenance building at the Atlantic County Institute of Technology High School. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its March 11, 2022 meeting.

Two approximately 5,800 square foot storage yards, concrete sidewalks and approximately 8,219 square feet of concrete pads for electrical equipment were constructed prior to the completion of an application to the Commission. The development that occurred without completion of an application with the Commission constitutes a violation of the application requirements of the Pinelands Comprehensive Management Plan. This application is to resolve the violation.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Hamilton Township Planning Board (via email)
Hamilton Township Construction Code Official (via email)
Atlantic County Department of Regional Planning and Development (via email)
Dave Flemming (via email)
Karen Ingram, LLA (via email)

State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
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www.nj.gov/pinelands

PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PUBLIC DEVELOPMENT APPLICATION REPORT

February 17, 2022

Lauren Flynn, Business Administrator (via email)
Atlantic County Vocational Technical School District
5080 Atlantic Avenue
Mays Landing, NJ 08330

Application No.: 1981-2437.017
Block 994, Lot 47
Hamilton Township

This application proposes the construction of a 10,240 square foot maintenance building at the Atlantic County Institute of Technology High School located on the above referenced 53.39 acre parcel in Hamilton Township.

Two approximately 5,800 square foot storage yards, concrete sidewalks and approximately 8,219 square feet of concrete pads for electrical equipment were constructed prior to the completion of an application to the Commission**.** This development constitutes a violation of the application requirements of the Pinelands Comprehensive Management Plan (CMP). This application is to resolve the violation.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the CMP. The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.28)

The parcel is located in a Pinelands Regional Growth Area. The proposed development is a permitted land use in a Pinelands Regional Growth Area.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located over existing impervious surfaces, maintained grassed areas and a forested area.

As required by the CMP (N.J.A.C. 7:50-6.23(a)), the proposed clearing and soil disturbance is limited to that which is necessary to accommodate the proposed development.

The CMP (N.J.A.C. 7:50-6.23(b)) also provides that, where practical, all clearing, and soil disturbance associated with the proposed development shall avoid wooded areas. Approximately 0.9 acres (39,432 square feet) of oak-pine forest will be cleared to accommodate the proposed maintenance building and required stormwater management facilities. The 53.39 acre parcel is primarily developed with school buildings, parking areas and recreational fields. The applicant has indicated that the location of the proposed maintenance building was chosen to reserve remaining areas on the parcel for future development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. To stabilize disturbed areas, the applicant proposes to utilize a seed mixture which meets that recommendation.

Stormwater Management Standards (N.J.A.C. 7:50-6.84(a)6)

The applicant has demonstrated that the proposed development is consistent with CMP stormwater management standards. To meet the stormwater management standards, the applicant will be constructing a stormwater infiltration basin and expanding an existing stormwater infiltration basin.

Water Quality Standard (N.J.A.C. 7:50-6.83)

The proposed development will be serviced by public sanitary sewer.

Cultural Resource Standards (N.J.A.C. 7:50-6.151)

The Commission staff reviewed the application for evidence of cultural resources on the parcel. Based upon the lack of potential for significant cultural resources on the parcel, a cultural resource survey was not required.

PUBLIC COMMENT

The applicant has provided the requisite public notices. Notice to required landowners within 200 feet of the above referenced parcel was completed on December 1, 2021. Newspaper public notice was completed on December 10, 2021. The application was designated as complete on the Commission's website on January 24, 2022. The Commission's public comment period closed on February 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of nine sheets, prepared by Marathon Engineering & Environmental Services, all sheets dated August 8, 2019 and last revised January 26, 2022.

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

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Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on March 7. 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22- 10

TITLE: **Approving** With Conditions Applications for **Public Development** (Application Numbers 1984-0655.033, 1987-1058.083 & 1986-1336.004)

Commissioner Irick moves and Commissioner Lohbauer seconds the motion that:

WHEREAS, the Pinelands Commission has reviewed the Public Development Application Reports and the recommendation of the Acting Executive Director that the following applications for Public Development be approved with conditions:

1984-0655.033	
Applicant:	**South Jersey Transportation Authority**
Municipality:	Egg Harbor Township Hamilton Township Town of Hammonton
Management Area:	Pinelands Agricultural Production Area Pinelands Forest Area Pinelands Military/Federal Installation Area Pinelands Regional Growth Area Pinelands Rural Development Area
Date of Report:	February 18, 2022
Proposed Development:	Construction of six separate electronic tolling stations within the Atlantic City Expressway right-of-way;
1987-1058.083	
Applicant:	**South Jersey Transportation Authority**
Municipality:	Egg Harbor Township Galloway Township
Management Area:	Pinelands Military/Federal Installation Area
Date of Report:	January 28, 2022
Proposed Development:	Installation of four wind cones and associated development at Atlantic City International Airport; and
1986-1336.004	
Applicant:	**Monroe Township**
Municipality:	Monroe Township
Management Area:	Pinelands Regional Growth Area
Date of Report:	February 17, 2022
Proposed Development:	Construction of a 17,811 square foot fire station.

WHEREAS, no request for a hearing before the Office of Administrative Law concerning the Acting Executive Director's recommendation has been received for any of these applications; and

WHEREAS, the Pinelands Commission hereby adopts the Conclusion of the Acting Executive Director for each of the proposed developments; and

WHEREAS, the Pinelands Commission hereby determines that each of the proposed public developments conform to the standards for approving an application for public development set forth in N.J.A.C. 7:50-4.57 if the conditions recommended by the Acting Executive Director are imposed; and

WHEREAS, pursuant to N.J.S.A. 13A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period and Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Application Numbers 1984-0655.033, 1987-1058.083 & 1986-1336.004 for public development are hereby **approved** subject to the conditions recommended by the Acting Executive Director.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

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PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

February 18, 2022

Steve Mazur, P.E. (via email)
South Jersey Transportation Authority
PO Box 351
Hammonton, NJ 08037

Re: Application # 1984-0655.033
Atlantic City Expressway Right-of-Way
Egg Harbor Township, Hamilton Township &
Town of Hammonton

Dear Mr. Mazur:

The Commission staff has completed its review of this application for construction of six separate electronic tolling stations within the Atlantic City Expressway right-of-way. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its March 11, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Egg Harbor Township Planning Board (via email)
Egg Harbor Township Construction Code Official (via email)
Egg Harbor Township Environmental Commission (via email)
Secretary, Hamilton Township Planning Board (via email)
Hamilton Township Construction Code Official (via email)

Secretary, Town of Hammonton Planning Board (via email)
Town of Hammonton Construction Code Official (via email)
Town of Hammonton Environmental Commission (via email)
Atlantic County Department of Regional Planning and Development (via email)
Michael Dunn (via email)

State of New Jersey
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SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PUBLIC DEVELOPMENT APPLICATION REPORT

February 18, 2022

Steve Mazur, P.E. (via email)
South Jersey Transportation Authority
PO Box 351
Hammonton, NJ 08037

Application No.: 1984-0655.033
Atlantic City Expressway Right-of-Way
Egg Harbor Township, Hamilton Township &
Town of Hammonton

This application proposes construction of six separate electronic tolling stations within the Atlantic City Expressway right-of-way located in the three above referenced municipalities. Two of the tolling stations will be located in Egg Harbor Township, three will be located in Hamilton Township and one will be located in the Town of Hammonton.

Each electronic tolling station will be comprised of a metal gantry spanning the east and west bound travel lanes. Each gantry span will be between 132 and 252 feet in length and approximately 28 feet high. The application also proposes a 240 square foot utility building and a parking area for maintenance vehicles at each electronic tolling station location. The parking areas range from 1,750 square feet to 3,000 square feet in size.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.2(b), 5.23(b)15, 5.24(b)12, 5.26(b)14 & 5.28(a))

The proposed electronic tolling stations are located in a Pinelands Forest Area, a Pinelands Agricultural Production Area, a Pinelands Rural Development Area, a Pinelands Regional Growth Area and a Pinelands Military and Federal Installation Area.

The proposed electronic tolling stations are accessory structures to the Atlantic City Expressway. As an accessory structure, the proposed electronic tolling stations are a permitted land use in a Pinelands Forest Area, a Pinelands Agricultural Production Area, a Pinelands Rural Development Area and a Pinelands Regional Growth Area.

Although located completely within the Atlantic City Expressway right-of-way, a portion of one of the electronic tolling stations is located in a Pinelands Military and Federal Installation Area. With respect to permitted land use, the construction of a proposed electronic tolling station within the Atlantic City Expressway right-of-way that is also located within a Pinelands Military and Federal Installation Area is not specially addressed by the CMP. The Atlantic City Expressway was constructed prior to January 14, 1981 and the roadway may be a nonconforming use in a Pinelands Military and Federal Installation Area. The CMP (N.J.A.C. 7:50-5.2(b)) permits the expansion of any nonconforming use existing on January 14, 1981 provided the use was not abandoned subsequent to January 14, 1981; the expansion of the use is in accordance with all of the minimum standards of N.J.A.C. 7:50-6; and the area of the expansion does not exceed 50 percent of the area of the use on January 14, 1981. The portion of the electronic tolling station located in a Pinelands Military and Federal Installation Area is a permitted land use based upon the CMP (N.J.A.C. 7:50-5.2(b)).

Wetlands Standards (N.J.A.C. 7:50-6.13)

There are wetlands located within 300 feet of two of the proposed electronic tolling stations. The two electronic tolling stations will be located approximately 30 feet from wetlands at their closest points. The two electronic tolling stations will be located within existing grassed shoulders.

The proposed electronic tolling stations are associated with the Atlantic City Expressway. The Atlantic City Expressway is a linear improvement. The CMP permits linear improvements in the required buffer to wetlands provided the applicant demonstrates that certain CMP specified conditions are met. The applicant has demonstrated that there is no feasible alternative to the two electronic tolling stations that does not involve development in the required buffer to wetlands or that will result in a less significant adverse impact to the required buffer to wetlands. In addition, the two proposed tolling stations will not result in a substantial impairment of the resources of the Pinelands. With the conditions below, all practical measures are being taken to mitigate the impact on the required buffer to wetlands. The applicant has represented that the locations of the two proposed tolling stations located within 300 feet of wetlands are required for traffic safety. The applicant has demonstrated that the need for the two proposed tolling stations overrides the importance of protecting the wetlands buffer.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located within existing grassed shoulders. As required by the CMP (N.J.A.C. 7:50-6.23(a)), the proposed soil disturbance is limited to that which is necessary to accommodate the proposed development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. The applicant proposes to utilize a seed mixture which meets that recommendation.

Cultural Resource Standards (N.J.A.C. 7:50-6.151)

The Commission staff reviewed the application for evidence of cultural resources within the project area. Based upon the lack of potential for significant cultural resources within the project area, a cultural resource survey was not required.

PUBLIC COMMENT

The applicant has provided the requisite public notice. Newspaper public notice was completed on January 19, 2022. The application was designated as complete on the Commission's website on February 1, 2022. The Commission's public comment period closed on February 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of seven sheets, prepared by WSP USA Inc., and dated as follows:

   Sheets EP-1, EP-2, & EP-7 - dated October 18, 2021; lasted revised January 14, 2021
   Sheet EP-3 - dated October 18, 2021
   Sheet EP-4 - dated October 26, 2021; last revised October 14, 2021
   Sheet EP-5 - dated January 18, 2022; lasted revised January 14, 2022
   Sheet EP-6 - dated November 4, 2021

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

5. Appropriate measures shall be taken during construction to preclude sedimentation from entering wetlands and shall be maintained in place until all development has been completed and the area has been stabilized.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

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Lt. Governor

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on March 8, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

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PHILIP D. MURPHY
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Lt. Governor

General Information: Info@pinelands.nj.gov
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LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

February 17, 2022

Jill McCrea, Business Administrator (via email)
Monroe Township
125 Virginia Ave.
Williamstown, NJ 08094

Re: Application # 1986-1336.004
Block 11603, Lots 6 & 7
Monroe Township

Dear Ms. McCrea:

The Commission staff has completed its review of this application for the construction of a 17,811 square foot fire station. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its March 11, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Monroe Township Planning Board (via email)
Monroe Township Construction Code Official (via email)
Monroe Township Environmental Commission (via email)
Secretary, Gloucester County Planning Board (via email)
Keith Conroy, PE (via email)

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General Information: Info@pinelands.nj.gov
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LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PUBLIC DEVELOPMENT APPLICATION REPORT

February 17, 2022

Jill McCrea, Business Administrator (via email)
Monroe Township
125 Virginia Ave.
Williamstown, NJ 08094

Application No.: 1986-1336.004
Block 11603, Lots 6 & 7
Monroe Township

This application proposes the construction of a 17,811 square foot fire station located on the above referenced 2.67 acre parcel in Monroe Township. There is an existing municipal complex building located on the parcel.

The applicant proposes to demolish an existing 7,433 square foot fire station located on the parcel. The existing fire station is less than 50 years old. The demolition of a building less than 50 years old does not require the completion of an application with the Commission.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.28(a))

The parcel is located in a Pinelands Regional Growth Area. The proposed development is a permitted land use in a Pinelands Regional Growth Area.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located within an existing maintained lawn area and over existing impervious surfaces.

As required by the CMP (N.J.A.C. 7:50-6.23(a)), the proposed soil disturbance is limited to that which is necessary to accommodate the proposed development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are

tolerant of droughty, nutrient poor conditions. The applicant proposes to utilize a seed mixture which meets that recommendation.

Water Quality Standard (N.J.A.C. 7:50-6.83)

The proposed development will be serviced by public sanitary sewer.

Stormwater Management Standards (N.J.A.C. 7:50-6.84(a)6)

The applicant has demonstrated that the proposed development is consistent with the CMP stormwater management standards. To meet these standards, the application proposes to construct an underground stormwater infiltration facility.

Cultural Resource Standards (N.J.A.C. 7:50-6.151)

The Commission staff reviewed the application for evidence of cultural resources on the parcel. Based upon the lack of potential for significant cultural resources on the parcel, a cultural resource survey was not required.

PUBLIC COMMENT

The applicant has provided the requisite public notices. Notice to required landowners within 200 feet of the above referenced parcel was completed on September 25, 2020. Newspaper public notice was completed on June 25, 2021. The application was designated as complete on the Commission's website on January 7, 2022. The Commission's public comment period closed on February 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of ten sheets, prepared by Keith E. Conroy Engineers Inc., and dated as follows:

   Sheets 1-3, 8 & 9 – June 9, 2021
   Sheets 4-7 & 10 – June 9, 2021; last revised November 09, 2021

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

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LAURA E. MATOS
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SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
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PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on March 7, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

January 28, 2022

Stephen Mazur, P.E. (via email)
South Jersey Transportation Authority
PO Box 351
Hammonton, NJ 08037

Re: Application # 1987-1058.083
Block 101, Lot 9
Egg Harbor Township
Block 516, Lot 13.01
Galloway Township

Dear Mr. Mazur:

The Commission staff has completed its review of this application for installation of four wind cones and associated development at Atlantic City International Airport. The proposed wind cones will provide visual assistance to aircraft pilots to determine the direction and approximate speed of wind. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its March 11, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Egg Harbor Township Planning Board (via email)
Egg Harbor Township Construction Code Official (via email)

Egg Harbor Township Environmental Commission (via email)
Secretary, Galloway Township Planning Board (via email)
Galloway Township Construction Code Official (via email)
Galloway Township Environmental Commission (via email)
Atlantic County Department of Regional Planning and Development (via email)
Niraj Lamichhane (via email)
Rhyan Grech (via email)

State of New Jersey
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SHEILA Y. OLIVER
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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PUBLIC DEVELOPMENT APPLICATION REPORT

January 28, 2022

Stephen Mazur, P.E. (via email)
South Jersey Transportation Authority
PO Box 351
Hammonton, NJ 08037

Application No.: 1987-1058.083
Block 101, Lot 9
Egg Harbor Township
Block 516, Lot 13.01
Galloway Township

This application proposes installation of four wind cones and associated development at Atlantic City International Airport (ACIA) located on the above referenced 3,212 acre parcel in Egg Harbor and Galloway Townships. The proposed wind cones will provide visual assistance to aircraft pilots in determining the direction and approximate speed of wind.

There are four existing wind cones located at ACIA. The existing wind cones are located on 100 square foot concrete pads and are accessed by 12 foot wide asphalt milling roads ranging from 20 to 193 feet in length.

The existing wind cones are located within the Runway Object Free Area (ROFA). The Federal Aviation Administration (FAA) has requested that the existing wind cones be removed from the ROFA.

The application proposes the installation of four wind cones outside of the ROFA. The proposed wind cones will be located on 38 square foot concrete pads with 12 foot wide asphalt milling access roads ranging from 37 to 343 feet in length.

The applicant also proposes the removal of the four existing wind cones and the existing development associated with the existing wind cones.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.29(a))

The Pinelands Protection Act designates the boundaries of the 938,000 acre Pinelands Area. Within the boundaries of the Pinelands Area, the Pinelands Protection Act also designates the 366,000 acre Pinelands Preservation Area and the 572,000 acre Pinelands Protection Area. The CMP then establishes Management Areas such as Regional Growth, Rural Development and Military and Federal Installation that overlay the entire Pinelands Area.

The parcel subject of this application is located in a Military and Federal Installation Management Area. The CMP permits any proposed use associated with the function of a federal installation in a Military and Federal Installation Management Area. The proposed wind cones are associated with the function of the federal installation.

The CMP also requires that, where feasible, proposed development in a Military and Federal Installation Management Area shall be located in the Pinelands Protection Area portion of the Pinelands Area. The development proposed in this application is located in the Pinelands Protection Area.

As further required by the CMP, the proposed use will not require any development in a Forest Management Area or the Preservation Area District.

Wetlands Standards (N.J.A.C. 7:50-6.6)

There are wetlands located on the parcel. All development, including land disturbance, will be located greater than 300 feet from wetlands.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located within existing paved and grassed areas. The proposed soil disturbance is limited to that which is necessary to accommodate the proposed development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. To stabilize all disturbed areas, the applicant proposes to utilize a seed mixture which meets that recommendation.

Threatened and Endangered Species Standards (N.J.A.C. 7:50-6.27 & 6.33)

A September 2003 Final Environmental Impact Statement prepared by the FAA identified critical habitat for Grasshopper sparrow and Upland sandpiper at the ACIA. These species typically arrive at the ACIA in mid-April to early May and proceed to nest and rear broods through July 31. The proposed wind cones and associated development will disturb 5,423 square feet of identified critical grassland habitat for Grasshopper sparrow and Upland sandpiper at ACIA.

The application also proposes the removal of 7,161 square feet of impervious surfaces associated with the existing wind cones from within the identified critical grassland habitat for Grasshopper sparrow and Upland sandpiper. The application proposes the restoration of those areas with native grassland species suitable for Grasshopper sparrow and Upland sandpiper.

Based on the restoration of the concerned 7,161 square foot area to grassland habitat, the installation of fencing around each of the proposed wind cones, concrete pads and access roads and the below specified

condition requiring the mowing of the grasses within the four fenced areas to discourage potential nesting, the proposed development has been designed to avoid irreversible adverse impacts on habitat critical to the survival of the local populations of Grasshopper sparrow and Upland sandpiper.

Stormwater Management Standards (N.J.A.C. 7:50-6.84(a)6)

This application proposes the removal of 7,161 square feet of impervious surfaces associated with the removal of the four existing wind cones. The development of the four proposed wind cones will result in 5,423 square feet of new impervious surfaces. The proposed development will result in a decrease of impervious surfaces by 1,738 square feet. There will be no increase in the volume and rate of stormwater runoff from the project after the development than occurred prior to the proposed development. The proposed development is consistent with CMP stormwater management standards.

Cultural Resource Standards (N.J.A.C. 7:50-6.151)

The Commission staff reviewed the application for evidence of cultural resources on the parcel. Based upon the lack of potential for significant cultural resources on the parcel, a cultural resource survey was not required.

PUBLIC COMMENT

The applicant has provided the requisite public notices. Newspaper public notice was completed on September 20, 2021. The application was designated as complete on the Commission's website on October 22, 2021. The Commission's public comment period closed on November 12, 2021. The Commission received one oral public comment regarding this application.

Oral Commenter (Rhyan Grech, Pinelands Preservation Alliance): On November 12, 2021, the commenter inquired as to whether the South Jersey Transportation Authority (SJTA) has met the timelines for accomplishing certain requirements identified in a 2004 Memorandum of Agreement (MOA) between the SJTA and the Commission, as amended in 2019. That MOA authorizes certain development projects specified in the MOA to occur at the ACIA that would not otherwise be consistent with the T&E species protection standards of the CMP. The commenter also indicated that the Commission should consider not acting on this application until the SJTA satisfies the requirements of the MOA.

Staff Response: We appreciate the commenter's continued interest in the Pinelands Area. The proposed installation of four wind cones and associated development was not one of the development projects specified in the 2004 MOA or its 2019 Amendment. The development proposed in this application requires formal application to the Commission regardless of the requirements of the MOA. For the reasons discussed in this Report, the applicant has demonstrated that the proposed development is consistent with the T&E species protection standards of the CMP.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of 11 sheets, prepared by DY Consultants and dated as follows:

   Sheet 1 - August 2021
   Sheets 2-11 - August 31, 2021

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

5. If construction activity will occur between April 1 and September 30 of any year, to avoid an irreversible adverse impact on habitat critical to the survival of the local populations of Grasshopper sparrow and Upland sandpiper, the following conditions shall be met:

    a. Prior to any construction activity, the applicant shall install fencing along the perimeter of each of the four wind cone project areas and maintain the fencing until all construction activity has been completed; and

    b. All grasslands within the four fenced wind cone project areas shall be mowed and maintained at a height of five inches or less between April 1 and September 30 for the duration of the construction activity.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

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Application Specific Information: AppInfo@pinelands.nj.gov

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Chair
SUSAN R. GROGAN
Acting Executive Director

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on February 14, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-__11____

TITLE: Issuing an Order to Certify Ordinance 2021-10, Amending Chapter XVII (Zoning) of the Code of Tabernacle Township

Commissioner ____Lohbauer_____ moves and Commissioner ____Avery_____ seconds the motion that:

WHEREAS, on September 6, 1985, the Pinelands Commission fully certified the Master Plan and Land Use Ordinances of Tabernacle Township; and

WHEREAS, Resolution #PC4-85-51 of the Pinelands Commission specified that any amendment to Tabernacle Township's certified Master Plan and Land Use Ordinances be submitted to the Executive Director in accordance with N.J.A.C. 7:50-3.45 (Submission and Review of Amendments to Certified Master Plans and Land Use Ordinances) of the Comprehensive Management Plan to determine if said amendment raises a substantial issue with respect to conformance with the Pinelands Comprehensive Management Plan; and

WHEREAS, Resolution #PC4-85-51 further specified that any such amendment shall only become effective as provided in N.J.A.C. 7:50-3.45 of the Comprehensive Management Plan; and

WHEREAS, on December 6, 2021, Tabernacle Township adopted Ordinance 2021-10, amending Chapter XVII (Zoning) of the Township's Code by rezoning nine lots from the Infill Commercial District to the Infill Residential District and one lot from the Infill Commercial District to the Preservation Area District; and

WHEREAS, Ordinance 2021-10 also establishes solar energy facilities as a permitted use in the Preservation Area District and adopts affiliated use standards; and

WHEREAS, the Pinelands Commission received an adopted copy of Ordinance 2021-10 on December 28, 2021; and

WHEREAS, by letter dated December 30, 2021, the Acting Executive Director notified the Township that Ordinance 2021-10 would require formal review and approval by the Pinelands Commission; and

WHEREAS, a public hearing to receive testimony on Ordinance 2021-10 was duly advertised, noticed and remotely held on February 9, 2022 at 9:30 a.m. with live broadcast on the Pinelands Commission's public YouTube channel and opportunity for the public to call-in during the live broadcast; and

WHEREAS, the Acting Executive Director has found that Ordinance 2021-10 is consistent with the standards and provisions of the Pinelands Comprehensive Management Plan; and

WHEREAS, the Acting Executive Director has submitted a report to the Commission recommending issuance of an order to certify that Ordinance 2021-10, amending Chapter XVII (Zoning) of the Code of Tabernacle Township, is in conformance with the Pinelands Comprehensive Management Plan; and

WHEREAS, the Commission's CMP Policy and Implementation Committee has reviewed the Acting Executive Director's report and has recommended that Ordinance 2021-10 be certified; and

WHEREAS, the Pinelands Commission has duly considered all public testimony submitted to the Commission concerning Ordinance 2021-10 and has reviewed the Acting Executive Director's report; and

WHEREAS, the Pinelands Commission accepts the recommendation of the Acting Executive Director; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that

1. An Order is hereby issued to certify that Ordinance 2021-10, amending Chapter XVII (Zoning) of the Code of Tabernacle Township, is in conformance with the Pinelands Comprehensive Management Plan.

2. Any additional amendments to the Township's certified Master Plan and Land Use Ordinances shall be submitted to the Executive Director in accordance with N.J.A.C. 7:50-3.45 to determine if said amendments raise a substantial issue with respect to the Comprehensive Management Plan. Any such amendment shall become effective only as provided in N.J.A.C. 7:50-3.45.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

REPORT ON ORDINANCE 2021-10, AMENDING CHAPTER XVII (ZONING) OF THE CODE OF TABERNACLE TOWNSHIP

February 25, 2022

Tabernacle Township
163 Carranza Road
Tabernacle, NJ 08088

FINDINGS OF FACT

I. Background

The Township of Tabernacle is located in the central portion of the Pinelands Area in Burlington County. Pinelands municipalities abutting Tabernacle Township include the Townships of Medford, Shamong, Southampton, Washington and Woodland, all of which are located in Burlington County.

On September 6, 1985, the Pinelands Commission fully certified the Master Plan and Land Development Ordinances of Tabernacle Township.

On December 6, 2021, Tabernacle Township adopted Ordinance 2021-10, amending Chapter XVII (Zoning) of the Township's Code by rezoning nine lots from the Infill Commercial District to the Infill Residential District and one lot from the Infill Commercial District to the Preservation Area District. The ordinance also establishes solar energy facilities as a permitted use in the Preservation Area District and adopts related use standards. The Pinelands Commission received an adopted copy of Ordinance 2021-10 on December 28, 2021.

By letter dated December 30, 2021, the Acting Executive Director notified the Township that Ordinance 2021-10 would require formal review and approval by the Pinelands Commission.

II. Master Plans and Land Use Ordinances

The following ordinance has been submitted to the Pinelands Commission for certification:

* Ordinance 2021-10, amending Chapter XVII (Zoning) of the Code of Tabernacle Township, introduced on October 25, 2021, and adopted on December 6, 2021.

This ordinance has been reviewed to determine whether it conforms with the standards for certification of municipal master plans and land use ordinances as set out in N.J.A.C. 7:50-3.39 of the Pinelands Comprehensive Management Plan (CMP). The findings from this review are presented below. The numbers used to designate the respective items correspond to the numbers used to identify the standards in N.J.A.C. 7:50-3.39.

1. Natural Resource Inventory

Not applicable.

2. Required Provisions of Master Plans and Land Use Ordinances Relating to Development Standards

Zoning Plan Amendments

Ordinance 2021-10 rezones ten contiguous lots, approximately 73 acres, bounded by Forked Neck Road, Carranza Road, and Tuckerton Road (see Exhibit A). The entirety of the area is currently zoned Infill Commercial (IC) District and located in the Preservation Area District (PAD) management area. The IC District permits single family dwelling units on lots of record as of February 7, 1979 that contain at least one acre. The IC District also permits retail uses, commercial services, agricultural processing facilities, and light industrial uses on existing lots of record. The zoning changes adopted by the Ordinance 2021-10 effectively eliminate the Township's IC District in its entirety.

Nine lots (Block 1401, Lots 1, 2, 4, 5, 6.01, 6.02, 6.03, 6.04, 7), totaling approximately 14 acres, are rezoned to the Infill Residential (IR) District. The lots range in area from 0.06 acres to 6.34 acres. Four lots contain single family residential units, one lot contains a hunting club, and the remaining four lots are vacant. The IR District is an existing municipal zone within the PAD management area. It permits single family dwelling units on lots of record as of February 7, 1979 that contain at least one acre. The rezoning from IC to IR eliminates the potential development of non-residential uses otherwise permitted in the IC District. Three of the four vacant lots contain at least one acre and will continue to have the potential to develop a single-family dwelling unit provided all other CMP environmental standards are met.

The remaining lot (Block 1401, Lot 3), approximately 59 acres, is rezoned to the Township's Preservation Area (PA) District. The lot is the site of a resource extraction operation predating the CMP that continued to renew resource extraction permits in accordance with the CMP. The PA District is an existing municipal zone within the PAD management area. It permits a limited number of uses consistent with the CMP, including forestry, berry agriculture, low-intensity recreational uses, and the continuation of existing resource extraction operations.

Solar Energy Facilities

Ordinance 2021-10 expands the permitted uses in the PA District to include solar energy facilities on the parcel of a resource extraction operation. The ordinance then adopts a series of standards to govern the development of such facilities, some of which are required by the CMP and some of which are additional standards important to the municipality.

Regarding standards required by the CMP, Ordinance 2021-10 limits the siting of solar energy facilities to previously mined areas that have not yet been restored. The acquisition and

redemption of 0.25 Pinelands Development Credits (PDC) is required for every four acres of land occupied by the solar energy facility, inclusive of any required firebreak. Solar facilities and any off-site infrastructure must be located and screened to minimize visual impacts to: publicly dedicated roads and highways; existing residential dwellings on contiguous parcels; wild and scenic rivers and special scenic corridors listed in the CMP; and low-intensity recreational facilities and campgrounds. Clearing related to on-site or off-site infrastructure serving the solar energy facility is limited to that which is necessary for its operation and must avoid, where practical, wooded areas. New rights-of-way associated with infrastructure are limited to a maximum width of 20 feet unless additional width is necessary to address specific safety or reliability concerns. The area beneath the solar energy facility, within the firebreak, and any required vegetative buffers must be vegetated consistent with the CMP's vegetation standards (N.J.A.C. 7:50-6.21 et seq.). Lastly, solar energy facilities are required to be decommissioned within 12 months of the cessation of their utilization including the removal of all energy facilities, structures, and equipment and the restoration of the parcel in accordance with the CMP. Therefore, once the solar energy facility is decommissioned, the parcel will be fully restored.

Regarding additional standards not required by the CMP, Ordinance 2021-10 limits the extent of any solar energy facility to a maximum of 25 acres, inclusive of any required fire break. The remainder of the parcel must be permanently preserved through deed restriction. Future use of the deed restricted area must be limited to berry agriculture, horticulture of native Pinelands plants, forestry, beekeeping, fish and wildlife management, and low intensity recreational uses. No maintenance or removal of trees is permitted to be performed in the deed restricted area as part of the construction or operation of the solar energy facility. Solar panels and inverters must be setback a minimum of 100 feet and 150 feet from the property line, respectively. Solar facilities must also be enclosed by a fence between 7 and 9 feet in height and surrounded by a 50-foot fire break.

A review of the Commission's records indicates that one of the lots rezoned by Ordinance 2021-10 (Block 1401, Lot 3) is the only resource extraction site in Tabernacle Township's PAD that received permits to continue extraction after 1981. Commission staff are not aware of any other resource extraction sites in the PAD management area. Therefore, Ordinance 2021-10 likely provides an opportunity for the development of only one new solar energy facility in the Township's PA District.

The CMP permits the siting of solar energy facilities in the PAD management area on the parcel of a resource extraction operation, provided the facility is limited to previously mined areas not under an obligation to be restored (N.J.A.C. 7:50-5.36(b)). This restoration obligation applies to resource extraction operations within the Pinelands Area active on or after January 14, 1981 upon the cessation of mining activities. The resource extraction operation located on Block 1401, Lot 3 is under such a restoration obligation, which eliminates the parcel's eligibility for development of a solar energy facility based on the standards set forth at N.J.A.C. 7:50-5.36(b).

The Township has elected to provide an opportunity to site a solar facility on this parcel by allowing lands to be used that would normally be ineligible due to the mining restoration obligation. This does not automatically render Ordinance 2021-10 inconsistent with the CMP. Pinelands municipalities have the ability to refine the various standards and provisions of the CMP and tailor them to local conditions, provided CMP goals and objectives continue to be achieved. In this case, Tabernacle Township has chosen to adopt an ordinance that provides a

greater opportunity for development of solar energy facilities while at the same time curtailing other nonresidential development potential in the PAD and correcting a long-standing zoning inconsistency with the CMP. As detailed above, the Township's ordinance also incorporates all other CMP solar energy facility standards (N.J.A.C. 7:50-5.36) and includes additional standards that go beyond what the CMP requires.

A strict interpretation of the CMP would not permit a principal solar energy facility on Block 1401, Lot 3. However, the wide range of nonresidential uses that are permitted on this parcel and in the remainder of the IC District under the Township's currently certified zoning plan must be taken into consideration. As noted above, the IC District permits retail uses, commercial services, agricultural processing facilities, and light industrial uses. None of these uses are permitted in the Preservation Area District and none will be permitted following the rezoning adopted by Ordinance 2021-10. The IC District was certified by the Pinelands Commission in 1985 during the Township's initial certification process. At that time, the CMP did not expressly permit the creation of infill areas in the PAD management area. However, in a limited number of municipalities, the Pinelands Commission allowed for the creation of infill areas through the municipal conformance process, as a way of recognizing existing development and lot tenure patterns within the PAD management area. The CMP was subsequently amended in 1987 to provide municipalities with the option of establishing infill residential and commercial districts provided that certain criteria were met (N.J.A.C. 7:50-5.22(b)7).

As it currently exists, Tabernacle Township's IC District does not meet CMP standards for the establishment of a commercial infill district. The CMP specifies that infill area boundaries are to be drawn so as to include existing developed areas and exclude extensive amounts of adjoining vacant land. Including the entirety of a 59-acre parcel would not be permitted. Furthermore, although the CMP does provide municipalities with the ability to permit commercial uses within their infill areas, such uses must be limited to those specific portions of an infill area that are predominantly occupied by existing commercial uses. Given the lack of commercial uses in the vicinity of Tabernacle's IC District, a commercial infill district would not be permitted. However, the Commission certified the IC District in 1985 prior to the adoption of these standards, and this 59-acre parcel has continued to have significant commercial development potential since that time. This commercial development potential has discouraged full restoration of the parcel as the landowner has pursued a variety of development proposals for the parcel based on the permitted uses in the IC District.

Elimination of the IC District and rezoning the 59-acre parcel to the PA District resolves a long-standing infill zone that was not consistent with the CMP's infill area standards. The zoning change eliminates the commercial development potential previously associated with these lands. Coupled with the land preservation requirements adopted by Ordinance 2021-10 for solar energy facilities, and the restoration requirements that will be triggered when any solar facility ceases to be utilized, the CMP's goals for the PAD and the development of solar energy facilities are met. Ordinance 2021-10 represents an appropriate exercise of municipal flexibility, one that meets the objectives of the CMP.

Ordinance 2021-10 is consistent with the land use and development standards of the Comprehensive Management Plan. Therefore, this standard for certification is met.

3. Requirement for Certificate of Filing and Content of Development Applications

Not applicable.

4. Requirement for Municipal Review and Action on All Development

Not applicable.

5. Review and Action on Forestry Applications

Not applicable.

6. Review of Local Permits

Not applicable.

7. Requirement for Capital Improvement Program

Not applicable.

8. Accommodation of Pinelands Development Credits

In accordance with N.J.A.C. 7:50-5.36(b)3, solar energy facilities located within the PAD management area must acquire and redeem 0.25 Pinelands Development Credits (PDC) for every four acres of land occupied by the solar energy facility, unless the solar energy facility is proposed as part of a comprehensive application for landfill closure or site remediation. Ordinance 2021-10 establishes solar energy facilities as a permitted use in the Township's PA District and incorporates this PDC requirement.

This standard for certification is met.

9. Referral of Development Applications to Environmental Commission

Not applicable.

10. General Conformance Requirements

Ordinance 2021-10 is consistent with the standards and provisions of the Pinelands Comprehensive Management Plan. Therefore, this standard for certification is met.

11. Conformance with Energy Conservation

Not applicable.

12. Conformance with the Federal Act

Ordinance 2021-10 is consistent with the standards and provisions of the Pinelands Comprehensive Management Plan. No special issues exist relative to the Federal Act. Therefore, this standard for certification is met.

13. Procedure to Resolve Intermunicipal Conflicts

Four of the lots being rezoned by Ordinance 2021-10 (Block 1401, Lots 1, 3, 6.02, 7) are adjacent to the Township's border with Shamong Township. The adjacent lands in Shamong Township are located in the PAD management area. Lots 1 and 7 in Tabernacle Township contain existing uses (a hunting club and a single-family dwelling), while lot 6.02 is vacant and would be limited in the future to the development of a single-family dwelling unit. Lot 3 contains the greatest development potential given its size, but the ordinance eliminates a number of intensive uses that could have posed significant intermunicipal conflict. While the ordinance would enable the development of a solar energy facility on this site, a number of ordinance standards described above related to setbacks, vegetative buffers and land preservation should mitigate any significant intermunicipal conflicts. Therefore, this standard for certification is met.

PUBLIC HEARING

A public hearing to receive testimony concerning Tabernacle Township's application for certification of Ordinance 2021-10 was duly advertised, noticed and held on February 9, 2022, at 9:30 a.m. Mr. Lanute conducted the hearing, which was held remotely and broadcasted live on the Pinelands Commission's public YouTube channel. The public was provided the opportunity to call-in during the public hearing to provide testimony. No testimony was received.

Written comments on Ordinance 2021-10 were accepted through February 11, 2022. Comment was received from the following individual:

- Rhyan Grech, Policy Advocate, Pinelands Preservation Alliance (see Exhibit B)

ACTING EXECUTIVE DIRECTOR'S RESPONSE

Ms. Grech has correctly noted that the provisions of Ordinance 2021-10 conflict with the CMP's solar energy facility provisions. Section 2 of this report fully reflects that fact. The Acting Executive Director agrees that the standards adopted by Ordinance 2021-10 do not match what a strict interpretation of what the CMP would call for. However, the CMP does provide municipalities with the ability to structure their zoning plans in a way that recognizes municipal objectives and local circumstances while still achieving the overall objectives of the CMP.

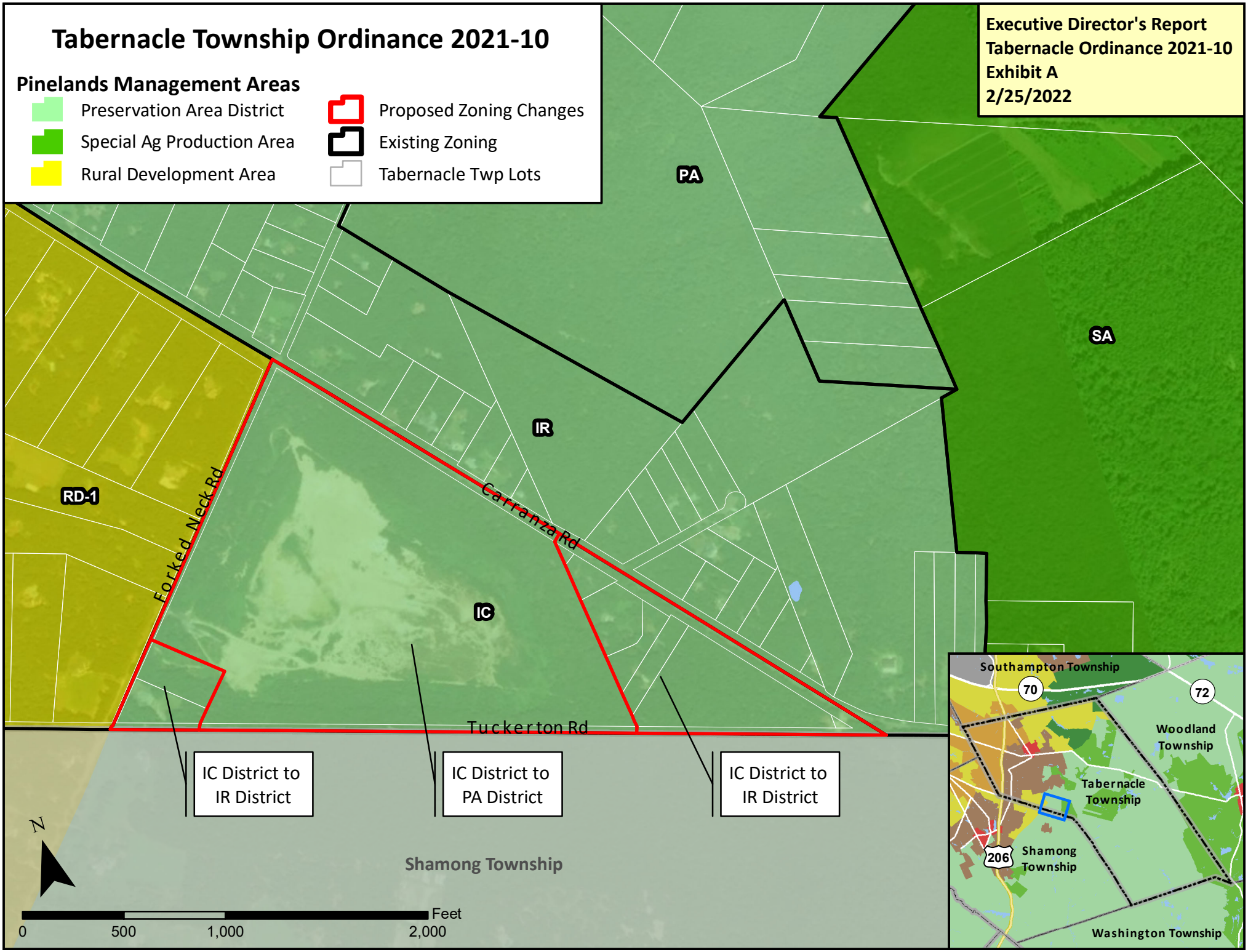
Ms. Grech is also correct to identify the resource extraction operation being rezoned as a motivating factor for the Township's adoption of this ordinance. It may well be that although the ordinance theoretically affects all properties in the PA District, it primarily benefits one private property owner. Given the unique circumstances of that property, this is not necessarily an inappropriate result. In addition, although a new opportunity for development of solar energy facilities is being provided, existing opportunities for development of a much broader range of commercial uses are being eliminated. The elimination of the IC District and its significant commercial development potential must be considered when evaluating the impacts of Ordinance 2021-10. The Township's IC District has been of significant concern to Commission staff for many years because of the wide variety of intensive commercial uses that could have been developed on the 59-acre parcel. The Commission amended the CMP many years ago to avoid future instances of such permissive infill zones being established in the Preservation Area District. Ordinance 2021-10 may provide a benefit to one property owner by facilitating development of a solar energy facility, but it also benefits the Pinelands Preservation Area District as a whole by implementing additional land preservation requirements and eliminating the potential for commercial uses incompatible with CMP goals for this most environmentally sensitive management area.

Ms. Grech is also correct in noting that the resource extraction operation on Block 1401, Lot 6.02 is under a restoration obligation that has not been completed. However, we disagree that this ordinance would waive the restoration obligation for this parcel. In fact, the ordinance eliminates the existing commercial development potential that has for decades served to disincentivize full restoration of the parcel. If a solar energy facility is developed on this site, the ordinance offers far greater protection than under the current zoning. It would at minimum require the permanent preservation of 34 acres on the site. Furthermore, the restoration requirements included in the ordinance as part of the decommissioning of a solar energy facility provide additional restoration obligations on top of those associated with resource extraction. In sum, we expect that the ordinance will garner greater likelihood of the site being fully restored in the future.

CONCLUSION

Based on the Findings of Fact provided above, the Acting Executive Director has concluded that Ordinance 2021-10 complies with the Comprehensive Management Plan standards for the certification of municipal master plans and land use ordinances. Accordingly, the Acting Executive Director recommends that the Commission issue an order to certify Ordinance 2021-10 of Tabernacle Township.

SRG/DBL/CTA
Attachments


Tabernacle Township Ordinance 2021-10
Pinelands Management Areas
Preservation Area District
Special Ag Production Area
Rural Development Area
Proposed Zoning Changes
Existing Zoning
Tabernacle Twp Lots
Executive Director's Report
Tabernacle Ordinance 2021-10
Exhibit A
2/25/2022
PA
SA
IR
IC
RD-1
Forked Neck Rd
Carranza Rd
Tuckerton Rd
IC District to IR District
IC District to PA District
IC District to IR District
Shamong Township
N
0
500
1,000
2,000
Feet
Southampton Township
70
72
Woodland Township
Tabernacle Township
206
Shamong Township
Washington Township

Executive Director's Report
Tabernacle Ordinance 2021-10
Exhibit B
2/25/2022

PINELANDS PRESERVATION ALLIANCE

Bishop Farmstead ◆ 17 Pemberton Road ◆ Southampton, NJ 08088
Phone: 609-859-8860 ◆ ppa@pinelandsalliance.org ◆ www.pinelandsalliance.org

February 11, 2022

Susan Grogan, Acting Executive Director
New Jersey Pinelands Commission
15 Springfield Rd
New Lisbon, NJ 08068

Re: Tabernacle Township Ordinance No. 2021-10

Dear Director Grogan,

I am writing on behalf of Pinelands Preservation Alliance with comments on ordinance 2021-10 adopted by Tabernacle Township, which enacted zoning changes and addressed solar facilities on the affected parcels. The ordinance as written is not in compliance with the Pinelands Comprehensive Management Plan (CMP).

The ordinance states that in the Preservation Area, a solar energy facility is permitted on a parcel previously used by a resource extraction operation if "[t]he facility shall be limited to those portions of the parcel comprised of previously mined areas **that have not subsequently been restored**" (emphasis added). By contrast, the CMP states that solar is only permitted "[o]n the parcel of a resource extraction operation, provided the facility is limited to those portions of the parcel comprised of previously mined areas **that are not under an obligation to be restored** pursuant to N.J.A.C. 7:50-6, Part VI" (emphasis added). These are two different standards that may be in conflict with one another, and the Tabernacle parcel in question is one of those examples.

As reported by the Pine Barrens Tribune[1], the current restoration obligations of the resource extraction facility have not been met. The Tabernacle Township engineer, Joseph Gray of CME Associates, confirmed that five remediation actions have not taken place, including "regrading of the pit and berms walls in accordance with approved plans (restore tire tracks; seed and stabilize berm walls), installing plantings (on berm walls) as shown on approved plans [from 2003], installing berm blocks as shown on approved plans (to prevent access from any additional roads that lead into the mine area), removing all facilities and equipment (a weigh station is said to be the lone remaining building), … as well as all unstable areas need to be stabilized."

If allowed to move forward, this ordinance would serve to not only waive the restoration requirement of the CMP for this particular entity with no further obligations, but also to financially reward the failure to meet those requirements by allowing the construction of a new, revenue-generating facility.

[1] https://pinebarrenstribune.com/zoning-changes-approved-that-allow-for-solar-project-at-gravel-pit-in-taber-p4528-165.htm?fbclid=IwAR3nntk5UdbNR9Q7KqPluWGz30x0WqcTZ1KfJooVYd5FOB21YsRSq67drT0

The sole motivator of this ordinance is clearly a proposed solar development by CS Energy, which has already submitted application materials to the Pinelands Commission. Zoning changes to benefit one particular non-conforming development are not appropriate, especially if those changes directly benefit and reward a landowner for their violation of Pinelands regulations. I urge the Commission to reject this ordinance.

Thank you for your consideration,



Rhyan Grech
Policy Advocate

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-__12____

TITLE: To Approve the Pinelands Commission's 2021 Annual Report

Commissioner ____Irick_____ moves and Commissioner ____Lohbauer_____ seconds the motion that:

WHEREAS, in September 2006, then Governor Corzine issued Executive Order #37; and

WHEREAS, Executive Order #37 called for the preparation and approval of a comprehensive report concerning the operations of each State authority; and

WHEREAS, the report shall set forth the significant actions of the Commission; and

WHEREAS, since the report is to be done on an annual basis and it includes much of the same information as the Commission's Annual Report, which is required by the Pinelands Protection Act, the two reports have been combined every year since 2007 as a cost savings measure to eliminate waste and promote efficiency as called for in Executive Order #37; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that the attached 2021 Annual Report be approved, submitted to the Governor's Authorities Unit and posted on the Commission's website.

Record of Commission Votes

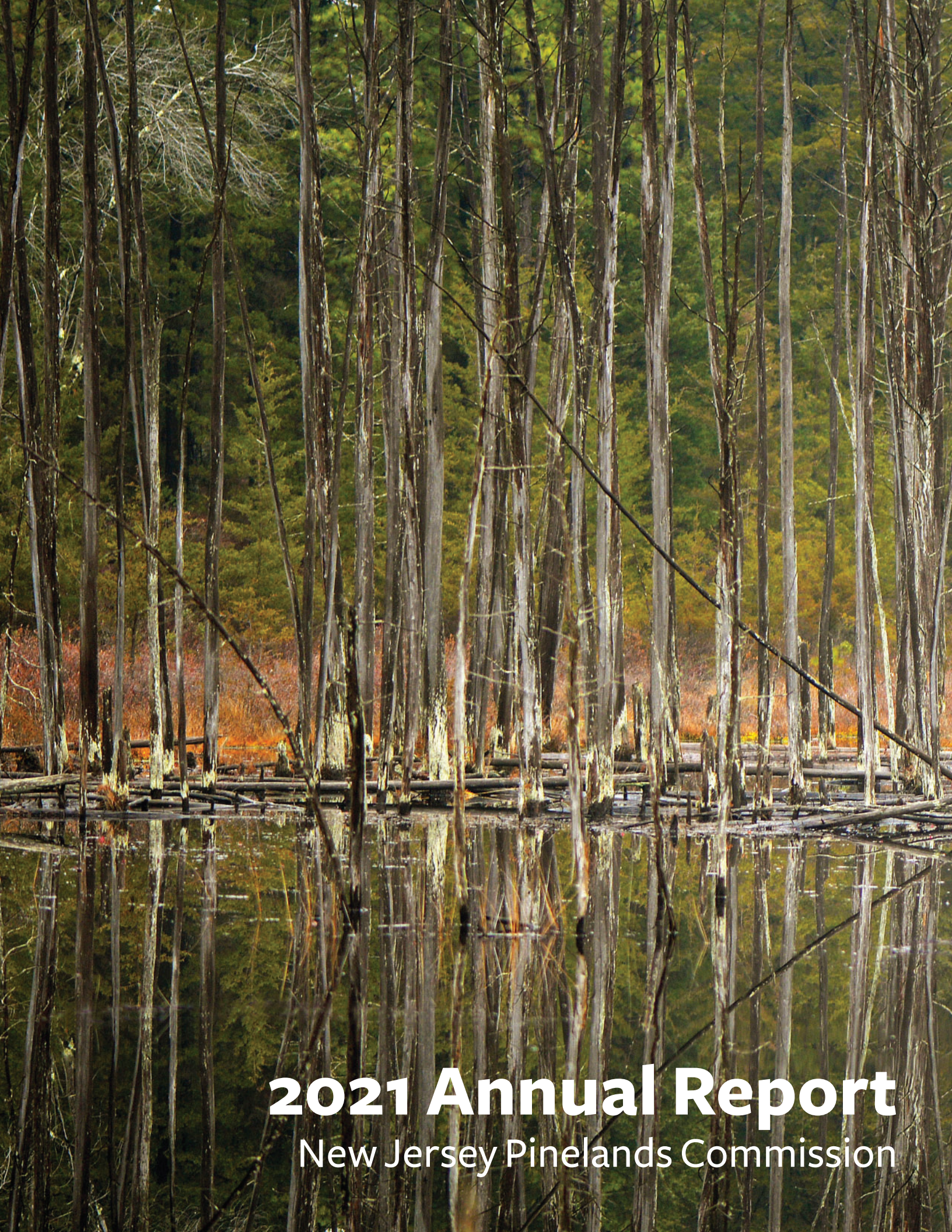
	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry				A					

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: __March 11, 2022____

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair



2021 Annual Report

New Jersey Pinelands Commission

Protecting the New Jersey Pinelands

The New Jersey Pinelands Commission is an independent state agency whose mission is to preserve, protect, and enhance the natural and cultural resources of the Pinelands National Reserve, and to encourage compatible economic and other human activities consistent with that purpose.

The Commission was created by the passage of the Pinelands Protection Act in 1979.



Above: The Pinelands is home to vast forests, farms and towns that cover portions of seven counties in southern New Jersey. Photo/Paul Leakan

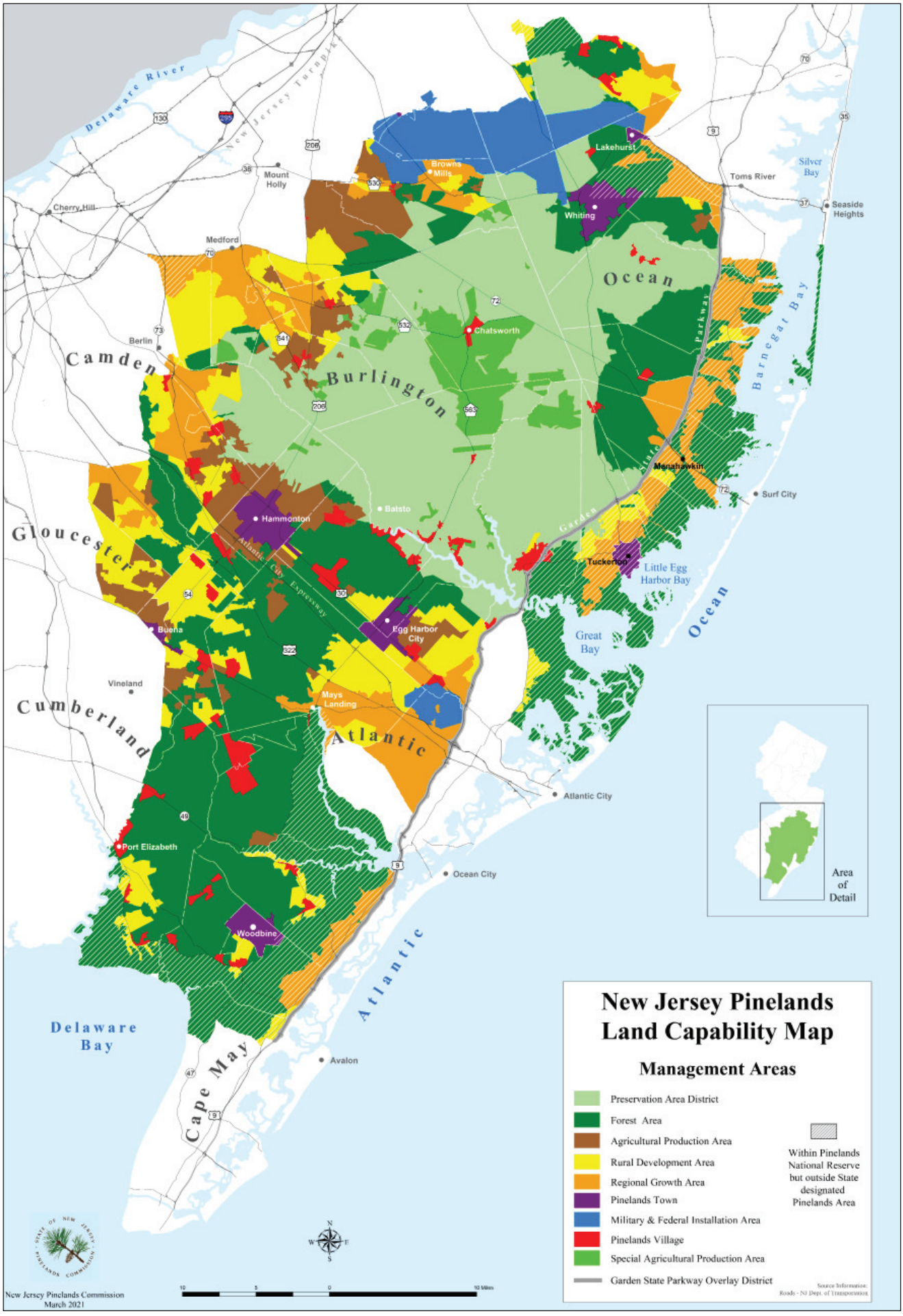
To accomplish its mission, the Commission implements a comprehensive plan that guides land use, development and natural resource protection programs in the 938,000-acre Pinelands Area of southern New Jersey. The Commission's 15-member board consists of state, county and federal appointees who volunteer their time and expertise. The panel meets monthly and receives guidance from its Executive Director and staff.

Commissioners:

Richard H. Prickett, Chairman
Alan W. Avery, Jr., Vice Chairman
Daniel Christy
D'Arcy Rohan Green
Shannon Higginbotham
Jordan P. Howell (January - August)
Jerome H. Irick
Jane Jannarone
Edward Lloyd
Mark S. Lohbauer
Jonathan Meade (December)
William Pikolycky
Gary Quinn

Susan R. Grogan, Acting Executive Director

Pinelands Commission
P.O. Box 359
New Lisbon, NJ 08064
Phone: (609) 894-7300
Fax: (609) 894-7330
Website: www.nj.gov/pinelands


New Jersey Pinelands
Land Capability Map
Management Areas
Preservation Area District
Forest Area
Agricultural Production Area
Rural Development Area
Regional Growth Area
Pinelands Town
Military & Federal Installation Area
Pinelands Village
Special Agricultural Production Area
Garden State Parkway Overlay District
Within Pinelands National Reserve but outside State designated Pinelands Area
Area of Detail
Delaware River
Delaware Bay
Atlantic
Ocean
Barnegat Bay
Camden
Burlington
Gloucester
Cumberland
Cape May
Ocean
Lakehurst
Browns Mills
Toms River
Silver Bay
Seaside Heights
Whiting
Medford
Mount Holly
Cherry Hill
Berlin
Chatsworth
Batsto
Hammonton
Tuckerton
Little Egg Harbor Bay
Great Bay
Surf City
Manahawkin
Egg Harbor City
Buena
Vineland
Mays Landing
Atlantic City
Port Elizabeth
Ocean City
Woodbine
Avalon
New Jersey Pinelands Commission
March 2021

Acting Executive Director's Message

The Pinelands Commission faced extraordinary challenges in 2021.

Our Executive Director, Nancy Wittenberg, passed away on June 24th. And there were the difficulties of continuing to undertake our complex and vital work amid the ongoing COVID-19 pandemic.

But the Commission and its staff rose to the occasion, thanks to equal parts dedication, perseverance and creativity.



Above: The sun rising above Wharton State Forest in the Pinelands Area, as photographed in November 2021. Photo/Paul Leakan

After following a hybrid remote schedule for several months, the staff returned to the office on a full-time basis in October. With our offices still closed to the public, we continued to harness the power of technology to accomplish all facets of our work. Development applications and municipal ordinances continue to be received and processed via e-mail. Staff also encouraged the public to use the interactive Pinelands map on our website to help guide development proposals. All of our meetings were held virtually, and we hosted 28 educational webinars and the first-ever, virtual Pinelands Short Course. We made full use of our social media sites, launching a new Twitter page and sharing numerous Instagram posts to raise awareness and appreciation for the Pinelands.

Our staff continued to conduct site visits for development proposals and complete the fieldwork necessary to gather data and carry out numerous scientific research projects.

The Commission also took important steps to better protect Pinelands resources and help address the impacts of climate change. In November, the Commission authorized the participation of four new advanced wastewater technologies in the agency's Alternate Design Treatment Systems Pilot Program. The program tests high-performance wastewater treatment systems that better protect the Pinelands environment by reducing the levels of nitrogen that enter groundwater. In December, the Commission adopted new rules that require the use of green infrastructure and other more stringent standards to manage stormwater. Meanwhile, the Pinelands Climate Committee met seven times in 2021, hosting presentations from a variety of experts and laying the foundation for future decisions aimed at mitigating climate change impacts.

Meanwhile, the Commission continued to administer the increasingly active Pinelands Development Credit Program and successfully garnered the National Scenic Byway designation for the Pine Barrens Byway.

In the midst of these challenges, we found time to celebrate the 40th anniversary of the Pinelands Comprehensive Management Plan.

I am proud of all that was accomplished in 2021, despite the challenges. I am also confident about our ability to continue to preserve, protect and enhance this special part of New Jersey.

Susan R. Grogan
Acting Executive Director

In Memoriam: Nancy Wittenberg and Jay Mounier

2021 was a difficult year for the Pinelands Commission, as the agency's mourned the passing of Executive Director Nancy Wittenberg and former Commissioner Jay Mounier.

Ms. Wittenberg passed away on June 24th, while Mr. Mounier died on November 24th.

"Nancy had a long and accomplished career in public service," said Commission Vice Chairman Alan W. Avery, Jr. "Her leadership and personal commitment as Executive Director have left the Commission and its staff in a strong position to continue the Commission's mission to protect and manage the Pinelands."



Above: Nancy Wittenberg, pictured on the right, had served as the Commission's Executive Director since January 3, 2011. She passed away on June 24, 2021. Photo/Paul Leakan

Ms. Wittenberg had served as the Commission's Executive Director since January 3, 2011. During her tenure, the Commission:

■ Completed an in-depth review of the Pinelands Comprehensive Management Plan (CMP), which contains the rules that govern land-use, development and the protection of resources in the Pinelands. This included the formation of a Plan Review Committee that gathered comments from the public and provided a forum for discussing measures aimed at strengthening the CMP. It also included the issuance of a 183-page report that includes recommendations for future changes to the Plan;

■ Adopted five sets of amendments to the Pinelands Comprehensive Management Plan;

■ Permanently preserved approximately 8,300 acres of land in the Pinelands by providing grants through the Commission's Pinelands Conservation Fund;

■ Formed several Committees to address important topics, such as climate change, agriculture and the agency's process to consider Memorandums of Agreement;

■ Undertook several initiatives aimed at curbing the damages wrought by illegal, off-road vehicle use, including the adoption of a resolution pertaining to roads for motor vehicle use in Wharton State Forest and helping to identify ponds that are vulnerable to damages and have been protected through the installation of wooden barriers;

■ Successfully completed a report that enabled the Pinelands National Reserve to maintain its status as an International Biosphere Region, as designated by United Nations Educational, Scientific and Cultural Organization (UNESCO);

■ Assumed the administration of the Pinelands Development Credit Bank, which is the processing agency for one of the oldest and most successful transfer of development rights programs in the world;

■ Completed and/or launched numerous scientific studies, including several ongoing research projects on rare snakes;

■ Installed, dedicated and opened the Candace McKee Ashmun Pinelands Education Exhibit, which features more than 400 square feet of displays that will be used to raise awareness and appreciation of the Pinelands for decades to come; and

■ Overhauled the agency's website so that is easier to navigate and to provide the public with far greater access to Commission documents, such as resolutions, meeting minutes, development application information, and links to livestreamed Commission meetings.

Mr. Mounier was a longtime resident of Franklin Township in Gloucester County, and he served as a gubernatorial appointee on the Commission from January 1995 to December 2002. He was a member of the Pinelands Agricultural Advisory Committee and served as its Chairman from 2000-2002. He was also a mainstay at Commission meetings for nearly two decades after his term as a Commissioner ended.

Mr. Mounier operated a hay and livestock farm in Franklinville. He previously served on the Franklin Township Environmental Commission and the Franklin Township Planning Board. Mr. Mounier also served as a Trustee and Treasurer of the South Jersey Land Trust, and he was a founding member of the South Jersey Astronomy Club and the Upper Maurice River Watershed Association. He was a hobbyist beekeeper and was the former President of the South Jersey Beekeepers Association. He held a degree in mechanical engineering from Lehigh University.



Above: The late John C. Stokes (left), who served as the Commission's Executive Director from April 2003 to January 2011, shakes hands with the late Jay Mounier.

Mr. Mounier's colleagues said he was a highly intelligent and effective voice for agriculture in the Pinelands.

"He was a true friend of agriculture and the Pinelands," said Paul E. Galletta, who served on the Pinelands Commission from 2007 to 2019. "He was deeply concerned with the protection of both. He was a personal friend and one of the smartest men I ever met in my life. He was almost encyclopedic with almost any topic you could recite. I believe not only the Pinelands and the agricultural community will miss him deeply, but a lot of friends also."

"I was most impressed over the years with his incredible intellect and patience to read the volume of material that we received (as Commissioners)," said Stephen V. Lee III, who served on the Commission from 1982 to 2010. "… I could always count on Jay for finding something in the record that might be worth raising a question (about) at a Commission meeting."

Celebrating 40 Years of the Pinelands Comprehensive Management Plan

The Pinelands Comprehensive Management Plan (or CMP) turned 40 on January 14, 2021, and the Commission marked the milestone by creating and sharing videos, informative social media posts and informative e-mails each day for more than three months.

The celebration kicked off with a "Roundtable Reflection" video that featured a discussion with Commission members and staff who wrote, adopted or implemented the CMP, which guides land-use, development and the protection of resources in the state Pinelands Area. The nine participants reflected on their experiences in writing the 500-page plan amid a daunting deadline and without the benefit of computers or mapping programs. The information campaign continued with individual video interviews of former Commissioners and staff. The video interviews have been archived on the Commission's YouTube Channel (https://www.youtube.com/channel/UCBgpC8sbR3Acrjo7ppxs3Uw).

Staff researched, wrote and shared 125 posts on the agency's Instagram site, Facebook page and through the agency's Pinelands News Alert e-mail mailing list on 60 consecutive workdays, along with 463 photos and 26 videos, as part of the celebration. The videos and the posts chart the history, purpose, implementation and success of the CMP, and they include spotlights on all nine Pinelands Management Areas, plant and animal species that benefit from Pinelands protection, the Pinelands Development Credit program, and the Pinelands Conservation Fund, as well as features on the work of the agency's Planning, Regulatory Programs, Science and Communications offices.

The information campaign concluded with a newly created, 40-minute video of various footage that staff has filmed in the Pinelands in recent years.



Above: Two former Commissioners and seven former Commission staff members who wrote the Pinelands CMP 40 years ago participated in a virtual "Roundtable Reflection" on the success of the plan as part of a months-long celebration.

Planning Activities

Amendments to the Pinelands Comprehensive Management Plan

In 2021, the Commission adopted new rules that will better protect Pinelands resources by requiring the use of green infrastructure and other more stringent standards to manage stormwater.

During its meeting of December 10, 2021, the Commission voted unanimously to adopt the amendments to the Pinelands CMP, the rules that govern land-use, development, and the protection of resources in the state Pinelands Area.

The amendments integrate and expand on stormwater management rules that were adopted by the New Jersey Department of Environmental Protection (NJDEP). The NJDEP's regulations took effect on March 2, 2020, and they focus on the use of green infrastructure to meet groundwater recharge and stormwater runoff quantity and quality standards.

Stormwater runoff is managed to reduce waterborne pollution from sources such as trash, nitrogen, phosphorus, bacterial pathogens and deicing salts, and to minimize local flooding.



Above: This rain garden that was installed at the Hammonton Lake Park is an example of a green infrastructure measure that will be required for minor development under the Commission's new rules. Photo/Paul Leakan

The Commission's new stormwater management rules follow the NJDEP's regulations in that they require green infrastructure to manage the stormwater close to the source, treat stormwater through infiltration into the subsoil, treat stormwater through filtration by vegetation or soil, and/or store stormwater runoff for reuse.

In order to provide enhanced protection to Pinelands resources, the Commission's new rules will, for the first time, require stormwater management for minor development. Minor residential development will be required to retain and infiltrate clean stormwater generated from the roof of a house by using green infrastructure measures, which include dry wells, pervious paving systems and small-scale bioretention systems such as a rain garden. Minor non-residential development will be required to treat, infiltrate and recharge stormwater generated from new motor vehicle surfaces of greater than 1,000 square feet in size.

Prior to the new rules, stormwater management in the Pinelands Area was generally required only for major development, defined in the CMP as any division of land into five or more lots; any construction or expansion of any housing development of five or more dwelling units; any construction or expansion of any commercial or industrial use or structure on a site of more than three acres; or any grading, clearing or disturbance of an area in excess of 5,000 square feet.

The new CMP amendments also include stricter standards for nitrogen removal for major development in the

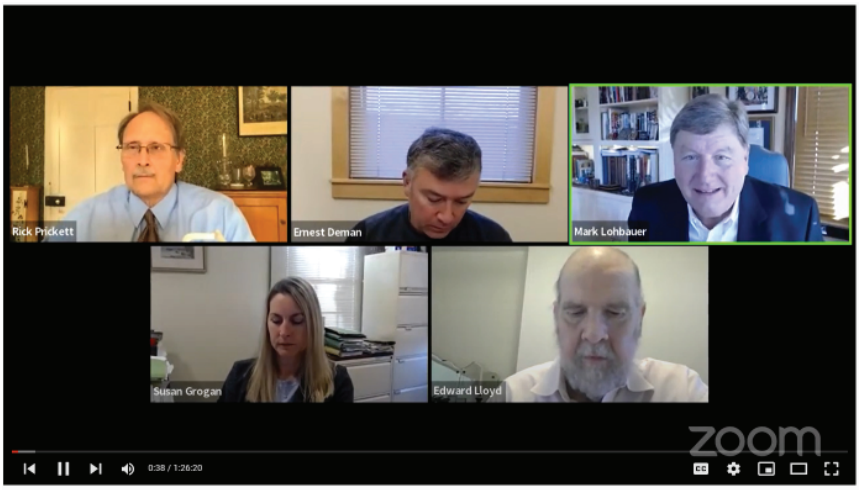
Pinelands. The new rules require all major development to implement stormwater management measures to achieve a minimum 65% reduction of total nitrogen loads in stormwater runoff. The Pinelands' ecosystem is particularly vulnerable to damages caused by elevated levels of nitrogen, including the proliferation of invasive plant and animal species that outcompete and displace native species that are adapted to low levels of nitrogen. Lastly, the new rules clarify standards for variances, exceptions, and mitigation.

The new regulations build on the significant improvements made by the NJDEP with respect to the use of green infrastructure and include additional measures that afford enhanced protection of Pinelands resources and address the impacts of climate change on stormwater runoff. The Commission's new rules will reduce the volume of stormwater runoff, lower the potential for localized flooding and help to maintain water levels in the Kirkwood-Cohansey aquifer, which underlies the Pinelands, provides fresh drinking water and supports the region's special ecosystem.

The new stormwater management rules took effect after they were published in the New Jersey Register on January 18, 2022. Pinelands municipalities have one year to incorporate the new rules into their own master plans and land use ordinances. In 2022, the Commission will draft and provide model ordinances to assist the municipalities with that effort.

Pinelands Climate Committee

In 2021, the Commission's Pinelands Climate Committee continued to discuss and chart the agency's future efforts to address climate change.



Pinelands Climate Committee Meeting -- December 1, 2021

The seven-member Committee has been discussing the potential effects of climate change in the Pinelands and considering measures to mitigate impacts since its formation in 2019. The Committee met seven times in 2021.

During its meeting in January, staff delivered a presentation on solar energy facilities, focusing on the New Jersey Board of Public Utilities (NJBPU) Community Solar Pilot Program, current Pinelands CMP standards, recent development applications and possible amendments for the Committee's consideration. Staff also provided an update on the NJDEP's ongoing NJPACT (Protecting Against Climate Threats) regulatory reform effort. Staff also displayed a series of maps prepared using NJ FloodMapper tools to show the potential impacts of sea level rise on the Pinelands Area.

The Committee hosted presentations on forest management during its March meeting. The presentations were delivered by Leslie Sauer, author, founder of Andropogon Associates and founding board member of the Northeast Region of the Society for Ecological Restoration, and John Cecil, Vice President for Stewardship, NJ Audubon Society.

During its meeting in May, the Committee received a brief update on the status of forestry-related bills that were pending in the State legislature. The Committee discussed potential amendments to the CMP's solar energy facility standards, focusing primarily on facilities located at existing landfills and resource extraction operations.

The Committee also discussed possible operational improvements that could be made at the Commission's offices.

In July, the Committee hosted a presentation on forest carbon and climate information. The presentation was delivered by Bernard Isaacson, Courtney Compton, Lauren Gazerwitz and Bill Zipse from the New Jersey Forest Service.

During its meeting in September, staff provided information on the Local Government Energy Audit program offered by the NJBPU. Staff also provided an update on the NJDEP's PACT (Protecting Against Climate Threats) and REAL (Resilient Environments and Landscapes) rulemaking initiatives.

During its December meeting, the Committee received updates from the staff about two FY2022 initiatives: the design and installation of a rain garden at the Commission's office and the submission of an application to the NJBPU for a local government energy audit of the agency's offices. Lastly, the Committee agreed to consider a resolution specifically addressing the goals of the New Jersey Global Warming Response Act, measures to avoid or minimize greenhouse gas emissions at the Commission's own offices and the future development of specific CMP standards.

Alternate Design Wastewater Treatment Systems Pilot Program

During its meeting on November 12, 2021, the Commission adopted a resolution that authorizes the participation of four new advanced wastewater technologies in the agency's Alternate Design Treatment Systems Pilot Program.

The Commission launched the Pilot Program in 2002 to test high-performance wastewater treatment systems that better protect the Pinelands environment by reducing the levels of nitrogen that enter groundwater.

Through the program, the Commission has evaluated numerous septic systems technologies and identified several that successfully meet Pinelands water quality standards for residential development on lots as small as one acre. To date, more than 422 Pilot Program systems have been installed to service single-family residential development in 28 Pinelands municipalities.

In 2020, the Commission adopted amendments to the CMP that extended the pilot program through 2025, authorized the use of one system technology, SeptiTech, for residential development on minimum one-acre parcels on a permanent basis, removed two systems from the program (one that has not been installed in the Pinelands and the other that has not met standards), and enabled the Commission to add additional technologies to the program by recruiting new NSF Standard 245 and/or USEPA ETV certified technologies to participate.

Under the resolution adopted by the Commission in November 2021, the Fuji Clean USA Residential CEN Series system, the Waterloo Biofilter Residential Model system and the Busse Innovative Systeme Model MF-B-400 system will be permitted to serve residential development on minimum one-acre parcels, and the Pugo system will be permitted to serve residential development on minimum 1.26-acre parcels.



Above: The housing development above was built with an alternate design wastewater treatment system in the Pinelands Area of Tabernacle Township. Photo/Paul Leakan

Pinelands Development Credit Program

The Pinelands Development Credit Program is a regional transfer of development rights program that preserves important agricultural and ecological land. Pinelands Development Credits (PDCs) are allocated by the Commission to landowners in the Preservation, Agricultural Production and Special Agricultural Production Areas, which are the sending areas. PDCs can be purchased by property owners and developers who are interested in developing land in Regional Growth Areas, which serve as the receiving areas.



Above: This 700-acre blueberry and cranberry farm in Tabernacle Township's Special Agricultural Production Area has been permanently preserved through the Pinelands Development Credit program. Photo/Paul Leakan

Once PDCs are "severed" from a sending area property, the property is permanently protected by a conservation or agricultural deed restriction and the PDCs allocated to that property can be sold on the private market.

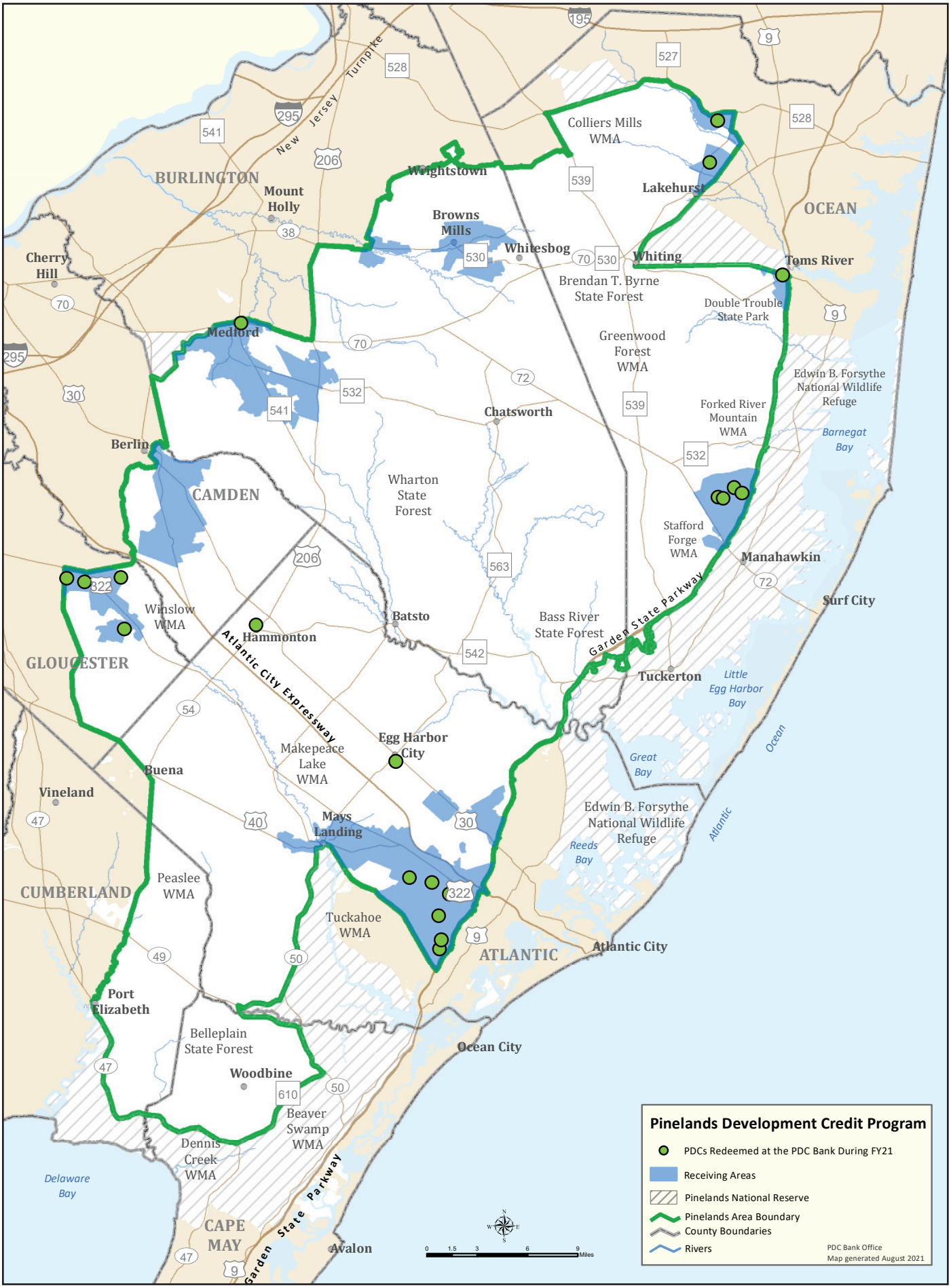
During 2021, 72.70 PDCs were allocated by the Commission to 36 sending area properties. A total of 53.00 PDCs were severed, protecting 1,705 acres of land in the Special Agricultural Production Area in Bass River Township and the Agricultural Production Area in Franklin and Monroe Townships. Since 1982, 57,147 acres in the Pinelands Area have been permanently preserved through the PDC Program.

In 2021, a total of 31.25 PDCs were sold, with an average sales price of $57,752 per PDC. This represents a significant increase ($13,000) over the average sales price in 2020. A total of 60.00 PDCs were redeemed for a wide variety of residential projects in Barnegat, Egg Harbor, Jackson, Medford, Monroe, Shamong and Stafford townships, the Town of Hammonton and the Borough of South Toms River during 2021.

Please see page 11 for a map that illustrates all PDC redemptions that occurred during Fiscal Year 2021.



Above: Prospective buyers can tour a model cottage at The Cottages at Compass Point, a development that will include 212 single-family detached homes and a 13,500-square-foot clubhouse in Barnegat Township's Regional Growth Area and required the use of 16 Pinelands Development Credits (or 64 rights). Photo/Paul Leakan


BURLINGTON
Mount Holly
Cherry Hill
Medford
Berlin
CAMDEN
GLOUCESTER
Winslow WMA
Hammonton
Atlantic City Expressway
Buena
Vineland
Makepeace Lake WMA
Egg Harbor City
Mays Landing
Peaslee WMA
CUMBERLAND
Tuckahoe WMA
Port Elizabeth
Belleplain State Forest
Woodbine
Dennis Creek WMA
Beaver Swamp WMA
Delaware Bay
CAPE MAY
Garden State Parkway
Avalon
Ocean City
ATLANTIC
Atlantic City
Wharton State Forest
Batsto
Chatsworth
Wrightstown
Browns Mills
Whitesbog
Colliers Mills WMA
Lakehurst
OCEAN
Toms River
Whiting
Brendan T. Byrne State Forest
Double Trouble State Park
Greenwood Forest WMA
Forked River Mountain WMA
Edwin B. Forsythe National Wildlife Refuge
Barnegat Bay
Stafford Forge WMA
Manahawkin
Surf City
Bass River State Forest
Tuckerton
Little Egg Harbor Bay
Great Bay
Ocean
Atlantic
Reeds Bay
Edwin B. Forsythe National Wildlife Refuge
New Jersey Turnpike
Garden State Parkway
Pinelands Development Credit Program
PDCs Redeemed at the PDC Bank During FY21
Receiving Areas
Pinelands National Reserve
Pinelands Area Boundary
County Boundaries
Rivers
PDC Bank Office
Map generated August 2021
0 1.5 3 6 9 Miles

Reviewing Municipal Ordinances

The master plans and land use ordinances of all Pinelands municipalities and counties must be consistent with the Pinelands CMP. Consistency is ensured through the conformance process, by which municipalities and counties submit their plans, ordinances and amendments to the Commission for review and certification.

The Commission received and reviewed 155 municipal master plan and ordinance amendments in 2021. The Commission continued to see a trend of municipalities adopting plans regulating land uses in areas deemed in need of redevelopment. The Commission received 18 ordinances either adopting or amending redevelopment plans in 2021. Several plans were adopted to facilitate the development of solar energy on closed landfills.

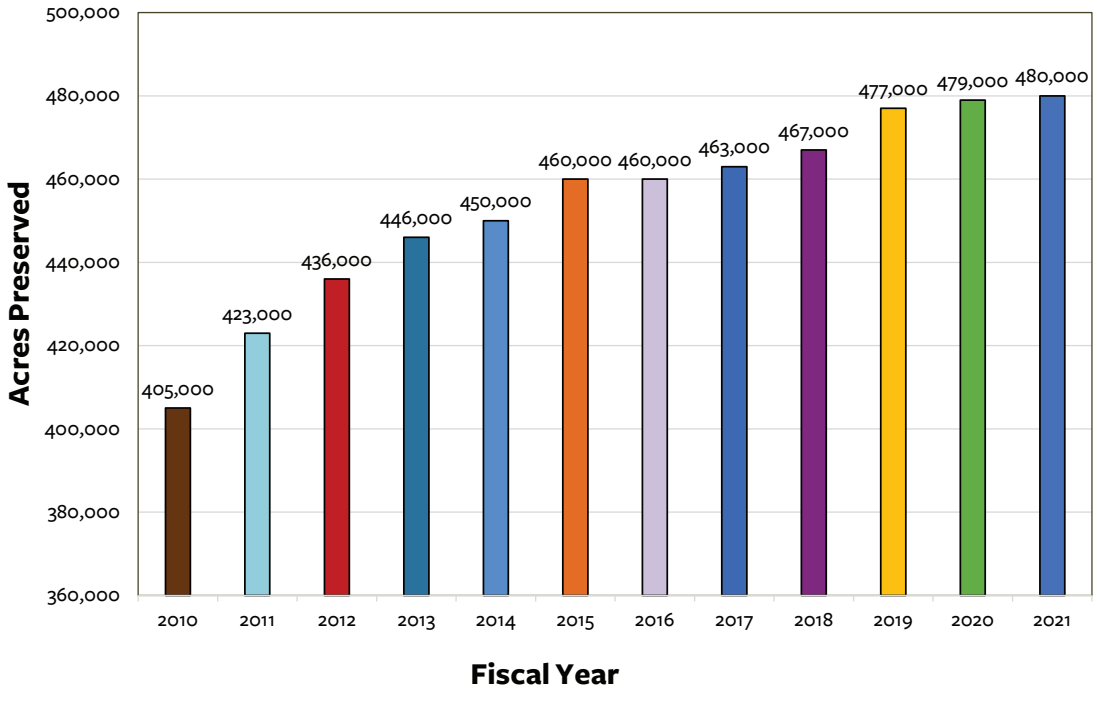
The Commission also received ordinances from nearly all of the 53 Pinelands municipalities regulating the various types of cannabis-related establishments.

Annual Update on Permanent Land Protection in the Pinelands

The Pinelands Commission's staff delivered its annual update on permanent land protection in the Pinelands on September 10, 2021.

A total of 1,529 acres of land were preserved in the Pinelands Area from June 2020 to June 2021. Of that total, 559 acres were preserved through the Pinelands Development Credit Program and an additional 111 acres were preserved through the development application process to meet various CMP standards.

As of June 2021, 51% (480,500 acres) of the state Pinelands Area has been permanently preserved through a variety of programs. Of that total, 94% of the land is located in Pinelands Management Areas that are designated for conservation, including the Preservation Area District, the Forest Area, the Special Agricultural Production Area, and the Agricultural Production Area.



Pine Barrens Byway Designated as a National Scenic Byway

The Pine Barrens Byway was officially designated as a National Scenic Byway in February 2021, thanks to the efforts of the Pinelands Commission.

The Commission is overseeing the administration of the 130-mile byway route, and it prepared the successful application to obtain the National Scenic Byway designation in June 2020.

A total of 63 nomination applications were submitted to the Federal Highways Administration in 2020, and 49 byways in 28 states were successful in receiving designations, including 34 National Scenic Byways and 15 All-American Roads, according to the U.S. Department of Transportation (U.S. DOT). The U.S. DOT took into account evidence of intrinsic quality(s), a demonstration of national or regional significance, the overall visitors' experience, and a demonstration of long-term sustainability.

The Pine Barrens Byway traverses roadways in Atlantic, Burlington, Cape May, Cumberland and Ocean counties, offering a diverse route punctuated by picturesque parks, serene rivers and quaint towns. It is one of eight state-designated scenic byways in New Jersey, and it meanders through Bass River Township, Corbin City, Dennis Township, Egg Harbor City, Estell Manor City, Galloway Township, Hamilton Township, Little Egg Harbor Township, Maurice River Township, Mullica Township, Port Republic City, Tuckerton Borough, Upper Township, Washington Township (Burlington County), Weymouth Township and Woodbine Borough. It was designated as a State Scenic Byway in 2005.

The National Scenic Byway designation bestows prestige and national and international recognition to the area, and it enhances efforts to preserve the Pinelands by increasing awareness and encouraging the stewardship of the region's resources. The national designation could also provide an economic boost to local Pinelands communities through increased tourism and federal funding for projects that promote the Byway.



Above: The Eldora Nature Preserve in Cumberland County is one of many natural, scenic destinations located along the Pine Barrens Byway. Photo/Paul Leakan

In addition to submitting the successful application to the Federal Highways Administration, the Commission has completed numerous projects that raise awareness of the Pine Barrens Byway. In 2020, the Commission created, printed and distributed 650 copies of a 2021 Pine Barrens Byway-themed wall calendar that features 38 photos of various locations along the Byway route. In 2021, the Commission began overseeing a new Byway webpage that was created by consultants hired by the New Jersey Department of Transportation. The Commission also helped to develop and then printed and distributed thousands of copies of two new brochures that will also help to heighten awareness and generate more interest in the Byway. The brochures are available at various locations along the Byway.

The Commission's work on the Byway was funded by the National Park Service through the Long Term Economic Monitoring Program.

Regulatory Activities

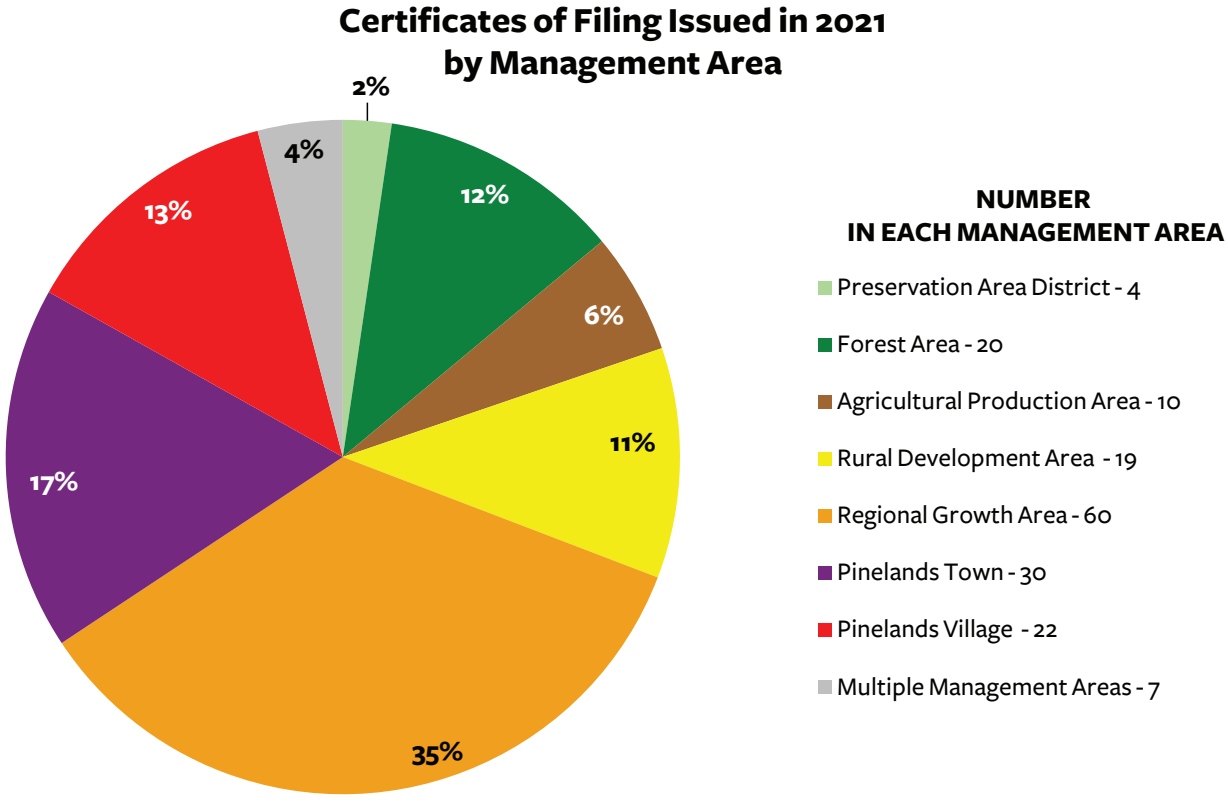
Applications

The Pinelands Commission reviews applications for development by evaluating proposals to ensure that they meet the regulations contained in the Pinelands Comprehensive Management Plan (CMP).

Development proposals must meet a series of environmental standards, including those that protect water quality, wetlands and threatened and endangered species.

The Commission's development approval process varies, depending on whether the application is submitted by a public agency or a private landowner. The Commission's staff reviews private development proposals, such as single-family dwellings, subdivisions and commercial projects. After applicants provide all of the necessary information, the Commission issues a Certificate of Filing (or CF) that allows applicants to seek all municipal and county approvals for the proposed development.

The Commission issued 172 Certificates of Filing (CFs) in 2021, most of which (60) were for proposed development in Regional Growth Areas (as shown in the chart below). There are 24 municipalities with Regional Growth Areas, or RGAs, in the 938,000-acre state Pinelands Area. RGAs make up 8% of the land in the Pinelands Area, and they are generally located on the fringes of the Pinelands boundary. The RGAs include areas of existing development and adjacent lands that have the infrastructure such as sewers, roads and other utilities needed to accommodate new development while protecting the essential character and environment of the Pinelands. The Pinelands Comprehensive Management Plan encourages future growth in the RGAs as a way to prevent scattered and piecemeal development in other more sensitive portions of the Pinelands Area.

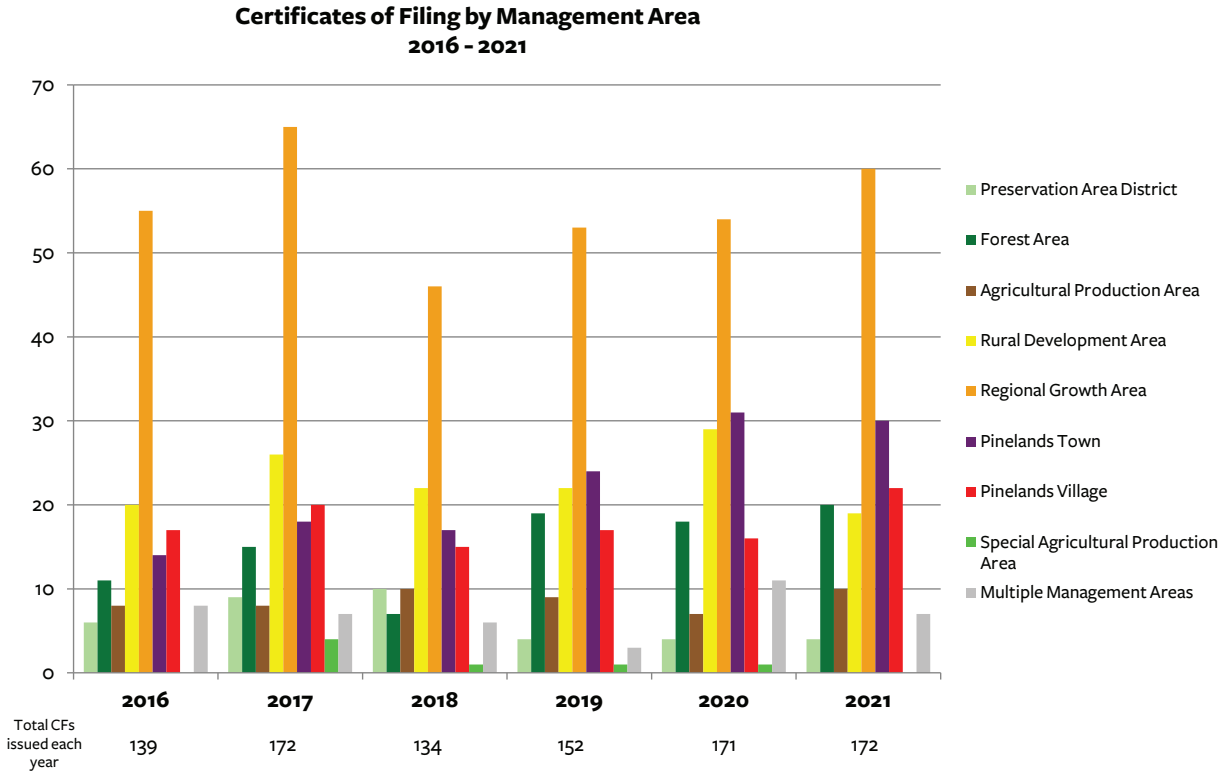


Of the 172 CFs that were issued in 2021, most involved proposals for residential development, followed by commercial development (as shown in the table below).

Certificates of Filing Issued in 2021 by Management Area and Type of Development

Management Areas	Commercial	Infrastructure	Institutional	Recreation	Residential	Resource Extraction	**Total**
Agricultural Production Area	3				7		**10**
Forest Area	4	1	2	1	11	1	**20**
Multiple Management Areas	3	2			1	1	**7**
Pinelands Town	7				23		**30**
Pinelands Village	3		1		18		**22**
Preservation Area District		1			1	2	**4**
Regional Growth Area	17	1			42		**60**
Rural Development Area	4	1			9	5	**19**
Totals	**41**	**6**	**3**	**1**	**112**	**9**	**172**

The Commission issued similar numbers of CFs from 2016 to 2021, with the majority of the proposals for development located in RGAs (as shown on the bar graph below).



The Pinelands Commission is also responsible for reviewing and approving development applications that are submitted by public entities, such as a municipality, county or a State agency. The full, 15-member Commission

votes on whether to approve these applications during its monthly meetings. The Commission approved a total of 21 applications for public development in 2021. Examples included the installation of a 10,800-square-foot geothermal well field for the heating and cooling of the Batsto Visitors Center and the installation of 5.35 acres of ground-mounted solar energy facilities at the Hammonton High School and Hammonton Early Childhood Center.

Recreation Permits

In 2021, the Commission issued seven Recreation Permits for organized, off-road vehicle events in the Pinelands. In order to receive a Recreation Permit, groups must submit a completed "Off-Road Vehicle Event Application" for each proposed event. In addition to the application form, the group must submit the course route in electronic format, an application review fee, proof of insurance, property owner permission and proof that the township and New Jersey State Police have been notified. Commission staff reviews the course route to determine if there are any issues with wetlands, threatened and endangered species, deed-restricted land and private and public ownership. Any portions of the route that have potential issues are site inspected by a member of the Commission's staff. If any route changes are necessary, a revised route is required and must again be submitted for review.

Development Application Trends in 2021

The Commission saw increased interest and activity in three new types of development proposals in 2021: cannabis-related facilities, community solar facilities on existing landfills and large warehouses.

On February 22, 2021, the New Jersey Cannabis Regulatory, Enforcement Assistance, and Marketplace Modernization Act (P.L. 2021, c. 16) was signed into law by Governor Murphy. The law legalizes the sale and use of cannabis and cannabis-related products for recreational use by adults in the State.

The law provides municipalities with the option to enact ordinances to govern the number, type and operations of cannabis businesses within their borders. The law also permitted municipalities to adopt ordinances prohibiting the establishment of certain classes of cannabis businesses, provided such ordinances were adopted prior to August 21, 2021. For those municipalities located within the Pinelands Area, such ordinances must also be in conformance with the Pinelands CMP and certified by the Commission before they may go into effect.

In response to this law, the Commission received numerous inquiries regarding cannabis-related cultivation, processing/manufacturing, sale and distribution for both recreational and medical cannabis uses. Two development applications were submitted for cannabis related facilities: a cannabis cultivation/processing facility in Winslow Township and a medical cannabis dispensary facility in Hamilton Township.

In addition to numerous phone calls, the Commission received written inquiries or application material on 27 different solar projects in 2021. Most likely in response to the New Jersey Board of Public Utilities (NJBPU) Community Solar Energy Pilot Program, the Commission received several joint proposals from municipalities and solar energy providers to formally close existing landfills and install solar energy facilities on the closed landfills. In 2021, the Commission received six proposals for the development of solar energy facilities as a principal use in conjunction with the proposed closure of existing landfills. Of those six proposals, one application was completed in the Borough of Woodbine.

Lastly, 2021 saw increased interest in the siting and development of large warehouses in the Pinelands Area. The Commission received numerous inquiries and new applications in 2021 for warehouses ranging in size from 50,000 square feet to over 1,000,000 square feet.

Science & Research Activities

Long-term Environmental Monitoring Program

Snake Fungal Disease: In 2018, Commission scientists began collaborating with Dr. Joanna Burger and her colleagues at Rutgers University, Robert Zappalorti of Herpetological Associates, and Dr. Jeffrey Lorch of the United States Geological Survey (USGS) to conduct research on snake fungal disease in the Pinelands. Snake fungal disease is an emerging disease found in populations of captive and wild snakes and has been found to infect snakes in North America, parts of Europe, and Australia. Laboratory analyses have demonstrated that the fungus *Ophidiomyces ophiodiicola* is consistently associated with snake fungal disease, but often additional fungi are also found. Although snakes can show signs of fungal disease just after spring emergence from hibernation, it was previously unknown if *O. ophiodiicola* was present inside the hibernacula.



Above: The soft and crusty brown blotches on this northern pine snake indicate potential snake fungal disease infection. Photo/John Bunnell

Dr. Burger and Mr. Zappalorti have been excavating a group of northern pine snake hibernacula, or winter dens, annually for the past 35 years. Their long-term study provides a unique opportunity to sample inside snake dens to determine if the fungus is present in the soil or on the hibernating snakes. Excavating the dens during hibernation also allows the sampling of a number of individual snakes from a population at one time. A passive integrated transponder (PIT) tag is inserted into each new snake found during the excavations. A PIT tag is a tiny, glass-coated microchip commonly used in wildlife research that allows for the permanent identification of an animal through the use of a special scanner that reads the unique tag number.

To determine if *O. ophiodiicola* was present in the dens or on hibernating snakes, initial sampling was completed in 2018 during den excavations at three locations. Because the initial sampling indicated that *O. ophiodiicola* was present on snakes and in the soil inside the dens, in 2019, a second round of sampling was completed on hibernating snakes at all four of Dr. Burger and Mr. Zappalorti's study sites. A total of 35 pine snakes, one corn snake, one black racer, and one timber rattlesnake were found during the excavations. Each snake was swabbed for the fungus on the head, belly, vent, and on visible body sores. Preliminary results show that the fungus was present on the visible body sores much more than the other body locations sampled. During the winter of 2020, all snakes found during the den excavations were swabbed to determine the best method and body location to sample a snake for the presence of the fungus and to document changes in fungal infection for individual snakes over time. In 2021, all hibernating snakes were swabbed again to document changes in fungal infection for individual snakes over time and investigate changes in snake fungal disease among dens. Results assessing the presence of *O. ophiodiicola* in dens versus adjacent soils and examining factors associated with the growth of the fungus, were recently published in the Journal of Fungi (Campbell, L.J.; Burger, J.; Zappalorti, R.T.; Bunnell, J.F.; Winzeler, M.E.; Taylor, D.R.; Lorch, J.M. Soil reservoir dynamics of *Ophidiomyces ophidiicola*, the causative agent of snake fungal disease. Journal of Fungi 2021, 7, 461).

Rare Snake Population Monitoring: Aside from the long-term artificial den excavations mentioned in the Snake Fungal Disease Monitoring component, no long-term data exist to assess rare snake population trends in the Pinelands. Therefore, we are establishing a network of natural snake dens, shed areas, and nest sites to monitor long-term population changes in several species of rare snakes. As part of ongoing snake studies,

numerous winter dens have been identified for corn snakes and kingsnakes. The goal is to identify more natural pine snake dens and natural dens for other rare snake species. Beginning in 2018, corrals were built around most dens to capture snakes as they enter hibernation in the fall and emerge from hibernation in the spring. The den corrals offer an effective non-invasive method to census snakes each fall and spring without physically disturbing dens or hibernating snakes.

In 2021, additional corn snake and pine snake dens were corralled prior to snake emergence in spring. A total of 24 corn snakes and nine pine snakes were radiotracked during the field season to find new dens, shed sites, and nest areas. Potential dens observed by tracking these snakes will be corralled during the winter of 2021-2022 and productive dens will be incorporated into the monitoring program. Over the course of the year, 314 new and previously PIT tagged snakes were found. These include 181 corn snakes, 75 pine snakes, 41 kingsnakes, 40 black racers, and 25 snakes of several other species (garter snakes, scarlet snakes, hognose snakes, rough green snakes, and timber rattlesnakes). In addition to the new and previously PIT tagged snakes, 96 corn snakes, 49 pine snakes, and 16 kingsnakes were hatched in the lab from eggs collected from gravid females and these hatchlings were also tagged and released.

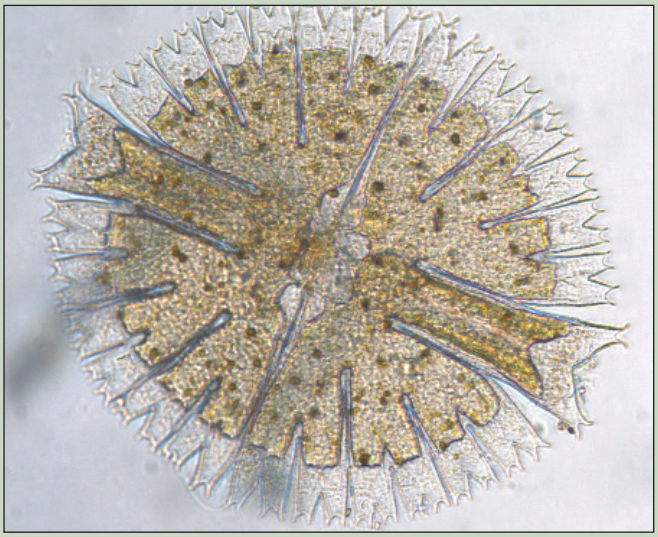
Other 2021 environmental monitoring activities included surveying calling frogs and toads at a group of ponds that are surveyed annually, measuring bimonthly water quality at 47 stream sites, recording monthly water levels at 35 forest plots and 30 ponds, and maintaining continuous water-level recorders installed in seven other ponds and in a shallow observation well installed within a pine lowland forest.

Long-term environmental monitoring research is being funded by the National Park Service.

Microorganism Study

In 2017, the Commission was awarded funding to study the effects of land use on water quality and microorganisms in 60 natural ponds, excavated ponds, and stormwater basin study sites. The goals of the Microorganism Study are to assess the relationship between surrounding land use and various water-quality and biological attributes and to compare the plants and animals from these natural and created wetlands. Over a three-year period, from 2018 to 2020, field work was conducted at the 60 wetlands. Commission scientists and collaborators with the N.J. Department of Environmental Protection (NJDEP) and USGS sampled surface water for nutrients, metals, pesticides, and chlorophyll-a (an indirect measure of algal plant growth) and collected samples of diatoms (single-celled algae), phytoplankton (free-floating algae in the water), zooplankton (tiny animals that swim or drift in the water), and benthic macroinvertebrates (primarily aquatic larval insects).

In 2021, taxonomic consultants completed processing and identifying zooplankton, algae, diatoms, and macroinvertebrates that were collected from the study sites. Project scientists assembled the biological and water quality data collected from the 60 wetlands and began analyzing the data and preparing a final report.



Above: Micrasterias rotata is one of 162 free-floating algae species that were collected at 60 wetland sites during the study. Photo/EcoAnalysts, Inc.

Endocrine Disruption Study

The William Penn Foundation is funding scientific research in the Delaware River Watershed through the Delaware Watershed Research Fund, which is administered by The Academy of Natural Sciences. The Kirkwood-Cohansey aquifer, which underlies the Pinelands, was identified as one of the research areas eligible for funding. Commission scientists and USGS scientists Kelly Smalling, Dr. Vicki Blazer, and Heather Walsh proposed a study to investigate point and non-point sources of endocrine disrupting chemicals and the potential impacts on fish and frogs in the Pinelands. The study was awarded funding in 2016.



Above: Non-native black crappie was one of the fish species sampled for evidence of endocrine disrupting chemicals at lakes upstream and downstream of a sewage treatment plant.

Photo/ John Bunnell

The endocrine system is a collection of tissues in animals that produce hormones to regulate essential life processes, such as metabolism, tissue function, reproduction, and development. A large group of natural and synthetic chemicals are known to disrupt endocrine function. Examples include plant hormones, plastic components, flame retardants, surfactants, fragrances, and pesticides. Endocrine disrupting chemicals, or EDCs, are a global environmental problem and have been linked to reproductive and developmental abnormalities in a variety of animal species, especially fish and amphibians.

Commission and USGS scientists proposed to sample water chemistry and fish above and below municipal wastewater treatment plants, which represent direct point sources of EDCs, and water chemistry and frogs at ponds and stormwater basins, which may receive indirect non-point sources of EDCs from runoff and the aquifer. Results from these sites will be compared to those from appropriate minimally impacted reference sites.

In 2017, 2018, and 2019, green frogs were collected from ponds and stormwater basins for histological analysis and water chemistry was sampled at the sites on multiple occasions. In 2019 and 2020, fish were collected from stream sites above and below sewage treatment plants for histological analysis by USGS scientists. Although field work for the project was completed in 2020, factors related to the pandemic caused significant delays in laboratory processing. In 2021, data collected in the study were published by the U.S. Geological Survey (Breitmeyer, S.E., Walsh, H.L., Smalling, K.L., Blazer, V.S., Boetsma, A.C., Carper, L.G., Cohl, J.A., Dietze, J.E., Iwanowicz, L.R., Lane, R.F., Raines, C.D., Schreiner, M.L., Tush, D.L., Wilson, M.C., Sperry, A.J., Bunnell, J.F., Burritt, P.M., and Dragon, J., 2021, Organic and inorganic constituents in surface water and native and non-native fish and frog health data collected from streams, impoundments and wetlands in the New Jersey Pinelands, 2017-2020: U.S. Geological Survey data release, https://doi.org/10.5066/P93VW8GX). These data are being analyzed and a manuscript is being prepared for potential publication in 2022.

The study is being funded by a grant from the Delaware Watershed Research Fund, a match by the Pinelands Commission, and a match by the USGS.

Joint Corn Snake Radio Tracking and Drift Fence Study

In 2017, Commission scientists began to collaborate with Dr. Howard Reinert of The College of New Jersey (TCNJ), Mr. Robert Zappalorti of Herpetological Associates, and the NJDEP Endangered and Nongame Species Program staff to conduct an intensive research project on the corn snake in the Pinelands. The corn snake is a colorful, secretive species of rat snake that reaches the northern limit of its range in the New Jersey Pinelands. Also called the red rat snake, the corn snake is listed as an endangered species by the NJDEP. The goals of the corn snake research is to better understand the habitat requirements and life history of this secretive serpent to develop meaningful conservation management programs for the species and ensure its continued survival in the Pinelands.

The research includes two components: radio-telemetry and headstarting, which is a conservation technique where vulnerable, young animals are raised in captivity until they attain a larger size and then released into the wild. For the telemetry aspect, researchers surgically implant small radio-transmitters in adult corn snakes and locate the snakes on a regular basis to collect data on their activity range; types of habitats used; and the locations for nesting, shedding, and hibernation. In 2019, scientists completed radio tracking of 29 corn snakes, which concluded the telemetry component of the study. Corn snake telemetry data will be analyzed by research collaborators at TCNJ.

For the headstarting component of the study, researchers collect corn snake eggs from nest areas and transport them to a laboratory for incubation and hatching. All of the hatchlings are microchipped and one-half of them are released back to the primary nest area as cold released snakes. The other group of hatchlings are kept in the laboratory over the winter and released the following spring as headstarted snakes. The goal is to recapture as many of these snakes as possible to assess growth and survivorship of the cold released and headstarted hatchlings over time. While in the laboratory, hatchlings are fed, weighed, and measured to determine the efficiency of assimilating food and their growth rates. Researchers are also conducting experiments on the laboratory hatchlings to understand their preferences for temperature, the amount of vegetation canopy cover, and whether they prefer to lay on sand, soil, leaf litter, or pine needles.



Above: A clutch of eggs surrounds a newly hatched corn snake. Growth and survivorship of hatchlings will be assessed in this study.

Photo/John Bunnell

In 2019, 28 headstarted corn snakes from 2018 and 11 newly hatched corn snakes from 2019 were released at the primary nest area. Twenty-two newly hatched corn snakes were selected to be held over the winter to be released the following year. In the spring of 2020, these held over snakes were released at the nest area Additionally in 2020, a total of 22 corn snakes were hatched out in the lab and cold released during the hatching season. In 2021, 24 corn snakes from three clutches were hatched out in the lab and cold released at the primary

nest area.

A drift fence was established at the primary nest area to help recapture corn snake hatchlings to assess the survival of headstarted and cold released hatchlings and to compare the effectiveness of using a drift fence outfitted with box traps and artificial cover to detect corn snakes and other species of snakes. In 2019, a total of 1,994 animals were found along the drift fence, under the artificial cover, or in the box traps. Thirteen species of snakes were captured, including 19 corn snakes. In 2020, the fence, cover, and traps yielded a total of 2,047 animals. Eleven species of snakes were captured, including 12 corn snakes. For 2019 and 2020 combined, the drift fence and trap array captured two headstarted and three cold released corn snakes. In 2020, to assess whether corn snakes were able to maneuver around the drift fence without getting caught, four corn snakes were radio tracked in the immediate vicinity of the fence. Twice these snakes moved from one side of the fence to the other without getting captured in the box traps, suggesting that adult corn snakes can climb over the fence.

In 2021, 14 pitfall traps were installed to provide an additional method of capturing animals at the drift fence. A total of 2,111 animals were found along the drift fence, under the artificial cover, in the box traps, or in the pitfall traps. Eleven species of snakes were found, including 14 corn snakes. Two of these corn snake recaptures were cold released snakes from 2016 and 2017. Four of the corn snakes were captured in the newly installed pitfall traps. Two other cold released corn snakes from 2016 were recaptured in two different study areas approximately 1.5 miles from the nest site where they were released.

This Joint Corn Snake Study is being funded by the Pinelands Commission and the NJDEP.

Eastern Kingsnake Study

In 2019, the Commission was awarded funding for a grant proposal, titled "Activity range, habitat use, shedding, denning, and nesting of the wetland-dependent eastern kingsnake." The eastern kingsnake is listed as a species of special concern in New Jersey because it is vulnerable to multiple threats, is potentially declining, and its distribution and population status are not known. Although kingsnakes are a wetland-dependent species that use wetlands for overwintering, the specific wetland habitat types needed for hibernation and the amount and type of associated upland habitats used for foraging, shedding, and nesting have not been documented.



Above: A four-year study will focus on the wetland-dependent eastern kingsnake. Photo/ John Bunnell

Commission scientists are collaborating with Mr. Robert Zappalorti of Herpetological Associates and Dr. Howard Reinert of The College of New Jersey on this four-year study. Scientists are using radio telemetry to determine the activity range; upland and wetland habitat use; and timing of shedding, denning, and potentially nesting of the eastern kingsnake. In anticipation of obtaining funding and to ensure an adequate number of snakes to track if funding was secured, radio transmitters were surgically implanted in 13 kingsnakes in 2019. Although one kingsnake was killed by a predator, the remaining 12 snakes were tracked to their winter dens.

In 2020, 18 of 24 newly found kingsnakes were radio tracked in addition to the individuals that were tracked in 2019. Seven radio tracked kingsnakes died in 2020, either from predation or unknown causes. Another kingsnake was lost due to suspected transmitter failure. The remaining snakes were tracked to winter dens in the fall of 2020. In 2021, 20 kingsnakes were radio tracked through the end of the season to their winter dens. Nine other radio tracked kingsnakes died in 2021 from predation or were lost to other causes.

This research is being funded by a grant from the U.S. EPA and a match by the Commission through the Pinelands Conservation Fund.

Corn Snake and Kingsnake Genetics Research

Previous genetics research by Drs. Lauretta Bushar and Howard Reinert showed that timber rattlesnake populations in the Pinelands are geographically and genetically isolated from all other populations of rattlesnakes, and that paved roads in the region provided significant barriers to gene flow among Pinelands timber rattlesnakes. No work has been done on the population genetics of corn snakes or eastern kingsnakes. These two species are members of the Lampropeltini tribe, which includes pine snakes and gopher snakes, kingsnakes and milk snakes, corn snakes and other rat snakes, and other similar species.

In 2019, Drs. Bushar and Reinert began using published genetic information on related species to develop genetic markers for corn snakes and kingsnakes. In 2020, Arcadia University, the NJDEP Endangered and Nongame Species Program, and the Commission began to collaborate on this genetic research. Snakes collected during other Pinelands snake research as well as additional snakes found dead on roads from around the Pinelands may provide enough individuals to assess levels of genetic variation, population substructure, and the effect of roads on gene flow for corn snakes and kingsnakes in the Pinelands.

In 2021, blood samples collected during previous years were analyzed. For kingsnakes, eight microsatellite loci (i.e., genetic markers) useful for population genetic analysis were identified and used to analyze samples from 30 kingsnakes. Preliminary analysis indicated that Pinelands kingsnakes displayed a similar amount of genetic variation as two populations of California kingsnakes. The genetic markers developed from available published literature could be improved upon so future kingsnake genetics research should include identifying better genetic markers.

For corn snakes, 12 microsatellite loci useful for population genetic analysis were identified and used to analyze 51 snakes, including 38 from Wharton State Forest, eight from Berkeley, and the remaining from other Pinelands areas. The Wharton State Forest population appears to be a healthy interbreeding population with no obvious population substructure. This indicates adequate genetic mixing and no isolation of the Wharton population clusters. This agrees with our Joint Corn Snake research described above where two hatchlings dispersed about 1.5 miles from their nest area and were found in different study areas. When compared to the Wharton population, the Berkeley population showed strong evidence of isolation by distance. The Berkeley population is located approximately 20 miles away from the Wharton population.

In 2021, blood samples from additional kingsnakes and corn snakes in our study areas and surrounding areas continued to be collected to increase the sample size for a more robust future analysis.

This research is being funded by Arcadia University, the NJDEP Endangered and Nongame Species Program, and the Commission through the Pinelands Conservation Fund.

Ground Skink eDNA Study

In 2020, the Commission began to collaborate with Dr. Julie Lockwood and Kathleen Kyle of Rutgers

University. Dr. Lockwood and Ms. Kyle were interested in sampling the wood and metal cover placed along the drift fence array (see Drift Fence Study above) to determine whether they could detect environmental DNA of a small, common lizard called the ground skink. Environmental DNA (eDNA) is nuclear or mitochondrial deoxyribonucleic acid (DNA) shed by organisms into their surroundings as they move, grow, breed, and decompose. Compared to terrestrial habitats, the use of eDNA is more advanced in aquatic habitats because of the ease of drawing water from the habitat through a filter and analyzing the filter for eDNA. Detection of eDNA from dry surfaces and soil is a new field of research. The use of eDNA has the potential to revolutionize traditional survey and monitoring programs that rely on visual detection by an observer, especially for secretive or rare species, such as many species of reptiles.

In late-2020 and early 2021, Ms. Kyle sampled the underside of the wood and metal cover we placed along the drift fence array and the soil beneath the artificial cover and analyzed her samples for ground skink eDNA. The results indicated that detection probabilities were 4 – 16 times greater than visual detection. Ground skink eDNA was detected under cover objects up to two weeks after the last visual detection and at some cover objects where skinks had not been visually observed in prior months. These results suggest that combining eDNA with traditional cover object surveys can greatly increase the power of detecting reptiles during surveys.

The ground skink research was funded by Rutgers University and the Commission through the Pinelands Conservation Fund. Funding is currently being pursued to test eDNA methods for the corn snake, which is an endangered species that is often ignored during most surveys conducted for Pinelands development applications.

Eastern Box Turtle Study

In this new initiative, the Commission received a 2021 scientific collecting permit from the NJDEP to begin to capture, weigh, measure, mark, and radio-track eastern box turtles. The eastern box turtle is listed by the NJDEP as a species of special concern because it is vulnerable to multiple threats, its distribution and population status in the state are not well understood, and it is potentially declining throughout its range. One goal of this research on box turtles is to gather data on turtle behavior, habitat use, movement, and use of nest sites and hibernacula in the Pinelands. Another goal is to monitor turtles in burned and unburned areas to better understand the relationship between turtles and prescribed fire. Over the course of 2021, a total of 25 box turtles were captured and processed and 20 of these were outfitted with external transmitters and radio-tracked about once each week. One of these radio-tracked turtles was lost to unknown causes and another was killed by an automobile. The remaining 18 were tracked to their winter hibernation areas.



Above: A colorful male box turtle found in the fall that is currently being radio tracked as part of the study. Photo/ John Bunnell

Public Information, Education & Outreach

Raising Awareness, Fostering Stewardship

The COVID-19 pandemic continued to pose challenges for the Commission, but staff members found new and creative ways to educate the public about the agency's work and the Pinelands' special resources.

Faced with concerns about the health and safety of holding educational events with large audiences, the staff chose to go virtual and outdoors, when possible. On April 24th, the Commission hosted a "Pinelands Short Discussion" with five well-known experts during the first-ever virtual Pinelands Short Course. The event was offered free-of-charge. The Commission organized and carried out the fifth annual Pinelands Summer Short Course on July 15th. The event included 14 programs that were held entirely outdoors at Whitesbog Village and Wells Mills County Park, including guided history tours, a canoe trip, a ground-penetrating radar demonstration, live music and nature walks. (Please see page 25 for a photo).



Above: Launched in 2020, the Pinelands Commission's Instagram site currently has more than 1,900 followers.

The Commission held its first-ever virtual edition of the Pinelands Orientation for Newly Elected Officials on July 27th. The event is typically held at the agency's headquarters and it draws around 30-50 municipal officials. The virtual offering featured four presentations by Commission staff. All four presentations have been recorded and are available for viewing on the Commission's YouTube Channel at any time. The Commission shared links to the Pinelands Orientation videos with officials in the 53 Pinelands municipalities and seven counties, and the videos have garnered 600 views thus far.

Meanwhile, staff organized, hosted and recorded 28 webinar presentations in 2021. Launched in 2020, the webinars are part of the Pinelands Speaker Series, which the Commission previously hosted at its headquarters in Pemberton Township. The webinars are livestreamed, and the public has the ability call in live to ask questions. Two webinars were delivered by Pinelands Commission staff in 2021, and the presentations

By the Numbers:

In 2021, the Commission's staff:

■ Organized, hosted, promoted and recorded 28 educational webinar presentations that are archived on YouTube and have been viewed more than 7,100 times;

■ Maintained, enhanced and reviewed every page and link on the Commission's website, which was viewed a total of 177,712 times;

■ Launched a new Twitter page;

■ Took and shared 1,065 photos on the agency's Instagram site, which was launched in 2020 and has 1,940 followers;

■ Shared 39 videos that raise awareness of the Pinelands on the Commission's YouTube Channel;

■ Shared 125 posts on 60 consecutive workdays, along with 463 photos and 26 videos, as part of an informational celebration of the 40th anniversary of the Pinelands Comprehensive Management Plan;

■ Responded to more than 1,574 public inquiries about recreation, general information about the Pinelands and the Commission, and other non-development application questions; and

■ Organized and carried out the first-ever virtual Pinelands Short Course and first virtual Pinelands Orientation for Newly Elected Officials. Recordings of the two events have garnered 570 views on YouTube.

focused on native Pinelands snakes and a local history of Tuckerton Borough. Every webinar is recorded, archived and is available for viewing on the Commission's YouTube Channel at any time. The video webinar recordings were viewed more than 7,100 times in 2021, and the Commission now has an archive of nearly 60 webinar recordings on YouTube. The Commission will host additional webinars throughout 2022 but may offer some in-person presentations if conditions permit.



Above: Commission staff created a new Instagram site for the Jersey Devil in 2021. Photo/Paul Leakan

Commission staff also completed a comprehensive review of the agency's website in 2021, and they hosted numerous virtual field trips for school groups, launched a Twitter account, created a new, educational Instagram site for the Jersey Devil, and shared 1,065 photos on the agency's Instagram site. The site was launched in 2020, and it now has 1,940 followers.



Above: More than 50 people attended the fifth annual Pinelands Summer Short Course on July 15, 2021. The event was held at Whitesbog Village in Burlington County and Wells Mills County Park in Ocean County. Photo/Paul Leakan

Pinelands National Reserve Calendar

The Pinelands Commission issued its sixth edition of the Pinelands National Reserve wall calendar in late November 2021.

The calendar features a theme of plants and animals and includes 38 stunning photos that showcase the native species that can be found in the Pinelands. The Pinelands is home to 850 species of plants and nearly 500 fish, bird, reptile, amphibian, mammal, and invertebrate species. This includes 92 plant species and 43 animal species that are listed as threatened or endangered.



Above: The front cover of the 2022 Pinelands National Reserve wall calendar features a photo of native, insect-eating pitcher plants.

The Commission worked with Rowan College at Burlington County to design and print the calendar. All of the photos were taken by members of the Commission's staff. Aside from the photos of the region's resources, the calendar includes State holidays, dates of Pinelands Commission meetings and important dates in Pinelands history.

A total of 820 copies of the calendar were printed and distributed free of charge at the Bass River State Forest, Batsto Visitor Center, Belleplain State Forest, Brendan T. Byrne State Forest, and the General Store at historic Whitesbog Village. The project was funded by the National Park Service.

Finances

Fiscal & Budget

The Commission's Operating Budget for Fiscal Year 2021 totaled $5,915,074. Of this, $4,955,565, or 83.78% percent, was budgeted for personnel expenses.

Budgeted revenue sources included $585,000 in federal grants, a $3,099,000 State appropriation, $688,000 in State grants and other State funding, $380,000 in application fees and $1,163,074 from the Commission's fund balance and reserves.

The 2021 budget for the Kirkwood-Cohansey Study, funded through legislation passed in 2001, was $31,624. The budget for the Pinelands Conservation Fund was $830,616.

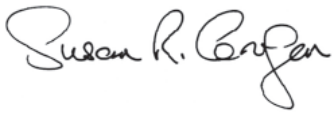
The Commission's Audit Report for Fiscal Year 2020, which ended June 30, 2020, is posted on the State Auditors web site. The website address is: https://www.njleg.state.nj.us/publications/auditor/03002221.pdf.

Pinelands Application Fees

Since April 2004, the Pinelands Commission has received application fees to partially underwrite the direct costs associated with reviewing development applications in the Pinelands Area. During Fiscal Year 2021, unaudited application fee revenues actually collected totaled $643,428.96, $264,030.47 more than Fiscal Year 2020.

Certification

As required by State Executive Order #37, all State authorities are required to certify that during the preceding year the authority has, to the best of its knowledge, followed all of the authority's standards, procedures, and internal controls. I hereby certify to the best of my knowledge that, during the 2021 calendar year, all of the Commission's standards, procedures, and internal controls were followed.



Susan R. Grogan
Acting Executive Director

Scenes around the Pinelands in 2021



Above: This bald eagle was photographed from a distance in the Pinelands in November 2021. Once nearly extinct, the bald eagle population in New Jersey is now soaring, thanks to conservation efforts.



Above: A bright pink sunset reflected off Atsion Lake in Wharton State Forest in this photo that was taken in mid-November of 2021. Wharton State Forest encompasses approximately 122,800 acres.



Above: This variegated fritillary butterfly was photographed on a patch of native, sweet goldenrod at the Pinelands Commission's headquarters in August 2021.



Above: Native sheep laurel could be seen blooming in the Pinelands in late May. The deep pink blooms brighten the landscape.

Photos by Paul Leakan
NJ Pinelands Commission



Cover image: Reflections of Atlantic white cedars in the dark water of Skit Branch in Wharton State Forest. Photo/John Bunnell

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-13____

TITLE: To Authorize the Acting Executive Director to Submit an Application to the New Jersey Historic Trust for a 2022 Preserve New Jersey Historic Preservation Fund Grant and to Certify the Availability of Matching Funds

Commissioner _____Avery_____moves and Commissioner __Lohbauer_____ seconds the motion that:

WHEREAS, the New Jersey Historic Trust is offering matching grants for Historic Site Management through the Preserve New Jersey Historic Preservation Fund in 2022 for a wide range of historic preservation projects; and

WHEREAS, agencies and entities of the State government are eligible to apply for grants through this program; and

WHEREAS, to be eligible for a grant, a property must be listed in or eligible to be listed in the New Jersey Register of Historic Places and/or the National Register of Historic Places; and

WHEREAS, Fenwick Manor is listed in both the New Jersey and National Registers of Historic Places; and

WHEREAS, Historic Site Management applicants may apply for grants of $5,000-$75,000; and

WHEREAS, Historic Site Management grants require the recipient to provide matching funds on a 3:1 basis, with the Historic Trust funding 75 percent of the total project cost and the grantee responsible for the remaining 25 percent; and

WHEREAS, the New Jersey Historic Trust requires an applicant to obtain the formal authorization of its governing body for submission of the grant application and to document the availability and commitment of matching funds; and

WHEREAS, the Commission wishes to apply for a Historic Site Management grant that will be used to develop a Preservation Plan to identify and prioritize future restoration and rehabilitation tasks associated with Fenwick Manor according to the *Secretary of the Interior's Standards*; and

WHEREAS, in its Fiscal Year 2016, 2017, 2018 and 2019 adopted budgets, the Pinelands Commission reserved funding for the rehabilitation and preservation of Fenwick Manor, of which a maximum of $25,000 is available to match a Historic Site Management grant; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE, be it resolved that:

1. The Pinelands Commission hereby approves and endorses an application for a Historic Site Management grant through the New Jersey Historic Trust and the Preserve New Jersey Historic Preservation Fund for the development of a Preservation Plan for the National and State Register listed Fenwick Manor.

2. The Pinelands Commission hereby certifies that it will provide all necessary matching funds, up to a maximum of $25,000.

3. The Acting Executive Director is hereby authorized to submit the grant application and confirm and sign all assurances associated with that application.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-__14____

TITLE: Expressing the Pinelands Commission's Gratitude for the Restoration of Payment in Lieu of Taxes Funding to Pinelands Municipalities in Fiscal Year 2022 and Supporting the Pinelands Municipal Council's Request for Continued Funding in Future Fiscal Years

Commissioner _____Lloyd_____ moves and Commissioner ____Irick_____ seconds the motion that:

WHEREAS, the Pinelands Protection Act of 1979 recognized the Pinelands Area as an area comprised of significant and unique natural, ecological, agricultural, scenic, cultural and recreational resources, among them pine-oak forests, cedar swamps and extensive surface and ground water resources of high quality that provide unique habitat for a wide diversity of rare plant and animal species; and

WHEREAS, to ensure protection of the Pinelands Area from the threat posed by development pressure, the Pinelands Protection Act directed the Pinelands Commission to adopt a comprehensive management plan designed to protect, preserve and enhance the significant values of the resources of the Pinelands Area; and

WHEREAS, through its implementation of the Comprehensive Management Plan, the Pinelands Commission has successfully safeguarded the core of the Pinelands Area while channeling growth toward designated areas with the infrastructure needed to support it; and

WHEREAS, the success of the Pinelands Comprehensive Management Plan is enhanced by land acquisition and preservation that permanently protects the resources of the Pinelands, supports appropriate growth, and prevents piecemeal and scattered development; and

WHEREAS, municipalities within the Pinelands are uniquely characterized by higher rates of land preservation and more land in conservation-oriented zoning districts than non-Pinelands municipalities; and

WHEREAS, as of June 30, 2021, 51% of the Pinelands Area (480,500 acres) has been permanently protected through a variety of state, county, municipal and private efforts; and

WHEREAS, the Pinelands Commission supports continued land preservation efforts in the Pinelands Area while also recognizing the need to maintain vibrant and diverse communities through strong, stable municipal financial structures; and

WHEREAS, the Payment in Lieu of Taxes (PILOT) program was established on June 30, 1999 through adoption of the Garden State Preservation Trust Act and was renewed in 2010; and

WHEREAS, the PILOT program recognized the unique municipal budget challenges of municipalities that host significant areas land preservation by extending payments in lieu of taxes so that these municipalities do not suffer a loss of tax revenue due to state acquisition of lands; and

WHEREAS, the PILOT program has been an important component of municipal revenue where future growth is limited by the State's permanent land preservation efforts; and

WHEREAS, for State Fiscal Year 2022, Governor Murphy and the Legislature of the State of New Jersey fully restored funding of the PILOT program; and

WHEREAS, at its January 26, 2022 meeting, the Pinelands Municipal Council adopted Resolution 2022-01 to express its gratitude for the restored PILOT funding and request that the Governor and State Legislature continue full funding under the Garden State Preservation Trust Act in future fiscal years; and

WHEREAS, the Pinelands Commission wishes to join the Pinelands Municipal Council in expressing its thanks to the Governor and Legislature for restoring PILOT funding to Pinelands municipalities; and

WHEREAS, the Pinelands Commission also supports full funding of the PILOT program in future fiscal years as a means to enhance land preservation efforts in the Pinelands Area and to sustain Pinelands municipalities that host significant areas of preserved land; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that

1. The Pinelands Commission hereby expresses its gratitude for the Governor's and State Legislature's support of Pinelands municipalities and land preservation efforts through the reinstatement of PILOT program funding for Fiscal Year 2022.

2. The Pinelands Commission hereby joins the Pinelands Municipal Council in requesting that the PILOT Program continue to be fully funded in the State's Fiscal Year 2023 budget and beyond.

3. The Executive Director shall forward a copy of this resolution to the Governor, members of the State Legislature and the Pinelands Municipal Council.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-__15____

TITLE: Amending and Supplementing Resolution PC4-20-37 to Clarify the Objectives of the Pinelands Commission Relative to Climate Change in the Pinelands Area and the Responsibilities of the Pinelands Climate Committee

Commissioner ____Jannarone_____ moves and Commissioner ____Lohbauer_____ seconds the motion that:

WHEREAS, the Chairman of the Pinelands Commission established the Land Use, Climate Impacts and Sustainability (LUCIS) Committee in December 2018; and

WHEREAS, in order to ensure that the policies, practices, regulations and actions of the Pinelands Commission serve to mitigate, not exacerbate, the impacts of climate change, the Commission adopted Resolution PC4-20-37 on November 13, 2020, setting forth the responsibilities and objectives of the LUCIS Committee and the Commission as a whole; and

WHEREAS, Resolution PC4-20-37 calls for the Executive Director and Chair of the Personnel & Budget Committee to examine all of the Commission's facilities, day-to-day operations and management practices, update the LUCIS Committee on the results of said examination and present to the Commission for its consideration recommended operational changes that would mitigate greenhouse gas emissions to the greatest extent feasible; and

WHEREAS, Resolution PC4-20-37 further specifies that the LUCIS Committee shall coordinate with the New Jersey Department of Environmental Protection, the Board of Public Utilities and other state agencies and departments on their efforts to mitigate the impacts of climate change in New Jersey; and

WHEREAS, Resolution PC4-20-37 also charges the LUCIS Committee with the responsibility of identifying existing Comprehensive Management Plan (CMP) standards that may be strengthened and new CMP standards that may be adopted to mitigate the effects of climate change on the Pinelands environment and to recommend such standards to the Commission for consideration as proposed amendments to the CMP; and

WHEREAS, Resolution PC4-20-37 specifies that the LUCIS Committee may also take other actions and make other recommendations to the Commission consistent with Resolution PC4-20-37, the Pinelands Protection Act and the CMP; and

WHERAS, the LUCIS Committee was renamed as the Pinelands Climate Committee in April 2021; and

WHEREAS, at its December 1, 2021 meeting, the Pinelands Climate Committee discussed the mechanisms by which the Commission could best express its support for and intention to implement the goals of the New Jersey Global Warming Response Act of 2007; and

WHEREAS, the New Jersey Global Warming Response Act (P.L. 2007, c.112, P.L. 2019, c.197) requires that no later than January 1, 2050, Statewide greenhouse gas emissions shall be stabilized at or below 80 percent of the 2006 Statewide greenhouse gas emissions and shall not exceed that level thereafter; and

WHEREAS, on October 15, 2020, in response to the 2019 amendments to the Global Warming Response Act, the New Jersey Department of Environmental Protection issued its 80x50 Report containing strategies across seven emission sectors for reducing emissions to 80 percent below their 2006 levels by the year 2060; and

WHEREAS, at its December 1, 2021 meeting, the Pinelands Climate Committee also discussed the importance of developing standards that would allow for an evaluation of climate impacts when development applications are submitted to the Commission, as well as the identification of alternative measures that such applications might propose to avoid or minimize such impacts; and

WHEREAS, the Pinelands Climate Committee has recommended that the Commission amend and supplement Resolution PC4-20-37 to expressly reference the Global Warming Response Act and the development of CMP standards; and

WHEREAS, the Pinelands Commission wishes to amend and supplement Resolution PC4-20-37 accordingly; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Pinelands Commission Resolution PC4-20-37 is hereby amended and supplemented as follows:

1. The Pinelands Commission supports the goals of the New Jersey Global Warming Response Act of 2007, as amended, and is committed to implementing strategies through its daily operations and long-term planning and regulatory efforts that will contribute to the State's meeting its 2050 greenhouse gas emission target.

2. The Pinelands Climate Committee shall consider, among other resources, the strategies included in the New Jersey Department of Environmental Protection's 80x50 Report for meeting the Statewide greenhouse gas emission target as it develops and considers operational policies and potential CMP amendments related to climate change.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade			X	
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

2021 Annual Report



March 11, 2022

2021 Annual Report

- Required by the Pinelands Protection Act and Executive Order.
- Highlights the Commission's work during the 2021 calendar year.

Scenes around the Pinelands in 2021



Above: This bald eagle was photographed from a distance in the Pinelands in November 2021. Once nearly extinct, the bald eagle population in New Jersey is now soaring, thanks to conservation efforts.



Above: A bright pink sunset reflected off Atsion Lake in Wharton State Forest in this photo that was taken in mid-November of 2021. Wharton State Forest encompasses approximately 122,800 acres.



Above: This variegated fritillary butterfly was photographed on a patch of native, sweet goldenrod at the Pinelands Commission's headquarters in August 2021.



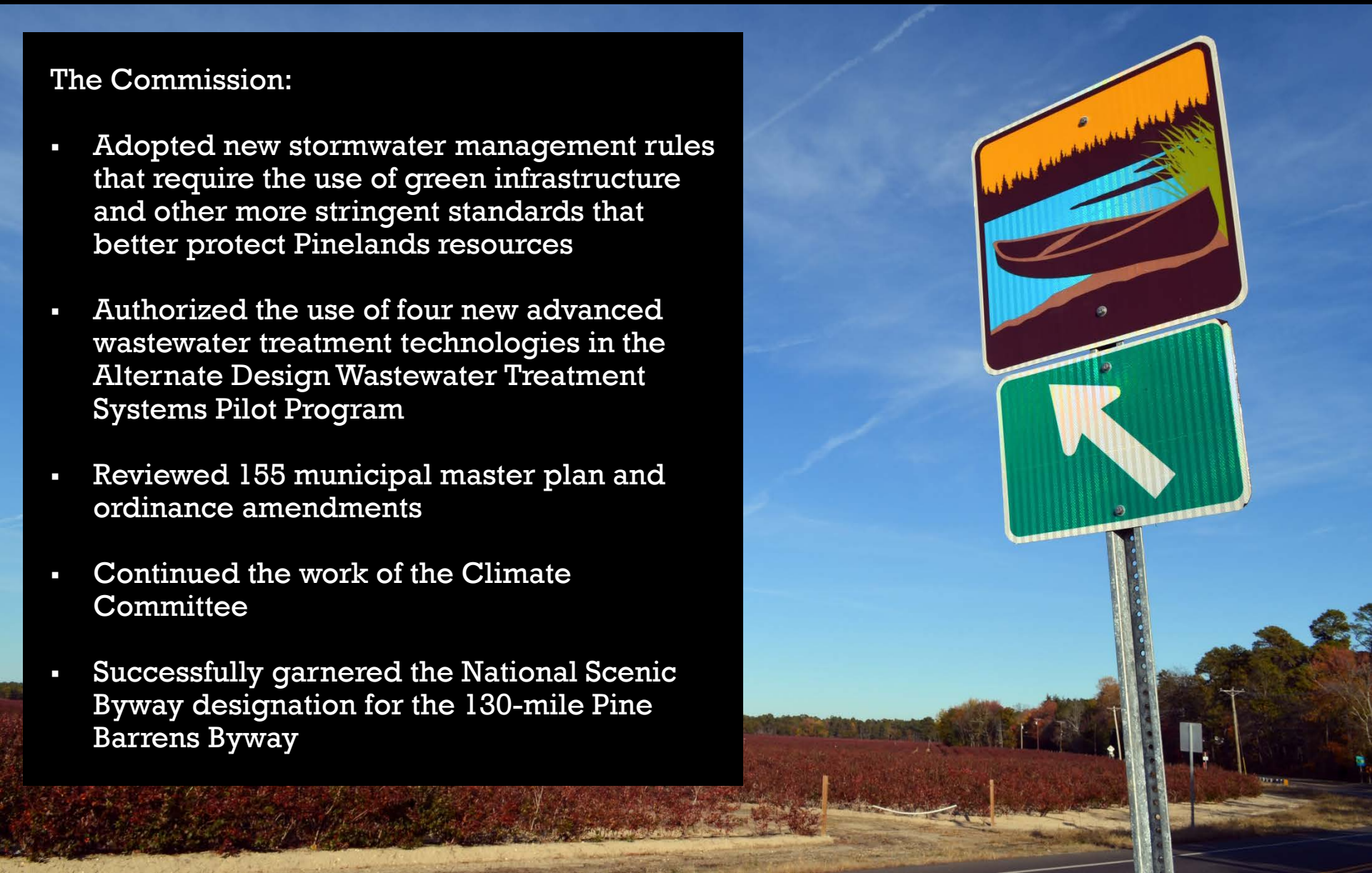
Above: Native sheep laurel could be seen blooming in the Pinelands in late May. The deep pink blooms brighten the landscape.

Photos by Paul Leakan
NJ Pinelands Commission

2021 Planning Activities

The Commission:

- Adopted new stormwater management rules that require the use of green infrastructure and other more stringent standards that better protect Pinelands resources
- Authorized the use of four new advanced wastewater treatment technologies in the Alternate Design Wastewater Treatment Systems Pilot Program
- Reviewed 155 municipal master plan and ordinance amendments
- Continued the work of the Climate Committee
- Successfully garnered the National Scenic Byway designation for the 130-mile Pine Barrens Byway



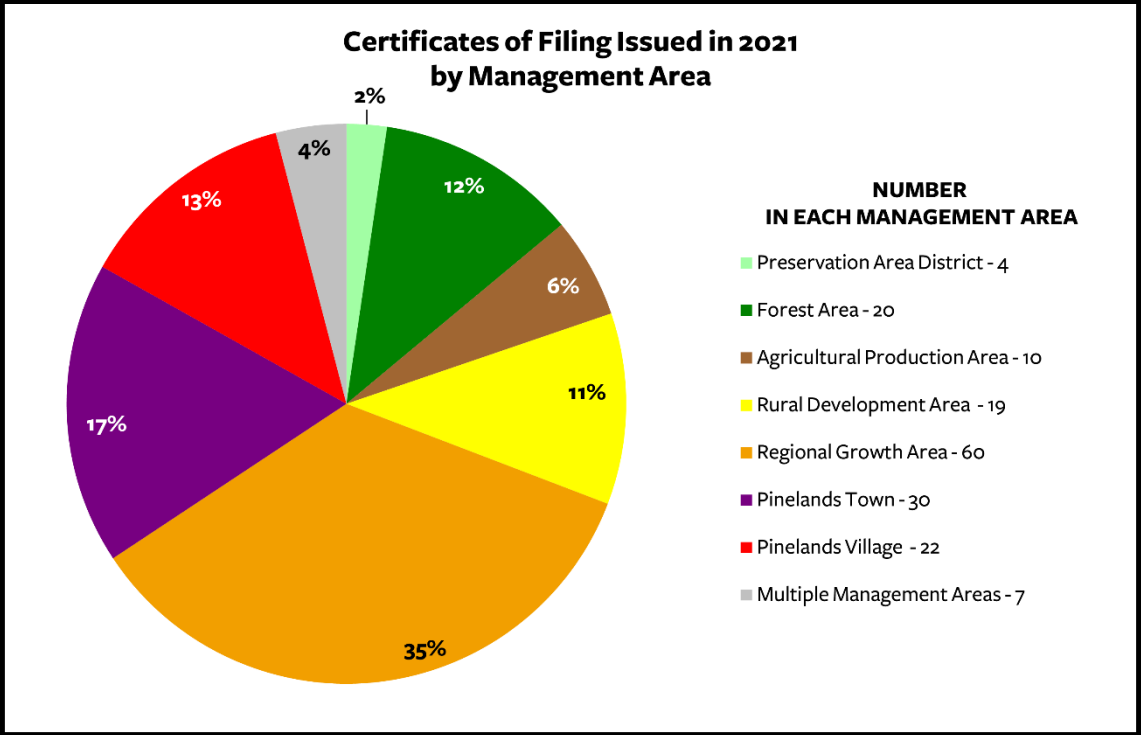
Pinelands Development Credit Program 2021 Activity



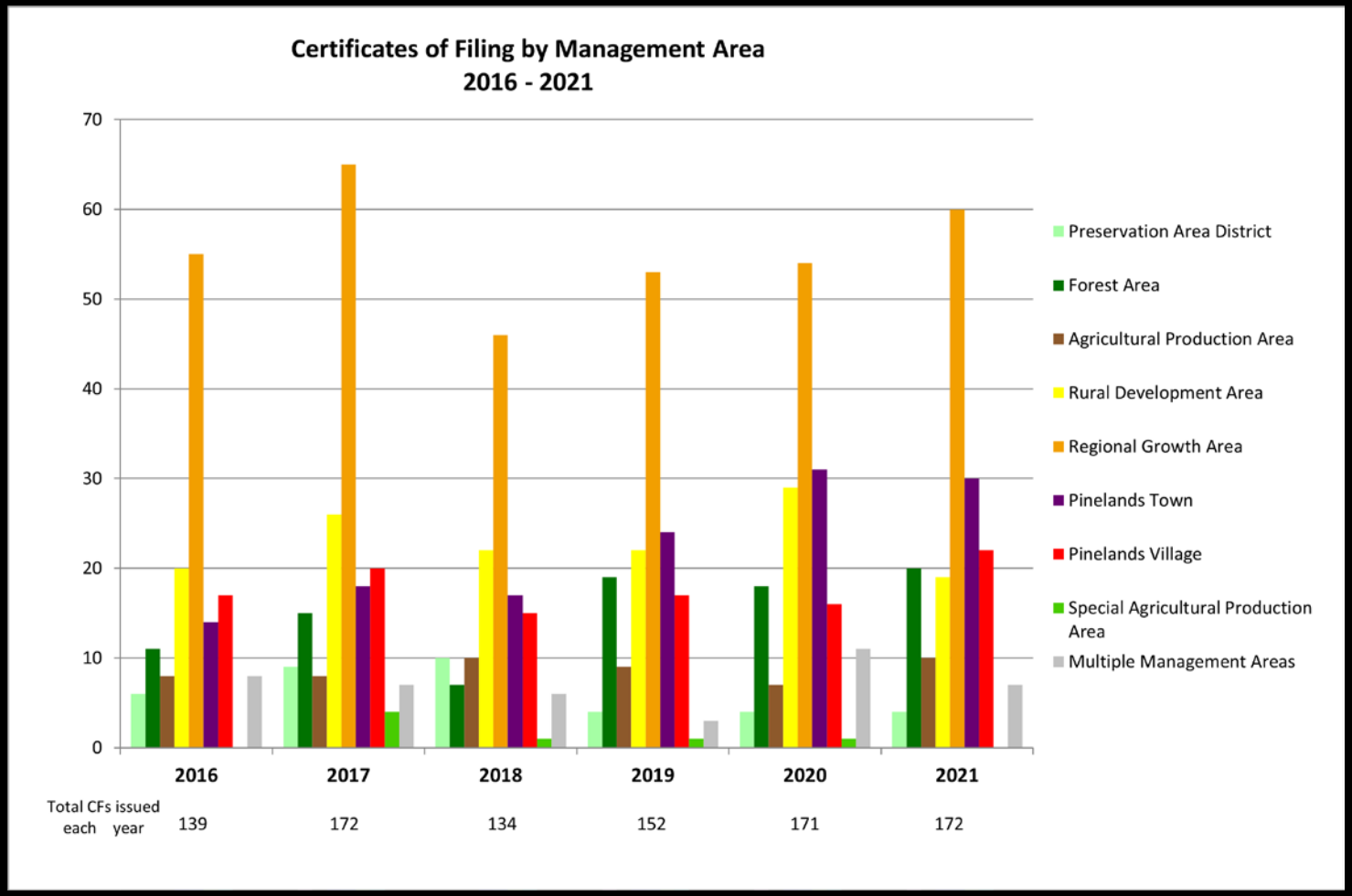
- 72.70 PDCs were allocated to 36 sending area properties.
- 53.00 PDCs were severed, protecting 1,705 acres in the APA and SAPA. Since 1982, 57,147 acres in the Pinelands Area have been permanently preserved through the PDC Program.
- 31.25 PDCs were sold, with an average sales price of $57,752 per PDC ($13,000 higher than the average sales price in 2020).
- 60.00 PDCs were redeemed for projects in 9 municipalities.

2021 Regulatory Activities

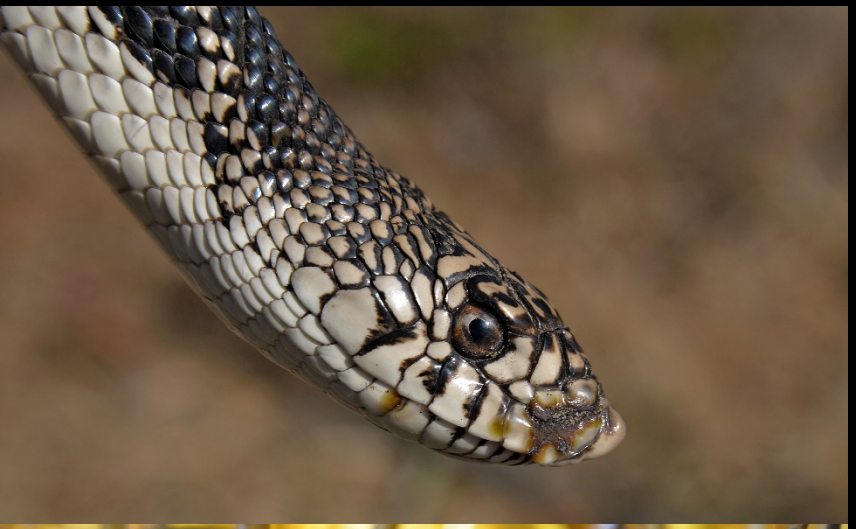
- 172 Certificates of Filing were issued, signifying the completion of private development applications.
- 65% (112) were for residential development
- 65% (112) were for projects in RGAs, Towns or Villages (development-oriented management areas)



2021 Regulatory Activities



2021 Science & Research Activities





The Commission advanced numerous research projects, including work on:

Snake Fungal Disease

Rare Snake Population Monitoring

Microorganism Study

Endocrine Disruption Study

Joint Corn Snake Radio Tracking Fence Study

Eastern Kingsnake Study

Corn Snake and Kingsnake Genetic Research

Ground Skink eDNA Study

Eastern Box Turtle Study

Long-term Environmental Monitoring (surveys of frogs and toads and water quality and water levels)

Public Information, Education & Outreach 2021 Activity

Responded to more than 1,574 public inquiries;

Organized, hosted and recorded 28 educational webinar presentations;

Maintained, enhanced and reviewed every page and link on the Commission's website, which was viewed a total of 177,712 times;

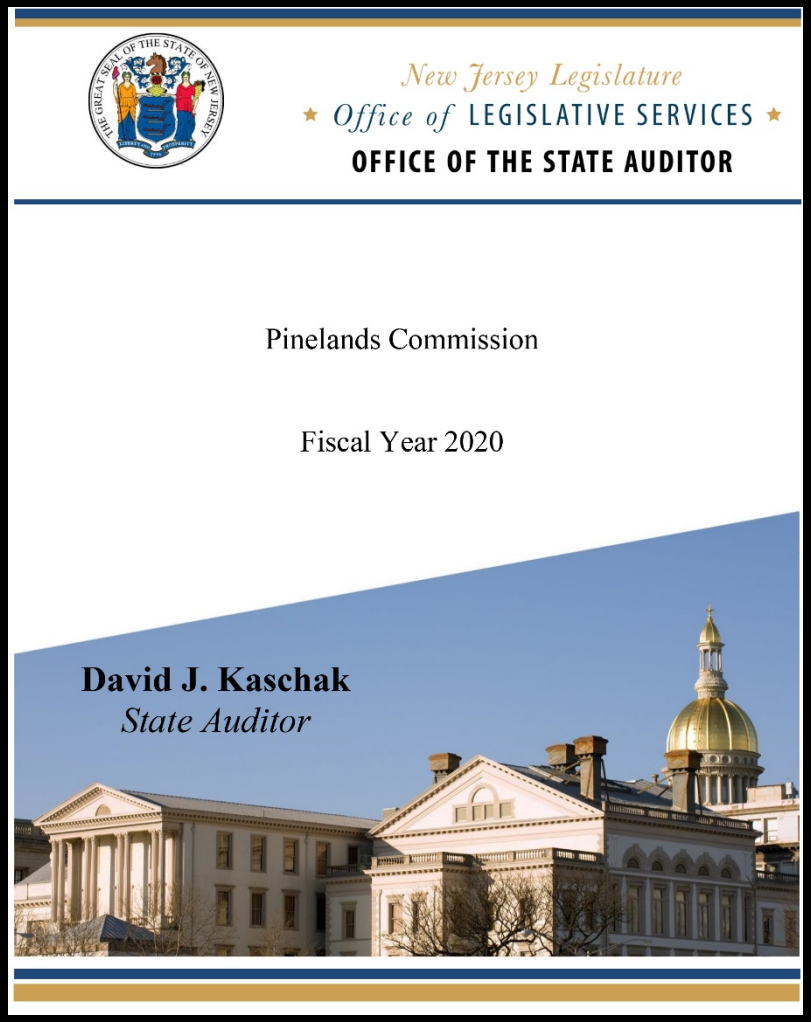
Launched a new Twitter page;

Took and shared 1,065 photos on Instagram and 39 videos on YouTube; and

Organized and carried out the first-ever virtual Pinelands Short Course, the fifth annual Pinelands Summer Short Course and the first virtual Pinelands Orientation for Newly Elected Officials.



2021 Finances



The Commission's 2020 Fiscal Year Audit, which ended June 30, 2020, included no compliance findings or questioned costs.

During Fiscal Year 2021, application fee revenue totaled $643,428.96. This was a $264,000 increase from Fiscal Year 2020.

Celebrating 40 Years of the Pinelands Comprehensive Management Plan (CMP)



The Pinelands CMP turned 40 on January 14, 2021.

The Commission marked the milestone by creating and sharing videos, numerous informative social media posts and e-mails.

Pictured: Roundtable Reflection with original Commission members and staff.


The End

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-_____

TITLE: **Approving** With Conditions Applications for **Public Development** (Application Numbers 2018-0163.001 & 2021-0284.001)

Commissioner _____ moves and Commissioner _____ seconds the motion that:

WHEREAS, the Pinelands Commission has reviewed the Public Development Application Reports and the recommendation of the Acting Executive Director that the following applications for Public Development be approved with conditions:

2018-0163.001	
Applicant:	**Weston Solutions, Inc. on behalf of the United States Army Corps of Engineers**
Municipality:	Borough of Lakehurst Manchester Township
Management Area:	Pinelands Town Pinelands Regional Growth Area
Date of Report:	March 18, 2022
Proposed Development:	Installation of 2,200 linear feet of water main; and

2021-0284.001	
Applicant:	**New Jersey Department of Transportation**
Municipality:	Town of Hammonton
Management Area:	Pinelands Town
Date of Report:	March 15, 2022
Proposed Development:	Installation of 534 linear feet of four-foot-wide sidewalk within the Route 30 right-of-way.

WHEREAS, no request for a hearing before the Office of Administrative Law concerning the Acting Executive Director's recommendation has been received for any of these applications; and

WHEREAS, the Pinelands Commission hereby adopts the Conclusion of the Acting Executive Director for each of the proposed developments; and

WHEREAS, the Pinelands Commission hereby determines that each of the proposed public developments conform to the standards for approving an application for public development set forth in N.J.A.C. 7:50-4.57 if the conditions recommended by the Acting Executive Director are imposed; and

WHEREAS, pursuant to N.J.S.A. 13A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period and Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Application Numbers 2018-0163.001 & 2021-0284.001 for public development are hereby **approved** subject to the conditions recommended by the Acting Executive Director.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery					Jannarone					Meade				
Christy					Lettman					Pikolycky				
Higginbotham					Lloyd					Quinn				
Holroyd					Lohbauer					Matos				
Irick					McCurry									

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: _____

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

March 18, 2022

Elizabeth Bolt (via email)
Weston Solutions, Inc.
1400 Weston Way, Building 5-1
West Chester, PA 19380

Re: Application # 2018-0163.001
Block 66, Lot 1 & State Route 70
Borough of Lakehurst
Ridgeway Boulevard
Borough of Lakehurst & Manchester Township

Dear Ms. Bolt:

The Commission staff has completed its review of this application for installation of 2,200 linear feet of water main within the Route 70 and Ridgeway Boulevard rights-of-way. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its April 8, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure
c: Secretary, Borough of Lakehurst Planning Board (via email)
Borough of Lakehurst Construction Code Official (via email)
Secretary, Manchester Township Planning Board (via email)
Manchester Township Construction Code Official (via email)
Manchester Township Environmental Commission (via email)
Secretary, Ocean County Planning Board (via email)

State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PUBLIC DEVELOPMENT APPLICATION REPORT

March 18, 2022

Elizabeth Bolt (via email)
Weston Solutions, Inc.
1400 Weston Way, Building 5-1
West Chester, PA 19380

Application No.: 2018-0163.001
Block 66, Lot 1 & State Route 70
Borough of Lakehurst
Ridgeway Boulevard
Borough of Lakehurst & Manchester Township

This application proposes installation of 2,200 linear feet of water main within the Borough of Lakehurst and Manchester Township.

Approximately 217 linear feet of water main will be located within the Route 70 right-of-way in the Borough of Lakehurst. Approximately 1,874 linear feet of water main will be located within the Ridgeway Boulevard right-of-way in the Borough of Lakehurst and Manchester Township. Approximately 109 linear feet of water main will be located within a utility easement on Block 66, Lot 1 in the Borough of Lakehurst.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.27 & 5.28)

The proposed development is located in the Pinelands Town of Lakehurst and in a Pinelands Regional Growth Area in Manchester Township. The proposed development is a permitted land use in a Pinelands Town and a Pinelands Regional Growth Area.

Wetlands Standards (N.J.A.C. 7:50-6.6 & 6.13)

The CMP prohibits most development in wetlands and requires up to a 300 foot buffer to wetlands.

An approximately 50 foot section of the proposed water main will be located in wetlands associated with a stream (Manapaqua Branch). An approximately 500 foot section of the proposed water main will be located within the required 300 foot buffer to wetlands. This 500 foot section of the water main will be installed within the maintained grass shoulder of Ridgeway Boulevard.

The applicant proposes to install a total of 250 linear feet of the water main via horizontal directional drilling (HDD). Of that 250 feet, a 50 foot section of the water main will be installed under wetlands associated with the Manapaqua Branch; a 100 foot section will be installed in the required 300 foot buffer to wetlands; and a 100 foot section will be installed under a paved parking area that is located outside of wetlands and the required buffer to wetlands.

The CMP permits the installation of linear improvements (water mains) in wetlands and the required buffer to wetlands provided the applicant demonstrates that certain CMP specified conditions are met. The applicant has demonstrated that there is no feasible alternative to the proposed development that does not involve development in wetlands or the required buffer to wetlands that will result in a less significant adverse impact to wetlands. To mitigate impact to wetlands, the application proposes to install a 50 linear foot section of the water main under the wetland associated with the Manapaqua Branch via HDD. Based upon the proposed water main being located at least four feet below the bottom of the stream channel and the provision of a Horizontal Directional Drilling Contingency Plan to address any potential break outs of drilling fluid, the proposed development will not result in a substantial impairment of the resources of the Pinelands. The water main is proposed to provide potable water to existing development with contaminated potable water wells in the Borough of Lakehurst and Manchester Township. The applicant has demonstrated that the need for the proposed development overrides the importance of protecting the wetlands and the required buffer to wetlands.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

Other than the 50 feet under the Manaqua Stream, the proposed water main will be located within a maintained grass road shoulder and under paved surfaces. The proposed soil disturbance is limited to that which is necessary to accommodate the development.

The Landscaping and Re-vegetation Guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. The applicant proposes to utilize a seed mixture which meets that recommendation.

PUBLIC COMMENT

The CMP defines the proposed development as “minor.” The CMP does not require public notice for minor public development applications. The application was designated as complete on the Commission’s website on February 28, 2022. The Commission’s public comment period closed on March 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of 26 sheets, prepared by Weston Solutions, Inc., all sheets dated August 12, 2020 and revised to January 6, 2022.

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

5. Appropriate measures shall be taken during construction to preclude sedimentation from entering wetlands and shall be maintained in place until all development has been completed and the area has been stabilized.

6. The applicant shall engage an independent licensed professional engineer with proven experience in Horizontal Directional Drilling (HDD) to be present at all times HDD activities are being undertaken. The independent engineer shall:

    a. Ensure that all HDD activities are conducted in accordance with all approved plans;

    b. Ensure that appropriate measures, such as installation of silt fence, hay bales, inflatable berm, etc. are taken during HDD activities to prevent the discharge of drilling fluid to wetlands, streams or any other water body or beyond the immediate confines of the drill site;

    c. Monitor drill hole pressures and walk the area in which HDD activities are being conducted to identify any potential break outs of drilling fluid; and

    d. Be responsible for immediate implementation of the Horizontal Directional Drilling Contingency Plan should a break out of drilling fluid occur and require the immediate cessation of all HDD activities. The applicant shall within 24 hours notify the Pinelands Commission's Acting Executive Director via email at info@pinelands.nj.gov of the location of the break out and advise as to the response actions being taken to address the break out in accordance with the Horizontal Directional Drilling Contingency Plan.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on April 5, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

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PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

March 15, 2022

Brenna Fairfax (via email)
New Jersey Department of Transportation
P.O. Box 600
Trenton, NJ 08625

Re: Application # 2021-0284.001
U.S. Route 30
Town of Hammonton

Dear Ms. Fairfax:

The Commission staff has completed its review of this application for installation of 534 linear feet of four foot wide sidewalk within the Route 30 right-of-way. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its April 8, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Town of Hammonton Planning Board (via email)
Town of Hammonton Construction Code Official (via email)
Town of Hammonton Environmental Commission (via email)
Atlantic County Department of Regional Planning and Development (via email)

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PHILIP D. MURPHY
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SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PUBLIC DEVELOPMENT APPLICATION REPORT

March 15, 2022

Brenna Fairfax (via email)
New Jersey Department of Transportation
P.O. Box 600
Trenton, NJ 08625

Application No.: 2021-0284.001
U.S. Route 30
Town of Hammonton

This application proposes installation of 534 linear feet of four foot wide sidewalk within the Route 30 right-of-way in the Town of Hammonton. The proposed 534 linear feet of sidewalk is comprised of five non-contiguous sections of sidewalk within the Route 30 right-of-way between Central Avenue and Moss Mill Road.

The applicant proposes the repaving of portions of Route 30 and the installation of traffic signage. The repaving of portions of Route 30, provided no increase in the paved width occurs, does not require application to the Pinelands Commission in accordance with the Pinelands Comprehensive Management Plan (CMP, N.J.A.C. 7:50-4.1(a)11). The installation of traffic signs does not require application to the Pinelands Commission in accordance with the CMP (N.J.A.C. 7:50-4.1(a)4).

The applicant also proposes the replacement of guiderail. The in-kind replacement of existing guardrails does not require application to the Pinelands Commission.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.27(a))

The proposed development is located within the Pinelands Town of Hammonton. The proposed development is a permitted land use in a Pinelands Town.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located within existing maintained grassed areas. The proposed soil disturbance is limited to that which is necessary to accommodate the proposed development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. The applicant proposes to utilize a seed mixture which meets that recommendation.

PUBLIC COMMENT

The CMP defines the proposed development as "minor." The CMP does not require public notice for minor public development applications. The application was designated as complete on the Commission's website on February 9, 2022. The Commission's public comment period closed on March 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of seven sheets, prepared by HNTB Corporation, all sheets dated December 20, 2021.

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

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PHILIP D. MURPHY
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Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on April 4, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-_____

TITLE: **Approving** With Conditions an Application for a **Waiver of Strict Compliance** (Application Number 2020-0238.001)

Commissioner _____ moves and Commissioner _____ seconds the motion that:

WHEREAS, the Pinelands Commission has reviewed each of the Findings of Fact, Conclusion and the recommendation of the Acting Executive Director that the following application for Waiver of Strict Compliance be approved with conditions:

2020-0238.001	
Applicant:	**Malkiel David**
Municipality:	Jackson Township
Management Area:	Pinelands Regional Growth Area
Date of Report:	March 15, 2022
Proposed Development:	Single family dwelling.

WHEREAS, no request for a hearing before the Office of Administrative Law concerning the Acting Executive Director's recommendation has been received for this application; and

WHEREAS, the Pinelands Commission hereby adopts the Findings of Fact and Conclusion of the Acting Executive Director for the requested Waiver of Strict Compliance; and

WHEREAS, the Pinelands Commission hereby determines that the requested Waiver conforms to the standards for approving an application for a Waiver of Strict Compliance based on extraordinary hardship as set forth in N.J.A.C 7:50-4.62, N.J.A.C. 7:50-4.63 and N.J.A.C. 7:50-4.65 if the conditions recommended by the Acting Executive Director are imposed; and

WHEREAS, pursuant to N.J.S.A. 13A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period and Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Application Number 2020-0238.001 for a Waiver of Strict Compliance is hereby **approved** subject to the conditions recommended by the Acting Executive Director.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery					Jannarone					Meade				
Christy					Lettman					Pikolycky				
Higginbotham					Lloyd					Quinn				
Holroyd					Lohbauer					Matos				
Irick					McCurry									

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: _____

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

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Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

REPORT ON AN APPLICATION FOR A WAIVER OF STRICT COMPLIANCE

March 15, 2022

Malkiel David (via email)
0 Cannon Road, LLC
15 America Avenue
Suite 301A
Lakewood, NJ 08701

Re: Application # 2020-0238.001
Block 20601, Lot 4
Jackson Township

Dear Mr. David:

The Commission staff has completed its review of this application for a Waiver of Strict Compliance ("Waiver") proposing the development of one single family dwelling on the above referenced parcel. Based upon the facts and conclusions contained in this Report, on behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its April 8, 2022 meeting.

FINDINGS OF FACT

This application is for the development of one single family dwelling, serviced by an alternate design onsite septic system, on the above referenced 2.35 acre parcel in Jackson Township. The parcel is located in a Pinelands Regional Growth Area and in Jackson Township's RG-2 zoning district. In this zoning district, Jackson Township's certified land use ordinance establishes a minimum lot size of 1.0 acre to develop a single family dwelling serviced by an alternate design onsite septic system.

The parcel has been site inspected by a member of the Commission's staff. In addition, the appropriate resource capability maps and data available to the staff have been reviewed.

The Pinelands Comprehensive Management Plan (CMP, N.J.A.C. 7:50-6.14) requires that the development proposed in this application maintain a 300 foot buffer to wetlands unless the applicant demonstrates that a lesser buffer to wetlands will not result in a significant adverse impact on wetlands. A portion of the parcel is wetlands as defined in the CMP (N.J.A.C. 7:50-6.5(a)2). The wetlands continue onto adjacent lands. Any development of the parcel would be located within 300 feet of these wetlands. The applicant has submitted no information to demonstrate that the proposed development will not cause a significant adverse impact on the wetlands. Based on the quality and location of the wetlands, the proposed development will cause a significant adverse impact on the wetlands. As there

will be a significant adverse impact on wetlands located within 300 feet of the proposed development, the applicant is requesting a Waiver from the buffer to wetlands standard contained in the CMP (N.J.A.C. 7:50-6.14).

The CMP (N.J.A.C. 7:50-4.65(b)6) requires that for an applicant to qualify for a Waiver to develop a single family dwelling in a Pinelands Regional Growth Area, it must be demonstrated that no development, including clearing and land disturbance, will be located on wetlands. The applicant has demonstrated that no development, including clearing and land disturbance, will be located on or within 175 feet of wetlands.

The parcel includes all contiguous land in common ownership on or after January 14, 1981. The proposed single family dwelling will be the sole principal use of the parcel. The development of a single family dwelling on the parcel will not require any lot area or residential density variances pursuant to Jackson Township's certified land use ordinance. A single family dwelling can be developed on the parcel without violating any criteria contained in N.J.A.C. 7:50-4.65(b) if the conditions recommended below are imposed.

PUBLIC COMMENT

The applicant has provided the requisite public notice. Newspaper public notice was completed on December 22, 2021. Public notice to all property owners within 200 feet of the parcel was completed on December 16, 2021. The application was designated as complete on the Commission's website on February 17, 2022. The Commission's public comment period closed on March 11, 2022. No public comment regarding this application was submitted to the Pinelands Commission.

CONCLUSION

The CMP (N.J.A.C. 7:50-4.62) sets forth the standards which must be met before a Waiver can be approved. The CMP (N.J.A.C. 7:50-4.62(a)) requires that for a Waiver application to be approved based on an extraordinary hardship, the applicant must demonstrate that the conditions of either N.J.A.C. 7:50-4.63(a) or (b) of the CMP have been met.

The CMP (N.J.A.C. 7:50-4.63(a)) sets forth five conditions which must be met for an applicant to qualify for an extraordinary hardship pursuant to that subsection.

The first condition is that the only relief sought is from one or more of the standards contained in N.J.A.C. 7:50-6 for certain development specified in N.J.A.C. 7:50-4.63(a)1. This application is only for a Waiver from the wetlands buffer standard contained in N.J.A.C. 7:50-6. One of the specified types of development in N.J.A.C. 7:50-4.63(a)1 is a single family dwelling on a parcel within a Pinelands Regional Growth Area which is at least 20,000 square feet, excluding road rights of way, in size and will be serviced by an onsite septic system. This application proposes a single family dwelling in a Pinelands Regional Growth Area that will be serviced by an onsite septic system on a 2.35 acre (102,366 square feet) lot. As a result, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)1v.

The second condition is that the parcel includes all contiguous land in common ownership on or after January 14, 1981, including lands which are contiguous as a result of ownership of other contiguous lands. Since the parcel includes all such contiguous land, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)2.

The third condition is that the proposed use will be the sole principal use on the entire contiguous parcel, except as expressly provided in N.J.A.C. 7:50-5.1(c). As the proposed single family dwelling will be the sole principal use on the parcel, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)3.

The fourth condition is that all necessary municipal lot area and residential density variances have been obtained if the parcel is located in a municipality whose master plan and land use ordinances have been certified by the Pinelands Commission. Jackson Township's master plan and land use ordinances have been certified by the Pinelands Commission. In the RG-2 zoning district, Jackson Township's certified land use ordinance establishes a minimum lot size of 1.0 acre to develop a single family dwelling serviced by an alternate design onsite septic system. This application proposes to develop a single family dwelling serviced by an alternate design onsite septic system on a 2.35 acre lot. No municipal lot area or density variance is required to develop the proposed single family dwelling. As a result, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)4.

The fifth condition is that the development of the parcel will not violate any of the criteria contained in N.J.A.C. 7:50-4.65(b). N.J.A.C. 7:50-4.65(a) precludes the granting of a Waiver which permits a parcel to be developed unless such development will be consistent with the purposes and provisions of the Pinelands Protection Act, the Federal Act and the CMP and will not result in a substantial impairment of the resources of the Pinelands Area. The CMP (N.J.A.C 7:50-4.65(b)) sets forth the circumstances which do not comply with N.J.A.C 7:50-4.65(a). With the conditions recommended below, the proposed development will not violate any of the circumstances contained in N.J.A.C. 7:50-4.65(b). As a result, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)5.

Since the applicant meets all five conditions set forth in N.J.A.C. 7:50-4.63(a), the applicant has demonstrated that an extraordinary hardship exists pursuant to N.J.A.C. 7:50-4.62(a).

As required by N.J.A.C. 7:50-4.62(b), the proposed dwelling will not result in substantial impairment of the resources of the Pinelands or be inconsistent with the provisions of the Pinelands Protection Act, the Federal Act or the CMP in accordance with the criteria set forth in N.J.A.C. 7:50-4.65.

As required by N.J.A.C. 7:50-4.62(c), and with the conditions recommended below, the proposed dwelling will not involve trespass or create a public or private nuisance by being materially detrimental or injurious to other property or improvements in the area in which the parcel is located, increase the danger of fire or endanger public safety.

The CMP (N.J.A.C. 7:50-4.62(d)) requires that the Waiver only grant the minimum relief necessary to relieve the extraordinary hardship. The proposed single family dwelling is the minimum relief necessary to relieve the extraordinary hardship which has been shown to exist.

The CMP (N.J.A.C. 7:50-4.62(d)1iii) requires the acquisition and redemption of 0.25 Pinelands Development Credits (PDCs) whenever a Waiver provides relief from one or more of the standards of N.J.A.C. 7:50-6. As the application is obtaining a Waiver from the minimum buffer to wetlands standard (N.J.A.C. 7:50-6.14), a condition is included in this Report to require the applicant to purchase the requisite 0.25 Pinelands Development Credits.

To meet the requirements of N.J.A.C. 7:50-4.62, N.J.A.C. 7:50-4.63(a) and N.J.A.C. 7:50-4.65, the Pinelands Commission staff has determined that the parcel must be developed in accordance with the following conditions:

1. Except as modified by the below conditions, the proposed development shall adhere to the plan prepared by Haler Consulting, dated August 7, 2021.

2. The septic system shall be located in an area where the seasonal high water table is at least 5 feet below the natural ground surface and in the area shown on the above referenced plan.

3. Appropriate measures shall be taken prior to construction to preclude sedimentation from entering wetlands and shall be maintained in place until all development has been completed and the area has been stabilized.

4. Sufficient dry wells or a comparable alternative shall be installed to contain all stormwater runoff from the house.

5. The driveway shall be constructed of crushed stone or other permeable material.

6. The septic system shall be located at least 220 feet from all wetlands. All other development, including clearing and land disturbance, shall be located at least 175 feet from all wetlands. No development, including clearing and land disturbance, shall occur except as shown on the above referenced plan.

7. Except as provided in N.J.A.C. 7:50-5.1(c), the single family dwelling approved herein shall be the sole principal use of the parcel.

8. Prior to Commission issuance of a letter advising that any county or municipal approval or permit may take effect, the Commission must receive a letter from the Pinelands Development Credit Bank indicating that the requisite 0.25 Pinelands Development Credits have been acquired and submitted to the Pinelands Development Credit Bank for redemption.

9. This Waiver shall expire April 8, 2027 unless all necessary construction permits have been issued by that date. The Waiver shall also expire if any construction permit is allowed to expire or lapse after April 8, 2027, or if any renewal or extension of any permit or approval or issuance of a new construction permit is necessary after that date.

10. A copy of a recorded deed containing all of the above conditions shall be submitted to the Pinelands Commission prior to completing an application for development. The deed shall also specify that the conditions are being imposed pursuant to a Waiver of Strict Compliance referring to the application number. The deed shall state that the conditions are enforceable by the Pinelands Commission, Jackson Township, the Ocean County Health Department, and any other party of interest.

With the above conditions, the applicant qualifies for a Waiver from the requirements of N.J.A.C. 7:50-6.14 of the CMP.

Since the applicant meets the CMP Waiver requirements of N.J.A.C. 7:50-4.62, N.J.A.C. 7:50-4.63(a) and N.J.A.C. 7:50-4.65 for the development of one single family dwelling on the parcel, it is recommended that the Pinelands Commission **APPROVE** the requested Waiver subject to the above conditions.

APPEAL

The CMP (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal this recommendation in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on April 4, 2022 and include the following information:

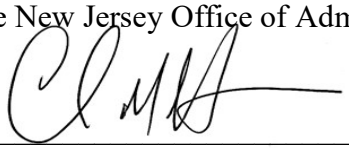
1. the name and address of the person requesting the appeal;

2. the application number;

3. a brief statement of the basis for the appeal; and

4. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

If no appeal is received, the Pinelands Commission may either approve the determination of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Recommended for Approval by: 

Charles M. Horner, P.P., Director of Regulatory Programs

c: Secretary, Jackson Township Planning Board (via email)
Jackson Township Construction Code Official (via email)
Jackson Township Environmental Commission (via email)
Secretary, Ocean County Planning Board (via email)
Ocean County Health Department (via email)
Eric Halpert (via email)

State of New Jersey
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MEMORANDUM

To: Members of the Pinelands Commission

From: Katie Elliott KE
Planning Specialist

Date: March 29, 2022

Subject: No Substantial Issue Findings

During the past month, the Planning Office reviewed two ordinance amendments that were found to raise no substantial issues with respect to the standards of the Pinelands Comprehensive Management Plan (CMP). They included the following:

Jackson Township Ordinance 06-22 – amends Chapter 244 (Land Use and Development Regulations) of the Code of Jackson Township by increasing the non-residential development fee from 2% of the increase in equalized assessed value to 2.5%. The ordinance also adds additional exemptions from both the residential and non-residential development fee. Lastly, the ordinance amends the procedures for the collection of such fees and the expenditure of housing trust funds.

Vineland City Ordinance 2022-13 – amends Chapter 425 (Land Use) of the Code of Vineland City by revising the definitions of "Parking Lot" and "Truck Terminal." These definitions apply throughout the municipality.



Local Government Energy Audit Report

Richard J. Sullivan Center

March 21, 2022

Prepared for:

NJ Pinelands Commission

15 C Springfield Rd

New Lisbon, New Jersey 08064

Prepared by:

TRC

317 George Street

New Brunswick, New Jersey 08901

Disclaimer

The goal of this audit report is to identify potential energy efficiency opportunities and help prioritize specific measures for implementation. Most energy conservation measures have received preliminary analysis of feasibility that identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to establish a basis for further discussion and to help prioritize energy measures.

TRC reviewed the energy conservation measures and estimates of energy savings for technical accuracy. Actual, achieved energy savings depend on behavioral factors and other uncontrollable variables and, therefore, estimates of final energy savings are not guaranteed. TRC and the New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

TRC bases estimated material and labor costs primarily on RS Means cost manuals as well as on our experience at similar facilities. This approach is based on standard cost estimating manuals and is vendor neutral. Cost estimates include material and labor pricing associated with one for one equipment replacements. Cost estimates do not include demolition or removal of hazardous waste. The actual implementation costs for energy savings projects are anticipated to be significantly higher based on the specific conditions at your site(s). We strongly recommend that you work with your design engineer or contractor to develop actual project costs for your specific scope of work for the installation of high efficiency equipment. We encourage you to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on selected products and installers. TRC and NJBPU do not guarantee cost estimates and shall in no event be held liable should actual installed costs vary from these material and labor estimates.

Incentive values provided in this report are estimated based of previously run state efficiency programs. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. Please review all available utility program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

The customer and their respective contractor(s) are responsible to implement energy conservation measures in complete conformance with all applicable local, state, and federal requirements.

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Table of Contents

1 Executive Summary 1

1.1 **Planning Your Project** 4

Pick Your Installation Approach 4
Options from Around the State 5

2 Existing Conditions 6

2.1 Site Overview 6
2.2 Building Occupancy 6
2.3 Building Envelope 7
2.4 Lighting Systems 10
2.5 Air Handling Systems 11

Unitary Electric HVAC Equipment 11
Unitary Heating Equipment 12

2.6 Domestic Hot Water 13
2.7 Plug Load and Vending Machines 13
2.8 Water-Using Systems 14

3 Energy Use and Costs 15

3.1 Electricity 17
3.2 Natural Gas 18
3.3 Benchmarking 19

Tracking Your Energy Performance 20

4 Energy Conservation Measures 21

4.1 Lighting 24

ECM 1: Install LED Fixtures 24
ECM 2: Retrofit Fixtures with LED Lamps 24

4.2 Lighting Controls 25

ECM 3: Install Occupancy Sensor Lighting Controls 25
ECM 4: Install High/Low Lighting Controls 25

4.3 Unitary HVAC 26

ECM 5: Install High Efficiency Air Conditioning Units 26
ECM 6: Install High Efficiency Heat Pumps 26

4.4 HVAC Improvements 27

ECM 7: Install Pipe Insulation 27

4.5 Domestic Water Heating 27

ECM 8: Install Low-Flow DHW Devices 27

5 Energy Efficient Best Practices 28

Energy Tracking with ENERGY STAR Portfolio Manager 28

Weatherization 28
Doors and Windows 28
Lighting Maintenance 29
Lighting Controls 29
Motor Maintenance 29
Fans to Reduce Cooling Load 29
AC System Evaporator/Condenser Coil Cleaning 29
HVAC Filter Cleaning and Replacement 29
Ductwork Maintenance 30
Furnace Maintenance 30
Label HVAC Equipment 30
Optimize HVAC Equipment Schedules 31
Water Heater Maintenance 31
Water Conservation 32
Procurement Strategies 32

6 On-site Generation 33

6.1 Solar Photovoltaic 34
6.2 Combined Heat and Power 36

7 Project Funding and Incentives 37

7.1 Utility Energy Efficiency Programs 37

8 New Jersey's Clean Energy Programs 38

8.1 Large Energy Users 39
8.2 Combined Heat and Power 40
8.3 Successor Solar Incentive Program (SuSI) 41
8.4 Energy Savings Improvement Program 42

9 Project Development 43
10 Energy Purchasing and Procurement Strategies 44

10.1 Retail Electric Supply Options 44
10.2 Retail Natural Gas Supply Options 44

Appendix A: Equipment Inventory & Recommendations A-1
Appendix B: ENERGY STAR Statement of Energy Performance B-1
Appendix C: Glossary C-1

ENERGY EFFICIENCY INCENTIVE & REBATE TRANSITION

For the purposes of your LGEA, estimated incentives and rebates are included as placeholders for planning purposes. New Jersey utilities are rolling out their own energy efficiency programs, which your project may be eligible for depending on individual measures, quantities, and size of the building.

In 2018, Governor Murphy signed into law the landmark legislation known as the Clean Energy Act. The law called for a significant overhaul of New Jersey's clean energy systems by building sustainable infrastructure in order to fight climate change and reduce carbon emissions, which will in turn create well-paying local jobs, grow the state's economy, and improve public health while ensuring a cleaner environment for current and future residents.

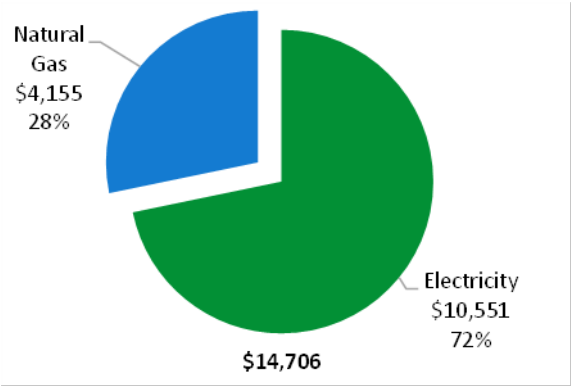
These next generation energy efficiency programs feature new ways of managing and delivering programs historically administered by New Jersey's Clean Energy Program™ (NJCEP). All of the investor-owned gas and electric utility companies will now also offer complementary energy efficiency programs and incentives directly to customers like you. NJCEP will still offer programs for new construction, renewable energy, the Energy Savings Improvement Program (ESIP), and large energy users.

New utility programs are under development. Keep up to date with developments by visiting the NJCEP website.

1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for Richard J. Sullivan Center. This report provides you with information about your facility's energy use, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help make changes in your facility. TRC conducted this study as part of a comprehensive effort to assist New Jersey school districts and local governments in controlling their energy costs and to help protect our environment by reducing statewide energy consumption.

BUILDING PERFORMANCE REPORT

Annual Utilities	Costs: $14,706 Electricity: 65,800 kWh Natural Gas: 4,204 Therms	
ENERGY STAR® Benchmarking Score	79 *(1-100 scale)*	Congratulations, your building performs better than the national average. This report has suggestions about how to keep your building running efficiently, further improve performance, and lower your energy bills even more.

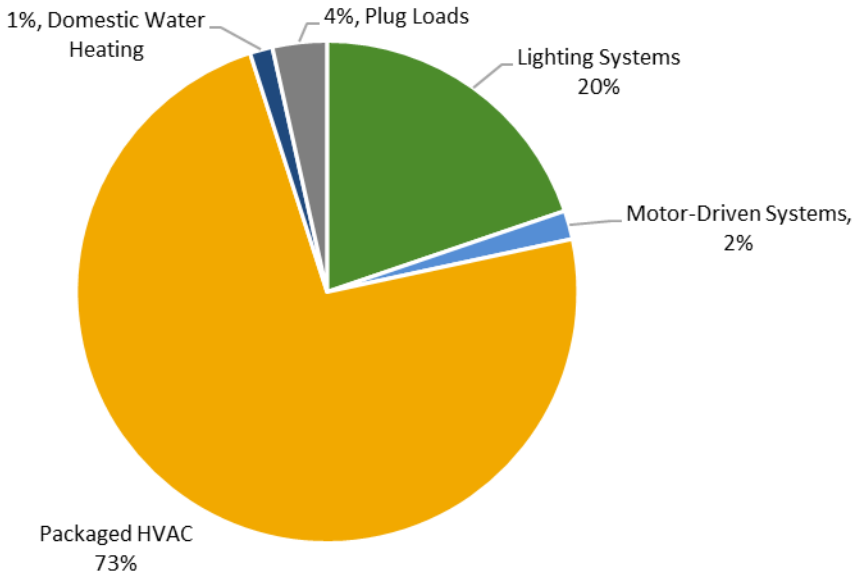


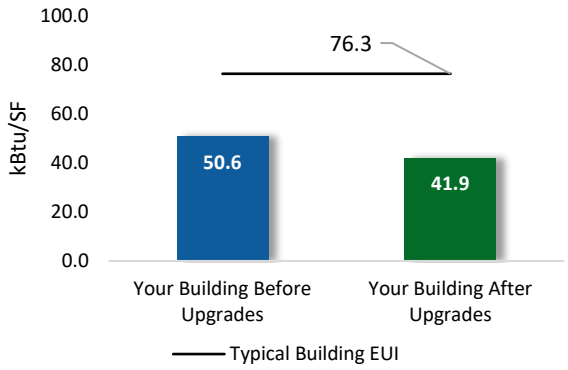
Figure 1 - Energy Use by System

POTENTIAL IMPROVEMENTS

This energy audit considered a range of potential energy improvements in your building. Costs and savings will vary between improvements. Presented below are two potential scopes of work for your consideration.

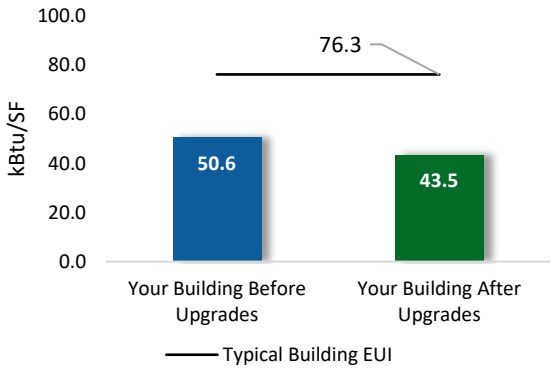
Scenario 1: Full Package (All Evaluated Measures)

Installation Cost	$74,247
Potential Rebates & Incentives[1]	$7,628
Annual Cost Savings	$5,240
Annual Energy Savings	Electricity: 32,770 kWh Natural Gas: -15 Therms
Greenhouse Gas Emission Savings	16 Tons
Simple Payback	12.7 Years
Site Energy Savings (All Utilities)	17%



Scenario 2: Cost Effective Package[2]

Installation Cost	$18,301
Potential Rebates & Incentives	$4,478
Annual Cost Savings	$4,307
Annual Energy Savings	Electricity: 26,953 kWh Natural Gas: -15 Therms
Greenhouse Gas Emission Savings	13 Tons
Simple Payback	3.2 Years
Site Energy Savings (all utilities)	14%



On-site Generation Potential

Photovoltaic	None
Combined Heat and Power	None

[1] Incentives are based on previously run state rebate programs. Contact your utility provider for current program incentives that may apply.

[2] A cost-effective measure is defined as one where the simple payback does not exceed two-thirds of the expected proposed equipment useful life. Simple payback is based on the net measure cost after potential incentives.

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**22,123**	**8.9**	**-4**	**$3,505**	**$11,531**	**$2,599**	**$8,932**	**2.5**	**21,775**
ECM 1	Install LED Fixtures	Yes	1,482	0.0	0	$238	$1,975	$700	$1,275	5.4	1,492
ECM 2	Retrofit Fixtures with LED Lamps	Yes	20,641	8.9	-4	$3,267	$9,556	$1,899	$7,657	2.3	20,282
Lighting Control Measures			**4,830**	**1.8**	**-1**	**$765**	**$6,693**	**$1,845**	**$4,848**	**6.3**	**4,746**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	3,582	1.4	-1	$567	$4,668	$515	$4,153	7.3	3,519
ECM 4	Install High/Low Lighting Controls	Yes	1,248	0.4	0	$198	$2,025	$1,330	$695	3.5	1,226
Unitary HVAC Measures			**5,817**	**6.0**	**0**	**$933**	**$55,945**	**$3,150**	**$52,795**	**56.6**	**5,857**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,902	5.4	0	$786	$50,618	$3,150	$47,468	60.4	4,937
ECM 6	Install High Efficiency Heat Pumps	No	914	0.5	0	$147	$5,327	$0	$5,327	36.3	921
HVAC System Improvements			**0**	**0.0**	**1**	**$9**	**$35**	**$12**	**$23**	**2.4**	**112**
ECM 7	Install Pipe Insulation	Yes	0	0.0	1	$9	$35	$12	$23	2.4	112
Domestic Water Heating Upgrade			**0**	**0.0**	**3**	**$28**	**$43**	**$22**	**$22**	**0.8**	**333**
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	3	$28	$43	$22	$22	0.8	333
TOTALS (COST EFFECTIVE MEASURES)			**26,953**	**10.7**	**-1**	**$4,307**	**$18,301**	**$4,478**	**$13,824**	**3.2**	**26,966**
TOTALS (ALL MEASURES)			**32,770**	**16.7**	**-1**	**$5,240**	**$74,247**	**$7,628**	**$66,619**	**12.7**	**32,823**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 2 – Evaluated Energy Improvements

For more detail on each evaluated energy improvement and a break out of cost-effective improvements, see **Section 4: Energy Conservation Measures.**

1.1 Planning Your Project

Careful planning makes for a successful energy project. When considering this scope of work, you will have some decisions to make, such as:

- How will the project be funded and/or financed?
- Is it best to pursue individual ECMs, groups of ECMs, or use a comprehensive approach where all ECMs are installed together?
- Are there other facility improvements that should happen at the same time?

Pick Your Installation Approach

Utility-run energy efficiency programs, such as New Jersey's Clean Energy Programs, give you the flexibility to do a little or a lot. Rebates, incentives, and financing are available to help reduce both your installation costs and your energy bills. If you are planning to take advantage of these programs, make sure to review incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives ***before*** purchasing materials or starting installation.

For details on these programs please visit New Jersey's Clean Energy Program website or contact your utility provider.



Options from Around the State

Financing and Planning Support with the Energy Savings Improvement Program (ESIP)

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the ESIP. Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as attractive financing for implementing ECMs. You have already taken the first step as an LGEA customer, because this report is required to participate in ESIP.

Resiliency with Return on Investment through Combined Heat and Power (CHP)

The CHP program provides incentives for combined heat and power (i.e., cogeneration) and waste heat to power projects. Combined heat and power systems generate power on-site and recover heat from the generation system to meet on-site thermal loads. Waste heat to power systems use waste heat to generate power. You will work with a qualified developer who will design a system that meets your building's heating and cooling needs.

Successor Solar Incentive Program (SuSI)

New Jersey is committed to supporting solar energy. Solar projects help the state reach the renewable goals outlined in the state's Energy Master Plan. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available, but certified solar projects are able to earn one SREC II (Solar Renewable Energy Certificates II) for each megawatt-hour of solar electricity produced from a qualifying solar facility.

Ongoing Electric Savings with Demand Response

The Demand Response Energy Aggregator program reduces electric loads at commercial facilities when wholesale electricity prices are high or when the reliability of the electric grid is threatened due to peak power demand. By enabling commercial facilities to reduce electric demand during times of peak demand, the grid is made more reliable, and overall transmission costs are reduced for all ratepayers. Curtailment service providers provide regular payments to medium and large consumers of electric power for their participation in demand response (DR) programs. Program participation is voluntary, and facilities receive payments regardless of whether they are called upon to curtail their load during times of peak demand.

Large Energy User Program (LEUP)

LEUP designed to promote self-investment in energy efficiency and combined heat and power or fuel cell projects. It incentivizes owners/users of buildings to upgrade or install energy conserving measures in existing buildings to help offset the capital costs associated with the project. The efficiency upgrades are customized to meet the requirements of the customers' existing facilities, while advancing the State's energy efficiency, conservation, and greenhouse gas reduction goals.

2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for Richard J. Sullivan Center. This report provides information on how your facility uses energy, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help you implement the ECMs.

TRC conducted this study as part of a comprehensive effort to assist New Jersey educational and local government facilities in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

2.1 Site Overview

On January 19, 2022, TRC performed an energy audit at Richard J. Sullivan Center located in New Lisbon, New Jersey. TRC met with Jessica Lynch to review the facility operations and help focus our investigation on specific energy-using systems.

Richard J. Sullivan Center is a 3-story, 12,748 square foot building built in 2002. Spaces include offices, a locker room, conference room, library, corridors, stairwells, kitchen, storage rooms, restrooms, electrical and mechanical space.

Lighting for the facility is provided mainly by linear fluorescent T8 fixtures. Seven split-system air conditioners with seven associated furnaces provide cooling and heating to spaces. There is one passenger elevator located in the facility.

2.2 Building Occupancy

The facility is occupied year-round. The building is closed on the weekends, and the facility closes at 6:00 PM on weekdays. During a typical day, the facility is occupied by approximately 25 staff.

Building Name	Weekday/Weekend	Operating Schedule
Richard J. Sullivan Center	Weekday	7:00 AM - 6:00 PM
	Weekend	Closed

Figure 3 - Building Occupancy Schedule

2.3 Building Envelope

Richard J. Sullivan Center is a three-floor building. Building walls are concrete block over structural steel with a vinyl facade. The roof is pitched and covered with shingles, and it is in good condition.

The windows are double glazed and have aluminum frames with thermal breaks. The glass-to-frame seals are in good condition. The operable window weather seals are in fair condition, showing little evidence of excess wear. It was noted that there are issues with the windows on the third floor not being secured. Exterior doors have aluminum frames and are in good condition with undamaged door seals. Degraded window and door seals increase drafts and outside air infiltration. Overall, the building envelope appears in good condition.



Building Walls





Building Windows





Entrance & Exit Doors



Roof

2.4 Lighting Systems

The primary interior lighting system uses 32-Watt fluorescent T8 lamps. Compact fluorescent (CFL), LED, and incandescent lamps are also used in some spaces. Typically, CFLs at this site use 13-, 26- and 40-watts. The incandescent lamps, used for the lobby exhibit, draw 65-watts each. Exit signs use LED sources.

Fixture types include 1-lamp, 2-lamp, and 3-lamp, 2-foot and 4-foot long recessed, surface mounted, and pendant fixtures with linear and U-bend tube lamps.

Interior light fixtures are controlled by manual wall switches. All light fixtures are in good condition. Interior lighting levels were generally sufficient. Exterior fixtures include pole mounted Metal Halide (MH) fixtures and LED security fixtures. Exterior fixtures are timer controlled.



Fluorescent T8 Fixtures



CFL Lamps





Exterior MH Fixtures

2.5 Air Handling Systems

Unitary Electric HVAC Equipment

The building cooling system consists of seven Ruud split-systems, two mini-split air conditioning (AC) units, and one mini-split heat pump (HP) unit. The split-systems are used to provide cooling throughout the entire building, while the mini-split AC units provide cooling to the server room and the mini-split HP unit conditions storage room 013.

Cooling capacities range from 0.75 tons to 5 tons, with efficiencies that vary from 10 EER to 16.8 EER. The mini-split HP unit has a heating capacity of 10.5 MBh with an efficiency of 6.8 HSPF. The split-systems, one of the mini-split AC units, and the mini-split HP unit are all original to the building, while the other mini-split AC unit was installed in 2014. All but the mini-split AC units are in fair condition, with the newer unit in good condition and the older unit in need of replacement.



Split-Systems

Unitary Heating Equipment

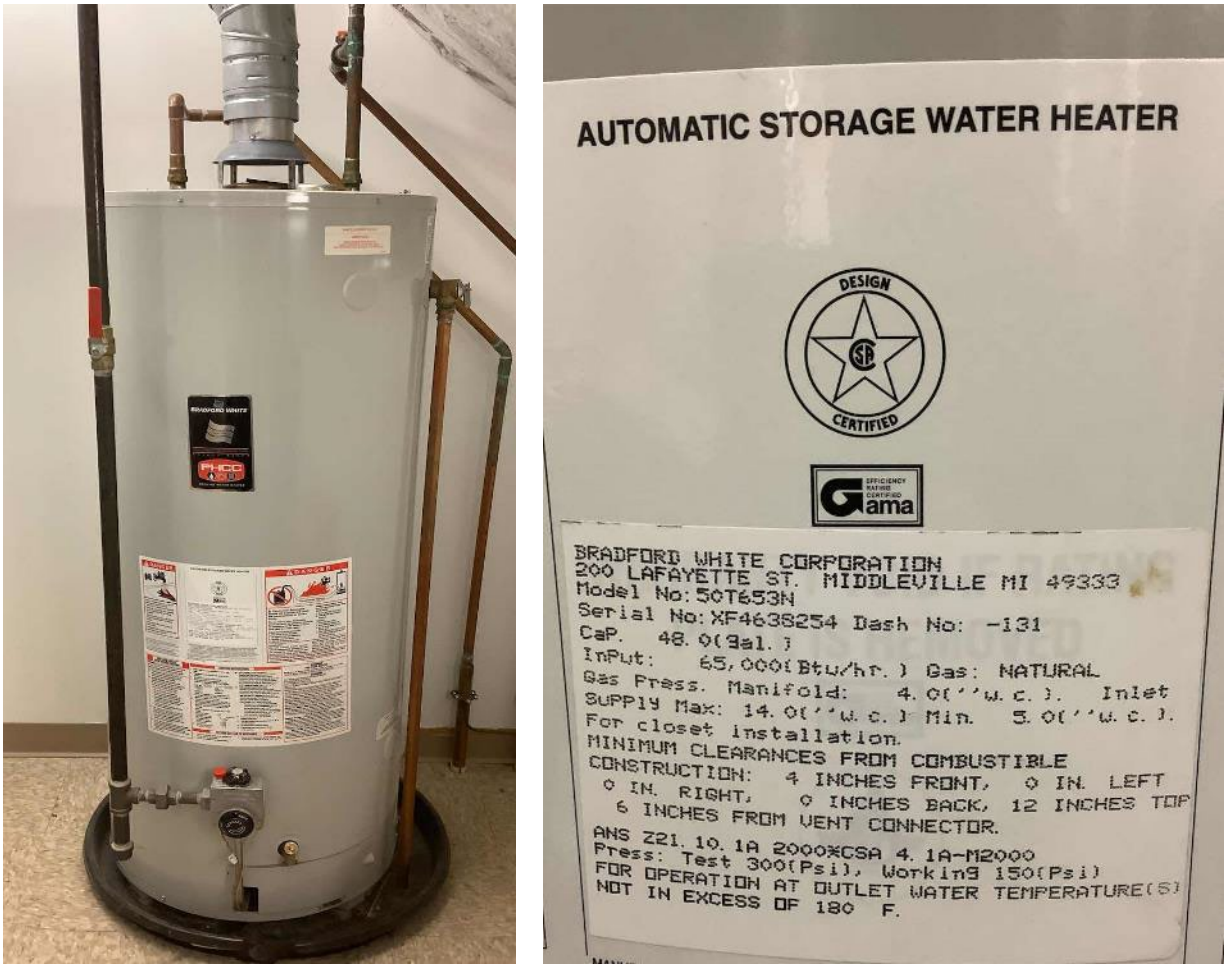
The building heating system consists of seven gas-fired Ruud forced air furnaces, each with an output capacity of 55.8 MBh and an efficiency rating of 92%. Each unit is equipped with a fractional hp supply fan. Original to the building, the units are beyond their typical useful lifespan but were not recommended for replacement as they were observed to be in good condition, well maintained, and relatively efficient. Equipment is controlled by wall-mounted thermostats located throughout the building.



Gas-fired Furnaces

2.6 Domestic Hot Water

Hot water is produced by a 65 MBh gas-fired storage water heater with a 48-gallon capacity. Original to the building, the unit is in good condition. The domestic hot water pipes are partially insulated and the insulation is in good condition.



Gas-fired Storage Tank Water Heater

2.7 Plug Load and Vending Machines

The location is doing a great job managing their electrical plug loads. This report makes additional suggestions for ECMs in this area as well as energy efficient best practices.

There are approximately 25 computer workstations throughout the facility. Plug loads throughout the building include general cafe and office equipment. There are typical office loads such as copiers, printers, microwaves, coffee machines, and mini fridges. There is one residential style refrigerator located in the kitchen that is used to store food and drinks.




Copier Machine & Residential Style Refrigerator

2.8 Water-Using Systems

There are 6 restrooms with toilets and sinks. Faucet flow rates are at 2.2 gallons per minute (gpm) or higher.

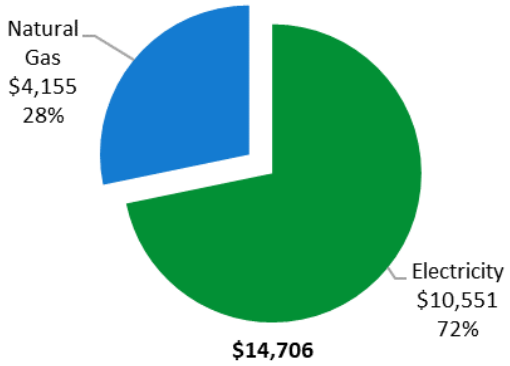



Typical Restroom Sinks

3 Energy Use and Costs

Twelve months of utility billing data are used to develop annual energy consumption and cost data. This information creates a profile of the annual energy consumption and energy costs.

Utility Summary		
Fuel	**Usage**	**Cost**
Electricity	65,800 kWh	$10,551
Natural Gas	4,204 Therms	$4,155
Total		**$14,706**



An energy balance identifies and quantifies energy use in your various building systems. This can highlight areas with the most potential for improvement. This energy balance was developed using calculated energy use for each of the end uses noted in the figure.

The energy auditor collects information regarding equipment operating hours, capacity, efficiency, and other operational parameters from facility staff, drawings, and on-site observations. This information is used as the inputs to calculate the existing conditions energy use for the site. The calculated energy use is then compared to the historical energy use and the initial inputs are revised, as necessary, to balance the calculated energy use to the historical energy use.

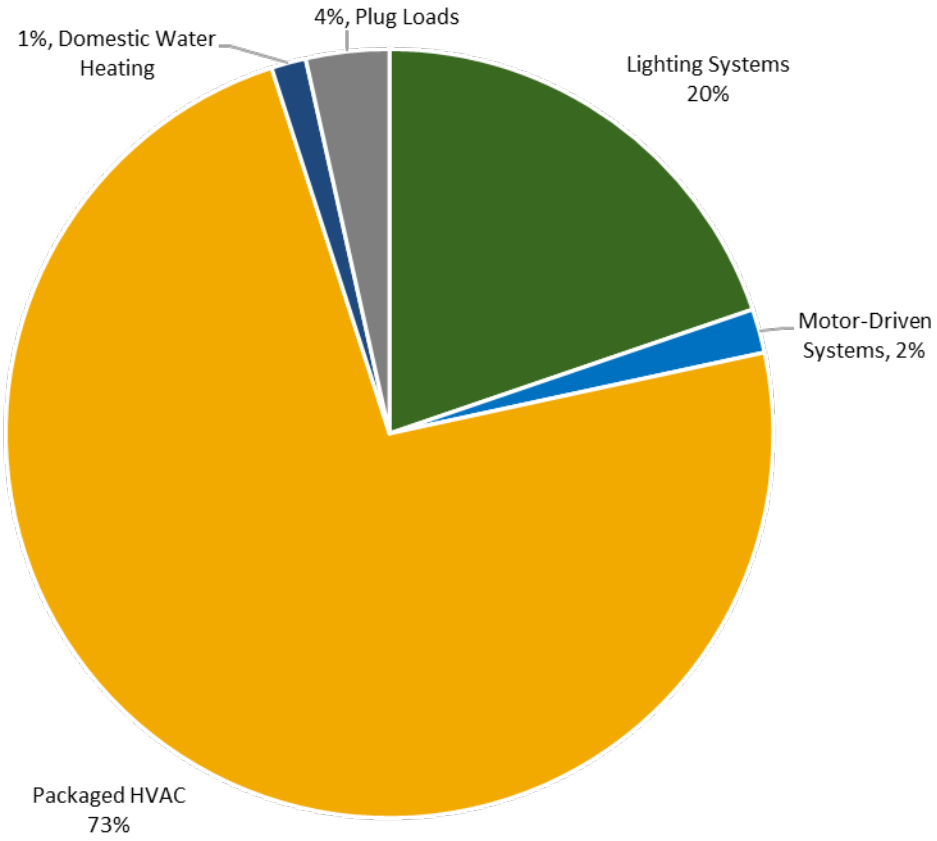
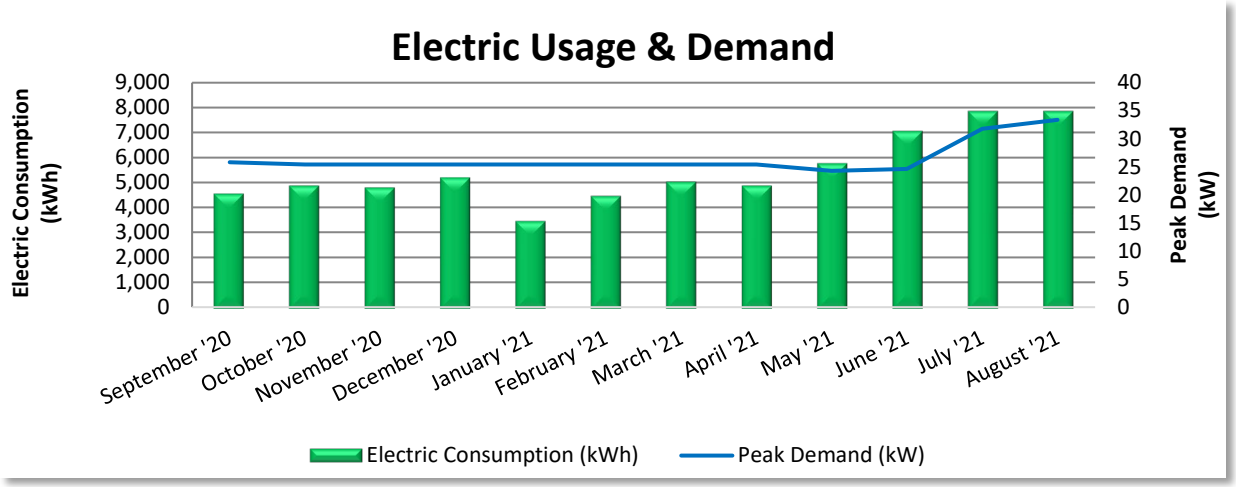


Figure 4 - Energy Balance

3.1 Electricity

JCP&L delivers electricity under rate class General Service Secondary 3 (GSG), with electric production provided by Champion Energy Services, a third-party supplier.



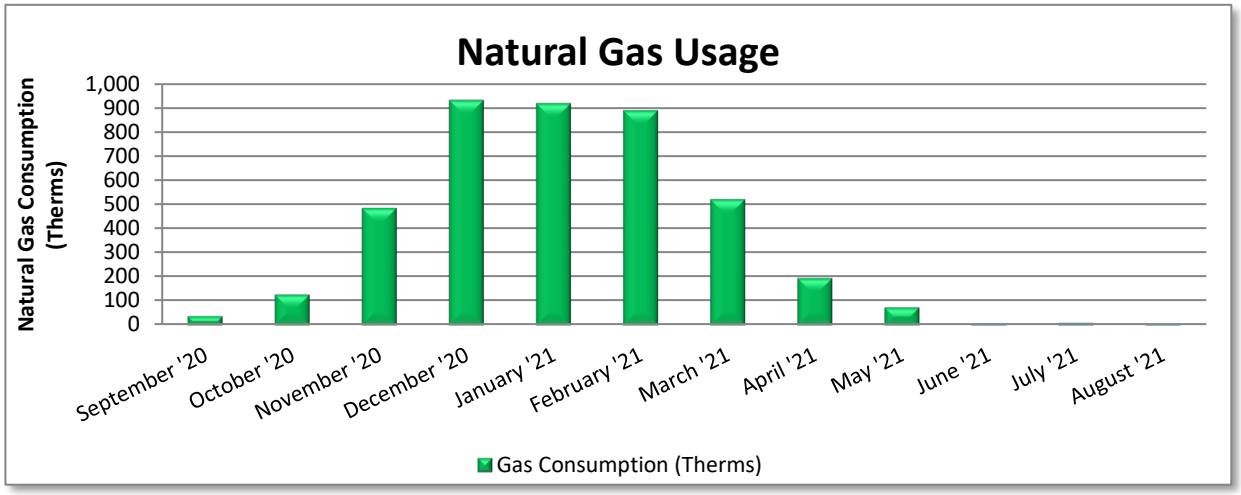
Electric Billing Data					
Period Ending	**Days in Period**	**Electric Usage (kWh)**	**Demand (kW)**	**Demand Cost**	**Total Electric Cost**
10/9/20	29	4,560	26	$48	$744
11/9/20	31	4,880	25	$46	$685
12/9/20	30	4,800	25	$46	$588
1/11/21	33	5,200	25	$46	$1,078
2/9/21	29	3,480	25	$46	$717
3/9/21	28	4,480	25	$46	$768
4/9/21	31	5,040	25	$46	$749
5/11/21	32	4,880	25	$55	$762
6/10/21	30	5,760	24	$95	$887
7/12/21	32	7,040	25	$97	$1,065
8/10/21	29	7,840	32	$145	$1,219
9/10/21	31	7,840	33	$155	$1,289
Totals	**365**	**65,800**	**33**	**$872**	**$10,551**
Annual	**365**	**65,800**	**33**	**$872**	**$10,551**

Notes:

- Peak demand of 33 kW occurred in August '21.
- Average demand over the past 12 months was 26 kW.
- The average electric cost over the past 12 months was $0.160/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges. This report uses this blended rate to estimate energy cost savings.

3.2 Natural Gas

PSE&G delivers natural gas under rate class General Service Gas (GSG), with natural gas supply provided by UGI, a third-party supplier.



Gas Billing Data			
Period Ending	**Days in Period**	**Natural Gas Usage (Therms)**	**Natural Gas Cost**
10/1/20	28	39	$64
10/30/20	29	128	$140
12/2/20	33	486	$465
1/4/21	33	930	$856
2/3/21	30	918	$846
3/5/21	30	888	$860
4/6/21	32	522	$496
5/5/21	29	196	$206
6/4/21	30	74	$95
7/6/21	32	8	$43
8/4/21	29	10	$44
9/3/21	30	5	$40
Totals	**365**	**4,204**	**$4,155**
Annual	**365**	**4,204**	**$4,155**

Notes:

- The average gas cost for the past 12 months is $0.988/therm, which is the blended rate used throughout the analysis.
- The reduced natural gas consumption during the summer months likely reflects usage for domestic hot water only.

3.3 Benchmarking

Your building was benchmarked using the United States Environmental Protection Agency's (EPA) *Portfolio Manager®* software. Benchmarking compares your building's energy use to that of similar buildings across the country, while neutralizing variations due to location, occupancy, and operating hours. Some building types can be scored with a 1-100 ranking of a building's energy performance relative to the national building market. A score of 50 represents the national average and a score of 100 is best.

This ENERGY STAR benchmarking score provides a comprehensive snapshot of your building's energy performance. It assesses the building's physical assets, operations, and occupant behavior, which is compiled into a quick and easy-to-understand score.

Benchmarking Score	**79**

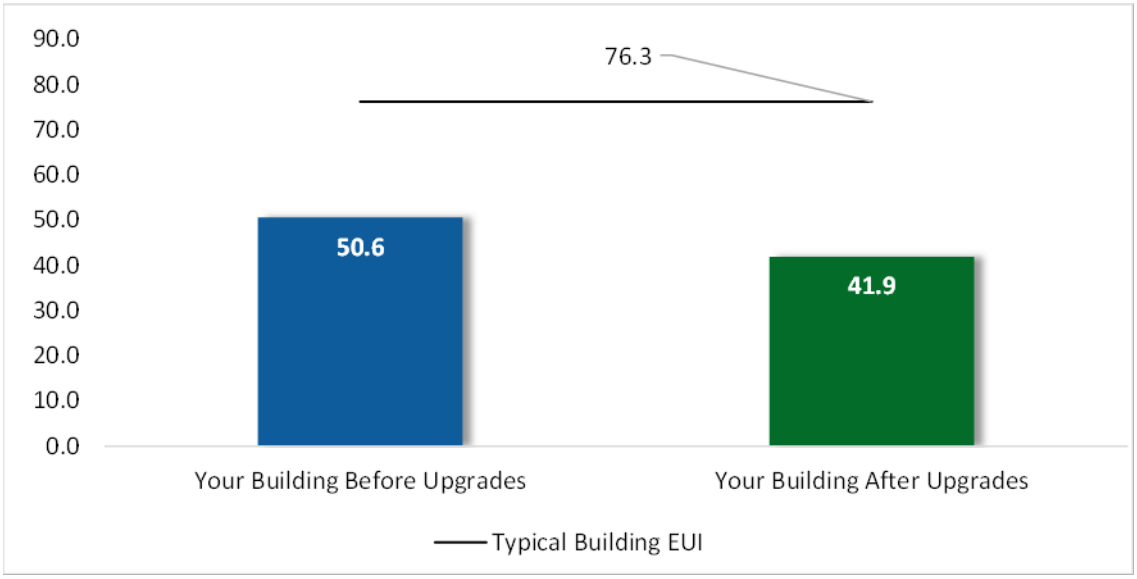


Figure 5 - Energy Use Intensity Comparison[3]

Congratulations, your building performs better than the national average. This report has suggestions about how to keep your building running efficiently, further improve performance, and lower your energy bills even more.

Energy use intensity (EUI) measures energy consumption per square foot and is the standard metric for comparing buildings' energy performance. A lower EUI means better performance and less energy consumed. Several factors can cause a building to vary from typical energy usage. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and occupant behavior all contribute to a building's energy use and the benchmarking score.

[3] Based on all evaluated ECMs

Tracking Your Energy Performance

Keeping track of your energy use on a monthly basis is one of the best ways to keep energy costs in check. Update your utility information in Portfolio Manager regularly, so that you can keep track of your building's performance.

We have created a Portfolio Manager account for your facility, and we have already entered the monthly utility data shown above for you. Account login information for your account will be sent via email.

Free online training is available to help you use ENERGY STAR Portfolio Manager to track your building's performance at: https://www.energystar.gov/buildings/training.

For more information on ENERGY STAR and Portfolio Manager, visit their website.

4 Energy Conservation Measures

The goal of this audit report is to identify and evaluate potential energy efficiency improvements and provide information about the cost effectiveness of those improvements. Most energy conservation measures have received preliminary analysis of feasibility, which identifies expected ranges of savings. This level of analysis is typically sufficient to demonstrate project cost-effectiveness and help prioritize energy measures.

Calculations of energy use and savings are based on the current version of the *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*, which is approved by the NJBPU. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances.

Operation and maintenance costs for the proposed new equipment will generally be lower than the current costs for the existing equipment—especially if the existing equipment is at or past its normal useful life. We have conservatively assumed there to be no impact on overall maintenance costs over the life of the equipment.

Financial incentives are based on previously run state rebate programs. New utility programs are expected to start rolling out in the spring and summer of 2021. Keep up to date with developments by visiting the NJCEP website. Some measures and proposed upgrades may be eligible for higher incentives than those shown below.

For a detailed list of the locations and recommended energy conservation measures for all inventoried equipment, see **Appendix A: Equipment Inventory & Recommendations.**

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**22,123**	**8.9**	**-4**	**$3,505**	**$11,531**	**$2,599**	**$8,932**	**2.5**	**21,775**
ECM 1	Install LED Fixtures	Yes	1,482	0.0	0	$238	$1,975	$700	$1,275	5.4	1,492
ECM 2	Retrofit Fixtures with LED Lamps	Yes	20,641	8.9	-4	$3,267	$9,556	$1,899	$7,657	2.3	20,282
Lighting Control Measures			**4,830**	**1.8**	**-1**	**$765**	**$6,693**	**$1,845**	**$4,848**	**6.3**	**4,746**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	3,582	1.4	-1	$567	$4,668	$515	$4,153	7.3	3,519
ECM 4	Install High/Low Lighting Controls	Yes	1,248	0.4	0	$198	$2,025	$1,330	$695	3.5	1,226
Unitary HVAC Measures			**5,817**	**6.0**	**0**	**$933**	**$55,945**	**$3,150**	**$52,795**	**56.6**	**5,857**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,902	5.4	0	$786	$50,618	$3,150	$47,468	60.4	4,937
ECM 6	Install High Efficiency Heat Pumps	No	914	0.5	0	$147	$5,327	$0	$5,327	36.3	921
HVAC System Improvements			**0**	**0.0**	**1**	**$9**	**$35**	**$12**	**$23**	**2.4**	**112**
ECM 7	Install Pipe Insulation	Yes	0	0.0	1	$9	$35	$12	$23	2.4	112
Domestic Water Heating Upgrade			**0**	**0.0**	**3**	**$28**	**$43**	**$22**	**$22**	**0.8**	**333**
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	3	$28	$43	$22	$22	0.8	333
TOTALS			**32,770**	**16.7**	**-1**	**$5,240**	**$74,247**	**$7,628**	**$66,619**	**12.7**	**32,823**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 6 – All Evaluated ECMs

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**22,123**	**8.9**	**-4**	**$3,505**	**$11,531**	**$2,599**	**$8,932**	**2.5**	**21,775**
ECM 1	Install LED Fixtures	1,482	0.0	0	$238	$1,975	$700	$1,275	5.4	1,492
ECM 2	Retrofit Fixtures with LED Lamps	20,641	8.9	-4	$3,267	$9,556	$1,899	$7,657	2.3	20,282
Lighting Control Measures		**4,830**	**1.8**	**-1**	**$765**	**$6,693**	**$1,845**	**$4,848**	**6.3**	**4,746**
ECM 3	Install Occupancy Sensor Lighting Controls	3,582	1.4	-1	$567	$4,668	$515	$4,153	7.3	3,519
ECM 4	Install High/Low Lighting Controls	1,248	0.4	0	$198	$2,025	$1,330	$695	3.5	1,226
HVAC System Improvements		**0**	**0.0**	**1**	**$9**	**$35**	**$12**	**$23**	**2.4**	**112**
ECM 7	Install Pipe Insulation	0	0.0	1	$9	$35	$12	$23	2.4	112
Domestic Water Heating Upgrade		**0**	**0.0**	**3**	**$28**	**$43**	**$22**	**$22**	**0.8**	**333**
ECM 8	Install Low-Flow DHW Devices	0	0.0	3	$28	$43	$22	$22	0.8	333
TOTALS		**26,953**	**10.7**	**-1**	**$4,307**	**$18,301**	**$4,478**	**$13,824**	**3.2**	**26,966**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 7 – Cost Effective ECMs

4.1 Lighting

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**22,123**	**8.9**	**-4**	**$3,505**	**$11,531**	**$2,599**	**$8,932**	**2.5**	**21,775**
ECM 1	Install LED Fixtures	1,482	0.0	0	$238	$1,975	$700	$1,275	5.4	1,492
ECM 2	Retrofit Fixtures with LED Lamps	20,641	8.9	-4	$3,267	$9,556	$1,899	$7,657	2.3	20,282

When considering lighting upgrades, we suggest using a comprehensive design approach that simultaneously upgrades lighting fixtures and controls to maximize energy savings and improve occupant lighting. Comprehensive design will also consider appropriate lighting levels for different space types to make sure that the right amount of light is delivered where needed. If conversion to LED light sources is proposed, we suggest converting all of a specific lighting type (e.g., linear fluorescent) to LED lamps to minimize the number of lamp types in use at the facility, which should help reduce future maintenance costs.

ECM 1: Install LED Fixtures

Replace existing fixtures containing high intensity discharge (HID) lamps with new LED light fixtures. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

In some cases, HID fixtures can be retrofit with screw-based LED lamps. Replacing an existing HID fixture with a new LED fixture will generally provide better overall lighting optics; however, replacing the HID lamp with a LED screw-in lamp is typically a less expensive retrofit. We recommend you work with your lighting contractor to determine which retrofit solution is best suited to your needs and will be compatible with the existing fixtures.

Maintenance savings may also be achieved since LED lamps last longer than other light sources and therefore do not need to be replaced as often.

Affected building areas: exterior metal halide fixtures.

ECM 2: Retrofit Fixtures with LED Lamps

Replace fluorescent and CFL lamps with LED lamps. Many LED tubes are direct replacements for existing fluorescent tubes and can be installed while leaving the fluorescent fixture ballast in place. LED lamps can be used in existing fixtures as a direct replacement for most other lighting technologies. Be sure to specify replacement lamps that are compatible with existing dimming controls, where applicable. In some circumstances, you may need to upgrade your dimming system for optimum performance.

This measure saves energy by installing LEDs, which use less power than other lighting technologies yet provide equivalent lighting output for the space. Maintenance savings may also be available, as longer-lasting LEDs lamps will not need to be replaced as often as the existing lamps.

Affected Building Areas: all areas with CFL lamps, incandescent lamps, or fluorescent fixtures with T8 tubes.

4.2 Lighting Controls

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Control Measures		**4,830**	**1.8**	**-1**	**$765**	**$6,693**	**$1,845**	**$4,848**	**6.3**	**4,746**
ECM 3	Install Occupancy Sensor Lighting Controls	3,582	1.4	-1	$567	$4,668	$515	$4,153	7.3	3,519
ECM 4	Install High/Low Lighting Controls	1,248	0.4	0	$198	$2,025	$1,330	$695	3.5	1,226

Lighting controls reduce energy use by turning off or lowering lighting fixture power levels when not in use. A comprehensive approach to lighting design should upgrade the lighting fixtures and the controls together for maximum energy savings and improved lighting for occupants.

ECM 3: Install Occupancy Sensor Lighting Controls

Install occupancy sensors to control lighting fixtures in areas that are frequently unoccupied, even for short periods. For most spaces, we recommend that lighting controls use dual technology sensors, which reduce the possibility of lights turning off unexpectedly.

Occupancy sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Most occupancy sensor lighting controls allow users to manually turn fixtures on/off, as needed. Some controls can also provide dimming options.

Occupancy sensors can be mounted on the wall at existing switch locations, mounted on the ceiling, or in remote locations. In general, wall switch replacement sensors are best suited to single occupant offices and other small rooms. Ceiling-mounted or remote mounted sensors are used in large spaces, locations without local switching, and where wall switches are not in the line-of-sight of the main work area.

This measure provides energy savings by reducing the lighting operating hours.

Affected Building Areas: offices, conference room, kitchen, library, and storage rooms.

ECM 4: Install High/Low Lighting Controls

Install occupancy sensors to provide dual level lighting control for lighting fixtures in spaces that are infrequently occupied but may require some level of continuous lighting for safety or security reasons.

Lighting fixtures with these controls operate at default low levels when the area is unoccupied to provide minimal lighting to meet security or safety code requirements for egress. Sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Fixtures automatically switch back to low level after a predefined period of vacancy. In parking lots and parking garages with significant ambient lighting, this control can sometimes be combined with photocell controls to turn the lights off when there is sufficient daylight.

The controller lowers the light level by dimming the fixture output. Therefore, the controlled fixtures need to have a dimmable ballast or driver. This will need to be considered when selecting retrofit lamps and bulbs for the areas proposed for high/low control.

For this type of measure the occupancy sensors will generally be ceiling or fixture mounted. Sufficient sensor coverage must be provided to ensure that lights turn on in each area as occupants approach the area.

This measure provides energy savings by reducing the light fixture power draw when reduced light output is appropriate.

Affected Building Areas: hallways, stairwells, and main lobby.

4.3 Unitary HVAC

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Unitary HVAC Measures		**5,817**	**6.0**	**0**	**$933**	**$55,945**	**$3,150**	**$52,795**	**56.6**	**5,857**
ECM 5	Install High Efficiency Air Conditioning Units	4,902	5.4	0	$786	$50,618	$3,150	$47,468	60.4	4,937
ECM 6	Install High Efficiency Heat Pumps	914	0.5	0	$147	$5,327	$0	$5,327	36.3	921

Replacing the unitary HVAC units has a long payback period and may not be justifiable based simply on energy considerations. However, most of the units are nearing or have reached the end of their normal useful life. Typically, the marginal cost of purchasing a high efficiency unit can be justified by the marginal savings from the improved efficiency. When the split-systems and mini-splits are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

ECM 5: Install High Efficiency Air Conditioning Units

We evaluated replacing standard efficiency packaged air conditioning units with high efficiency packaged air conditioning units. The magnitude of energy savings for this measure depends on the relative efficiency of the older unit versus the new high efficiency unit, the average cooling and heating load, and the estimated annual operating hours.

Affected Units: exterior split-systems and the server room mini-split AC unit.

ECM 6: Install High Efficiency Heat Pumps

We evaluated replacing standard efficiency heat pumps with high efficiency heat pumps. A higher EER or SEER rating indicates a more efficient cooling system, and a higher HSPF rating indicates more efficient heating mode. The magnitude of energy savings for this measure depends on the relative efficiency of the older unit versus the new high efficiency unit, the average heating and cooling loads, and the estimated annual operating hours.

Affected Units: mini-split HP unit in storage room 013.

4.4 HVAC Improvements

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
HVAC System Improvements		**0**	**0.0**	**1**	**$9**	**$35**	**$12**	**$23**	**2.4**	**112**
ECM 7	Install Pipe Insulation	0	0.0	1	$9	$35	$12	$23	2.4	112

ECM 7: Install Pipe Insulation

Install insulation on domestic hot water system piping. Distribution system losses are dependent on system fluid temperature, the size of the distribution system, and the level of insulation of the piping. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is exposed to water, when the insulation has been removed from some areas of the pipe, or when valves have not been properly insulated system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

Affected Systems: domestic hot water piping.

4.5 Domestic Water Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**0**	**0.0**	**3**	**$28**	**$43**	**$22**	**$22**	**0.8**	**333**
ECM 8	Install Low-Flow DHW Devices	0	0.0	3	$28	$43	$22	$22	0.8	333

ECM 8: Install Low-Flow DHW Devices

Install low-flow devices to reduce overall hot water demand. The following low-flow devices are recommended to reduce hot water usage:

Device	Flow Rate
Faucet aerators (lavatory)	0.5 gpm
Faucet aerator (kitchen)	1.5 gpm
Showerhead	2.0 gpm
Pre-rinse spray valve (kitchen)	1.28 gpm

Low-flow devices reduce the overall water flow from the fixture, while still providing adequate pressure for washing. Additional cost savings may result from reduced water usage.

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs.

Operation and maintenance (O&M) plans enhance the operational efficiency of HVAC and other energy intensive systems and could save 5% –20% of the energy usage in your building without substantial capital investment. A successful plan includes your records of energy usage trends and costs, building equipment lists, current maintenance practices, and planned capital upgrades, and it incorporates your ideas for improved building operation. Your plan will address goals for energy-efficient operation, provide detail on how to reach the goals, and outline procedures for measuring and reporting whether goals have been achieved.

You may already be doing some of these things—see our list below for potential additions to your maintenance plan. Be sure to consult with qualified equipment specialists for details on proper maintenance and system operation.

Energy Tracking with ENERGY STAR Portfolio Manager

You've heard it before—you cannot manage what you do not measure. ENERGY STAR Portfolio Manager is an online tool that you can use to measure and track energy and water consumption, as well as greenhouse gas emissions[4] . Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

Weatherization

Caulk or weather strip leaky doors and windows to reduce drafts and loss of heated or cooled air. Sealing cracks and openings can reduce heating and cooling costs, improve building durability, and create a healthier indoor environment. Materials used may include caulk, polyurethane foam, and other weather-stripping materials. There is an energy savings opportunity by reducing the uncontrolled air exchange between the outside and inside of the building. Blower door assisted comprehensive building air sealing will reduce the amount of air exchange, which will in turn reduce the load on the buildings heating and cooling equipment, providing energy savings and increased occupant comfort.

Doors and Windows

Close exterior doors and windows in heated and cooled areas. Leaving doors and windows open leads to a loss of heat during the winter and chilled air during the summer. Reducing air changes per hour can lead to increased occupant comfort as well as heating and cooling savings, especially when combined with proper HVAC controls and adequate ventilation.

[4] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager.

Lighting Maintenance



Clean lamps, reflectors and lenses of dirt, dust, oil, and smoke buildup every six to twelve months. Light levels decrease over time due to lamp aging, lamp and ballast failure, and buildup of dirt and dust. Together, this can reduce total light output by up to 60% while still drawing full power.

In addition to routine cleaning, developing a maintenance schedule can ensure that maintenance is performed regularly, and it can reduce the overall cost of fixture re-lamping and re-ballasting. Group re-lamping and re-ballasting maintains lighting levels and minimizes the number of site visits by a lighting technician or contractor, decreasing the overall cost of maintenance.

Lighting Controls

As part of a lighting maintenance schedule, test lighting controls to ensure proper functioning. For occupancy sensors, this requires triggering the sensor and verifying that the sensor's timer settings are correct. For daylight and photocell sensors, maintenance involves cleaning sensor lenses and confirming that setpoints and sensitivity are configured properly. Adjust exterior lighting time clock controls seasonally as needed to match your lighting requirements.

Motor Maintenance

Motors have many moving parts. As these parts degrade over time, the efficiency of the motor is reduced. Routine maintenance prevents damage to motor components. Routine maintenance should include cleaning surfaces and ventilation openings on motors to prevent overheating, lubricating moving parts to reduce friction, inspecting belts and pulleys for wear and to ensure they are at proper alignment and tension, and cleaning and lubricating bearings. Consult a licensed technician to assess these and other motor maintenance strategies.

Fans to Reduce Cooling Load

Install ceiling fans to supplement your cooling system. Thermostat settings can typically be increased by 4°F with no change in overall occupant comfort due to the wind chill effect of moving air.

AC System Evaporator/Condenser Coil Cleaning

Dirty evaporator and condenser coils restrict air flow and restrict heat transfer. This increases the loads on the evaporator and condenser fan and decreases overall cooling system performance. Keeping the coils clean allows the fans and cooling system to operate more efficiently.

HVAC Filter Cleaning and Replacement

Air filters should be checked regularly (often monthly) and cleaned or replaced when appropriate. Air filters reduce indoor air pollution, increase occupant comfort, and help keep equipment operating efficiently. If the building has a building management system, consider installing a differential pressure switch across filters to send an alarm about premature fouling or overdue filter replacement. Over time, filters become less and less effective as particulate buildup increases. Dirty filters also restrict air flow through the air conditioning or heat pump system, which increases the load on the distribution fans.

Ductwork Maintenance

Duct maintenance has two primary goals: keep the ducts clean to avoid air quality problems and seal leaks to save energy. Check for cleanliness, obstructions that block airflow, water damage, and leaks. Ducts should be inspected at least every two years.

The biggest symptoms of clogged air ducts are differing temperatures throughout the building and areas with limited airflow from supply registers. If a particular air duct is clogged, then air flow will only be cut off to some rooms in the building—not all of them. The reduced airflow will make it more difficult for those areas to reach the temperature setpoint, which will cause the HVAC system to run longer to cool or heat that area properly. If you suspect clogged air ducts, ensure that all areas in front of supply registers are clear of items that may block or restrict air flow, and you should check for fire dampers or balancing dampers that have failed closed.

Duct leakage in commercial buildings can account for 5%–25% of the supply airflow. In the case of rooftop air handlers, duct leakage can occur to the outside of the building wasting conditioned air. Check ductwork for leakage. Eliminating duct leaks can improve ventilation system performance and reduce heating and cooling system operation.

Distribution system losses are dependent on air system temperature, the size of the distribution system, and the level of insulation of the ductwork. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is missing or worn, the system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

Furnace Maintenance

Preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should check for gas / carbon monoxide leaks; change the air and fuel filters; check components for cracks, corrosion, dirt, or debris build-up; ensure the ignition system is working properly; test and adjust operation and safety controls; inspect electrical connections; and lubricate motors and bearings.

Label HVAC Equipment

For improved coordination in maintenance practices, we recommend labeling or re-labeling the site HVAC equipment. Maintain continuity in labeling by following labeling conventions as indicated in the facility drawings or EMS building equipment list. Use weatherproof or heatproof labeling or stickers for permanence, but do not cover over original equipment nameplates, which should be kept clean and readable whenever possible. Besides equipment, label piping for service and direction of flow when possible. Ideally, maintain a log of HVAC equipment, including nameplate information, asset tag designation, areas served, installation year, service dates, and other pertinent information.

This investment in your equipment will enhance collaboration and communication between your staff and your contracted service providers and may help you with regulatory compliance.

Optimize HVAC Equipment Schedules

Energy management systems (EMS) typically provide advanced controls for building HVAC systems, including chillers, boilers, air handling units, rooftop units and exhaust fans. The EMS monitors and reports operational status, schedules equipment start and stop times, locks out equipment operation based on outside air or space temperature, and often optimizes damper and valve operation based on complex algorithms. These EMS features, when in proper adjustment, can improve comfort for building occupants and save substantial energy.

Know your EMS scheduling capabilities. Regularly monitor HVAC equipment operating schedules and match them to building operating hours in order to eliminate unnecessary equipment operation and save energy. Monitoring should be performed often at sites with frequently changing usage patterns – daily in some cases. We recommend using the *optimal start* feature of the EMS (if available) to optimize the building warmup sequence. Most EMS scheduling programs provide for holiday schedules, which can be used during reduced use or shutdown periods. Finally, many systems are equipped with a one-time override function, which can be used to provide additional space conditioning due to a one-time, special event. When available this override feature should be used rather than changing the base operating schedule.

Water Heater Maintenance

The lower the supply water temperature that is used for hand washing sinks, the less energy is needed to heat the water. Reducing the temperature results in energy savings and the change is often unnoticeable to users. Be sure to review the domestic water temperature requirements for sterilizers and dishwashers as you investigate reducing the supply water temperature.

Also, preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. At least once a year, follow manufacturer instructions to drain a few gallons out of the water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Annual checks should include checks for:

- Leaks or heavy corrosion on the pipes and valves.
- Corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot, or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional.
- For electric water heaters, look for signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank.
- For water heaters more than three years old, have a technician inspect the sacrificial anode annually.

Water Conservation



Installing dual flush or low-flow toilets and low-flow/waterless urinals are ways to reduce water use. The EPA WaterSense® ratings for urinals is 0.5 gallons per flush (gpf) and for flush valve toilets is 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

For more information regarding water conservation go to the EPA's WaterSense website[5] or download a copy of EPA's "WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities"[6] to get ideas for creating a water management plan and best practices for a wide range of water using systems.

Water conservation devices that do not reduce hot water consumption will not provide energy savings at the site level, but they may significantly affect your water and sewer usage costs. Any reduction in water use does however ultimately reduce grid-level electricity use since a significant amount of electricity is used to deliver water from reservoirs to end users.

If the facility has detached buildings with a master water meter for the entire campus, check for unnatural wet areas in the lawn or water seeping in the foundation at water pipe penetrations through the foundation. Periodically check overnight meter readings when the facility is unoccupied, and there is no other scheduled water usage.

Manage irrigation systems to use water more effectively outside the building. Adjust spray patterns so that water lands on intended lawns and plantings and not on pavement and walls. Consider installing an evapotranspiration irrigation controller that will prevent over-watering.

Procurement Strategies

Purchasing efficient products reduces energy costs without compromising quality. Consider modifying your procurement policies and language to require ENERGY STAR or WaterSense products where available.

[5] https://www.epa.gov/watersense.

[6] https://www.epa.gov/watersense/watersense-work-0.

6 On-site Generation

You don't have to look far in New Jersey to see one of the thousands of solar electric systems providing clean power to homes, businesses, schools, and government buildings. On-site generation includes both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) technologies that generate power to meet all or a portion of the facility's electric energy needs. Also referred to as distributed generation, these systems contribute to greenhouse gas (GHG) emission reductions, demand reductions, and reduced customer electricity purchases, which results in improved electric grid reliability through better use of transmission and distribution systems.

Preliminary screenings were performed to determine if an on-site generation measure could be a cost-effective solution for your facility. Before deciding to install an on-site generation system, we recommend conducting a feasibility study to analyze existing energy profiles, siting, interconnection, and the costs associated with the generation project including interconnection costs, departing load charges, and any additional special facilities charges.

6.1 Solar Photovoltaic

Photovoltaic (PV) panels convert sunlight into electricity. Individual panels are combined into an array that produces direct current (DC) electricity. The DC current is converted to alternating current (AC) through an inverter. The inverter is then connected to the building's electrical distribution system.

A preliminary screening was conducted based on the facility's electric demand, size and location of free area, and shading elements. A solar PV array was evaluated for the building's parking lot. However, due to the facility's low electric demand along with the amount of shading in the area, the preliminary screening shows that the facility has no potential for installing a PV array.

This facility does not appear to meet the minimum criteria for a cost-effective solar PV installation. To be cost-effective, a solar PV array needs certain minimum criteria, such as sufficient and sustained electric demand and sufficient flat or south-facing rooftop or other unshaded space on which to place the PV panels.

The graphic below displays the results of the PV potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

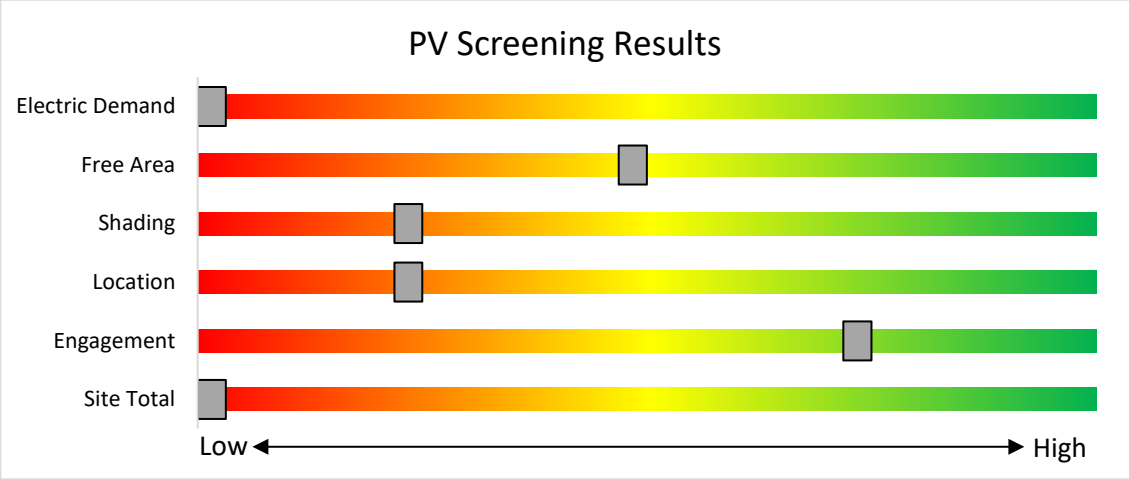


Figure 8 - Photovoltaic Screening

Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects. Solar projects may qualify to earn SREC- IIs (Solar Renewable Energy Certificates-II), however, the project owners *must* register their solar projects prior to the start of construction to establish the project's eligibility.

Get more information about solar power in New Jersey or find a qualified solar installer who can help you decide if solar is right for your building:

Successor Solar Incentive Program (SuSI): https://www.njcleanenergy.com/renewable-energy/programs/susi-program

- **Basic Info on Solar PV in NJ**: www.njcleanenergy.com/whysolar
- **NJ Solar Market FAQs**: www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-market-faqs.
- **Approved Solar Installers in the NJ Market**: www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/?id=60&start=1

6.2 Combined Heat and Power

Combined heat and power (CHP) generates electricity at the facility and puts waste heat energy to good use. Common types of CHP systems are reciprocating engines, microturbines, fuel cells, backpressure steam turbines, and (at large facilities) gas turbines.

CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for space cooling.

The key criteria used for screening is the amount of time that the CHP system would operate at full load and the facility's ability to use the recovered heat. Facilities with a continuous need for large quantities of waste heat are the best candidates for CHP.

A preliminary screening based on heating and electrical demand, siting, and interconnection shows that the facility has no potential for installing a cost-effective CHP system.

Based on a preliminary analysis, the facility does not appear to meet the minimum requirements for a cost-effective CHP installation. The lack of gas service, low or infrequent thermal load, and lack of space for siting the equipment are the most significant factors contributing to the lack of CHP potential.

The graphic below displays the results of the CHP potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

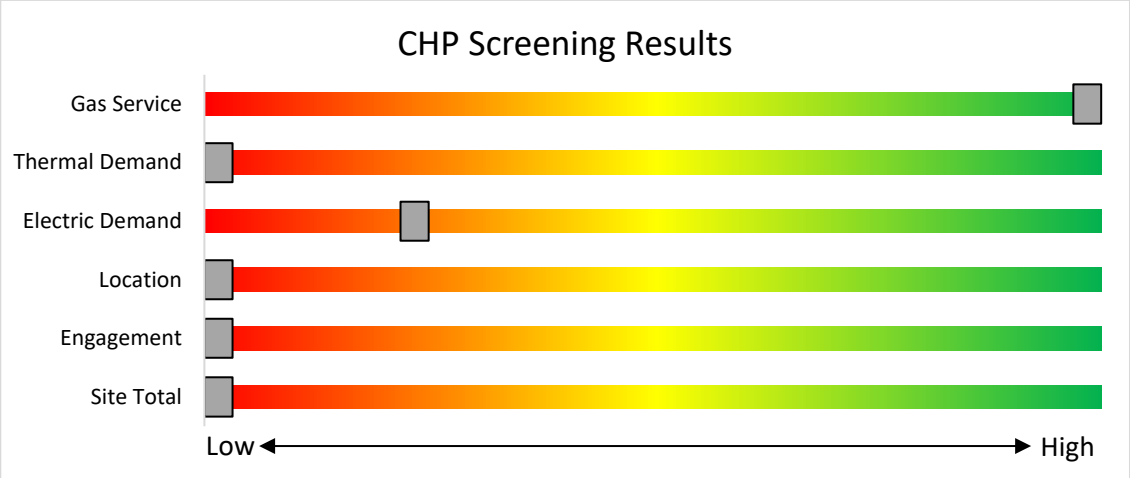


Figure 9 - Combined Heat and Power Screening

Find a qualified firm that specializes in commercial CHP cost assessment and installation: http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/

7 PROJECT FUNDING AND INCENTIVES

Ready to improve your building's performance? Your utility provider may be able to help.

7.1 Utility Energy Efficiency Programs

The Clean Energy Act, signed into law by Governor Murphy in 2018, requires New Jersey's investor-owned gas and electric utilities to reduce their customers' use by set percentages over time. To help reach these targets the New Jersey Board of Public Utilities approved a comprehensive suite of energy efficiency programs to be run by the utility companies.



These new utility programs are rolling out in the spring and summer of 2021. Keep up to date with developments by visiting:

https://www.njcleanenergy.com/transition

8 New Jersey's Clean Energy Programs

New Jersey's Clean Energy Program will continue to offer some energy efficiency programs.



8.1 Large Energy Users

The Large Energy Users Program (LEUP) is designed to foster self-directed investment in energy projects. This program is offered to New Jersey's largest energy customers that annually contribute at least $200,000 to the NJCEP aggregate of all buildings/sites. This equates to roughly $5 million in energy costs in the prior fiscal year.

Incentives

Incentives are based on the specifications below. The maximum incentive per entity is the lesser of:

- $4 million
- 75% of the total project(s) cost
- 90% of total NJCEP fund contribution in previous year
- $0.33 per projected kWh saved; $3.75 per projected Therm saved annually

How to Participate

To participate in LEUP, you will first need submit an enrollment application. This program requires all qualified and approved applicants to submit an energy plan that outlines the proposed energy efficiency work for review and approval. Applicants may submit a Draft Energy Efficiency Plan (DEEP), or a Final Energy Efficiency Plan (FEEP). Once the FEEP is approved, the proposed work can begin.

Detailed program descriptions, instructions for applying, and applications can be found at: www.njcleanenergy.com/LEUP

8.2 Combined Heat and Power

The Combined Heat & Power (CHP) program provides incentives for eligible CHP or waste heat to power (WHP) projects. Eligible CHP or WHP projects must achieve an annual system efficiency of at least 65% (lower heating value, or LHV), based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.

Incentives

Eligible Technologies	Size (Installed Rated Capacity)[1]	Incentive ($/kW)	% of Total Cost Cap per Project[3]	$ Cap per Project[3]
Powered by non-renewable or renewable fuel source[4]	≤500 kW	$2,000	30-40%[2]	$2 million
Gas Internal Combustion Engine	>500 kW - 1 MW	$1,000		
Gas Combustion Turbine	> 1 MW - 3 MW	$550	30%	$3 million
Microturbine Fuel Cells with Heat Recovery	>3 MW	$350		
Waste Heat to Power*	<1 MW	$1,000	30%	$2 million
	> 1MW	$500		$3 million

*Waste Heat to Power: Powered by non-renewable fuel source, heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine).

Check the NJCEP website for details on program availability, current incentive levels, and requirements.

How to Participate

You will work with a qualified developer or consulting firm to complete the CHP application. Once the application is approved the project can be installed. Information about the CHP program can be found at www.njcleanenergy.com/CHP.

8.3 Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects *must* register their projects prior to the start of construction to establish the project's eligibility to earn SREC-IIs (Solar Renewable Energy Certificates-II). SuSI consists of two sub-programs. The Administratively Determined Incentive (ADI) Program and the Competitive Solar Incentive (CSI) Program.

Administratively Determined Incentive (ADI) Program

The ADI Program provides administratively set incentives for net metered residential projects, net metered non-residential projects 5 MW or less, and all community solar projects.

After the registration is accepted, construction is complete, and a complete final as-built packet has been submitted, the project is issued a New Jersey certification number, which enables it to generate New Jersey SREC- IIs.

Market Segments	Size MW dc	Incentive Value ($/SREC II)	Public Entities Incentive Value - $20 Adder ($/SRECII)
Net Metered Residential	All types and sizes	$90	N/A
Small Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects smaller than 1 MW	$100	$120
Large Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects 1 MW to 5 MW	$90	$110
Small Net Metered Non-Residential Ground Mount	Projects smaller than 1 MW	$85	$105
Large Net Metered Non-Residential Ground Mount	Projects 1 MW to 5 MW	$80	$100
LMI Community Solar	Up to 5 MW	$90	N/A
Non-LMI Community Solar	Up to 5 MW	$70	N/A
Interim Subsection (t)	All types and sizes	$100	N/A

Eligible projects may generate SREC-IIs for 15 years following the commencement of commercial operations which is defined as permission to operate (PTO) from the Electric Distribution Company. After 15 years, projects may be eligible for a NJ Class I REC.

SREC-IIs will be purchased monthly by the SREC-II Program Administrator who will allocate the SREC-IIs to the Load Serving Entities (BGS Providers and Third-Party Suppliers) annually based on their market share of retail electricity sold during the relevant Energy Year.

The ADI Program online portal is now open to new registrations effective August 28, 2021.

Competitive Solar Incentive Program

The Competitive Solar Incentive (CSI) Program will provide competitively set incentives for grid supply projects and net metered non-residential projects greater than 5MW. The program is currently under development with the goal of holding the first solicitation by early-to-mid 2022. For updates, please continue to check the Solar Proceedings page on the New Jersey's Clean Energy Program website.

Solar projects help the State of New Jersey reach renewable energy goals outlined in the state's Energy Master Plan.

If you are considering installing solar photovoltaics on your building, visit the following link for more information: https://njcleanenergy.com/renewable-energy/programs/susi-program.

8.4 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) serves New Jersey's government agencies by financing energy projects. An ESIP is a type of performance contract, whereby school districts, counties, municipalities, housing authorities, and other public and state entities enter in to contracts to help finance building energy upgrades. Annual payments are lower than the savings projected from the energy conservation measures (ECMs), ensuring that ESIP projects are cash flow positive for the life of the contract.

ESIP provides government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources. NJCEP incentive programs described above can also be used to help further reduce the total project cost of eligible measures.

How to Participate

This LGEA report is the first step to participating in ESIP. Next, you will need to select an approach for implementing the desired ECMs:

(1) Use an energy services company or "ESCO."

(2) Use independent engineers and other specialists, or your own qualified staff, to provide and manage the requirements of the program through bonds or lease obligations.

(3) Use a hybrid approach of the two options described above where the ESCO is used for some services and independent engineers, or other specialists or qualified staff, are used to deliver other requirements of the program.

After adopting a resolution with a chosen implementation approach, the development of the energy savings plan can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used to pay for the financing.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Carefully consider all alternatives to develop an approach that best meets your needs. A detailed program descriptions and application can be found at www.njcleanenergy.com/ESIP.

ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you can use NJCEP incentive programs to help further reduce costs when developing the energy savings plan. Refer to the ESIP guidelines at the link above for further information and guidance on next steps.

9 PROJECT DEVELOPMENT

Energy conservation measures (ECMs) have been identified for your site, and their energy and economic analyses are provided within this LGEA report. Note that some of the identified projects may be mutually exclusive, such as replacing equipment versus upgrading motors or controls. The next steps with project development are to set goals and create a comprehensive project plan. The graphic below provides an overview of the process flow for a typical energy efficiency or renewable energy project. We recommend implementing as many ECMs as possible prior to undertaking a feasibility study for a renewable project. The cyclical nature of this process flow demonstrates the ongoing work required to continually improve building energy efficiency over time. If your building(s) scope of work is relatively simple to implement or small in scope, the measurement and verification (M&V) step may not be required. It should be noted through a typical project cycle, there will be changes in costs based on specific scopes of work, contractor selections, design considerations, construction, etc. The estimated costs provided throughout this LGEA report demonstrate the unburdened turn-key material and labor cost only. There will be contingencies and additional costs at the time of implementation. We recommend comprehensive project planning that includes the review of multiple bids for project work, incorporates potential operations and maintenance (O&M) cost savings, and maximizes your incentive potential.

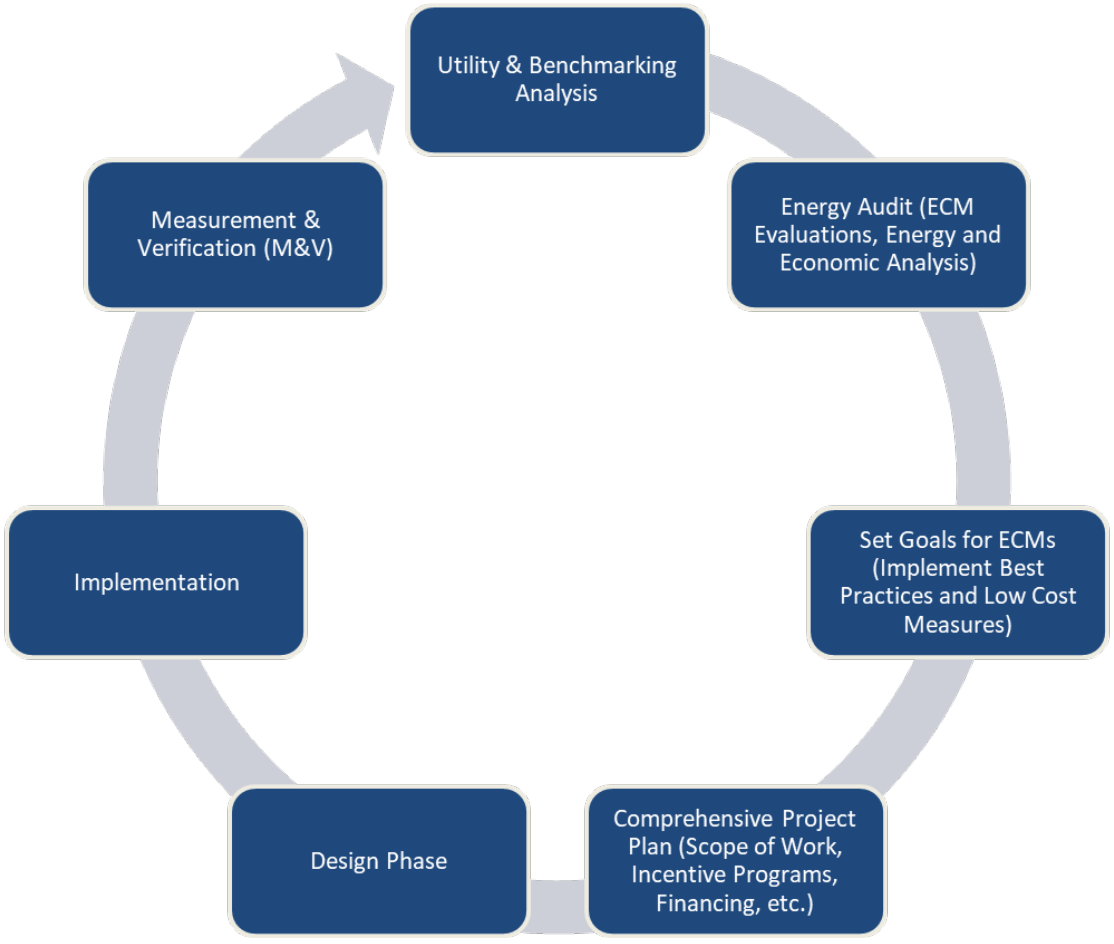


Figure 10 – Project Development Cycle

10 Energy Purchasing and Procurement Strategies

10.1 Retail Electric Supply Options

Energy deregulation in New Jersey has increased energy buyers' options by separating the function of electricity distribution from that of electricity supply. Though you may choose a different company from which to buy your electric power, responsibility for your facility's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your facility is not purchasing electricity from a third-party supplier, consider shopping for a reduced rate from third-party electric suppliers. If your facility already buys electricity from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party electric suppliers is available at the NJBPU website[7].

10.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey is also deregulated. Most customers that remain with the utility for natural gas service pay rates that are market based and fluctuate monthly. The utility provides basic gas supply service to customers who choose not to buy from a third-party supplier for natural gas commodity.

A customer's decision about whether to buy natural gas from a retail supplier typically depends on whether a customer prefers budget certainty and/or longer-term rate stability. Customers can secure longer-term fixed prices by signing up for service through a third-party retail natural gas supplier. Many larger natural gas customers may seek the assistance of a professional consultant to assist in their procurement process.

If your facility does not already purchase natural gas from a third-party supplier, consider shopping for a reduced rate from third-party natural gas suppliers. If your facility already purchases natural gas from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party natural gas suppliers is available at the NJBPU website[8].

[7] www.state.nj.us/bpu/commercial/shopping.html.

[8] www.state.nj.us/bpu/commercial/shopping.html.

APPENDIX A: EQUIPMENT INVENTORY & RECOMMENDATIONS

Lighting Inventory & Recommendations

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Conference 1	12	Compact Fluorescent: (2) 13W Biaxial Plug-In Lamps	Wall Switch	S	26	2,574	2, 3	Relamp	Yes	12	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	1,776	0.1	438	0	$69	$570	$59	7.4
Conference 1	12	Compact Fluorescent: (3) 40W Biaxial Plug-In Lamps	Wall Switch	S	120	2,574	2, 3	Relamp	Yes	12	LED Lamps: PL-L (Biax) Lamps	Occupancy Sensor	84	1,776	0.7	2,108	0	$334	$756	$71	2.1
Conference 1	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Corridor - Ground Floor	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Corridor - Ground Floor	10	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	2, 4	Relamp	Yes	10	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	1,973	0.4	1,234	0	$195	$1,175	$450	3.7
Exterior	8	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Timeclock		26	1,825	2	Relamp	No	8	LED Lamps: GX23 (Plug-In) Lamps	Timeclock	19	1,825	0.0	102	0	$16	$100	$8	5.6
Exterior	4	LED - Fixtures: Security	Timeclock		20	1,825		None	No	4	LED - Fixtures: Security	Timeclock	20	1,825	0.0	0	0	$0	$0	$0	0.0
Exterior	3	Metal Halide: (1) 200W Lamp	Timeclock		232	1,825	1	Fixture Replacement	No	3	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	60	1,825	0.0	942	0	$151	$1,168	$300	5.7
Exterior	4	Metal Halide: (1) 70W Lamp	Timeclock		95	1,825	1	Fixture Replacement	No	4	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	21	1,825	0.0	540	0	$87	$807	$400	4.7
Janitorial 007	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	8.9
Locker Room 011	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,574	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,574	0.0	140	0	$22	$55	$15	1.8
Mechanical 005	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	8.9
Mechanical 006 - Elevator	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	8.9
Mechanical 009	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	76	0	$12	$146	$40	8.9
Mechanical 012	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	8.9
Office - 002	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.5	1,427	0	$226	$708	$155	2.4
Office - Copy 001	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,574	2, 3	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,776	0.4	1,070	0	$169	$599	$125	2.8
Restroom - #1	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Restroom - #2	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Shower Room - 011	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,574	0.0	93	0	$15	$37	$10	1.8
Stairs #1	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	2,860	2, 4	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,973	0.2	661	0	$105	$408	$225	1.7
Stairs #2	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	2,860	2, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,973	0.2	528	0	$84	$371	$180	2.3
Storage - File Room	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	520	2, 3	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	359	0.7	432	0	$68	$927	$180	10.9
Storage 003	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	359	0.2	96	0	$15	$416	$40	24.7
Storage 013	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2, 3	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	359	0.5	288	0	$46	$708	$120	12.9

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,574	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,776	0.1	357	0	$56	$226	$50	3.1
Library 1	4	Compact Fluorescent: (2) 40W Biaxial Plug-In Lamps	Wall Switch	S	80	2,574	2, 3	Relamp	Yes	4	LED Lamps: PL-L (Biax) Lamps	Occupancy Sensor	56	1,776	0.2	468	0	$74	$378	$43	4.5
Lobby - Exhibit	9	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	1,820	2	Relamp	No	9	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	37	1,820	0.1	270	0	$43	$225	$18	4.8
Lobby - Exhibit	56	Incandescent: (1) 65W Screw-in Lamps	Wall Switch	S	65	1,820	2	Relamp	No	56	LED Lamps: PAR30 Lamps	Wall Switch	10	1,820	2.9	6,166	-1	$976	$1,300	$168	1.2
Main Lobby	3	Compact Fluorescent: (3) 40W Biaxial Plug-In Lamps	Wall Switch	S	120	2,860	2, 4	Relamp	Yes	3	LED Lamps: PL-L (Biax) Lamps	High/Low Control	84	1,973	0.2	586	0	$93	$347	$114	2.5
Main Lobby	5	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,860	2, 4	Relamp	Yes	5	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	37	1,973	0.1	416	0	$66	$350	$185	2.5
Main Lobby	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Main Lobby	3	Incandescent: (1) 65W Screw-in Lamps	Wall Switch	S	65	2,860	2, 4	Relamp	Yes	3	LED Lamps: PAR30 Lamps	High/Low Control	10	1,973	0.2	548	0	$87	$295	$114	2.1
Office - 101	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.1	238	0	$38	$189	$40	4.0
Office - Reception	3	LED - Fixtures: Ceiling Mount	Wall Switch	S	20	2,574	3	None	Yes	3	LED - Fixtures: Ceiling Mount	Occupancy Sensor	20	1,776	0.0	53	0	$8	$270	$35	28.2
Office - Reception	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,574	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,574	0.0	50	0	$8	$18	$5	1.7
Office - Regulatory #1	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.6	1,902	0	$301	$1,124	$230	3.0
Office - Regulatory #1	6	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,776	0.2	666	0	$105	$705	$95	5.8
Office - Regulatory #2	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.2	476	0	$75	$416	$75	4.5
Restroom - #3	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Restroom - #4	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Corridor 2nd	3	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2, 4	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	1,973	0.0	122	0	$19	$263	$108	8.0
Corridor 2nd	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Corridor 2nd	5	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	2, 4	Relamp	Yes	5	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	1,973	0.2	617	0	$98	$587	$225	3.7
Electrical Room - Servers	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	520	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	359	0.1	72	0	$11	$226	$50	15.4
Mechanical 209	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	8.9
Office - 204	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.5	1,427	0	$226	$708	$155	2.4
Office - 206	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.3	951	0	$151	$562	$115	3.0
Office - 202	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.3	951	0	$151	$562	$115	3.0
Restroom - #5	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Restroom - #6	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Storage 207	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	8.9

Motor Inventory & Recommendations

		Existing Conditions									Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical 006 - Elevator	Elevator	1	Other	20.0	91.0%	No			B	130		No	91.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical 006 - Elevator	Sump Pump	1	Process Pump	0.5	75.0%	No			B	730		No	75.0%	No		0.0	0	0	$0	$0	$0	0.0
RJS Center	Furnaces	7	Supply Fan	0.1	60.0%	No	Rheem		B	2,574		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0

Packaged HVAC Inventory & Recommendations

		Existing Conditions									Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Manufacturer	Model	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Exterior	AC1 - Ground Floor	1	Split-System	4.00		11.00		Ruud	UAMB-048JAZ	B	5	Yes	1	Split-System	4.00		16.00		0.7	614	0	$98	$6,486	$420	61.6
Exterior	AC2 - First Floor	1	Split-System	5.00		11.00		Ruud	UAMB-060JAZ	B	5	Yes	1	Split-System	5.00		16.00		0.9	767	0	$123	$6,521	$525	48.7
Exterior	AC3 - First Floor	1	Split-System	5.00		11.00		Ruud	UAMB-060JAZ	B	5	Yes	1	Split-System	5.00		16.00		0.9	767	0	$123	$6,521	$525	48.7
Exterior	AC4 - First Floor	1	Split-System	5.00		11.00		Ruud	UAMB-060JAZ	B	5	Yes	1	Split-System	5.00		16.00		0.9	767	0	$123	$6,521	$525	48.7
Exterior	AC5 - First Floor	1	Split-System	5.00		11.00		Ruud	UAMB-060JAZ	B	5	Yes	1	Split-System	5.00		16.00		0.9	767	0	$123	$6,521	$525	48.7
Exterior	AC6 - Second Floor Offices	1	Split-System	4.00		11.00		Ruud	UAMB-048JAZ	B	5	Yes	1	Split-System	4.00		16.00		0.7	614	0	$98	$6,486	$420	61.6
Exterior	AC7 - Second Floor Corridor	1	Split-System	2.00		11.00		Ruud	UAMB-024JAZ	B	5	Yes	1	Split-System	2.00		16.00		0.3	307	0	$49	$5,922	$210	116.1
Exterior	Electrical Room - Servers	1	Ductless Mini-Split AC	2.00		16.80		Daikin	RZR24PVJU	W		No							0.0	0	0	$0	$0	$0	0.0
Exterior	Electrical Room - Servers	1	Ductless Mini-Split AC	2.00		12.00		Sanyo	CL2432A	B	5	Yes	1	Ductless Mini-Split AC	2.00		18.00		0.3	300	0	$48	$5,642	$0	117.3
Exterior	Storage 013	1	Ductless Mini-Split HP	0.75	10.50	10.00	6.8 HSPF	Mitsubishi	MU09EW	B	6	Yes	1	Ductless Mini-Split HP	0.75	10.50	18.00	3.8 COP	0.5	914	0	$147	$5,327	$0	36.3
Mechanical 005	F1 - Ground Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 005	F2 - First Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 005	F3 - First Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 009	F4 - First Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 012	F5 - First Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 209	F6 - Second Floor Offices	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 209	F7 - Second Floor Corridor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0

Pipe Insulation Recommendations

		Recommendation Inputs			Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Affected	ECM #	Length of Uninsulated Pipe (ft)	Pipe Diameter (in)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical 209	Domestic Hot Water	7	6	1.00	0.0	0	1	$9	$35	$12	2.4

DHW Inventory & Recommendations

		Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Manufacturer	Model	Remaining Useful Life	ECM #	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical 209	Domestic Hot Water	1	Storage Tank Water Heater (≤ 50 Gal)	Bradford White	50T653N	B		No						0.0	0	0	$0	$0	$0	0.0

Low-Flow Device Recommendations

	Recommedation Inputs					Energy Impact & Financial Analysis						
Location	ECM #	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Richard J. Sullivan Center	8	6	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	3	$28	$43	$22	0.8

Plug Load Inventory

	Existing Conditions					
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?	Manufacturer	Model
Richard J. Sullivan Center	3	Coffee Machine	500	No		
Richard J. Sullivan Center	1	Dehumidifier	120	Yes		
Richard J. Sullivan Center	25	Desktop	120	No		
Richard J. Sullivan Center	1	Dishwasher (Undercounter)	1,000	No		
Richard J. Sullivan Center	1	Electric Space Heater	1,500	No		
Richard J. Sullivan Center	1	Microwave	1,000	No		
Richard J. Sullivan Center	1	Paper Shredder	146	No		
Richard J. Sullivan Center	14	Printer (Medium/Small)	450	No		
Richard J. Sullivan Center	2	Printer/Copier (Large)	600	No		
Richard J. Sullivan Center	1	Refrigerator (Residential)	340	No		
Richard J. Sullivan Center	1	Smart Board	215	No		
Richard J. Sullivan Center	3	Television	224	No		
Richard J. Sullivan Center	1	Toaster	600	No		
Richard J. Sullivan Center	1	Toaster Oven	600	No		
Richard J. Sullivan Center	1	Water Fountain	370	No		

APPENDIX B: ENERGY STAR STATEMENT OF ENERGY PERFORMANCE

Energy use intensity (EUI) is presented in terms of *site energy* and *source energy*. Site energy is the amount of fuel and electricity consumed by a building as reflected in utility bills. Source energy includes fuel consumed to generate electricity consumed at the site, factoring in electric production and distribution losses for the region.

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ENERGY STAR® Statement of Energy Performance

79

ENERGY STAR® Score[1]

Richard J. Sullivan (RJS) Center

Primary Property Type: Office
Gross Floor Area (ft²): 12,748
Built: 2002

For Year Ending: August 31, 2021
Date Generated: January 31, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Richard J. Sullivan (RJS) Center 15C Springfield Road New Lisbon, New Jersey 08064	New Jersey Pinelands Commission PO Box 359 New Lisbon, NJ 08064 609-894-7300	Jessica Lynch PO Box 359 New Lisbon, NJ 08064 609-894-7300 jessica.lynch@pinelands.nj.gov

Property ID: 19072363

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
50.2 kBtu/ft²

Source EUI
82.8 kBtu/ft²

Annual Energy by Fuel

Natural Gas (kBtu)	420,326 (66%)
Electric - Grid (kBtu)	219,548 (34%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	76.3
National Median Source EUI (kBtu/ft²)	125.9
% Diff from National Median Source EUI	-34%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	43

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

APPENDIX C: GLOSSARY

TERM	DEFINITION
Blended Rate	Used to calculate fiscal savings associated with measures. The blended rate is calculated by dividing the amount of your bill by the total energy use. For example, if your bill is $22,217.22, and you used 266,400 kilowatt-hours, your blended rate is 8.3 cents per kilowatt-hour.
Btu	*British thermal unit*: a unit of energy equal to the amount of heat required to increase the temperature of one pound of water by one-degree Fahrenheit.
CHP	*Combined heat and power*. Also referred to as cogeneration.
COP	*Coefficient of performance*: a measure of efficiency in terms of useful energy delivered divided by total energy input.
Demand Response	Demand response reduces or shifts electricity usage at or among participating buildings/sites during peak energy use periods in response to time-based rates or other forms of financial incentives.
DCV	*Demand control ventilation*: a control strategy to limit the amount of outside air introduced to the conditioned space based on actual occupancy need.
US DOE	*United States Department of Energy*
EC Motor	*Electronically commutated motor*
ECM	*Energy conservation measure*
EER	*Energy efficiency ratio*: a measure of efficiency in terms of cooling energy provided divided by electric input.
EUI	*Energy Use Intensity:* measures energy consumption per square foot and is a standard metric for comparing buildings' energy performance.
Energy Efficiency	Reducing the amount of energy necessary to provide comfort and service to a building/area. Achieved through the installation of new equipment and/or optimizing the operation of energy use systems. Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service.
ENERGY STAR	ENERGY STAR is the government-backed symbol for energy efficiency. The ENERGY STAR program is managed by the EPA.
EPA	*United States Environmental Protection Agency*
Generation	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
GHG	*Greenhouse gas* gases that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.
gpf	*Gallons per flush*

gpm	*Gallon per minute*
HID	*High intensity discharge:* high-output lighting lamps such as high-pressure sodium, metal halide, and mercury vapor.
hp	*Horsepower*
HPS	*High-pressure sodium*: a type of HID lamp.
HSPF	*Heating seasonal performance factor:* a measure of efficiency typically applied to heat pumps. Heating energy provided divided by seasonal energy input.
HVAC	*Heating, ventilating, and air conditioning*
IHP 2014	US DOE Integral Horsepower rule. The current ruling regarding required electric motor efficiency.
IPLV	*Integrated part load value:* a measure of the part load efficiency usually applied to chillers.
kBtu	One thousand British thermal units
kW	*Kilowatt*: equal to 1,000 Watts.
kWh	*Kilowatt-hour*: 1,000 Watts of power expended over one hour.
LED	*Light emitting diode*: a high-efficiency source of light with a long lamp life.
LGEA	*Local Government Energy Audit*
Load	The total power a building or system is using at any given time.
Measure	A single activity, or installation of a single type of equipment, that is implemented in a building system to reduce total energy consumption.
MH	*Metal halide*: a type of HID lamp.
MBh	*Thousand Btu per hour*
MBtu	*One thousand British thermal units*
MMBtu	*One million British thermal units*
MV	*Mercury Vapor:* a type of HID lamp.
NJBPU	*New Jersey Board of Public Utilities*
NJCEP	*New Jersey's Clean Energy Program:* NJCEP is a statewide program that offers financial incentives, programs and services for New Jersey residents, business owners and local governments to help them save energy, money, and the environment.
psig	Pounds per square inch gauge
Plug Load	Refers to the amount of power used in a space by products that are powered by means of an ordinary AC plug.
PV	*Photovoltaic:* refers to an electronic device capable of converting incident light directly into electricity (direct current).

SEER	*Seasonal energy efficiency ratio:* a measure of efficiency in terms of annual cooling energy provided divided by total electric input.
SEP	*Statement of energy performance:* a summary document from the ENERGY STAR Portfolio Manager.
Simple Payback	The amount of time needed to recoup the funds expended in an investment or to reach the break-even point between investment and savings.
SREC	*Solar renewable energy credit*: a credit you can earn from the state for energy produced from a photovoltaic array.
TREC	*Transition Incentive Renewable Energy Certificate:* a factorized renewable energy certificate you can earn from the state for energy produced from a photovoltaic array.
T5, T8, T12	A reference to a linear lamp diameter. The number represents increments of 1/8th of an inch.
Temperature Setpoint	The temperature at which a temperature regulating device (thermostat, for example) has been set.
therm	100,000 Btu. Typically used as a measure of natural gas consumption.
tons	A unit of cooling capacity equal to 12,000 Btu/hr.
Turnkey	Provision of a complete product or service that is ready for immediate use.
VAV	*Variable air volume*
VFD	*Variable frequency drive*: a controller used to vary the speed of an electric motor.
WaterSense®	The symbol for water efficiency. The WaterSense® program is managed by the EPA.
Watt (W)	Unit of power commonly used to measure electricity use.



Local Government Energy Audit Report

Fenwick Manor, Carriage House, & Barn

March 21, 2022

Prepared for:

NJ Pinelands Commission

15 Springfield Rd

New Lisbon, New Jersey 08064

Prepared by:

TRC

317 George Street

New Brunswick, New Jersey 08901

Disclaimer

The goal of this audit report is to identify potential energy efficiency opportunities and help prioritize specific measures for implementation. Most energy conservation measures have received preliminary analysis of feasibility that identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to establish a basis for further discussion and to help prioritize energy measures.

TRC reviewed the energy conservation measures and estimates of energy savings for technical accuracy. Actual, achieved energy savings depend on behavioral factors and other uncontrollable variables and, therefore, estimates of final energy savings are not guaranteed. TRC and the New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

TRC bases estimated material and labor costs primarily on RS Means cost manuals as well as on our experience at similar facilities. This approach is based on standard cost estimating manuals and is vendor neutral. Cost estimates include material and labor pricing associated with one for one equipment replacements. Cost estimates do not include demolition or removal of hazardous waste. The actual implementation costs for energy savings projects are anticipated to be significantly higher based on the specific conditions at your site(s). We strongly recommend that you work with your design engineer or contractor to develop actual project costs for your specific scope of work for the installation of high efficiency equipment. We encourage you to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on selected products and installers. TRC and NJBPU do not guarantee cost estimates and shall in no event be held liable should actual installed costs vary from these material and labor estimates.

Incentive values provided in this report are estimated based of previously run state efficiency programs. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. Please review all available utility program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

The customer and their respective contractor(s) are responsible to implement energy conservation measures in complete conformance with all applicable local, state, and federal requirements.

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Table of Contents

1 Executive Summary 1

1.1 **Planning Your Project** 4

Pick Your Installation Approach 4
Options from Around the State 5

2 Existing Conditions 6

2.1 Site Overview 6
2.2 Building Occupancy 6
2.3 Building Envelope 7
2.4 Lighting Systems 11
2.5 Air Handling Systems 13

Unitary Electric HVAC Equipment 13
Unitary Heating Equipment 14

2.6 Domestic Hot Water 15
2.7 Plug Load and Vending Machines 16
2.8 Water-Using Systems 17

3 Energy Use and Costs 18

3.1 Electricity 20
3.2 Natural Gas 21
3.3 Benchmarking 22

Tracking Your Energy Performance 23

4 Energy Conservation Measures 24

4.1 Lighting 27

ECM 1: Install LED Fixtures 27
ECM 2: Retrofit Fixtures with LED Lamps 27

4.2 Lighting Controls 28

ECM 3: Install Occupancy Sensor Lighting Controls 28
ECM 4: Install High/Low Lighting Controls 29

4.3 Unitary HVAC 29

ECM 5: Install High Efficiency Air Conditioning Units 29

4.4 Domestic Water Heating 30

ECM 6: Install Low-Flow DHW Devices 30

5 Energy Efficient Best Practices 31

Energy Tracking with ENERGY STAR Portfolio Manager 31
Weatherization 31
Doors and Windows 31
Lighting Maintenance 32
Lighting Controls 32

Motor Maintenance 32
Fans to Reduce Cooling Load 32
AC System Evaporator/Condenser Coil Cleaning 32
HVAC Filter Cleaning and Replacement 32
Ductwork Maintenance 33
Furnace Maintenance 33
Label HVAC Equipment 33
Optimize HVAC Equipment Schedules 34
Water Heater Maintenance 34
Water Conservation 35
Procurement Strategies 35

6 On-site Generation 36

6.1 Solar Photovoltaic 37
6.2 Combined Heat and Power 39

7 Project Funding and Incentives 40

7.1 Utility Energy Efficiency Programs 40

8 New Jersey's Clean Energy Programs 41

8.1 Large Energy Users 42
8.2 Combined Heat and Power 43
8.3 Successor Solar Incentive Program (SuSI) 44
8.4 Energy Savings Improvement Program 45

9 Project Development 46
10 Energy Purchasing and Procurement Strategies 47

10.1 Retail Electric Supply Options 47
10.2 Retail Natural Gas Supply Options 47

Appendix A: Equipment Inventory & Recommendations A-1
Appendix B: ENERGY STAR Statement of Energy Performance B-1
Appendix C: Glossary C-1

ENERGY EFFICIENCY INCENTIVE & REBATE TRANSITION

For the purposes of your LGEA, estimated incentives and rebates are included as placeholders for planning purposes. New Jersey utilities are rolling out their own energy efficiency programs, which your project may be eligible for depending on individual measures, quantities, and size of the building.

In 2018, Governor Murphy signed into law the landmark legislation known as the Clean Energy Act. The law called for a significant overhaul of New Jersey's clean energy systems by building sustainable infrastructure in order to fight climate change and reduce carbon emissions, which will in turn create well-paying local jobs, grow the state's economy, and improve public health while ensuring a cleaner environment for current and future residents.

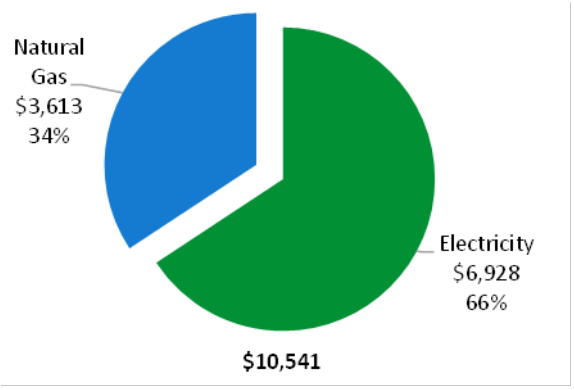
These next generation energy efficiency programs feature new ways of managing and delivering programs historically administered by New Jersey's Clean Energy Program™ (NJCEP). All of the investor-owned gas and electric utility companies will now also offer complementary energy efficiency programs and incentives directly to customers like you. NJCEP will still offer programs for new construction, renewable energy, the Energy Savings Improvement Program (ESIP), and large energy users.

New utility programs are under development. Keep up to date with developments by visiting the NJCEP website.

1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for Fenwick Manor, Carriage House, & Barn. This report provides you with information about your facility's energy use, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help make changes in your facility. TRC conducted this study as part of a comprehensive effort to assist New Jersey school districts and local governments in controlling their energy costs and to help protect our environment by reducing statewide energy consumption.

BUILDING PERFORMANCE REPORT

Annual Utilities	Costs: $10,541 Electricity: 44,012 kWh Natural Gas: 3,627 Therms	
ENERGY STAR® Benchmarking Score	N/A *(1-100 scale)*	A standard energy use benchmark is not available for this facility type. This report contains suggestions about how to improve building performance and reduce energy costs.

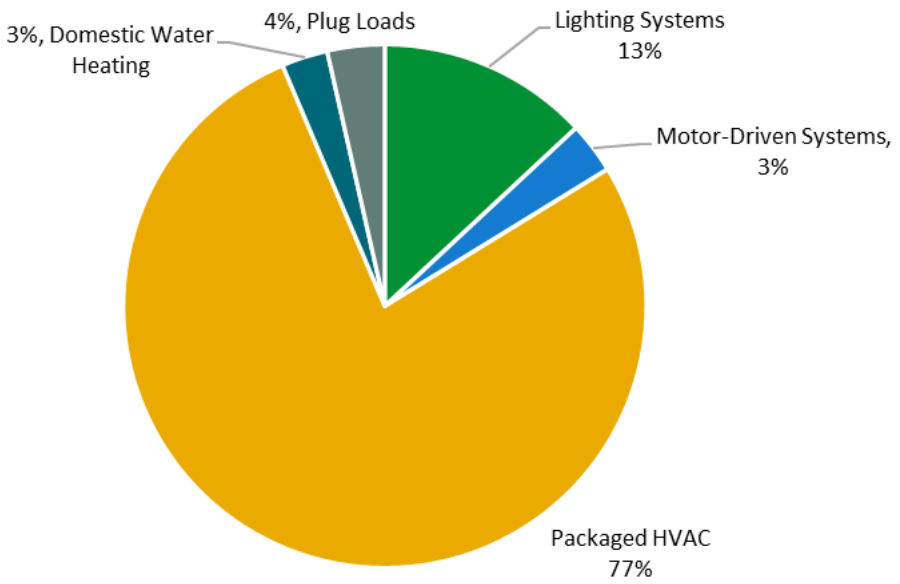


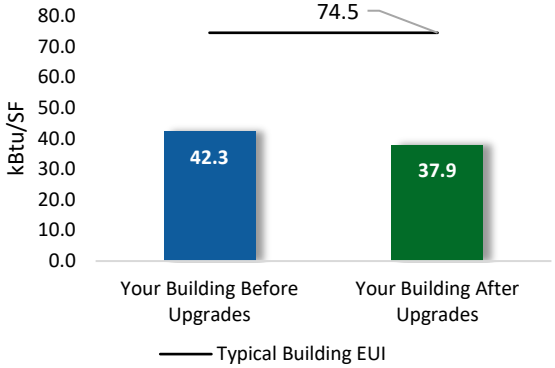
Figure 1 - Energy Use by System

POTENTIAL IMPROVEMENTS

This energy audit considered a range of potential energy improvements in your building. Costs and savings will vary between improvements. Presented below are two potential scopes of work for your consideration.

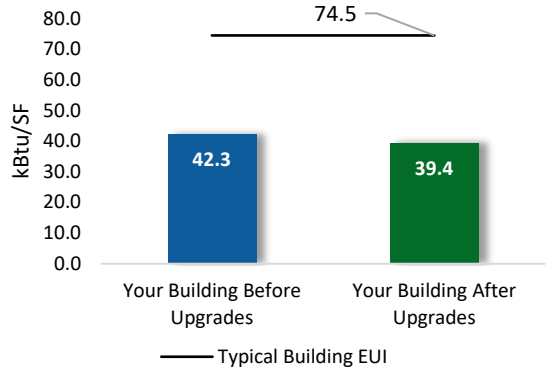
Scenario 1: Full Package (All Evaluated Measures)

Installation Cost	$52,739
Potential Rebates & Incentives[1]	$5,279
Annual Cost Savings	$2,462
Annual Energy Savings	Electricity: 15,661 kWh Natural Gas: -3 Therms
Greenhouse Gas Emission Savings	8 Tons
Simple Payback	19.3 Years
Site Energy Savings (All Utilities)	10%



Scenario 2: Cost Effective Package[2]

Installation Cost	$11,858
Potential Rebates & Incentives	$2,156
Annual Cost Savings	$1,663
Annual Energy Savings	Electricity: 10,586 kWh Natural Gas: -3 Therms
Greenhouse Gas Emission Savings	5 Tons
Simple Payback	5.8 Years
Site Energy Savings (all utilities)	7%



On-site Generation Potential

Photovoltaic	None
Combined Heat and Power	None

[1] Incentives are based on previously run state rebate programs. Contact your utility provider for current program incentives that may apply.

[2] A cost-effective measure is defined as one where the simple payback does not exceed two-thirds of the expected proposed equipment useful life. Simple payback is based on the net measure cost after potential incentives.

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**8,042**	**3.4**	**-2**	**$1,251**	**$6,990**	**$1,437**	**$5,553**	**4.4**	**7,918**
ECM 1	Install LED Fixtures	No	664	0.0	0	$105	$2,175	$550	$1,625	15.5	669
ECM 2	Retrofit Fixtures with LED Lamps	Yes	7,378	3.4	-2	$1,146	$4,815	$887	$3,928	3.4	7,249
Lighting Control Measures			**3,209**	**1.2**	**-1**	**$498**	**$7,015**	**$1,255**	**$5,760**	**11.6**	**3,152**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,673	1.1	-1	$415	$5,665	$800	$4,865	11.7	2,626
ECM 4	Install High/Low Lighting Controls	Yes	535	0.2	0	$83	$1,350	$455	$895	10.8	526
Unitary HVAC Measures			**4,410**	**5.5**	**0**	**$694**	**$38,706**	**$2,573**	**$36,133**	**52.1**	**4,441**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,410	5.5	0	$694	$38,706	$2,573	$36,133	52.1	4,441
Domestic Water Heating Upgrade			**0**	**0.0**	**2**	**$19**	**$29**	**$14**	**$14**	**0.8**	**222**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	2	$19	$29	$14	$14	0.8	222
TOTALS (COST EFFECTIVE MEASURES)			**10,586**	**4.6**	**0**	**$1,663**	**$11,858**	**$2,156**	**$9,702**	**5.8**	**10,624**
TOTALS (ALL MEASURES)			**15,661**	**10.2**	**0**	**$2,462**	**$52,739**	**$5,279**	**$47,460**	**19.3**	**15,734**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 2 – Evaluated Energy Improvements

For more detail on each evaluated energy improvement and a break out of cost-effective improvements, see **Section 4: Energy Conservation Measures.**

1.1 Planning Your Project

Careful planning makes for a successful energy project. When considering this scope of work, you will have some decisions to make, such as:

- How will the project be funded and/or financed?
- Is it best to pursue individual ECMs, groups of ECMs, or use a comprehensive approach where all ECMs are installed together?
- Are there other facility improvements that should happen at the same time?

Pick Your Installation Approach

Utility-run energy efficiency programs, such as New Jersey's Clean Energy Programs, give you the flexibility to do a little or a lot. Rebates, incentives, and financing are available to help reduce both your installation costs and your energy bills. If you are planning to take advantage of these programs, make sure to review incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives ***before*** purchasing materials or starting installation.

For details on these programs please visit New Jersey's Clean Energy Program website or contact your utility provider.



Options from Around the State

Financing and Planning Support with the Energy Savings Improvement Program (ESIP)

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the ESIP. Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as attractive financing for implementing ECMs. You have already taken the first step as an LGEA customer, because this report is required to participate in ESIP.

Resiliency with Return on Investment through Combined Heat and Power (CHP)

The CHP program provides incentives for combined heat and power (i.e., cogeneration) and waste heat to power projects. Combined heat and power systems generate power on-site and recover heat from the generation system to meet on-site thermal loads. Waste heat to power systems use waste heat to generate power. You will work with a qualified developer who will design a system that meets your building's heating and cooling needs.

Successor Solar Incentive Program (SuSI)

New Jersey is committed to supporting solar energy. Solar projects help the state reach the renewable goals outlined in the state's Energy Master Plan. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available, but certified solar projects are able to earn one SREC II (Solar Renewable Energy Certificates II) for each megawatt-hour of solar electricity produced from a qualifying solar facility.

Ongoing Electric Savings with Demand Response

The Demand Response Energy Aggregator program reduces electric loads at commercial facilities when wholesale electricity prices are high or when the reliability of the electric grid is threatened due to peak power demand. By enabling commercial facilities to reduce electric demand during times of peak demand, the grid is made more reliable, and overall transmission costs are reduced for all ratepayers. Curtailment service providers provide regular payments to medium and large consumers of electric power for their participation in demand response (DR) programs. Program participation is voluntary, and facilities receive payments regardless of whether they are called upon to curtail their load during times of peak demand.

Large Energy User Program (LEUP)

LEUP designed to promote self-investment in energy efficiency and combined heat and power or fuel cell projects. It incentivizes owners/users of buildings to upgrade or install energy conserving measures in existing buildings to help offset the capital costs associated with the project. The efficiency upgrades are customized to meet the requirements of the customers' existing facilities, while advancing the State's energy efficiency, conservation, and greenhouse gas reduction goals.

2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for Fenwick Manor, Carriage House, & Barn. This report provides information on how your facility uses energy, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help you implement the ECMs.

TRC conducted this study as part of a comprehensive effort to assist New Jersey educational and local government facilities in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

2.1 Site Overview

On January 19, 2022, TRC performed an energy audit at Fenwick Manor, Carriage House, & Barn located in New Lisbon, New Jersey. TRC met with Jessica Lynch to review the facility operations and help focus our investigation on specific energy-using systems.

Fenwick Manor is a four-story, 6,730 square foot building built in 1820. The Carriage House is a three-story, 1,101 square foot building built in 1820, and the Barn is a three-story, 4,291 square foot building built in 1880. Spaces include offices, conference rooms, corridors, stairwells, kitchen, storage rooms, restrooms, electrical and mechanical space. Lighting for the facility is provided mainly by linear fluorescent T8 fixtures. Seven split-systems air conditioners with six associated furnaces provide cooling and heating to spaces.

2.2 Building Occupancy

The facility is occupied year-round. The buildings are closed on the weekends, and the facility closes at 6:00 PM on weekdays. During a typical day, the facility is occupied by approximately 20 staff.

Building Name	Weekday/Weekend	Operating Schedule
Fenwick Manor	Weekday	7:00 AM - 6:00 PM
	Weekend	Closed
Carriage House	Weekday	7:00 AM - 6:00 PM
	Weekend	Closed
Barn	Weekday	7:00 AM - 6:00 PM
	Weekend	Closed

Figure 3 - Building Occupancy Schedule

2.3 Building Envelope

Fenwick Manor is a three-floor building with a basement, the Carriage House is a two-floor building with a basement, and the Barn is a three-floor building. Building walls are mainly clapboard siding over a wooden structure. Fenwick Manor's exterior walls were observed to have paint peeling during the site visit, with concerns about cracks from the second to third floor. Each roof is pitched and covered with shingles, with a small flat section over part of the Barn. Roof areas are in good condition.

The windows are single glazed and have wooden frames with thermal breaks. The glass-to-frame seals are in fair condition. The operable window weather seals are in fair condition, showing little evidence of excess wear. Exterior doors have wooden frames and are in fair condition with worn door seals. Degraded window and door seals increase drafts and outside air infiltration. Overall, the building envelope appears in fair condition.



Building Walls – Fenwick Manor



Building Walls – Carriage House



Building Walls – Barn





Building Windows





Entrance & Exit Doors

2.4 Lighting Systems

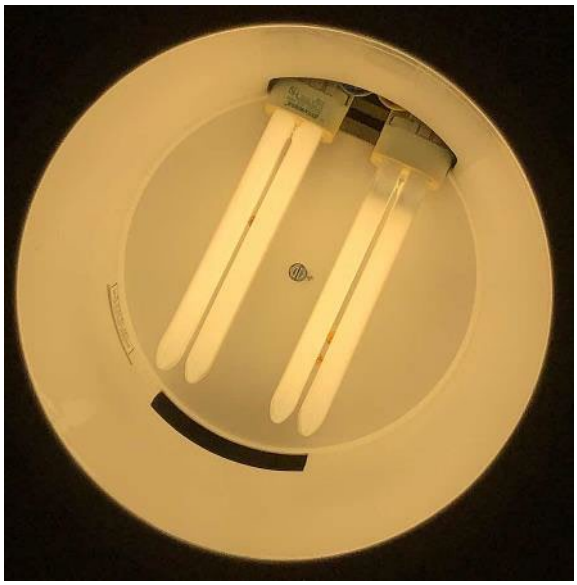
The primary interior lighting system uses 26-Watt compact fluorescent (CFL) lamps at Fenwick Manor and Carriage House, and 32-Watt fluorescent T8 lamps at the Barn. Exit signs use LED sources. Fixture types include 1-lamp, 2-lamp, and 3-lamp, 4-foot long recessed, surface mounted, and pendant fixtures with linear tube lamps.

Interior light fixtures are controlled by manual wall switches. All light fixtures are in good condition. Interior lighting levels were generally sufficient. Exterior fixtures include pole mounted MH fixtures and a few compact fluorescent units at the Barn. Exterior fixtures are timer controlled.



Fluorescent T8 Fixtures





CFL Lamps





Exterior MH Fixtures

2.5 Air Handling Systems

Unitary Electric HVAC Equipment

The facility cooling system consists of seven Ruud split-systems: four at Fenwick Manor, one at Carriage House, and two at the Barn. The split-systems are used to provide cooling throughout the entire building. Cooling capacities range from 2.5 tons to 5 tons, with efficiencies that vary from 10 EER to 13 EER. All but one split-system at the Barn were installed in 2004. The last unit was installed in 2008. The older split AC units are in fair condition and the newer unit is in good condition. The older units need to be replaced.





Split-Systems

Unitary Heating Equipment

The building heating system consists of six gas-fired Ruud forced air furnaces. Four at Fenwick Manor, one at Carriage House, and one at the Barn. Their heating capacities range from 38.7 MBh to 55.3 MBh, each with an efficiency rating of 92%. Each unit is equipped with a fractional hp supply fan. Installed in 2004, the units are beyond their typical useful lifespan but were not recommended for replacement as they were observed to be in good condition, well maintained, and relatively efficient. Equipment is controlled by wall-mounted thermostats located throughout the building.

Additional heating at the Barn is provided by three electric resistance heaters and a gas-fired unit heater. One electric resistance heater provides supplemental heating for the Carriage House.

The unit heater has a heating capacity of 60.8 MBh with an 81% efficiency rating while the electric resistance heaters vary from 0.6 kW to 2 kW. Equipment is in good condition and is controlled by manual dial thermostats.



Gas-fired Furnace & Unit Heater

2.6 Domestic Hot Water

Hot water for each building is produced by local 40 MBh gas-fired storage water heaters. The units located at Fenwick Manor and the Barn each have capacity of 48 gallons while the unit serving the Carriage House has a capacity of 40 gallons. Installed in 2004, the units are in good condition. The domestic hot water pipes are insulated, which is also in good condition.



Gas-fired Storage Tank Water Heaters

2.7 Plug Load and Vending Machines

The location is doing a great job managing their electrical plug loads. This report makes additional suggestions for ECMs in this area as well as energy efficient best practices.

There are approximately 25 computer workstations throughout the facility. Plug loads throughout the building include general cafe and office equipment. There are typical office loads such as copiers, printers, microwaves, coffee machines, and mini fridges. There is one residential style refrigerator located in Fenwick Manor that is used to store food and drinks.





Copier Machine & Residential Style Refrigerator

2.8 Water-Using Systems

There are four restrooms with toilets, urinals, and sinks. Faucet flow rates are at 2.2 gallons per minute (gpm) or higher.

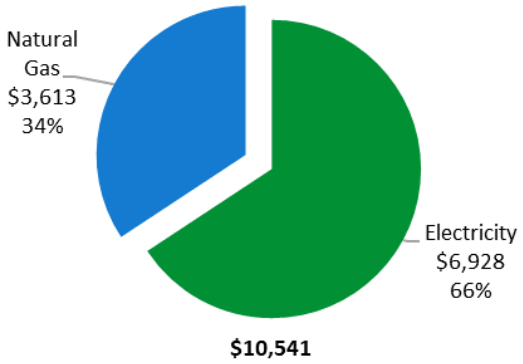


Typical Restroom Sinks

3 Energy Use and Costs

Twelve months of utility billing data are used to develop annual energy consumption and cost data. This information creates a profile of the annual energy consumption and energy costs.

Utility Summary		
Fuel	**Usage**	**Cost**
Electricity	44,012 kWh	$6,928
Natural Gas	3,627 Therms	$3,613
Total		**$10,541**



An energy balance identifies and quantifies energy use in your various building systems. This can highlight areas with the most potential for improvement. This energy balance was developed using calculated energy use for each of the end uses noted in the figure.

The energy auditor collects information regarding equipment operating hours, capacity, efficiency, and other operational parameters from facility staff, drawings, and on-site observations. This information is used as the inputs to calculate the existing conditions energy use for the site. The calculated energy use is then compared to the historical energy use and the initial inputs are revised, as necessary, to balance the calculated energy use to the historical energy use.

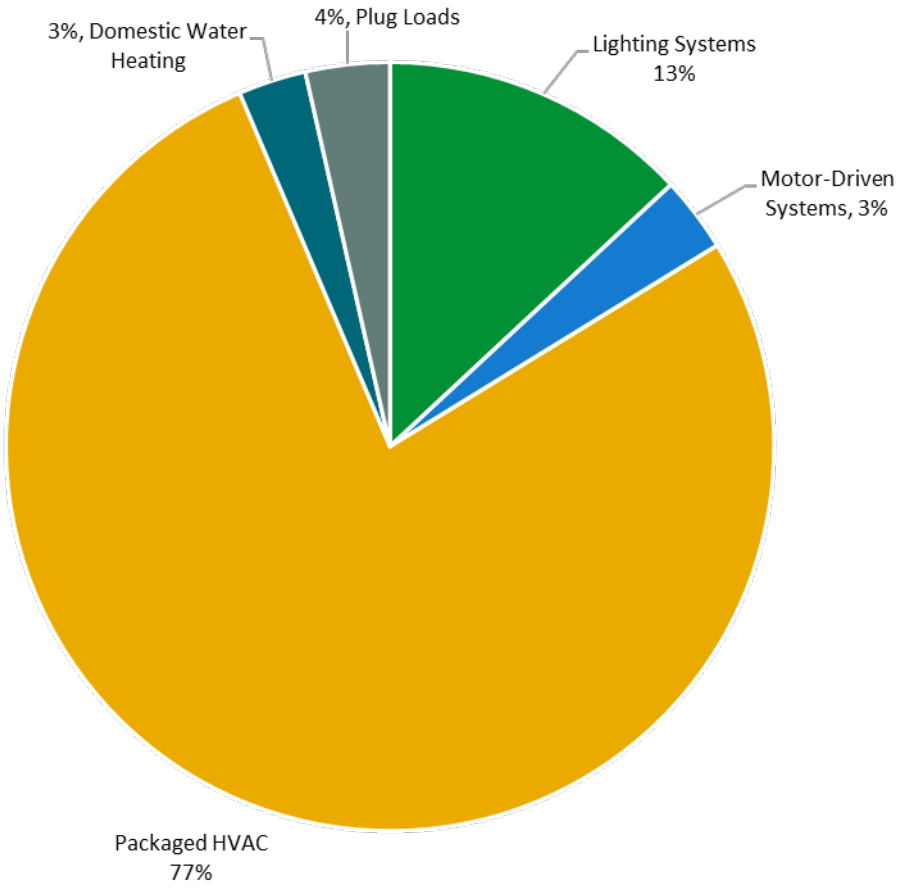
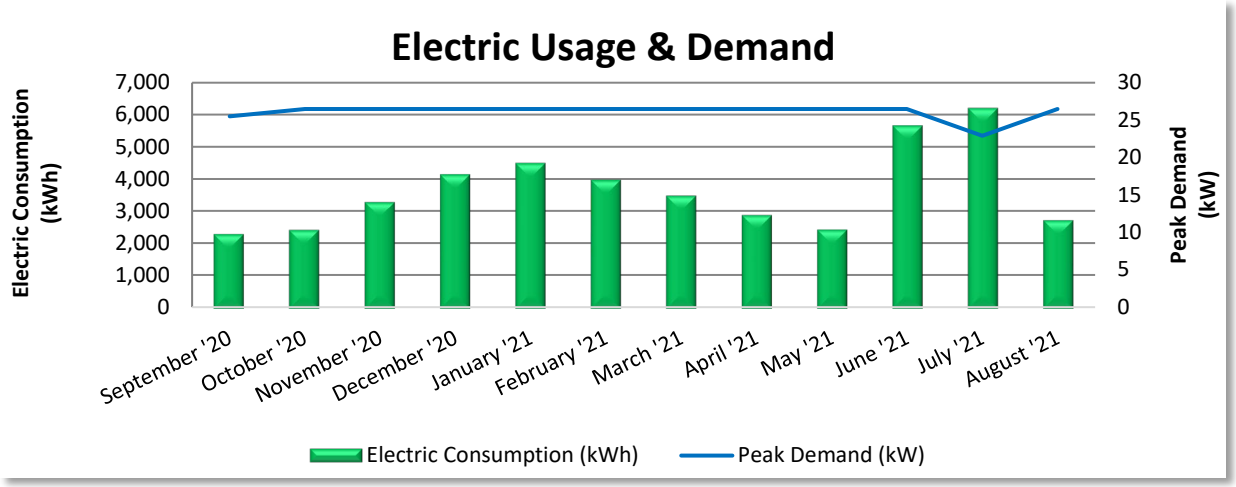


Figure 4 - Energy Balance

3.1 Electricity

JCP&L delivers electricity under rate class General Service Secondary (GSS), with electric production provided by Champion Energy, a third-party supplier.



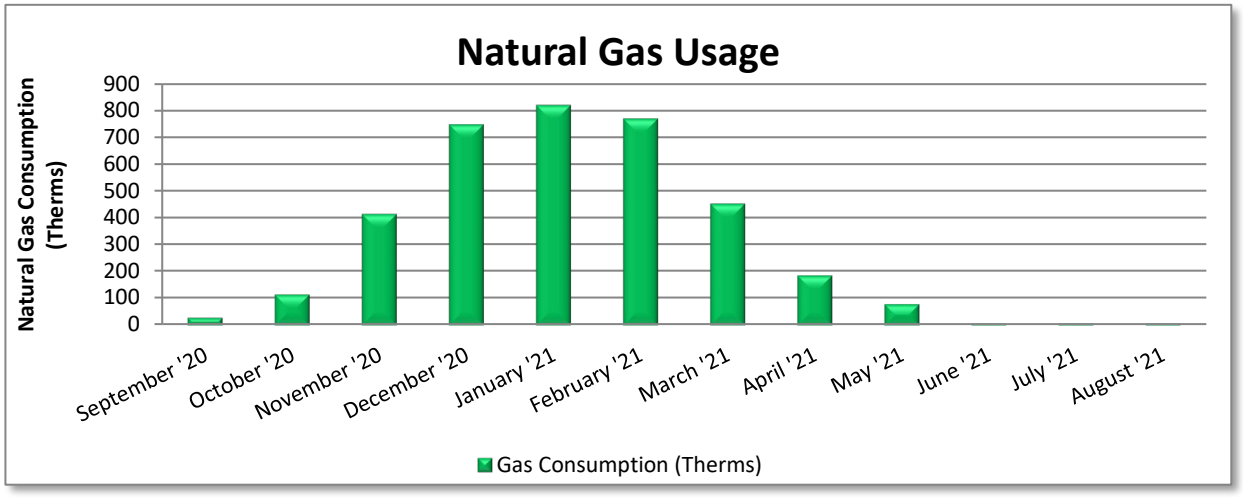
Electric Billing Data					
Period Ending	**Days in Period**	**Electric Usage (kWh)**	**Demand (kW)**	**Demand Cost**	**Total Electric Cost**
10/9/20	29	2,294	26	$50	$279
11/9/20	31	2,430	27	$50	$332
12/9/20	30	3,295	27	$50	$358
1/11/21	33	4,147	27	$50	$868
2/9/21	29	4,498	27	$50	$632
3/9/21	28	3,975	27	$50	$632
4/9/21	31	3,491	27	$50	$529
5/11/21	32	2,887	27	$50	$494
6/10/21	30	2,437	27	$50	$455
7/12/21	32	5,651	27	$109	$850
8/10/21	29	6,187	23	$86	$903
9/10/21	31	2,720	27	$109	$596
Totals	**365**	**44,012**	**27**	**$751**	**$6,928**
Annual	**365**	**44,012**	**27**	**$751**	**$6,928**

Notes:

- Peak demand of 27 kW occurred in October '20.
- Average demand over the past 12 months was 26 kW.
- The average electric cost over the past 12 months was $0.157/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges. This report uses this blended rate to estimate energy cost savings.

3.2 Natural Gas

PSE&G delivers natural gas under rate class General Service Gas (GSG), with natural gas supply provided by UGI, a third-party supplier.



Gas Billing Data			
Period Ending	**Days in Period**	**Natural Gas Usage (Therms)**	**Natural Gas Cost**
10/1/20	28	29	$56
10/30/20	29	115	$132
12/2/20	33	413	$398
1/4/21	33	746	$694
2/3/21	30	818	$759
3/5/21	30	767	$718
4/6/21	32	452	$436
5/5/21	29	186	$197
6/4/21	30	80	$99
7/6/21	32	7	$42
8/4/21	29	7	$41
9/3/21	30	7	$41
Totals	**365**	**3,627**	**$3,613**
Annual	**365**	**3,627**	**$3,613**

Notes:

- The average gas cost for the past 12 months is $0.996/therm, which is the blended rate used throughout the analysis.
- The reduced natural gas consumption during the summer months likely reflects usage for domestic hot water only.

3.3 Benchmarking

Your building was benchmarked using the United States Environmental Protection Agency's (EPA) *Portfolio Manager®* software. Benchmarking compares your building's energy use to that of similar buildings across the country, while neutralizing variations due to location, occupancy, and operating hours. Some building types can be scored with a 1-100 ranking of a building's energy performance relative to the national building market. A score of 50 represents the national average and a score of 100 is best.

This ENERGY STAR benchmarking score provides a comprehensive snapshot of your building's energy performance. It assesses the building's physical assets, operations, and occupant behavior, which is compiled into a quick and easy-to-understand score.

Benchmarking Score	**N/A**

Due to its unique characteristics, this building type is not able to receive a benchmarking score. This report contains suggestions about how to improve building performance and reduce energy costs.

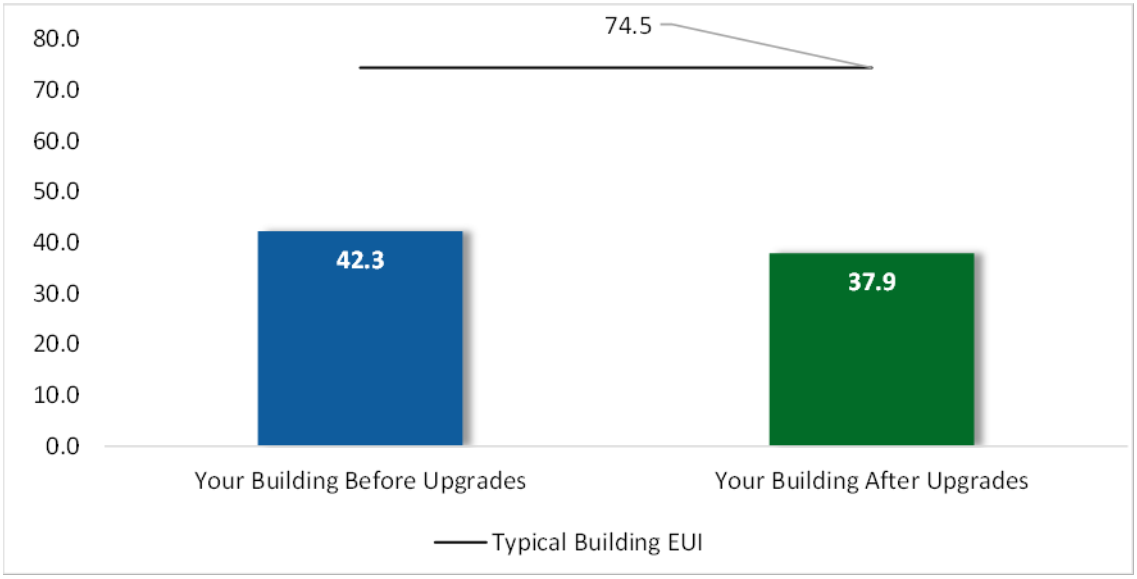


Figure 5 - Energy Use Intensity Comparison[3]

Energy use intensity (EUI) measures energy consumption per square foot and is the standard metric for comparing buildings' energy performance. A lower EUI means better performance and less energy consumed. Several factors can cause a building to vary from typical energy usage. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and occupant behavior all contribute to a building's energy use and the benchmarking score.

[3] Based on all evaluated ECMs

Tracking Your Energy Performance

Keeping track of your energy use on a monthly basis is one of the best ways to keep energy costs in check. Update your utility information in Portfolio Manager regularly, so that you can keep track of your building's performance.

We have created a Portfolio Manager account for your facility, and we have already entered the monthly utility data shown above for you. Account login information for your account will be sent via email.

Free online training is available to help you use ENERGY STAR Portfolio Manager to track your building's performance at: https://www.energystar.gov/buildings/training.

For more information on ENERGY STAR and Portfolio Manager, visit their website.

4 Energy Conservation Measures

The goal of this audit report is to identify and evaluate potential energy efficiency improvements and provide information about the cost effectiveness of those improvements. Most energy conservation measures have received preliminary analysis of feasibility, which identifies expected ranges of savings. This level of analysis is typically sufficient to demonstrate project cost-effectiveness and help prioritize energy measures.

Calculations of energy use and savings are based on the current version of the *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*, which is approved by the NJBPU. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances.

Operation and maintenance costs for the proposed new equipment will generally be lower than the current costs for the existing equipment—especially if the existing equipment is at or past its normal useful life. We have conservatively assumed there to be no impact on overall maintenance costs over the life of the equipment.

Financial incentives are based on previously run state rebate programs. New utility programs are expected to start rolling out in the spring and summer of 2021. Keep up to date with developments by visiting the NJCEP website. Some measures and proposed upgrades may be eligible for higher incentives than those shown below.

For a detailed list of the locations and recommended energy conservation measures for all inventoried equipment, see **Appendix A: Equipment Inventory & Recommendations.**

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**8,042**	**3.4**	**-2**	**$1,251**	**$6,990**	**$1,437**	**$5,553**	**4.4**	**7,918**
ECM 1	Install LED Fixtures	No	664	0.0	0	$105	$2,175	$550	$1,625	15.5	669
ECM 2	Retrofit Fixtures with LED Lamps	Yes	7,378	3.4	-2	$1,146	$4,815	$887	$3,928	3.4	7,249
Lighting Control Measures			**3,209**	**1.2**	**-1**	**$498**	**$7,015**	**$1,255**	**$5,760**	**11.6**	**3,152**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,673	1.1	-1	$415	$5,665	$800	$4,865	11.7	2,626
ECM 4	Install High/Low Lighting Controls	Yes	535	0.2	0	$83	$1,350	$455	$895	10.8	526
Unitary HVAC Measures			**4,410**	**5.5**	**0**	**$694**	**$38,706**	**$2,573**	**$36,133**	**52.1**	**4,441**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,410	5.5	0	$694	$38,706	$2,573	$36,133	52.1	4,441
Domestic Water Heating Upgrade			**0**	**0.0**	**2**	**$19**	**$29**	**$14**	**$14**	**0.8**	**222**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	2	$19	$29	$14	$14	0.8	222
TOTALS			**15,661**	**10.2**	**0**	**$2,462**	**$52,739**	**$5,279**	**$47,460**	**19.3**	**15,734**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 6 – All Evaluated ECMs

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**7,378**	**3.4**	**-2**	**$1,146**	**$4,815**	**$887**	**$3,928**	**3.4**	**7,249**
ECM 2	Retrofit Fixtures with LED Lamps	7,378	3.4	-2	$1,146	$4,815	$887	$3,928	3.4	7,249
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ECM 4	Install High/Low Lighting Controls	535	0.2	0	$83	$1,350	$455	$895	10.8	526
Domestic Water Heating Upgrade		**0**	**0.0**	**2**	**$19**	**$29**	**$14**	**$14**	**0.8**	**222**
ECM 6	Install Low-Flow DHW Devices	0	0.0	2	$19	$29	$14	$14	0.8	222
TOTALS		**10,586**	**4.6**	**0**	**$1,663**	**$11,858**	**$2,156**	**$9,702**	**5.8**	**10,624**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 7 – Cost Effective ECMs

4.1 Lighting

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**8,042**	**3.4**	**-2**	**$1,251**	**$6,990**	**$1,437**	**$5,553**	**4.4**	**7,918**
ECM 1	Install LED Fixtures	664	0.0	0	$105	$2,175	$550	$1,625	15.5	669
ECM 2	Retrofit Fixtures with LED Lamps	7,378	3.4	-2	$1,146	$4,815	$887	$3,928	3.4	7,249

When considering lighting upgrades, we suggest using a comprehensive design approach that simultaneously upgrades lighting fixtures and controls to maximize energy savings and improve occupant lighting. Comprehensive design will also consider appropriate lighting levels for different space types to make sure that the right amount of light is delivered where needed. If conversion to LED light sources is proposed, we suggest converting all of a specific lighting type (e.g., linear fluorescent) to LED lamps to minimize the number of lamp types in use at the facility, which should help reduce future maintenance costs.

ECM 1: Install LED Fixtures

We evaluated replacing existing fixtures containing high intensity discharge (HID) lamps with new LED light fixtures. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

In some cases, HID fixtures can be retrofit with screw-based LED lamps. Replacing an existing HID fixture with a new LED fixture will generally provide better overall lighting optics; however, replacing the HID lamp with a LED screw-in lamp is typically a less expensive retrofit. We recommend you work with your lighting contractor to determine which retrofit solution is best suited to your needs and will be compatible with the existing fixtures.

Maintenance savings may also be achieved since LED lamps last longer than other light sources and therefore do not need to be replaced as often.

Affected building areas: exterior metal halide fixtures.

ECM 2: Retrofit Fixtures with LED Lamps

Replace fluorescent and CFL lamps with LED lamps. Many LED tubes are direct replacements for existing fluorescent tubes and can be installed while leaving the fluorescent fixture ballast in place. LED lamps can be used in existing fixtures as a direct replacement for most other lighting technologies. Be sure to specify replacement lamps that are compatible with existing dimming controls, where applicable. In some circumstances, you may need to upgrade your dimming system for optimum performance.

This measure saves energy by installing LEDs, which use less power than other lighting technologies yet provide equivalent lighting output for the space. Maintenance savings may also be available, as longer-lasting LEDs lamps will not need to be replaced as often as the existing lamps.

Affected Building Areas: all areas with CFL lamps or fluorescent fixtures with T8 tubes.

4.2 Lighting Controls

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Control Measures		**3,209**	**1.2**	**-1**	**$498**	**$7,015**	**$1,255**	**$5,760**	**11.6**	**3,152**
ECM 3	Install Occupancy Sensor Lighting Controls	2,673	1.1	-1	$415	$5,665	$800	$4,865	11.7	2,626
ECM 4	Install High/Low Lighting Controls	535	0.2	0	$83	$1,350	$455	$895	10.8	526

Lighting controls reduce energy use by turning off or lowering lighting fixture power levels when not in use. A comprehensive approach to lighting design should upgrade the lighting fixtures and the controls together for maximum energy savings and improved lighting for occupants.

ECM 3: Install Occupancy Sensor Lighting Controls

Install occupancy sensors to control lighting fixtures in areas that are frequently unoccupied, even for short periods. For most spaces, we recommend that lighting controls use dual technology sensors, which reduce the possibility of lights turning off unexpectedly.

Occupancy sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Most occupancy sensor lighting controls allow users to manually turn fixtures on/off, as needed. Some controls can also provide dimming options.

Occupancy sensors can be mounted on the wall at existing switch locations, mounted on the ceiling, or in remote locations. In general, wall switch replacement sensors are best suited to single occupant offices and other small rooms. Ceiling-mounted or remote mounted sensors are used in large spaces, locations without local switching, and where wall switches are not in the line-of-sight of the main work area.

This measure provides energy savings by reducing the lighting operating hours.

Affected Building Areas: offices, conference rooms, and storage rooms.

ECM 4: Install High/Low Lighting Controls

Install occupancy sensors to provide dual level lighting control for lighting fixtures in spaces that are infrequently occupied but may require some level of continuous lighting for safety or security reasons.

Lighting fixtures with these controls operate at default low levels when the area is unoccupied to provide minimal lighting to meet security or safety code requirements for egress. Sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Fixtures automatically switch back to low level after a predefined period of vacancy. In parking lots and parking garages with significant ambient lighting, this control can sometimes be combined with photocell controls to turn the lights off when there is sufficient daylight.

The controller lowers the light level by dimming the fixture output. Therefore, the controlled fixtures need to have a dimmable ballast or driver. This will need to be considered when selecting retrofit lamps and bulbs for the areas proposed for high/low control.

For this type of measure the occupancy sensors will generally be ceiling or fixture mounted. Sufficient sensor coverage must be provided to ensure that lights turn on in each area as occupants approach the area.

This measure provides energy savings by reducing the light fixture power draw when reduced light output is appropriate.

Affected Building Areas: hallways, stairwells, and lobbies.

4.3 Unitary HVAC

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Unitary HVAC Measures		**4,410**	**5.5**	**0**	**$694**	**$38,706**	**$2,573**	**$36,133**	**52.1**	**4,441**
ECM 5	Install High Efficiency Air Conditioning Units	4,410	5.5	0	$694	$38,706	$2,573	$36,133	52.1	4,441

Replacing the unitary HVAC units has a long payback period and may not be justifiable based simply on energy considerations. However, most of the units are nearing or have reached the end of their normal useful life. Typically, the marginal cost of purchasing a high efficiency unit can be justified by the marginal savings from the improved efficiency. When the split-systems are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

ECM 5: Install High Efficiency Air Conditioning Units

We evaluated replacing standard efficiency split system air conditioning units with high efficiency units. The magnitude of energy savings for this measure depends on the relative efficiency of the older unit versus the new high efficiency unit, the average cooling and heating load, and the estimated annual operating hours.

Affected Units: exterior split-systems (except newer Barn unit).

4.4 Domestic Water Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**0**	**0.0**	**2**	**$19**	**$29**	**$14**	**$14**	**0.8**	**222**
ECM 6	Install Low-Flow DHW Devices	0	0.0	2	$19	$29	$14	$14	0.8	222

ECM 6: Install Low-Flow DHW Devices

Install low-flow devices to reduce overall hot water demand. The following low-flow devices are recommended to reduce hot water usage:

Device	Flow Rate
Faucet aerators (lavatory)	0.5 gpm
Faucet aerator (kitchen)	1.5 gpm
Showerhead	2.0 gpm
Pre-rinse spray valve (kitchen)	1.28 gpm

Low-flow devices reduce the overall water flow from the fixture, while still providing adequate pressure for washing. Additional cost savings may result from reduced water usage.

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs.

Operation and maintenance (O&M) plans enhance the operational efficiency of HVAC and other energy intensive systems and could save 5% –20% of the energy usage in your building without substantial capital investment. A successful plan includes your records of energy usage trends and costs, building equipment lists, current maintenance practices, and planned capital upgrades, and it incorporates your ideas for improved building operation. Your plan will address goals for energy-efficient operation, provide detail on how to reach the goals, and outline procedures for measuring and reporting whether goals have been achieved.

You may already be doing some of these things—see our list below for potential additions to your maintenance plan. Be sure to consult with qualified equipment specialists for details on proper maintenance and system operation.

Energy Tracking with ENERGY STAR Portfolio Manager

You've heard it before—you cannot manage what you do not measure. ENERGY STAR Portfolio Manager is an online tool that you can use to measure and track energy and water consumption, as well as greenhouse gas emissions[4] . Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

Weatherization

Caulk or weather strip leaky doors and windows to reduce drafts and loss of heated or cooled air. Sealing cracks and openings can reduce heating and cooling costs, improve building durability, and create a healthier indoor environment. Materials used may include caulk, polyurethane foam, and other weather-stripping materials. There is an energy savings opportunity by reducing the uncontrolled air exchange between the outside and inside of the building. Blower door assisted comprehensive building air sealing will reduce the amount of air exchange, which will in turn reduce the load on the buildings heating and cooling equipment, providing energy savings and increased occupant comfort.

Doors and Windows

Close exterior doors and windows in heated and cooled areas. Leaving doors and windows open leads to a loss of heat during the winter and chilled air during the summer. Reducing air changes per hour can lead to increased occupant comfort as well as heating and cooling savings, especially when combined with proper HVAC controls and adequate ventilation.

[4] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager.

Lighting Maintenance



Clean lamps, reflectors and lenses of dirt, dust, oil, and smoke buildup every six to twelve months. Light levels decrease over time due to lamp aging, lamp and ballast failure, and buildup of dirt and dust. Together, this can reduce total light output by up to 60% while still drawing full power.

In addition to routine cleaning, developing a maintenance schedule can ensure that maintenance is performed regularly, and it can reduce the overall cost of fixture re-lamping and re-ballasting. Group re-lamping and re-ballasting maintains lighting levels and minimizes the number of site visits by a lighting technician or contractor, decreasing the overall cost of maintenance.

Lighting Controls

As part of a lighting maintenance schedule, test lighting controls to ensure proper functioning. For occupancy sensors, this requires triggering the sensor and verifying that the sensor's timer settings are correct. For daylight and photocell sensors, maintenance involves cleaning sensor lenses and confirming that setpoints and sensitivity are configured properly. Adjust exterior lighting time clock controls seasonally as needed to match your lighting requirements.

Motor Maintenance

Motors have many moving parts. As these parts degrade over time, the efficiency of the motor is reduced. Routine maintenance prevents damage to motor components. Routine maintenance should include cleaning surfaces and ventilation openings on motors to prevent overheating, lubricating moving parts to reduce friction, inspecting belts and pulleys for wear and to ensure they are at proper alignment and tension, and cleaning and lubricating bearings. Consult a licensed technician to assess these and other motor maintenance strategies.

Fans to Reduce Cooling Load

Install ceiling fans to supplement your cooling system. Thermostat settings can typically be increased by 4°F with no change in overall occupant comfort due to the wind chill effect of moving air.

AC System Evaporator/Condenser Coil Cleaning

Dirty evaporator and condenser coils restrict air flow and restrict heat transfer. This increases the loads on the evaporator and condenser fan and decreases overall cooling system performance. Keeping the coils clean allows the fans and cooling system to operate more efficiently.

HVAC Filter Cleaning and Replacement

Air filters should be checked regularly (often monthly) and cleaned or replaced when appropriate. Air filters reduce indoor air pollution, increase occupant comfort, and help keep equipment operating efficiently. If the building has a building management system, consider installing a differential pressure switch across filters to send an alarm about premature fouling or overdue filter replacement. Over time, filters become less and less effective as particulate buildup increases. Dirty filters also restrict air flow through the air conditioning or heat pump system, which increases the load on the distribution fans.

Ductwork Maintenance

Duct maintenance has two primary goals: keep the ducts clean to avoid air quality problems and seal leaks to save energy. Check for cleanliness, obstructions that block airflow, water damage, and leaks. Ducts should be inspected at least every two years.

The biggest symptoms of clogged air ducts are differing temperatures throughout the building and areas with limited airflow from supply registers. If a particular air duct is clogged, then air flow will only be cut off to some rooms in the building—not all of them. The reduced airflow will make it more difficult for those areas to reach the temperature setpoint, which will cause the HVAC system to run longer to cool or heat that area properly. If you suspect clogged air ducts, ensure that all areas in front of supply registers are clear of items that may block or restrict air flow, and you should check for fire dampers or balancing dampers that have failed closed.

Duct leakage in commercial buildings can account for 5%–25% of the supply airflow. In the case of rooftop air handlers, duct leakage can occur to the outside of the building wasting conditioned air. Check ductwork for leakage. Eliminating duct leaks can improve ventilation system performance and reduce heating and cooling system operation.

Distribution system losses are dependent on air system temperature, the size of the distribution system, and the level of insulation of the ductwork. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is missing or worn, the system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

Furnace Maintenance

Preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should check for gas / carbon monoxide leaks; change the air and fuel filters; check components for cracks, corrosion, dirt, or debris build-up; ensure the ignition system is working properly; test and adjust operation and safety controls; inspect electrical connections; and lubricate motors and bearings.

Label HVAC Equipment

For improved coordination in maintenance practices, we recommend labeling or re-labeling the site HVAC equipment. Maintain continuity in labeling by following labeling conventions as indicated in the facility drawings or EMS building equipment list. Use weatherproof or heatproof labeling or stickers for permanence, but do not cover over original equipment nameplates, which should be kept clean and readable whenever possible. Besides equipment, label piping for service and direction of flow when possible. Ideally, maintain a log of HVAC equipment, including nameplate information, asset tag designation, areas served, installation year, service dates, and other pertinent information.

This investment in your equipment will enhance collaboration and communication between your staff and your contracted service providers and may help you with regulatory compliance.

Optimize HVAC Equipment Schedules

Energy management systems (EMS) typically provide advanced controls for building HVAC systems, including chillers, boilers, air handling units, rooftop units and exhaust fans. The EMS monitors and reports operational status, schedules equipment start and stop times, locks out equipment operation based on outside air or space temperature, and often optimizes damper and valve operation based on complex algorithms. These EMS features, when in proper adjustment, can improve comfort for building occupants and save substantial energy.

Know your EMS scheduling capabilities. Regularly monitor HVAC equipment operating schedules and match them to building operating hours in order to eliminate unnecessary equipment operation and save energy. Monitoring should be performed often at sites with frequently changing usage patterns – daily in some cases. We recommend using the *optimal start* feature of the EMS (if available) to optimize the building warmup sequence. Most EMS scheduling programs provide for holiday schedules, which can be used during reduced use or shutdown periods. Finally, many systems are equipped with a one-time override function, which can be used to provide additional space conditioning due to a one-time, special event. When available this override feature should be used rather than changing the base operating schedule.

Water Heater Maintenance

The lower the supply water temperature that is used for hand washing sinks, the less energy is needed to heat the water. Reducing the temperature results in energy savings and the change is often unnoticeable to users. Be sure to review the domestic water temperature requirements for sterilizers and dishwashers as you investigate reducing the supply water temperature.

Also, preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. At least once a year, follow manufacturer instructions to drain a few gallons out of the water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Annual checks should include checks for:

- Leaks or heavy corrosion on the pipes and valves.
- Corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot, or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional.
- For electric water heaters, look for signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank.
- For water heaters more than three years old, have a technician inspect the sacrificial anode annually.

Water Conservation



Installing dual flush or low-flow toilets and low-flow/waterless urinals are ways to reduce water use. The EPA WaterSense® ratings for urinals is 0.5 gallons per flush (gpf) and for flush valve toilets is 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

For more information regarding water conservation go to the EPA's WaterSense website[5] or download a copy of EPA's "WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities"[6] to get ideas for creating a water management plan and best practices for a wide range of water using systems.

Water conservation devices that do not reduce hot water consumption will not provide energy savings at the site level, but they may significantly affect your water and sewer usage costs. Any reduction in water use does however ultimately reduce grid-level electricity use since a significant amount of electricity is used to deliver water from reservoirs to end users.

If the facility has detached buildings with a master water meter for the entire campus, check for unnatural wet areas in the lawn or water seeping in the foundation at water pipe penetrations through the foundation. Periodically check overnight meter readings when the facility is unoccupied, and there is no other scheduled water usage.

Manage irrigation systems to use water more effectively outside the building. Adjust spray patterns so that water lands on intended lawns and plantings and not on pavement and walls. Consider installing an evapotranspiration irrigation controller that will prevent over-watering.

Procurement Strategies

Purchasing efficient products reduces energy costs without compromising quality. Consider modifying your procurement policies and language to require ENERGY STAR or WaterSense products where available.

[5] https://www.epa.gov/watersense.

[6] https://www.epa.gov/watersense/watersense-work-0.

6 On-site Generation

You don't have to look far in New Jersey to see one of the thousands of solar electric systems providing clean power to homes, businesses, schools, and government buildings. On-site generation includes both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) technologies that generate power to meet all or a portion of the facility's electric energy needs. Also referred to as distributed generation, these systems contribute to greenhouse gas (GHG) emission reductions, demand reductions, and reduced customer electricity purchases, which results in improved electric grid reliability through better use of transmission and distribution systems.

Preliminary screenings were performed to determine if an on-site generation measure could be a cost-effective solution for your facility. Before deciding to install an on-site generation system, we recommend conducting a feasibility study to analyze existing energy profiles, siting, interconnection, and the costs associated with the generation project including interconnection costs, departing load charges, and any additional special facilities charges.

6.1 Solar Photovoltaic

Photovoltaic (PV) panels convert sunlight into electricity. Individual panels are combined into an array that produces direct current (DC) electricity. The DC current is converted to alternating current (AC) through an inverter. The inverter is then connected to the building's electrical distribution system.

A preliminary screening was conducted based on the facility's electric demand, size and location of free area, and shading elements. A solar PV array was evaluated for the facility's parking lot to avoid disrupting the historic buildings. However, due to the facility's low electric demand along with the amount of shading in the area, the preliminary screening shows that the facility has no potential for installing a PV array.

This facility does not appear to meet the minimum criteria for a cost-effective solar PV installation. To be cost-effective, a solar PV array needs certain minimum criteria, such as sufficient and sustained electric demand and sufficient flat or south-facing rooftop or other unshaded space on which to place the PV panels.

The graphic below displays the results of the PV potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

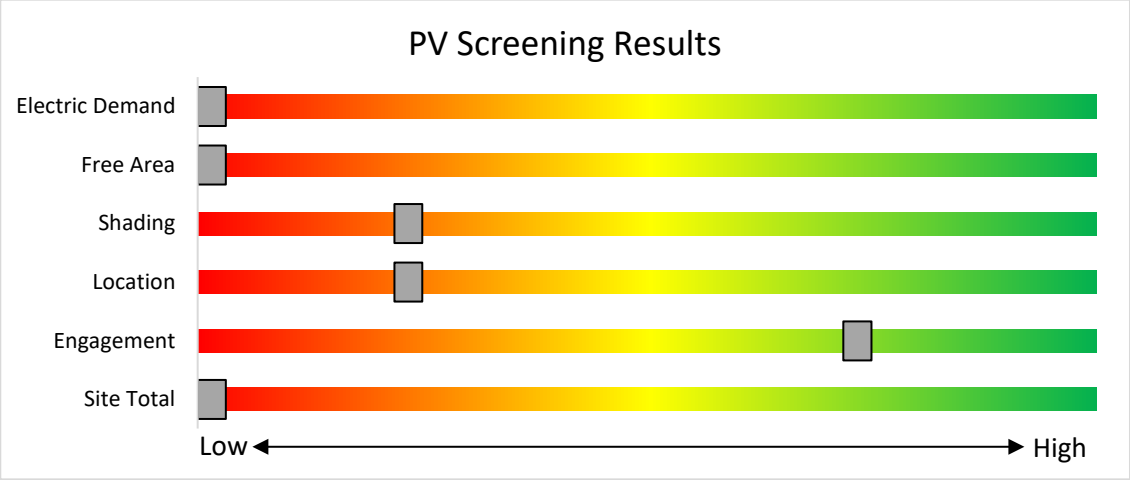


Figure 8 - Photovoltaic Screening

Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects. Solar projects may qualify to earn SREC- IIs (Solar Renewable Energy Certificates-II), however, the project owners *must* register their solar projects prior to the start of construction to establish the project's eligibility.

Get more information about solar power in New Jersey or find a qualified solar installer who can help you decide if solar is right for your building:

Successor Solar Incentive Program (SuSI): https://www.njcleanenergy.com/renewable-energy/programs/susi-program

- **Basic Info on Solar PV in NJ**: www.njcleanenergy.com/whysolar
- **NJ Solar Market FAQs**: www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-market-faqs.
- **Approved Solar Installers in the NJ Market**: www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/?id=60&start=1

6.2 Combined Heat and Power

Combined heat and power (CHP) generates electricity at the facility and puts waste heat energy to good use. Common types of CHP systems are reciprocating engines, microturbines, fuel cells, backpressure steam turbines, and (at large facilities) gas turbines.

CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for space cooling.

The key criteria used for screening is the amount of time that the CHP system would operate at full load and the facility's ability to use the recovered heat. Facilities with a continuous need for large quantities of waste heat are the best candidates for CHP.

A preliminary screening based on heating and electrical demand, siting, and interconnection shows that the facility has no potential for installing a cost-effective CHP system.

Based on a preliminary analysis, the facility does not appear to meet the minimum requirements for a cost-effective CHP installation. The lack of gas service, low or infrequent thermal load, and lack of space for siting the equipment are the most significant factors contributing to the lack of CHP potential.

The graphic below displays the results of the CHP potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

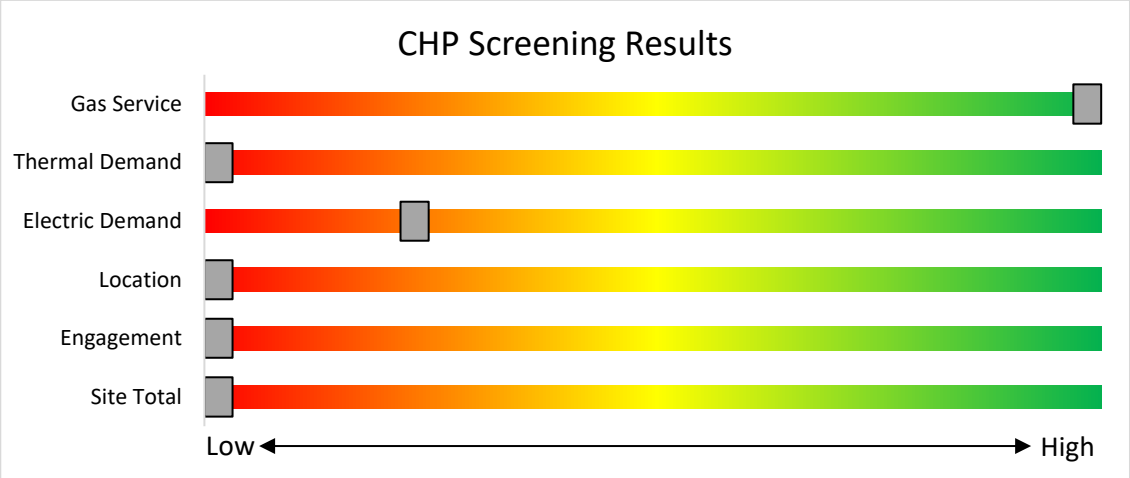


Figure 9 - Combined Heat and Power Screening

Find a qualified firm that specializes in commercial CHP cost assessment and installation: http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/

7 PROJECT FUNDING AND INCENTIVES

Ready to improve your building's performance? Your utility provider may be able to help.

7.1 Utility Energy Efficiency Programs

The Clean Energy Act, signed into law by Governor Murphy in 2018, requires New Jersey's investor-owned gas and electric utilities to reduce their customers' use by set percentages over time. To help reach these targets the New Jersey Board of Public Utilities approved a comprehensive suite of energy efficiency programs to be run by the utility companies.



These new utility programs are rolling out in the spring and summer of 2021. Keep up to date with developments by visiting:

https://www.njcleanenergy.com/transition

8 New Jersey's Clean Energy Programs

New Jersey's Clean Energy Program will continue to offer some energy efficiency programs.



8.1 Large Energy Users

The Large Energy Users Program (LEUP) is designed to foster self-directed investment in energy projects. This program is offered to New Jersey's largest energy customers that annually contribute at least $200,000 to the NJCEP aggregate of all buildings/sites. This equates to roughly $5 million in energy costs in the prior fiscal year.

Incentives

Incentives are based on the specifications below. The maximum incentive per entity is the lesser of:

- $4 million
- 75% of the total project(s) cost
- 90% of total NJCEP fund contribution in previous year
- $0.33 per projected kWh saved; $3.75 per projected Therm saved annually

How to Participate

To participate in LEUP, you will first need submit an enrollment application. This program requires all qualified and approved applicants to submit an energy plan that outlines the proposed energy efficiency work for review and approval. Applicants may submit a Draft Energy Efficiency Plan (DEEP), or a Final Energy Efficiency Plan (FEEP). Once the FEEP is approved, the proposed work can begin.

Detailed program descriptions, instructions for applying, and applications can be found at: www.njcleanenergy.com/LEUP

8.2 Combined Heat and Power

The Combined Heat & Power (CHP) program provides incentives for eligible CHP or waste heat to power (WHP) projects. Eligible CHP or WHP projects must achieve an annual system efficiency of at least 65% (lower heating value, or LHV), based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.

Incentives

Eligible Technologies	Size (Installed Rated Capacity)[1]	Incentive ($/kW)	% of Total Cost Cap per Project[3]	$ Cap per Project[3]
Powered by non-renewable or renewable fuel source[4]	≤500 kW	$2,000	30-40%[2]	$2 million
Gas Internal Combustion Engine	>500 kW - 1 MW	$1,000		
Gas Combustion Turbine	> 1 MW - 3 MW	$550	30%	$3 million
Microturbine Fuel Cells with Heat Recovery	>3 MW	$350		
Waste Heat to Power*	<1 MW	$1,000	30%	$2 million
	> 1MW	$500		$3 million

*Waste Heat to Power: Powered by non-renewable fuel source, heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine).

Check the NJCEP website for details on program availability, current incentive levels, and requirements.

How to Participate

You will work with a qualified developer or consulting firm to complete the CHP application. Once the application is approved the project can be installed. Information about the CHP program can be found at www.njcleanenergy.com/CHP.

8.3 Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects *must* register their projects prior to the start of construction to establish the project's eligibility to earn SREC-IIs (Solar Renewable Energy Certificates-II). SuSI consists of two sub-programs. The Administratively Determined Incentive (ADI) Program and the Competitive Solar Incentive (CSI) Program.

Administratively Determined Incentive (ADI) Program

The ADI Program provides administratively set incentives for net metered residential projects, net metered non-residential projects 5 MW or less, and all community solar projects.

After the registration is accepted, construction is complete, and a complete final as-built packet has been submitted, the project is issued a New Jersey certification number, which enables it to generate New Jersey SREC- IIs.

Market Segments	Size MW dc	Incentive Value ($/SREC II)	Public Entities Incentive Value - $20 Adder ($/SRECII)
Net Metered Residential	All types and sizes	$90	N/A
Small Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects smaller than 1 MW	$100	$120
Large Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects 1 MW to 5 MW	$90	$110
Small Net Metered Non-Residential Ground Mount	Projects smaller than 1 MW	$85	$105
Large Net Metered Non-Residential Ground Mount	Projects 1 MW to 5 MW	$80	$100
LMI Community Solar	Up to 5 MW	$90	N/A
Non-LMI Community Solar	Up to 5 MW	$70	N/A
Interim Subsection (t)	All types and sizes	$100	N/A

Eligible projects may generate SREC-IIs for 15 years following the commencement of commercial operations which is defined as permission to operate (PTO) from the Electric Distribution Company. After 15 years, projects may be eligible for a NJ Class I REC.

SREC-IIs will be purchased monthly by the SREC-II Program Administrator who will allocate the SREC-IIs to the Load Serving Entities (BGS Providers and Third-Party Suppliers) annually based on their market share of retail electricity sold during the relevant Energy Year.

The ADI Program online portal is now open to new registrations effective August 28, 2021.

Competitive Solar Incentive Program

The Competitive Solar Incentive (CSI) Program will provide competitively set incentives for grid supply projects and net metered non-residential projects greater than 5MW. The program is currently under development with the goal of holding the first solicitation by early-to-mid 2022. For updates, please continue to check the Solar Proceedings page on the New Jersey's Clean Energy Program website.

Solar projects help the State of New Jersey reach renewable energy goals outlined in the state's Energy Master Plan.

If you are considering installing solar photovoltaics on your building, visit the following link for more information: https://njcleanenergy.com/renewable-energy/programs/susi-program.

8.4 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) serves New Jersey's government agencies by financing energy projects. An ESIP is a type of performance contract, whereby school districts, counties, municipalities, housing authorities, and other public and state entities enter in to contracts to help finance building energy upgrades. Annual payments are lower than the savings projected from the energy conservation measures (ECMs), ensuring that ESIP projects are cash flow positive for the life of the contract.

ESIP provides government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources. NJCEP incentive programs described above can also be used to help further reduce the total project cost of eligible measures.

How to Participate

This LGEA report is the first step to participating in ESIP. Next, you will need to select an approach for implementing the desired ECMs:

(1) Use an energy services company or "ESCO."

(2) Use independent engineers and other specialists, or your own qualified staff, to provide and manage the requirements of the program through bonds or lease obligations.

(3) Use a hybrid approach of the two options described above where the ESCO is used for some services and independent engineers, or other specialists or qualified staff, are used to deliver other requirements of the program.

After adopting a resolution with a chosen implementation approach, the development of the energy savings plan can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used to pay for the financing.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Carefully consider all alternatives to develop an approach that best meets your needs. A detailed program descriptions and application can be found at www.njcleanenergy.com/ESIP.

ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you can use NJCEP incentive programs to help further reduce costs when developing the energy savings plan. Refer to the ESIP guidelines at the link above for further information and guidance on next steps.

9 PROJECT DEVELOPMENT

Energy conservation measures (ECMs) have been identified for your site, and their energy and economic analyses are provided within this LGEA report. Note that some of the identified projects may be mutually exclusive, such as replacing equipment versus upgrading motors or controls. The next steps with project development are to set goals and create a comprehensive project plan. The graphic below provides an overview of the process flow for a typical energy efficiency or renewable energy project. We recommend implementing as many ECMs as possible prior to undertaking a feasibility study for a renewable project. The cyclical nature of this process flow demonstrates the ongoing work required to continually improve building energy efficiency over time. If your building(s) scope of work is relatively simple to implement or small in scope, the measurement and verification (M&V) step may not be required. It should be noted through a typical project cycle, there will be changes in costs based on specific scopes of work, contractor selections, design considerations, construction, etc. The estimated costs provided throughout this LGEA report demonstrate the unburdened turn-key material and labor cost only. There will be contingencies and additional costs at the time of implementation. We recommend comprehensive project planning that includes the review of multiple bids for project work, incorporates potential operations and maintenance (O&M) cost savings, and maximizes your incentive potential.

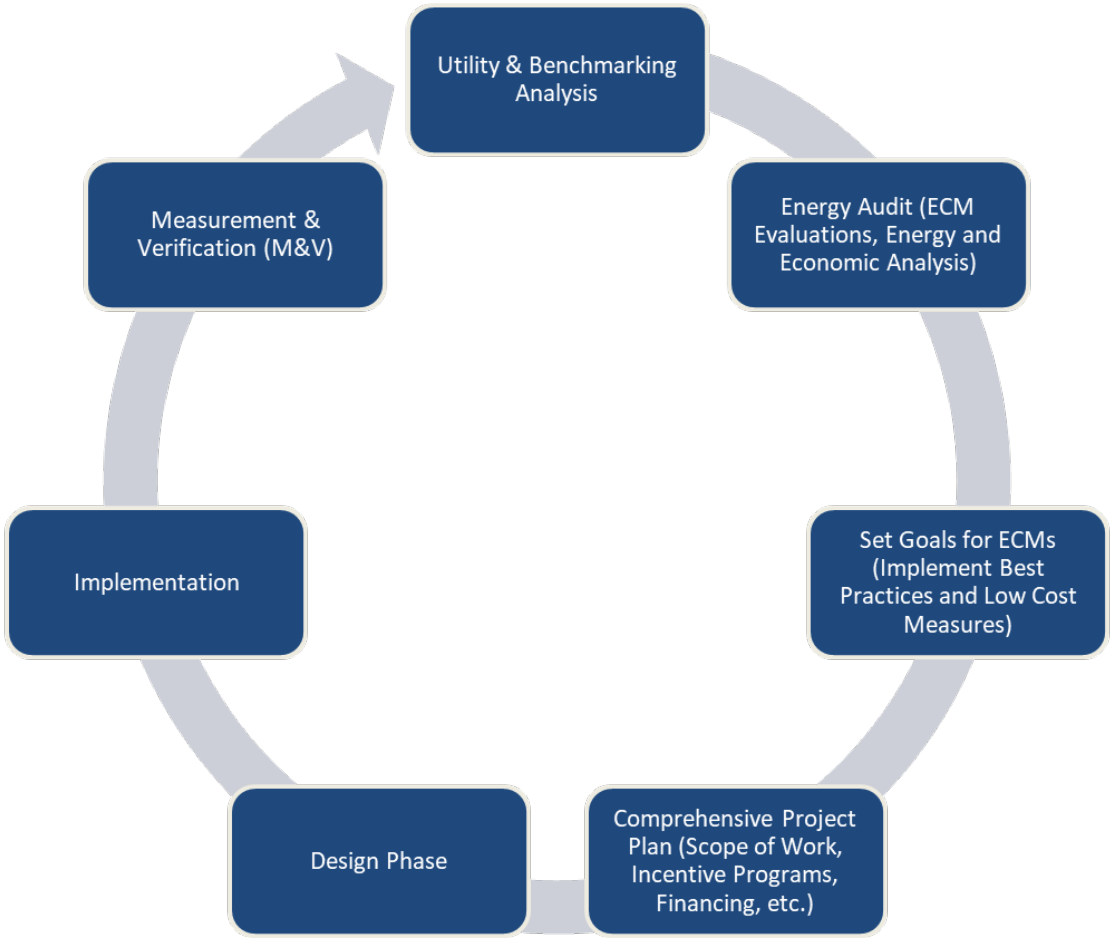


Figure 10 – Project Development Cycle

10 Energy Purchasing and Procurement Strategies

10.1 Retail Electric Supply Options

Energy deregulation in New Jersey has increased energy buyers' options by separating the function of electricity distribution from that of electricity supply. Though you may choose a different company from which to buy your electric power, responsibility for your facility's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your facility is not purchasing electricity from a third-party supplier, consider shopping for a reduced rate from third-party electric suppliers. If your facility already buys electricity from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party electric suppliers is available at the NJBPU website[7].

10.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey is also deregulated. Most customers that remain with the utility for natural gas service pay rates that are market based and fluctuate monthly. The utility provides basic gas supply service to customers who choose not to buy from a third-party supplier for natural gas commodity.

A customer's decision about whether to buy natural gas from a retail supplier typically depends on whether a customer prefers budget certainty and/or longer-term rate stability. Customers can secure longer-term fixed prices by signing up for service through a third-party retail natural gas supplier. Many larger natural gas customers may seek the assistance of a professional consultant to assist in their procurement process.

If your facility does not already purchase natural gas from a third-party supplier, consider shopping for a reduced rate from third-party natural gas suppliers. If your facility already purchases natural gas from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party natural gas suppliers is available at the NJBPU website[8].

[7] www.state.nj.us/bpu/commercial/shopping.html.

[8] www.state.nj.us/bpu/commercial/shopping.html.

APPENDIX A: EQUIPMENT INVENTORY & RECOMMENDATIONS

Lighting Inventory & Recommendations

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Back Lobby - FM	3	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2, 3	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	1,973	0.0	122	0	$19	$263	$108	8.2
Back Lobby - FM	2	Compact Fluorescent: (1) 13W Spiral Plug-In Lamp	Wall Switch	S	13	2,860	2, 3	Relamp	Yes	2	LED Lamps: A19 Lamps	Occupancy Sensor	10	1,973	0.0	38	0	$6	$34	$2	5.4
Back Lobby - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Conference 1 - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Conference 1 - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,288	2, 3	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	55	1,579	0.0	101	0	$16	$38	$3	2.2
Exterior - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Timeclock		52	730	2	Relamp	No	2	LED Lamps: GX23 (Plug-In) Lamps	Timeclock	37	730	0.0	22	0	$3	$50	$4	13.3
Janitorial 1 - FM	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	520	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	520	0.0	10	0	$2	$18	$5	8.5
Kitchen 1 - FM	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,288	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	19	2,288	0.0	18	0	$3	$13	$1	4.2
Office - Copy Room FM	5	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	5	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	333	0	$52	$395	$45	6.8
Rear Office - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Rear Office - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,288	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	55	2,288	0.0	58	0	$9	$38	$3	3.8
Restroom - #1 - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,288	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	55	2,288	0.0	58	0	$9	$38	$3	3.8
Side Office - FM	3	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	200	0	$31	$345	$41	9.8
Side Office #2 - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	133	0	$21	$166	$24	6.9
Side Office #3 - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	133	0	$21	$166	$24	6.9
Sun Room - FM	1	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	37	2,288	0.0	38	0	$6	$25	$2	3.9
Sun Room - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Corridor 1st Front - FM	3	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2, 4	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	1,973	0.0	122	0	$19	$263	$108	8.2
Corridor 1st Front - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,860	2, 4	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	37	1,973	0.1	167	0	$26	$50	$4	1.8
Corridor 1st Side - FM	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2, 4	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	1,973	0.0	41	0	$6	$13	$1	1.8
Corridor 2nd - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,860	2, 4	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	37	1,973	0.1	167	0	$26	$275	$74	7.8
Corridor 2nd - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Lobby 2nd - FM	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	19	2,860	0.0	22	0	$3	$13	$1	3.4
Lobby 2nd - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Office - Main Upstairs - FM	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,288	2, 3	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	1,579	0.0	32	0	$5	$13	$1	2.3

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Office - Main Upstairs - FM	6	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	6	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.2	400	0	$62	$420	$47	6.0
Office - Main Upstairs - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Office - Upstairs #1 - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Office - Upstairs #2 - FM	3	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	200	0	$31	$345	$41	9.8
Office - Upstairs #2 - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,288	2, 3	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	55	1,579	0.0	101	0	$16	$38	$3	2.2
Office - Upstairs #3 - FM	8	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	8	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.2	533	0	$83	$470	$51	5.1
Office - Upstairs #4 - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Office - Upstairs #5 - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Restroom - Upstairs - FM	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,288	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,288	0.0	44	0	$7	$18	$5	1.9
Stairs to 2nd #2 - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch		52	2,860	2, 4	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	37	1,973	0.1	167	0	$26	$275	$74	7.8
Corridor 3rd - Back - FM	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	2, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,973	0.1	264	0	$41	$298	$90	5.1
Mechanical - Crawlspace #2 - FM	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	9.0
Mechanical - Crawlspace 305 - FM	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	9.0
Stairs to 3rd Floor - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch		78	2,860	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	55	2,860	0.0	72	0	$11	$38	$3	3.1
Stairs to 3rd Floor - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Storage 301 - FM	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	9.0
Storage 302 - FM	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	9.0
Mechanical - Crawlspace - FM	1	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	520	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	37	520	0.0	9	0	$1	$25	$2	17.3
Mechanical - Basement - FM	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - FM	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.2	113	0	$18	$219	$60	9.0
Lobby - CH	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,860	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	55	2,860	0.0	72	0	$11	$38	$3	3.1
Lobby - CH	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Main Office - CH	3	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	200	0	$31	$345	$41	9.8
Main Office - CH	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Restroom - CH	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,288	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,288	0.0	44	0	$7	$18	$5	1.9

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Side Office - CH	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	133	0	$21	$166	$24	6.9
Upstairs Office - CH	8	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	8	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.2	533	0	$83	$470	$51	5.1
Upstairs Office - CH	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - CH	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	9.0
Exterior - CH	2	Metal Halide: (1) 70W Lamp	Timeclock		95	730	1	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	21	730	0.0	108	0	$17	$412	$100	18.4
Exterior - CH	4	Metal Halide: (1) 200W Lamp	Timeclock		232	730	1	Fixture Replacement	No	4	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	60	730	0.0	502	0	$79	$1,557	$400	14.6
Back Office - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Back Office - Barn	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.1	211	0	$33	$189	$40	4.5
Conference 1 - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Conference 1 - Barn	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.1	211	0	$33	$73	$20	1.6
Conference 1 - Barn	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,288	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,579	0.1	317	0	$49	$226	$50	3.6
Laboratory 1 - Barn	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,288	2, 3	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,579	0.2	634	0	$98	$489	$95	4.0
Lobby - Barn	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Lobby - Barn	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	2, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,973	0.2	594	0	$92	$389	$150	2.6
Main Office - Barn	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.2	423	0	$66	$416	$75	5.2
Mechanical Room - Barn	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	9.0
Office - Mechanical - Barn	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.1	317	0	$49	$380	$65	6.4
Restroom - Barn	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,288	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,288	0.0	125	0	$19	$55	$15	2.1
Stairs 1 - Barn	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch		26	2,860	2, 4	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	1,973	0.0	41	0	$6	$13	$1	1.8
Stairs 1 - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Stairs 1 - Barn	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch		93	2,860	2, 4	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,973	0.1	198	0	$31	$280	$50	7.5
Storage - Side - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Storage - Side - Barn	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	359	0.2	144	0	$22	$489	$60	19.2
Storage #1 - Barn	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	9.0
Upstairs Office - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Upstairs Office - Barn	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.4	951	0	$148	$599	$125	3.2
Mechanical - Attic - Barn	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.2	94	0	$15	$183	$50	9.0
Exterior - Barn	2	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Timeclock		26	730	2	Relamp	No	2	LED Lamps: GX23 (Plug-In) Lamps	Timeclock	19	730	0.0	10	0	$2	$25	$2	14.3
Exterior - Barn	1	Metal Halide: (1) 70W Lamp	Timeclock		95	730	1	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	21	730	0.0	54	0	$9	$206	$50	18.4
Garage - Barn	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	359	0.2	96	0	$15	$416	$75	22.9

Motor Inventory & Recommendations

		Existing Conditions									Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical - Crawlspace - FM	Mechanical - Crawlspace - FM	2	Exhaust Fan	0.3	62.5%	No			W	2,288		No	62.5%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - FM	Sump Pump	1	Process Pump	0.5	75.0%	No			W	730		No	75.0%	No		0.0	0	0	$0	$0	$0	0.0
Fenwick Manor	Furnaces	4	Supply Fan	0.1	60.0%	No	Rheem		B	2,288		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - CH	Sump Pump	1	Process Pump	0.5	75.0%	No			W	730		No	75.0%	No		0.0	0	0	$0	$0	$0	0.0
Carriage House	Furnace	1	Supply Fan	0.1	60.0%	No	Rheem		B	2,288		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof - Barn	Laboratory - Barn	1	Exhaust Fan	1.0	82.5%	No			W	2,288		No	82.5%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room - Barn	Sump Pump	1	Process Pump	0.5	75.0%	No			W	730		No	75.0%	No		0.0	0	0	$0	$0	$0	0.0
Barn	Furnace	1	Supply Fan	0.1	60.0%	No	Rheem		B	2,288		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0

Packaged HVAC Inventory & Recommendations

		Existing Conditions									Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Manufacturer	Model	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Exterior - FM	Basement & First Floor	1	Split-System	4.00		10.00		Trane	2TTB0048A1000AA	B	5	Yes	1	Split-System	4.00		16.00		0.9	720	0	$113	$6,486	$420	53.5
Exterior - FM	Basement & First Floor	1	Split-System	4.00		10.00		Trane	2TTB0048A1000AA	B	5	Yes	1	Split-System	4.00		16.00		0.9	720	0	$113	$6,486	$420	53.5
Exterior - FM	Second & Third Floor	1	Split-System	5.00		10.00		Trane	2TTB0060A1000AA	B	5	Yes	1	Split-System	5.00		16.00		1.1	900	0	$142	$6,521	$525	42.3
Exterior - FM	Second & Third Floor	1	Split-System	5.00		10.00		Trane	2TTB0060A1000AA	B	5	Yes	1	Split-System	5.00		16.00		1.1	900	0	$142	$6,521	$525	42.3
Mechanical - Basement - FM	Basement & First Floor	1	Forced Air Furnace		44.21		0.921 AFUE	Trane	TXC048C4HPD0	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - FM	Basement & First Floor	1	Forced Air Furnace		44.21		0.921 AFUE	Trane	TXC048C4HPD0	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical - Crawlspace 305 - FM	Second & Third Floor	1	Forced Air Furnace		55.26		0.921 AFUE	Trane	TXC060C5HPC0	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical - Crawlspace 305 - FM	Second & Third Floor	1	Forced Air Furnace		55.26		0.921 AFUE	Trane	TXC060C5HPC0	B		No							0.0	0	0	$0	$0	$0	0.0
Exterior - CH	Carriage House	1	Split-System	3.50		10.00		Trane	2TTB0042A1000AA	B	5	Yes	1	Split-System	3.50		16.00		0.8	630	0	$99	$6,407	$368	60.9
Mechanical - Basement - CH	Carriage House	1	Forced Air Furnace		38.68		0.921 AFUE	Trane	TXC042C4HPC0	B		No							0.0	0	0	$0	$0	$0	0.0
Lobby - CH	Lobby - CH	1	Electric Resistance Heat		6.82		1 COP	TPI Corporation	H3422T	W		No							0.0	0	0	$0	$0	$0	0.0
Exterior - Barn	Barn	1	Split-System	2.50		13.00		Trane	2TTR3030A1000AA	W		No							0.0	0	0	$0	$0	$0	0.0
Exterior - Barn	Barn	1	Split-System	3.00		10.00		Trane	2TTB0036A1000AA	B	5	Yes	1	Split-System	3.00		16.00		0.7	540	0	$85	$6,286	$315	70.2
Mechanical Room - Barn	Barn	1	Forced Air Furnace		38.68		0.921 AFUE	Trane	TXC042C4HPC0	B		No							0.0	0	0	$0	$0	$0	0.0
Office - Mechanical - Barn	Office - Mechanical - Barn	1	Unit Heater		60.75		0.81 Et	Trane	GHND007D	B		No							0.0	0	0	$0	$0	$0	0.0
Lobby - Barn	Lobby - Barn	1	Electric Resistance Heat		6.82		1 COP	TPI Corporation	H3422T	W		No							0.0	0	0	$0	$0	$0	0.0
Main Office - Barn	Main Office - Barn	1	Electric Resistance Heat		2.05		1 COP	TPI Corporation	E2906-036C	W		No							0.0	0	0	$0	$0	$0	0.0
Restroom - Barn	Restroom - Barn	1	Electric Resistance Heat		2.05		1 COP	TPI Corporation	E2906-036S	W		No							0.0	0	0	$0	$0	$0	0.0

DHW Inventory & Recommendations

		Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Manufacturer	Model	Remaining Useful Life	ECM #	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical - Basement - FM	Fenwick Manor	1	Storage Tank Water Heater (≤ 50 Gal)	Bradford White	MITW50L6BN12	B		No						0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - CH	Carriage House	1	Storage Tank Water Heater (≤ 50 Gal)	Bradford White	MITW40L6BN12	B		No						0.0	0	0	$0	$0	$0	0.0
Mechanical Room - Barn	Barn	1	Storage Tank Water Heater (≤ 50 Gal)	Bradford White	MITW50L6BN12	B		No						0.0	0	0	$0	$0	$0	0.0

Low-Flow Device Recommendations

	Recommedation Inputs					Energy Impact & Financial Analysis						
Location	ECM #	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Fenwick Manor	6	2	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	1	$9	$14	$7	0.8
Carriage House	6	1	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	0	$5	$7	$4	0.8
Barn	6	1	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	0	$5	$7	$4	0.8

Plug Load Inventory

	Existing Conditions					
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified ?	Manufacturer	Model
Fenwick Manor	3	Coffee Machine	500	No		
Fenwick Manor	13	Desktop	120	No		
Fenwick Manor	2	Fan (Ceiling)	200	No		
Fenwick Manor	1	Microwave	800	No		
Fenwick Manor	1	Paper Shredder	146	No		
Fenwick Manor	8	Printer (Medium/Small)	450	No		
Fenwick Manor	1	Printer/Copier (Large)	600	No		
Fenwick Manor	1	Refrigerator (Residential)	340	No		
Fenwick Manor	1	Toaster Oven	600	No		
Fenwick Manor	2	Electric Space Heater	1,000	No		
Carriage House	2	Coffee Machine	500	No		
Carriage House	5	Desktop	120	No		
Carriage House	1	Fan (Ceiling)	200	No		
Carriage House	1	Fan (Portable)	100	No		
Carriage House	1	Microwave	800	No		
Carriage House	1	Paper Shredder	146	No		
Carriage House	2	Printer (Medium/Small)	450	No		
Carriage House	1	Refrigerator (Mini)	175	No		
Carriage House	1	Toaster Oven	600	No		
Barn	1	Coffee Machine	500	No		
Barn	7	Desktop	120	No		
Barn	1	Electric Space Heater	1,000	No		
Barn	1	Fan (Portable)	100	No		
Barn	2	Microwave	800	No		
Barn	1	Lab Oven	1,000	No		
Barn	3	Printer (Medium/Small)	450	No		
Barn	2	Refrigerator (Mini)	175	No		
Barn	1	Smart Board	215	No		

APPENDIX B: ENERGY STAR STATEMENT OF ENERGY PERFORMANCE

Energy use intensity (EUI) is presented in terms of *site energy* and *source energy*. Site energy is the amount of fuel and electricity consumed by a building as reflected in utility bills. Source energy includes fuel consumed to generate electricity consumed at the site, factoring in electric production and distribution losses for the region.

LEARN MORE AT energystar.gov

ENERGY STAR® Statement of Energy Performance

N/A

ENERGY STAR® Score[1]

New Jersey Pinelands Commission (Fenwick Manor, Carriage House, & Barn)

Primary Property Type: Office
Gross Floor Area (ft²): 12,122
Built: 1820

For Year Ending: August 31, 2021
Date Generated: January 31, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
New Jersey Pinelands Commission (3 Building Campus) 15 Springfield Road New Lisbon, New Jersey 08064	New Jersey Pinelands Commission PO Box 359 New Lisbon, NJ 08064 609-894-7300	Jessica Lynch PO Box 359 New Lisbon, NJ 08064 609-894-7300 jessica.lynch@pinelands.nj.gov

Property ID: 19501565

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
42.3 kBtu/ft²

Source EUI
66.1 kBtu/ft²

Annual Energy by Fuel

Natural Gas (kBtu)	362,692 (71%)
Electric - Grid (kBtu)	150,169 (29%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	74.5
National Median Source EUI (kBtu/ft²)	116.4
% Diff from National Median Source EUI	-43%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	33

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

Licensed Professional

___ _____
,
(___)___-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

APPENDIX C: GLOSSARY

TERM	DEFINITION
Blended Rate	Used to calculate fiscal savings associated with measures. The blended rate is calculated by dividing the amount of your bill by the total energy use. For example, if your bill is $22,217.22, and you used 266,400 kilowatt-hours, your blended rate is 8.3 cents per kilowatt-hour.
Btu	*British thermal unit*: a unit of energy equal to the amount of heat required to increase the temperature of one pound of water by one-degree Fahrenheit.
CHP	*Combined heat and power*. Also referred to as cogeneration.
COP	*Coefficient of performance*: a measure of efficiency in terms of useful energy delivered divided by total energy input.
Demand Response	Demand response reduces or shifts electricity usage at or among participating buildings/sites during peak energy use periods in response to time-based rates or other forms of financial incentives.
DCV	*Demand control ventilation*: a control strategy to limit the amount of outside air introduced to the conditioned space based on actual occupancy need.
US DOE	*United States Department of Energy*
EC Motor	*Electronically commutated motor*
ECM	*Energy conservation measure*
EER	*Energy efficiency ratio*: a measure of efficiency in terms of cooling energy provided divided by electric input.
EUI	*Energy Use Intensity:* measures energy consumption per square foot and is a standard metric for comparing buildings' energy performance.
Energy Efficiency	Reducing the amount of energy necessary to provide comfort and service to a building/area. Achieved through the installation of new equipment and/or optimizing the operation of energy use systems. Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service.
ENERGY STAR	ENERGY STAR is the government-backed symbol for energy efficiency. The ENERGY STAR program is managed by the EPA.
EPA	*United States Environmental Protection Agency*
Generation	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
GHG	*Greenhouse gas* gases that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.
gpf	*Gallons per flush*

gpm	*Gallon per minute*
HID	*High intensity discharge:* high-output lighting lamps such as high-pressure sodium, metal halide, and mercury vapor.
hp	*Horsepower*
HPS	*High-pressure sodium*: a type of HID lamp.
HSPF	*Heating seasonal performance factor:* a measure of efficiency typically applied to heat pumps. Heating energy provided divided by seasonal energy input.
HVAC	*Heating, ventilating, and air conditioning*
IHP 2014	US DOE Integral Horsepower rule. The current ruling regarding required electric motor efficiency.
IPLV	*Integrated part load value:* a measure of the part load efficiency usually applied to chillers.
kBtu	One thousand British thermal units
kW	*Kilowatt*: equal to 1,000 Watts.
kWh	*Kilowatt-hour*: 1,000 Watts of power expended over one hour.
LED	*Light emitting diode*: a high-efficiency source of light with a long lamp life.
LGEA	*Local Government Energy Audit*
Load	The total power a building or system is using at any given time.
Measure	A single activity, or installation of a single type of equipment, that is implemented in a building system to reduce total energy consumption.
MH	*Metal halide*: a type of HID lamp.
MBh	*Thousand Btu per hour*
MBtu	*One thousand British thermal units*
MMBtu	*One million British thermal units*
MV	*Mercury Vapor:* a type of HID lamp.
NJBPU	*New Jersey Board of Public Utilities*
NJCEP	*New Jersey's Clean Energy Program:* NJCEP is a statewide program that offers financial incentives, programs and services for New Jersey residents, business owners and local governments to help them save energy, money, and the environment.
psig	Pounds per square inch gauge
Plug Load	Refers to the amount of power used in a space by products that are powered by means of an ordinary AC plug.
PV	*Photovoltaic:* refers to an electronic device capable of converting incident light directly into electricity (direct current).

SEER	*Seasonal energy efficiency ratio:* a measure of efficiency in terms of annual cooling energy provided divided by total electric input.
SEP	*Statement of energy performance:* a summary document from the ENERGY STAR Portfolio Manager.
Simple Payback	The amount of time needed to recoup the funds expended in an investment or to reach the break-even point between investment and savings.
SREC	*Solar renewable energy credit*: a credit you can earn from the state for energy produced from a photovoltaic array.
TREC	*Transition Incentive Renewable Energy Certificate:* a factorized renewable energy certificate you can earn from the state for energy produced from a photovoltaic array.
T5, T8, T12	A reference to a linear lamp diameter. The number represents increments of 1/8th of an inch.
Temperature Setpoint	The temperature at which a temperature regulating device (thermostat, for example) has been set.
therm	100,000 Btu. Typically used as a measure of natural gas consumption.
tons	A unit of cooling capacity equal to 12,000 Btu/hr.
Turnkey	Provision of a complete product or service that is ready for immediate use.
VAV	*Variable air volume*
VFD	*Variable frequency drive*: a controller used to vary the speed of an electric motor.
WaterSense®	The symbol for water efficiency. The WaterSense® program is managed by the EPA.
Watt (W)	Unit of power commonly used to measure electricity use.

State of New Jersey
THE PINELANDS COMMISSION
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PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

NEW JERSEY PINELANDS COMMISSION MEETING AGENDA
Friday, April 8, 2022 - **9:30 a.m.**
Pinelands Commission YouTube link:
https://www.youtube.com/channel/UCBgpC8sbR3Acrjo7ppxs3Uw
To Provide Public Comment, Please Dial: 1-929-205-6099 Meeting ID: 823 0697 2572

1. Call to Order

   - Open Public Meetings Act Statement
   - Roll Call
   - Pledge Allegiance to the Flag

2. Adoption of Minutes

   - March 11, 2022

3. Committee Chairs' and Executive Director's Reports

4. Matters for Commission Consideration ***Where the Record is Closed***

   A. Permitting Matters

   - Office of Administrative Law
     - None
   - Review of Local Approvals
     - None
   - Public Development Projects and Waivers of Strict Compliance:

     Resolution Approving With Conditions (**2**) Applications for Public Development:

     - Application No. 2018-0163.001 - Weston Solutions, Inc.
       Installation of 2,200 linear feet of water main within the Route 70 and Ridgeway Boulevard rights-of-way
       Lakehurst Borough, Manchester Township

     - Application No. 2021-0284.001 - New Jersey Department of Transportation
       Installation of 534 linear feet of four-foot-wide sidewalk within the Route 30

right-of-way
Hammonton Town

Resolution Approving With Conditions (**1**) Application for a Waiver of Strict Compliance:

- Application No. 2020-0238.001 - 0 Cannon Road, LLC
  Single family dwelling
  Jackson Township

B. Planning Matters

- Municipal Master Plans and Ordinances
  - None
- Other Resolutions
  - None
- CMP Amendments
  - None

5. Public Comment on Public Development Applications and Waivers of Strict Compliance ***Where the Record is Not Closed***

A. Public Development Projects

- Application No. 1997-0045.013 – Lenape Regional High School District
  Installation of a synthetic turf athletic field at the Seneca High School
  Tabernacle Township

B. Waivers of Strict Compliance

- None

6. Master Plans and Ordinances Not Requiring Commission Action

- Jackson Township Ordinance 06-22
- Vineland City Ordinance 2022-13

7. Other Resolutions

- None

8. Presentation: Local Government Energy Audit Reports

9. General Public Comment

10. Resolution to Retire into Closed Session (if needed) – Personnel, Litigation and Acquisition Matters *(The Commission reserves the right to reconvene into public session to take action on closed session items.)*

11. Adjournment

Upcoming Meetings

Fri., April 29, 2022	Policy & Implementation (P&I) Committee Meeting (9:30 a.m.)
Fri., May 13, 2022	Pinelands Commission Meeting (9:30 a.m.)

To ensure adequate time for all members of the public to comment, we will respectfully limit comments to three minutes. Questions raised during this period may not be responded to at this time but where feasible, will be followed up by the Commission and its staff.

Pinelands Commission and Committee meeting agendas are posted on the Commission's Website and can be viewed at www.nj.gov/pinelands/ for more information on agenda details, e-mail the Public Programs Office at Info@pinelands.nj.gov.

PINELANDS COMMISSION MEETING

MINUTES
March 11, 2022

The March 11, 2022 Pinelands Commission meeting was conducted remotely. All participants were present via Zoom conference and the meeting was livestreamed through YouTube: https://www.youtube.com/watch?v=bZqYtYnOcjk

Commissioners Participating in the Meeting

Alan W. Avery Jr., John Holroyd Jr., Jerome H. Irick, Theresa Lettman, Ed Lloyd, Mark Lohbauer, Jonathan Meade, Davon McCurry, Jane Jannarone, William Pikolycky, Gary Quinn and Chair Laura E. Matos. Also participating were Acting Executive Director Susan R. Grogan, Deputy Attorney General (DAG) Nicolas Seminoff and Governor's Authorities Unit representative Janice Venables.

Commissioners Absent

Daniel Christy & Shannon Higginbotham.

Call to Order

Chair Matos called the meeting to order at 9:32 a.m.

DAG Seminoff read the Open Public Meetings Act Statement (OPMA).

Acting Executive Director (ED) Grogan called the roll and announced the presence of a quorum. Twelve Commissioners participated in the meeting.

The Commission pledged allegiance to the Flag.

Minutes

Chair Matos presented the minutes from the Commission's February 11, 2022 meeting. Commissioner Pikolycky moved the adoption of the minutes. Commissioner Lohbauer seconded the motion.

The minutes from the February 11, 2022 Commission meeting were adopted by a vote of 11 to 0. Commissioner Quinn abstained from the vote.

Committee Reports

Chair Matos provided an update on the February 25, 2022 Policy & Implementation (P&I) Committee meeting:

The Committee adopted the minutes of its November 19, 2021 meeting.

The Committee reviewed and recommended certification of an ordinance from Tabernacle Township that will permit solar energy facilities on former sand and gravel mines located in the Preservation Area District.

The Committee reviewed and recommended approval of a resolution requesting continued PILOT (Payment in Lieu of Taxes) funding for Pinelands municipalities.

The Committee received an update on upcoming policy and agenda content for the spring, including a new round of Pinelands Conservation Fund land acquisition and draft CMP amendments concerning the Electric Transmission Right-of-Way (ROW) Pilot Program and Kirkwood-Cohansey water supply policies.

Commissioner Lohbauer provided an update on the February 25, 2022 Climate Committee meeting:

The Committee received an update on the status of the Local Government Energy Audit and the rain garden project.

The Committee received an update on the following state initiatives that the Commission hopes to be involved in: the Governor's Interagency Council on Climate Resilience, Senator Smith's newly formed Forest Stewardship Task Force and the New Jersey Department of Environmental Protection (NJDEP) and New Jersey Department of Agriculture's Natural and Working Lands Strategy.

He said the Committee also discussed a resolution which incorporates climate change as it relates to the Pinelands Commission. He said that resolution is on today's agenda.

Staff Member Introductions

Acting ED Grogan introduced three new staff members who recently joined the Planning Office: Katie Elliot, Trent Maxwell and Steve Simone. She also introduced Devin Walker, who has joined the Regulatory Programs Office. She noted that another new employee will be joining the Regulatory Programs office at the end of March.

Acting Executive Director's Report

Acting ED Grogan provided information on the following matters:

- The Commission has received approval to replace two employees who are set to retire on June 1st and July 1st.

- The Governor has announced that state agencies can once again hold in-person public meetings as long as the same opportunity is afforded to members of the public. Staff will be meeting internally to discuss how it will conduct meetings going forward.

- The Commission has received a draft report from the consultant who performed the Energy Audit and a meeting has been scheduled with them to review the report before the issuance of the final report. The consultant provided two reports, one for the Richard J Sullivan Center and another for the historic buildings. A formal presentation on the findings of the reports will be shared at an upcoming Commission meeting.

Chuck Horner, Director of Regulatory Programs, provided information on the following regulatory matters:

- Tabernacle Township has determined that its current municipal building is structurally unsafe and has requested emergency authorization from the Commission to permit the placement of three office trailers on the existing parcel to use in the interim. The Township has been in discussions with staff about potential sites for the construction of the new municipal building.

- Staff is currently reviewing an application for a 205,000 square foot cannabis growing facility in Galloway Township at the former site of Lenox china plant.

- An application was submitted proposing the construction of 350 single family dwellings on an abandoned sand mine in Manchester Township. Previously there was an interest to develop a large warehouse on the site but that would have required a zoning change.

Commissioner Irick asked about the Commission's ability to participate on Senator Smith's Forest Stewardship Task Force.

Stacey Roth, the Commission's Chief of Legal and Legislative Affairs, said staff has reached out to the legislative aide to the Senate Environmental and Energy Committee regarding the Commission's interest in participating on the Task Force. She added that she has been in contact with Senator Smith's aide and he is aware of the Commission's interest as well.

She noted that the State Ethics Commission will be sending an email out soon regarding filing Financial Disclosure Statements. She said the deadline to file is May 15th.

She said the Executive Director of the State Agricultural Development Committee met with the P&I Committee a few years ago to discuss special occasion events at preserved farms. She said a bill is moving through the Legislature, and the February Management report includes details on how the number of events is calculated.

Paul Leakan, the Commission's Communications Officer, said more than 400 participants have registered for the 33rd Annual Pinelands Short Course.

He said the drawings for the rain garden may be completed later this month, with the hopes of installing the garden this spring. He said he shared a list of native Pinelands plants with the design team.

Public Development Projects and Other Permit Matters

Chair Matos introduced a resolution recommending approval for the construction of a 10,240 square foot maintenance building and two storage yards at the Atlantic County Institute of Technology High School in Hamilton Township.

Commissioner Lohbauer made a motion Approving With Conditions an Application for Public Development (Application Number 1981-2437.017) (See Resolution # PC4-22-09). Commissioner Irick seconded the motion.

Director Horner said in addition to the development of the maintenance building, the application resolves a violation regarding the establishment of storage yards used for vegetative debris.

The Commission adopted the resolution by a vote of 12 to 0.

Chair Matos said the next resolution is for the construction of six tolling stations along the Atlantic City Expressway, the construction of a fire station in Monroe Township and the installation of four wind cones at the Atlantic City International Airport.

Commissioner Irick made a motion Approving With Conditions Applications for Public Development (Application Numbers 1984-0655.033, 1987-1058.083 & 1986-1336.004)(See Resolution # PC4-22-10). Commissioner Lohbauer seconded the motion.

Director Horner explained that South Jersey Transportation Authority (SJTA) is constructing tolling stations along the Expressway, and the structures span across the travel lanes to capture E-ZPass information.

He said Monroe Township is proposing to demolish its existing fire station and rebuild a larger fire station on the same parcel. He said the Commission has received a number of letters from the Township supporting the application for the reconstruction of the fire station.

He said as part of SJTA's other development application, they are proposing to remove four existing wind cones from the airport and replace them with four new wind cones away from the runway for safety concerns. He said the wind cones are used by pilots to determine wind speed and direction. He said the report outlines the specific steps that must be taken to protect the threatened and endangered bird species at the airport.

Commissioner Lohbauer said the Commission recently permitted some changes to its Memorandum of Agreement (MOA) with SJTA and he doesn't consider this application to be new construction or tied to the performance of the MOA but he wants SJTA to be aware that the Commission is paying close attention. He asked if there are any updates on the progress of the new Grassland Conservation Management Area (GCMA).

Ms. Roth said all the structures at the former horse farm have been removed. She said an application to regrade and construct the new GCMA has been submitted to the Commission. She said SJTA continues to submit their monthly status reports. She added that the MOA covers specific development, and the wind cones were not subject of the MOA. She said the MOA specifically states that the Authority can submit a public development application for any development not covered by the MOA, and that is what they have done in this instance.

Director Horner said that Ernest Deman of the Regulatory Programs Office recently conducted a site inspection at the future site of the new GCMA and he can provide a quick overview of what he saw.

Mr. Deman said he visited the site to review the wetlands line. He said concrete slabs of where the structures sat remain. He added that the regrowth of the grasses in the open areas looks very promising.

The Commission adopted the resolution by a vote of 12 to 0.

Planning Matters

Chair Matos introduced a resolution to certify Tabernacle Township's Ordinance 2021-10.

Commissioner Lohbauer made a motion Issuing an Order to Certify Ordinance 2021-10, Amending Chapter XVII (Zoning) of the Code of Tabernacle Township (See Resolution # PC4-22-11). Commissioner Avery seconded the motion.

Acting ED Grogan said the Township has made zoning map changes specifically in its Infill District. She said when the Commission certified Tabernacle's ordinance in the mid-1980's, the town created an unusual Infill Commercial District that has caused problems over the years. The Township has decided to eliminate the Infill Commercial District and rezone a portion to the Infill Residential District and one lot to the Preservation Area District. The Township has elected to permit solar energy facilities on the lot that is being rezoned back to a Preservation Area District. The Township has adopted an ordinance that outlines a set of standards for solar facilities and is similar to what is required by the Comprehensive Management Plan (CMP) but included other standards related to setback, firebreaks, facility size limitations and other related local issues.

She said non-developed portions of the solar energy facility site will be permanently preserved through a deed restriction. She added that the Township is using the municipal flexibility provision of the CMP. She said siting a solar energy facility on a parcel that is under a restoration obligation is typically not permitted. She said based on the unique approach the Township has taken – which included tailoring certain standards – while still maintaining the goals of the CMP, staff is comfortable with the outcome of Tabernacle's approach. She noted that restoration on the parcel will occur on the portion of the parcel not being utilized by the solar energy facility. She said restoration on the solar energy facility portion of the lot will occur when the solar facility ceases operation.

Commissioner Meade ask for clarification about the placement of solar energy facilities.

Acting ED Grogan said the entire site is 60 acres. Approximately 14 acres of the already disturbed area will be used for the solar energy facility. She said the entire site is subject to the CMP's restoration requirements. She said this is a good outcome. She said that encouraging solar facilities on already disturbed land while meeting the CMP's environmental standards is challenging.

The Commission adopted the resolution by a vote of 12 to 0.

Public Comment on Public Development Applications and Items Where the Record is Open

Chair Matos read the list of applications up for comment. No comment was provided.

Ordinances Not Requiring Commission Action

Acting ED Grogan said there were no ordinances or master plans to note this month.

Other Resolutions

Chair Matos introduced a resolution to approve the Commission's 2021 Annual Report.

Commissioner Irick made a motion To Approve the Pinelands Commission's 2021 Annual Report (See Resolution # PC4-22-12). Commissioner Lohbauer seconded the motion.

Acting ED Grogan said the Annual Report is required by the Pinelands Protection Act and Executive Order. A few presentations slides were displayed to show the many highlights of 2021, which included the adoption of stormwater amendments, National Scenic Byway designation of the Pine Barrens Byway, Pinelands Development Credit (PDC) activity, development applications reviewed by the Regulatory Programs office, educational and social media activity, and the celebration of the CMP's 40th anniversary. (See attached presentation slides.)

The Commission adopted the resolution by a vote of 11 to 0. Commissioner McCurry abstained from the vote.

Chair Matos introduced a resolution authorizing the submission of a grant application to the New Jersey Historic Trust.

Commissioner Avery made a motion To Authorize the Acting Executive Director to Submit an Application to the New Jersey Historic Trust for a 2022 Preserve New Jersey Historic Preservation Fund Grant and to Certify the Availability of Matching Funds (See Resolution # PC4-22-13). Commissioner Lohbauer seconded the motion.

Acting ED Grogan said two years ago the Commission applied for a capital fund grant to the New Jersey Historic Trust, which it did not receive. It was suggested the Commission apply for a different grant in hopes of hiring consultants to prepare a preservation plan for Fenwick Manor. The plan will detail the long-term maintenance of both the interior and exterior of the building and hopefully assist with future grant funding. She added that the Commission has also submitted a request to the Governor's office for a special appropriation for Fenwick Manor in the FY 2023 or 2024 budget.

Commissioner Avery thanked Chair Matos for agreeing to bypass the Personnel & Budget Committee's review and recommendation and place this on today's agenda.

The Commission adopted the resolution by a vote of 12 to 0.

Chair Matos introduced a resolution expressing its appreciation to the Governor for restoring PILOT funds to Pinelands municipalities.

Ms. Roth, Ethics Liaison Officer, asked that Commissioner Pikolycky be placed in a Zoom waiting room while the resolution is discussed since he is the Chairman of the Pinelands Municipal Council and the resolution is associated with the Council.

Commissioner Lloyd made a motion Expressing the Pinelands Commission's Gratitude for the Restoration of Payment in Lieu of Taxes Funding to Pinelands Municipalities in Fiscal Year 2022 and Supporting the Pinelands Municipal Council's Request for Continued

Funding in Future Fiscal Years (See Resolution # PC4-22-14). Commissioner Irick seconded the motion.

Acting ED Grogan said so many Pinelands municipalities have a large amount of land in state ownership and don't receive the tax revenue they need.

Commissioner Lohbauer thanked Commissioner Pikolycky for his role on the Pinelands Municipal Council.

The Commission adopted the resolution by a vote of 11 to 0.

Commissioner Pikolycky rejoined the meeting.

Chair Matos introduced a resolution related to the Commission's climate change goals.

Commissioner Jannarone made a motion Amending and Supplementing Resolution PC4-20-37 to Clarify the Objectives of the Pinelands Commission Relative to Climate Change in the Pinelands Area and the Responsibilities of the Pinelands Climate Committee (See Resolution # PC4-22-15). Commissioner Lohbauer seconded the motion.

Commissioner Lohbauer said this resolution supplements a resolution the Commission adopted in 2020 to make reference to the Global Warming Response Act, which calls for the reduction of greenhouse gas emissions. He said going forward this resolution will help define goals for the Commission and the Climate Committee and let the public and applicants know this Commission takes climate change seriously.

The Commission adopted the resolution by a vote of 11 to 0. Commissioner Meade was muted during the vote.

Guest Speaker

Chair Matos welcomed New Jersey Department of Environmental Protection (NJDEP) Commissioner Shawn LaTourette.

Commissioner Shawn LaTourette said he was excited to see some familiar faces and welcomed the new Commissioners. He said the NJDEP and the Pinelands Commission share an important common mission: protection of the environment and the maintenance of natural resources and public lands. He introduced Sean Moriarty, who serves as his first Deputy and previously served as the Commission's Deputy Attorney General.

Commissioner LaTourette said he has an environmental law degree and spent 20 years working in the private sector. He said he joined the NJDEP about three years ago when Commissioner McCabe asked him to serve as Chief Counsel. He said the NJDEP has an obligation to the people of New Jersey. He said our natural resources belong to the people.

Commissioner LaTourette noted some of NJDEP's key priorities:

- Reduce and respond to the climate crisis. He said he recently provided testimony to the Senate Environmental and Energy Committee about the Global Warming Response Act and the goals of reducing emissions. He said every agency has a role and everyone needs to be engaged in fighting the climate crisis. He said $20 million was recently invested in an Atlantic White Cedar restoration project. He said saltwater intrusion destroyed numerous spans of Atlantic White Cedar and that is why the planting was pushed inland. He said nature sends us important messages.

- Lower income, minority and indigenous communities have suffered the most environmental injustice, even though the pollution was created by all. He said environmental agencies in New Jersey should create policy together to achieve maximum good.

- NJDEP and the Commission should consider execution of a new Memorandum of Agreement to identify shared priorities and better align regulations on such matters as the protection of wetlands, threatened and endangered species and water quality. Having a consistent approach is important.

Commissioner LaTourette noted that NJDEP has almost no land use authority. By contrast, he said the Commission has significant land use and zoning power over a large portion of the State. Therefore, the Commission can likely achieve things that NJDEP cannot.

Commissioner Lohbauer noted that NJDEP has enforcement capabilities that the Commission does not have.

Mr. Moriarty said he is excited to be working with the Commission again and said that aligning policies is a good step forward.

Commissioner Pikolycky thanked Commissioner LaTourette for restoring funds for open space projects. He asked Commissioner LaTourette if he could provide any guidance or financial assistance for the painting and restoration of historic Fenwick Manor.

Commissioner LaTourette said he would be happy to provide insight and assistance and welcomed the opportunity to visit the Pinelands headquarters.

Acting ED Grogan noted that Chair Matos left the meeting due to prior travel arrangements and that Commissioner Jannarone had also left the meeting.

Vice Chair Avery stepped in to conduct the remainder of the meeting.

Commissioner Lloyd said this is the first time a sitting NJDEP Commissioner has attended a meeting. He expressed his gratitude. He said he looks forward to working with the Department on common goals and he agreed with the Commissioner's earlier comment, that the Commission can do certain things that the Department does not have the authority to do. He added that he looks forward to working with the Department on environmental justice issues.

Commissioner LaTourette said there are many layers to environmental justice and the goal is to limit bad things in the first place. He said sea-level rise will impact the residents of the Delaware Bayshore this decade and the state will see the first climate refugees. He said environmental injustice is not always occurring in urban areas; it affects everyone.

Commissioner Lohbauer said he is encouraged for the future. He said the Commission and the Department should work collaboratively and take advantage of each agency's power and authority.

Vice Chair Avery said he would like to shift gears and discuss the Off-Road Vehicle (ORV) issue on public and private lands. He said he was curious if Park Police and Park Rangers ever requested or suggested a tool that would make their job easier to manage illegal ORV use.

Commissioner LaTourette said the Department is working on a three-point plan that includes:

- Enhanced mapping that highlights the permitted uses;
- An ORV permitting system; and
- Enforcement with progressive fines

He said the Department will embark on public engagement sessions this summer so that it can hear from the users.

Mr. Moriarty added that he recently met with the Pinelands Preservation Alliance and New Jersey Conservation Foundation on this issue. He said he would like to engage directly with Commissioners and staff in April to discuss and exchange ideas about NJDEP's proposed ORV permitting model.

Commissioner McCurry asked Commissioner LaTourette about the status of NJDEP's Natural and Working Land Strategy.

Commissioner LaTourette said the Department is still in the scoping phase but he offered that the Commission staff could be involved in an advisory group when that step comes.

Acting ED Grogan expressed her gratitude for the Commissioner and Mr. Moriarty spending time with the Commission today.

Commissioner LaTourette offered his appreciation to the Commission staff for their work.

<u>General Public Comment</u>

Fred Akers of the Great Egg Harbor Watershed Association said he was hoping to ask Commissioner LaTourette some questions. He asked if the Commissioner had plans to allocate funds to the Infrastructure Trust Fund to replenish the Pinelands Infrastructure

Trust Fund. He also said coastal soils should not be dredged and dumped in the Pinelands. He noted that it's a climate change issue.

Rhyan Grech from the Pinelands Preservation Alliance said she appreciated the update from staff on the progress at the new GCMA site. She added that she hopes monitoring will occur to ensure that the created habitat is successful. She urged the Commission to require applicants to use independent experts rather than hire their own Threatened and Endangered (T&E) consultants. She added that survey methodologies may need to be revaluated to best protect T&E species since the CMP offers little guidance. She said that she appreciates Commissioner LaTourette's willingness to partner with the Commission and hopes the Commission will push for application of the most rigorous standards to protect natural resources in instances where the NJDEP and Commission's rules overlap, particularly in the CAFRA area.

Julie Akers of Newtonville, NJ, provided comments about the importance of proper restoration of abandoned resource extraction mines. She said if the mines are not properly restored, ORV users target them for misuse. She said it is a good idea to identify beneficial uses that can be developed on such sites as a way of reducing damage and encouraging restoration.

Adjournment

Commissioner Lohbauer moved to adjourn the meeting. Commissioner Irick seconded the motion. The Commission agreed to adjourn at 11:39 a.m.

Certified as true and correct:

_____ Date: March 18, 2022

Jessica Noble, Executive Assistant

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22- 09

TITLE: **Approving** With Conditions an Application for **Public Development** (Application Number 1981-2437.017)

Commissioner Lohbauer moves and Commissioner Irick seconds the motion that:

WHEREAS, the Pinelands Commission has reviewed the Public Development Application Report and the recommendation of the Acting Executive Director that the following application for Public Development be approved with conditions:

1981-2437.017	
Applicant:	**Atlantic County Vocational Technical School District**
Municipality:	Hamilton Township
Management Area:	Pinelands Regional Growth Area
Date of Report:	February 17, 2022
Proposed Development:	Construction of a 10,240 square foot maintenance building and two approximately 5,800 square foot storage yards at the Atlantic County Institute of Technology High School.

WHEREAS, two approximately 5,800 square foot storage yards, concrete sidewalks and approximately 8,219 square feet of concrete pads for electrical equipment were constructed on the parcel without application to, and approval by, the Commission and constitutes a violation of the application requirements of the Pinelands Comprehensive Management Plan (CMP); and

WHEREAS, the applicant proposes to address this violation by including the concerned development in this application; and

WHEREAS, no request for a hearing before the Office of Administrative Law concerning the Acting Executive Director's recommendation has been received for this application; and

WHEREAS, the Pinelands Commission hereby adopts the Conclusion of the Acting Executive Director for the proposed development; and

WHEREAS, the Pinelands Commission hereby determines that the proposed public development conforms to the standards for approving an application for public development set forth in N.J.A.C. 7:50-4.57 if the conditions recommended by the Acting Executive Director are imposed; and

WHEREAS, pursuant to N.J.S.A. 13A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period and Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Application Number 1981-2437.017 for public development is hereby **approved** subject to the conditions recommended by the Acting Executive Director.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

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Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

February 17, 2022

Lauren Flynn, Business Administrator (via email)
Atlantic County Vocational Technical School District
5080 Atlantic Avenue
Mays Landing, NJ 08330

Re: Application # 1981-2437.017
Block 994, Lot 47
Hamilton Township

Dear Ms. Flynn:

The Commission staff has completed its review of this application for the construction of a 10,240 square foot maintenance building at the Atlantic County Institute of Technology High School. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its March 11, 2022 meeting.

Two approximately 5,800 square foot storage yards, concrete sidewalks and approximately 8,219 square feet of concrete pads for electrical equipment were constructed prior to the completion of an application to the Commission. The development that occurred without completion of an application with the Commission constitutes a violation of the application requirements of the Pinelands Comprehensive Management Plan. This application is to resolve the violation.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Hamilton Township Planning Board (via email)
Hamilton Township Construction Code Official (via email)
Atlantic County Department of Regional Planning and Development (via email)
Dave Flemming (via email)
Karen Ingram, LLA (via email)

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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PUBLIC DEVELOPMENT APPLICATION REPORT

February 17, 2022

Lauren Flynn, Business Administrator (via email)
Atlantic County Vocational Technical School District
5080 Atlantic Avenue
Mays Landing, NJ 08330

Application No.: 1981-2437.017
Block 994, Lot 47
Hamilton Township

This application proposes the construction of a 10,240 square foot maintenance building at the Atlantic County Institute of Technology High School located on the above referenced 53.39 acre parcel in Hamilton Township.

Two approximately 5,800 square foot storage yards, concrete sidewalks and approximately 8,219 square feet of concrete pads for electrical equipment were constructed prior to the completion of an application to the Commission**.** This development constitutes a violation of the application requirements of the Pinelands Comprehensive Management Plan (CMP). This application is to resolve the violation.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the CMP. The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.28)

The parcel is located in a Pinelands Regional Growth Area. The proposed development is a permitted land use in a Pinelands Regional Growth Area.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located over existing impervious surfaces, maintained grassed areas and a forested area.

As required by the CMP (N.J.A.C. 7:50-6.23(a)), the proposed clearing and soil disturbance is limited to that which is necessary to accommodate the proposed development.

The CMP (N.J.A.C. 7:50-6.23(b)) also provides that, where practical, all clearing, and soil disturbance associated with the proposed development shall avoid wooded areas. Approximately 0.9 acres (39,432 square feet) of oak-pine forest will be cleared to accommodate the proposed maintenance building and required stormwater management facilities. The 53.39 acre parcel is primarily developed with school buildings, parking areas and recreational fields. The applicant has indicated that the location of the proposed maintenance building was chosen to reserve remaining areas on the parcel for future development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. To stabilize disturbed areas, the applicant proposes to utilize a seed mixture which meets that recommendation.

Stormwater Management Standards (N.J.A.C. 7:50-6.84(a)6)

The applicant has demonstrated that the proposed development is consistent with CMP stormwater management standards. To meet the stormwater management standards, the applicant will be constructing a stormwater infiltration basin and expanding an existing stormwater infiltration basin.

Water Quality Standard (N.J.A.C. 7:50-6.83)

The proposed development will be serviced by public sanitary sewer.

Cultural Resource Standards (N.J.A.C. 7:50-6.151)

The Commission staff reviewed the application for evidence of cultural resources on the parcel. Based upon the lack of potential for significant cultural resources on the parcel, a cultural resource survey was not required.

PUBLIC COMMENT

The applicant has provided the requisite public notices. Notice to required landowners within 200 feet of the above referenced parcel was completed on December 1, 2021. Newspaper public notice was completed on December 10, 2021. The application was designated as complete on the Commission's website on January 24, 2022. The Commission's public comment period closed on February 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of nine sheets, prepared by Marathon Engineering & Environmental Services, all sheets dated August 8, 2019 and last revised January 26, 2022.

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on March 7. 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22- 10

TITLE: **Approving** With Conditions Applications for **Public Development** (Application Numbers 1984-0655.033, 1987-1058.083 & 1986-1336.004)

Commissioner Irick moves and Commissioner Lohbauer seconds the motion that:

WHEREAS, the Pinelands Commission has reviewed the Public Development Application Reports and the recommendation of the Acting Executive Director that the following applications for Public Development be approved with conditions:

1984-0655.033	
Applicant:	**South Jersey Transportation Authority**
Municipality:	Egg Harbor Township Hamilton Township Town of Hammonton
Management Area:	Pinelands Agricultural Production Area Pinelands Forest Area Pinelands Military/Federal Installation Area Pinelands Regional Growth Area Pinelands Rural Development Area
Date of Report:	February 18, 2022
Proposed Development:	Construction of six separate electronic tolling stations within the Atlantic City Expressway right-of-way;
1987-1058.083	
Applicant:	**South Jersey Transportation Authority**
Municipality:	Egg Harbor Township Galloway Township
Management Area:	Pinelands Military/Federal Installation Area
Date of Report:	January 28, 2022
Proposed Development:	Installation of four wind cones and associated development at Atlantic City International Airport; and
1986-1336.004	
Applicant:	**Monroe Township**
Municipality:	Monroe Township
Management Area:	Pinelands Regional Growth Area
Date of Report:	February 17, 2022
Proposed Development:	Construction of a 17,811 square foot fire station.

WHEREAS, no request for a hearing before the Office of Administrative Law concerning the Acting Executive Director's recommendation has been received for any of these applications; and

WHEREAS, the Pinelands Commission hereby adopts the Conclusion of the Acting Executive Director for each of the proposed developments; and

WHEREAS, the Pinelands Commission hereby determines that each of the proposed public developments conform to the standards for approving an application for public development set forth in N.J.A.C. 7:50-4.57 if the conditions recommended by the Acting Executive Director are imposed; and

WHEREAS, pursuant to N.J.S.A. 13A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period and Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Application Numbers 1984-0655.033, 1987-1058.083 & 1986-1336.004 for public development are hereby **approved** subject to the conditions recommended by the Acting Executive Director.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

State of New Jersey
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PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

February 18, 2022

Steve Mazur, P.E. (via email)
South Jersey Transportation Authority
PO Box 351
Hammonton, NJ 08037

Re: Application # 1984-0655.033
Atlantic City Expressway Right-of-Way
Egg Harbor Township, Hamilton Township &
Town of Hammonton

Dear Mr. Mazur:

The Commission staff has completed its review of this application for construction of six separate electronic tolling stations within the Atlantic City Expressway right-of-way. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its March 11, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Egg Harbor Township Planning Board (via email)
Egg Harbor Township Construction Code Official (via email)
Egg Harbor Township Environmental Commission (via email)
Secretary, Hamilton Township Planning Board (via email)
Hamilton Township Construction Code Official (via email)

Secretary, Town of Hammonton Planning Board (via email)
Town of Hammonton Construction Code Official (via email)
Town of Hammonton Environmental Commission (via email)
Atlantic County Department of Regional Planning and Development (via email)
Michael Dunn (via email)

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Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PUBLIC DEVELOPMENT APPLICATION REPORT

February 18, 2022

Steve Mazur, P.E. (via email)
South Jersey Transportation Authority
PO Box 351
Hammonton, NJ 08037

Application No.: 1984-0655.033
Atlantic City Expressway Right-of-Way
Egg Harbor Township, Hamilton Township &
Town of Hammonton

This application proposes construction of six separate electronic tolling stations within the Atlantic City Expressway right-of-way located in the three above referenced municipalities. Two of the tolling stations will be located in Egg Harbor Township, three will be located in Hamilton Township and one will be located in the Town of Hammonton.

Each electronic tolling station will be comprised of a metal gantry spanning the east and west bound travel lanes. Each gantry span will be between 132 and 252 feet in length and approximately 28 feet high. The application also proposes a 240 square foot utility building and a parking area for maintenance vehicles at each electronic tolling station location. The parking areas range from 1,750 square feet to 3,000 square feet in size.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.2(b), 5.23(b)15, 5.24(b)12, 5.26(b)14 & 5.28(a))

The proposed electronic tolling stations are located in a Pinelands Forest Area, a Pinelands Agricultural Production Area, a Pinelands Rural Development Area, a Pinelands Regional Growth Area and a Pinelands Military and Federal Installation Area.

The proposed electronic tolling stations are accessory structures to the Atlantic City Expressway. As an accessory structure, the proposed electronic tolling stations are a permitted land use in a Pinelands Forest Area, a Pinelands Agricultural Production Area, a Pinelands Rural Development Area and a Pinelands Regional Growth Area.

Although located completely within the Atlantic City Expressway right-of-way, a portion of one of the electronic tolling stations is located in a Pinelands Military and Federal Installation Area. With respect to permitted land use, the construction of a proposed electronic tolling station within the Atlantic City Expressway right-of-way that is also located within a Pinelands Military and Federal Installation Area is not specially addressed by the CMP. The Atlantic City Expressway was constructed prior to January 14, 1981 and the roadway may be a nonconforming use in a Pinelands Military and Federal Installation Area. The CMP (N.J.A.C. 7:50-5.2(b)) permits the expansion of any nonconforming use existing on January 14, 1981 provided the use was not abandoned subsequent to January 14, 1981; the expansion of the use is in accordance with all of the minimum standards of N.J.A.C. 7:50-6; and the area of the expansion does not exceed 50 percent of the area of the use on January 14, 1981. The portion of the electronic tolling station located in a Pinelands Military and Federal Installation Area is a permitted land use based upon the CMP (N.J.A.C. 7:50-5.2(b)).

Wetlands Standards (N.J.A.C. 7:50-6.13)

There are wetlands located within 300 feet of two of the proposed electronic tolling stations. The two electronic tolling stations will be located approximately 30 feet from wetlands at their closest points. The two electronic tolling stations will be located within existing grassed shoulders.

The proposed electronic tolling stations are associated with the Atlantic City Expressway. The Atlantic City Expressway is a linear improvement. The CMP permits linear improvements in the required buffer to wetlands provided the applicant demonstrates that certain CMP specified conditions are met. The applicant has demonstrated that there is no feasible alternative to the two electronic tolling stations that does not involve development in the required buffer to wetlands or that will result in a less significant adverse impact to the required buffer to wetlands. In addition, the two proposed tolling stations will not result in a substantial impairment of the resources of the Pinelands. With the conditions below, all practical measures are being taken to mitigate the impact on the required buffer to wetlands. The applicant has represented that the locations of the two proposed tolling stations located within 300 feet of wetlands are required for traffic safety. The applicant has demonstrated that the need for the two proposed tolling stations overrides the importance of protecting the wetlands buffer.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located within existing grassed shoulders. As required by the CMP (N.J.A.C. 7:50-6.23(a)), the proposed soil disturbance is limited to that which is necessary to accommodate the proposed development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. The applicant proposes to utilize a seed mixture which meets that recommendation.

Cultural Resource Standards (N.J.A.C. 7:50-6.151)

The Commission staff reviewed the application for evidence of cultural resources within the project area. Based upon the lack of potential for significant cultural resources within the project area, a cultural resource survey was not required.

PUBLIC COMMENT

The applicant has provided the requisite public notice. Newspaper public notice was completed on January 19, 2022. The application was designated as complete on the Commission's website on February 1, 2022. The Commission's public comment period closed on February 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of seven sheets, prepared by WSP USA Inc., and dated as follows:

   Sheets EP-1, EP-2, & EP-7 - dated October 18, 2021; lasted revised January 14, 2021
   Sheet EP-3 - dated October 18, 2021
   Sheet EP-4 - dated October 26, 2021; last revised October 14, 2021
   Sheet EP-5 - dated January 18, 2022; lasted revised January 14, 2022
   Sheet EP-6 - dated November 4, 2021

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

5. Appropriate measures shall be taken during construction to preclude sedimentation from entering wetlands and shall be maintained in place until all development has been completed and the area has been stabilized.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

State of New Jersey
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PHILIP D. MURPHY
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Lt. Governor

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on March 8, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

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Lt. Governor

General Information: Info@pinelands.nj.gov
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LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

February 17, 2022

Jill McCrea, Business Administrator (via email)
Monroe Township
125 Virginia Ave.
Williamstown, NJ 08094

Re: Application # 1986-1336.004
Block 11603, Lots 6 & 7
Monroe Township

Dear Ms. McCrea:

The Commission staff has completed its review of this application for the construction of a 17,811 square foot fire station. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its March 11, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Monroe Township Planning Board (via email)
Monroe Township Construction Code Official (via email)
Monroe Township Environmental Commission (via email)
Secretary, Gloucester County Planning Board (via email)
Keith Conroy, PE (via email)

State of New Jersey
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General Information: Info@pinelands.nj.gov
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LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PUBLIC DEVELOPMENT APPLICATION REPORT

February 17, 2022

Jill McCrea, Business Administrator (via email)
Monroe Township
125 Virginia Ave.
Williamstown, NJ 08094

Application No.: 1986-1336.004
Block 11603, Lots 6 & 7
Monroe Township

This application proposes the construction of a 17,811 square foot fire station located on the above referenced 2.67 acre parcel in Monroe Township. There is an existing municipal complex building located on the parcel.

The applicant proposes to demolish an existing 7,433 square foot fire station located on the parcel. The existing fire station is less than 50 years old. The demolition of a building less than 50 years old does not require the completion of an application with the Commission.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.28(a))

The parcel is located in a Pinelands Regional Growth Area. The proposed development is a permitted land use in a Pinelands Regional Growth Area.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located within an existing maintained lawn area and over existing impervious surfaces.

As required by the CMP (N.J.A.C. 7:50-6.23(a)), the proposed soil disturbance is limited to that which is necessary to accommodate the proposed development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are

tolerant of droughty, nutrient poor conditions. The applicant proposes to utilize a seed mixture which meets that recommendation.

Water Quality Standard (N.J.A.C. 7:50-6.83)

The proposed development will be serviced by public sanitary sewer.

Stormwater Management Standards (N.J.A.C. 7:50-6.84(a)6)

The applicant has demonstrated that the proposed development is consistent with the CMP stormwater management standards. To meet these standards, the application proposes to construct an underground stormwater infiltration facility.

Cultural Resource Standards (N.J.A.C. 7:50-6.151)

The Commission staff reviewed the application for evidence of cultural resources on the parcel. Based upon the lack of potential for significant cultural resources on the parcel, a cultural resource survey was not required.

PUBLIC COMMENT

The applicant has provided the requisite public notices. Notice to required landowners within 200 feet of the above referenced parcel was completed on September 25, 2020. Newspaper public notice was completed on June 25, 2021. The application was designated as complete on the Commission's website on January 7, 2022. The Commission's public comment period closed on February 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of ten sheets, prepared by Keith E. Conroy Engineers Inc., and dated as follows:

   Sheets 1-3, 8 & 9 – June 9, 2021
   Sheets 4-7 & 10 – June 9, 2021; last revised November 09, 2021

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

State of New Jersey
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LAURA E. MATOS
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SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on March 7, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

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LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

January 28, 2022

Stephen Mazur, P.E. (via email)
South Jersey Transportation Authority
PO Box 351
Hammonton, NJ 08037

Re: Application # 1987-1058.083
Block 101, Lot 9
Egg Harbor Township
Block 516, Lot 13.01
Galloway Township

Dear Mr. Mazur:

The Commission staff has completed its review of this application for installation of four wind cones and associated development at Atlantic City International Airport. The proposed wind cones will provide visual assistance to aircraft pilots to determine the direction and approximate speed of wind. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its March 11, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Egg Harbor Township Planning Board (via email)
Egg Harbor Township Construction Code Official (via email)

Egg Harbor Township Environmental Commission (via email)
Secretary, Galloway Township Planning Board (via email)
Galloway Township Construction Code Official (via email)
Galloway Township Environmental Commission (via email)
Atlantic County Department of Regional Planning and Development (via email)
Niraj Lamichhane (via email)
Rhyan Grech (via email)

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Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PUBLIC DEVELOPMENT APPLICATION REPORT

January 28, 2022

Stephen Mazur, P.E. (via email)
South Jersey Transportation Authority
PO Box 351
Hammonton, NJ 08037

Application No.: 1987-1058.083
Block 101, Lot 9
Egg Harbor Township
Block 516, Lot 13.01
Galloway Township

This application proposes installation of four wind cones and associated development at Atlantic City International Airport (ACIA) located on the above referenced 3,212 acre parcel in Egg Harbor and Galloway Townships. The proposed wind cones will provide visual assistance to aircraft pilots in determining the direction and approximate speed of wind.

There are four existing wind cones located at ACIA. The existing wind cones are located on 100 square foot concrete pads and are accessed by 12 foot wide asphalt milling roads ranging from 20 to 193 feet in length.

The existing wind cones are located within the Runway Object Free Area (ROFA). The Federal Aviation Administration (FAA) has requested that the existing wind cones be removed from the ROFA.

The application proposes the installation of four wind cones outside of the ROFA. The proposed wind cones will be located on 38 square foot concrete pads with 12 foot wide asphalt milling access roads ranging from 37 to 343 feet in length.

The applicant also proposes the removal of the four existing wind cones and the existing development associated with the existing wind cones.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.29(a))

The Pinelands Protection Act designates the boundaries of the 938,000 acre Pinelands Area. Within the boundaries of the Pinelands Area, the Pinelands Protection Act also designates the 366,000 acre Pinelands Preservation Area and the 572,000 acre Pinelands Protection Area. The CMP then establishes Management Areas such as Regional Growth, Rural Development and Military and Federal Installation that overlay the entire Pinelands Area.

The parcel subject of this application is located in a Military and Federal Installation Management Area. The CMP permits any proposed use associated with the function of a federal installation in a Military and Federal Installation Management Area. The proposed wind cones are associated with the function of the federal installation.

The CMP also requires that, where feasible, proposed development in a Military and Federal Installation Management Area shall be located in the Pinelands Protection Area portion of the Pinelands Area. The development proposed in this application is located in the Pinelands Protection Area.

As further required by the CMP, the proposed use will not require any development in a Forest Management Area or the Preservation Area District.

Wetlands Standards (N.J.A.C. 7:50-6.6)

There are wetlands located on the parcel. All development, including land disturbance, will be located greater than 300 feet from wetlands.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located within existing paved and grassed areas. The proposed soil disturbance is limited to that which is necessary to accommodate the proposed development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. To stabilize all disturbed areas, the applicant proposes to utilize a seed mixture which meets that recommendation.

Threatened and Endangered Species Standards (N.J.A.C. 7:50-6.27 & 6.33)

A September 2003 Final Environmental Impact Statement prepared by the FAA identified critical habitat for Grasshopper sparrow and Upland sandpiper at the ACIA. These species typically arrive at the ACIA in mid-April to early May and proceed to nest and rear broods through July 31. The proposed wind cones and associated development will disturb 5,423 square feet of identified critical grassland habitat for Grasshopper sparrow and Upland sandpiper at ACIA.

The application also proposes the removal of 7,161 square feet of impervious surfaces associated with the existing wind cones from within the identified critical grassland habitat for Grasshopper sparrow and Upland sandpiper. The application proposes the restoration of those areas with native grassland species suitable for Grasshopper sparrow and Upland sandpiper.

Based on the restoration of the concerned 7,161 square foot area to grassland habitat, the installation of fencing around each of the proposed wind cones, concrete pads and access roads and the below specified

condition requiring the mowing of the grasses within the four fenced areas to discourage potential nesting, the proposed development has been designed to avoid irreversible adverse impacts on habitat critical to the survival of the local populations of Grasshopper sparrow and Upland sandpiper.

Stormwater Management Standards (N.J.A.C. 7:50-6.84(a)6)

This application proposes the removal of 7,161 square feet of impervious surfaces associated with the removal of the four existing wind cones. The development of the four proposed wind cones will result in 5,423 square feet of new impervious surfaces. The proposed development will result in a decrease of impervious surfaces by 1,738 square feet. There will be no increase in the volume and rate of stormwater runoff from the project after the development than occurred prior to the proposed development. The proposed development is consistent with CMP stormwater management standards.

Cultural Resource Standards (N.J.A.C. 7:50-6.151)

The Commission staff reviewed the application for evidence of cultural resources on the parcel. Based upon the lack of potential for significant cultural resources on the parcel, a cultural resource survey was not required.

PUBLIC COMMENT

The applicant has provided the requisite public notices. Newspaper public notice was completed on September 20, 2021. The application was designated as complete on the Commission's website on October 22, 2021. The Commission's public comment period closed on November 12, 2021. The Commission received one oral public comment regarding this application.

Oral Commenter (Rhyan Grech, Pinelands Preservation Alliance): On November 12, 2021, the commenter inquired as to whether the South Jersey Transportation Authority (SJTA) has met the timelines for accomplishing certain requirements identified in a 2004 Memorandum of Agreement (MOA) between the SJTA and the Commission, as amended in 2019. That MOA authorizes certain development projects specified in the MOA to occur at the ACIA that would not otherwise be consistent with the T&E species protection standards of the CMP. The commenter also indicated that the Commission should consider not acting on this application until the SJTA satisfies the requirements of the MOA.

Staff Response: We appreciate the commenter's continued interest in the Pinelands Area. The proposed installation of four wind cones and associated development was not one of the development projects specified in the 2004 MOA or its 2019 Amendment. The development proposed in this application requires formal application to the Commission regardless of the requirements of the MOA. For the reasons discussed in this Report, the applicant has demonstrated that the proposed development is consistent with the T&E species protection standards of the CMP.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of 11 sheets, prepared by DY Consultants and dated as follows:

   Sheet 1 - August 2021
   Sheets 2-11 - August 31, 2021

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

5. If construction activity will occur between April 1 and September 30 of any year, to avoid an irreversible adverse impact on habitat critical to the survival of the local populations of Grasshopper sparrow and Upland sandpiper, the following conditions shall be met:

    a. Prior to any construction activity, the applicant shall install fencing along the perimeter of each of the four wind cone project areas and maintain the fencing until all construction activity has been completed; and

    b. All grasslands within the four fenced wind cone project areas shall be mowed and maintained at a height of five inches or less between April 1 and September 30 for the duration of the construction activity.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

State of New Jersey
THE PINELANDS COMMISSION
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www.nj.gov/pinelands

PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on February 14, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-__11____

TITLE: Issuing an Order to Certify Ordinance 2021-10, Amending Chapter XVII (Zoning) of the Code of Tabernacle Township

Commissioner ____Lohbauer_____ moves and Commissioner ____Avery_____ seconds the motion that:

WHEREAS, on September 6, 1985, the Pinelands Commission fully certified the Master Plan and Land Use Ordinances of Tabernacle Township; and

WHEREAS, Resolution #PC4-85-51 of the Pinelands Commission specified that any amendment to Tabernacle Township's certified Master Plan and Land Use Ordinances be submitted to the Executive Director in accordance with N.J.A.C. 7:50-3.45 (Submission and Review of Amendments to Certified Master Plans and Land Use Ordinances) of the Comprehensive Management Plan to determine if said amendment raises a substantial issue with respect to conformance with the Pinelands Comprehensive Management Plan; and

WHEREAS, Resolution #PC4-85-51 further specified that any such amendment shall only become effective as provided in N.J.A.C. 7:50-3.45 of the Comprehensive Management Plan; and

WHEREAS, on December 6, 2021, Tabernacle Township adopted Ordinance 2021-10, amending Chapter XVII (Zoning) of the Township's Code by rezoning nine lots from the Infill Commercial District to the Infill Residential District and one lot from the Infill Commercial District to the Preservation Area District; and

WHEREAS, Ordinance 2021-10 also establishes solar energy facilities as a permitted use in the Preservation Area District and adopts affiliated use standards; and

WHEREAS, the Pinelands Commission received an adopted copy of Ordinance 2021-10 on December 28, 2021; and

WHEREAS, by letter dated December 30, 2021, the Acting Executive Director notified the Township that Ordinance 2021-10 would require formal review and approval by the Pinelands Commission; and

WHEREAS, a public hearing to receive testimony on Ordinance 2021-10 was duly advertised, noticed and remotely held on February 9, 2022 at 9:30 a.m. with live broadcast on the Pinelands Commission's public YouTube channel and opportunity for the public to call-in during the live broadcast; and

WHEREAS, the Acting Executive Director has found that Ordinance 2021-10 is consistent with the standards and provisions of the Pinelands Comprehensive Management Plan; and

WHEREAS, the Acting Executive Director has submitted a report to the Commission recommending issuance of an order to certify that Ordinance 2021-10, amending Chapter XVII (Zoning) of the Code of Tabernacle Township, is in conformance with the Pinelands Comprehensive Management Plan; and

WHEREAS, the Commission's CMP Policy and Implementation Committee has reviewed the Acting Executive Director's report and has recommended that Ordinance 2021-10 be certified; and

WHEREAS, the Pinelands Commission has duly considered all public testimony submitted to the Commission concerning Ordinance 2021-10 and has reviewed the Acting Executive Director's report; and

WHEREAS, the Pinelands Commission accepts the recommendation of the Acting Executive Director; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that

1. An Order is hereby issued to certify that Ordinance 2021-10, amending Chapter XVII (Zoning) of the Code of Tabernacle Township, is in conformance with the Pinelands Comprehensive Management Plan.

2. Any additional amendments to the Township's certified Master Plan and Land Use Ordinances shall be submitted to the Executive Director in accordance with N.J.A.C. 7:50-3.45 to determine if said amendments raise a substantial issue with respect to the Comprehensive Management Plan. Any such amendment shall become effective only as provided in N.J.A.C. 7:50-3.45.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
NEW LISBON, NJ 08064
(609) 894-7300
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PHILIP D. MURPHY
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Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

REPORT ON ORDINANCE 2021-10, AMENDING CHAPTER XVII (ZONING) OF THE CODE OF TABERNACLE TOWNSHIP

February 25, 2022

Tabernacle Township
163 Carranza Road
Tabernacle, NJ 08088

FINDINGS OF FACT

I. Background

The Township of Tabernacle is located in the central portion of the Pinelands Area in Burlington County. Pinelands municipalities abutting Tabernacle Township include the Townships of Medford, Shamong, Southampton, Washington and Woodland, all of which are located in Burlington County.

On September 6, 1985, the Pinelands Commission fully certified the Master Plan and Land Development Ordinances of Tabernacle Township.

On December 6, 2021, Tabernacle Township adopted Ordinance 2021-10, amending Chapter XVII (Zoning) of the Township's Code by rezoning nine lots from the Infill Commercial District to the Infill Residential District and one lot from the Infill Commercial District to the Preservation Area District. The ordinance also establishes solar energy facilities as a permitted use in the Preservation Area District and adopts related use standards. The Pinelands Commission received an adopted copy of Ordinance 2021-10 on December 28, 2021.

By letter dated December 30, 2021, the Acting Executive Director notified the Township that Ordinance 2021-10 would require formal review and approval by the Pinelands Commission.

II. Master Plans and Land Use Ordinances

The following ordinance has been submitted to the Pinelands Commission for certification:

* Ordinance 2021-10, amending Chapter XVII (Zoning) of the Code of Tabernacle Township, introduced on October 25, 2021, and adopted on December 6, 2021.

This ordinance has been reviewed to determine whether it conforms with the standards for certification of municipal master plans and land use ordinances as set out in N.J.A.C. 7:50-3.39 of the Pinelands Comprehensive Management Plan (CMP). The findings from this review are presented below. The numbers used to designate the respective items correspond to the numbers used to identify the standards in N.J.A.C. 7:50-3.39.

1. Natural Resource Inventory

Not applicable.

2. Required Provisions of Master Plans and Land Use Ordinances Relating to Development Standards

Zoning Plan Amendments

Ordinance 2021-10 rezones ten contiguous lots, approximately 73 acres, bounded by Forked Neck Road, Carranza Road, and Tuckerton Road (see Exhibit A). The entirety of the area is currently zoned Infill Commercial (IC) District and located in the Preservation Area District (PAD) management area. The IC District permits single family dwelling units on lots of record as of February 7, 1979 that contain at least one acre. The IC District also permits retail uses, commercial services, agricultural processing facilities, and light industrial uses on existing lots of record. The zoning changes adopted by the Ordinance 2021-10 effectively eliminate the Township's IC District in its entirety.

Nine lots (Block 1401, Lots 1, 2, 4, 5, 6.01, 6.02, 6.03, 6.04, 7), totaling approximately 14 acres, are rezoned to the Infill Residential (IR) District. The lots range in area from 0.06 acres to 6.34 acres. Four lots contain single family residential units, one lot contains a hunting club, and the remaining four lots are vacant. The IR District is an existing municipal zone within the PAD management area. It permits single family dwelling units on lots of record as of February 7, 1979 that contain at least one acre. The rezoning from IC to IR eliminates the potential development of non-residential uses otherwise permitted in the IC District. Three of the four vacant lots contain at least one acre and will continue to have the potential to develop a single-family dwelling unit provided all other CMP environmental standards are met.

The remaining lot (Block 1401, Lot 3), approximately 59 acres, is rezoned to the Township's Preservation Area (PA) District. The lot is the site of a resource extraction operation predating the CMP that continued to renew resource extraction permits in accordance with the CMP. The PA District is an existing municipal zone within the PAD management area. It permits a limited number of uses consistent with the CMP, including forestry, berry agriculture, low-intensity recreational uses, and the continuation of existing resource extraction operations.

Solar Energy Facilities

Ordinance 2021-10 expands the permitted uses in the PA District to include solar energy facilities on the parcel of a resource extraction operation. The ordinance then adopts a series of standards to govern the development of such facilities, some of which are required by the CMP and some of which are additional standards important to the municipality.

Regarding standards required by the CMP, Ordinance 2021-10 limits the siting of solar energy facilities to previously mined areas that have not yet been restored. The acquisition and

redemption of 0.25 Pinelands Development Credits (PDC) is required for every four acres of land occupied by the solar energy facility, inclusive of any required firebreak. Solar facilities and any off-site infrastructure must be located and screened to minimize visual impacts to: publicly dedicated roads and highways; existing residential dwellings on contiguous parcels; wild and scenic rivers and special scenic corridors listed in the CMP; and low-intensity recreational facilities and campgrounds. Clearing related to on-site or off-site infrastructure serving the solar energy facility is limited to that which is necessary for its operation and must avoid, where practical, wooded areas. New rights-of-way associated with infrastructure are limited to a maximum width of 20 feet unless additional width is necessary to address specific safety or reliability concerns. The area beneath the solar energy facility, within the firebreak, and any required vegetative buffers must be vegetated consistent with the CMP's vegetation standards (N.J.A.C. 7:50-6.21 et seq.). Lastly, solar energy facilities are required to be decommissioned within 12 months of the cessation of their utilization including the removal of all energy facilities, structures, and equipment and the restoration of the parcel in accordance with the CMP. Therefore, once the solar energy facility is decommissioned, the parcel will be fully restored.

Regarding additional standards not required by the CMP, Ordinance 2021-10 limits the extent of any solar energy facility to a maximum of 25 acres, inclusive of any required fire break. The remainder of the parcel must be permanently preserved through deed restriction. Future use of the deed restricted area must be limited to berry agriculture, horticulture of native Pinelands plants, forestry, beekeeping, fish and wildlife management, and low intensity recreational uses. No maintenance or removal of trees is permitted to be performed in the deed restricted area as part of the construction or operation of the solar energy facility. Solar panels and inverters must be setback a minimum of 100 feet and 150 feet from the property line, respectively. Solar facilities must also be enclosed by a fence between 7 and 9 feet in height and surrounded by a 50-foot fire break.

A review of the Commission's records indicates that one of the lots rezoned by Ordinance 2021-10 (Block 1401, Lot 3) is the only resource extraction site in Tabernacle Township's PAD that received permits to continue extraction after 1981. Commission staff are not aware of any other resource extraction sites in the PAD management area. Therefore, Ordinance 2021-10 likely provides an opportunity for the development of only one new solar energy facility in the Township's PA District.

The CMP permits the siting of solar energy facilities in the PAD management area on the parcel of a resource extraction operation, provided the facility is limited to previously mined areas not under an obligation to be restored (N.J.A.C. 7:50-5.36(b)). This restoration obligation applies to resource extraction operations within the Pinelands Area active on or after January 14, 1981 upon the cessation of mining activities. The resource extraction operation located on Block 1401, Lot 3 is under such a restoration obligation, which eliminates the parcel's eligibility for development of a solar energy facility based on the standards set forth at N.J.A.C. 7:50-5.36(b).

The Township has elected to provide an opportunity to site a solar facility on this parcel by allowing lands to be used that would normally be ineligible due to the mining restoration obligation. This does not automatically render Ordinance 2021-10 inconsistent with the CMP. Pinelands municipalities have the ability to refine the various standards and provisions of the CMP and tailor them to local conditions, provided CMP goals and objectives continue to be achieved. In this case, Tabernacle Township has chosen to adopt an ordinance that provides a

greater opportunity for development of solar energy facilities while at the same time curtailing other nonresidential development potential in the PAD and correcting a long-standing zoning inconsistency with the CMP. As detailed above, the Township's ordinance also incorporates all other CMP solar energy facility standards (N.J.A.C. 7:50-5.36) and includes additional standards that go beyond what the CMP requires.

A strict interpretation of the CMP would not permit a principal solar energy facility on Block 1401, Lot 3. However, the wide range of nonresidential uses that are permitted on this parcel and in the remainder of the IC District under the Township's currently certified zoning plan must be taken into consideration. As noted above, the IC District permits retail uses, commercial services, agricultural processing facilities, and light industrial uses. None of these uses are permitted in the Preservation Area District and none will be permitted following the rezoning adopted by Ordinance 2021-10. The IC District was certified by the Pinelands Commission in 1985 during the Township's initial certification process. At that time, the CMP did not expressly permit the creation of infill areas in the PAD management area. However, in a limited number of municipalities, the Pinelands Commission allowed for the creation of infill areas through the municipal conformance process, as a way of recognizing existing development and lot tenure patterns within the PAD management area. The CMP was subsequently amended in 1987 to provide municipalities with the option of establishing infill residential and commercial districts provided that certain criteria were met (N.J.A.C. 7:50-5.22(b)7).

As it currently exists, Tabernacle Township's IC District does not meet CMP standards for the establishment of a commercial infill district. The CMP specifies that infill area boundaries are to be drawn so as to include existing developed areas and exclude extensive amounts of adjoining vacant land. Including the entirety of a 59-acre parcel would not be permitted. Furthermore, although the CMP does provide municipalities with the ability to permit commercial uses within their infill areas, such uses must be limited to those specific portions of an infill area that are predominantly occupied by existing commercial uses. Given the lack of commercial uses in the vicinity of Tabernacle's IC District, a commercial infill district would not be permitted. However, the Commission certified the IC District in 1985 prior to the adoption of these standards, and this 59-acre parcel has continued to have significant commercial development potential since that time. This commercial development potential has discouraged full restoration of the parcel as the landowner has pursued a variety of development proposals for the parcel based on the permitted uses in the IC District.

Elimination of the IC District and rezoning the 59-acre parcel to the PA District resolves a long-standing infill zone that was not consistent with the CMP's infill area standards. The zoning change eliminates the commercial development potential previously associated with these lands. Coupled with the land preservation requirements adopted by Ordinance 2021-10 for solar energy facilities, and the restoration requirements that will be triggered when any solar facility ceases to be utilized, the CMP's goals for the PAD and the development of solar energy facilities are met. Ordinance 2021-10 represents an appropriate exercise of municipal flexibility, one that meets the objectives of the CMP.

Ordinance 2021-10 is consistent with the land use and development standards of the Comprehensive Management Plan. Therefore, this standard for certification is met.

3. Requirement for Certificate of Filing and Content of Development Applications

Not applicable.

4. Requirement for Municipal Review and Action on All Development

Not applicable.

5. Review and Action on Forestry Applications

Not applicable.

6. Review of Local Permits

Not applicable.

7. Requirement for Capital Improvement Program

Not applicable.

8. Accommodation of Pinelands Development Credits

In accordance with N.J.A.C. 7:50-5.36(b)3, solar energy facilities located within the PAD management area must acquire and redeem 0.25 Pinelands Development Credits (PDC) for every four acres of land occupied by the solar energy facility, unless the solar energy facility is proposed as part of a comprehensive application for landfill closure or site remediation. Ordinance 2021-10 establishes solar energy facilities as a permitted use in the Township's PA District and incorporates this PDC requirement.

This standard for certification is met.

9. Referral of Development Applications to Environmental Commission

Not applicable.

10. General Conformance Requirements

Ordinance 2021-10 is consistent with the standards and provisions of the Pinelands Comprehensive Management Plan. Therefore, this standard for certification is met.

11. Conformance with Energy Conservation

Not applicable.

12. Conformance with the Federal Act

Ordinance 2021-10 is consistent with the standards and provisions of the Pinelands Comprehensive Management Plan. No special issues exist relative to the Federal Act. Therefore, this standard for certification is met.

13. Procedure to Resolve Intermunicipal Conflicts

Four of the lots being rezoned by Ordinance 2021-10 (Block 1401, Lots 1, 3, 6.02, 7) are adjacent to the Township's border with Shamong Township. The adjacent lands in Shamong Township are located in the PAD management area. Lots 1 and 7 in Tabernacle Township contain existing uses (a hunting club and a single-family dwelling), while lot 6.02 is vacant and would be limited in the future to the development of a single-family dwelling unit. Lot 3 contains the greatest development potential given its size, but the ordinance eliminates a number of intensive uses that could have posed significant intermunicipal conflict. While the ordinance would enable the development of a solar energy facility on this site, a number of ordinance standards described above related to setbacks, vegetative buffers and land preservation should mitigate any significant intermunicipal conflicts. Therefore, this standard for certification is met.

PUBLIC HEARING

A public hearing to receive testimony concerning Tabernacle Township's application for certification of Ordinance 2021-10 was duly advertised, noticed and held on February 9, 2022, at 9:30 a.m. Mr. Lanute conducted the hearing, which was held remotely and broadcasted live on the Pinelands Commission's public YouTube channel. The public was provided the opportunity to call-in during the public hearing to provide testimony. No testimony was received.

Written comments on Ordinance 2021-10 were accepted through February 11, 2022. Comment was received from the following individual:

- Rhyan Grech, Policy Advocate, Pinelands Preservation Alliance (see Exhibit B)

ACTING EXECUTIVE DIRECTOR'S RESPONSE

Ms. Grech has correctly noted that the provisions of Ordinance 2021-10 conflict with the CMP's solar energy facility provisions. Section 2 of this report fully reflects that fact. The Acting Executive Director agrees that the standards adopted by Ordinance 2021-10 do not match what a strict interpretation of what the CMP would call for. However, the CMP does provide municipalities with the ability to structure their zoning plans in a way that recognizes municipal objectives and local circumstances while still achieving the overall objectives of the CMP.

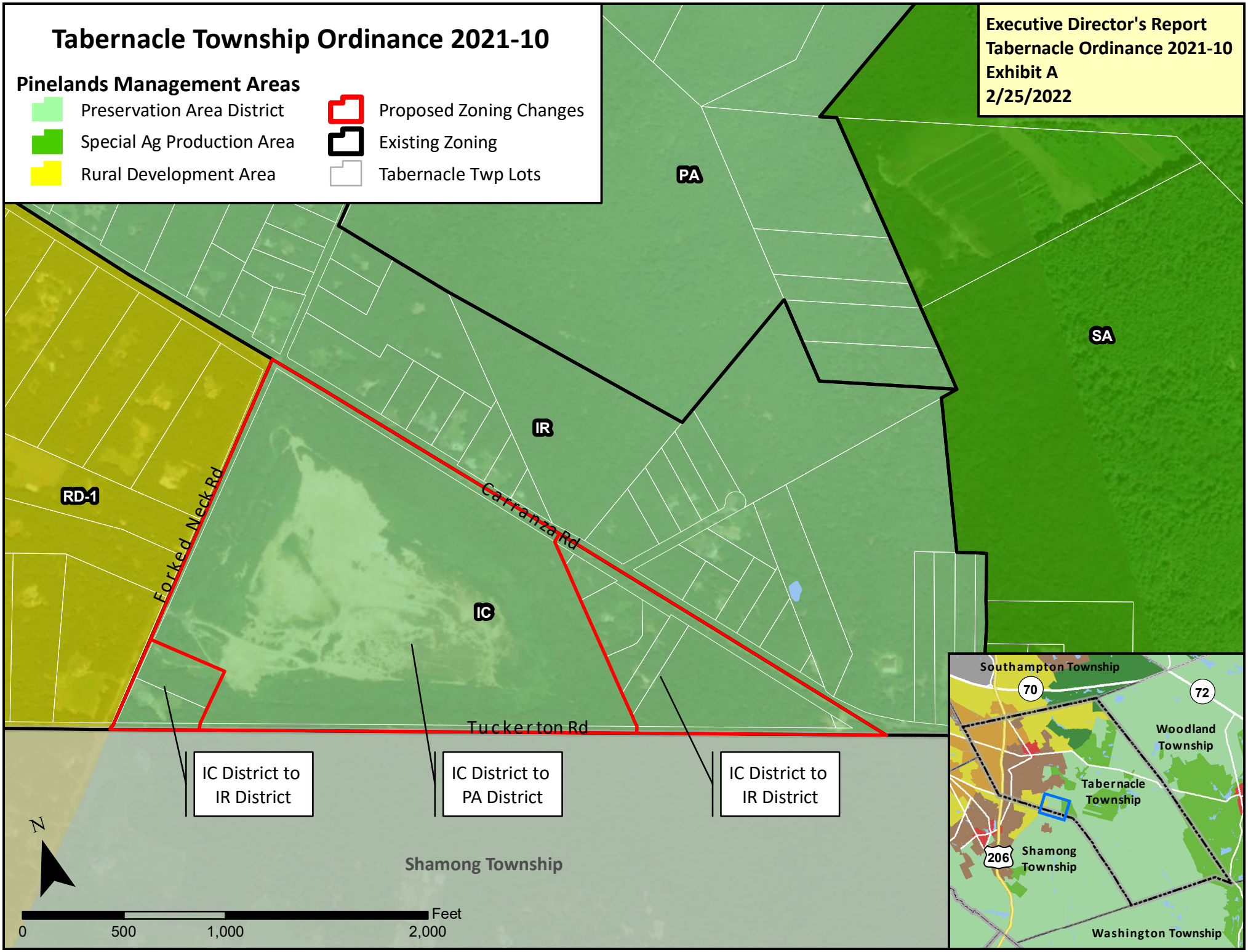
Ms. Grech is also correct to identify the resource extraction operation being rezoned as a motivating factor for the Township's adoption of this ordinance. It may well be that although the ordinance theoretically affects all properties in the PA District, it primarily benefits one private property owner. Given the unique circumstances of that property, this is not necessarily an inappropriate result. In addition, although a new opportunity for development of solar energy facilities is being provided, existing opportunities for development of a much broader range of commercial uses are being eliminated. The elimination of the IC District and its significant commercial development potential must be considered when evaluating the impacts of Ordinance 2021-10. The Township's IC District has been of significant concern to Commission staff for many years because of the wide variety of intensive commercial uses that could have been developed on the 59-acre parcel. The Commission amended the CMP many years ago to avoid future instances of such permissive infill zones being established in the Preservation Area District. Ordinance 2021-10 may provide a benefit to one property owner by facilitating development of a solar energy facility, but it also benefits the Pinelands Preservation Area District as a whole by implementing additional land preservation requirements and eliminating the potential for commercial uses incompatible with CMP goals for this most environmentally sensitive management area.

Ms. Grech is also correct in noting that the resource extraction operation on Block 1401, Lot 6.02 is under a restoration obligation that has not been completed. However, we disagree that this ordinance would waive the restoration obligation for this parcel. In fact, the ordinance eliminates the existing commercial development potential that has for decades served to disincentivize full restoration of the parcel. If a solar energy facility is developed on this site, the ordinance offers far greater protection than under the current zoning. It would at minimum require the permanent preservation of 34 acres on the site. Furthermore, the restoration requirements included in the ordinance as part of the decommissioning of a solar energy facility provide additional restoration obligations on top of those associated with resource extraction. In sum, we expect that the ordinance will garner greater likelihood of the site being fully restored in the future.

CONCLUSION

Based on the Findings of Fact provided above, the Acting Executive Director has concluded that Ordinance 2021-10 complies with the Comprehensive Management Plan standards for the certification of municipal master plans and land use ordinances. Accordingly, the Acting Executive Director recommends that the Commission issue an order to certify Ordinance 2021-10 of Tabernacle Township.

SRG/DBL/CTA
Attachments


Tabernacle Township Ordinance 2021-10
Pinelands Management Areas
Preservation Area District
Special Ag Production Area
Rural Development Area
Proposed Zoning Changes
Existing Zoning
Tabernacle Twp Lots
Executive Director's Report
Tabernacle Ordinance 2021-10
Exhibit A
2/25/2022
PA
SA
IR
IC
RD-1
Forked Neck Rd
Carranza Rd
Tuckerton Rd
IC District to IR District
IC District to PA District
IC District to IR District
Shamong Township
N
0
500
1,000
2,000
Feet
Southampton Township
70
72
Woodland Township
Tabernacle Township
206
Shamong Township
Washington Township

Executive Director's Report
Tabernacle Ordinance 2021-10
Exhibit B
2/25/2022

PINELANDS PRESERVATION ALLIANCE

Bishop Farmstead ◆ 17 Pemberton Road ◆ Southampton, NJ 08088
Phone: 609-859-8860 ◆ ppa@pinelandsalliance.org ◆ www.pinelandsalliance.org

February 11, 2022

Susan Grogan, Acting Executive Director
New Jersey Pinelands Commission
15 Springfield Rd
New Lisbon, NJ 08068

Re: Tabernacle Township Ordinance No. 2021-10

Dear Director Grogan,

I am writing on behalf of Pinelands Preservation Alliance with comments on ordinance 2021-10 adopted by Tabernacle Township, which enacted zoning changes and addressed solar facilities on the affected parcels. The ordinance as written is not in compliance with the Pinelands Comprehensive Management Plan (CMP).

The ordinance states that in the Preservation Area, a solar energy facility is permitted on a parcel previously used by a resource extraction operation if "[t]he facility shall be limited to those portions of the parcel comprised of previously mined areas **that have not subsequently been restored**" (emphasis added). By contrast, the CMP states that solar is only permitted "[o]n the parcel of a resource extraction operation, provided the facility is limited to those portions of the parcel comprised of previously mined areas **that are not under an obligation to be restored** pursuant to N.J.A.C. 7:50-6, Part VI" (emphasis added). These are two different standards that may be in conflict with one another, and the Tabernacle parcel in question is one of those examples.

As reported by the Pine Barrens Tribune[1], the current restoration obligations of the resource extraction facility have not been met. The Tabernacle Township engineer, Joseph Gray of CME Associates, confirmed that five remediation actions have not taken place, including "regrading of the pit and berms walls in accordance with approved plans (restore tire tracks; seed and stabilize berm walls), installing plantings (on berm walls) as shown on approved plans [from 2003], installing berm blocks as shown on approved plans (to prevent access from any additional roads that lead into the mine area), removing all facilities and equipment (a weigh station is said to be the lone remaining building), … as well as all unstable areas need to be stabilized."

If allowed to move forward, this ordinance would serve to not only waive the restoration requirement of the CMP for this particular entity with no further obligations, but also to financially reward the failure to meet those requirements by allowing the construction of a new, revenue-generating facility.

[1] https://pinebarrenstribune.com/zoning-changes-approved-that-allow-for-solar-project-at-gravel-pit-in-taber-p4528-165.htm?fbclid=IwAR3nntk5UdbNR9Q7KqPluWGz30x0WqcTZ1KfJooVYd5FOB21YsRSq67drT0

The sole motivator of this ordinance is clearly a proposed solar development by CS Energy, which has already submitted application materials to the Pinelands Commission. Zoning changes to benefit one particular non-conforming development are not appropriate, especially if those changes directly benefit and reward a landowner for their violation of Pinelands regulations. I urge the Commission to reject this ordinance.

Thank you for your consideration,



Rhyan Grech
Policy Advocate

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-__12____

TITLE: To Approve the Pinelands Commission's 2021 Annual Report

Commissioner ____Irick_____ moves and Commissioner ____Lohbauer_____ seconds the motion that:

WHEREAS, in September 2006, then Governor Corzine issued Executive Order #37; and

WHEREAS, Executive Order #37 called for the preparation and approval of a comprehensive report concerning the operations of each State authority; and

WHEREAS, the report shall set forth the significant actions of the Commission; and

WHEREAS, since the report is to be done on an annual basis and it includes much of the same information as the Commission's Annual Report, which is required by the Pinelands Protection Act, the two reports have been combined every year since 2007 as a cost savings measure to eliminate waste and promote efficiency as called for in Executive Order #37; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that the attached 2021 Annual Report be approved, submitted to the Governor's Authorities Unit and posted on the Commission's website.

Record of Commission Votes

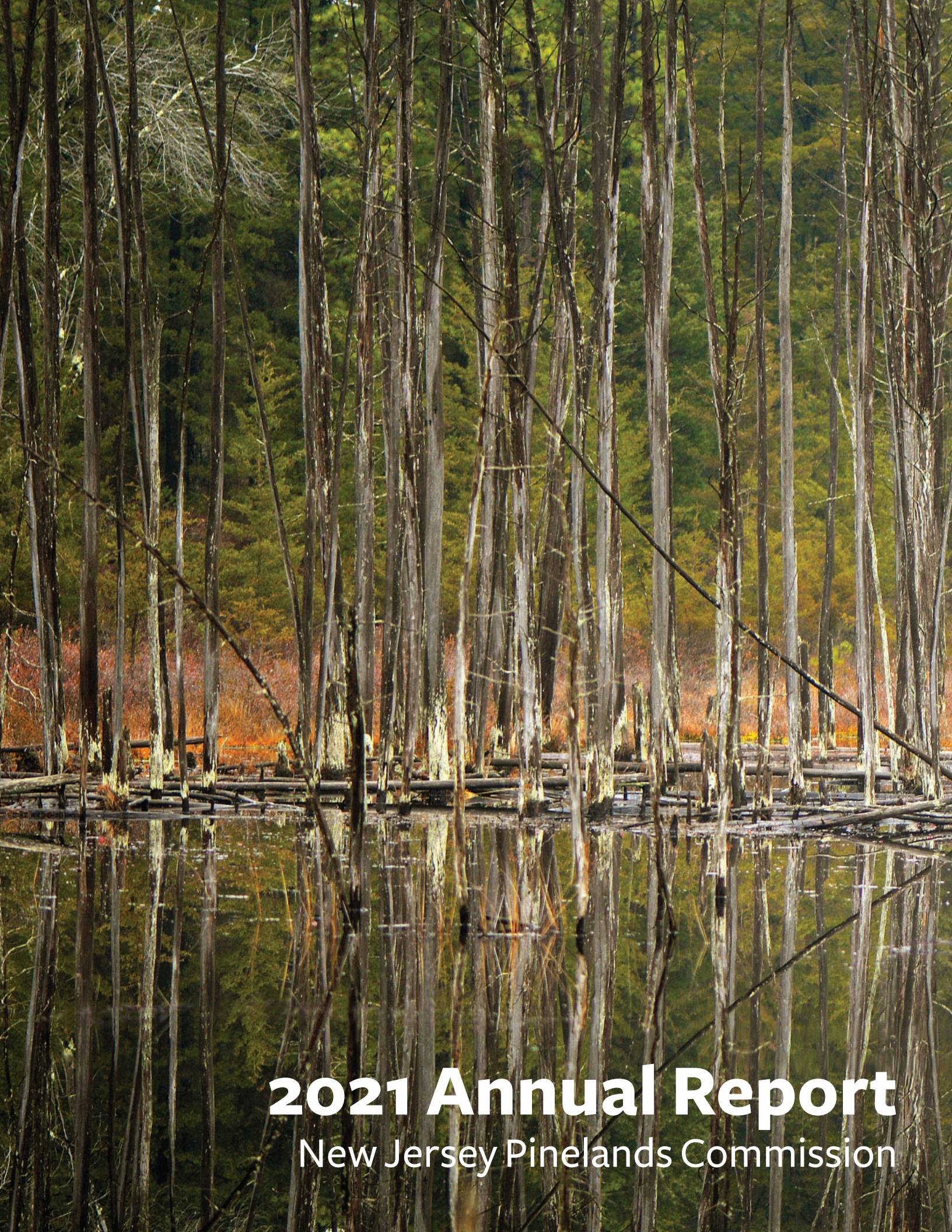
	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry				A					

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: __March 11, 2022____

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair



2021 Annual Report

New Jersey Pinelands Commission

Protecting the New Jersey Pinelands

The New Jersey Pinelands Commission is an independent state agency whose mission is to preserve, protect, and enhance the natural and cultural resources of the Pinelands National Reserve, and to encourage compatible economic and other human activities consistent with that purpose.

The Commission was created by the passage of the Pinelands Protection Act in 1979.



Above: The Pinelands is home to vast forests, farms and towns that cover portions of seven counties in southern New Jersey. Photo/Paul Leakan

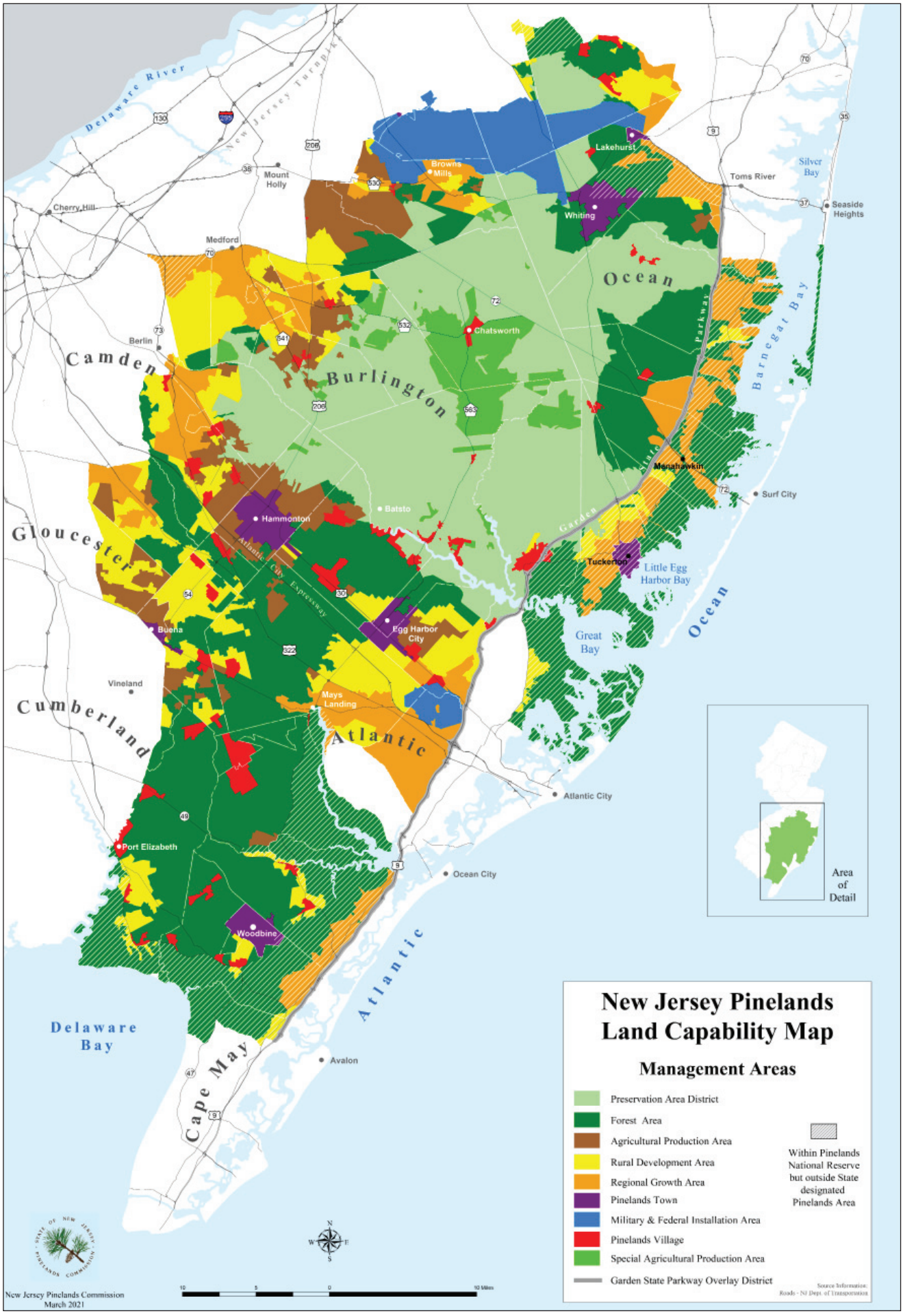
To accomplish its mission, the Commission implements a comprehensive plan that guides land use, development and natural resource protection programs in the 938,000-acre Pinelands Area of southern New Jersey. The Commission's 15-member board consists of state, county and federal appointees who volunteer their time and expertise. The panel meets monthly and receives guidance from its Executive Director and staff.

Commissioners:

Richard H. Prickett, Chairman
Alan W. Avery, Jr., Vice Chairman
Daniel Christy
D'Arcy Rohan Green
Shannon Higginbotham
Jordan P. Howell (January - August)
Jerome H. Irick
Jane Jannarone
Edward Lloyd
Mark S. Lohbauer
Jonathan Meade (December)
William Pikolycky
Gary Quinn

Susan R. Grogan, Acting Executive Director

Pinelands Commission
P.O. Box 359
New Lisbon, NJ 08064
Phone: (609) 894-7300
Fax: (609) 894-7330
Website: www.nj.gov/pinelands


New Jersey Pinelands
Land Capability Map
Management Areas
Preservation Area District
Forest Area
Agricultural Production Area
Rural Development Area
Regional Growth Area
Pinelands Town
Military & Federal Installation Area
Pinelands Village
Special Agricultural Production Area
Garden State Parkway Overlay District
Within Pinelands National Reserve but outside State designated Pinelands Area
Area of Detail
Delaware River
Delaware Bay
Atlantic
Ocean
Barnegat Bay
Camden
Burlington
Gloucester
Cumberland
Cape May
Ocean
Lakehurst
Browns Mills
Toms River
Silver Bay
Seaside Heights
Whiting
Medford
Mount Holly
Cherry Hill
Berlin
Chatsworth
Batsto
Hammonton
Tuckerton
Little Egg Harbor Bay
Great Bay
Surf City
Manahawkin
Egg Harbor City
Buena
Vineland
Mays Landing
Atlantic City
Port Elizabeth
Ocean City
Woodbine
Avalon
New Jersey Pinelands Commission
March 2021

Acting Executive Director's Message

The Pinelands Commission faced extraordinary challenges in 2021.

Our Executive Director, Nancy Wittenberg, passed away on June 24th. And there were the difficulties of continuing to undertake our complex and vital work amid the ongoing COVID-19 pandemic.

But the Commission and its staff rose to the occasion, thanks to equal parts dedication, perseverance and creativity.



Above: The sun rising above Wharton State Forest in the Pinelands Area, as photographed in November 2021. Photo/Paul Leakan

After following a hybrid remote schedule for several months, the staff returned to the office on a full-time basis in October. With our offices still closed to the public, we continued to harness the power of technology to accomplish all facets of our work. Development applications and municipal ordinances continue to be received and processed via e-mail. Staff also encouraged the public to use the interactive Pinelands map on our website to help guide development proposals. All of our meetings were held virtually, and we hosted 28 educational webinars and the first-ever, virtual Pinelands Short Course. We made full use of our social media sites, launching a new Twitter page and sharing numerous Instagram posts to raise awareness and appreciation for the Pinelands.

Our staff continued to conduct site visits for development proposals and complete the fieldwork necessary to gather data and carry out numerous scientific research projects.

The Commission also took important steps to better protect Pinelands resources and help address the impacts of climate change. In November, the Commission authorized the participation of four new advanced wastewater technologies in the agency's Alternate Design Treatment Systems Pilot Program. The program tests high-performance wastewater treatment systems that better protect the Pinelands environment by reducing the levels of nitrogen that enter groundwater. In December, the Commission adopted new rules that require the use of green infrastructure and other more stringent standards to manage stormwater. Meanwhile, the Pinelands Climate Committee met seven times in 2021, hosting presentations from a variety of experts and laying the foundation for future decisions aimed at mitigating climate change impacts.

Meanwhile, the Commission continued to administer the increasingly active Pinelands Development Credit Program and successfully garnered the National Scenic Byway designation for the Pine Barrens Byway.

In the midst of these challenges, we found time to celebrate the 40th anniversary of the Pinelands Comprehensive Management Plan.

I am proud of all that was accomplished in 2021, despite the challenges. I am also confident about our ability to continue to preserve, protect and enhance this special part of New Jersey.

Susan R. Grogan
Acting Executive Director

In Memoriam: Nancy Wittenberg and Jay Mounier

2021 was a difficult year for the Pinelands Commission, as the agency's mourned the passing of Executive Director Nancy Wittenberg and former Commissioner Jay Mounier.

Ms. Wittenberg passed away on June 24th, while Mr. Mounier died on November 24th.

"Nancy had a long and accomplished career in public service," said Commission Vice Chairman Alan W. Avery, Jr. "Her leadership and personal commitment as Executive Director have left the Commission and its staff in a strong position to continue the Commission's mission to protect and manage the Pinelands."



Above: Nancy Wittenberg, pictured on the right, had served as the Commission's Executive Director since January 3, 2011. She passed away on June 24, 2021. Photo/Paul Leakan

Ms. Wittenberg had served as the Commission's Executive Director since January 3, 2011. During her tenure, the Commission:

■ Completed an in-depth review of the Pinelands Comprehensive Management Plan (CMP), which contains the rules that govern land-use, development and the protection of resources in the Pinelands. This included the formation of a Plan Review Committee that gathered comments from the public and provided a forum for discussing measures aimed at strengthening the CMP. It also included the issuance of a 183-page report that includes recommendations for future changes to the Plan;

■ Adopted five sets of amendments to the Pinelands Comprehensive Management Plan;

■ Permanently preserved approximately 8,300 acres of land in the Pinelands by providing grants through the Commission's Pinelands Conservation Fund;

■ Formed several Committees to address important topics, such as climate change, agriculture and the agency's process to consider Memorandums of Agreement;

■ Undertook several initiatives aimed at curbing the damages wrought by illegal, off-road vehicle use, including the adoption of a resolution pertaining to roads for motor vehicle use in Wharton State Forest and helping to identify ponds that are vulnerable to damages and have been protected through the installation of wooden barriers;

■ Successfully completed a report that enabled the Pinelands National Reserve to maintain its status as an International Biosphere Region, as designated by United Nations Educational, Scientific and Cultural Organization (UNESCO);

■ Assumed the administration of the Pinelands Development Credit Bank, which is the processing agency for one of the oldest and most successful transfer of development rights programs in the world;

■ Completed and/or launched numerous scientific studies, including several ongoing research projects on rare snakes;

■ Installed, dedicated and opened the Candace McKee Ashmun Pinelands Education Exhibit, which features more than 400 square feet of displays that will be used to raise awareness and appreciation of the Pinelands for decades to come; and

■ Overhauled the agency's website so that is easier to navigate and to provide the public with far greater access to Commission documents, such as resolutions, meeting minutes, development application information, and links to livestreamed Commission meetings.

Mr. Mounier was a longtime resident of Franklin Township in Gloucester County, and he served as a gubernatorial appointee on the Commission from January 1995 to December 2002. He was a member of the Pinelands Agricultural Advisory Committee and served as its Chairman from 2000-2002. He was also a mainstay at Commission meetings for nearly two decades after his term as a Commissioner ended.

Mr. Mounier operated a hay and livestock farm in Franklinville. He previously served on the Franklin Township Environmental Commission and the Franklin Township Planning Board. Mr. Mounier also served as a Trustee and Treasurer of the South Jersey Land Trust, and he was a founding member of the South Jersey Astronomy Club and the Upper Maurice River Watershed Association. He was a hobbyist beekeeper and was the former President of the South Jersey Beekeepers Association. He held a degree in mechanical engineering from Lehigh University.



Above: The late John C. Stokes (left), who served as the Commission's Executive Director from April 2003 to January 2011, shakes hands with the late Jay Mounier.

Mr. Mounier's colleagues said he was a highly intelligent and effective voice for agriculture in the Pinelands.

"He was a true friend of agriculture and the Pinelands," said Paul E. Galletta, who served on the Pinelands Commission from 2007 to 2019. "He was deeply concerned with the protection of both. He was a personal friend and one of the smartest men I ever met in my life. He was almost encyclopedic with almost any topic you could recite. I believe not only the Pinelands and the agricultural community will miss him deeply, but a lot of friends also."

"I was most impressed over the years with his incredible intellect and patience to read the volume of material that we received (as Commissioners)," said Stephen V. Lee III, who served on the Commission from 1982 to 2010. "… I could always count on Jay for finding something in the record that might be worth raising a question (about) at a Commission meeting."

Celebrating 40 Years of the Pinelands Comprehensive Management Plan

The Pinelands Comprehensive Management Plan (or CMP) turned 40 on January 14, 2021, and the Commission marked the milestone by creating and sharing videos, informative social media posts and informative e-mails each day for more than three months.

The celebration kicked off with a "Roundtable Reflection" video that featured a discussion with Commission members and staff who wrote, adopted or implemented the CMP, which guides land-use, development and the protection of resources in the state Pinelands Area. The nine participants reflected on their experiences in writing the 500-page plan amid a daunting deadline and without the benefit of computers or mapping programs. The information campaign continued with individual video interviews of former Commissioners and staff. The video interviews have been archived on the Commission's YouTube Channel (https://www.youtube.com/channel/UCBgpC8sbR3Acrjo7ppxs3Uw).

Staff researched, wrote and shared 125 posts on the agency's Instagram site, Facebook page and through the agency's Pinelands News Alert e-mail mailing list on 60 consecutive workdays, along with 463 photos and 26 videos, as part of the celebration. The videos and the posts chart the history, purpose, implementation and success of the CMP, and they include spotlights on all nine Pinelands Management Areas, plant and animal species that benefit from Pinelands protection, the Pinelands Development Credit program, and the Pinelands Conservation Fund, as well as features on the work of the agency's Planning, Regulatory Programs, Science and Communications offices.

The information campaign concluded with a newly created, 40-minute video of various footage that staff has filmed in the Pinelands in recent years.



Above: Two former Commissioners and seven former Commission staff members who wrote the Pinelands CMP 40 years ago participated in a virtual "Roundtable Reflection" on the success of the plan as part of a months-long celebration.

Planning Activities

Amendments to the Pinelands Comprehensive Management Plan

In 2021, the Commission adopted new rules that will better protect Pinelands resources by requiring the use of green infrastructure and other more stringent standards to manage stormwater.

During its meeting of December 10, 2021, the Commission voted unanimously to adopt the amendments to the Pinelands CMP, the rules that govern land-use, development, and the protection of resources in the state Pinelands Area.

The amendments integrate and expand on stormwater management rules that were adopted by the New Jersey Department of Environmental Protection (NJDEP). The NJDEP's regulations took effect on March 2, 2020, and they focus on the use of green infrastructure to meet groundwater recharge and stormwater runoff quantity and quality standards.

Stormwater runoff is managed to reduce waterborne pollution from sources such as trash, nitrogen, phosphorus, bacterial pathogens and deicing salts, and to minimize local flooding.



Above: This rain garden that was installed at the Hammonton Lake Park is an example of a green infrastructure measure that will be required for minor development under the Commission's new rules. Photo/Paul Leakan

The Commission's new stormwater management rules follow the NJDEP's regulations in that they require green infrastructure to manage the stormwater close to the source, treat stormwater through infiltration into the subsoil, treat stormwater through filtration by vegetation or soil, and/or store stormwater runoff for reuse.

In order to provide enhanced protection to Pinelands resources, the Commission's new rules will, for the first time, require stormwater management for minor development. Minor residential development will be required to retain and infiltrate clean stormwater generated from the roof of a house by using green infrastructure measures, which include dry wells, pervious paving systems and small-scale bioretention systems such as a rain garden. Minor non-residential development will be required to treat, infiltrate and recharge stormwater generated from new motor vehicle surfaces of greater than 1,000 square feet in size.

Prior to the new rules, stormwater management in the Pinelands Area was generally required only for major development, defined in the CMP as any division of land into five or more lots; any construction or expansion of any housing development of five or more dwelling units; any construction or expansion of any commercial or industrial use or structure on a site of more than three acres; or any grading, clearing or disturbance of an area in excess of 5,000 square feet.

The new CMP amendments also include stricter standards for nitrogen removal for major development in the

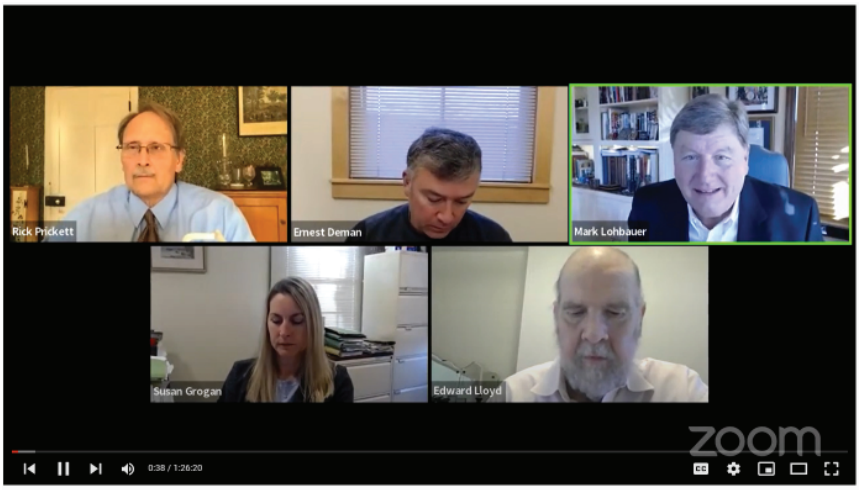
Pinelands. The new rules require all major development to implement stormwater management measures to achieve a minimum 65% reduction of total nitrogen loads in stormwater runoff. The Pinelands' ecosystem is particularly vulnerable to damages caused by elevated levels of nitrogen, including the proliferation of invasive plant and animal species that outcompete and displace native species that are adapted to low levels of nitrogen. Lastly, the new rules clarify standards for variances, exceptions, and mitigation.

The new regulations build on the significant improvements made by the NJDEP with respect to the use of green infrastructure and include additional measures that afford enhanced protection of Pinelands resources and address the impacts of climate change on stormwater runoff. The Commission's new rules will reduce the volume of stormwater runoff, lower the potential for localized flooding and help to maintain water levels in the Kirkwood-Cohansey aquifer, which underlies the Pinelands, provides fresh drinking water and supports the region's special ecosystem.

The new stormwater management rules took effect after they were published in the New Jersey Register on January 18, 2022. Pinelands municipalities have one year to incorporate the new rules into their own master plans and land use ordinances. In 2022, the Commission will draft and provide model ordinances to assist the municipalities with that effort.

Pinelands Climate Committee

In 2021, the Commission's Pinelands Climate Committee continued to discuss and chart the agency's future efforts to address climate change.



Pinelands Climate Committee Meeting -- December 1, 2021

The seven-member Committee has been discussing the potential effects of climate change in the Pinelands and considering measures to mitigate impacts since its formation in 2019. The Committee met seven times in 2021.

During its meeting in January, staff delivered a presentation on solar energy facilities, focusing on the New Jersey Board of Public Utilities (NJBPU) Community Solar Pilot Program, current Pinelands CMP standards, recent development applications and possible amendments for the Committee's consideration. Staff also provided an update on the NJDEP's ongoing NJPACT (Protecting Against Climate Threats) regulatory reform effort. Staff also displayed a series of maps prepared using NJ FloodMapper tools to show the potential impacts of sea level rise on the Pinelands Area.

The Committee hosted presentations on forest management during its March meeting. The presentations were delivered by Leslie Sauer, author, founder of Andropogon Associates and founding board member of the Northeast Region of the Society for Ecological Restoration, and John Cecil, Vice President for Stewardship, NJ Audubon Society.

During its meeting in May, the Committee received a brief update on the status of forestry-related bills that were pending in the State legislature. The Committee discussed potential amendments to the CMP's solar energy facility standards, focusing primarily on facilities located at existing landfills and resource extraction operations.

The Committee also discussed possible operational improvements that could be made at the Commission's offices.

In July, the Committee hosted a presentation on forest carbon and climate information. The presentation was delivered by Bernard Isaacson, Courtney Compton, Lauren Gazerwitz and Bill Zipse from the New Jersey Forest Service.

During its meeting in September, staff provided information on the Local Government Energy Audit program offered by the NJBPU. Staff also provided an update on the NJDEP's PACT (Protecting Against Climate Threats) and REAL (Resilient Environments and Landscapes) rulemaking initiatives.

During its December meeting, the Committee received updates from the staff about two FY2022 initiatives: the design and installation of a rain garden at the Commission's office and the submission of an application to the NJBPU for a local government energy audit of the agency's offices. Lastly, the Committee agreed to consider a resolution specifically addressing the goals of the New Jersey Global Warming Response Act, measures to avoid or minimize greenhouse gas emissions at the Commission's own offices and the future development of specific CMP standards.

Alternate Design Wastewater Treatment Systems Pilot Program

During its meeting on November 12, 2021, the Commission adopted a resolution that authorizes the participation of four new advanced wastewater technologies in the agency's Alternate Design Treatment Systems Pilot Program.

The Commission launched the Pilot Program in 2002 to test high-performance wastewater treatment systems that better protect the Pinelands environment by reducing the levels of nitrogen that enter groundwater.

Through the program, the Commission has evaluated numerous septic systems technologies and identified several that successfully meet Pinelands water quality standards for residential development on lots as small as one acre. To date, more than 422 Pilot Program systems have been installed to service single-family residential development in 28 Pinelands municipalities.

In 2020, the Commission adopted amendments to the CMP that extended the pilot program through 2025, authorized the use of one system technology, SeptiTech, for residential development on minimum one-acre parcels on a permanent basis, removed two systems from the program (one that has not been installed in the Pinelands and the other that has not met standards), and enabled the Commission to add additional technologies to the program by recruiting new NSF Standard 245 and/or USEPA ETV certified technologies to participate.

Under the resolution adopted by the Commission in November 2021, the Fuji Clean USA Residential CEN Series system, the Waterloo Biofilter Residential Model system and the Busse Innovative Systeme Model MF-B-400 system will be permitted to serve residential development on minimum one-acre parcels, and the Pugo system will be permitted to serve residential development on minimum 1.26-acre parcels.



Above: The housing development above was built with an alternate design wastewater treatment system in the Pinelands Area of Tabernacle Township. Photo/Paul Leakan

Pinelands Development Credit Program

The Pinelands Development Credit Program is a regional transfer of development rights program that preserves important agricultural and ecological land. Pinelands Development Credits (PDCs) are allocated by the Commission to landowners in the Preservation, Agricultural Production and Special Agricultural Production Areas, which are the sending areas. PDCs can be purchased by property owners and developers who are interested in developing land in Regional Growth Areas, which serve as the receiving areas.



Above: This 700-acre blueberry and cranberry farm in Tabernacle Township's Special Agricultural Production Area has been permanently preserved through the Pinelands Development Credit program. Photo/Paul Leakan

Once PDCs are "severed" from a sending area property, the property is permanently protected by a conservation or agricultural deed restriction and the PDCs allocated to that property can be sold on the private market.

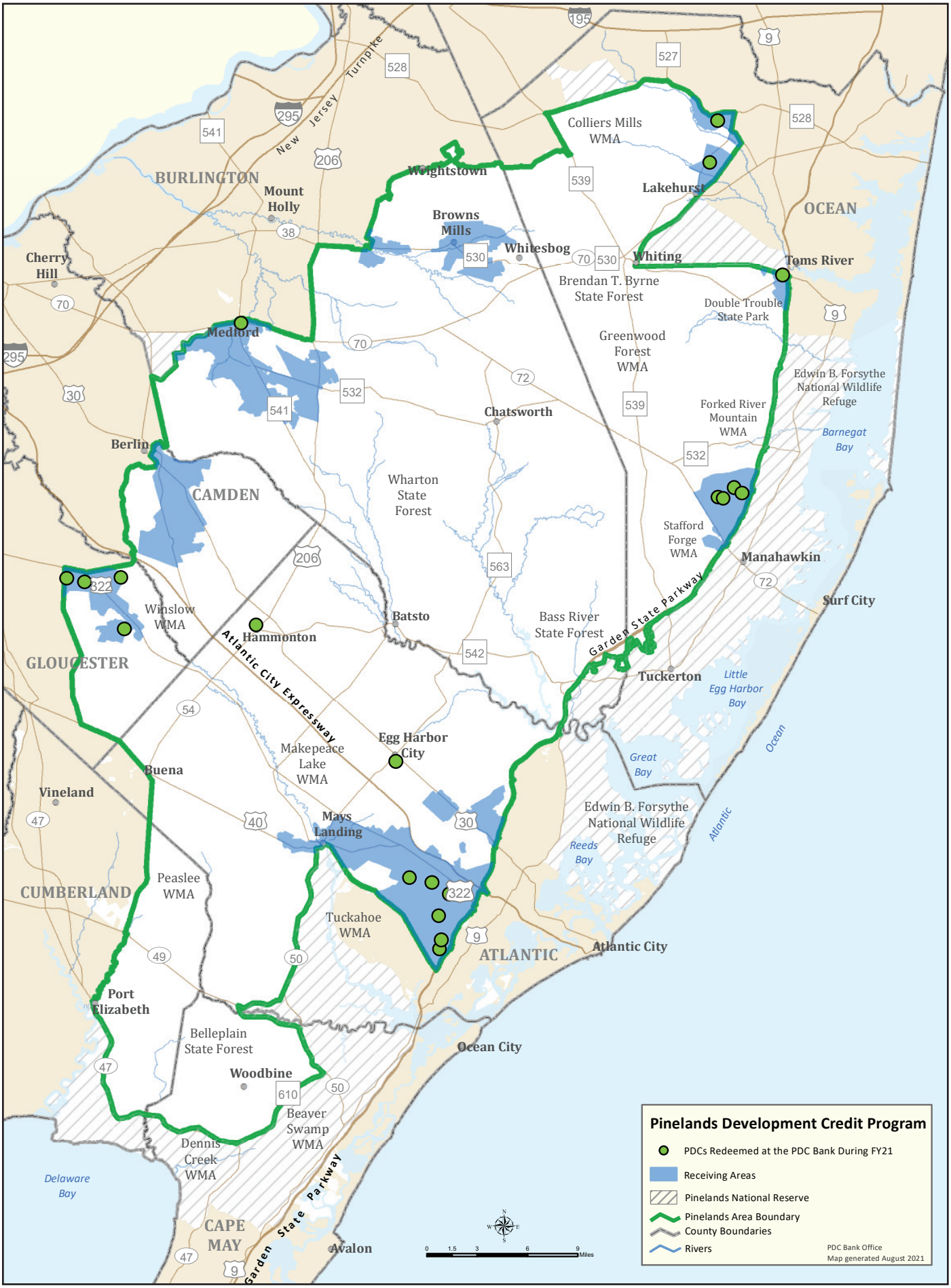
During 2021, 72.70 PDCs were allocated by the Commission to 36 sending area properties. A total of 53.00 PDCs were severed, protecting 1,705 acres of land in the Special Agricultural Production Area in Bass River Township and the Agricultural Production Area in Franklin and Monroe Townships. Since 1982, 57,147 acres in the Pinelands Area have been permanently preserved through the PDC Program.

In 2021, a total of 31.25 PDCs were sold, with an average sales price of $57,752 per PDC. This represents a significant increase ($13,000) over the average sales price in 2020. A total of 60.00 PDCs were redeemed for a wide variety of residential projects in Barnegat, Egg Harbor, Jackson, Medford, Monroe, Shamong and Stafford townships, the Town of Hammonton and the Borough of South Toms River during 2021.

Please see page 11 for a map that illustrates all PDC redemptions that occurred during Fiscal Year 2021.



Above: Prospective buyers can tour a model cottage at The Cottages at Compass Point, a development that will include 212 single-family detached homes and a 13,500-square-foot clubhouse in Barnegat Township's Regional Growth Area and required the use of 16 Pinelands Development Credits (or 64 rights). Photo/Paul Leakan


BURLINGTON
Mount Holly
Cherry Hill
Medford
Berlin
CAMDEN
GLOUCESTER
Winslow WMA
Hammonton
Atlantic City Expressway
Buena
Vineland
Makepeace Lake WMA
Egg Harbor City
Mays Landing
Peaslee WMA
CUMBERLAND
Tuckahoe WMA
Port Elizabeth
Belleplain State Forest
Woodbine
Dennis Creek WMA
Beaver Swamp WMA
Delaware Bay
CAPE MAY
Garden State Parkway
Avalon
Ocean City
ATLANTIC
Atlantic City
Wharton State Forest
Batsto
Chatsworth
Wrightstown
Browns Mills
Whitesbog
Colliers Mills WMA
Lakehurst
OCEAN
Toms River
Whiting
Brendan T. Byrne State Forest
Double Trouble State Park
Greenwood Forest WMA
Forked River Mountain WMA
Edwin B. Forsythe National Wildlife Refuge
Barnegat Bay
Stafford Forge WMA
Manahawkin
Surf City
Bass River State Forest
Tuckerton
Little Egg Harbor Bay
Great Bay
Ocean
Atlantic
Reeds Bay
Edwin B. Forsythe National Wildlife Refuge
New Jersey Turnpike
Garden State Parkway
Pinelands Development Credit Program
PDCs Redeemed at the PDC Bank During FY21
Receiving Areas
Pinelands National Reserve
Pinelands Area Boundary
County Boundaries
Rivers
PDC Bank Office
Map generated August 2021
0 1.5 3 6 9 Miles

Reviewing Municipal Ordinances

The master plans and land use ordinances of all Pinelands municipalities and counties must be consistent with the Pinelands CMP. Consistency is ensured through the conformance process, by which municipalities and counties submit their plans, ordinances and amendments to the Commission for review and certification.

The Commission received and reviewed 155 municipal master plan and ordinance amendments in 2021. The Commission continued to see a trend of municipalities adopting plans regulating land uses in areas deemed in need of redevelopment. The Commission received 18 ordinances either adopting or amending redevelopment plans in 2021. Several plans were adopted to facilitate the development of solar energy on closed landfills.

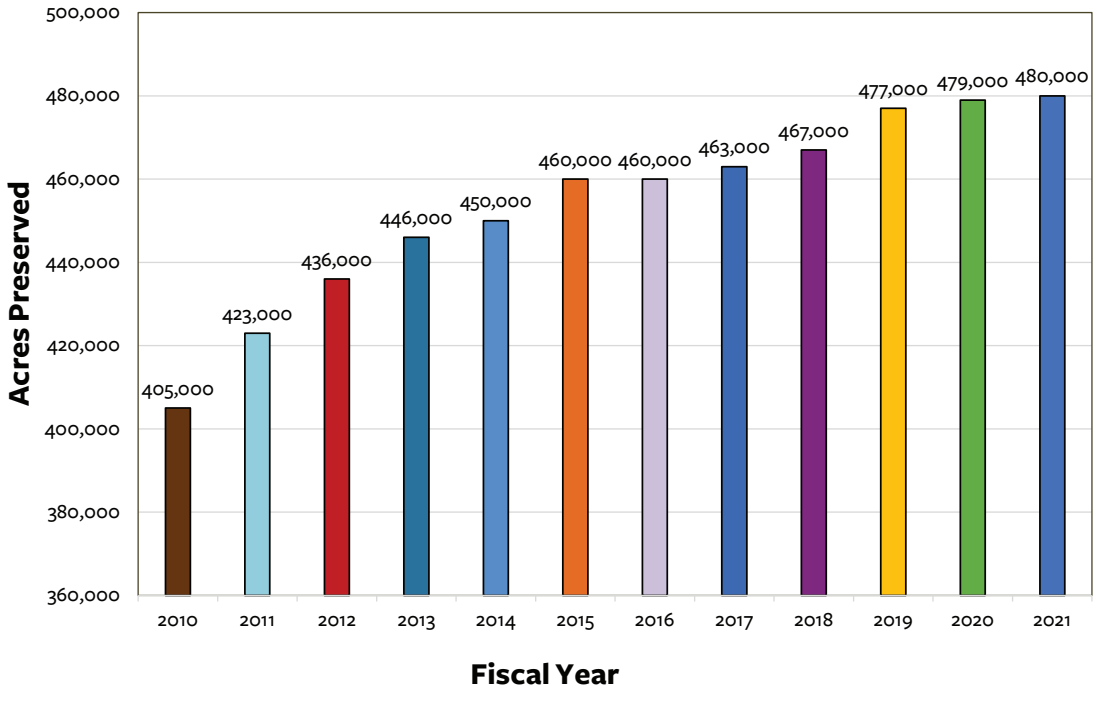
The Commission also received ordinances from nearly all of the 53 Pinelands municipalities regulating the various types of cannabis-related establishments.

Annual Update on Permanent Land Protection in the Pinelands

The Pinelands Commission's staff delivered its annual update on permanent land protection in the Pinelands on September 10, 2021.

A total of 1,529 acres of land were preserved in the Pinelands Area from June 2020 to June 2021. Of that total, 559 acres were preserved through the Pinelands Development Credit Program and an additional 111 acres were preserved through the development application process to meet various CMP standards.

As of June 2021, 51% (480,500 acres) of the state Pinelands Area has been permanently preserved through a variety of programs. Of that total, 94% of the land is located in Pinelands Management Areas that are designated for conservation, including the Preservation Area District, the Forest Area, the Special Agricultural Production Area, and the Agricultural Production Area.



Pine Barrens Byway Designated as a National Scenic Byway

The Pine Barrens Byway was officially designated as a National Scenic Byway in February 2021, thanks to the efforts of the Pinelands Commission.

The Commission is overseeing the administration of the 130-mile byway route, and it prepared the successful application to obtain the National Scenic Byway designation in June 2020.

A total of 63 nomination applications were submitted to the Federal Highways Administration in 2020, and 49 byways in 28 states were successful in receiving designations, including 34 National Scenic Byways and 15 All-American Roads, according to the U.S. Department of Transportation (U.S. DOT). The U.S. DOT took into account evidence of intrinsic quality(s), a demonstration of national or regional significance, the overall visitors' experience, and a demonstration of long-term sustainability.

The Pine Barrens Byway traverses roadways in Atlantic, Burlington, Cape May, Cumberland and Ocean counties, offering a diverse route punctuated by picturesque parks, serene rivers and quaint towns. It is one of eight state-designated scenic byways in New Jersey, and it meanders through Bass River Township, Corbin City, Dennis Township, Egg Harbor City, Estell Manor City, Galloway Township, Hamilton Township, Little Egg Harbor Township, Maurice River Township, Mullica Township, Port Republic City, Tuckerton Borough, Upper Township, Washington Township (Burlington County), Weymouth Township and Woodbine Borough. It was designated as a State Scenic Byway in 2005.

The National Scenic Byway designation bestows prestige and national and international recognition to the area, and it enhances efforts to preserve the Pinelands by increasing awareness and encouraging the stewardship of the region's resources. The national designation could also provide an economic boost to local Pinelands communities through increased tourism and federal funding for projects that promote the Byway.



Above: The Eldora Nature Preserve in Cumberland County is one of many natural, scenic destinations located along the Pine Barrens Byway. Photo/Paul Leakan

In addition to submitting the successful application to the Federal Highways Administration, the Commission has completed numerous projects that raise awareness of the Pine Barrens Byway. In 2020, the Commission created, printed and distributed 650 copies of a 2021 Pine Barrens Byway-themed wall calendar that features 38 photos of various locations along the Byway route. In 2021, the Commission began overseeing a new Byway webpage that was created by consultants hired by the New Jersey Department of Transportation. The Commission also helped to develop and then printed and distributed thousands of copies of two new brochures that will also help to heighten awareness and generate more interest in the Byway. The brochures are available at various locations along the Byway.

The Commission's work on the Byway was funded by the National Park Service through the Long Term Economic Monitoring Program.

Regulatory Activities

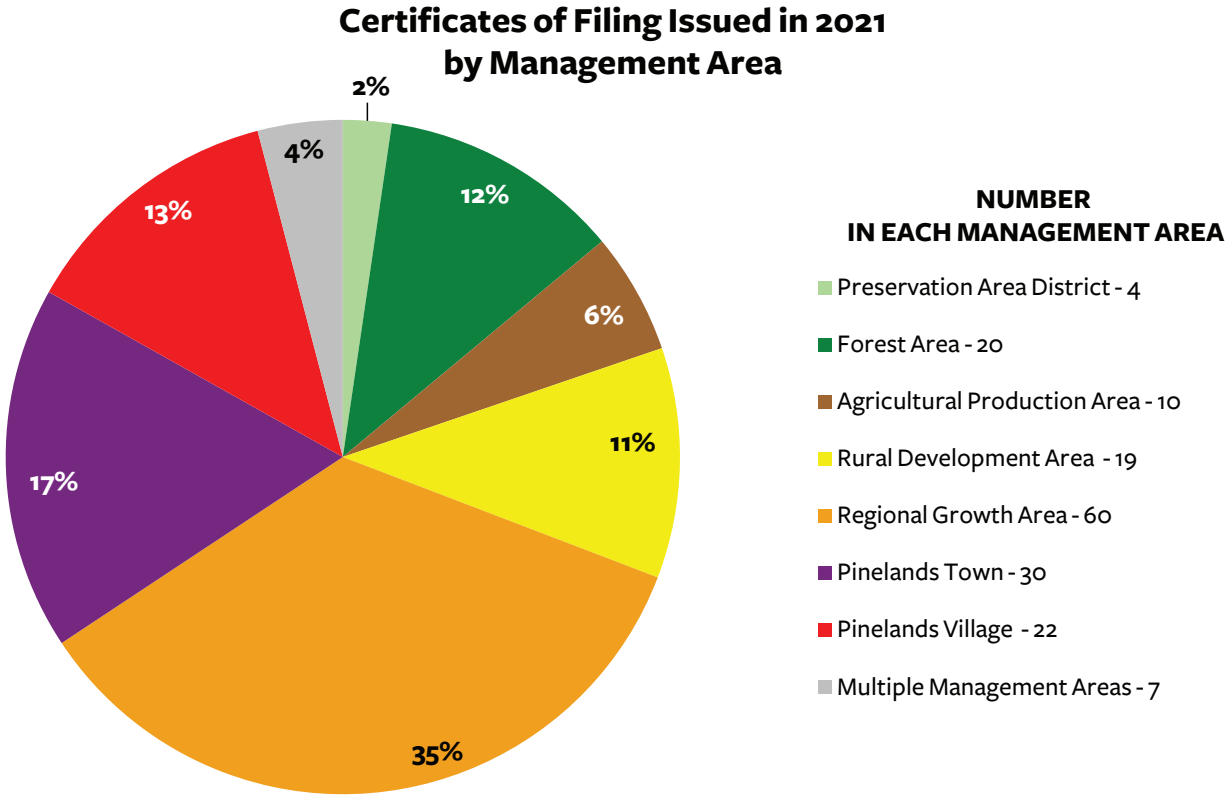
Applications

The Pinelands Commission reviews applications for development by evaluating proposals to ensure that they meet the regulations contained in the Pinelands Comprehensive Management Plan (CMP).

Development proposals must meet a series of environmental standards, including those that protect water quality, wetlands and threatened and endangered species.

The Commission's development approval process varies, depending on whether the application is submitted by a public agency or a private landowner. The Commission's staff reviews private development proposals, such as single-family dwellings, subdivisions and commercial projects. After applicants provide all of the necessary information, the Commission issues a Certificate of Filing (or CF) that allows applicants to seek all municipal and county approvals for the proposed development.

The Commission issued 172 Certificates of Filing (CFs) in 2021, most of which (60) were for proposed development in Regional Growth Areas (as shown in the chart below). There are 24 municipalities with Regional Growth Areas, or RGAs, in the 938,000-acre state Pinelands Area. RGAs make up 8% of the land in the Pinelands Area, and they are generally located on the fringes of the Pinelands boundary. The RGAs include areas of existing development and adjacent lands that have the infrastructure such as sewers, roads and other utilities needed to accommodate new development while protecting the essential character and environment of the Pinelands. The Pinelands Comprehensive Management Plan encourages future growth in the RGAs as a way to prevent scattered and piecemeal development in other more sensitive portions of the Pinelands Area.

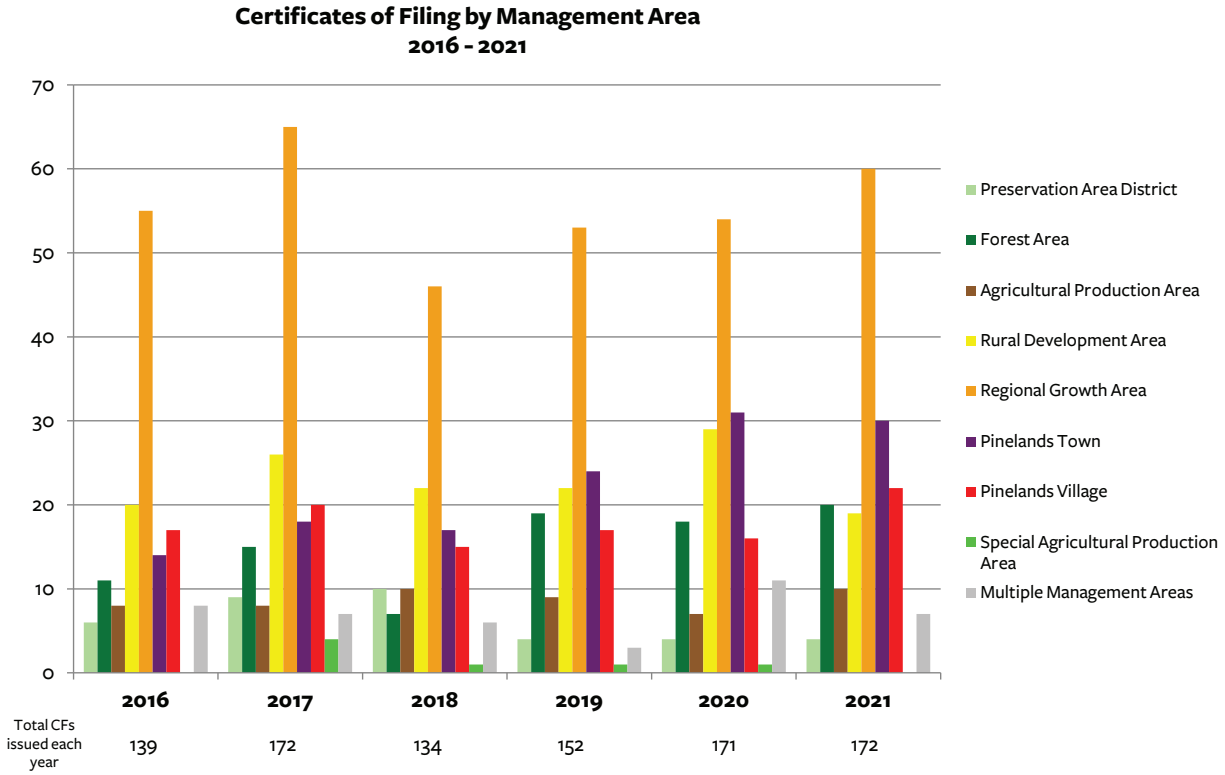


Of the 172 CFs that were issued in 2021, most involved proposals for residential development, followed by commercial development (as shown in the table below).

Certificates of Filing Issued in 2021 by Management Area and Type of Development

Management Areas	Commercial	Infrastructure	Institutional	Recreation	Residential	Resource Extraction	**Total**
Agricultural Production Area	3				7		**10**
Forest Area	4	1	2	1	11	1	**20**
Multiple Management Areas	3	2			1	1	**7**
Pinelands Town	7				23		**30**
Pinelands Village	3		1		18		**22**
Preservation Area District		1			1	2	**4**
Regional Growth Area	17	1			42		**60**
Rural Development Area	4	1			9	5	**19**
Totals	**41**	**6**	**3**	**1**	**112**	**9**	**172**

The Commission issued similar numbers of CFs from 2016 to 2021, with the majority of the proposals for development located in RGAs (as shown on the bar graph below).



The Pinelands Commission is also responsible for reviewing and approving development applications that are submitted by public entities, such as a municipality, county or a State agency. The full, 15-member Commission

votes on whether to approve these applications during its monthly meetings. The Commission approved a total of 21 applications for public development in 2021. Examples included the installation of a 10,800-square-foot geothermal well field for the heating and cooling of the Batsto Visitors Center and the installation of 5.35 acres of ground-mounted solar energy facilities at the Hammonton High School and Hammonton Early Childhood Center.

Recreation Permits

In 2021, the Commission issued seven Recreation Permits for organized, off-road vehicle events in the Pinelands. In order to receive a Recreation Permit, groups must submit a completed "Off-Road Vehicle Event Application" for each proposed event. In addition to the application form, the group must submit the course route in electronic format, an application review fee, proof of insurance, property owner permission and proof that the township and New Jersey State Police have been notified. Commission staff reviews the course route to determine if there are any issues with wetlands, threatened and endangered species, deed-restricted land and private and public ownership. Any portions of the route that have potential issues are site inspected by a member of the Commission's staff. If any route changes are necessary, a revised route is required and must again be submitted for review.

Development Application Trends in 2021

The Commission saw increased interest and activity in three new types of development proposals in 2021: cannabis-related facilities, community solar facilities on existing landfills and large warehouses.

On February 22, 2021, the New Jersey Cannabis Regulatory, Enforcement Assistance, and Marketplace Modernization Act (P.L. 2021, c. 16) was signed into law by Governor Murphy. The law legalizes the sale and use of cannabis and cannabis-related products for recreational use by adults in the State.

The law provides municipalities with the option to enact ordinances to govern the number, type and operations of cannabis businesses within their borders. The law also permitted municipalities to adopt ordinances prohibiting the establishment of certain classes of cannabis businesses, provided such ordinances were adopted prior to August 21, 2021. For those municipalities located within the Pinelands Area, such ordinances must also be in conformance with the Pinelands CMP and certified by the Commission before they may go into effect.

In response to this law, the Commission received numerous inquiries regarding cannabis-related cultivation, processing/manufacturing, sale and distribution for both recreational and medical cannabis uses. Two development applications were submitted for cannabis related facilities: a cannabis cultivation/processing facility in Winslow Township and a medical cannabis dispensary facility in Hamilton Township.

In addition to numerous phone calls, the Commission received written inquiries or application material on 27 different solar projects in 2021. Most likely in response to the New Jersey Board of Public Utilities (NJBPU) Community Solar Energy Pilot Program, the Commission received several joint proposals from municipalities and solar energy providers to formally close existing landfills and install solar energy facilities on the closed landfills. In 2021, the Commission received six proposals for the development of solar energy facilities as a principal use in conjunction with the proposed closure of existing landfills. Of those six proposals, one application was completed in the Borough of Woodbine.

Lastly, 2021 saw increased interest in the siting and development of large warehouses in the Pinelands Area. The Commission received numerous inquiries and new applications in 2021 for warehouses ranging in size from 50,000 square feet to over 1,000,000 square feet.

Science & Research Activities

Long-term Environmental Monitoring Program

Snake Fungal Disease: In 2018, Commission scientists began collaborating with Dr. Joanna Burger and her colleagues at Rutgers University, Robert Zappalorti of Herpetological Associates, and Dr. Jeffrey Lorch of the United States Geological Survey (USGS) to conduct research on snake fungal disease in the Pinelands. Snake fungal disease is an emerging disease found in populations of captive and wild snakes and has been found to infect snakes in North America, parts of Europe, and Australia. Laboratory analyses have demonstrated that the fungus *Ophidiomyces ophiodiicola* is consistently associated with snake fungal disease, but often additional fungi are also found. Although snakes can show signs of fungal disease just after spring emergence from hibernation, it was previously unknown if *O. ophiodiicola* was present inside the hibernacula.



Above: The soft and crusty brown blotches on this northern pine snake indicate potential snake fungal disease infection. Photo/John Bunnell

Dr. Burger and Mr. Zappalorti have been excavating a group of northern pine snake hibernacula, or winter dens, annually for the past 35 years. Their long-term study provides a unique opportunity to sample inside snake dens to determine if the fungus is present in the soil or on the hibernating snakes. Excavating the dens during hibernation also allows the sampling of a number of individual snakes from a population at one time. A passive integrated transponder (PIT) tag is inserted into each new snake found during the excavations. A PIT tag is a tiny, glass-coated microchip commonly used in wildlife research that allows for the permanent identification of an animal through the use of a special scanner that reads the unique tag number.

To determine if *O. ophiodiicola* was present in the dens or on hibernating snakes, initial sampling was completed in 2018 during den excavations at three locations. Because the initial sampling indicated that *O. ophiodiicola* was present on snakes and in the soil inside the dens, in 2019, a second round of sampling was completed on hibernating snakes at all four of Dr. Burger and Mr. Zappalorti's study sites. A total of 35 pine snakes, one corn snake, one black racer, and one timber rattlesnake were found during the excavations. Each snake was swabbed for the fungus on the head, belly, vent, and on visible body sores. Preliminary results show that the fungus was present on the visible body sores much more than the other body locations sampled. During the winter of 2020, all snakes found during the den excavations were swabbed to determine the best method and body location to sample a snake for the presence of the fungus and to document changes in fungal infection for individual snakes over time. In 2021, all hibernating snakes were swabbed again to document changes in fungal infection for individual snakes over time and investigate changes in snake fungal disease among dens. Results assessing the presence of *O. ophiodiicola* in dens versus adjacent soils and examining factors associated with the growth of the fungus, were recently published in the Journal of Fungi (Campbell, L.J.; Burger, J.; Zappalorti, R.T.; Bunnell, J.F.; Winzeler, M.E.; Taylor, D.R.; Lorch, J.M. Soil reservoir dynamics of *Ophidiomyces ophidiicola*, the causative agent of snake fungal disease. Journal of Fungi 2021, 7, 461).

Rare Snake Population Monitoring: Aside from the long-term artificial den excavations mentioned in the Snake Fungal Disease Monitoring component, no long-term data exist to assess rare snake population trends in the Pinelands. Therefore, we are establishing a network of natural snake dens, shed areas, and nest sites to monitor long-term population changes in several species of rare snakes. As part of ongoing snake studies,

numerous winter dens have been identified for corn snakes and kingsnakes. The goal is to identify more natural pine snake dens and natural dens for other rare snake species. Beginning in 2018, corrals were built around most dens to capture snakes as they enter hibernation in the fall and emerge from hibernation in the spring. The den corrals offer an effective non-invasive method to census snakes each fall and spring without physically disturbing dens or hibernating snakes.

In 2021, additional corn snake and pine snake dens were corralled prior to snake emergence in spring. A total of 24 corn snakes and nine pine snakes were radiotracked during the field season to find new dens, shed sites, and nest areas. Potential dens observed by tracking these snakes will be corralled during the winter of 2021-2022 and productive dens will be incorporated into the monitoring program. Over the course of the year, 314 new and previously PIT tagged snakes were found. These include 181 corn snakes, 75 pine snakes, 41 kingsnakes, 40 black racers, and 25 snakes of several other species (garter snakes, scarlet snakes, hognose snakes, rough green snakes, and timber rattlesnakes). In addition to the new and previously PIT tagged snakes, 96 corn snakes, 49 pine snakes, and 16 kingsnakes were hatched in the lab from eggs collected from gravid females and these hatchlings were also tagged and released.

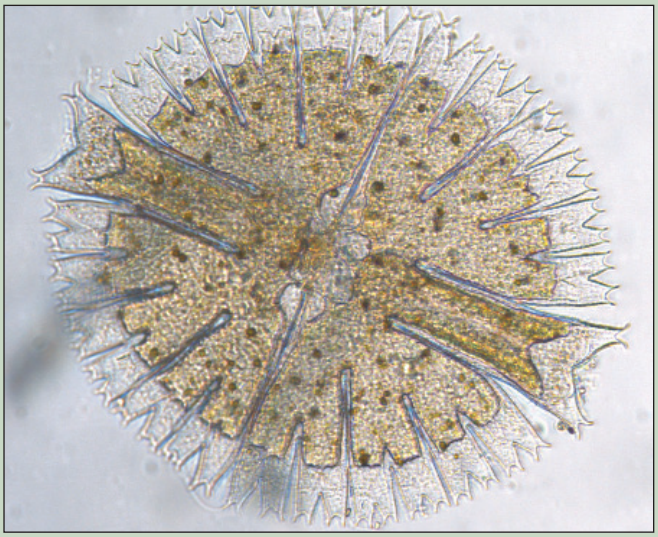
Other 2021 environmental monitoring activities included surveying calling frogs and toads at a group of ponds that are surveyed annually, measuring bimonthly water quality at 47 stream sites, recording monthly water levels at 35 forest plots and 30 ponds, and maintaining continuous water-level recorders installed in seven other ponds and in a shallow observation well installed within a pine lowland forest.

Long-term environmental monitoring research is being funded by the National Park Service.

Microorganism Study

In 2017, the Commission was awarded funding to study the effects of land use on water quality and microorganisms in 60 natural ponds, excavated ponds, and stormwater basin study sites. The goals of the Microorganism Study are to assess the relationship between surrounding land use and various water-quality and biological attributes and to compare the plants and animals from these natural and created wetlands. Over a three-year period, from 2018 to 2020, field work was conducted at the 60 wetlands. Commission scientists and collaborators with the N.J. Department of Environmental Protection (NJDEP) and USGS sampled surface water for nutrients, metals, pesticides, and chlorophyll-a (an indirect measure of algal plant growth) and collected samples of diatoms (single-celled algae), phytoplankton (free-floating algae in the water), zooplankton (tiny animals that swim or drift in the water), and benthic macroinvertebrates (primarily aquatic larval insects).

In 2021, taxonomic consultants completed processing and identifying zooplankton, algae, diatoms, and macroinvertebrates that were collected from the study sites. Project scientists assembled the biological and water quality data collected from the 60 wetlands and began analyzing the data and preparing a final report.



Above: Micrasterias rotata is one of 162 free-floating algae species that were collected at 60 wetland sites during the study. Photo/EcoAnalysts, Inc.

Endocrine Disruption Study

The William Penn Foundation is funding scientific research in the Delaware River Watershed through the Delaware Watershed Research Fund, which is administered by The Academy of Natural Sciences. The Kirkwood-Cohansey aquifer, which underlies the Pinelands, was identified as one of the research areas eligible for funding. Commission scientists and USGS scientists Kelly Smalling, Dr. Vicki Blazer, and Heather Walsh proposed a study to investigate point and non-point sources of endocrine disrupting chemicals and the potential impacts on fish and frogs in the Pinelands. The study was awarded funding in 2016.



Above: Non-native black crappie was one of the fish species sampled for evidence of endocrine disrupting chemicals at lakes upstream and downstream of a sewage treatment plant.

Photo/ John Bunnell

The endocrine system is a collection of tissues in animals that produce hormones to regulate essential life processes, such as metabolism, tissue function, reproduction, and development. A large group of natural and synthetic chemicals are known to disrupt endocrine function. Examples include plant hormones, plastic components, flame retardants, surfactants, fragrances, and pesticides. Endocrine disrupting chemicals, or EDCs, are a global environmental problem and have been linked to reproductive and developmental abnormalities in a variety of animal species, especially fish and amphibians.

Commission and USGS scientists proposed to sample water chemistry and fish above and below municipal wastewater treatment plants, which represent direct point sources of EDCs, and water chemistry and frogs at ponds and stormwater basins, which may receive indirect non-point sources of EDCs from runoff and the aquifer. Results from these sites will be compared to those from appropriate minimally impacted reference sites.

In 2017, 2018, and 2019, green frogs were collected from ponds and stormwater basins for histological analysis and water chemistry was sampled at the sites on multiple occasions. In 2019 and 2020, fish were collected from stream sites above and below sewage treatment plants for histological analysis by USGS scientists. Although field work for the project was completed in 2020, factors related to the pandemic caused significant delays in laboratory processing. In 2021, data collected in the study were published by the U.S. Geological Survey (Breitmeyer, S.E., Walsh, H.L., Smalling, K.L., Blazer, V.S., Boetsma, A.C., Carper, L.G., Cohl, J.A., Dietze, J.E., Iwanowicz, L.R., Lane, R.F., Raines, C.D., Schreiner, M.L., Tush, D.L., Wilson, M.C., Sperry, A.J., Bunnell, J.F., Burritt, P.M., and Dragon, J., 2021, Organic and inorganic constituents in surface water and native and non-native fish and frog health data collected from streams, impoundments and wetlands in the New Jersey Pinelands, 2017-2020: U.S. Geological Survey data release, https://doi.org/10.5066/P93VW8GX). These data are being analyzed and a manuscript is being prepared for potential publication in 2022.

The study is being funded by a grant from the Delaware Watershed Research Fund, a match by the Pinelands Commission, and a match by the USGS.

Joint Corn Snake Radio Tracking and Drift Fence Study

In 2017, Commission scientists began to collaborate with Dr. Howard Reinert of The College of New Jersey (TCNJ), Mr. Robert Zappalorti of Herpetological Associates, and the NJDEP Endangered and Nongame Species Program staff to conduct an intensive research project on the corn snake in the Pinelands. The corn snake is a colorful, secretive species of rat snake that reaches the northern limit of its range in the New Jersey Pinelands. Also called the red rat snake, the corn snake is listed as an endangered species by the NJDEP. The goals of the corn snake research is to better understand the habitat requirements and life history of this secretive serpent to develop meaningful conservation management programs for the species and ensure its continued survival in the Pinelands.

The research includes two components: radio-telemetry and headstarting, which is a conservation technique where vulnerable, young animals are raised in captivity until they attain a larger size and then released into the wild. For the telemetry aspect, researchers surgically implant small radio-transmitters in adult corn snakes and locate the snakes on a regular basis to collect data on their activity range; types of habitats used; and the locations for nesting, shedding, and hibernation. In 2019, scientists completed radio tracking of 29 corn snakes, which concluded the telemetry component of the study. Corn snake telemetry data will be analyzed by research collaborators at TCNJ.

For the headstarting component of the study, researchers collect corn snake eggs from nest areas and transport them to a laboratory for incubation and hatching. All of the hatchlings are microchipped and one-half of them are released back to the primary nest area as cold released snakes. The other group of hatchlings are kept in the laboratory over the winter and released the following spring as headstarted snakes. The goal is to recapture as many of these snakes as possible to assess growth and survivorship of the cold released and headstarted hatchlings over time. While in the laboratory, hatchlings are fed, weighed, and measured to determine the efficiency of assimilating food and their growth rates. Researchers are also conducting experiments on the laboratory hatchlings to understand their preferences for temperature, the amount of vegetation canopy cover, and whether they prefer to lay on sand, soil, leaf litter, or pine needles.



Above: A clutch of eggs surrounds a newly hatched corn snake. Growth and survivorship of hatchlings will be assessed in this study.

Photo/John Bunnell

In 2019, 28 headstarted corn snakes from 2018 and 11 newly hatched corn snakes from 2019 were released at the primary nest area. Twenty-two newly hatched corn snakes were selected to be held over the winter to be released the following year. In the spring of 2020, these held over snakes were released at the nest area Additionally in 2020, a total of 22 corn snakes were hatched out in the lab and cold released during the hatching season. In 2021, 24 corn snakes from three clutches were hatched out in the lab and cold released at the primary

nest area.

A drift fence was established at the primary nest area to help recapture corn snake hatchlings to assess the survival of headstarted and cold released hatchlings and to compare the effectiveness of using a drift fence outfitted with box traps and artificial cover to detect corn snakes and other species of snakes. In 2019, a total of 1,994 animals were found along the drift fence, under the artificial cover, or in the box traps. Thirteen species of snakes were captured, including 19 corn snakes. In 2020, the fence, cover, and traps yielded a total of 2,047 animals. Eleven species of snakes were captured, including 12 corn snakes. For 2019 and 2020 combined, the drift fence and trap array captured two headstarted and three cold released corn snakes. In 2020, to assess whether corn snakes were able to maneuver around the drift fence without getting caught, four corn snakes were radio tracked in the immediate vicinity of the fence. Twice these snakes moved from one side of the fence to the other without getting captured in the box traps, suggesting that adult corn snakes can climb over the fence.

In 2021, 14 pitfall traps were installed to provide an additional method of capturing animals at the drift fence. A total of 2,111 animals were found along the drift fence, under the artificial cover, in the box traps, or in the pitfall traps. Eleven species of snakes were found, including 14 corn snakes. Two of these corn snake recaptures were cold released snakes from 2016 and 2017. Four of the corn snakes were captured in the newly installed pitfall traps. Two other cold released corn snakes from 2016 were recaptured in two different study areas approximately 1.5 miles from the nest site where they were released.

This Joint Corn Snake Study is being funded by the Pinelands Commission and the NJDEP.

Eastern Kingsnake Study

In 2019, the Commission was awarded funding for a grant proposal, titled "Activity range, habitat use, shedding, denning, and nesting of the wetland-dependent eastern kingsnake." The eastern kingsnake is listed as a species of special concern in New Jersey because it is vulnerable to multiple threats, is potentially declining, and its distribution and population status are not known. Although kingsnakes are a wetland-dependent species that use wetlands for overwintering, the specific wetland habitat types needed for hibernation and the amount and type of associated upland habitats used for foraging, shedding, and nesting have not been documented.



Above: A four-year study will focus on the wetland-dependent eastern kingsnake. Photo/ John Bunnell

Commission scientists are collaborating with Mr. Robert Zappalorti of Herpetological Associates and Dr. Howard Reinert of The College of New Jersey on this four-year study. Scientists are using radio telemetry to determine the activity range; upland and wetland habitat use; and timing of shedding, denning, and potentially nesting of the eastern kingsnake. In anticipation of obtaining funding and to ensure an adequate number of snakes to track if funding was secured, radio transmitters were surgically implanted in 13 kingsnakes in 2019. Although one kingsnake was killed by a predator, the remaining 12 snakes were tracked to their winter dens.

In 2020, 18 of 24 newly found kingsnakes were radio tracked in addition to the individuals that were tracked in 2019. Seven radio tracked kingsnakes died in 2020, either from predation or unknown causes. Another kingsnake was lost due to suspected transmitter failure. The remaining snakes were tracked to winter dens in the fall of 2020. In 2021, 20 kingsnakes were radio tracked through the end of the season to their winter dens. Nine other radio tracked kingsnakes died in 2021 from predation or were lost to other causes.

This research is being funded by a grant from the U.S. EPA and a match by the Commission through the Pinelands Conservation Fund.

Corn Snake and Kingsnake Genetics Research

Previous genetics research by Drs. Lauretta Bushar and Howard Reinert showed that timber rattlesnake populations in the Pinelands are geographically and genetically isolated from all other populations of rattlesnakes, and that paved roads in the region provided significant barriers to gene flow among Pinelands timber rattlesnakes. No work has been done on the population genetics of corn snakes or eastern kingsnakes. These two species are members of the Lampropeltini tribe, which includes pine snakes and gopher snakes, kingsnakes and milk snakes, corn snakes and other rat snakes, and other similar species.

In 2019, Drs. Bushar and Reinert began using published genetic information on related species to develop genetic markers for corn snakes and kingsnakes. In 2020, Arcadia University, the NJDEP Endangered and Nongame Species Program, and the Commission began to collaborate on this genetic research. Snakes collected during other Pinelands snake research as well as additional snakes found dead on roads from around the Pinelands may provide enough individuals to assess levels of genetic variation, population substructure, and the effect of roads on gene flow for corn snakes and kingsnakes in the Pinelands.

In 2021, blood samples collected during previous years were analyzed. For kingsnakes, eight microsatellite loci (i.e., genetic markers) useful for population genetic analysis were identified and used to analyze samples from 30 kingsnakes. Preliminary analysis indicated that Pinelands kingsnakes displayed a similar amount of genetic variation as two populations of California kingsnakes. The genetic markers developed from available published literature could be improved upon so future kingsnake genetics research should include identifying better genetic markers.

For corn snakes, 12 microsatellite loci useful for population genetic analysis were identified and used to analyze 51 snakes, including 38 from Wharton State Forest, eight from Berkeley, and the remaining from other Pinelands areas. The Wharton State Forest population appears to be a healthy interbreeding population with no obvious population substructure. This indicates adequate genetic mixing and no isolation of the Wharton population clusters. This agrees with our Joint Corn Snake research described above where two hatchlings dispersed about 1.5 miles from their nest area and were found in different study areas. When compared to the Wharton population, the Berkeley population showed strong evidence of isolation by distance. The Berkeley population is located approximately 20 miles away from the Wharton population.

In 2021, blood samples from additional kingsnakes and corn snakes in our study areas and surrounding areas continued to be collected to increase the sample size for a more robust future analysis.

This research is being funded by Arcadia University, the NJDEP Endangered and Nongame Species Program, and the Commission through the Pinelands Conservation Fund.

Ground Skink eDNA Study

In 2020, the Commission began to collaborate with Dr. Julie Lockwood and Kathleen Kyle of Rutgers

University. Dr. Lockwood and Ms. Kyle were interested in sampling the wood and metal cover placed along the drift fence array (see Drift Fence Study above) to determine whether they could detect environmental DNA of a small, common lizard called the ground skink. Environmental DNA (eDNA) is nuclear or mitochondrial deoxyribonucleic acid (DNA) shed by organisms into their surroundings as they move, grow, breed, and decompose. Compared to terrestrial habitats, the use of eDNA is more advanced in aquatic habitats because of the ease of drawing water from the habitat through a filter and analyzing the filter for eDNA. Detection of eDNA from dry surfaces and soil is a new field of research. The use of eDNA has the potential to revolutionize traditional survey and monitoring programs that rely on visual detection by an observer, especially for secretive or rare species, such as many species of reptiles.

In late-2020 and early 2021, Ms. Kyle sampled the underside of the wood and metal cover we placed along the drift fence array and the soil beneath the artificial cover and analyzed her samples for ground skink eDNA. The results indicated that detection probabilities were 4 – 16 times greater than visual detection. Ground skink eDNA was detected under cover objects up to two weeks after the last visual detection and at some cover objects where skinks had not been visually observed in prior months. These results suggest that combining eDNA with traditional cover object surveys can greatly increase the power of detecting reptiles during surveys.

The ground skink research was funded by Rutgers University and the Commission through the Pinelands Conservation Fund. Funding is currently being pursued to test eDNA methods for the corn snake, which is an endangered species that is often ignored during most surveys conducted for Pinelands development applications.

Eastern Box Turtle Study

In this new initiative, the Commission received a 2021 scientific collecting permit from the NJDEP to begin to capture, weigh, measure, mark, and radio-track eastern box turtles. The eastern box turtle is listed by the NJDEP as a species of special concern because it is vulnerable to multiple threats, its distribution and population status in the state are not well understood, and it is potentially declining throughout its range. One goal of this research on box turtles is to gather data on turtle behavior, habitat use, movement, and use of nest sites and hibernacula in the Pinelands. Another goal is to monitor turtles in burned and unburned areas to better understand the relationship between turtles and prescribed fire. Over the course of 2021, a total of 25 box turtles were captured and processed and 20 of these were outfitted with external transmitters and radio-tracked about once each week. One of these radio-tracked turtles was lost to unknown causes and another was killed by an automobile. The remaining 18 were tracked to their winter hibernation areas.



Above: A colorful male box turtle found in the fall that is currently being radio tracked as part of the study. Photo/ John Bunnell

Public Information, Education & Outreach

Raising Awareness, Fostering Stewardship

The COVID-19 pandemic continued to pose challenges for the Commission, but staff members found new and creative ways to educate the public about the agency's work and the Pinelands' special resources.

Faced with concerns about the health and safety of holding educational events with large audiences, the staff chose to go virtual and outdoors, when possible. On April 24th, the Commission hosted a "Pinelands Short Discussion" with five well-known experts during the first-ever virtual Pinelands Short Course. The event was offered free-of-charge. The Commission organized and carried out the fifth annual Pinelands Summer Short Course on July 15th. The event included 14 programs that were held entirely outdoors at Whitesbog Village and Wells Mills County Park, including guided history tours, a canoe trip, a ground-penetrating radar demonstration, live music and nature walks. (Please see page 25 for a photo).



Above: Launched in 2020, the Pinelands Commission's Instagram site currently has more than 1,900 followers.

The Commission held its first-ever virtual edition of the Pinelands Orientation for Newly Elected Officials on July 27th. The event is typically held at the agency's headquarters and it draws around 30-50 municipal officials. The virtual offering featured four presentations by Commission staff. All four presentations have been recorded and are available for viewing on the Commission's YouTube Channel at any time. The Commission shared links to the Pinelands Orientation videos with officials in the 53 Pinelands municipalities and seven counties, and the videos have garnered 600 views thus far.

Meanwhile, staff organized, hosted and recorded 28 webinar presentations in 2021. Launched in 2020, the webinars are part of the Pinelands Speaker Series, which the Commission previously hosted at its headquarters in Pemberton Township. The webinars are livestreamed, and the public has the ability call in live to ask questions. Two webinars were delivered by Pinelands Commission staff in 2021, and the presentations

By the Numbers:

In 2021, the Commission's staff:

■ Organized, hosted, promoted and recorded 28 educational webinar presentations that are archived on YouTube and have been viewed more than 7,100 times;

■ Maintained, enhanced and reviewed every page and link on the Commission's website, which was viewed a total of 177,712 times;

■ Launched a new Twitter page;

■ Took and shared 1,065 photos on the agency's Instagram site, which was launched in 2020 and has 1,940 followers;

■ Shared 39 videos that raise awareness of the Pinelands on the Commission's YouTube Channel;

■ Shared 125 posts on 60 consecutive workdays, along with 463 photos and 26 videos, as part of an informational celebration of the 40th anniversary of the Pinelands Comprehensive Management Plan;

■ Responded to more than 1,574 public inquiries about recreation, general information about the Pinelands and the Commission, and other non-development application questions; and

■ Organized and carried out the first-ever virtual Pinelands Short Course and first virtual Pinelands Orientation for Newly Elected Officials. Recordings of the two events have garnered 570 views on YouTube.

focused on native Pinelands snakes and a local history of Tuckerton Borough. Every webinar is recorded, archived and is available for viewing on the Commission's YouTube Channel at any time. The video webinar recordings were viewed more than 7,100 times in 2021, and the Commission now has an archive of nearly 60 webinar recordings on YouTube. The Commission will host additional webinars throughout 2022 but may offer some in-person presentations if conditions permit.



Above: Commission staff created a new Instagram site for the Jersey Devil in 2021. Photo/Paul Leakan

Commission staff also completed a comprehensive review of the agency's website in 2021, and they hosted numerous virtual field trips for school groups, launched a Twitter account, created a new, educational Instagram site for the Jersey Devil, and shared 1,065 photos on the agency's Instagram site. The site was launched in 2020, and it now has 1,940 followers.



Above: More than 50 people attended the fifth annual Pinelands Summer Short Course on July 15, 2021. The event was held at Whitesbog Village in Burlington County and Wells Mills County Park in Ocean County. Photo/Paul Leakan

Pinelands National Reserve Calendar

The Pinelands Commission issued its sixth edition of the Pinelands National Reserve wall calendar in late November 2021.

The calendar features a theme of plants and animals and includes 38 stunning photos that showcase the native species that can be found in the Pinelands. The Pinelands is home to 850 species of plants and nearly 500 fish, bird, reptile, amphibian, mammal, and invertebrate species. This includes 92 plant species and 43 animal species that are listed as threatened or endangered.



Above: The front cover of the 2022 Pinelands National Reserve wall calendar features a photo of native, insect-eating pitcher plants.

The Commission worked with Rowan College at Burlington County to design and print the calendar. All of the photos were taken by members of the Commission's staff. Aside from the photos of the region's resources, the calendar includes State holidays, dates of Pinelands Commission meetings and important dates in Pinelands history.

A total of 820 copies of the calendar were printed and distributed free of charge at the Bass River State Forest, Batsto Visitor Center, Belleplain State Forest, Brendan T. Byrne State Forest, and the General Store at historic Whitesbog Village. The project was funded by the National Park Service.

Finances

Fiscal & Budget

The Commission's Operating Budget for Fiscal Year 2021 totaled $5,915,074. Of this, $4,955,565, or 83.78% percent, was budgeted for personnel expenses.

Budgeted revenue sources included $585,000 in federal grants, a $3,099,000 State appropriation, $688,000 in State grants and other State funding, $380,000 in application fees and $1,163,074 from the Commission's fund balance and reserves.

The 2021 budget for the Kirkwood-Cohansey Study, funded through legislation passed in 2001, was $31,624. The budget for the Pinelands Conservation Fund was $830,616.

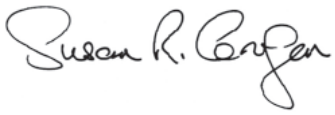
The Commission's Audit Report for Fiscal Year 2020, which ended June 30, 2020, is posted on the State Auditors web site. The website address is: https://www.njleg.state.nj.us/publications/auditor/03002221.pdf.

Pinelands Application Fees

Since April 2004, the Pinelands Commission has received application fees to partially underwrite the direct costs associated with reviewing development applications in the Pinelands Area. During Fiscal Year 2021, unaudited application fee revenues actually collected totaled $643,428.96, $264,030.47 more than Fiscal Year 2020.

Certification

As required by State Executive Order #37, all State authorities are required to certify that during the preceding year the authority has, to the best of its knowledge, followed all of the authority's standards, procedures, and internal controls. I hereby certify to the best of my knowledge that, during the 2021 calendar year, all of the Commission's standards, procedures, and internal controls were followed.



Susan R. Grogan
Acting Executive Director

Scenes around the Pinelands in 2021



Above: This bald eagle was photographed from a distance in the Pinelands in November 2021. Once nearly extinct, the bald eagle population in New Jersey is now soaring, thanks to conservation efforts.



Above: A bright pink sunset reflected off Atsion Lake in Wharton State Forest in this photo that was taken in mid-November of 2021. Wharton State Forest encompasses approximately 122,800 acres.



Above: This variegated fritillary butterfly was photographed on a patch of native, sweet goldenrod at the Pinelands Commission's headquarters in August 2021.



Above: Native sheep laurel could be seen blooming in the Pinelands in late May. The deep pink blooms brighten the landscape.

Photos by Paul Leakan
NJ Pinelands Commission



Cover image: Reflections of Atlantic white cedars in the dark water of Skit Branch in Wharton State Forest. Photo/John Bunnell

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-13____

TITLE: To Authorize the Acting Executive Director to Submit an Application to the New Jersey Historic Trust for a 2022 Preserve New Jersey Historic Preservation Fund Grant and to Certify the Availability of Matching Funds

Commissioner _____Avery_____moves and Commissioner __Lohbauer_____ seconds the motion that:

WHEREAS, the New Jersey Historic Trust is offering matching grants for Historic Site Management through the Preserve New Jersey Historic Preservation Fund in 2022 for a wide range of historic preservation projects; and

WHEREAS, agencies and entities of the State government are eligible to apply for grants through this program; and

WHEREAS, to be eligible for a grant, a property must be listed in or eligible to be listed in the New Jersey Register of Historic Places and/or the National Register of Historic Places; and

WHEREAS, Fenwick Manor is listed in both the New Jersey and National Registers of Historic Places; and

WHEREAS, Historic Site Management applicants may apply for grants of $5,000-$75,000; and

WHEREAS, Historic Site Management grants require the recipient to provide matching funds on a 3:1 basis, with the Historic Trust funding 75 percent of the total project cost and the grantee responsible for the remaining 25 percent; and

WHEREAS, the New Jersey Historic Trust requires an applicant to obtain the formal authorization of its governing body for submission of the grant application and to document the availability and commitment of matching funds; and

WHEREAS, the Commission wishes to apply for a Historic Site Management grant that will be used to develop a Preservation Plan to identify and prioritize future restoration and rehabilitation tasks associated with Fenwick Manor according to the *Secretary of the Interior's Standards*; and

WHEREAS, in its Fiscal Year 2016, 2017, 2018 and 2019 adopted budgets, the Pinelands Commission reserved funding for the rehabilitation and preservation of Fenwick Manor, of which a maximum of $25,000 is available to match a Historic Site Management grant; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE, be it resolved that:

1. The Pinelands Commission hereby approves and endorses an application for a Historic Site Management grant through the New Jersey Historic Trust and the Preserve New Jersey Historic Preservation Fund for the development of a Preservation Plan for the National and State Register listed Fenwick Manor.

2. The Pinelands Commission hereby certifies that it will provide all necessary matching funds, up to a maximum of $25,000.

3. The Acting Executive Director is hereby authorized to submit the grant application and confirm and sign all assurances associated with that application.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-__14____

TITLE: Expressing the Pinelands Commission's Gratitude for the Restoration of Payment in Lieu of Taxes Funding to Pinelands Municipalities in Fiscal Year 2022 and Supporting the Pinelands Municipal Council's Request for Continued Funding in Future Fiscal Years

Commissioner _____Lloyd_____ moves and Commissioner ____Irick_____ seconds the motion that:

WHEREAS, the Pinelands Protection Act of 1979 recognized the Pinelands Area as an area comprised of significant and unique natural, ecological, agricultural, scenic, cultural and recreational resources, among them pine-oak forests, cedar swamps and extensive surface and ground water resources of high quality that provide unique habitat for a wide diversity of rare plant and animal species; and

WHEREAS, to ensure protection of the Pinelands Area from the threat posed by development pressure, the Pinelands Protection Act directed the Pinelands Commission to adopt a comprehensive management plan designed to protect, preserve and enhance the significant values of the resources of the Pinelands Area; and

WHEREAS, through its implementation of the Comprehensive Management Plan, the Pinelands Commission has successfully safeguarded the core of the Pinelands Area while channeling growth toward designated areas with the infrastructure needed to support it; and

WHEREAS, the success of the Pinelands Comprehensive Management Plan is enhanced by land acquisition and preservation that permanently protects the resources of the Pinelands, supports appropriate growth, and prevents piecemeal and scattered development; and

WHEREAS, municipalities within the Pinelands are uniquely characterized by higher rates of land preservation and more land in conservation-oriented zoning districts than non-Pinelands municipalities; and

WHEREAS, as of June 30, 2021, 51% of the Pinelands Area (480,500 acres) has been permanently protected through a variety of state, county, municipal and private efforts; and

WHEREAS, the Pinelands Commission supports continued land preservation efforts in the Pinelands Area while also recognizing the need to maintain vibrant and diverse communities through strong, stable municipal financial structures; and

WHEREAS, the Payment in Lieu of Taxes (PILOT) program was established on June 30, 1999 through adoption of the Garden State Preservation Trust Act and was renewed in 2010; and

WHEREAS, the PILOT program recognized the unique municipal budget challenges of municipalities that host significant areas land preservation by extending payments in lieu of taxes so that these municipalities do not suffer a loss of tax revenue due to state acquisition of lands; and

WHEREAS, the PILOT program has been an important component of municipal revenue where future growth is limited by the State's permanent land preservation efforts; and

WHEREAS, for State Fiscal Year 2022, Governor Murphy and the Legislature of the State of New Jersey fully restored funding of the PILOT program; and

WHEREAS, at its January 26, 2022 meeting, the Pinelands Municipal Council adopted Resolution 2022-01 to express its gratitude for the restored PILOT funding and request that the Governor and State Legislature continue full funding under the Garden State Preservation Trust Act in future fiscal years; and

WHEREAS, the Pinelands Commission wishes to join the Pinelands Municipal Council in expressing its thanks to the Governor and Legislature for restoring PILOT funding to Pinelands municipalities; and

WHEREAS, the Pinelands Commission also supports full funding of the PILOT program in future fiscal years as a means to enhance land preservation efforts in the Pinelands Area and to sustain Pinelands municipalities that host significant areas of preserved land; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that

1. The Pinelands Commission hereby expresses its gratitude for the Governor's and State Legislature's support of Pinelands municipalities and land preservation efforts through the reinstatement of PILOT program funding for Fiscal Year 2022.

2. The Pinelands Commission hereby joins the Pinelands Municipal Council in requesting that the PILOT Program continue to be fully funded in the State's Fiscal Year 2023 budget and beyond.

3. The Executive Director shall forward a copy of this resolution to the Governor, members of the State Legislature and the Pinelands Municipal Council.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade	X			
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-__15____

TITLE: Amending and Supplementing Resolution PC4-20-37 to Clarify the Objectives of the Pinelands Commission Relative to Climate Change in the Pinelands Area and the Responsibilities of the Pinelands Climate Committee

Commissioner ____Jannarone_____ moves and Commissioner ____Lohbauer_____ seconds the motion that:

WHEREAS, the Chairman of the Pinelands Commission established the Land Use, Climate Impacts and Sustainability (LUCIS) Committee in December 2018; and

WHEREAS, in order to ensure that the policies, practices, regulations and actions of the Pinelands Commission serve to mitigate, not exacerbate, the impacts of climate change, the Commission adopted Resolution PC4-20-37 on November 13, 2020, setting forth the responsibilities and objectives of the LUCIS Committee and the Commission as a whole; and

WHEREAS, Resolution PC4-20-37 calls for the Executive Director and Chair of the Personnel & Budget Committee to examine all of the Commission's facilities, day-to-day operations and management practices, update the LUCIS Committee on the results of said examination and present to the Commission for its consideration recommended operational changes that would mitigate greenhouse gas emissions to the greatest extent feasible; and

WHEREAS, Resolution PC4-20-37 further specifies that the LUCIS Committee shall coordinate with the New Jersey Department of Environmental Protection, the Board of Public Utilities and other state agencies and departments on their efforts to mitigate the impacts of climate change in New Jersey; and

WHEREAS, Resolution PC4-20-37 also charges the LUCIS Committee with the responsibility of identifying existing Comprehensive Management Plan (CMP) standards that may be strengthened and new CMP standards that may be adopted to mitigate the effects of climate change on the Pinelands environment and to recommend such standards to the Commission for consideration as proposed amendments to the CMP; and

WHEREAS, Resolution PC4-20-37 specifies that the LUCIS Committee may also take other actions and make other recommendations to the Commission consistent with Resolution PC4-20-37, the Pinelands Protection Act and the CMP; and

WHERAS, the LUCIS Committee was renamed as the Pinelands Climate Committee in April 2021; and

WHEREAS, at its December 1, 2021 meeting, the Pinelands Climate Committee discussed the mechanisms by which the Commission could best express its support for and intention to implement the goals of the New Jersey Global Warming Response Act of 2007; and

WHEREAS, the New Jersey Global Warming Response Act (P.L. 2007, c.112, P.L. 2019, c.197) requires that no later than January 1, 2050, Statewide greenhouse gas emissions shall be stabilized at or below 80 percent of the 2006 Statewide greenhouse gas emissions and shall not exceed that level thereafter; and

WHEREAS, on October 15, 2020, in response to the 2019 amendments to the Global Warming Response Act, the New Jersey Department of Environmental Protection issued its 80x50 Report containing strategies across seven emission sectors for reducing emissions to 80 percent below their 2006 levels by the year 2060; and

WHEREAS, at its December 1, 2021 meeting, the Pinelands Climate Committee also discussed the importance of developing standards that would allow for an evaluation of climate impacts when development applications are submitted to the Commission, as well as the identification of alternative measures that such applications might propose to avoid or minimize such impacts; and

WHEREAS, the Pinelands Climate Committee has recommended that the Commission amend and supplement Resolution PC4-20-37 to expressly reference the Global Warming Response Act and the development of CMP standards; and

WHEREAS, the Pinelands Commission wishes to amend and supplement Resolution PC4-20-37 accordingly; and

WHEREAS, pursuant to N.J.S.A. 13:18A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period the Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Pinelands Commission Resolution PC4-20-37 is hereby amended and supplemented as follows:

1. The Pinelands Commission supports the goals of the New Jersey Global Warming Response Act of 2007, as amended, and is committed to implementing strategies through its daily operations and long-term planning and regulatory efforts that will contribute to the State's meeting its 2050 greenhouse gas emission target.

2. The Pinelands Climate Committee shall consider, among other resources, the strategies included in the New Jersey Department of Environmental Protection's 80x50 Report for meeting the Statewide greenhouse gas emission target as it develops and considers operational policies and potential CMP amendments related to climate change.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery	X				Jannarone	X				Meade			X	
Christy			X		Lettman	X				Pikolycky	X			
Higginbotham			X		Lloyd	X				Quinn	X			
Holroyd	X				Lohbauer	X				Matos	X			
Irick	X				McCurry	X								

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: March 11, 2022

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

2021 Annual Report



March 11, 2022

2021 Annual Report

- Required by the Pinelands Protection Act and Executive Order.
- Highlights the Commission's work during the 2021 calendar year.

Scenes around the Pinelands in 2021



Above: This bald eagle was photographed from a distance in the Pinelands in November 2021. Once nearly extinct, the bald eagle population in New Jersey is now soaring, thanks to conservation efforts.



Above: A bright pink sunset reflected off Atsion Lake in Wharton State Forest in this photo that was taken in mid-November of 2021. Wharton State Forest encompasses approximately 122,800 acres.



Above: This variegated fritillary butterfly was photographed on a patch of native, sweet goldenrod at the Pinelands Commission's headquarters in August 2021.



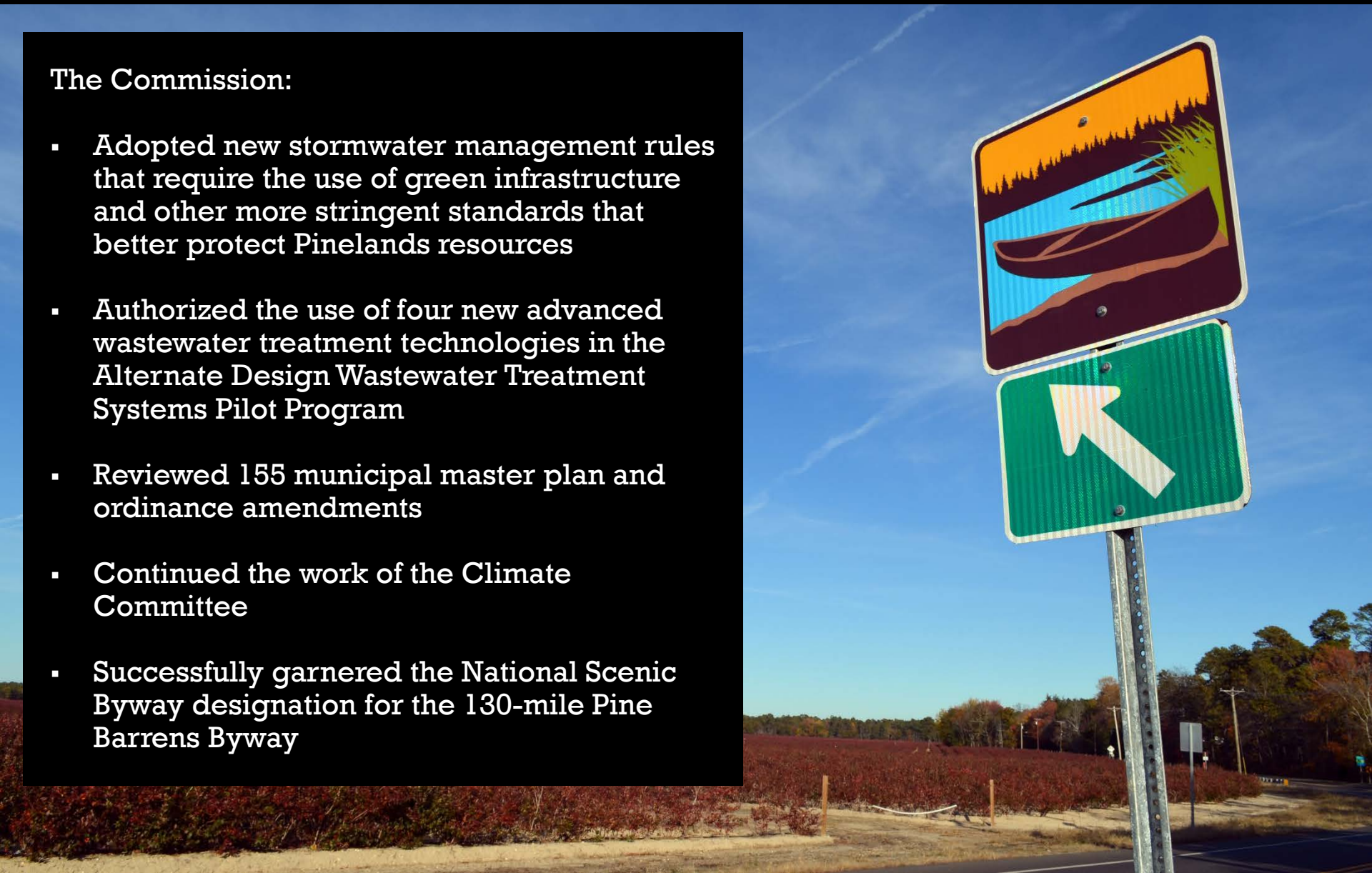
Above: Native sheep laurel could be seen blooming in the Pinelands in late May. The deep pink blooms brighten the landscape.

Photos by Paul Leakan
NJ Pinelands Commission

2021 Planning Activities

The Commission:

- Adopted new stormwater management rules that require the use of green infrastructure and other more stringent standards that better protect Pinelands resources
- Authorized the use of four new advanced wastewater treatment technologies in the Alternate Design Wastewater Treatment Systems Pilot Program
- Reviewed 155 municipal master plan and ordinance amendments
- Continued the work of the Climate Committee
- Successfully garnered the National Scenic Byway designation for the 130-mile Pine Barrens Byway



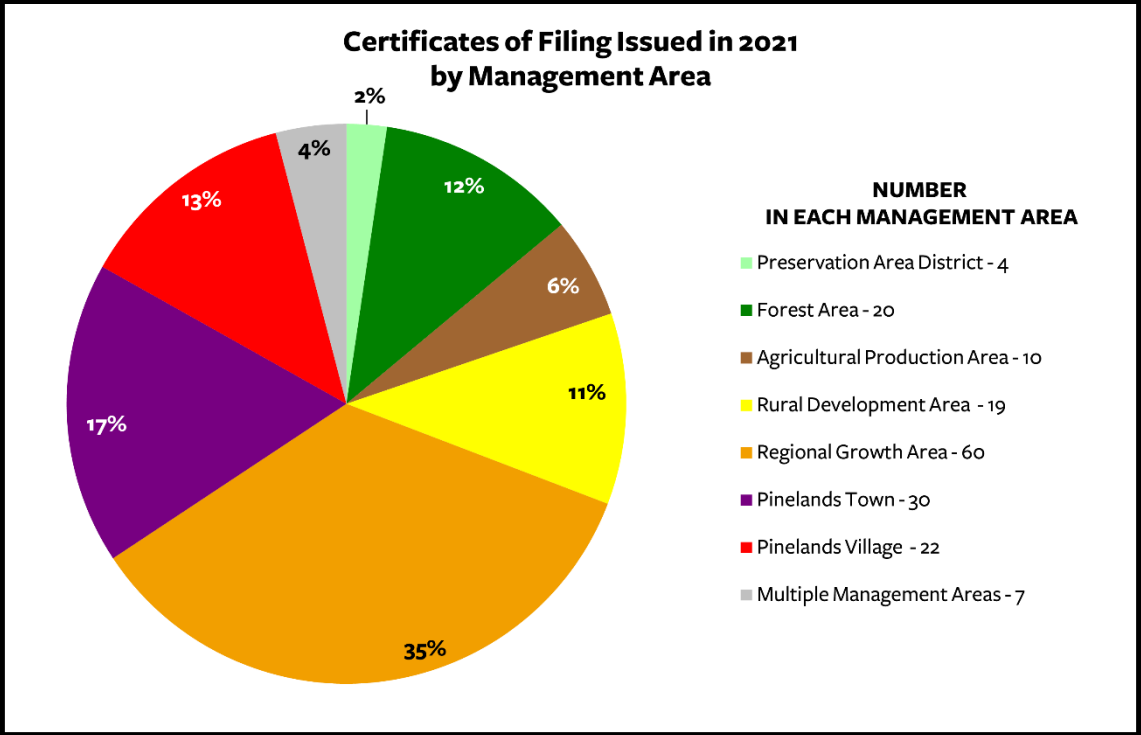
Pinelands Development Credit Program 2021 Activity



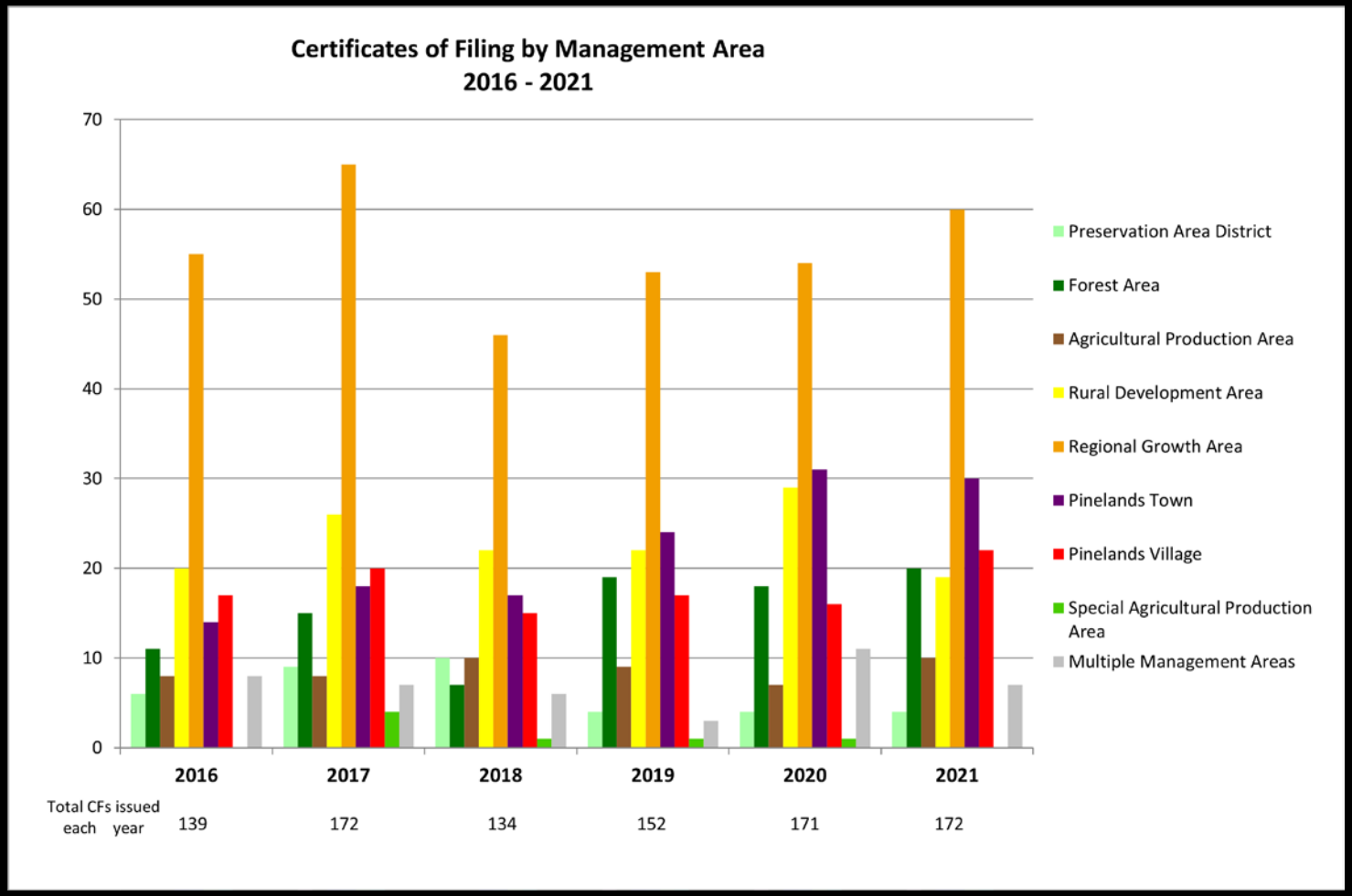
- 72.70 PDCs were allocated to 36 sending area properties.
- 53.00 PDCs were severed, protecting 1,705 acres in the APA and SAPA. Since 1982, 57,147 acres in the Pinelands Area have been permanently preserved through the PDC Program.
- 31.25 PDCs were sold, with an average sales price of $57,752 per PDC ($13,000 higher than the average sales price in 2020).
- 60.00 PDCs were redeemed for projects in 9 municipalities.

2021 Regulatory Activities

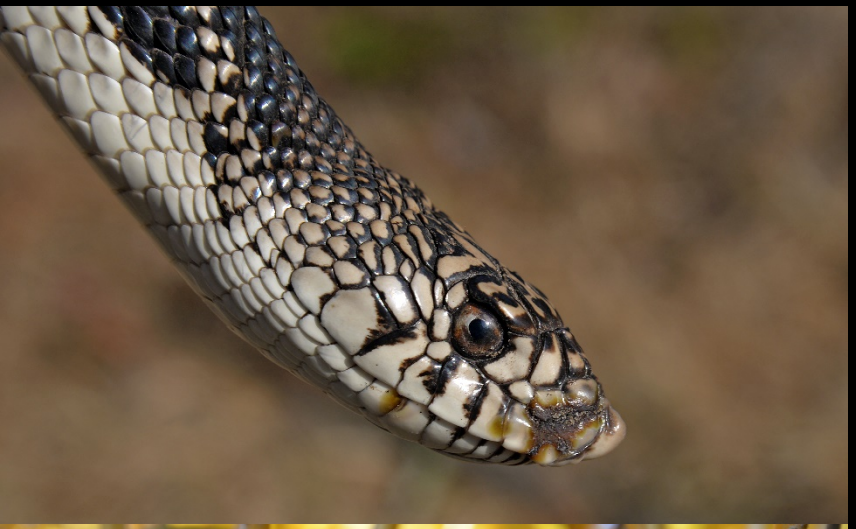
- 172 Certificates of Filing were issued, signifying the completion of private development applications.
- 65% (112) were for residential development
- 65% (112) were for projects in RGAs, Towns or Villages (development-oriented management areas)



2021 Regulatory Activities



2021 Science & Research Activities





The Commission advanced numerous research projects, including work on:

Snake Fungal Disease

Rare Snake Population Monitoring

Microorganism Study

Endocrine Disruption Study

Joint Corn Snake Radio Tracking Fence Study

Eastern Kingsnake Study

Corn Snake and Kingsnake Genetic Research

Ground Skink eDNA Study

Eastern Box Turtle Study

Long-term Environmental Monitoring (surveys of frogs and toads and water quality and water levels)

Public Information, Education & Outreach 2021 Activity

Responded to more than 1,574 public inquiries;

Organized, hosted and recorded 28 educational webinar presentations;

Maintained, enhanced and reviewed every page and link on the Commission's website, which was viewed a total of 177,712 times;

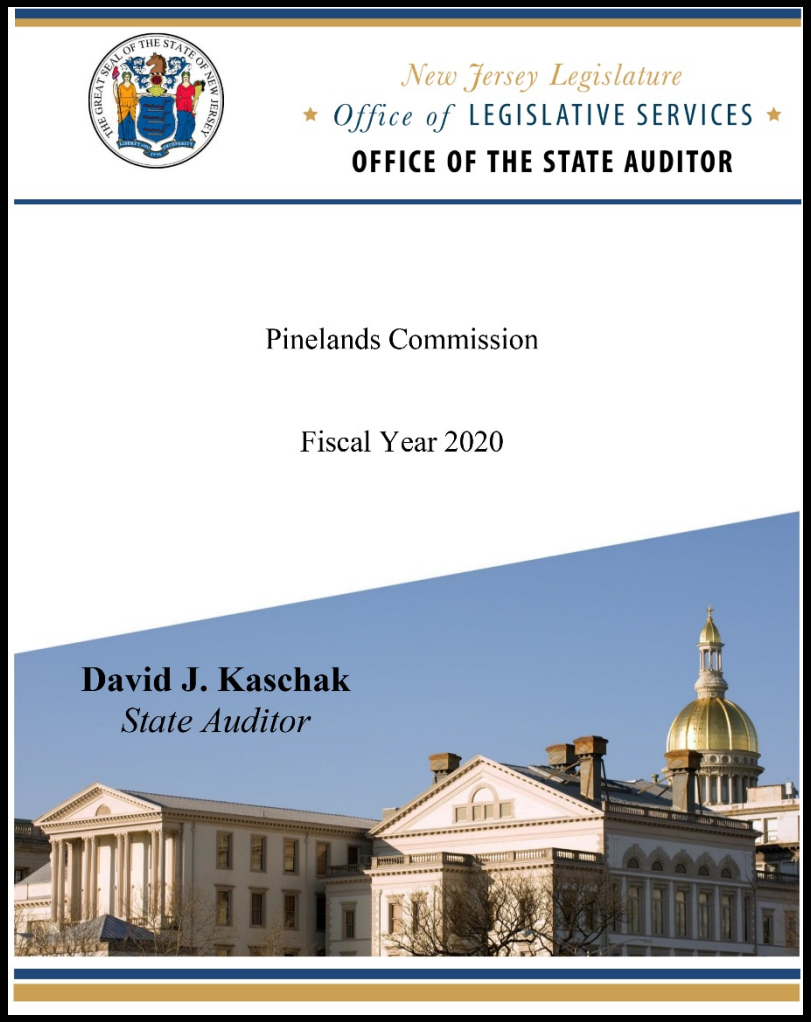
Launched a new Twitter page;

Took and shared 1,065 photos on Instagram and 39 videos on YouTube; and

Organized and carried out the first-ever virtual Pinelands Short Course, the fifth annual Pinelands Summer Short Course and the first virtual Pinelands Orientation for Newly Elected Officials.



2021 Finances



The Commission's 2020 Fiscal Year Audit, which ended June 30, 2020, included no compliance findings or questioned costs.

During Fiscal Year 2021, application fee revenue totaled $643,428.96. This was a $264,000 increase from Fiscal Year 2020.

Celebrating 40 Years of the Pinelands Comprehensive Management Plan (CMP)



The Pinelands CMP turned 40 on January 14, 2021.

The Commission marked the milestone by creating and sharing videos, numerous informative social media posts and e-mails.

Pictured: Roundtable Reflection with original Commission members and staff.


The End

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-_____

TITLE: **Approving** With Conditions Applications for **Public Development** (Application Numbers 2018-0163.001 & 2021-0284.001)

Commissioner _____ moves and Commissioner _____ seconds the motion that:

WHEREAS, the Pinelands Commission has reviewed the Public Development Application Reports and the recommendation of the Acting Executive Director that the following applications for Public Development be approved with conditions:

2018-0163.001	
Applicant:	**Weston Solutions, Inc. on behalf of the United States Army Corps of Engineers**
Municipality:	Borough of Lakehurst Manchester Township
Management Area:	Pinelands Town Pinelands Regional Growth Area
Date of Report:	March 18, 2022
Proposed Development:	Installation of 2,200 linear feet of water main; and

2021-0284.001	
Applicant:	**New Jersey Department of Transportation**
Municipality:	Town of Hammonton
Management Area:	Pinelands Town
Date of Report:	March 15, 2022
Proposed Development:	Installation of 534 linear feet of four-foot-wide sidewalk within the Route 30 right-of-way.

WHEREAS, no request for a hearing before the Office of Administrative Law concerning the Acting Executive Director's recommendation has been received for any of these applications; and

WHEREAS, the Pinelands Commission hereby adopts the Conclusion of the Acting Executive Director for each of the proposed developments; and

WHEREAS, the Pinelands Commission hereby determines that each of the proposed public developments conform to the standards for approving an application for public development set forth in N.J.A.C. 7:50-4.57 if the conditions recommended by the Acting Executive Director are imposed; and

WHEREAS, pursuant to N.J.S.A. 13A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period and Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Application Numbers 2018-0163.001 & 2021-0284.001 for public development are hereby **approved** subject to the conditions recommended by the Acting Executive Director.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery					Jannarone					Meade				
Christy					Lettman					Pikolycky				
Higginbotham					Lloyd					Quinn				
Holroyd					Lohbauer					Matos				
Irick					McCurry									

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: _____

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

March 18, 2022

Elizabeth Bolt (via email)
Weston Solutions, Inc.
1400 Weston Way, Building 5-1
West Chester, PA 19380

Re: Application # 2018-0163.001
Block 66, Lot 1 & State Route 70
Borough of Lakehurst
Ridgeway Boulevard
Borough of Lakehurst & Manchester Township

Dear Ms. Bolt:

The Commission staff has completed its review of this application for installation of 2,200 linear feet of water main within the Route 70 and Ridgeway Boulevard rights-of-way. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its April 8, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure
c: Secretary, Borough of Lakehurst Planning Board (via email)
Borough of Lakehurst Construction Code Official (via email)
Secretary, Manchester Township Planning Board (via email)
Manchester Township Construction Code Official (via email)
Manchester Township Environmental Commission (via email)
Secretary, Ocean County Planning Board (via email)

State of New Jersey
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LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PUBLIC DEVELOPMENT APPLICATION REPORT

March 18, 2022

Elizabeth Bolt (via email)
Weston Solutions, Inc.
1400 Weston Way, Building 5-1
West Chester, PA 19380

Application No.: 2018-0163.001
Block 66, Lot 1 & State Route 70
Borough of Lakehurst
Ridgeway Boulevard
Borough of Lakehurst & Manchester Township

This application proposes installation of 2,200 linear feet of water main within the Borough of Lakehurst and Manchester Township.

Approximately 217 linear feet of water main will be located within the Route 70 right-of-way in the Borough of Lakehurst. Approximately 1,874 linear feet of water main will be located within the Ridgeway Boulevard right-of-way in the Borough of Lakehurst and Manchester Township. Approximately 109 linear feet of water main will be located within a utility easement on Block 66, Lot 1 in the Borough of Lakehurst.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.27 & 5.28)

The proposed development is located in the Pinelands Town of Lakehurst and in a Pinelands Regional Growth Area in Manchester Township. The proposed development is a permitted land use in a Pinelands Town and a Pinelands Regional Growth Area.

Wetlands Standards (N.J.A.C. 7:50-6.6 & 6.13)

The CMP prohibits most development in wetlands and requires up to a 300 foot buffer to wetlands.

An approximately 50 foot section of the proposed water main will be located in wetlands associated with a stream (Manapaqua Branch). An approximately 500 foot section of the proposed water main will be located within the required 300 foot buffer to wetlands. This 500 foot section of the water main will be installed within the maintained grass shoulder of Ridgeway Boulevard.

The applicant proposes to install a total of 250 linear feet of the water main via horizontal directional drilling (HDD). Of that 250 feet, a 50 foot section of the water main will be installed under wetlands associated with the Manapaqua Branch; a 100 foot section will be installed in the required 300 foot buffer to wetlands; and a 100 foot section will be installed under a paved parking area that is located outside of wetlands and the required buffer to wetlands.

The CMP permits the installation of linear improvements (water mains) in wetlands and the required buffer to wetlands provided the applicant demonstrates that certain CMP specified conditions are met. The applicant has demonstrated that there is no feasible alternative to the proposed development that does not involve development in wetlands or the required buffer to wetlands that will result in a less significant adverse impact to wetlands. To mitigate impact to wetlands, the application proposes to install a 50 linear foot section of the water main under the wetland associated with the Manapaqua Branch via HDD. Based upon the proposed water main being located at least four feet below the bottom of the stream channel and the provision of a Horizontal Directional Drilling Contingency Plan to address any potential break outs of drilling fluid, the proposed development will not result in a substantial impairment of the resources of the Pinelands. The water main is proposed to provide potable water to existing development with contaminated potable water wells in the Borough of Lakehurst and Manchester Township. The applicant has demonstrated that the need for the proposed development overrides the importance of protecting the wetlands and the required buffer to wetlands.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

Other than the 50 feet under the Manaqua Stream, the proposed water main will be located within a maintained grass road shoulder and under paved surfaces. The proposed soil disturbance is limited to that which is necessary to accommodate the development.

The Landscaping and Re-vegetation Guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. The applicant proposes to utilize a seed mixture which meets that recommendation.

PUBLIC COMMENT

The CMP defines the proposed development as “minor.” The CMP does not require public notice for minor public development applications. The application was designated as complete on the Commission’s website on February 28, 2022. The Commission’s public comment period closed on March 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of 26 sheets, prepared by Weston Solutions, Inc., all sheets dated August 12, 2020 and revised to January 6, 2022.

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

5. Appropriate measures shall be taken during construction to preclude sedimentation from entering wetlands and shall be maintained in place until all development has been completed and the area has been stabilized.

6. The applicant shall engage an independent licensed professional engineer with proven experience in Horizontal Directional Drilling (HDD) to be present at all times HDD activities are being undertaken. The independent engineer shall:

    a. Ensure that all HDD activities are conducted in accordance with all approved plans;

    b. Ensure that appropriate measures, such as installation of silt fence, hay bales, inflatable berm, etc. are taken during HDD activities to prevent the discharge of drilling fluid to wetlands, streams or any other water body or beyond the immediate confines of the drill site;

    c. Monitor drill hole pressures and walk the area in which HDD activities are being conducted to identify any potential break outs of drilling fluid; and

    d. Be responsible for immediate implementation of the Horizontal Directional Drilling Contingency Plan should a break out of drilling fluid occur and require the immediate cessation of all HDD activities. The applicant shall within 24 hours notify the Pinelands Commission's Acting Executive Director via email at info@pinelands.nj.gov of the location of the break out and advise as to the response actions being taken to address the break out in accordance with the Horizontal Directional Drilling Contingency Plan.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

State of New Jersey
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PHILIP D. MURPHY
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SHEILA Y. OLIVER
Lt. Governor

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on April 5, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

March 15, 2022

Brenna Fairfax (via email)
New Jersey Department of Transportation
P.O. Box 600
Trenton, NJ 08625

Re: Application # 2021-0284.001
U.S. Route 30
Town of Hammonton

Dear Ms. Fairfax:

The Commission staff has completed its review of this application for installation of 534 linear feet of four foot wide sidewalk within the Route 30 right-of-way. Enclosed is a copy of a Public Development Application Report. On behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its April 8, 2022 meeting.

Any interested party may appeal this recommendation in accordance with the appeal procedure attached to this document. If no appeal is received, the Pinelands Commission may either approve the recommendation of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Prior to any development, the applicant shall obtain any other necessary permits and approvals.

Sincerely,

Charles M. Horner, P.P.
Director of Regulatory Programs

Enc: Appeal Procedure

c: Secretary, Town of Hammonton Planning Board (via email)
Town of Hammonton Construction Code Official (via email)
Town of Hammonton Environmental Commission (via email)
Atlantic County Department of Regional Planning and Development (via email)

State of New Jersey
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SHEILA Y. OLIVER
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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PUBLIC DEVELOPMENT APPLICATION REPORT

March 15, 2022

Brenna Fairfax (via email)
New Jersey Department of Transportation
P.O. Box 600
Trenton, NJ 08625

Application No.: 2021-0284.001
U.S. Route 30
Town of Hammonton

This application proposes installation of 534 linear feet of four foot wide sidewalk within the Route 30 right-of-way in the Town of Hammonton. The proposed 534 linear feet of sidewalk is comprised of five non-contiguous sections of sidewalk within the Route 30 right-of-way between Central Avenue and Moss Mill Road.

The applicant proposes the repaving of portions of Route 30 and the installation of traffic signage. The repaving of portions of Route 30, provided no increase in the paved width occurs, does not require application to the Pinelands Commission in accordance with the Pinelands Comprehensive Management Plan (CMP, N.J.A.C. 7:50-4.1(a)11). The installation of traffic signs does not require application to the Pinelands Commission in accordance with the CMP (N.J.A.C. 7:50-4.1(a)4).

The applicant also proposes the replacement of guiderail. The in-kind replacement of existing guardrails does not require application to the Pinelands Commission.

STANDARDS

The Commission staff has reviewed the proposed development for consistency with all standards of the Pinelands Comprehensive Management Plan (CMP). The following reviews the CMP standards that are relevant to this application:

Land Use (N.J.A.C. 7:50-5.27(a))

The proposed development is located within the Pinelands Town of Hammonton. The proposed development is a permitted land use in a Pinelands Town.

Vegetation Management Standards (N.J.A.C. 7:50-6.23 & 6.26)

The proposed development will be located within existing maintained grassed areas. The proposed soil disturbance is limited to that which is necessary to accommodate the proposed development.

The Landscaping and Revegetation guidelines of the CMP recommend the use of grasses that are tolerant of droughty, nutrient poor conditions. The applicant proposes to utilize a seed mixture which meets that recommendation.

PUBLIC COMMENT

The CMP defines the proposed development as "minor." The CMP does not require public notice for minor public development applications. The application was designated as complete on the Commission's website on February 9, 2022. The Commission's public comment period closed on March 11, 2022. No public comment was submitted to the Commission regarding this application.

CONDITIONS

1. Except as modified by the below conditions, the proposed development shall adhere to the plan, consisting of seven sheets, prepared by HNTB Corporation, all sheets dated December 20, 2021.

2. Disposal of any construction debris or excess fill may only occur at an appropriately licensed facility.

3. Any proposed revegetation shall adhere to the "Vegetation" standards of the CMP. Where appropriate, the applicant is encouraged to utilize the following Pinelands native grasses for revegetation: Switch grass, Little bluestem and Broom-sedge.

4. Prior to any development, the applicant shall obtain any other necessary permits and approvals.

CONCLUSION

As the proposed development conforms to the standards set forth in N.J.A.C. 7:50-4.57, it is recommended that the Pinelands Commission **APPROVE** the proposed development subject to the above conditions.

State of New Jersey
THE PINELANDS COMMISSION
PO BOX 359
NEW LISBON, NJ 08064
(609) 894-7300
www.nj.gov/pinelands

PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

PINELANDS COMMISSION
APPEAL PROCEDURE

The Pinelands Comprehensive Management Plan (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal any determination made the by Executive Director to the Commission in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on April 4, 2022 and include the following information:

1. the name and address of the person requesting the appeal;

2. the application number;

3. the date on which the determination to be appealed was made;

4. a brief statement of the basis for the appeal; and

5. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

Within 15 days following receipt of a notice of valid appeal, the Executive Director shall initiate the procedures for assignment of an Administrative Law Judge to preside at the hearing pursuant to the Administrative Procedures Act, N.J.S.A. 52:14B-1 et seq., and the procedures established by the Office of Administrative Law. The time, date and location of such hearing shall be designated by the Office of Administrative Law.

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-22-_____

TITLE: **Approving** With Conditions an Application for a **Waiver of Strict Compliance** (Application Number 2020-0238.001)

Commissioner _____ moves and Commissioner _____ seconds the motion that:

WHEREAS, the Pinelands Commission has reviewed each of the Findings of Fact, Conclusion and the recommendation of the Acting Executive Director that the following application for Waiver of Strict Compliance be approved with conditions:

2020-0238.001	
Applicant:	**Malkiel David**
Municipality:	Jackson Township
Management Area:	Pinelands Regional Growth Area
Date of Report:	March 15, 2022
Proposed Development:	Single family dwelling.

WHEREAS, no request for a hearing before the Office of Administrative Law concerning the Acting Executive Director's recommendation has been received for this application; and

WHEREAS, the Pinelands Commission hereby adopts the Findings of Fact and Conclusion of the Acting Executive Director for the requested Waiver of Strict Compliance; and

WHEREAS, the Pinelands Commission hereby determines that the requested Waiver conforms to the standards for approving an application for a Waiver of Strict Compliance based on extraordinary hardship as set forth in N.J.A.C 7:50-4.62, N.J.A.C. 7:50-4.63 and N.J.A.C. 7:50-4.65 if the conditions recommended by the Acting Executive Director are imposed; and

WHEREAS, pursuant to N.J.S.A. 13A-5h, no action authorized by the Commission shall have force or effect until ten (10) days, Saturdays, Sundays and public holidays excepted, after a copy of the minutes of the meeting of the Commission has been delivered to the Governor for review, unless prior to expiration of the review period and Governor shall approve same, in which case the action shall become effective upon such approval.

NOW, THEREFORE BE IT RESOLVED that Application Number 2020-0238.001 for a Waiver of Strict Compliance is hereby **approved** subject to the conditions recommended by the Acting Executive Director.

Record of Commission Votes

	AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*		AYE	NAY	NP	A/R*
Avery					Jannarone					Meade				
Christy					Lettman					Pikolycky				
Higginbotham					Lloyd					Quinn				
Holroyd					Lohbauer					Matos				
Irick					McCurry									

*A = Abstained / R = Recused

Adopted at a meeting of the Pinelands Commission Date: _____

Susan R. Grogan
Acting Executive Director

Laura E. Matos
Chair

State of New Jersey
THE PINELANDS COMMISSION
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PHILIP D. MURPHY
Governor
SHEILA Y. OLIVER
Lt. Governor

General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

REPORT ON AN APPLICATION FOR A WAIVER OF STRICT COMPLIANCE

March 15, 2022

Malkiel David (via email)
0 Cannon Road, LLC
15 America Avenue
Suite 301A
Lakewood, NJ 08701

Re: Application # 2020-0238.001
Block 20601, Lot 4
Jackson Township

Dear Mr. David:

The Commission staff has completed its review of this application for a Waiver of Strict Compliance ("Waiver") proposing the development of one single family dwelling on the above referenced parcel. Based upon the facts and conclusions contained in this Report, on behalf of the Commission's Acting Executive Director, I am recommending that the Pinelands Commission approve the application with conditions at its April 8, 2022 meeting.

FINDINGS OF FACT

This application is for the development of one single family dwelling, serviced by an alternate design onsite septic system, on the above referenced 2.35 acre parcel in Jackson Township. The parcel is located in a Pinelands Regional Growth Area and in Jackson Township's RG-2 zoning district. In this zoning district, Jackson Township's certified land use ordinance establishes a minimum lot size of 1.0 acre to develop a single family dwelling serviced by an alternate design onsite septic system.

The parcel has been site inspected by a member of the Commission's staff. In addition, the appropriate resource capability maps and data available to the staff have been reviewed.

The Pinelands Comprehensive Management Plan (CMP, N.J.A.C. 7:50-6.14) requires that the development proposed in this application maintain a 300 foot buffer to wetlands unless the applicant demonstrates that a lesser buffer to wetlands will not result in a significant adverse impact on wetlands. A portion of the parcel is wetlands as defined in the CMP (N.J.A.C. 7:50-6.5(a)2). The wetlands continue onto adjacent lands. Any development of the parcel would be located within 300 feet of these wetlands. The applicant has submitted no information to demonstrate that the proposed development will not cause a significant adverse impact on the wetlands. Based on the quality and location of the wetlands, the proposed development will cause a significant adverse impact on the wetlands. As there

will be a significant adverse impact on wetlands located within 300 feet of the proposed development, the applicant is requesting a Waiver from the buffer to wetlands standard contained in the CMP (N.J.A.C. 7:50-6.14).

The CMP (N.J.A.C. 7:50-4.65(b)6) requires that for an applicant to qualify for a Waiver to develop a single family dwelling in a Pinelands Regional Growth Area, it must be demonstrated that no development, including clearing and land disturbance, will be located on wetlands. The applicant has demonstrated that no development, including clearing and land disturbance, will be located on or within 175 feet of wetlands.

The parcel includes all contiguous land in common ownership on or after January 14, 1981. The proposed single family dwelling will be the sole principal use of the parcel. The development of a single family dwelling on the parcel will not require any lot area or residential density variances pursuant to Jackson Township's certified land use ordinance. A single family dwelling can be developed on the parcel without violating any criteria contained in N.J.A.C. 7:50-4.65(b) if the conditions recommended below are imposed.

PUBLIC COMMENT

The applicant has provided the requisite public notice. Newspaper public notice was completed on December 22, 2021. Public notice to all property owners within 200 feet of the parcel was completed on December 16, 2021. The application was designated as complete on the Commission's website on February 17, 2022. The Commission's public comment period closed on March 11, 2022. No public comment regarding this application was submitted to the Pinelands Commission.

CONCLUSION

The CMP (N.J.A.C. 7:50-4.62) sets forth the standards which must be met before a Waiver can be approved. The CMP (N.J.A.C. 7:50-4.62(a)) requires that for a Waiver application to be approved based on an extraordinary hardship, the applicant must demonstrate that the conditions of either N.J.A.C. 7:50-4.63(a) or (b) of the CMP have been met.

The CMP (N.J.A.C. 7:50-4.63(a)) sets forth five conditions which must be met for an applicant to qualify for an extraordinary hardship pursuant to that subsection.

The first condition is that the only relief sought is from one or more of the standards contained in N.J.A.C. 7:50-6 for certain development specified in N.J.A.C. 7:50-4.63(a)1. This application is only for a Waiver from the wetlands buffer standard contained in N.J.A.C. 7:50-6. One of the specified types of development in N.J.A.C. 7:50-4.63(a)1 is a single family dwelling on a parcel within a Pinelands Regional Growth Area which is at least 20,000 square feet, excluding road rights of way, in size and will be serviced by an onsite septic system. This application proposes a single family dwelling in a Pinelands Regional Growth Area that will be serviced by an onsite septic system on a 2.35 acre (102,366 square feet) lot. As a result, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)1v.

The second condition is that the parcel includes all contiguous land in common ownership on or after January 14, 1981, including lands which are contiguous as a result of ownership of other contiguous lands. Since the parcel includes all such contiguous land, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)2.

The third condition is that the proposed use will be the sole principal use on the entire contiguous parcel, except as expressly provided in N.J.A.C. 7:50-5.1(c). As the proposed single family dwelling will be the sole principal use on the parcel, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)3.

The fourth condition is that all necessary municipal lot area and residential density variances have been obtained if the parcel is located in a municipality whose master plan and land use ordinances have been certified by the Pinelands Commission. Jackson Township's master plan and land use ordinances have been certified by the Pinelands Commission. In the RG-2 zoning district, Jackson Township's certified land use ordinance establishes a minimum lot size of 1.0 acre to develop a single family dwelling serviced by an alternate design onsite septic system. This application proposes to develop a single family dwelling serviced by an alternate design onsite septic system on a 2.35 acre lot. No municipal lot area or density variance is required to develop the proposed single family dwelling. As a result, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)4.

The fifth condition is that the development of the parcel will not violate any of the criteria contained in N.J.A.C. 7:50-4.65(b). N.J.A.C. 7:50-4.65(a) precludes the granting of a Waiver which permits a parcel to be developed unless such development will be consistent with the purposes and provisions of the Pinelands Protection Act, the Federal Act and the CMP and will not result in a substantial impairment of the resources of the Pinelands Area. The CMP (N.J.A.C 7:50-4.65(b)) sets forth the circumstances which do not comply with N.J.A.C 7:50-4.65(a). With the conditions recommended below, the proposed development will not violate any of the circumstances contained in N.J.A.C. 7:50-4.65(b). As a result, the applicant meets the criteria set forth in N.J.A.C. 7:50-4.63(a)5.

Since the applicant meets all five conditions set forth in N.J.A.C. 7:50-4.63(a), the applicant has demonstrated that an extraordinary hardship exists pursuant to N.J.A.C. 7:50-4.62(a).

As required by N.J.A.C. 7:50-4.62(b), the proposed dwelling will not result in substantial impairment of the resources of the Pinelands or be inconsistent with the provisions of the Pinelands Protection Act, the Federal Act or the CMP in accordance with the criteria set forth in N.J.A.C. 7:50-4.65.

As required by N.J.A.C. 7:50-4.62(c), and with the conditions recommended below, the proposed dwelling will not involve trespass or create a public or private nuisance by being materially detrimental or injurious to other property or improvements in the area in which the parcel is located, increase the danger of fire or endanger public safety.

The CMP (N.J.A.C. 7:50-4.62(d)) requires that the Waiver only grant the minimum relief necessary to relieve the extraordinary hardship. The proposed single family dwelling is the minimum relief necessary to relieve the extraordinary hardship which has been shown to exist.

The CMP (N.J.A.C. 7:50-4.62(d)1iii) requires the acquisition and redemption of 0.25 Pinelands Development Credits (PDCs) whenever a Waiver provides relief from one or more of the standards of N.J.A.C. 7:50-6. As the application is obtaining a Waiver from the minimum buffer to wetlands standard (N.J.A.C. 7:50-6.14), a condition is included in this Report to require the applicant to purchase the requisite 0.25 Pinelands Development Credits.

To meet the requirements of N.J.A.C. 7:50-4.62, N.J.A.C. 7:50-4.63(a) and N.J.A.C. 7:50-4.65, the Pinelands Commission staff has determined that the parcel must be developed in accordance with the following conditions:

1. Except as modified by the below conditions, the proposed development shall adhere to the plan prepared by Haler Consulting, dated August 7, 2021.

2. The septic system shall be located in an area where the seasonal high water table is at least 5 feet below the natural ground surface and in the area shown on the above referenced plan.

3. Appropriate measures shall be taken prior to construction to preclude sedimentation from entering wetlands and shall be maintained in place until all development has been completed and the area has been stabilized.

4. Sufficient dry wells or a comparable alternative shall be installed to contain all stormwater runoff from the house.

5. The driveway shall be constructed of crushed stone or other permeable material.

6. The septic system shall be located at least 220 feet from all wetlands. All other development, including clearing and land disturbance, shall be located at least 175 feet from all wetlands. No development, including clearing and land disturbance, shall occur except as shown on the above referenced plan.

7. Except as provided in N.J.A.C. 7:50-5.1(c), the single family dwelling approved herein shall be the sole principal use of the parcel.

8. Prior to Commission issuance of a letter advising that any county or municipal approval or permit may take effect, the Commission must receive a letter from the Pinelands Development Credit Bank indicating that the requisite 0.25 Pinelands Development Credits have been acquired and submitted to the Pinelands Development Credit Bank for redemption.

9. This Waiver shall expire April 8, 2027 unless all necessary construction permits have been issued by that date. The Waiver shall also expire if any construction permit is allowed to expire or lapse after April 8, 2027, or if any renewal or extension of any permit or approval or issuance of a new construction permit is necessary after that date.

10. A copy of a recorded deed containing all of the above conditions shall be submitted to the Pinelands Commission prior to completing an application for development. The deed shall also specify that the conditions are being imposed pursuant to a Waiver of Strict Compliance referring to the application number. The deed shall state that the conditions are enforceable by the Pinelands Commission, Jackson Township, the Ocean County Health Department, and any other party of interest.

With the above conditions, the applicant qualifies for a Waiver from the requirements of N.J.A.C. 7:50-6.14 of the CMP.

Since the applicant meets the CMP Waiver requirements of N.J.A.C. 7:50-4.62, N.J.A.C. 7:50-4.63(a) and N.J.A.C. 7:50-4.65 for the development of one single family dwelling on the parcel, it is recommended that the Pinelands Commission **APPROVE** the requested Waiver subject to the above conditions.

APPEAL

The CMP (N.J.A.C. 7:50-4.91) provides an interested party the right to appeal this recommendation in accordance with N.J.A.C. 7:50-4.91. An interested party is someone who has a specific property interest sufficient to require a hearing on constitutional or statutory grounds. Only appeal requests submitted by someone meeting the definition of an interested party will be transmitted to the New Jersey Office of Administrative Law for a hearing. Any such appeal must be made in writing to the Commission and received by the Commission's office no later than 5:00 PM on April 4, 2022 and include the following information:

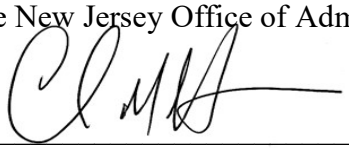
1. the name and address of the person requesting the appeal;

2. the application number;

3. a brief statement of the basis for the appeal; and

4. a certificate of service (a notarized statement) indicating that service of the notice has been made, by certified mail, on the clerk of the county, municipal planning board and environmental commission with jurisdiction over the property which is subject of this decision.

If no appeal is received, the Pinelands Commission may either approve the determination of the Acting Executive Director or refer the application to the New Jersey Office of Administrative Law for a hearing.

Recommended for Approval by: 

Charles M. Horner, P.P., Director of Regulatory Programs

c: Secretary, Jackson Township Planning Board (via email)
Jackson Township Construction Code Official (via email)
Jackson Township Environmental Commission (via email)
Secretary, Ocean County Planning Board (via email)
Ocean County Health Department (via email)
Eric Halpert (via email)

State of New Jersey
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PHILIP D. MURPHY
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General Information: Info@pinelands.nj.gov
Application Specific Information: AppInfo@pinelands.nj.gov

LAURA E. MATOS
Chair
SUSAN R. GROGAN
Acting Executive Director

MEMORANDUM

To: Members of the Pinelands Commission

From: Katie Elliott KE
Planning Specialist

Date: March 29, 2022

Subject: No Substantial Issue Findings

During the past month, the Planning Office reviewed two ordinance amendments that were found to raise no substantial issues with respect to the standards of the Pinelands Comprehensive Management Plan (CMP). They included the following:

Jackson Township Ordinance 06-22 – amends Chapter 244 (Land Use and Development Regulations) of the Code of Jackson Township by increasing the non-residential development fee from 2% of the increase in equalized assessed value to 2.5%. The ordinance also adds additional exemptions from both the residential and non-residential development fee. Lastly, the ordinance amends the procedures for the collection of such fees and the expenditure of housing trust funds.

Vineland City Ordinance 2022-13 – amends Chapter 425 (Land Use) of the Code of Vineland City by revising the definitions of "Parking Lot" and "Truck Terminal." These definitions apply throughout the municipality.



Local Government Energy Audit Report

Richard J. Sullivan Center

March 21, 2022

Prepared for:

NJ Pinelands Commission

15 C Springfield Rd

New Lisbon, New Jersey 08064

Prepared by:

TRC

317 George Street

New Brunswick, New Jersey 08901

Disclaimer

The goal of this audit report is to identify potential energy efficiency opportunities and help prioritize specific measures for implementation. Most energy conservation measures have received preliminary analysis of feasibility that identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to establish a basis for further discussion and to help prioritize energy measures.

TRC reviewed the energy conservation measures and estimates of energy savings for technical accuracy. Actual, achieved energy savings depend on behavioral factors and other uncontrollable variables and, therefore, estimates of final energy savings are not guaranteed. TRC and the New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

TRC bases estimated material and labor costs primarily on RS Means cost manuals as well as on our experience at similar facilities. This approach is based on standard cost estimating manuals and is vendor neutral. Cost estimates include material and labor pricing associated with one for one equipment replacements. Cost estimates do not include demolition or removal of hazardous waste. The actual implementation costs for energy savings projects are anticipated to be significantly higher based on the specific conditions at your site(s). We strongly recommend that you work with your design engineer or contractor to develop actual project costs for your specific scope of work for the installation of high efficiency equipment. We encourage you to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on selected products and installers. TRC and NJBPU do not guarantee cost estimates and shall in no event be held liable should actual installed costs vary from these material and labor estimates.

Incentive values provided in this report are estimated based of previously run state efficiency programs. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. Please review all available utility program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

The customer and their respective contractor(s) are responsible to implement energy conservation measures in complete conformance with all applicable local, state, and federal requirements.

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Table of Contents

1 Executive Summary 1

1.1 **Planning Your Project** 4

Pick Your Installation Approach 4
Options from Around the State 5

2 Existing Conditions 6

2.1 Site Overview 6
2.2 Building Occupancy 6
2.3 Building Envelope 7
2.4 Lighting Systems 10
2.5 Air Handling Systems 11

Unitary Electric HVAC Equipment 11
Unitary Heating Equipment 12

2.6 Domestic Hot Water 13
2.7 Plug Load and Vending Machines 13
2.8 Water-Using Systems 14

3 Energy Use and Costs 15

3.1 Electricity 17
3.2 Natural Gas 18
3.3 Benchmarking 19

Tracking Your Energy Performance 20

4 Energy Conservation Measures 21

4.1 Lighting 24

ECM 1: Install LED Fixtures 24
ECM 2: Retrofit Fixtures with LED Lamps 24

4.2 Lighting Controls 25

ECM 3: Install Occupancy Sensor Lighting Controls 25
ECM 4: Install High/Low Lighting Controls 25

4.3 Unitary HVAC 26

ECM 5: Install High Efficiency Air Conditioning Units 26
ECM 6: Install High Efficiency Heat Pumps 26

4.4 HVAC Improvements 27

ECM 7: Install Pipe Insulation 27

4.5 Domestic Water Heating 27

ECM 8: Install Low-Flow DHW Devices 27

5 Energy Efficient Best Practices 28

Energy Tracking with ENERGY STAR Portfolio Manager 28

Weatherization 28
Doors and Windows 28
Lighting Maintenance 29
Lighting Controls 29
Motor Maintenance 29
Fans to Reduce Cooling Load 29
AC System Evaporator/Condenser Coil Cleaning 29
HVAC Filter Cleaning and Replacement 29
Ductwork Maintenance 30
Furnace Maintenance 30
Label HVAC Equipment 30
Optimize HVAC Equipment Schedules 31
Water Heater Maintenance 31
Water Conservation 32
Procurement Strategies 32

6 On-site Generation 33

6.1 Solar Photovoltaic 34
6.2 Combined Heat and Power 36

7 Project Funding and Incentives 37

7.1 Utility Energy Efficiency Programs 37

8 New Jersey's Clean Energy Programs 38

8.1 Large Energy Users 39
8.2 Combined Heat and Power 40
8.3 Successor Solar Incentive Program (SuSI) 41
8.4 Energy Savings Improvement Program 42

9 Project Development 43
10 Energy Purchasing and Procurement Strategies 44

10.1 Retail Electric Supply Options 44
10.2 Retail Natural Gas Supply Options 44

Appendix A: Equipment Inventory & Recommendations A-1
Appendix B: ENERGY STAR Statement of Energy Performance B-1
Appendix C: Glossary C-1

ENERGY EFFICIENCY INCENTIVE & REBATE TRANSITION

For the purposes of your LGEA, estimated incentives and rebates are included as placeholders for planning purposes. New Jersey utilities are rolling out their own energy efficiency programs, which your project may be eligible for depending on individual measures, quantities, and size of the building.

In 2018, Governor Murphy signed into law the landmark legislation known as the Clean Energy Act. The law called for a significant overhaul of New Jersey's clean energy systems by building sustainable infrastructure in order to fight climate change and reduce carbon emissions, which will in turn create well-paying local jobs, grow the state's economy, and improve public health while ensuring a cleaner environment for current and future residents.

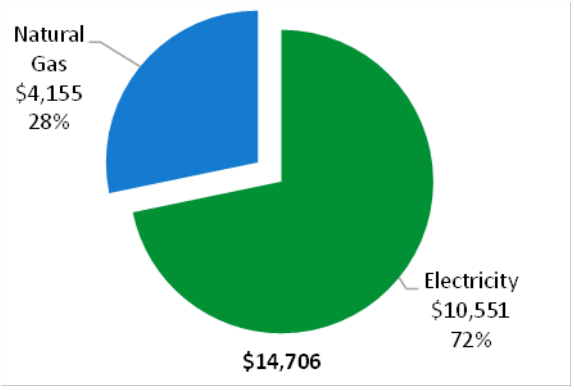
These next generation energy efficiency programs feature new ways of managing and delivering programs historically administered by New Jersey's Clean Energy Program™ (NJCEP). All of the investor-owned gas and electric utility companies will now also offer complementary energy efficiency programs and incentives directly to customers like you. NJCEP will still offer programs for new construction, renewable energy, the Energy Savings Improvement Program (ESIP), and large energy users.

New utility programs are under development. Keep up to date with developments by visiting the NJCEP website.

1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for Richard J. Sullivan Center. This report provides you with information about your facility's energy use, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help make changes in your facility. TRC conducted this study as part of a comprehensive effort to assist New Jersey school districts and local governments in controlling their energy costs and to help protect our environment by reducing statewide energy consumption.

BUILDING PERFORMANCE REPORT

Annual Utilities	Costs: $14,706 Electricity: 65,800 kWh Natural Gas: 4,204 Therms	
ENERGY STAR® Benchmarking Score	79 *(1-100 scale)*	Congratulations, your building performs better than the national average. This report has suggestions about how to keep your building running efficiently, further improve performance, and lower your energy bills even more.

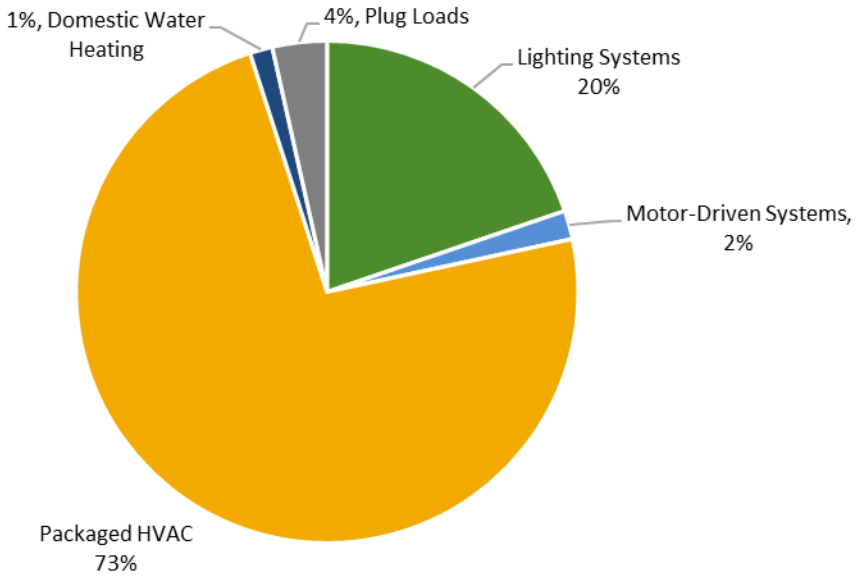


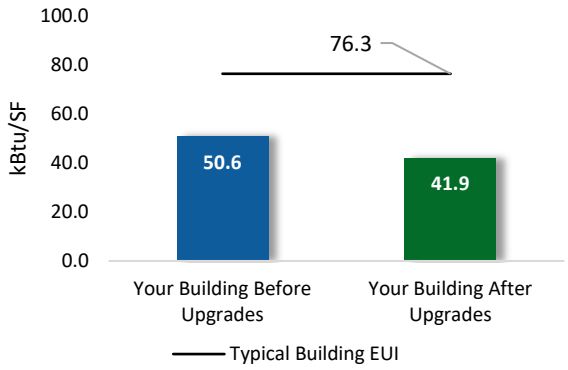
Figure 1 - Energy Use by System

POTENTIAL IMPROVEMENTS

This energy audit considered a range of potential energy improvements in your building. Costs and savings will vary between improvements. Presented below are two potential scopes of work for your consideration.

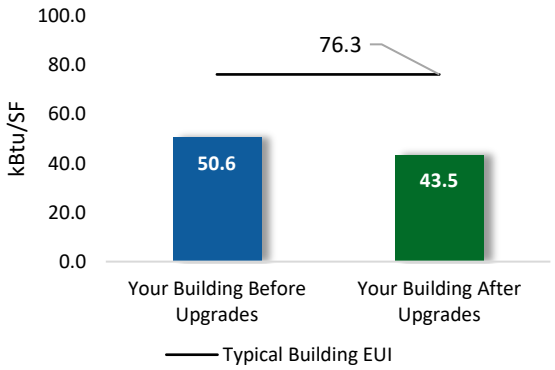
Scenario 1: Full Package (All Evaluated Measures)

Installation Cost	$74,247
Potential Rebates & Incentives[1]	$7,628
Annual Cost Savings	$5,240
Annual Energy Savings	Electricity: 32,770 kWh Natural Gas: -15 Therms
Greenhouse Gas Emission Savings	16 Tons
Simple Payback	12.7 Years
Site Energy Savings (All Utilities)	17%



Scenario 2: Cost Effective Package[2]

Installation Cost	$18,301
Potential Rebates & Incentives	$4,478
Annual Cost Savings	$4,307
Annual Energy Savings	Electricity: 26,953 kWh Natural Gas: -15 Therms
Greenhouse Gas Emission Savings	13 Tons
Simple Payback	3.2 Years
Site Energy Savings (all utilities)	14%



On-site Generation Potential

Photovoltaic	None
Combined Heat and Power	None

[1] Incentives are based on previously run state rebate programs. Contact your utility provider for current program incentives that may apply.

[2] A cost-effective measure is defined as one where the simple payback does not exceed two-thirds of the expected proposed equipment useful life. Simple payback is based on the net measure cost after potential incentives.

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**22,123**	**8.9**	**-4**	**$3,505**	**$11,531**	**$2,599**	**$8,932**	**2.5**	**21,775**
ECM 1	Install LED Fixtures	Yes	1,482	0.0	0	$238	$1,975	$700	$1,275	5.4	1,492
ECM 2	Retrofit Fixtures with LED Lamps	Yes	20,641	8.9	-4	$3,267	$9,556	$1,899	$7,657	2.3	20,282
Lighting Control Measures			**4,830**	**1.8**	**-1**	**$765**	**$6,693**	**$1,845**	**$4,848**	**6.3**	**4,746**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	3,582	1.4	-1	$567	$4,668	$515	$4,153	7.3	3,519
ECM 4	Install High/Low Lighting Controls	Yes	1,248	0.4	0	$198	$2,025	$1,330	$695	3.5	1,226
Unitary HVAC Measures			**5,817**	**6.0**	**0**	**$933**	**$55,945**	**$3,150**	**$52,795**	**56.6**	**5,857**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,902	5.4	0	$786	$50,618	$3,150	$47,468	60.4	4,937
ECM 6	Install High Efficiency Heat Pumps	No	914	0.5	0	$147	$5,327	$0	$5,327	36.3	921
HVAC System Improvements			**0**	**0.0**	**1**	**$9**	**$35**	**$12**	**$23**	**2.4**	**112**
ECM 7	Install Pipe Insulation	Yes	0	0.0	1	$9	$35	$12	$23	2.4	112
Domestic Water Heating Upgrade			**0**	**0.0**	**3**	**$28**	**$43**	**$22**	**$22**	**0.8**	**333**
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	3	$28	$43	$22	$22	0.8	333
TOTALS (COST EFFECTIVE MEASURES)			**26,953**	**10.7**	**-1**	**$4,307**	**$18,301**	**$4,478**	**$13,824**	**3.2**	**26,966**
TOTALS (ALL MEASURES)			**32,770**	**16.7**	**-1**	**$5,240**	**$74,247**	**$7,628**	**$66,619**	**12.7**	**32,823**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 2 – Evaluated Energy Improvements

For more detail on each evaluated energy improvement and a break out of cost-effective improvements, see **Section 4: Energy Conservation Measures.**

1.1 Planning Your Project

Careful planning makes for a successful energy project. When considering this scope of work, you will have some decisions to make, such as:

- How will the project be funded and/or financed?
- Is it best to pursue individual ECMs, groups of ECMs, or use a comprehensive approach where all ECMs are installed together?
- Are there other facility improvements that should happen at the same time?

Pick Your Installation Approach

Utility-run energy efficiency programs, such as New Jersey's Clean Energy Programs, give you the flexibility to do a little or a lot. Rebates, incentives, and financing are available to help reduce both your installation costs and your energy bills. If you are planning to take advantage of these programs, make sure to review incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives ***before*** purchasing materials or starting installation.

For details on these programs please visit New Jersey's Clean Energy Program website or contact your utility provider.



Options from Around the State

Financing and Planning Support with the Energy Savings Improvement Program (ESIP)

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the ESIP. Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as attractive financing for implementing ECMs. You have already taken the first step as an LGEA customer, because this report is required to participate in ESIP.

Resiliency with Return on Investment through Combined Heat and Power (CHP)

The CHP program provides incentives for combined heat and power (i.e., cogeneration) and waste heat to power projects. Combined heat and power systems generate power on-site and recover heat from the generation system to meet on-site thermal loads. Waste heat to power systems use waste heat to generate power. You will work with a qualified developer who will design a system that meets your building's heating and cooling needs.

Successor Solar Incentive Program (SuSI)

New Jersey is committed to supporting solar energy. Solar projects help the state reach the renewable goals outlined in the state's Energy Master Plan. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available, but certified solar projects are able to earn one SREC II (Solar Renewable Energy Certificates II) for each megawatt-hour of solar electricity produced from a qualifying solar facility.

Ongoing Electric Savings with Demand Response

The Demand Response Energy Aggregator program reduces electric loads at commercial facilities when wholesale electricity prices are high or when the reliability of the electric grid is threatened due to peak power demand. By enabling commercial facilities to reduce electric demand during times of peak demand, the grid is made more reliable, and overall transmission costs are reduced for all ratepayers. Curtailment service providers provide regular payments to medium and large consumers of electric power for their participation in demand response (DR) programs. Program participation is voluntary, and facilities receive payments regardless of whether they are called upon to curtail their load during times of peak demand.

Large Energy User Program (LEUP)

LEUP designed to promote self-investment in energy efficiency and combined heat and power or fuel cell projects. It incentivizes owners/users of buildings to upgrade or install energy conserving measures in existing buildings to help offset the capital costs associated with the project. The efficiency upgrades are customized to meet the requirements of the customers' existing facilities, while advancing the State's energy efficiency, conservation, and greenhouse gas reduction goals.

2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for Richard J. Sullivan Center. This report provides information on how your facility uses energy, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help you implement the ECMs.

TRC conducted this study as part of a comprehensive effort to assist New Jersey educational and local government facilities in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

2.1 Site Overview

On January 19, 2022, TRC performed an energy audit at Richard J. Sullivan Center located in New Lisbon, New Jersey. TRC met with Jessica Lynch to review the facility operations and help focus our investigation on specific energy-using systems.

Richard J. Sullivan Center is a 3-story, 12,748 square foot building built in 2002. Spaces include offices, a locker room, conference room, library, corridors, stairwells, kitchen, storage rooms, restrooms, electrical and mechanical space.

Lighting for the facility is provided mainly by linear fluorescent T8 fixtures. Seven split-system air conditioners with seven associated furnaces provide cooling and heating to spaces. There is one passenger elevator located in the facility.

2.2 Building Occupancy

The facility is occupied year-round. The building is closed on the weekends, and the facility closes at 6:00 PM on weekdays. During a typical day, the facility is occupied by approximately 25 staff.

Building Name	Weekday/Weekend	Operating Schedule
Richard J. Sullivan Center	Weekday	7:00 AM - 6:00 PM
	Weekend	Closed

Figure 3 - Building Occupancy Schedule

2.3 Building Envelope

Richard J. Sullivan Center is a three-floor building. Building walls are concrete block over structural steel with a vinyl facade. The roof is pitched and covered with shingles, and it is in good condition.

The windows are double glazed and have aluminum frames with thermal breaks. The glass-to-frame seals are in good condition. The operable window weather seals are in fair condition, showing little evidence of excess wear. It was noted that there are issues with the windows on the third floor not being secured. Exterior doors have aluminum frames and are in good condition with undamaged door seals. Degraded window and door seals increase drafts and outside air infiltration. Overall, the building envelope appears in good condition.



Building Walls





Building Windows





Entrance & Exit Doors



Roof

2.4 Lighting Systems

The primary interior lighting system uses 32-Watt fluorescent T8 lamps. Compact fluorescent (CFL), LED, and incandescent lamps are also used in some spaces. Typically, CFLs at this site use 13-, 26- and 40-watts. The incandescent lamps, used for the lobby exhibit, draw 65-watts each. Exit signs use LED sources.

Fixture types include 1-lamp, 2-lamp, and 3-lamp, 2-foot and 4-foot long recessed, surface mounted, and pendant fixtures with linear and U-bend tube lamps.

Interior light fixtures are controlled by manual wall switches. All light fixtures are in good condition. Interior lighting levels were generally sufficient. Exterior fixtures include pole mounted Metal Halide (MH) fixtures and LED security fixtures. Exterior fixtures are timer controlled.



Fluorescent T8 Fixtures



CFL Lamps





Exterior MH Fixtures

2.5 Air Handling Systems

Unitary Electric HVAC Equipment

The building cooling system consists of seven Ruud split-systems, two mini-split air conditioning (AC) units, and one mini-split heat pump (HP) unit. The split-systems are used to provide cooling throughout the entire building, while the mini-split AC units provide cooling to the server room and the mini-split HP unit conditions storage room 013.

Cooling capacities range from 0.75 tons to 5 tons, with efficiencies that vary from 10 EER to 16.8 EER. The mini-split HP unit has a heating capacity of 10.5 MBh with an efficiency of 6.8 HSPF. The split-systems, one of the mini-split AC units, and the mini-split HP unit are all original to the building, while the other mini-split AC unit was installed in 2014. All but the mini-split AC units are in fair condition, with the newer unit in good condition and the older unit in need of replacement.



Split-Systems

Unitary Heating Equipment

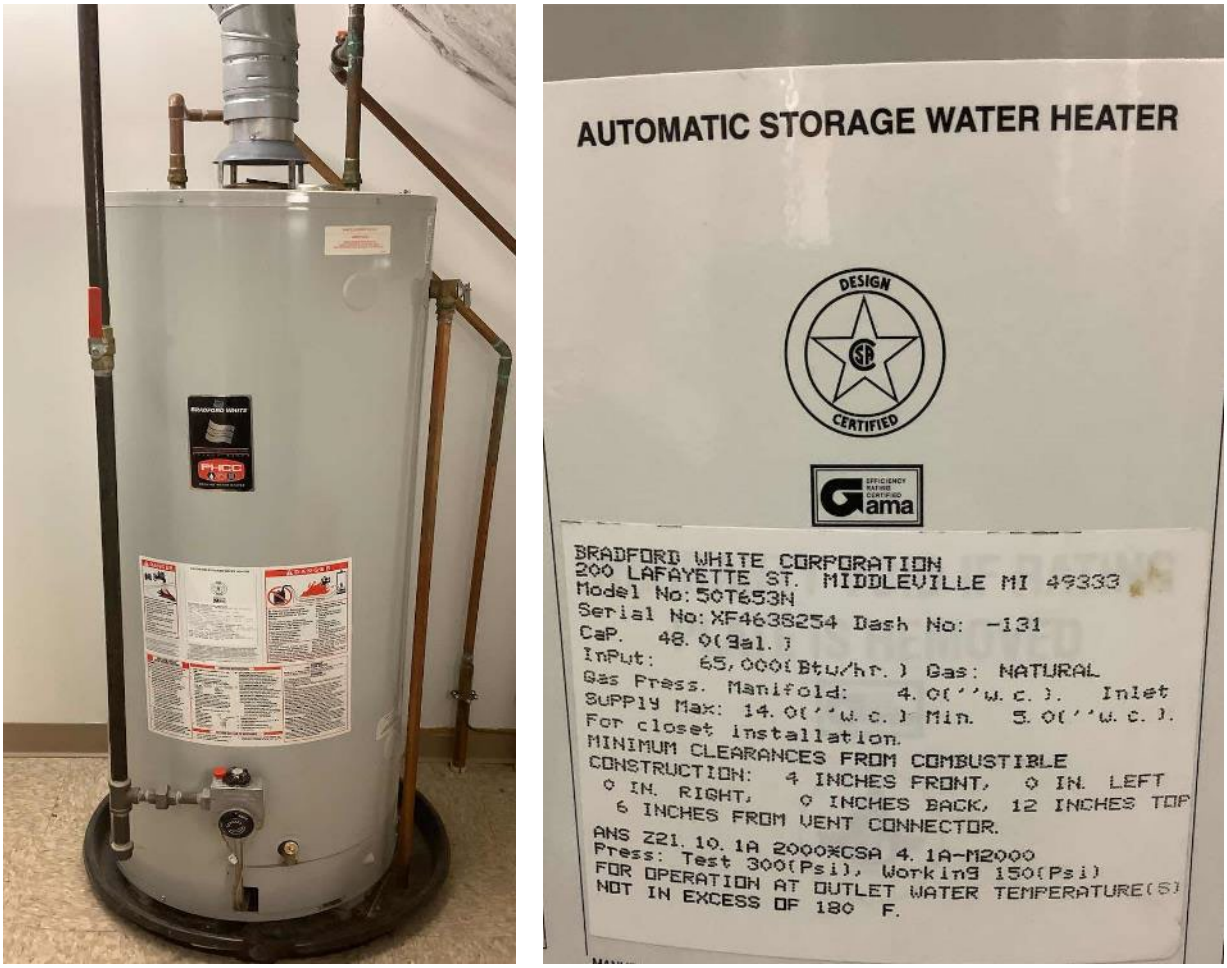
The building heating system consists of seven gas-fired Ruud forced air furnaces, each with an output capacity of 55.8 MBh and an efficiency rating of 92%. Each unit is equipped with a fractional hp supply fan. Original to the building, the units are beyond their typical useful lifespan but were not recommended for replacement as they were observed to be in good condition, well maintained, and relatively efficient. Equipment is controlled by wall-mounted thermostats located throughout the building.



Gas-fired Furnaces

2.6 Domestic Hot Water

Hot water is produced by a 65 MBh gas-fired storage water heater with a 48-gallon capacity. Original to the building, the unit is in good condition. The domestic hot water pipes are partially insulated and the insulation is in good condition.



Gas-fired Storage Tank Water Heater

2.7 Plug Load and Vending Machines

The location is doing a great job managing their electrical plug loads. This report makes additional suggestions for ECMs in this area as well as energy efficient best practices.

There are approximately 25 computer workstations throughout the facility. Plug loads throughout the building include general cafe and office equipment. There are typical office loads such as copiers, printers, microwaves, coffee machines, and mini fridges. There is one residential style refrigerator located in the kitchen that is used to store food and drinks.




Copier Machine & Residential Style Refrigerator

2.8 Water-Using Systems

There are 6 restrooms with toilets and sinks. Faucet flow rates are at 2.2 gallons per minute (gpm) or higher.

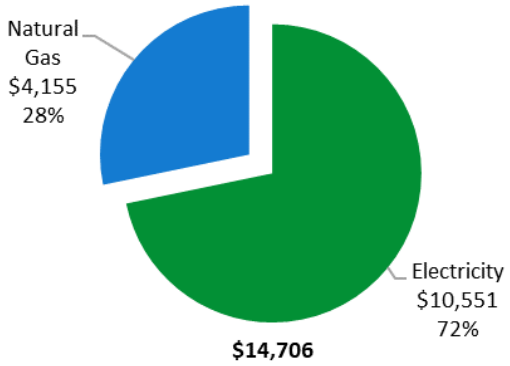



Typical Restroom Sinks

3 Energy Use and Costs

Twelve months of utility billing data are used to develop annual energy consumption and cost data. This information creates a profile of the annual energy consumption and energy costs.

Utility Summary		
Fuel	**Usage**	**Cost**
Electricity	65,800 kWh	$10,551
Natural Gas	4,204 Therms	$4,155
Total		**$14,706**



An energy balance identifies and quantifies energy use in your various building systems. This can highlight areas with the most potential for improvement. This energy balance was developed using calculated energy use for each of the end uses noted in the figure.

The energy auditor collects information regarding equipment operating hours, capacity, efficiency, and other operational parameters from facility staff, drawings, and on-site observations. This information is used as the inputs to calculate the existing conditions energy use for the site. The calculated energy use is then compared to the historical energy use and the initial inputs are revised, as necessary, to balance the calculated energy use to the historical energy use.

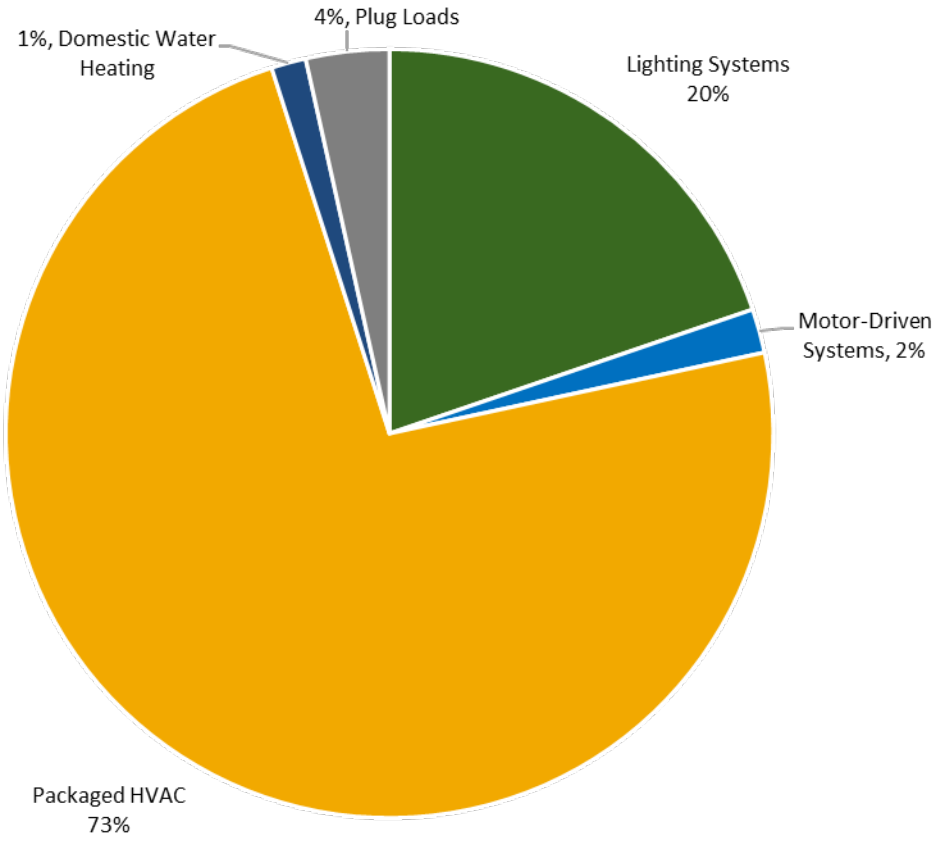
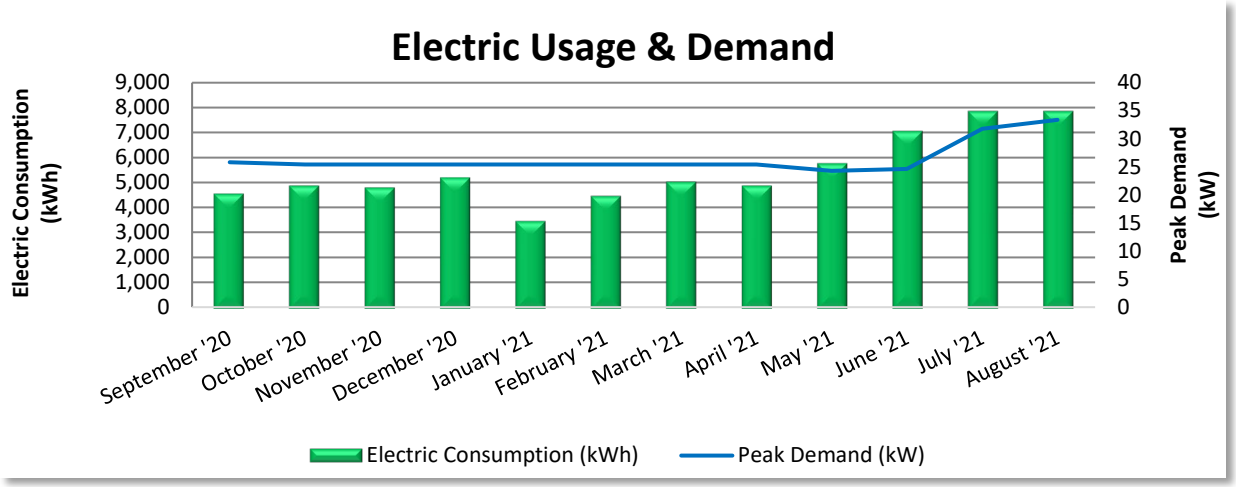


Figure 4 - Energy Balance

3.1 Electricity

JCP&L delivers electricity under rate class General Service Secondary 3 (GSG), with electric production provided by Champion Energy Services, a third-party supplier.



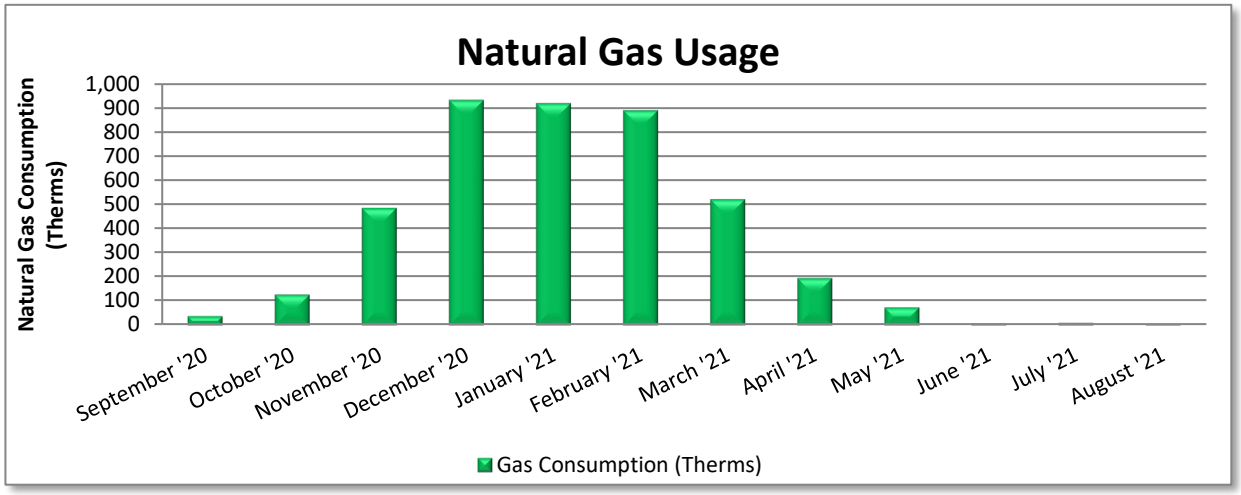
Electric Billing Data					
Period Ending	**Days in Period**	**Electric Usage (kWh)**	**Demand (kW)**	**Demand Cost**	**Total Electric Cost**
10/9/20	29	4,560	26	$48	$744
11/9/20	31	4,880	25	$46	$685
12/9/20	30	4,800	25	$46	$588
1/11/21	33	5,200	25	$46	$1,078
2/9/21	29	3,480	25	$46	$717
3/9/21	28	4,480	25	$46	$768
4/9/21	31	5,040	25	$46	$749
5/11/21	32	4,880	25	$55	$762
6/10/21	30	5,760	24	$95	$887
7/12/21	32	7,040	25	$97	$1,065
8/10/21	29	7,840	32	$145	$1,219
9/10/21	31	7,840	33	$155	$1,289
Totals	**365**	**65,800**	**33**	**$872**	**$10,551**
Annual	**365**	**65,800**	**33**	**$872**	**$10,551**

Notes:

- Peak demand of 33 kW occurred in August '21.
- Average demand over the past 12 months was 26 kW.
- The average electric cost over the past 12 months was $0.160/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges. This report uses this blended rate to estimate energy cost savings.

3.2 Natural Gas

PSE&G delivers natural gas under rate class General Service Gas (GSG), with natural gas supply provided by UGI, a third-party supplier.



Gas Billing Data			
Period Ending	**Days in Period**	**Natural Gas Usage (Therms)**	**Natural Gas Cost**
10/1/20	28	39	$64
10/30/20	29	128	$140
12/2/20	33	486	$465
1/4/21	33	930	$856
2/3/21	30	918	$846
3/5/21	30	888	$860
4/6/21	32	522	$496
5/5/21	29	196	$206
6/4/21	30	74	$95
7/6/21	32	8	$43
8/4/21	29	10	$44
9/3/21	30	5	$40
Totals	**365**	**4,204**	**$4,155**
Annual	**365**	**4,204**	**$4,155**

Notes:

- The average gas cost for the past 12 months is $0.988/therm, which is the blended rate used throughout the analysis.
- The reduced natural gas consumption during the summer months likely reflects usage for domestic hot water only.

3.3 Benchmarking

Your building was benchmarked using the United States Environmental Protection Agency's (EPA) *Portfolio Manager®* software. Benchmarking compares your building's energy use to that of similar buildings across the country, while neutralizing variations due to location, occupancy, and operating hours. Some building types can be scored with a 1-100 ranking of a building's energy performance relative to the national building market. A score of 50 represents the national average and a score of 100 is best.

This ENERGY STAR benchmarking score provides a comprehensive snapshot of your building's energy performance. It assesses the building's physical assets, operations, and occupant behavior, which is compiled into a quick and easy-to-understand score.

Benchmarking Score	**79**

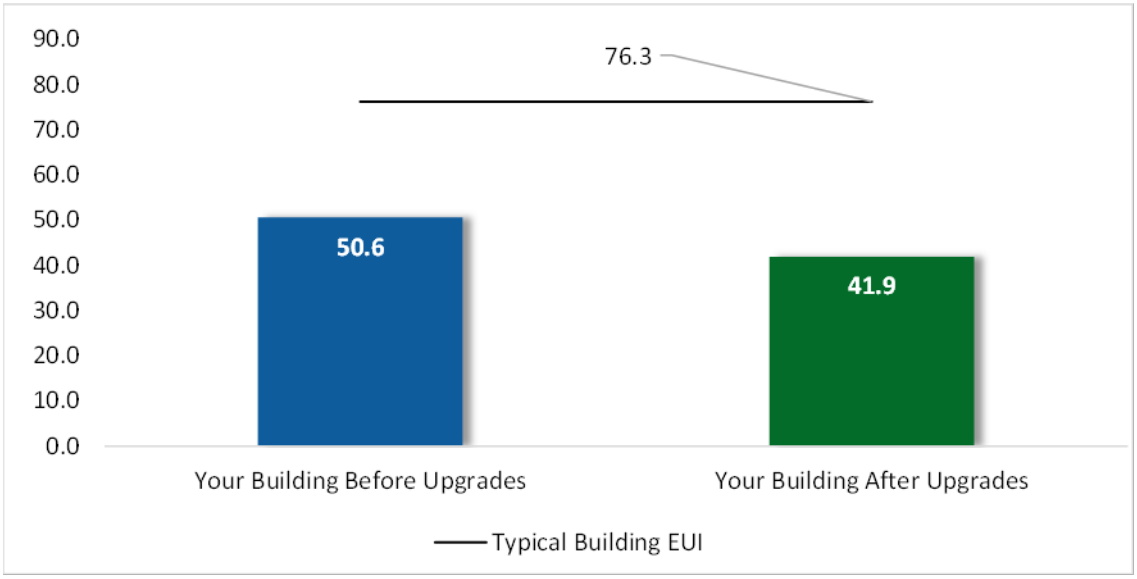


Figure 5 - Energy Use Intensity Comparison[3]

Congratulations, your building performs better than the national average. This report has suggestions about how to keep your building running efficiently, further improve performance, and lower your energy bills even more.

Energy use intensity (EUI) measures energy consumption per square foot and is the standard metric for comparing buildings' energy performance. A lower EUI means better performance and less energy consumed. Several factors can cause a building to vary from typical energy usage. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and occupant behavior all contribute to a building's energy use and the benchmarking score.

[3] Based on all evaluated ECMs

Tracking Your Energy Performance

Keeping track of your energy use on a monthly basis is one of the best ways to keep energy costs in check. Update your utility information in Portfolio Manager regularly, so that you can keep track of your building's performance.

We have created a Portfolio Manager account for your facility, and we have already entered the monthly utility data shown above for you. Account login information for your account will be sent via email.

Free online training is available to help you use ENERGY STAR Portfolio Manager to track your building's performance at: https://www.energystar.gov/buildings/training.

For more information on ENERGY STAR and Portfolio Manager, visit their website.

4 Energy Conservation Measures

The goal of this audit report is to identify and evaluate potential energy efficiency improvements and provide information about the cost effectiveness of those improvements. Most energy conservation measures have received preliminary analysis of feasibility, which identifies expected ranges of savings. This level of analysis is typically sufficient to demonstrate project cost-effectiveness and help prioritize energy measures.

Calculations of energy use and savings are based on the current version of the *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*, which is approved by the NJBPU. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances.

Operation and maintenance costs for the proposed new equipment will generally be lower than the current costs for the existing equipment—especially if the existing equipment is at or past its normal useful life. We have conservatively assumed there to be no impact on overall maintenance costs over the life of the equipment.

Financial incentives are based on previously run state rebate programs. New utility programs are expected to start rolling out in the spring and summer of 2021. Keep up to date with developments by visiting the NJCEP website. Some measures and proposed upgrades may be eligible for higher incentives than those shown below.

For a detailed list of the locations and recommended energy conservation measures for all inventoried equipment, see **Appendix A: Equipment Inventory & Recommendations.**

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**22,123**	**8.9**	**-4**	**$3,505**	**$11,531**	**$2,599**	**$8,932**	**2.5**	**21,775**
ECM 1	Install LED Fixtures	Yes	1,482	0.0	0	$238	$1,975	$700	$1,275	5.4	1,492
ECM 2	Retrofit Fixtures with LED Lamps	Yes	20,641	8.9	-4	$3,267	$9,556	$1,899	$7,657	2.3	20,282
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ECM 3	Install Occupancy Sensor Lighting Controls	Yes	3,582	1.4	-1	$567	$4,668	$515	$4,153	7.3	3,519
ECM 4	Install High/Low Lighting Controls	Yes	1,248	0.4	0	$198	$2,025	$1,330	$695	3.5	1,226
Unitary HVAC Measures			**5,817**	**6.0**	**0**	**$933**	**$55,945**	**$3,150**	**$52,795**	**56.6**	**5,857**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,902	5.4	0	$786	$50,618	$3,150	$47,468	60.4	4,937
ECM 6	Install High Efficiency Heat Pumps	No	914	0.5	0	$147	$5,327	$0	$5,327	36.3	921
HVAC System Improvements			**0**	**0.0**	**1**	**$9**	**$35**	**$12**	**$23**	**2.4**	**112**
ECM 7	Install Pipe Insulation	Yes	0	0.0	1	$9	$35	$12	$23	2.4	112
Domestic Water Heating Upgrade			**0**	**0.0**	**3**	**$28**	**$43**	**$22**	**$22**	**0.8**	**333**
ECM 8	Install Low-Flow DHW Devices	Yes	0	0.0	3	$28	$43	$22	$22	0.8	333
TOTALS			**32,770**	**16.7**	**-1**	**$5,240**	**$74,247**	**$7,628**	**$66,619**	**12.7**	**32,823**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 6 – All Evaluated ECMs

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**22,123**	**8.9**	**-4**	**$3,505**	**$11,531**	**$2,599**	**$8,932**	**2.5**	**21,775**
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HVAC System Improvements		**0**	**0.0**	**1**	**$9**	**$35**	**$12**	**$23**	**2.4**	**112**
ECM 7	Install Pipe Insulation	0	0.0	1	$9	$35	$12	$23	2.4	112
Domestic Water Heating Upgrade		**0**	**0.0**	**3**	**$28**	**$43**	**$22**	**$22**	**0.8**	**333**
ECM 8	Install Low-Flow DHW Devices	0	0.0	3	$28	$43	$22	$22	0.8	333
TOTALS		**26,953**	**10.7**	**-1**	**$4,307**	**$18,301**	**$4,478**	**$13,824**	**3.2**	**26,966**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 7 – Cost Effective ECMs

4.1 Lighting

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**22,123**	**8.9**	**-4**	**$3,505**	**$11,531**	**$2,599**	**$8,932**	**2.5**	**21,775**
ECM 1	Install LED Fixtures	1,482	0.0	0	$238	$1,975	$700	$1,275	5.4	1,492
ECM 2	Retrofit Fixtures with LED Lamps	20,641	8.9	-4	$3,267	$9,556	$1,899	$7,657	2.3	20,282

When considering lighting upgrades, we suggest using a comprehensive design approach that simultaneously upgrades lighting fixtures and controls to maximize energy savings and improve occupant lighting. Comprehensive design will also consider appropriate lighting levels for different space types to make sure that the right amount of light is delivered where needed. If conversion to LED light sources is proposed, we suggest converting all of a specific lighting type (e.g., linear fluorescent) to LED lamps to minimize the number of lamp types in use at the facility, which should help reduce future maintenance costs.

ECM 1: Install LED Fixtures

Replace existing fixtures containing high intensity discharge (HID) lamps with new LED light fixtures. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

In some cases, HID fixtures can be retrofit with screw-based LED lamps. Replacing an existing HID fixture with a new LED fixture will generally provide better overall lighting optics; however, replacing the HID lamp with a LED screw-in lamp is typically a less expensive retrofit. We recommend you work with your lighting contractor to determine which retrofit solution is best suited to your needs and will be compatible with the existing fixtures.

Maintenance savings may also be achieved since LED lamps last longer than other light sources and therefore do not need to be replaced as often.

Affected building areas: exterior metal halide fixtures.

ECM 2: Retrofit Fixtures with LED Lamps

Replace fluorescent and CFL lamps with LED lamps. Many LED tubes are direct replacements for existing fluorescent tubes and can be installed while leaving the fluorescent fixture ballast in place. LED lamps can be used in existing fixtures as a direct replacement for most other lighting technologies. Be sure to specify replacement lamps that are compatible with existing dimming controls, where applicable. In some circumstances, you may need to upgrade your dimming system for optimum performance.

This measure saves energy by installing LEDs, which use less power than other lighting technologies yet provide equivalent lighting output for the space. Maintenance savings may also be available, as longer-lasting LEDs lamps will not need to be replaced as often as the existing lamps.

Affected Building Areas: all areas with CFL lamps, incandescent lamps, or fluorescent fixtures with T8 tubes.

4.2 Lighting Controls

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Control Measures		**4,830**	**1.8**	**-1**	**$765**	**$6,693**	**$1,845**	**$4,848**	**6.3**	**4,746**
ECM 3	Install Occupancy Sensor Lighting Controls	3,582	1.4	-1	$567	$4,668	$515	$4,153	7.3	3,519
ECM 4	Install High/Low Lighting Controls	1,248	0.4	0	$198	$2,025	$1,330	$695	3.5	1,226

Lighting controls reduce energy use by turning off or lowering lighting fixture power levels when not in use. A comprehensive approach to lighting design should upgrade the lighting fixtures and the controls together for maximum energy savings and improved lighting for occupants.

ECM 3: Install Occupancy Sensor Lighting Controls

Install occupancy sensors to control lighting fixtures in areas that are frequently unoccupied, even for short periods. For most spaces, we recommend that lighting controls use dual technology sensors, which reduce the possibility of lights turning off unexpectedly.

Occupancy sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Most occupancy sensor lighting controls allow users to manually turn fixtures on/off, as needed. Some controls can also provide dimming options.

Occupancy sensors can be mounted on the wall at existing switch locations, mounted on the ceiling, or in remote locations. In general, wall switch replacement sensors are best suited to single occupant offices and other small rooms. Ceiling-mounted or remote mounted sensors are used in large spaces, locations without local switching, and where wall switches are not in the line-of-sight of the main work area.

This measure provides energy savings by reducing the lighting operating hours.

Affected Building Areas: offices, conference room, kitchen, library, and storage rooms.

ECM 4: Install High/Low Lighting Controls

Install occupancy sensors to provide dual level lighting control for lighting fixtures in spaces that are infrequently occupied but may require some level of continuous lighting for safety or security reasons.

Lighting fixtures with these controls operate at default low levels when the area is unoccupied to provide minimal lighting to meet security or safety code requirements for egress. Sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Fixtures automatically switch back to low level after a predefined period of vacancy. In parking lots and parking garages with significant ambient lighting, this control can sometimes be combined with photocell controls to turn the lights off when there is sufficient daylight.

The controller lowers the light level by dimming the fixture output. Therefore, the controlled fixtures need to have a dimmable ballast or driver. This will need to be considered when selecting retrofit lamps and bulbs for the areas proposed for high/low control.

For this type of measure the occupancy sensors will generally be ceiling or fixture mounted. Sufficient sensor coverage must be provided to ensure that lights turn on in each area as occupants approach the area.

This measure provides energy savings by reducing the light fixture power draw when reduced light output is appropriate.

Affected Building Areas: hallways, stairwells, and main lobby.

4.3 Unitary HVAC

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Unitary HVAC Measures		**5,817**	**6.0**	**0**	**$933**	**$55,945**	**$3,150**	**$52,795**	**56.6**	**5,857**
ECM 5	Install High Efficiency Air Conditioning Units	4,902	5.4	0	$786	$50,618	$3,150	$47,468	60.4	4,937
ECM 6	Install High Efficiency Heat Pumps	914	0.5	0	$147	$5,327	$0	$5,327	36.3	921

Replacing the unitary HVAC units has a long payback period and may not be justifiable based simply on energy considerations. However, most of the units are nearing or have reached the end of their normal useful life. Typically, the marginal cost of purchasing a high efficiency unit can be justified by the marginal savings from the improved efficiency. When the split-systems and mini-splits are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

ECM 5: Install High Efficiency Air Conditioning Units

We evaluated replacing standard efficiency packaged air conditioning units with high efficiency packaged air conditioning units. The magnitude of energy savings for this measure depends on the relative efficiency of the older unit versus the new high efficiency unit, the average cooling and heating load, and the estimated annual operating hours.

Affected Units: exterior split-systems and the server room mini-split AC unit.

ECM 6: Install High Efficiency Heat Pumps

We evaluated replacing standard efficiency heat pumps with high efficiency heat pumps. A higher EER or SEER rating indicates a more efficient cooling system, and a higher HSPF rating indicates more efficient heating mode. The magnitude of energy savings for this measure depends on the relative efficiency of the older unit versus the new high efficiency unit, the average heating and cooling loads, and the estimated annual operating hours.

Affected Units: mini-split HP unit in storage room 013.

4.4 HVAC Improvements

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
HVAC System Improvements		**0**	**0.0**	**1**	**$9**	**$35**	**$12**	**$23**	**2.4**	**112**
ECM 7	Install Pipe Insulation	0	0.0	1	$9	$35	$12	$23	2.4	112

ECM 7: Install Pipe Insulation

Install insulation on domestic hot water system piping. Distribution system losses are dependent on system fluid temperature, the size of the distribution system, and the level of insulation of the piping. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is exposed to water, when the insulation has been removed from some areas of the pipe, or when valves have not been properly insulated system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

Affected Systems: domestic hot water piping.

4.5 Domestic Water Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**0**	**0.0**	**3**	**$28**	**$43**	**$22**	**$22**	**0.8**	**333**
ECM 8	Install Low-Flow DHW Devices	0	0.0	3	$28	$43	$22	$22	0.8	333

ECM 8: Install Low-Flow DHW Devices

Install low-flow devices to reduce overall hot water demand. The following low-flow devices are recommended to reduce hot water usage:

Device	Flow Rate
Faucet aerators (lavatory)	0.5 gpm
Faucet aerator (kitchen)	1.5 gpm
Showerhead	2.0 gpm
Pre-rinse spray valve (kitchen)	1.28 gpm

Low-flow devices reduce the overall water flow from the fixture, while still providing adequate pressure for washing. Additional cost savings may result from reduced water usage.

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs.

Operation and maintenance (O&M) plans enhance the operational efficiency of HVAC and other energy intensive systems and could save 5% –20% of the energy usage in your building without substantial capital investment. A successful plan includes your records of energy usage trends and costs, building equipment lists, current maintenance practices, and planned capital upgrades, and it incorporates your ideas for improved building operation. Your plan will address goals for energy-efficient operation, provide detail on how to reach the goals, and outline procedures for measuring and reporting whether goals have been achieved.

You may already be doing some of these things—see our list below for potential additions to your maintenance plan. Be sure to consult with qualified equipment specialists for details on proper maintenance and system operation.

Energy Tracking with ENERGY STAR Portfolio Manager

You've heard it before—you cannot manage what you do not measure. ENERGY STAR Portfolio Manager is an online tool that you can use to measure and track energy and water consumption, as well as greenhouse gas emissions[4] . Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

Weatherization

Caulk or weather strip leaky doors and windows to reduce drafts and loss of heated or cooled air. Sealing cracks and openings can reduce heating and cooling costs, improve building durability, and create a healthier indoor environment. Materials used may include caulk, polyurethane foam, and other weather-stripping materials. There is an energy savings opportunity by reducing the uncontrolled air exchange between the outside and inside of the building. Blower door assisted comprehensive building air sealing will reduce the amount of air exchange, which will in turn reduce the load on the buildings heating and cooling equipment, providing energy savings and increased occupant comfort.

Doors and Windows

Close exterior doors and windows in heated and cooled areas. Leaving doors and windows open leads to a loss of heat during the winter and chilled air during the summer. Reducing air changes per hour can lead to increased occupant comfort as well as heating and cooling savings, especially when combined with proper HVAC controls and adequate ventilation.

[4] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager.

Lighting Maintenance



Clean lamps, reflectors and lenses of dirt, dust, oil, and smoke buildup every six to twelve months. Light levels decrease over time due to lamp aging, lamp and ballast failure, and buildup of dirt and dust. Together, this can reduce total light output by up to 60% while still drawing full power.

In addition to routine cleaning, developing a maintenance schedule can ensure that maintenance is performed regularly, and it can reduce the overall cost of fixture re-lamping and re-ballasting. Group re-lamping and re-ballasting maintains lighting levels and minimizes the number of site visits by a lighting technician or contractor, decreasing the overall cost of maintenance.

Lighting Controls

As part of a lighting maintenance schedule, test lighting controls to ensure proper functioning. For occupancy sensors, this requires triggering the sensor and verifying that the sensor's timer settings are correct. For daylight and photocell sensors, maintenance involves cleaning sensor lenses and confirming that setpoints and sensitivity are configured properly. Adjust exterior lighting time clock controls seasonally as needed to match your lighting requirements.

Motor Maintenance

Motors have many moving parts. As these parts degrade over time, the efficiency of the motor is reduced. Routine maintenance prevents damage to motor components. Routine maintenance should include cleaning surfaces and ventilation openings on motors to prevent overheating, lubricating moving parts to reduce friction, inspecting belts and pulleys for wear and to ensure they are at proper alignment and tension, and cleaning and lubricating bearings. Consult a licensed technician to assess these and other motor maintenance strategies.

Fans to Reduce Cooling Load

Install ceiling fans to supplement your cooling system. Thermostat settings can typically be increased by 4°F with no change in overall occupant comfort due to the wind chill effect of moving air.

AC System Evaporator/Condenser Coil Cleaning

Dirty evaporator and condenser coils restrict air flow and restrict heat transfer. This increases the loads on the evaporator and condenser fan and decreases overall cooling system performance. Keeping the coils clean allows the fans and cooling system to operate more efficiently.

HVAC Filter Cleaning and Replacement

Air filters should be checked regularly (often monthly) and cleaned or replaced when appropriate. Air filters reduce indoor air pollution, increase occupant comfort, and help keep equipment operating efficiently. If the building has a building management system, consider installing a differential pressure switch across filters to send an alarm about premature fouling or overdue filter replacement. Over time, filters become less and less effective as particulate buildup increases. Dirty filters also restrict air flow through the air conditioning or heat pump system, which increases the load on the distribution fans.

Ductwork Maintenance

Duct maintenance has two primary goals: keep the ducts clean to avoid air quality problems and seal leaks to save energy. Check for cleanliness, obstructions that block airflow, water damage, and leaks. Ducts should be inspected at least every two years.

The biggest symptoms of clogged air ducts are differing temperatures throughout the building and areas with limited airflow from supply registers. If a particular air duct is clogged, then air flow will only be cut off to some rooms in the building—not all of them. The reduced airflow will make it more difficult for those areas to reach the temperature setpoint, which will cause the HVAC system to run longer to cool or heat that area properly. If you suspect clogged air ducts, ensure that all areas in front of supply registers are clear of items that may block or restrict air flow, and you should check for fire dampers or balancing dampers that have failed closed.

Duct leakage in commercial buildings can account for 5%–25% of the supply airflow. In the case of rooftop air handlers, duct leakage can occur to the outside of the building wasting conditioned air. Check ductwork for leakage. Eliminating duct leaks can improve ventilation system performance and reduce heating and cooling system operation.

Distribution system losses are dependent on air system temperature, the size of the distribution system, and the level of insulation of the ductwork. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is missing or worn, the system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

Furnace Maintenance

Preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should check for gas / carbon monoxide leaks; change the air and fuel filters; check components for cracks, corrosion, dirt, or debris build-up; ensure the ignition system is working properly; test and adjust operation and safety controls; inspect electrical connections; and lubricate motors and bearings.

Label HVAC Equipment

For improved coordination in maintenance practices, we recommend labeling or re-labeling the site HVAC equipment. Maintain continuity in labeling by following labeling conventions as indicated in the facility drawings or EMS building equipment list. Use weatherproof or heatproof labeling or stickers for permanence, but do not cover over original equipment nameplates, which should be kept clean and readable whenever possible. Besides equipment, label piping for service and direction of flow when possible. Ideally, maintain a log of HVAC equipment, including nameplate information, asset tag designation, areas served, installation year, service dates, and other pertinent information.

This investment in your equipment will enhance collaboration and communication between your staff and your contracted service providers and may help you with regulatory compliance.

Optimize HVAC Equipment Schedules

Energy management systems (EMS) typically provide advanced controls for building HVAC systems, including chillers, boilers, air handling units, rooftop units and exhaust fans. The EMS monitors and reports operational status, schedules equipment start and stop times, locks out equipment operation based on outside air or space temperature, and often optimizes damper and valve operation based on complex algorithms. These EMS features, when in proper adjustment, can improve comfort for building occupants and save substantial energy.

Know your EMS scheduling capabilities. Regularly monitor HVAC equipment operating schedules and match them to building operating hours in order to eliminate unnecessary equipment operation and save energy. Monitoring should be performed often at sites with frequently changing usage patterns – daily in some cases. We recommend using the *optimal start* feature of the EMS (if available) to optimize the building warmup sequence. Most EMS scheduling programs provide for holiday schedules, which can be used during reduced use or shutdown periods. Finally, many systems are equipped with a one-time override function, which can be used to provide additional space conditioning due to a one-time, special event. When available this override feature should be used rather than changing the base operating schedule.

Water Heater Maintenance

The lower the supply water temperature that is used for hand washing sinks, the less energy is needed to heat the water. Reducing the temperature results in energy savings and the change is often unnoticeable to users. Be sure to review the domestic water temperature requirements for sterilizers and dishwashers as you investigate reducing the supply water temperature.

Also, preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. At least once a year, follow manufacturer instructions to drain a few gallons out of the water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Annual checks should include checks for:

- Leaks or heavy corrosion on the pipes and valves.
- Corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot, or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional.
- For electric water heaters, look for signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank.
- For water heaters more than three years old, have a technician inspect the sacrificial anode annually.

Water Conservation



Installing dual flush or low-flow toilets and low-flow/waterless urinals are ways to reduce water use. The EPA WaterSense® ratings for urinals is 0.5 gallons per flush (gpf) and for flush valve toilets is 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

For more information regarding water conservation go to the EPA's WaterSense website[5] or download a copy of EPA's "WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities"[6] to get ideas for creating a water management plan and best practices for a wide range of water using systems.

Water conservation devices that do not reduce hot water consumption will not provide energy savings at the site level, but they may significantly affect your water and sewer usage costs. Any reduction in water use does however ultimately reduce grid-level electricity use since a significant amount of electricity is used to deliver water from reservoirs to end users.

If the facility has detached buildings with a master water meter for the entire campus, check for unnatural wet areas in the lawn or water seeping in the foundation at water pipe penetrations through the foundation. Periodically check overnight meter readings when the facility is unoccupied, and there is no other scheduled water usage.

Manage irrigation systems to use water more effectively outside the building. Adjust spray patterns so that water lands on intended lawns and plantings and not on pavement and walls. Consider installing an evapotranspiration irrigation controller that will prevent over-watering.

Procurement Strategies

Purchasing efficient products reduces energy costs without compromising quality. Consider modifying your procurement policies and language to require ENERGY STAR or WaterSense products where available.

[5] https://www.epa.gov/watersense.

[6] https://www.epa.gov/watersense/watersense-work-0.

6 On-site Generation

You don't have to look far in New Jersey to see one of the thousands of solar electric systems providing clean power to homes, businesses, schools, and government buildings. On-site generation includes both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) technologies that generate power to meet all or a portion of the facility's electric energy needs. Also referred to as distributed generation, these systems contribute to greenhouse gas (GHG) emission reductions, demand reductions, and reduced customer electricity purchases, which results in improved electric grid reliability through better use of transmission and distribution systems.

Preliminary screenings were performed to determine if an on-site generation measure could be a cost-effective solution for your facility. Before deciding to install an on-site generation system, we recommend conducting a feasibility study to analyze existing energy profiles, siting, interconnection, and the costs associated with the generation project including interconnection costs, departing load charges, and any additional special facilities charges.

6.1 Solar Photovoltaic

Photovoltaic (PV) panels convert sunlight into electricity. Individual panels are combined into an array that produces direct current (DC) electricity. The DC current is converted to alternating current (AC) through an inverter. The inverter is then connected to the building's electrical distribution system.

A preliminary screening was conducted based on the facility's electric demand, size and location of free area, and shading elements. A solar PV array was evaluated for the building's parking lot. However, due to the facility's low electric demand along with the amount of shading in the area, the preliminary screening shows that the facility has no potential for installing a PV array.

This facility does not appear to meet the minimum criteria for a cost-effective solar PV installation. To be cost-effective, a solar PV array needs certain minimum criteria, such as sufficient and sustained electric demand and sufficient flat or south-facing rooftop or other unshaded space on which to place the PV panels.

The graphic below displays the results of the PV potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

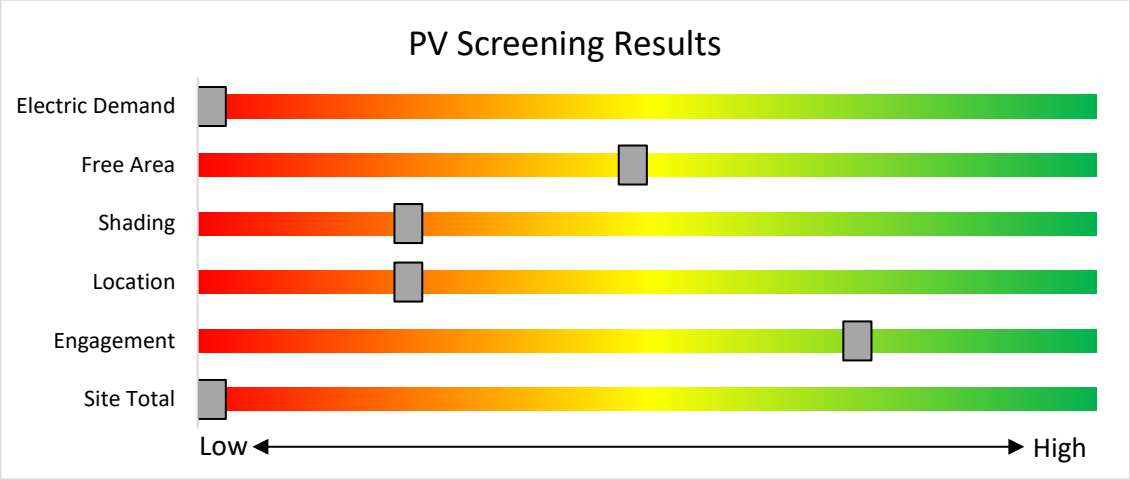


Figure 8 - Photovoltaic Screening

Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects. Solar projects may qualify to earn SREC- IIs (Solar Renewable Energy Certificates-II), however, the project owners *must* register their solar projects prior to the start of construction to establish the project's eligibility.

Get more information about solar power in New Jersey or find a qualified solar installer who can help you decide if solar is right for your building:

Successor Solar Incentive Program (SuSI): https://www.njcleanenergy.com/renewable-energy/programs/susi-program

- **Basic Info on Solar PV in NJ**: www.njcleanenergy.com/whysolar
- **NJ Solar Market FAQs**: www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-market-faqs.
- **Approved Solar Installers in the NJ Market**: www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/?id=60&start=1

6.2 Combined Heat and Power

Combined heat and power (CHP) generates electricity at the facility and puts waste heat energy to good use. Common types of CHP systems are reciprocating engines, microturbines, fuel cells, backpressure steam turbines, and (at large facilities) gas turbines.

CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for space cooling.

The key criteria used for screening is the amount of time that the CHP system would operate at full load and the facility's ability to use the recovered heat. Facilities with a continuous need for large quantities of waste heat are the best candidates for CHP.

A preliminary screening based on heating and electrical demand, siting, and interconnection shows that the facility has no potential for installing a cost-effective CHP system.

Based on a preliminary analysis, the facility does not appear to meet the minimum requirements for a cost-effective CHP installation. The lack of gas service, low or infrequent thermal load, and lack of space for siting the equipment are the most significant factors contributing to the lack of CHP potential.

The graphic below displays the results of the CHP potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

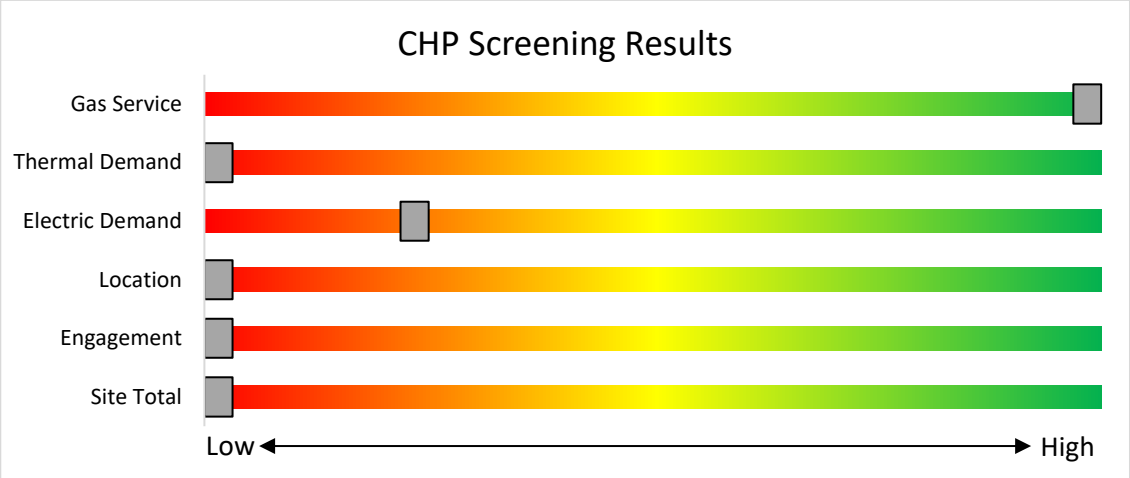


Figure 9 - Combined Heat and Power Screening

Find a qualified firm that specializes in commercial CHP cost assessment and installation: http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/

7 PROJECT FUNDING AND INCENTIVES

Ready to improve your building's performance? Your utility provider may be able to help.

7.1 Utility Energy Efficiency Programs

The Clean Energy Act, signed into law by Governor Murphy in 2018, requires New Jersey's investor-owned gas and electric utilities to reduce their customers' use by set percentages over time. To help reach these targets the New Jersey Board of Public Utilities approved a comprehensive suite of energy efficiency programs to be run by the utility companies.



These new utility programs are rolling out in the spring and summer of 2021. Keep up to date with developments by visiting:

https://www.njcleanenergy.com/transition

8 New Jersey's Clean Energy Programs

New Jersey's Clean Energy Program will continue to offer some energy efficiency programs.



8.1 Large Energy Users

The Large Energy Users Program (LEUP) is designed to foster self-directed investment in energy projects. This program is offered to New Jersey's largest energy customers that annually contribute at least $200,000 to the NJCEP aggregate of all buildings/sites. This equates to roughly $5 million in energy costs in the prior fiscal year.

Incentives

Incentives are based on the specifications below. The maximum incentive per entity is the lesser of:

- $4 million
- 75% of the total project(s) cost
- 90% of total NJCEP fund contribution in previous year
- $0.33 per projected kWh saved; $3.75 per projected Therm saved annually

How to Participate

To participate in LEUP, you will first need submit an enrollment application. This program requires all qualified and approved applicants to submit an energy plan that outlines the proposed energy efficiency work for review and approval. Applicants may submit a Draft Energy Efficiency Plan (DEEP), or a Final Energy Efficiency Plan (FEEP). Once the FEEP is approved, the proposed work can begin.

Detailed program descriptions, instructions for applying, and applications can be found at: www.njcleanenergy.com/LEUP

8.2 Combined Heat and Power

The Combined Heat & Power (CHP) program provides incentives for eligible CHP or waste heat to power (WHP) projects. Eligible CHP or WHP projects must achieve an annual system efficiency of at least 65% (lower heating value, or LHV), based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.

Incentives

Eligible Technologies	Size (Installed Rated Capacity)[1]	Incentive ($/kW)	% of Total Cost Cap per Project[3]	$ Cap per Project[3]
Powered by non-renewable or renewable fuel source[4]	≤500 kW	$2,000	30-40%[2]	$2 million
Gas Internal Combustion Engine	>500 kW - 1 MW	$1,000		
Gas Combustion Turbine	> 1 MW - 3 MW	$550	30%	$3 million
Microturbine Fuel Cells with Heat Recovery	>3 MW	$350		
Waste Heat to Power*	<1 MW	$1,000	30%	$2 million
	> 1MW	$500		$3 million

*Waste Heat to Power: Powered by non-renewable fuel source, heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine).

Check the NJCEP website for details on program availability, current incentive levels, and requirements.

How to Participate

You will work with a qualified developer or consulting firm to complete the CHP application. Once the application is approved the project can be installed. Information about the CHP program can be found at www.njcleanenergy.com/CHP.

8.3 Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects *must* register their projects prior to the start of construction to establish the project's eligibility to earn SREC-IIs (Solar Renewable Energy Certificates-II). SuSI consists of two sub-programs. The Administratively Determined Incentive (ADI) Program and the Competitive Solar Incentive (CSI) Program.

Administratively Determined Incentive (ADI) Program

The ADI Program provides administratively set incentives for net metered residential projects, net metered non-residential projects 5 MW or less, and all community solar projects.

After the registration is accepted, construction is complete, and a complete final as-built packet has been submitted, the project is issued a New Jersey certification number, which enables it to generate New Jersey SREC- IIs.

Market Segments	Size MW dc	Incentive Value ($/SREC II)	Public Entities Incentive Value - $20 Adder ($/SRECII)
Net Metered Residential	All types and sizes	$90	N/A
Small Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects smaller than 1 MW	$100	$120
Large Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects 1 MW to 5 MW	$90	$110
Small Net Metered Non-Residential Ground Mount	Projects smaller than 1 MW	$85	$105
Large Net Metered Non-Residential Ground Mount	Projects 1 MW to 5 MW	$80	$100
LMI Community Solar	Up to 5 MW	$90	N/A
Non-LMI Community Solar	Up to 5 MW	$70	N/A
Interim Subsection (t)	All types and sizes	$100	N/A

Eligible projects may generate SREC-IIs for 15 years following the commencement of commercial operations which is defined as permission to operate (PTO) from the Electric Distribution Company. After 15 years, projects may be eligible for a NJ Class I REC.

SREC-IIs will be purchased monthly by the SREC-II Program Administrator who will allocate the SREC-IIs to the Load Serving Entities (BGS Providers and Third-Party Suppliers) annually based on their market share of retail electricity sold during the relevant Energy Year.

The ADI Program online portal is now open to new registrations effective August 28, 2021.

Competitive Solar Incentive Program

The Competitive Solar Incentive (CSI) Program will provide competitively set incentives for grid supply projects and net metered non-residential projects greater than 5MW. The program is currently under development with the goal of holding the first solicitation by early-to-mid 2022. For updates, please continue to check the Solar Proceedings page on the New Jersey's Clean Energy Program website.

Solar projects help the State of New Jersey reach renewable energy goals outlined in the state's Energy Master Plan.

If you are considering installing solar photovoltaics on your building, visit the following link for more information: https://njcleanenergy.com/renewable-energy/programs/susi-program.

8.4 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) serves New Jersey's government agencies by financing energy projects. An ESIP is a type of performance contract, whereby school districts, counties, municipalities, housing authorities, and other public and state entities enter in to contracts to help finance building energy upgrades. Annual payments are lower than the savings projected from the energy conservation measures (ECMs), ensuring that ESIP projects are cash flow positive for the life of the contract.

ESIP provides government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources. NJCEP incentive programs described above can also be used to help further reduce the total project cost of eligible measures.

How to Participate

This LGEA report is the first step to participating in ESIP. Next, you will need to select an approach for implementing the desired ECMs:

(1) Use an energy services company or "ESCO."

(2) Use independent engineers and other specialists, or your own qualified staff, to provide and manage the requirements of the program through bonds or lease obligations.

(3) Use a hybrid approach of the two options described above where the ESCO is used for some services and independent engineers, or other specialists or qualified staff, are used to deliver other requirements of the program.

After adopting a resolution with a chosen implementation approach, the development of the energy savings plan can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used to pay for the financing.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Carefully consider all alternatives to develop an approach that best meets your needs. A detailed program descriptions and application can be found at www.njcleanenergy.com/ESIP.

ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you can use NJCEP incentive programs to help further reduce costs when developing the energy savings plan. Refer to the ESIP guidelines at the link above for further information and guidance on next steps.

9 PROJECT DEVELOPMENT

Energy conservation measures (ECMs) have been identified for your site, and their energy and economic analyses are provided within this LGEA report. Note that some of the identified projects may be mutually exclusive, such as replacing equipment versus upgrading motors or controls. The next steps with project development are to set goals and create a comprehensive project plan. The graphic below provides an overview of the process flow for a typical energy efficiency or renewable energy project. We recommend implementing as many ECMs as possible prior to undertaking a feasibility study for a renewable project. The cyclical nature of this process flow demonstrates the ongoing work required to continually improve building energy efficiency over time. If your building(s) scope of work is relatively simple to implement or small in scope, the measurement and verification (M&V) step may not be required. It should be noted through a typical project cycle, there will be changes in costs based on specific scopes of work, contractor selections, design considerations, construction, etc. The estimated costs provided throughout this LGEA report demonstrate the unburdened turn-key material and labor cost only. There will be contingencies and additional costs at the time of implementation. We recommend comprehensive project planning that includes the review of multiple bids for project work, incorporates potential operations and maintenance (O&M) cost savings, and maximizes your incentive potential.

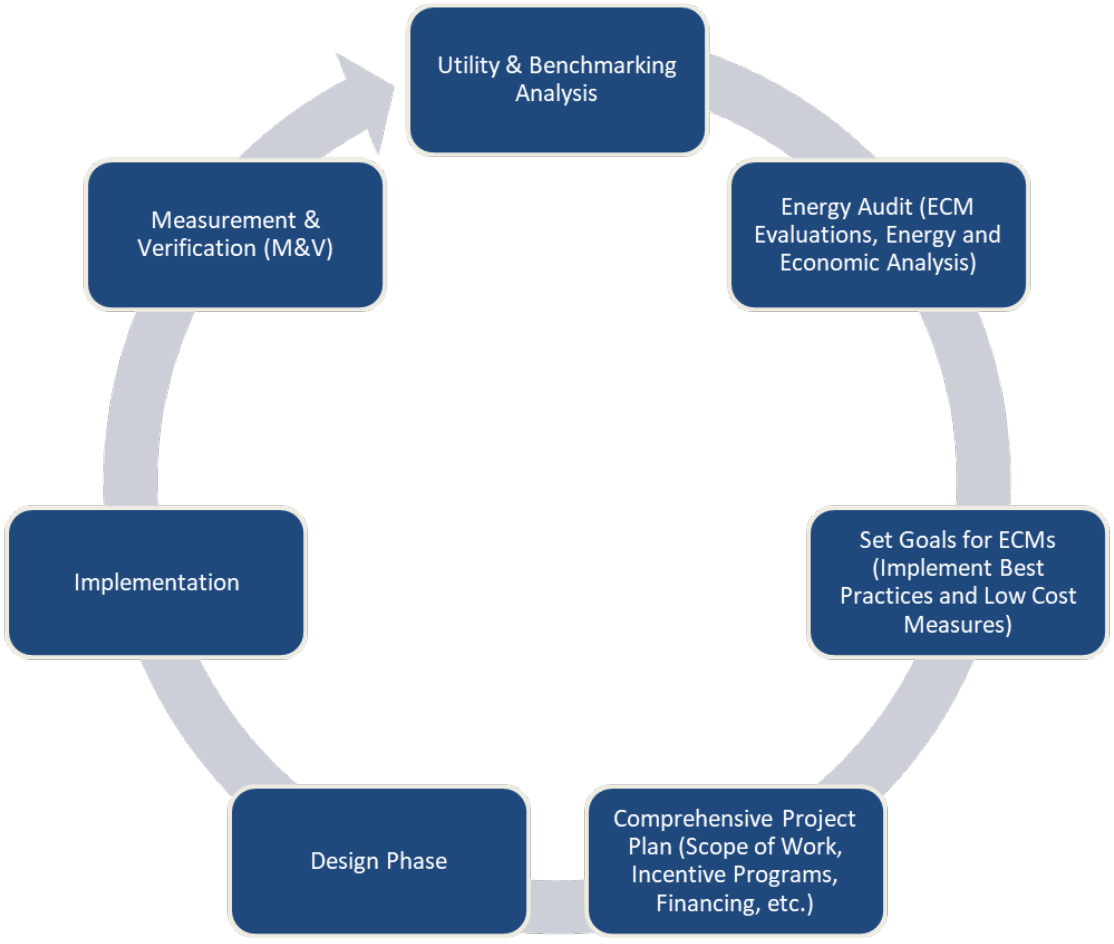


Figure 10 – Project Development Cycle

10 Energy Purchasing and Procurement Strategies

10.1 Retail Electric Supply Options

Energy deregulation in New Jersey has increased energy buyers' options by separating the function of electricity distribution from that of electricity supply. Though you may choose a different company from which to buy your electric power, responsibility for your facility's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your facility is not purchasing electricity from a third-party supplier, consider shopping for a reduced rate from third-party electric suppliers. If your facility already buys electricity from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party electric suppliers is available at the NJBPU website[7].

10.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey is also deregulated. Most customers that remain with the utility for natural gas service pay rates that are market based and fluctuate monthly. The utility provides basic gas supply service to customers who choose not to buy from a third-party supplier for natural gas commodity.

A customer's decision about whether to buy natural gas from a retail supplier typically depends on whether a customer prefers budget certainty and/or longer-term rate stability. Customers can secure longer-term fixed prices by signing up for service through a third-party retail natural gas supplier. Many larger natural gas customers may seek the assistance of a professional consultant to assist in their procurement process.

If your facility does not already purchase natural gas from a third-party supplier, consider shopping for a reduced rate from third-party natural gas suppliers. If your facility already purchases natural gas from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party natural gas suppliers is available at the NJBPU website[8].

[7] www.state.nj.us/bpu/commercial/shopping.html.

[8] www.state.nj.us/bpu/commercial/shopping.html.

APPENDIX A: EQUIPMENT INVENTORY & RECOMMENDATIONS

Lighting Inventory & Recommendations

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Conference 1	12	Compact Fluorescent: (2) 13W Biaxial Plug-In Lamps	Wall Switch	S	26	2,574	2, 3	Relamp	Yes	12	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	1,776	0.1	438	0	$69	$570	$59	7.4
Conference 1	12	Compact Fluorescent: (3) 40W Biaxial Plug-In Lamps	Wall Switch	S	120	2,574	2, 3	Relamp	Yes	12	LED Lamps: PL-L (Biax) Lamps	Occupancy Sensor	84	1,776	0.7	2,108	0	$334	$756	$71	2.1
Conference 1	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Corridor - Ground Floor	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Corridor - Ground Floor	10	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	2, 4	Relamp	Yes	10	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	1,973	0.4	1,234	0	$195	$1,175	$450	3.7
Exterior	8	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Timeclock		26	1,825	2	Relamp	No	8	LED Lamps: GX23 (Plug-In) Lamps	Timeclock	19	1,825	0.0	102	0	$16	$100	$8	5.6
Exterior	4	LED - Fixtures: Security	Timeclock		20	1,825		None	No	4	LED - Fixtures: Security	Timeclock	20	1,825	0.0	0	0	$0	$0	$0	0.0
Exterior	3	Metal Halide: (1) 200W Lamp	Timeclock		232	1,825	1	Fixture Replacement	No	3	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	60	1,825	0.0	942	0	$151	$1,168	$300	5.7
Exterior	4	Metal Halide: (1) 70W Lamp	Timeclock		95	1,825	1	Fixture Replacement	No	4	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	21	1,825	0.0	540	0	$87	$807	$400	4.7
Janitorial 007	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	8.9
Locker Room 011	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,574	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,574	0.0	140	0	$22	$55	$15	1.8
Mechanical 005	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	8.9
Mechanical 006 - Elevator	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	8.9
Mechanical 009	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	4	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	76	0	$12	$146	$40	8.9
Mechanical 012	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	8.9
Office - 002	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.5	1,427	0	$226	$708	$155	2.4
Office - Copy 001	6	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,574	2, 3	Relamp	Yes	6	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,776	0.4	1,070	0	$169	$599	$125	2.8
Restroom - #1	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Restroom - #2	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Shower Room - 011	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	2,574	0.0	93	0	$15	$37	$10	1.8
Stairs #1	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	2,860	2, 4	Relamp	Yes	5	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,973	0.2	661	0	$105	$408	$225	1.7
Stairs #2	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch		62	2,860	2, 4	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,973	0.2	528	0	$84	$371	$180	2.3
Storage - File Room	12	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	520	2, 3	Relamp	Yes	12	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	359	0.7	432	0	$68	$927	$180	10.9
Storage 003	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	359	0.2	96	0	$15	$416	$40	24.7
Storage 013	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2, 3	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	359	0.5	288	0	$46	$708	$120	12.9

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Kitchen 1	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,574	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,776	0.1	357	0	$56	$226	$50	3.1
Library 1	4	Compact Fluorescent: (2) 40W Biaxial Plug-In Lamps	Wall Switch	S	80	2,574	2, 3	Relamp	Yes	4	LED Lamps: PL-L (Biax) Lamps	Occupancy Sensor	56	1,776	0.2	468	0	$74	$378	$43	4.5
Lobby - Exhibit	9	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	1,820	2	Relamp	No	9	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	37	1,820	0.1	270	0	$43	$225	$18	4.8
Lobby - Exhibit	56	Incandescent: (1) 65W Screw-in Lamps	Wall Switch	S	65	1,820	2	Relamp	No	56	LED Lamps: PAR30 Lamps	Wall Switch	10	1,820	2.9	6,166	-1	$976	$1,300	$168	1.2
Main Lobby	3	Compact Fluorescent: (3) 40W Biaxial Plug-In Lamps	Wall Switch	S	120	2,860	2, 4	Relamp	Yes	3	LED Lamps: PL-L (Biax) Lamps	High/Low Control	84	1,973	0.2	586	0	$93	$347	$114	2.5
Main Lobby	5	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,860	2, 4	Relamp	Yes	5	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	37	1,973	0.1	416	0	$66	$350	$185	2.5
Main Lobby	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Main Lobby	3	Incandescent: (1) 65W Screw-in Lamps	Wall Switch	S	65	2,860	2, 4	Relamp	Yes	3	LED Lamps: PAR30 Lamps	High/Low Control	10	1,973	0.2	548	0	$87	$295	$114	2.1
Office - 101	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.1	238	0	$38	$189	$40	4.0
Office - Reception	3	LED - Fixtures: Ceiling Mount	Wall Switch	S	20	2,574	3	None	Yes	3	LED - Fixtures: Ceiling Mount	Occupancy Sensor	20	1,776	0.0	53	0	$8	$270	$35	28.2
Office - Reception	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,574	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,574	0.0	50	0	$8	$18	$5	1.7
Office - Regulatory #1	16	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	16	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.6	1,902	0	$301	$1,124	$230	3.0
Office - Regulatory #1	6	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) U-Lamp	Occupancy Sensor	33	1,776	0.2	666	0	$105	$705	$95	5.8
Office - Regulatory #2	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.2	476	0	$75	$416	$75	4.5
Restroom - #3	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Restroom - #4	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Corridor 2nd	3	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2, 4	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	1,973	0.0	122	0	$19	$263	$108	8.0
Corridor 2nd	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Corridor 2nd	5	U-Bend Fluorescent - T8: U T8 (32W) - 2L	Wall Switch	S	62	2,860	2, 4	Relamp	Yes	5	LED - Linear Tubes: (2) U-Lamp	High/Low Control	33	1,973	0.2	617	0	$98	$587	$225	3.7
Electrical Room - Servers	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	520	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	359	0.1	72	0	$11	$226	$50	15.4
Mechanical 209	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	8.9
Office - 204	12	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	12	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.5	1,427	0	$226	$708	$155	2.4
Office - 206	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.3	951	0	$151	$562	$115	3.0
Office - 202	8	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,574	2, 3	Relamp	Yes	8	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,776	0.3	951	0	$151	$562	$115	3.0
Restroom - #5	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Restroom - #6	1	Linear Fluorescent - T8: 2' T8 (17W) - 2L	Wall Switch	S	33	2,574	2	Relamp	No	1	LED - Linear Tubes: (2) 2' Lamps	Wall Switch	17	2,574	0.0	45	0	$7	$33	$6	3.7
Storage 207	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	8.9

Motor Inventory & Recommendations

		Existing Conditions									Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical 006 - Elevator	Elevator	1	Other	20.0	91.0%	No			B	130		No	91.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical 006 - Elevator	Sump Pump	1	Process Pump	0.5	75.0%	No			B	730		No	75.0%	No		0.0	0	0	$0	$0	$0	0.0
RJS Center	Furnaces	7	Supply Fan	0.1	60.0%	No	Rheem		B	2,574		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0

Packaged HVAC Inventory & Recommendations

		Existing Conditions									Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Manufacturer	Model	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Exterior	AC1 - Ground Floor	1	Split-System	4.00		11.00		Ruud	UAMB-048JAZ	B	5	Yes	1	Split-System	4.00		16.00		0.7	614	0	$98	$6,486	$420	61.6
Exterior	AC2 - First Floor	1	Split-System	5.00		11.00		Ruud	UAMB-060JAZ	B	5	Yes	1	Split-System	5.00		16.00		0.9	767	0	$123	$6,521	$525	48.7
Exterior	AC3 - First Floor	1	Split-System	5.00		11.00		Ruud	UAMB-060JAZ	B	5	Yes	1	Split-System	5.00		16.00		0.9	767	0	$123	$6,521	$525	48.7
Exterior	AC4 - First Floor	1	Split-System	5.00		11.00		Ruud	UAMB-060JAZ	B	5	Yes	1	Split-System	5.00		16.00		0.9	767	0	$123	$6,521	$525	48.7
Exterior	AC5 - First Floor	1	Split-System	5.00		11.00		Ruud	UAMB-060JAZ	B	5	Yes	1	Split-System	5.00		16.00		0.9	767	0	$123	$6,521	$525	48.7
Exterior	AC6 - Second Floor Offices	1	Split-System	4.00		11.00		Ruud	UAMB-048JAZ	B	5	Yes	1	Split-System	4.00		16.00		0.7	614	0	$98	$6,486	$420	61.6
Exterior	AC7 - Second Floor Corridor	1	Split-System	2.00		11.00		Ruud	UAMB-024JAZ	B	5	Yes	1	Split-System	2.00		16.00		0.3	307	0	$49	$5,922	$210	116.1
Exterior	Electrical Room - Servers	1	Ductless Mini-Split AC	2.00		16.80		Daikin	RZR24PVJU	W		No							0.0	0	0	$0	$0	$0	0.0
Exterior	Electrical Room - Servers	1	Ductless Mini-Split AC	2.00		12.00		Sanyo	CL2432A	B	5	Yes	1	Ductless Mini-Split AC	2.00		18.00		0.3	300	0	$48	$5,642	$0	117.3
Exterior	Storage 013	1	Ductless Mini-Split HP	0.75	10.50	10.00	6.8 HSPF	Mitsubishi	MU09EW	B	6	Yes	1	Ductless Mini-Split HP	0.75	10.50	18.00	3.8 COP	0.5	914	0	$147	$5,327	$0	36.3
Mechanical 005	F1 - Ground Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 005	F2 - First Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 005	F3 - First Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 009	F4 - First Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 012	F5 - First Floor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 209	F6 - Second Floor Offices	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical 209	F7 - Second Floor Corridor	1	Forced Air Furnace		55.20		0.92 AFUE	Ruud	RCBA-60	B		No							0.0	0	0	$0	$0	$0	0.0

Pipe Insulation Recommendations

		Recommendation Inputs			Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Affected	ECM #	Length of Uninsulated Pipe (ft)	Pipe Diameter (in)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical 209	Domestic Hot Water	7	6	1.00	0.0	0	1	$9	$35	$12	2.4

DHW Inventory & Recommendations

		Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Manufacturer	Model	Remaining Useful Life	ECM #	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical 209	Domestic Hot Water	1	Storage Tank Water Heater (≤ 50 Gal)	Bradford White	50T653N	B		No						0.0	0	0	$0	$0	$0	0.0

Low-Flow Device Recommendations

	Recommedation Inputs					Energy Impact & Financial Analysis						
Location	ECM #	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Richard J. Sullivan Center	8	6	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	3	$28	$43	$22	0.8

Plug Load Inventory

	Existing Conditions					
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified?	Manufacturer	Model
Richard J. Sullivan Center	3	Coffee Machine	500	No		
Richard J. Sullivan Center	1	Dehumidifier	120	Yes		
Richard J. Sullivan Center	25	Desktop	120	No		
Richard J. Sullivan Center	1	Dishwasher (Undercounter)	1,000	No		
Richard J. Sullivan Center	1	Electric Space Heater	1,500	No		
Richard J. Sullivan Center	1	Microwave	1,000	No		
Richard J. Sullivan Center	1	Paper Shredder	146	No		
Richard J. Sullivan Center	14	Printer (Medium/Small)	450	No		
Richard J. Sullivan Center	2	Printer/Copier (Large)	600	No		
Richard J. Sullivan Center	1	Refrigerator (Residential)	340	No		
Richard J. Sullivan Center	1	Smart Board	215	No		
Richard J. Sullivan Center	3	Television	224	No		
Richard J. Sullivan Center	1	Toaster	600	No		
Richard J. Sullivan Center	1	Toaster Oven	600	No		
Richard J. Sullivan Center	1	Water Fountain	370	No		

APPENDIX B: ENERGY STAR STATEMENT OF ENERGY PERFORMANCE

Energy use intensity (EUI) is presented in terms of *site energy* and *source energy*. Site energy is the amount of fuel and electricity consumed by a building as reflected in utility bills. Source energy includes fuel consumed to generate electricity consumed at the site, factoring in electric production and distribution losses for the region.

LEARN MORE AT energystar.gov

ENERGY STAR® Statement of Energy Performance

79

ENERGY STAR® Score[1]

Richard J. Sullivan (RJS) Center

Primary Property Type: Office
Gross Floor Area (ft²): 12,748
Built: 2002

For Year Ending: August 31, 2021
Date Generated: January 31, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
Richard J. Sullivan (RJS) Center 15C Springfield Road New Lisbon, New Jersey 08064	New Jersey Pinelands Commission PO Box 359 New Lisbon, NJ 08064 609-894-7300	Jessica Lynch PO Box 359 New Lisbon, NJ 08064 609-894-7300 jessica.lynch@pinelands.nj.gov

Property ID: 19072363

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
50.2 kBtu/ft²

Source EUI
82.8 kBtu/ft²

Annual Energy by Fuel

Natural Gas (kBtu)	420,326 (66%)
Electric - Grid (kBtu)	219,548 (34%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	76.3
National Median Source EUI (kBtu/ft²)	125.9
% Diff from National Median Source EUI	-34%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	43

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____Date: _____

Licensed Professional

____ _____
,
(____)____-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

APPENDIX C: GLOSSARY

TERM	DEFINITION
Blended Rate	Used to calculate fiscal savings associated with measures. The blended rate is calculated by dividing the amount of your bill by the total energy use. For example, if your bill is $22,217.22, and you used 266,400 kilowatt-hours, your blended rate is 8.3 cents per kilowatt-hour.
Btu	*British thermal unit*: a unit of energy equal to the amount of heat required to increase the temperature of one pound of water by one-degree Fahrenheit.
CHP	*Combined heat and power*. Also referred to as cogeneration.
COP	*Coefficient of performance*: a measure of efficiency in terms of useful energy delivered divided by total energy input.
Demand Response	Demand response reduces or shifts electricity usage at or among participating buildings/sites during peak energy use periods in response to time-based rates or other forms of financial incentives.
DCV	*Demand control ventilation*: a control strategy to limit the amount of outside air introduced to the conditioned space based on actual occupancy need.
US DOE	*United States Department of Energy*
EC Motor	*Electronically commutated motor*
ECM	*Energy conservation measure*
EER	*Energy efficiency ratio*: a measure of efficiency in terms of cooling energy provided divided by electric input.
EUI	*Energy Use Intensity:* measures energy consumption per square foot and is a standard metric for comparing buildings' energy performance.
Energy Efficiency	Reducing the amount of energy necessary to provide comfort and service to a building/area. Achieved through the installation of new equipment and/or optimizing the operation of energy use systems. Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service.
ENERGY STAR	ENERGY STAR is the government-backed symbol for energy efficiency. The ENERGY STAR program is managed by the EPA.
EPA	*United States Environmental Protection Agency*
Generation	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
GHG	*Greenhouse gas* gases that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.
gpf	*Gallons per flush*

gpm	*Gallon per minute*
HID	*High intensity discharge:* high-output lighting lamps such as high-pressure sodium, metal halide, and mercury vapor.
hp	*Horsepower*
HPS	*High-pressure sodium*: a type of HID lamp.
HSPF	*Heating seasonal performance factor:* a measure of efficiency typically applied to heat pumps. Heating energy provided divided by seasonal energy input.
HVAC	*Heating, ventilating, and air conditioning*
IHP 2014	US DOE Integral Horsepower rule. The current ruling regarding required electric motor efficiency.
IPLV	*Integrated part load value:* a measure of the part load efficiency usually applied to chillers.
kBtu	One thousand British thermal units
kW	*Kilowatt*: equal to 1,000 Watts.
kWh	*Kilowatt-hour*: 1,000 Watts of power expended over one hour.
LED	*Light emitting diode*: a high-efficiency source of light with a long lamp life.
LGEA	*Local Government Energy Audit*
Load	The total power a building or system is using at any given time.
Measure	A single activity, or installation of a single type of equipment, that is implemented in a building system to reduce total energy consumption.
MH	*Metal halide*: a type of HID lamp.
MBh	*Thousand Btu per hour*
MBtu	*One thousand British thermal units*
MMBtu	*One million British thermal units*
MV	*Mercury Vapor:* a type of HID lamp.
NJBPU	*New Jersey Board of Public Utilities*
NJCEP	*New Jersey's Clean Energy Program:* NJCEP is a statewide program that offers financial incentives, programs and services for New Jersey residents, business owners and local governments to help them save energy, money, and the environment.
psig	Pounds per square inch gauge
Plug Load	Refers to the amount of power used in a space by products that are powered by means of an ordinary AC plug.
PV	*Photovoltaic:* refers to an electronic device capable of converting incident light directly into electricity (direct current).

SEER	*Seasonal energy efficiency ratio:* a measure of efficiency in terms of annual cooling energy provided divided by total electric input.
SEP	*Statement of energy performance:* a summary document from the ENERGY STAR Portfolio Manager.
Simple Payback	The amount of time needed to recoup the funds expended in an investment or to reach the break-even point between investment and savings.
SREC	*Solar renewable energy credit*: a credit you can earn from the state for energy produced from a photovoltaic array.
TREC	*Transition Incentive Renewable Energy Certificate:* a factorized renewable energy certificate you can earn from the state for energy produced from a photovoltaic array.
T5, T8, T12	A reference to a linear lamp diameter. The number represents increments of 1/8th of an inch.
Temperature Setpoint	The temperature at which a temperature regulating device (thermostat, for example) has been set.
therm	100,000 Btu. Typically used as a measure of natural gas consumption.
tons	A unit of cooling capacity equal to 12,000 Btu/hr.
Turnkey	Provision of a complete product or service that is ready for immediate use.
VAV	*Variable air volume*
VFD	*Variable frequency drive*: a controller used to vary the speed of an electric motor.
WaterSense®	The symbol for water efficiency. The WaterSense® program is managed by the EPA.
Watt (W)	Unit of power commonly used to measure electricity use.



Local Government Energy Audit Report

Fenwick Manor, Carriage House, & Barn

March 21, 2022

Prepared for:

NJ Pinelands Commission

15 Springfield Rd

New Lisbon, New Jersey 08064

Prepared by:

TRC

317 George Street

New Brunswick, New Jersey 08901

Disclaimer

The goal of this audit report is to identify potential energy efficiency opportunities and help prioritize specific measures for implementation. Most energy conservation measures have received preliminary analysis of feasibility that identifies expected ranges of savings and costs. This level of analysis is usually considered sufficient to establish a basis for further discussion and to help prioritize energy measures.

TRC reviewed the energy conservation measures and estimates of energy savings for technical accuracy. Actual, achieved energy savings depend on behavioral factors and other uncontrollable variables and, therefore, estimates of final energy savings are not guaranteed. TRC and the New Jersey Board of Public Utilities (NJBPU) shall in no event be liable should the actual energy savings vary.

TRC bases estimated material and labor costs primarily on RS Means cost manuals as well as on our experience at similar facilities. This approach is based on standard cost estimating manuals and is vendor neutral. Cost estimates include material and labor pricing associated with one for one equipment replacements. Cost estimates do not include demolition or removal of hazardous waste. The actual implementation costs for energy savings projects are anticipated to be significantly higher based on the specific conditions at your site(s). We strongly recommend that you work with your design engineer or contractor to develop actual project costs for your specific scope of work for the installation of high efficiency equipment. We encourage you to obtain multiple estimates when considering measure installations. Actual installation costs can vary widely based on selected products and installers. TRC and NJBPU do not guarantee cost estimates and shall in no event be held liable should actual installed costs vary from these material and labor estimates.

Incentive values provided in this report are estimated based of previously run state efficiency programs. Incentive levels are not guaranteed. The NJBPU reserves the right to extend, modify, or terminate programs without prior notice. Please review all available utility program incentives and eligibility requirements prior to selecting and installing any energy conservation measures.

The customer and their respective contractor(s) are responsible to implement energy conservation measures in complete conformance with all applicable local, state, and federal requirements.

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Table of Contents

1 Executive Summary 1

1.1 **Planning Your Project** 4

Pick Your Installation Approach 4
Options from Around the State 5

2 Existing Conditions 6

2.1 Site Overview 6
2.2 Building Occupancy 6
2.3 Building Envelope 7
2.4 Lighting Systems 11
2.5 Air Handling Systems 13

Unitary Electric HVAC Equipment 13
Unitary Heating Equipment 14

2.6 Domestic Hot Water 15
2.7 Plug Load and Vending Machines 16
2.8 Water-Using Systems 17

3 Energy Use and Costs 18

3.1 Electricity 20
3.2 Natural Gas 21
3.3 Benchmarking 22

Tracking Your Energy Performance 23

4 Energy Conservation Measures 24

4.1 Lighting 27

ECM 1: Install LED Fixtures 27
ECM 2: Retrofit Fixtures with LED Lamps 27

4.2 Lighting Controls 28

ECM 3: Install Occupancy Sensor Lighting Controls 28
ECM 4: Install High/Low Lighting Controls 29

4.3 Unitary HVAC 29

ECM 5: Install High Efficiency Air Conditioning Units 29

4.4 Domestic Water Heating 30

ECM 6: Install Low-Flow DHW Devices 30

5 Energy Efficient Best Practices 31

Energy Tracking with ENERGY STAR Portfolio Manager 31
Weatherization 31
Doors and Windows 31
Lighting Maintenance 32
Lighting Controls 32

Motor Maintenance 32
Fans to Reduce Cooling Load 32
AC System Evaporator/Condenser Coil Cleaning 32
HVAC Filter Cleaning and Replacement 32
Ductwork Maintenance 33
Furnace Maintenance 33
Label HVAC Equipment 33
Optimize HVAC Equipment Schedules 34
Water Heater Maintenance 34
Water Conservation 35
Procurement Strategies 35

6 On-site Generation 36

6.1 Solar Photovoltaic 37
6.2 Combined Heat and Power 39

7 Project Funding and Incentives 40

7.1 Utility Energy Efficiency Programs 40

8 New Jersey's Clean Energy Programs 41

8.1 Large Energy Users 42
8.2 Combined Heat and Power 43
8.3 Successor Solar Incentive Program (SuSI) 44
8.4 Energy Savings Improvement Program 45

9 Project Development 46
10 Energy Purchasing and Procurement Strategies 47

10.1 Retail Electric Supply Options 47
10.2 Retail Natural Gas Supply Options 47

Appendix A: Equipment Inventory & Recommendations A-1
Appendix B: ENERGY STAR Statement of Energy Performance B-1
Appendix C: Glossary C-1

ENERGY EFFICIENCY INCENTIVE & REBATE TRANSITION

For the purposes of your LGEA, estimated incentives and rebates are included as placeholders for planning purposes. New Jersey utilities are rolling out their own energy efficiency programs, which your project may be eligible for depending on individual measures, quantities, and size of the building.

In 2018, Governor Murphy signed into law the landmark legislation known as the Clean Energy Act. The law called for a significant overhaul of New Jersey's clean energy systems by building sustainable infrastructure in order to fight climate change and reduce carbon emissions, which will in turn create well-paying local jobs, grow the state's economy, and improve public health while ensuring a cleaner environment for current and future residents.

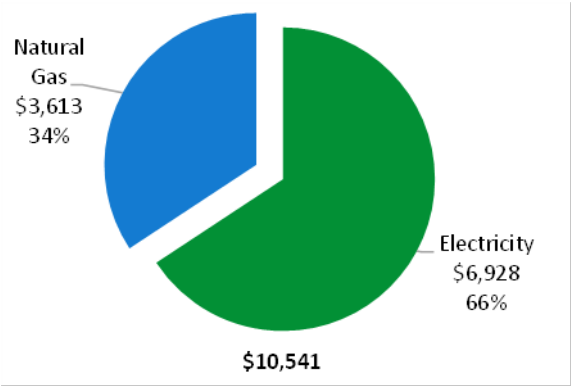
These next generation energy efficiency programs feature new ways of managing and delivering programs historically administered by New Jersey's Clean Energy Program™ (NJCEP). All of the investor-owned gas and electric utility companies will now also offer complementary energy efficiency programs and incentives directly to customers like you. NJCEP will still offer programs for new construction, renewable energy, the Energy Savings Improvement Program (ESIP), and large energy users.

New utility programs are under development. Keep up to date with developments by visiting the NJCEP website.

1 EXECUTIVE SUMMARY

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) report for Fenwick Manor, Carriage House, & Barn. This report provides you with information about your facility's energy use, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help make changes in your facility. TRC conducted this study as part of a comprehensive effort to assist New Jersey school districts and local governments in controlling their energy costs and to help protect our environment by reducing statewide energy consumption.

BUILDING PERFORMANCE REPORT

Annual Utilities	Costs: $10,541 Electricity: 44,012 kWh Natural Gas: 3,627 Therms	
ENERGY STAR® Benchmarking Score	N/A *(1-100 scale)*	A standard energy use benchmark is not available for this facility type. This report contains suggestions about how to improve building performance and reduce energy costs.

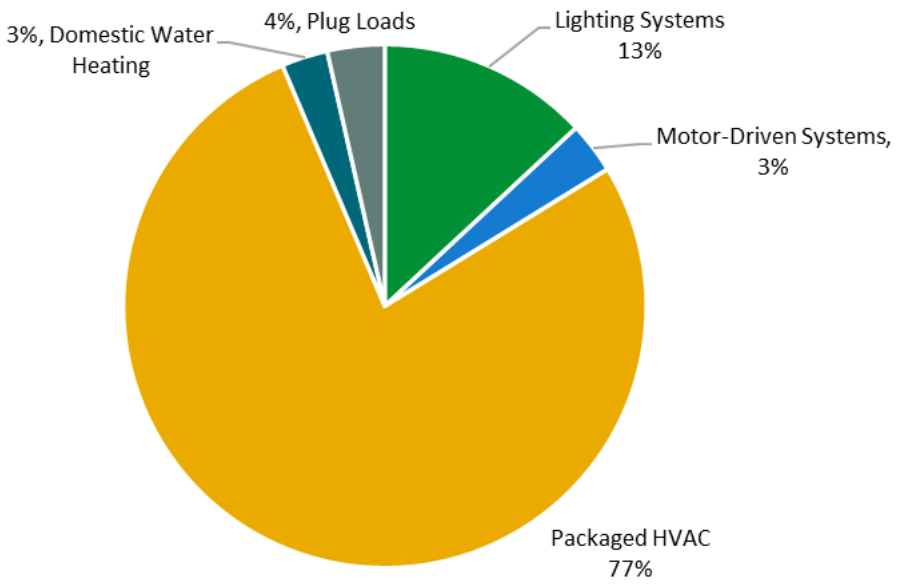


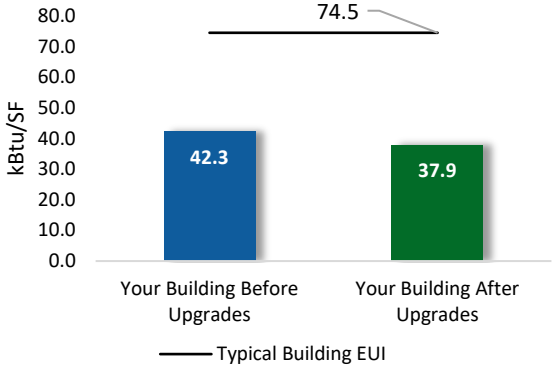
Figure 1 - Energy Use by System

POTENTIAL IMPROVEMENTS

This energy audit considered a range of potential energy improvements in your building. Costs and savings will vary between improvements. Presented below are two potential scopes of work for your consideration.

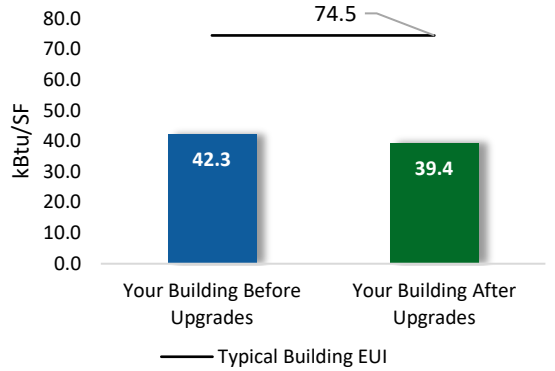
Scenario 1: Full Package (All Evaluated Measures)

Installation Cost	$52,739
Potential Rebates & Incentives[1]	$5,279
Annual Cost Savings	$2,462
Annual Energy Savings	Electricity: 15,661 kWh Natural Gas: -3 Therms
Greenhouse Gas Emission Savings	8 Tons
Simple Payback	19.3 Years
Site Energy Savings (All Utilities)	10%



Scenario 2: Cost Effective Package[2]

Installation Cost	$11,858
Potential Rebates & Incentives	$2,156
Annual Cost Savings	$1,663
Annual Energy Savings	Electricity: 10,586 kWh Natural Gas: -3 Therms
Greenhouse Gas Emission Savings	5 Tons
Simple Payback	5.8 Years
Site Energy Savings (all utilities)	7%



On-site Generation Potential

Photovoltaic	None
Combined Heat and Power	None

[1] Incentives are based on previously run state rebate programs. Contact your utility provider for current program incentives that may apply.

[2] A cost-effective measure is defined as one where the simple payback does not exceed two-thirds of the expected proposed equipment useful life. Simple payback is based on the net measure cost after potential incentives.

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**8,042**	**3.4**	**-2**	**$1,251**	**$6,990**	**$1,437**	**$5,553**	**4.4**	**7,918**
ECM 1	Install LED Fixtures	No	664	0.0	0	$105	$2,175	$550	$1,625	15.5	669
ECM 2	Retrofit Fixtures with LED Lamps	Yes	7,378	3.4	-2	$1,146	$4,815	$887	$3,928	3.4	7,249
Lighting Control Measures			**3,209**	**1.2**	**-1**	**$498**	**$7,015**	**$1,255**	**$5,760**	**11.6**	**3,152**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,673	1.1	-1	$415	$5,665	$800	$4,865	11.7	2,626
ECM 4	Install High/Low Lighting Controls	Yes	535	0.2	0	$83	$1,350	$455	$895	10.8	526
Unitary HVAC Measures			**4,410**	**5.5**	**0**	**$694**	**$38,706**	**$2,573**	**$36,133**	**52.1**	**4,441**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,410	5.5	0	$694	$38,706	$2,573	$36,133	52.1	4,441
Domestic Water Heating Upgrade			**0**	**0.0**	**2**	**$19**	**$29**	**$14**	**$14**	**0.8**	**222**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	2	$19	$29	$14	$14	0.8	222
TOTALS (COST EFFECTIVE MEASURES)			**10,586**	**4.6**	**0**	**$1,663**	**$11,858**	**$2,156**	**$9,702**	**5.8**	**10,624**
TOTALS (ALL MEASURES)			**15,661**	**10.2**	**0**	**$2,462**	**$52,739**	**$5,279**	**$47,460**	**19.3**	**15,734**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 2 – Evaluated Energy Improvements

For more detail on each evaluated energy improvement and a break out of cost-effective improvements, see **Section 4: Energy Conservation Measures.**

1.1 Planning Your Project

Careful planning makes for a successful energy project. When considering this scope of work, you will have some decisions to make, such as:

- How will the project be funded and/or financed?
- Is it best to pursue individual ECMs, groups of ECMs, or use a comprehensive approach where all ECMs are installed together?
- Are there other facility improvements that should happen at the same time?

Pick Your Installation Approach

Utility-run energy efficiency programs, such as New Jersey's Clean Energy Programs, give you the flexibility to do a little or a lot. Rebates, incentives, and financing are available to help reduce both your installation costs and your energy bills. If you are planning to take advantage of these programs, make sure to review incentive program guidelines before proceeding. This is important because in most cases you will need to submit applications for the incentives ***before*** purchasing materials or starting installation.

For details on these programs please visit New Jersey's Clean Energy Program website or contact your utility provider.



Options from Around the State

Financing and Planning Support with the Energy Savings Improvement Program (ESIP)

For larger facilities with limited capital availability to implement ECMs, project financing may be available through the ESIP. Supported directly by the NJBPU, ESIP provides government agencies with project development, design, and implementation support services, as well as attractive financing for implementing ECMs. You have already taken the first step as an LGEA customer, because this report is required to participate in ESIP.

Resiliency with Return on Investment through Combined Heat and Power (CHP)

The CHP program provides incentives for combined heat and power (i.e., cogeneration) and waste heat to power projects. Combined heat and power systems generate power on-site and recover heat from the generation system to meet on-site thermal loads. Waste heat to power systems use waste heat to generate power. You will work with a qualified developer who will design a system that meets your building's heating and cooling needs.

Successor Solar Incentive Program (SuSI)

New Jersey is committed to supporting solar energy. Solar projects help the state reach the renewable goals outlined in the state's Energy Master Plan. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available, but certified solar projects are able to earn one SREC II (Solar Renewable Energy Certificates II) for each megawatt-hour of solar electricity produced from a qualifying solar facility.

Ongoing Electric Savings with Demand Response

The Demand Response Energy Aggregator program reduces electric loads at commercial facilities when wholesale electricity prices are high or when the reliability of the electric grid is threatened due to peak power demand. By enabling commercial facilities to reduce electric demand during times of peak demand, the grid is made more reliable, and overall transmission costs are reduced for all ratepayers. Curtailment service providers provide regular payments to medium and large consumers of electric power for their participation in demand response (DR) programs. Program participation is voluntary, and facilities receive payments regardless of whether they are called upon to curtail their load during times of peak demand.

Large Energy User Program (LEUP)

LEUP designed to promote self-investment in energy efficiency and combined heat and power or fuel cell projects. It incentivizes owners/users of buildings to upgrade or install energy conserving measures in existing buildings to help offset the capital costs associated with the project. The efficiency upgrades are customized to meet the requirements of the customers' existing facilities, while advancing the State's energy efficiency, conservation, and greenhouse gas reduction goals.

2 EXISTING CONDITIONS

The New Jersey Board of Public Utilities (NJBPU) has sponsored this Local Government Energy Audit (LGEA) Report for Fenwick Manor, Carriage House, & Barn. This report provides information on how your facility uses energy, identifies energy conservation measures (ECMs) that can reduce your energy use, and provides information and assistance to help you implement the ECMs.

TRC conducted this study as part of a comprehensive effort to assist New Jersey educational and local government facilities in controlling energy costs and protecting our environment by offering a wide range of energy management options and advice.

2.1 Site Overview

On January 19, 2022, TRC performed an energy audit at Fenwick Manor, Carriage House, & Barn located in New Lisbon, New Jersey. TRC met with Jessica Lynch to review the facility operations and help focus our investigation on specific energy-using systems.

Fenwick Manor is a four-story, 6,730 square foot building built in 1820. The Carriage House is a three-story, 1,101 square foot building built in 1820, and the Barn is a three-story, 4,291 square foot building built in 1880. Spaces include offices, conference rooms, corridors, stairwells, kitchen, storage rooms, restrooms, electrical and mechanical space. Lighting for the facility is provided mainly by linear fluorescent T8 fixtures. Seven split-systems air conditioners with six associated furnaces provide cooling and heating to spaces.

2.2 Building Occupancy

The facility is occupied year-round. The buildings are closed on the weekends, and the facility closes at 6:00 PM on weekdays. During a typical day, the facility is occupied by approximately 20 staff.

Building Name	Weekday/Weekend	Operating Schedule
Fenwick Manor	Weekday	7:00 AM - 6:00 PM
	Weekend	Closed
Carriage House	Weekday	7:00 AM - 6:00 PM
	Weekend	Closed
Barn	Weekday	7:00 AM - 6:00 PM
	Weekend	Closed

Figure 3 - Building Occupancy Schedule

2.3 Building Envelope

Fenwick Manor is a three-floor building with a basement, the Carriage House is a two-floor building with a basement, and the Barn is a three-floor building. Building walls are mainly clapboard siding over a wooden structure. Fenwick Manor's exterior walls were observed to have paint peeling during the site visit, with concerns about cracks from the second to third floor. Each roof is pitched and covered with shingles, with a small flat section over part of the Barn. Roof areas are in good condition.

The windows are single glazed and have wooden frames with thermal breaks. The glass-to-frame seals are in fair condition. The operable window weather seals are in fair condition, showing little evidence of excess wear. Exterior doors have wooden frames and are in fair condition with worn door seals. Degraded window and door seals increase drafts and outside air infiltration. Overall, the building envelope appears in fair condition.



Building Walls – Fenwick Manor



Building Walls – Carriage House



Building Walls – Barn





Building Windows





Entrance & Exit Doors

2.4 Lighting Systems

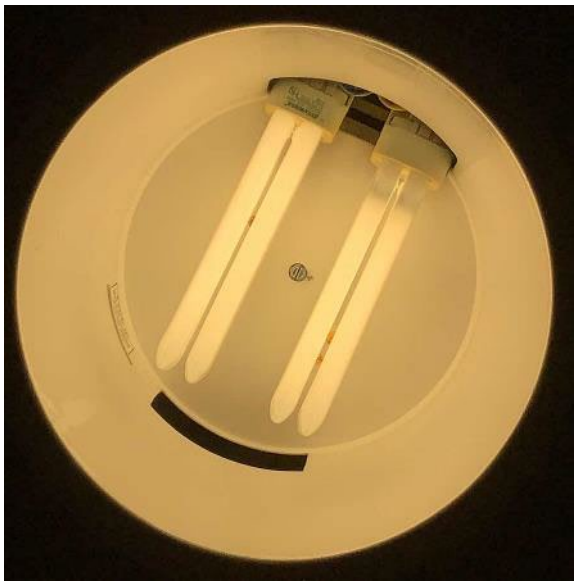
The primary interior lighting system uses 26-Watt compact fluorescent (CFL) lamps at Fenwick Manor and Carriage House, and 32-Watt fluorescent T8 lamps at the Barn. Exit signs use LED sources. Fixture types include 1-lamp, 2-lamp, and 3-lamp, 4-foot long recessed, surface mounted, and pendant fixtures with linear tube lamps.

Interior light fixtures are controlled by manual wall switches. All light fixtures are in good condition. Interior lighting levels were generally sufficient. Exterior fixtures include pole mounted MH fixtures and a few compact fluorescent units at the Barn. Exterior fixtures are timer controlled.



Fluorescent T8 Fixtures





CFL Lamps





Exterior MH Fixtures

2.5 Air Handling Systems

Unitary Electric HVAC Equipment

The facility cooling system consists of seven Ruud split-systems: four at Fenwick Manor, one at Carriage House, and two at the Barn. The split-systems are used to provide cooling throughout the entire building. Cooling capacities range from 2.5 tons to 5 tons, with efficiencies that vary from 10 EER to 13 EER. All but one split-system at the Barn were installed in 2004. The last unit was installed in 2008. The older split AC units are in fair condition and the newer unit is in good condition. The older units need to be replaced.





Split-Systems

Unitary Heating Equipment

The building heating system consists of six gas-fired Ruud forced air furnaces. Four at Fenwick Manor, one at Carriage House, and one at the Barn. Their heating capacities range from 38.7 MBh to 55.3 MBh, each with an efficiency rating of 92%. Each unit is equipped with a fractional hp supply fan. Installed in 2004, the units are beyond their typical useful lifespan but were not recommended for replacement as they were observed to be in good condition, well maintained, and relatively efficient. Equipment is controlled by wall-mounted thermostats located throughout the building.

Additional heating at the Barn is provided by three electric resistance heaters and a gas-fired unit heater. One electric resistance heater provides supplemental heating for the Carriage House.

The unit heater has a heating capacity of 60.8 MBh with an 81% efficiency rating while the electric resistance heaters vary from 0.6 kW to 2 kW. Equipment is in good condition and is controlled by manual dial thermostats.



Gas-fired Furnace & Unit Heater

2.6 Domestic Hot Water

Hot water for each building is produced by local 40 MBh gas-fired storage water heaters. The units located at Fenwick Manor and the Barn each have capacity of 48 gallons while the unit serving the Carriage House has a capacity of 40 gallons. Installed in 2004, the units are in good condition. The domestic hot water pipes are insulated, which is also in good condition.



Gas-fired Storage Tank Water Heaters

2.7 Plug Load and Vending Machines

The location is doing a great job managing their electrical plug loads. This report makes additional suggestions for ECMs in this area as well as energy efficient best practices.

There are approximately 25 computer workstations throughout the facility. Plug loads throughout the building include general cafe and office equipment. There are typical office loads such as copiers, printers, microwaves, coffee machines, and mini fridges. There is one residential style refrigerator located in Fenwick Manor that is used to store food and drinks.





Copier Machine & Residential Style Refrigerator

2.8 Water-Using Systems

There are four restrooms with toilets, urinals, and sinks. Faucet flow rates are at 2.2 gallons per minute (gpm) or higher.

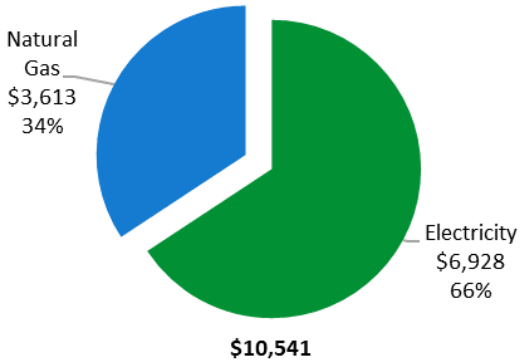


Typical Restroom Sinks

3 Energy Use and Costs

Twelve months of utility billing data are used to develop annual energy consumption and cost data. This information creates a profile of the annual energy consumption and energy costs.

Utility Summary		
Fuel	**Usage**	**Cost**
Electricity	44,012 kWh	$6,928
Natural Gas	3,627 Therms	$3,613
Total		**$10,541**



An energy balance identifies and quantifies energy use in your various building systems. This can highlight areas with the most potential for improvement. This energy balance was developed using calculated energy use for each of the end uses noted in the figure.

The energy auditor collects information regarding equipment operating hours, capacity, efficiency, and other operational parameters from facility staff, drawings, and on-site observations. This information is used as the inputs to calculate the existing conditions energy use for the site. The calculated energy use is then compared to the historical energy use and the initial inputs are revised, as necessary, to balance the calculated energy use to the historical energy use.

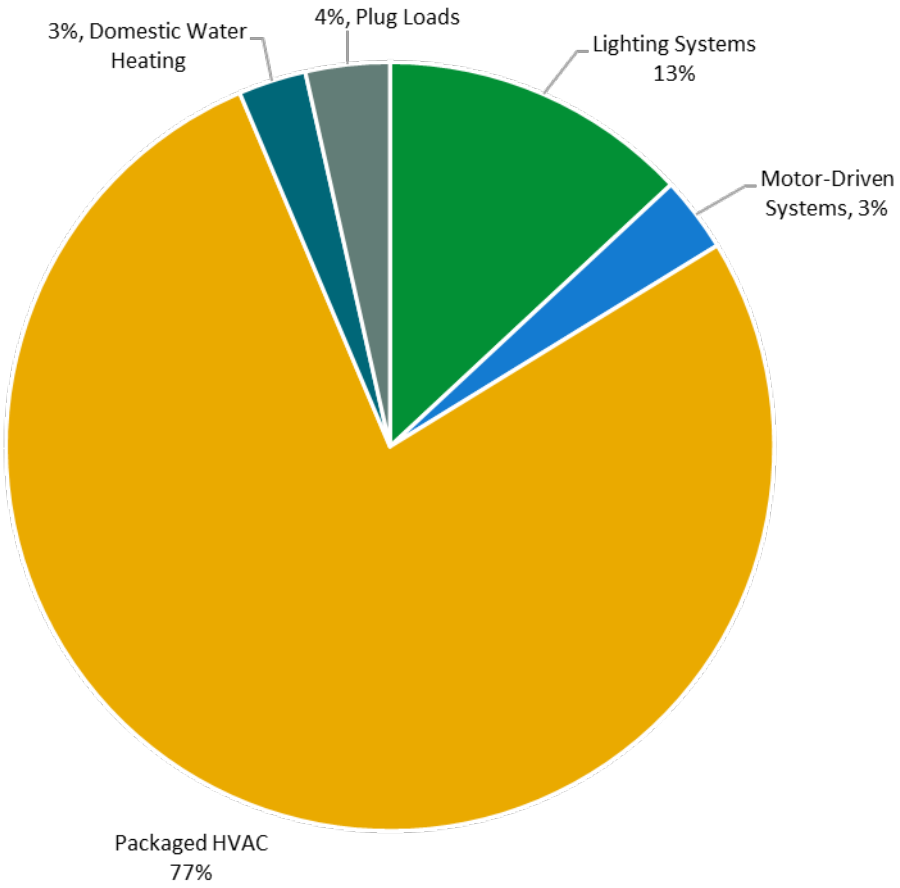
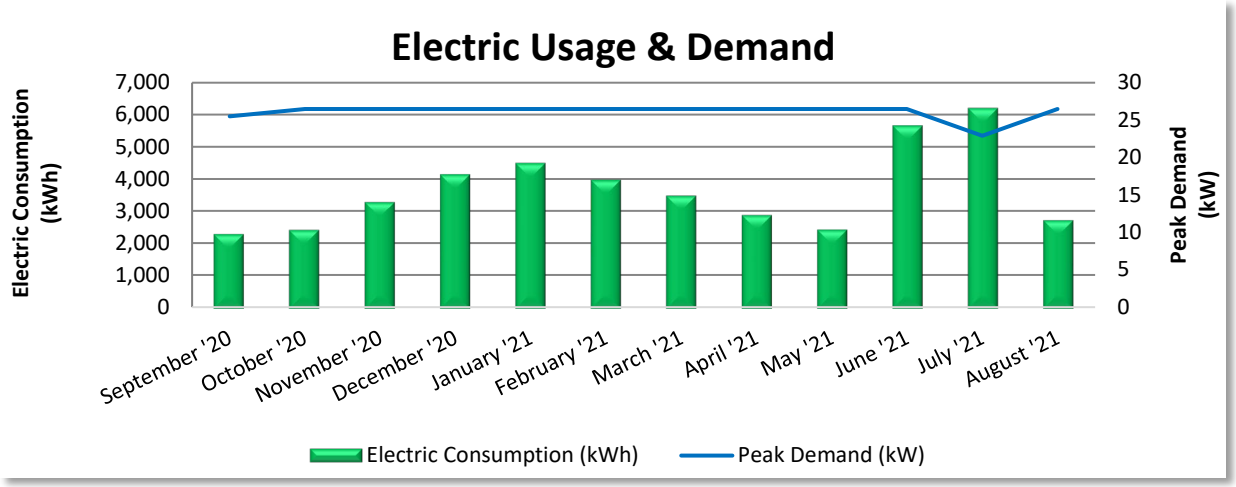


Figure 4 - Energy Balance

3.1 Electricity

JCP&L delivers electricity under rate class General Service Secondary (GSS), with electric production provided by Champion Energy, a third-party supplier.



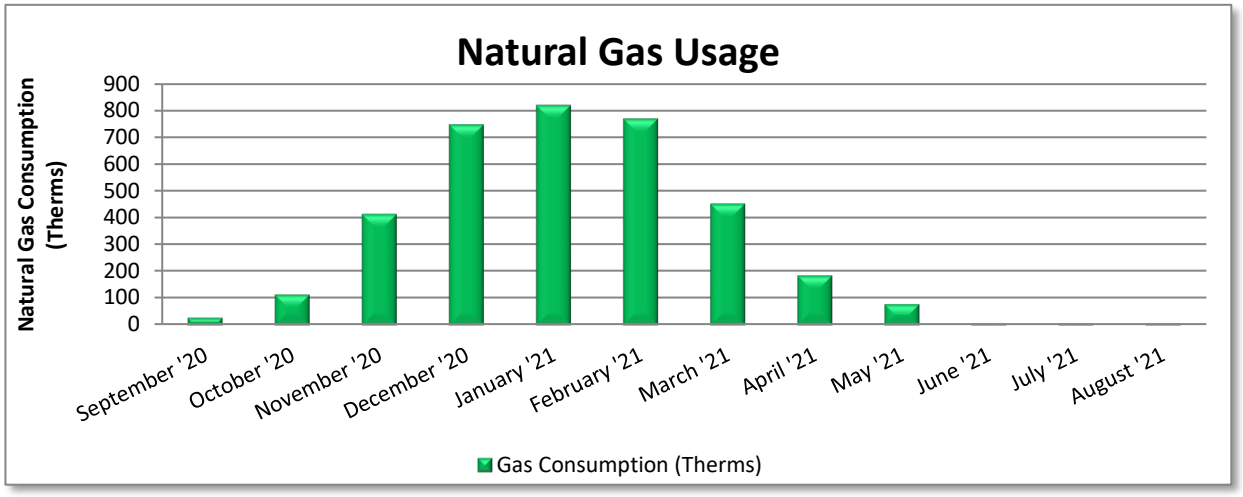
Electric Billing Data					
Period Ending	**Days in Period**	**Electric Usage (kWh)**	**Demand (kW)**	**Demand Cost**	**Total Electric Cost**
10/9/20	29	2,294	26	$50	$279
11/9/20	31	2,430	27	$50	$332
12/9/20	30	3,295	27	$50	$358
1/11/21	33	4,147	27	$50	$868
2/9/21	29	4,498	27	$50	$632
3/9/21	28	3,975	27	$50	$632
4/9/21	31	3,491	27	$50	$529
5/11/21	32	2,887	27	$50	$494
6/10/21	30	2,437	27	$50	$455
7/12/21	32	5,651	27	$109	$850
8/10/21	29	6,187	23	$86	$903
9/10/21	31	2,720	27	$109	$596
Totals	**365**	**44,012**	**27**	**$751**	**$6,928**
Annual	**365**	**44,012**	**27**	**$751**	**$6,928**

Notes:

- Peak demand of 27 kW occurred in October '20.
- Average demand over the past 12 months was 26 kW.
- The average electric cost over the past 12 months was $0.157/kWh, which is the blended rate that includes energy supply, distribution, demand, and other charges. This report uses this blended rate to estimate energy cost savings.

3.2 Natural Gas

PSE&G delivers natural gas under rate class General Service Gas (GSG), with natural gas supply provided by UGI, a third-party supplier.



Gas Billing Data			
Period Ending	**Days in Period**	**Natural Gas Usage (Therms)**	**Natural Gas Cost**
10/1/20	28	29	$56
10/30/20	29	115	$132
12/2/20	33	413	$398
1/4/21	33	746	$694
2/3/21	30	818	$759
3/5/21	30	767	$718
4/6/21	32	452	$436
5/5/21	29	186	$197
6/4/21	30	80	$99
7/6/21	32	7	$42
8/4/21	29	7	$41
9/3/21	30	7	$41
Totals	**365**	**3,627**	**$3,613**
Annual	**365**	**3,627**	**$3,613**

Notes:

- The average gas cost for the past 12 months is $0.996/therm, which is the blended rate used throughout the analysis.
- The reduced natural gas consumption during the summer months likely reflects usage for domestic hot water only.

3.3 Benchmarking

Your building was benchmarked using the United States Environmental Protection Agency's (EPA) *Portfolio Manager®* software. Benchmarking compares your building's energy use to that of similar buildings across the country, while neutralizing variations due to location, occupancy, and operating hours. Some building types can be scored with a 1-100 ranking of a building's energy performance relative to the national building market. A score of 50 represents the national average and a score of 100 is best.

This ENERGY STAR benchmarking score provides a comprehensive snapshot of your building's energy performance. It assesses the building's physical assets, operations, and occupant behavior, which is compiled into a quick and easy-to-understand score.

Benchmarking Score	**N/A**

Due to its unique characteristics, this building type is not able to receive a benchmarking score. This report contains suggestions about how to improve building performance and reduce energy costs.

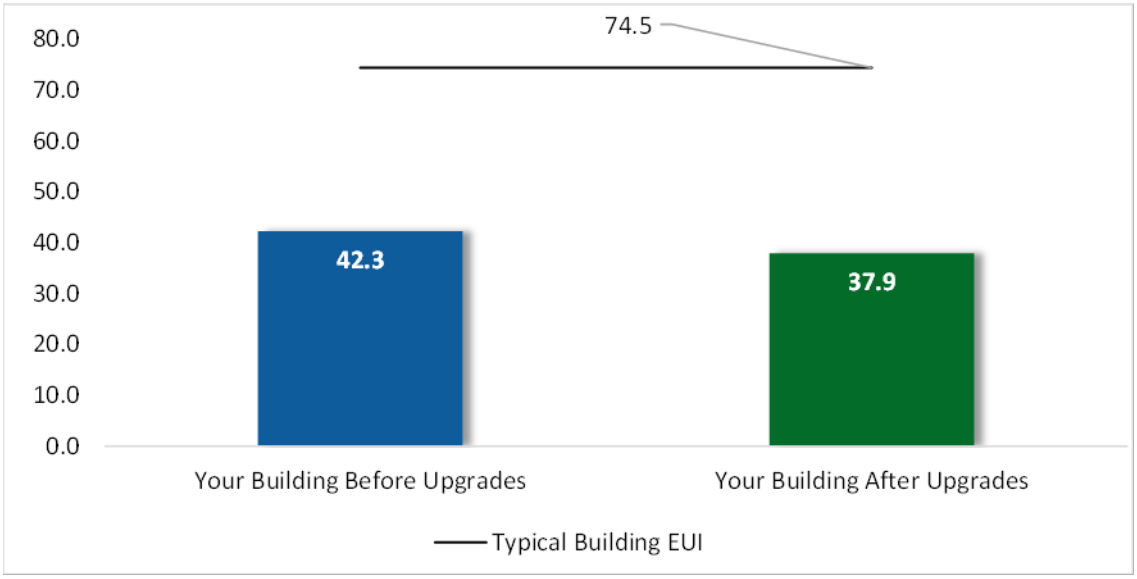


Figure 5 - Energy Use Intensity Comparison[3]

Energy use intensity (EUI) measures energy consumption per square foot and is the standard metric for comparing buildings' energy performance. A lower EUI means better performance and less energy consumed. Several factors can cause a building to vary from typical energy usage. Local weather conditions, building age and insulation levels, equipment efficiency, daily occupancy hours, changes in occupancy throughout the year, equipment operating hours, and occupant behavior all contribute to a building's energy use and the benchmarking score.

[3] Based on all evaluated ECMs

Tracking Your Energy Performance

Keeping track of your energy use on a monthly basis is one of the best ways to keep energy costs in check. Update your utility information in Portfolio Manager regularly, so that you can keep track of your building's performance.

We have created a Portfolio Manager account for your facility, and we have already entered the monthly utility data shown above for you. Account login information for your account will be sent via email.

Free online training is available to help you use ENERGY STAR Portfolio Manager to track your building's performance at: https://www.energystar.gov/buildings/training.

For more information on ENERGY STAR and Portfolio Manager, visit their website.

4 Energy Conservation Measures

The goal of this audit report is to identify and evaluate potential energy efficiency improvements and provide information about the cost effectiveness of those improvements. Most energy conservation measures have received preliminary analysis of feasibility, which identifies expected ranges of savings. This level of analysis is typically sufficient to demonstrate project cost-effectiveness and help prioritize energy measures.

Calculations of energy use and savings are based on the current version of the *New Jersey's Clean Energy Program Protocols to Measure Resource Savings*, which is approved by the NJBPU. Further analysis or investigation may be required to calculate more precise savings based on specific circumstances.

Operation and maintenance costs for the proposed new equipment will generally be lower than the current costs for the existing equipment—especially if the existing equipment is at or past its normal useful life. We have conservatively assumed there to be no impact on overall maintenance costs over the life of the equipment.

Financial incentives are based on previously run state rebate programs. New utility programs are expected to start rolling out in the spring and summer of 2021. Keep up to date with developments by visiting the NJCEP website. Some measures and proposed upgrades may be eligible for higher incentives than those shown below.

For a detailed list of the locations and recommended energy conservation measures for all inventoried equipment, see **Appendix A: Equipment Inventory & Recommendations.**

#	Energy Conservation Measure	Cost Effective?	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades			**8,042**	**3.4**	**-2**	**$1,251**	**$6,990**	**$1,437**	**$5,553**	**4.4**	**7,918**
ECM 1	Install LED Fixtures	No	664	0.0	0	$105	$2,175	$550	$1,625	15.5	669
ECM 2	Retrofit Fixtures with LED Lamps	Yes	7,378	3.4	-2	$1,146	$4,815	$887	$3,928	3.4	7,249
Lighting Control Measures			**3,209**	**1.2**	**-1**	**$498**	**$7,015**	**$1,255**	**$5,760**	**11.6**	**3,152**
ECM 3	Install Occupancy Sensor Lighting Controls	Yes	2,673	1.1	-1	$415	$5,665	$800	$4,865	11.7	2,626
ECM 4	Install High/Low Lighting Controls	Yes	535	0.2	0	$83	$1,350	$455	$895	10.8	526
Unitary HVAC Measures			**4,410**	**5.5**	**0**	**$694**	**$38,706**	**$2,573**	**$36,133**	**52.1**	**4,441**
ECM 5	Install High Efficiency Air Conditioning Units	No	4,410	5.5	0	$694	$38,706	$2,573	$36,133	52.1	4,441
Domestic Water Heating Upgrade			**0**	**0.0**	**2**	**$19**	**$29**	**$14**	**$14**	**0.8**	**222**
ECM 6	Install Low-Flow DHW Devices	Yes	0	0.0	2	$19	$29	$14	$14	0.8	222
TOTALS			**15,661**	**10.2**	**0**	**$2,462**	**$52,739**	**$5,279**	**$47,460**	**19.3**	**15,734**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 6 – All Evaluated ECMs

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**7,378**	**3.4**	**-2**	**$1,146**	**$4,815**	**$887**	**$3,928**	**3.4**	**7,249**
ECM 2	Retrofit Fixtures with LED Lamps	7,378	3.4	-2	$1,146	$4,815	$887	$3,928	3.4	7,249
Lighting Control Measures		**3,209**	**1.2**	**-1**	**$498**	**$7,015**	**$1,255**	**$5,760**	**11.6**	**3,152**
ECM 3	Install Occupancy Sensor Lighting Controls	2,673	1.1	-1	$415	$5,665	$800	$4,865	11.7	2,626
ECM 4	Install High/Low Lighting Controls	535	0.2	0	$83	$1,350	$455	$895	10.8	526
Domestic Water Heating Upgrade		**0**	**0.0**	**2**	**$19**	**$29**	**$14**	**$14**	**0.8**	**222**
ECM 6	Install Low-Flow DHW Devices	0	0.0	2	$19	$29	$14	$14	0.8	222
TOTALS		**10,586**	**4.6**	**0**	**$1,663**	**$11,858**	**$2,156**	**$9,702**	**5.8**	**10,624**

* - All incentives presented in this table are included as placeholders for planning purposes and are based on previously run state rebate programs. Contact your utility provider for details on current programs.

** - Simple Payback Period is based on net measure costs (i.e. after incentives).

Figure 7 – Cost Effective ECMs

4.1 Lighting

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Upgrades		**8,042**	**3.4**	**-2**	**$1,251**	**$6,990**	**$1,437**	**$5,553**	**4.4**	**7,918**
ECM 1	Install LED Fixtures	664	0.0	0	$105	$2,175	$550	$1,625	15.5	669
ECM 2	Retrofit Fixtures with LED Lamps	7,378	3.4	-2	$1,146	$4,815	$887	$3,928	3.4	7,249

When considering lighting upgrades, we suggest using a comprehensive design approach that simultaneously upgrades lighting fixtures and controls to maximize energy savings and improve occupant lighting. Comprehensive design will also consider appropriate lighting levels for different space types to make sure that the right amount of light is delivered where needed. If conversion to LED light sources is proposed, we suggest converting all of a specific lighting type (e.g., linear fluorescent) to LED lamps to minimize the number of lamp types in use at the facility, which should help reduce future maintenance costs.

ECM 1: Install LED Fixtures

We evaluated replacing existing fixtures containing high intensity discharge (HID) lamps with new LED light fixtures. This measure saves energy by installing LEDs which use less power than other technologies with a comparable light output.

In some cases, HID fixtures can be retrofit with screw-based LED lamps. Replacing an existing HID fixture with a new LED fixture will generally provide better overall lighting optics; however, replacing the HID lamp with a LED screw-in lamp is typically a less expensive retrofit. We recommend you work with your lighting contractor to determine which retrofit solution is best suited to your needs and will be compatible with the existing fixtures.

Maintenance savings may also be achieved since LED lamps last longer than other light sources and therefore do not need to be replaced as often.

Affected building areas: exterior metal halide fixtures.

ECM 2: Retrofit Fixtures with LED Lamps

Replace fluorescent and CFL lamps with LED lamps. Many LED tubes are direct replacements for existing fluorescent tubes and can be installed while leaving the fluorescent fixture ballast in place. LED lamps can be used in existing fixtures as a direct replacement for most other lighting technologies. Be sure to specify replacement lamps that are compatible with existing dimming controls, where applicable. In some circumstances, you may need to upgrade your dimming system for optimum performance.

This measure saves energy by installing LEDs, which use less power than other lighting technologies yet provide equivalent lighting output for the space. Maintenance savings may also be available, as longer-lasting LEDs lamps will not need to be replaced as often as the existing lamps.

Affected Building Areas: all areas with CFL lamps or fluorescent fixtures with T8 tubes.

4.2 Lighting Controls

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Lighting Control Measures		**3,209**	**1.2**	**-1**	**$498**	**$7,015**	**$1,255**	**$5,760**	**11.6**	**3,152**
ECM 3	Install Occupancy Sensor Lighting Controls	2,673	1.1	-1	$415	$5,665	$800	$4,865	11.7	2,626
ECM 4	Install High/Low Lighting Controls	535	0.2	0	$83	$1,350	$455	$895	10.8	526

Lighting controls reduce energy use by turning off or lowering lighting fixture power levels when not in use. A comprehensive approach to lighting design should upgrade the lighting fixtures and the controls together for maximum energy savings and improved lighting for occupants.

ECM 3: Install Occupancy Sensor Lighting Controls

Install occupancy sensors to control lighting fixtures in areas that are frequently unoccupied, even for short periods. For most spaces, we recommend that lighting controls use dual technology sensors, which reduce the possibility of lights turning off unexpectedly.

Occupancy sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Most occupancy sensor lighting controls allow users to manually turn fixtures on/off, as needed. Some controls can also provide dimming options.

Occupancy sensors can be mounted on the wall at existing switch locations, mounted on the ceiling, or in remote locations. In general, wall switch replacement sensors are best suited to single occupant offices and other small rooms. Ceiling-mounted or remote mounted sensors are used in large spaces, locations without local switching, and where wall switches are not in the line-of-sight of the main work area.

This measure provides energy savings by reducing the lighting operating hours.

Affected Building Areas: offices, conference rooms, and storage rooms.

ECM 4: Install High/Low Lighting Controls

Install occupancy sensors to provide dual level lighting control for lighting fixtures in spaces that are infrequently occupied but may require some level of continuous lighting for safety or security reasons.

Lighting fixtures with these controls operate at default low levels when the area is unoccupied to provide minimal lighting to meet security or safety code requirements for egress. Sensors detect occupancy using ultrasonic and/or infrared sensors. When an occupant enters the space, the lighting fixtures switch to full lighting levels. Fixtures automatically switch back to low level after a predefined period of vacancy. In parking lots and parking garages with significant ambient lighting, this control can sometimes be combined with photocell controls to turn the lights off when there is sufficient daylight.

The controller lowers the light level by dimming the fixture output. Therefore, the controlled fixtures need to have a dimmable ballast or driver. This will need to be considered when selecting retrofit lamps and bulbs for the areas proposed for high/low control.

For this type of measure the occupancy sensors will generally be ceiling or fixture mounted. Sufficient sensor coverage must be provided to ensure that lights turn on in each area as occupants approach the area.

This measure provides energy savings by reducing the light fixture power draw when reduced light output is appropriate.

Affected Building Areas: hallways, stairwells, and lobbies.

4.3 Unitary HVAC

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Unitary HVAC Measures		**4,410**	**5.5**	**0**	**$694**	**$38,706**	**$2,573**	**$36,133**	**52.1**	**4,441**
ECM 5	Install High Efficiency Air Conditioning Units	4,410	5.5	0	$694	$38,706	$2,573	$36,133	52.1	4,441

Replacing the unitary HVAC units has a long payback period and may not be justifiable based simply on energy considerations. However, most of the units are nearing or have reached the end of their normal useful life. Typically, the marginal cost of purchasing a high efficiency unit can be justified by the marginal savings from the improved efficiency. When the split-systems are eventually replaced, consider purchasing equipment that exceeds the minimum efficiency required by building codes.

ECM 5: Install High Efficiency Air Conditioning Units

We evaluated replacing standard efficiency split system air conditioning units with high efficiency units. The magnitude of energy savings for this measure depends on the relative efficiency of the older unit versus the new high efficiency unit, the average cooling and heating load, and the estimated annual operating hours.

Affected Units: exterior split-systems (except newer Barn unit).

4.4 Domestic Water Heating

#	Energy Conservation Measure	Annual Electric Savings (kWh)	Peak Demand Savings (kW)	Annual Fuel Savings (MMBtu)	Annual Energy Cost Savings ($)	Estimated M&L Cost ($)	Estimated Incentive ($)*	Estimated Net M&L Cost ($)	Simple Payback Period (yrs)**	CO_2e Emissions Reduction (lbs)
Domestic Water Heating Upgrade		**0**	**0.0**	**2**	**$19**	**$29**	**$14**	**$14**	**0.8**	**222**
ECM 6	Install Low-Flow DHW Devices	0	0.0	2	$19	$29	$14	$14	0.8	222

ECM 6: Install Low-Flow DHW Devices

Install low-flow devices to reduce overall hot water demand. The following low-flow devices are recommended to reduce hot water usage:

Device	Flow Rate
Faucet aerators (lavatory)	0.5 gpm
Faucet aerator (kitchen)	1.5 gpm
Showerhead	2.0 gpm
Pre-rinse spray valve (kitchen)	1.28 gpm

Low-flow devices reduce the overall water flow from the fixture, while still providing adequate pressure for washing. Additional cost savings may result from reduced water usage.

A whole building maintenance plan will extend equipment life; improve occupant comfort, health, and safety; and reduce energy and maintenance costs.

Operation and maintenance (O&M) plans enhance the operational efficiency of HVAC and other energy intensive systems and could save 5% –20% of the energy usage in your building without substantial capital investment. A successful plan includes your records of energy usage trends and costs, building equipment lists, current maintenance practices, and planned capital upgrades, and it incorporates your ideas for improved building operation. Your plan will address goals for energy-efficient operation, provide detail on how to reach the goals, and outline procedures for measuring and reporting whether goals have been achieved.

You may already be doing some of these things—see our list below for potential additions to your maintenance plan. Be sure to consult with qualified equipment specialists for details on proper maintenance and system operation.

Energy Tracking with ENERGY STAR Portfolio Manager

You've heard it before—you cannot manage what you do not measure. ENERGY STAR Portfolio Manager is an online tool that you can use to measure and track energy and water consumption, as well as greenhouse gas emissions[4] . Your account has already been established. Now you can continue to keep tabs on your energy performance every month.

Weatherization

Caulk or weather strip leaky doors and windows to reduce drafts and loss of heated or cooled air. Sealing cracks and openings can reduce heating and cooling costs, improve building durability, and create a healthier indoor environment. Materials used may include caulk, polyurethane foam, and other weather-stripping materials. There is an energy savings opportunity by reducing the uncontrolled air exchange between the outside and inside of the building. Blower door assisted comprehensive building air sealing will reduce the amount of air exchange, which will in turn reduce the load on the buildings heating and cooling equipment, providing energy savings and increased occupant comfort.

Doors and Windows

Close exterior doors and windows in heated and cooled areas. Leaving doors and windows open leads to a loss of heat during the winter and chilled air during the summer. Reducing air changes per hour can lead to increased occupant comfort as well as heating and cooling savings, especially when combined with proper HVAC controls and adequate ventilation.

[4] https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager.

Lighting Maintenance



Clean lamps, reflectors and lenses of dirt, dust, oil, and smoke buildup every six to twelve months. Light levels decrease over time due to lamp aging, lamp and ballast failure, and buildup of dirt and dust. Together, this can reduce total light output by up to 60% while still drawing full power.

In addition to routine cleaning, developing a maintenance schedule can ensure that maintenance is performed regularly, and it can reduce the overall cost of fixture re-lamping and re-ballasting. Group re-lamping and re-ballasting maintains lighting levels and minimizes the number of site visits by a lighting technician or contractor, decreasing the overall cost of maintenance.

Lighting Controls

As part of a lighting maintenance schedule, test lighting controls to ensure proper functioning. For occupancy sensors, this requires triggering the sensor and verifying that the sensor's timer settings are correct. For daylight and photocell sensors, maintenance involves cleaning sensor lenses and confirming that setpoints and sensitivity are configured properly. Adjust exterior lighting time clock controls seasonally as needed to match your lighting requirements.

Motor Maintenance

Motors have many moving parts. As these parts degrade over time, the efficiency of the motor is reduced. Routine maintenance prevents damage to motor components. Routine maintenance should include cleaning surfaces and ventilation openings on motors to prevent overheating, lubricating moving parts to reduce friction, inspecting belts and pulleys for wear and to ensure they are at proper alignment and tension, and cleaning and lubricating bearings. Consult a licensed technician to assess these and other motor maintenance strategies.

Fans to Reduce Cooling Load

Install ceiling fans to supplement your cooling system. Thermostat settings can typically be increased by 4°F with no change in overall occupant comfort due to the wind chill effect of moving air.

AC System Evaporator/Condenser Coil Cleaning

Dirty evaporator and condenser coils restrict air flow and restrict heat transfer. This increases the loads on the evaporator and condenser fan and decreases overall cooling system performance. Keeping the coils clean allows the fans and cooling system to operate more efficiently.

HVAC Filter Cleaning and Replacement

Air filters should be checked regularly (often monthly) and cleaned or replaced when appropriate. Air filters reduce indoor air pollution, increase occupant comfort, and help keep equipment operating efficiently. If the building has a building management system, consider installing a differential pressure switch across filters to send an alarm about premature fouling or overdue filter replacement. Over time, filters become less and less effective as particulate buildup increases. Dirty filters also restrict air flow through the air conditioning or heat pump system, which increases the load on the distribution fans.

Ductwork Maintenance

Duct maintenance has two primary goals: keep the ducts clean to avoid air quality problems and seal leaks to save energy. Check for cleanliness, obstructions that block airflow, water damage, and leaks. Ducts should be inspected at least every two years.

The biggest symptoms of clogged air ducts are differing temperatures throughout the building and areas with limited airflow from supply registers. If a particular air duct is clogged, then air flow will only be cut off to some rooms in the building—not all of them. The reduced airflow will make it more difficult for those areas to reach the temperature setpoint, which will cause the HVAC system to run longer to cool or heat that area properly. If you suspect clogged air ducts, ensure that all areas in front of supply registers are clear of items that may block or restrict air flow, and you should check for fire dampers or balancing dampers that have failed closed.

Duct leakage in commercial buildings can account for 5%–25% of the supply airflow. In the case of rooftop air handlers, duct leakage can occur to the outside of the building wasting conditioned air. Check ductwork for leakage. Eliminating duct leaks can improve ventilation system performance and reduce heating and cooling system operation.

Distribution system losses are dependent on air system temperature, the size of the distribution system, and the level of insulation of the ductwork. Significant energy savings can be achieved when insulation has not been well maintained. When the insulation is missing or worn, the system efficiency can be significantly reduced. This measure saves energy by reducing heat transfer in the distribution system.

Furnace Maintenance

Preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. Following the manufacturer's instructions, a yearly tune-up should check for gas / carbon monoxide leaks; change the air and fuel filters; check components for cracks, corrosion, dirt, or debris build-up; ensure the ignition system is working properly; test and adjust operation and safety controls; inspect electrical connections; and lubricate motors and bearings.

Label HVAC Equipment

For improved coordination in maintenance practices, we recommend labeling or re-labeling the site HVAC equipment. Maintain continuity in labeling by following labeling conventions as indicated in the facility drawings or EMS building equipment list. Use weatherproof or heatproof labeling or stickers for permanence, but do not cover over original equipment nameplates, which should be kept clean and readable whenever possible. Besides equipment, label piping for service and direction of flow when possible. Ideally, maintain a log of HVAC equipment, including nameplate information, asset tag designation, areas served, installation year, service dates, and other pertinent information.

This investment in your equipment will enhance collaboration and communication between your staff and your contracted service providers and may help you with regulatory compliance.

Optimize HVAC Equipment Schedules

Energy management systems (EMS) typically provide advanced controls for building HVAC systems, including chillers, boilers, air handling units, rooftop units and exhaust fans. The EMS monitors and reports operational status, schedules equipment start and stop times, locks out equipment operation based on outside air or space temperature, and often optimizes damper and valve operation based on complex algorithms. These EMS features, when in proper adjustment, can improve comfort for building occupants and save substantial energy.

Know your EMS scheduling capabilities. Regularly monitor HVAC equipment operating schedules and match them to building operating hours in order to eliminate unnecessary equipment operation and save energy. Monitoring should be performed often at sites with frequently changing usage patterns – daily in some cases. We recommend using the *optimal start* feature of the EMS (if available) to optimize the building warmup sequence. Most EMS scheduling programs provide for holiday schedules, which can be used during reduced use or shutdown periods. Finally, many systems are equipped with a one-time override function, which can be used to provide additional space conditioning due to a one-time, special event. When available this override feature should be used rather than changing the base operating schedule.

Water Heater Maintenance

The lower the supply water temperature that is used for hand washing sinks, the less energy is needed to heat the water. Reducing the temperature results in energy savings and the change is often unnoticeable to users. Be sure to review the domestic water temperature requirements for sterilizers and dishwashers as you investigate reducing the supply water temperature.

Also, preventative maintenance can extend the life of the system, maintain energy efficiency, and ensure safe operation. At least once a year, follow manufacturer instructions to drain a few gallons out of the water heater using the drain valve. If there is a lot of sediment or debris, then a full flush is recommended. Turn the temperature down and then completely drain the tank. Annual checks should include checks for:

- Leaks or heavy corrosion on the pipes and valves.
- Corrosion or wear on the gas line and on the piping. If you noticed any black residue, soot, or charred metal, this is a sign you may be having combustion issues and you should have the unit serviced by a professional.
- For electric water heaters, look for signs of leaking such as rust streaks or residue around the upper and lower panels covering the electrical components on the tank.
- For water heaters more than three years old, have a technician inspect the sacrificial anode annually.

Water Conservation



Installing dual flush or low-flow toilets and low-flow/waterless urinals are ways to reduce water use. The EPA WaterSense® ratings for urinals is 0.5 gallons per flush (gpf) and for flush valve toilets is 1.28 gpf (this is lower than the current 1.6 gpf federal standard).

For more information regarding water conservation go to the EPA's WaterSense website[5] or download a copy of EPA's "WaterSense at Work: Best Management Practices for Commercial and Institutional Facilities"[6] to get ideas for creating a water management plan and best practices for a wide range of water using systems.

Water conservation devices that do not reduce hot water consumption will not provide energy savings at the site level, but they may significantly affect your water and sewer usage costs. Any reduction in water use does however ultimately reduce grid-level electricity use since a significant amount of electricity is used to deliver water from reservoirs to end users.

If the facility has detached buildings with a master water meter for the entire campus, check for unnatural wet areas in the lawn or water seeping in the foundation at water pipe penetrations through the foundation. Periodically check overnight meter readings when the facility is unoccupied, and there is no other scheduled water usage.

Manage irrigation systems to use water more effectively outside the building. Adjust spray patterns so that water lands on intended lawns and plantings and not on pavement and walls. Consider installing an evapotranspiration irrigation controller that will prevent over-watering.

Procurement Strategies

Purchasing efficient products reduces energy costs without compromising quality. Consider modifying your procurement policies and language to require ENERGY STAR or WaterSense products where available.

[5] https://www.epa.gov/watersense.

[6] https://www.epa.gov/watersense/watersense-work-0.

6 On-site Generation

You don't have to look far in New Jersey to see one of the thousands of solar electric systems providing clean power to homes, businesses, schools, and government buildings. On-site generation includes both renewable (e.g., solar, wind) and non-renewable (e.g., fuel cells) technologies that generate power to meet all or a portion of the facility's electric energy needs. Also referred to as distributed generation, these systems contribute to greenhouse gas (GHG) emission reductions, demand reductions, and reduced customer electricity purchases, which results in improved electric grid reliability through better use of transmission and distribution systems.

Preliminary screenings were performed to determine if an on-site generation measure could be a cost-effective solution for your facility. Before deciding to install an on-site generation system, we recommend conducting a feasibility study to analyze existing energy profiles, siting, interconnection, and the costs associated with the generation project including interconnection costs, departing load charges, and any additional special facilities charges.

6.1 Solar Photovoltaic

Photovoltaic (PV) panels convert sunlight into electricity. Individual panels are combined into an array that produces direct current (DC) electricity. The DC current is converted to alternating current (AC) through an inverter. The inverter is then connected to the building's electrical distribution system.

A preliminary screening was conducted based on the facility's electric demand, size and location of free area, and shading elements. A solar PV array was evaluated for the facility's parking lot to avoid disrupting the historic buildings. However, due to the facility's low electric demand along with the amount of shading in the area, the preliminary screening shows that the facility has no potential for installing a PV array.

This facility does not appear to meet the minimum criteria for a cost-effective solar PV installation. To be cost-effective, a solar PV array needs certain minimum criteria, such as sufficient and sustained electric demand and sufficient flat or south-facing rooftop or other unshaded space on which to place the PV panels.

The graphic below displays the results of the PV potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

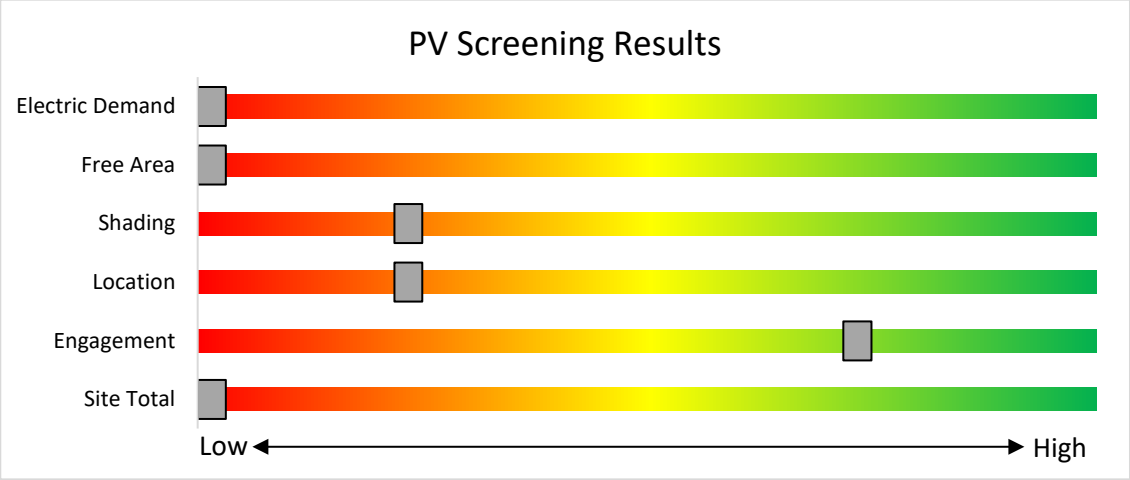


Figure 8 - Photovoltaic Screening

Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The SuSI program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects. Solar projects may qualify to earn SREC- IIs (Solar Renewable Energy Certificates-II), however, the project owners *must* register their solar projects prior to the start of construction to establish the project's eligibility.

Get more information about solar power in New Jersey or find a qualified solar installer who can help you decide if solar is right for your building:

Successor Solar Incentive Program (SuSI): https://www.njcleanenergy.com/renewable-energy/programs/susi-program

- **Basic Info on Solar PV in NJ**: www.njcleanenergy.com/whysolar
- **NJ Solar Market FAQs**: www.njcleanenergy.com/renewable-energy/program-updates-and-background-information/solar-transition/solar-market-faqs.
- **Approved Solar Installers in the NJ Market**: www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/?id=60&start=1

6.2 Combined Heat and Power

Combined heat and power (CHP) generates electricity at the facility and puts waste heat energy to good use. Common types of CHP systems are reciprocating engines, microturbines, fuel cells, backpressure steam turbines, and (at large facilities) gas turbines.

CHP systems typically produce a portion of the electric power used on-site, with the balance of electric power needs supplied by the local utility company. The heat is used to supplement (or replace) existing boilers and provide space heating and/or domestic hot water heating. Waste heat can also be routed through absorption chillers for space cooling.

The key criteria used for screening is the amount of time that the CHP system would operate at full load and the facility's ability to use the recovered heat. Facilities with a continuous need for large quantities of waste heat are the best candidates for CHP.

A preliminary screening based on heating and electrical demand, siting, and interconnection shows that the facility has no potential for installing a cost-effective CHP system.

Based on a preliminary analysis, the facility does not appear to meet the minimum requirements for a cost-effective CHP installation. The lack of gas service, low or infrequent thermal load, and lack of space for siting the equipment are the most significant factors contributing to the lack of CHP potential.

The graphic below displays the results of the CHP potential screening conducted as a part of this audit. The position of each slider indicates the potential (potential increases to the right) that each factor contributes to the overall site potential.

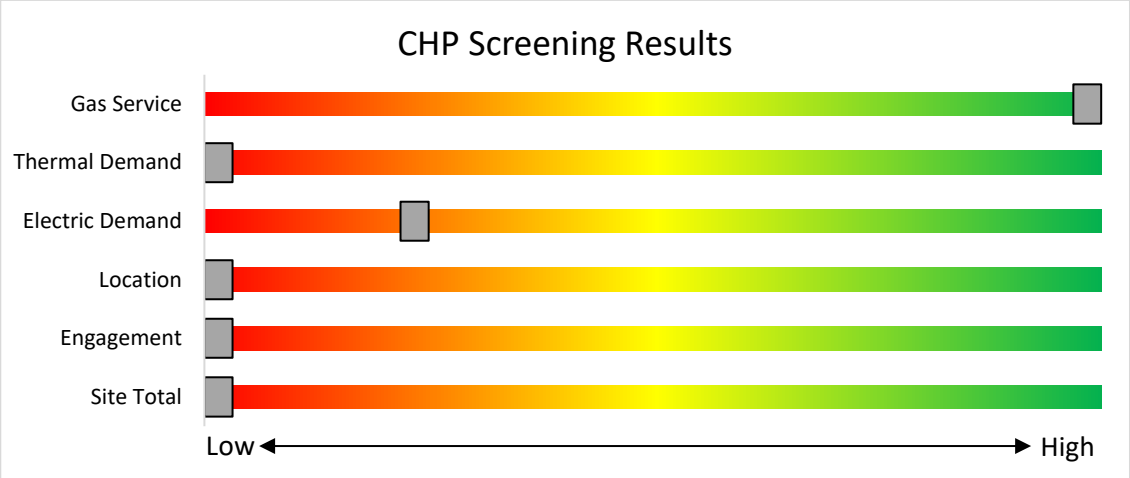


Figure 9 - Combined Heat and Power Screening

Find a qualified firm that specializes in commercial CHP cost assessment and installation: http://www.njcleanenergy.com/commercial-industrial/programs/nj-smartstart-buildings/tools-and-resources/tradeally/approved_vendorsearch/

7 PROJECT FUNDING AND INCENTIVES

Ready to improve your building's performance? Your utility provider may be able to help.

7.1 Utility Energy Efficiency Programs

The Clean Energy Act, signed into law by Governor Murphy in 2018, requires New Jersey's investor-owned gas and electric utilities to reduce their customers' use by set percentages over time. To help reach these targets the New Jersey Board of Public Utilities approved a comprehensive suite of energy efficiency programs to be run by the utility companies.



These new utility programs are rolling out in the spring and summer of 2021. Keep up to date with developments by visiting:

https://www.njcleanenergy.com/transition

8 New Jersey's Clean Energy Programs

New Jersey's Clean Energy Program will continue to offer some energy efficiency programs.



8.1 Large Energy Users

The Large Energy Users Program (LEUP) is designed to foster self-directed investment in energy projects. This program is offered to New Jersey's largest energy customers that annually contribute at least $200,000 to the NJCEP aggregate of all buildings/sites. This equates to roughly $5 million in energy costs in the prior fiscal year.

Incentives

Incentives are based on the specifications below. The maximum incentive per entity is the lesser of:

- $4 million
- 75% of the total project(s) cost
- 90% of total NJCEP fund contribution in previous year
- $0.33 per projected kWh saved; $3.75 per projected Therm saved annually

How to Participate

To participate in LEUP, you will first need submit an enrollment application. This program requires all qualified and approved applicants to submit an energy plan that outlines the proposed energy efficiency work for review and approval. Applicants may submit a Draft Energy Efficiency Plan (DEEP), or a Final Energy Efficiency Plan (FEEP). Once the FEEP is approved, the proposed work can begin.

Detailed program descriptions, instructions for applying, and applications can be found at: www.njcleanenergy.com/LEUP

8.2 Combined Heat and Power

The Combined Heat & Power (CHP) program provides incentives for eligible CHP or waste heat to power (WHP) projects. Eligible CHP or WHP projects must achieve an annual system efficiency of at least 65% (lower heating value, or LHV), based on total energy input and total utilized energy output. Mechanical energy may be included in the efficiency evaluation.

Incentives

Eligible Technologies	Size (Installed Rated Capacity)[1]	Incentive ($/kW)	% of Total Cost Cap per Project[3]	$ Cap per Project[3]
Powered by non-renewable or renewable fuel source[4]	≤500 kW	$2,000	30-40%[2]	$2 million
Gas Internal Combustion Engine	>500 kW - 1 MW	$1,000		
Gas Combustion Turbine	> 1 MW - 3 MW	$550	30%	$3 million
Microturbine Fuel Cells with Heat Recovery	>3 MW	$350		
Waste Heat to Power*	<1 MW	$1,000	30%	$2 million
	> 1MW	$500		$3 million

*Waste Heat to Power: Powered by non-renewable fuel source, heat recovery or other mechanical recovery from existing equipment utilizing new electric generation equipment (e.g. steam turbine).

Check the NJCEP website for details on program availability, current incentive levels, and requirements.

How to Participate

You will work with a qualified developer or consulting firm to complete the CHP application. Once the application is approved the project can be installed. Information about the CHP program can be found at www.njcleanenergy.com/CHP.

8.3 Successor Solar Incentive Program (SuSI)

The SuSI program replaces the SREC Registration Program (SRP) and the Transition Incentive (TI) program. The program is used to register and certify solar projects in New Jersey. Rebates are not available for solar projects, but owners of solar projects *must* register their projects prior to the start of construction to establish the project's eligibility to earn SREC-IIs (Solar Renewable Energy Certificates-II). SuSI consists of two sub-programs. The Administratively Determined Incentive (ADI) Program and the Competitive Solar Incentive (CSI) Program.

Administratively Determined Incentive (ADI) Program

The ADI Program provides administratively set incentives for net metered residential projects, net metered non-residential projects 5 MW or less, and all community solar projects.

After the registration is accepted, construction is complete, and a complete final as-built packet has been submitted, the project is issued a New Jersey certification number, which enables it to generate New Jersey SREC- IIs.

Market Segments	Size MW dc	Incentive Value ($/SREC II)	Public Entities Incentive Value - $20 Adder ($/SRECII)
Net Metered Residential	All types and sizes	$90	N/A
Small Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects smaller than 1 MW	$100	$120
Large Net Metered Non-Residential located on Rooftop, Carport, Canopy and Floating Solar	Projects 1 MW to 5 MW	$90	$110
Small Net Metered Non-Residential Ground Mount	Projects smaller than 1 MW	$85	$105
Large Net Metered Non-Residential Ground Mount	Projects 1 MW to 5 MW	$80	$100
LMI Community Solar	Up to 5 MW	$90	N/A
Non-LMI Community Solar	Up to 5 MW	$70	N/A
Interim Subsection (t)	All types and sizes	$100	N/A

Eligible projects may generate SREC-IIs for 15 years following the commencement of commercial operations which is defined as permission to operate (PTO) from the Electric Distribution Company. After 15 years, projects may be eligible for a NJ Class I REC.

SREC-IIs will be purchased monthly by the SREC-II Program Administrator who will allocate the SREC-IIs to the Load Serving Entities (BGS Providers and Third-Party Suppliers) annually based on their market share of retail electricity sold during the relevant Energy Year.

The ADI Program online portal is now open to new registrations effective August 28, 2021.

Competitive Solar Incentive Program

The Competitive Solar Incentive (CSI) Program will provide competitively set incentives for grid supply projects and net metered non-residential projects greater than 5MW. The program is currently under development with the goal of holding the first solicitation by early-to-mid 2022. For updates, please continue to check the Solar Proceedings page on the New Jersey's Clean Energy Program website.

Solar projects help the State of New Jersey reach renewable energy goals outlined in the state's Energy Master Plan.

If you are considering installing solar photovoltaics on your building, visit the following link for more information: https://njcleanenergy.com/renewable-energy/programs/susi-program.

8.4 Energy Savings Improvement Program

The Energy Savings Improvement Program (ESIP) serves New Jersey's government agencies by financing energy projects. An ESIP is a type of performance contract, whereby school districts, counties, municipalities, housing authorities, and other public and state entities enter in to contracts to help finance building energy upgrades. Annual payments are lower than the savings projected from the energy conservation measures (ECMs), ensuring that ESIP projects are cash flow positive for the life of the contract.

ESIP provides government agencies in New Jersey with a flexible tool to improve and reduce energy usage with minimal expenditure of new financial resources. NJCEP incentive programs described above can also be used to help further reduce the total project cost of eligible measures.

How to Participate

This LGEA report is the first step to participating in ESIP. Next, you will need to select an approach for implementing the desired ECMs:

(1) Use an energy services company or "ESCO."

(2) Use independent engineers and other specialists, or your own qualified staff, to provide and manage the requirements of the program through bonds or lease obligations.

(3) Use a hybrid approach of the two options described above where the ESCO is used for some services and independent engineers, or other specialists or qualified staff, are used to deliver other requirements of the program.

After adopting a resolution with a chosen implementation approach, the development of the energy savings plan can begin. The ESP demonstrates that the total project costs of the ECMs are offset by the energy savings over the financing term, not to exceed 15 years. The verified savings will then be used to pay for the financing.

The ESIP approach may not be appropriate for all energy conservation and energy efficiency improvements. Carefully consider all alternatives to develop an approach that best meets your needs. A detailed program descriptions and application can be found at www.njcleanenergy.com/ESIP.

ESIP is a program delivered directly by the NJBPU and is not an NJCEP incentive program. As mentioned above, you can use NJCEP incentive programs to help further reduce costs when developing the energy savings plan. Refer to the ESIP guidelines at the link above for further information and guidance on next steps.

9 PROJECT DEVELOPMENT

Energy conservation measures (ECMs) have been identified for your site, and their energy and economic analyses are provided within this LGEA report. Note that some of the identified projects may be mutually exclusive, such as replacing equipment versus upgrading motors or controls. The next steps with project development are to set goals and create a comprehensive project plan. The graphic below provides an overview of the process flow for a typical energy efficiency or renewable energy project. We recommend implementing as many ECMs as possible prior to undertaking a feasibility study for a renewable project. The cyclical nature of this process flow demonstrates the ongoing work required to continually improve building energy efficiency over time. If your building(s) scope of work is relatively simple to implement or small in scope, the measurement and verification (M&V) step may not be required. It should be noted through a typical project cycle, there will be changes in costs based on specific scopes of work, contractor selections, design considerations, construction, etc. The estimated costs provided throughout this LGEA report demonstrate the unburdened turn-key material and labor cost only. There will be contingencies and additional costs at the time of implementation. We recommend comprehensive project planning that includes the review of multiple bids for project work, incorporates potential operations and maintenance (O&M) cost savings, and maximizes your incentive potential.

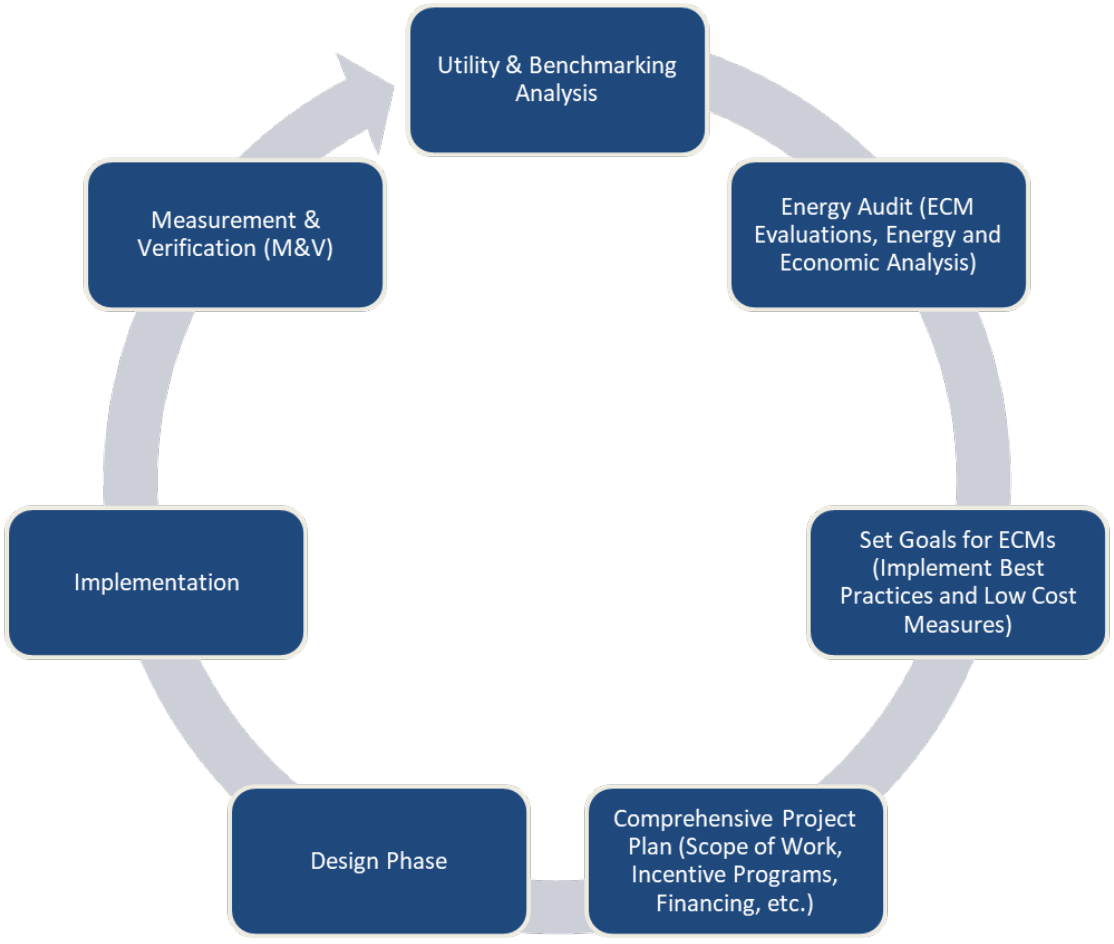


Figure 10 – Project Development Cycle

10 Energy Purchasing and Procurement Strategies

10.1 Retail Electric Supply Options

Energy deregulation in New Jersey has increased energy buyers' options by separating the function of electricity distribution from that of electricity supply. Though you may choose a different company from which to buy your electric power, responsibility for your facility's interconnection to the grid and repair to local power distribution will still reside with the traditional utility company serving your region.

If your facility is not purchasing electricity from a third-party supplier, consider shopping for a reduced rate from third-party electric suppliers. If your facility already buys electricity from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party electric suppliers is available at the NJBPU website[7].

10.2 Retail Natural Gas Supply Options

The natural gas market in New Jersey is also deregulated. Most customers that remain with the utility for natural gas service pay rates that are market based and fluctuate monthly. The utility provides basic gas supply service to customers who choose not to buy from a third-party supplier for natural gas commodity.

A customer's decision about whether to buy natural gas from a retail supplier typically depends on whether a customer prefers budget certainty and/or longer-term rate stability. Customers can secure longer-term fixed prices by signing up for service through a third-party retail natural gas supplier. Many larger natural gas customers may seek the assistance of a professional consultant to assist in their procurement process.

If your facility does not already purchase natural gas from a third-party supplier, consider shopping for a reduced rate from third-party natural gas suppliers. If your facility already purchases natural gas from a third-party supplier, review and compare prices at the end of each contract year.

A list of licensed third-party natural gas suppliers is available at the NJBPU website[8].

[7] www.state.nj.us/bpu/commercial/shopping.html.

[8] www.state.nj.us/bpu/commercial/shopping.html.

APPENDIX A: EQUIPMENT INVENTORY & RECOMMENDATIONS

Lighting Inventory & Recommendations

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Back Lobby - FM	3	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2, 3	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	1,973	0.0	122	0	$19	$263	$108	8.2
Back Lobby - FM	2	Compact Fluorescent: (1) 13W Spiral Plug-In Lamp	Wall Switch	S	13	2,860	2, 3	Relamp	Yes	2	LED Lamps: A19 Lamps	Occupancy Sensor	10	1,973	0.0	38	0	$6	$34	$2	5.4
Back Lobby - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Conference 1 - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Conference 1 - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,288	2, 3	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	55	1,579	0.0	101	0	$16	$38	$3	2.2
Exterior - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Timeclock		52	730	2	Relamp	No	2	LED Lamps: GX23 (Plug-In) Lamps	Timeclock	37	730	0.0	22	0	$3	$50	$4	13.3
Janitorial 1 - FM	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	520	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	520	0.0	10	0	$2	$18	$5	8.5
Kitchen 1 - FM	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,288	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	19	2,288	0.0	18	0	$3	$13	$1	4.2
Office - Copy Room FM	5	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	5	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	333	0	$52	$395	$45	6.8
Rear Office - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Rear Office - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,288	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	55	2,288	0.0	58	0	$9	$38	$3	3.8
Restroom - #1 - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,288	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	55	2,288	0.0	58	0	$9	$38	$3	3.8
Side Office - FM	3	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	200	0	$31	$345	$41	9.8
Side Office #2 - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	133	0	$21	$166	$24	6.9
Side Office #3 - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	133	0	$21	$166	$24	6.9
Sun Room - FM	1	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	37	2,288	0.0	38	0	$6	$25	$2	3.9
Sun Room - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Corridor 1st Front - FM	3	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2, 4	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	1,973	0.0	122	0	$19	$263	$108	8.2
Corridor 1st Front - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,860	2, 4	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	37	1,973	0.1	167	0	$26	$50	$4	1.8
Corridor 1st Side - FM	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2, 4	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	1,973	0.0	41	0	$6	$13	$1	1.8
Corridor 2nd - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,860	2, 4	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	37	1,973	0.1	167	0	$26	$275	$74	7.8
Corridor 2nd - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Lobby 2nd - FM	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,860	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	19	2,860	0.0	22	0	$3	$13	$1	3.4
Lobby 2nd - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Office - Main Upstairs - FM	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch	S	26	2,288	2, 3	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	19	1,579	0.0	32	0	$5	$13	$1	2.3

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Office - Main Upstairs - FM	6	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	6	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.2	400	0	$62	$420	$47	6.0
Office - Main Upstairs - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Office - Upstairs #1 - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Office - Upstairs #2 - FM	3	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	200	0	$31	$345	$41	9.8
Office - Upstairs #2 - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,288	2, 3	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	55	1,579	0.0	101	0	$16	$38	$3	2.2
Office - Upstairs #3 - FM	8	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	8	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.2	533	0	$83	$470	$51	5.1
Office - Upstairs #4 - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Office - Upstairs #5 - FM	4	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	4	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	266	0	$41	$370	$43	7.9
Restroom - Upstairs - FM	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,288	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,288	0.0	44	0	$7	$18	$5	1.9
Stairs to 2nd #2 - FM	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch		52	2,860	2, 4	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	37	1,973	0.1	167	0	$26	$275	$74	7.8
Corridor 3rd - Back - FM	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,860	2, 4	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	High/Low Control	29	1,973	0.1	264	0	$41	$298	$90	5.1
Mechanical - Crawlspace #2 - FM	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	9.0
Mechanical - Crawlspace 305 - FM	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	9.0
Stairs to 3rd Floor - FM	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch		78	2,860	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	55	2,860	0.0	72	0	$11	$38	$3	3.1
Stairs to 3rd Floor - FM	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Storage 301 - FM	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	9.0
Storage 302 - FM	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	9.0
Mechanical - Crawlspace - FM	1	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	520	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	37	520	0.0	9	0	$1	$25	$2	17.3
Mechanical - Basement - FM	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - FM	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	6	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.2	113	0	$18	$219	$60	9.0
Lobby - CH	1	Compact Fluorescent: (3) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	78	2,860	2	Relamp	No	1	LED Lamps: GX23 (Plug-In) Lamps	Wall Switch	55	2,860	0.0	72	0	$11	$38	$3	3.1
Lobby - CH	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Main Office - CH	3	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	3	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	200	0	$31	$345	$41	9.8
Main Office - CH	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Restroom - CH	1	Linear Fluorescent - T8: 4' T8 (32W) - 1L	Wall Switch	S	32	2,288	2	Relamp	No	1	LED - Linear Tubes: (1) 4' Lamp	Wall Switch	15	2,288	0.0	44	0	$7	$18	$5	1.9

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Side Office - CH	2	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	2	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.1	133	0	$21	$166	$24	6.9
Upstairs Office - CH	8	Compact Fluorescent: (2) 26W Double Biaxial Plug-In Lamps	Wall Switch	S	52	2,288	2, 3	Relamp	Yes	8	LED Lamps: GX23 (Plug-In) Lamps	Occupancy Sensor	37	1,579	0.2	533	0	$83	$470	$51	5.1
Upstairs Office - CH	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - CH	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	9.0
Exterior - CH	2	Metal Halide: (1) 70W Lamp	Timeclock		95	730	1	Fixture Replacement	No	2	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	21	730	0.0	108	0	$17	$412	$100	18.4
Exterior - CH	4	Metal Halide: (1) 200W Lamp	Timeclock		232	730	1	Fixture Replacement	No	4	LED - Fixtures: Outdoor Pole/Arm-Mounted Area/Roadway Fixture	Timeclock	60	730	0.0	502	0	$79	$1,557	$400	14.6
Back Office - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Back Office - Barn	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.1	211	0	$33	$189	$40	4.5
Conference 1 - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Conference 1 - Barn	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	2	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.1	211	0	$33	$73	$20	1.6
Conference 1 - Barn	2	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,288	2, 3	Relamp	Yes	2	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,579	0.1	317	0	$49	$226	$50	3.6
Laboratory 1 - Barn	4	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,288	2, 3	Relamp	Yes	4	LED - Linear Tubes: (3) 4' Lamps	Occupancy Sensor	44	1,579	0.2	634	0	$98	$489	$95	4.0
Lobby - Barn	2	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	2	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Lobby - Barn	3	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,860	2, 4	Relamp	Yes	3	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,973	0.2	594	0	$92	$389	$150	2.6
Main Office - Barn	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.2	423	0	$66	$416	$75	5.2
Mechanical Room - Barn	2	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	2	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.1	38	0	$6	$73	$20	9.0
Office - Mechanical - Barn	3	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	3	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.1	317	0	$49	$380	$65	6.4
Restroom - Barn	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch	S	93	2,288	2	Relamp	No	1	LED - Linear Tubes: (3) 4' Lamps	Wall Switch	44	2,288	0.0	125	0	$19	$55	$15	2.1
Stairs 1 - Barn	1	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Wall Switch		26	2,860	2, 4	Relamp	Yes	1	LED Lamps: GX23 (Plug-In) Lamps	High/Low Control	19	1,973	0.0	41	0	$6	$13	$1	1.8
Stairs 1 - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Stairs 1 - Barn	1	Linear Fluorescent - T8: 4' T8 (32W) - 3L	Wall Switch		93	2,860	2, 4	Relamp	Yes	1	LED - Linear Tubes: (3) 4' Lamps	High/Low Control	44	1,973	0.1	198	0	$31	$280	$50	7.5
Storage - Side - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0
Storage - Side - Barn	6	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2, 3	Relamp	Yes	6	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	359	0.2	144	0	$22	$489	$60	19.2
Storage #1 - Barn	1	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	1	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.0	19	0	$3	$37	$10	9.0
Upstairs Office - Barn	1	Exit Signs: LED - 2 W Lamp	None		6	8,760		None	No	1	Exit Signs: LED - 2 W Lamp	None	6	8,760	0.0	0	0	$0	$0	$0	0.0

	Existing Conditions						Proposed Conditions								Energy Impact & Financial Analysis						
Location	Fixture Quantity	Fixture Description	Control System	Light Level	Watts per Fixture	Annual Operating Hours	ECM #	Fixture Recommendation	Add Controls?	Fixture Quantity	Fixture Description	Control System	Watts per Fixture	Annual Operating Hours	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Upstairs Office - Barn	9	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	2,288	2, 3	Relamp	Yes	9	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	1,579	0.4	951	0	$148	$599	$125	3.2
Mechanical - Attic - Barn	5	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2	Relamp	No	5	LED - Linear Tubes: (2) 4' Lamps	Wall Switch	29	520	0.2	94	0	$15	$183	$50	9.0
Exterior - Barn	2	Compact Fluorescent: (1) 26W Double Biaxial Plug-In Lamp	Timeclock		26	730	2	Relamp	No	2	LED Lamps: GX23 (Plug-In) Lamps	Timeclock	19	730	0.0	10	0	$2	$25	$2	14.3
Exterior - Barn	1	Metal Halide: (1) 70W Lamp	Timeclock		95	730	1	Fixture Replacement	No	1	LED - Fixtures: Outdoor Wall-Mounted Area Fixture	Timeclock	21	730	0.0	54	0	$9	$206	$50	18.4
Garage - Barn	4	Linear Fluorescent - T8: 4' T8 (32W) - 2L	Wall Switch	S	62	520	2, 3	Relamp	Yes	4	LED - Linear Tubes: (2) 4' Lamps	Occupancy Sensor	29	359	0.2	96	0	$15	$416	$75	22.9

Motor Inventory & Recommendations

		Existing Conditions									Proposed Conditions					Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	Motor Quantity	Motor Application	HP Per Motor	Full Load Efficiency	VFD Control?	Manufacturer	Model	Remaining Useful Life	Annual Operating Hours	ECM #	Install High Efficiency Motors?	Full Load Efficiency	Install VFDs?	Number of VFDs	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical - Crawlspace - FM	Mechanical - Crawlspace - FM	2	Exhaust Fan	0.3	62.5%	No			W	2,288		No	62.5%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - FM	Sump Pump	1	Process Pump	0.5	75.0%	No			W	730		No	75.0%	No		0.0	0	0	$0	$0	$0	0.0
Fenwick Manor	Furnaces	4	Supply Fan	0.1	60.0%	No	Rheem		B	2,288		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - CH	Sump Pump	1	Process Pump	0.5	75.0%	No			W	730		No	75.0%	No		0.0	0	0	$0	$0	$0	0.0
Carriage House	Furnace	1	Supply Fan	0.1	60.0%	No	Rheem		B	2,288		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0
Roof - Barn	Laboratory - Barn	1	Exhaust Fan	1.0	82.5%	No			W	2,288		No	82.5%	No		0.0	0	0	$0	$0	$0	0.0
Mechanical Room - Barn	Sump Pump	1	Process Pump	0.5	75.0%	No			W	730		No	75.0%	No		0.0	0	0	$0	$0	$0	0.0
Barn	Furnace	1	Supply Fan	0.1	60.0%	No	Rheem		B	2,288		No	60.0%	No		0.0	0	0	$0	$0	$0	0.0

Packaged HVAC Inventory & Recommendations

		Existing Conditions									Proposed Conditions								Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Manufacturer	Model	Remaining Useful Life	ECM #	Install High Efficiency System?	System Quantity	System Type	Cooling Capacity per Unit (Tons)	Heating Capacity per Unit (MBh)	Cooling Mode Efficiency (SEER/IEER/EER)	Heating Mode Efficiency	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Exterior - FM	Basement & First Floor	1	Split-System	4.00		10.00		Trane	2TTB0048A1000AA	B	5	Yes	1	Split-System	4.00		16.00		0.9	720	0	$113	$6,486	$420	53.5
Exterior - FM	Basement & First Floor	1	Split-System	4.00		10.00		Trane	2TTB0048A1000AA	B	5	Yes	1	Split-System	4.00		16.00		0.9	720	0	$113	$6,486	$420	53.5
Exterior - FM	Second & Third Floor	1	Split-System	5.00		10.00		Trane	2TTB0060A1000AA	B	5	Yes	1	Split-System	5.00		16.00		1.1	900	0	$142	$6,521	$525	42.3
Exterior - FM	Second & Third Floor	1	Split-System	5.00		10.00		Trane	2TTB0060A1000AA	B	5	Yes	1	Split-System	5.00		16.00		1.1	900	0	$142	$6,521	$525	42.3
Mechanical - Basement - FM	Basement & First Floor	1	Forced Air Furnace		44.21		0.921 AFUE	Trane	TXC048C4HPD0	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - FM	Basement & First Floor	1	Forced Air Furnace		44.21		0.921 AFUE	Trane	TXC048C4HPD0	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical - Crawlspace 305 - FM	Second & Third Floor	1	Forced Air Furnace		55.26		0.921 AFUE	Trane	TXC060C5HPC0	B		No							0.0	0	0	$0	$0	$0	0.0
Mechanical - Crawlspace 305 - FM	Second & Third Floor	1	Forced Air Furnace		55.26		0.921 AFUE	Trane	TXC060C5HPC0	B		No							0.0	0	0	$0	$0	$0	0.0
Exterior - CH	Carriage House	1	Split-System	3.50		10.00		Trane	2TTB0042A1000AA	B	5	Yes	1	Split-System	3.50		16.00		0.8	630	0	$99	$6,407	$368	60.9
Mechanical - Basement - CH	Carriage House	1	Forced Air Furnace		38.68		0.921 AFUE	Trane	TXC042C4HPC0	B		No							0.0	0	0	$0	$0	$0	0.0
Lobby - CH	Lobby - CH	1	Electric Resistance Heat		6.82		1 COP	TPI Corporation	H3422T	W		No							0.0	0	0	$0	$0	$0	0.0
Exterior - Barn	Barn	1	Split-System	2.50		13.00		Trane	2TTR3030A1000AA	W		No							0.0	0	0	$0	$0	$0	0.0
Exterior - Barn	Barn	1	Split-System	3.00		10.00		Trane	2TTB0036A1000AA	B	5	Yes	1	Split-System	3.00		16.00		0.7	540	0	$85	$6,286	$315	70.2
Mechanical Room - Barn	Barn	1	Forced Air Furnace		38.68		0.921 AFUE	Trane	TXC042C4HPC0	B		No							0.0	0	0	$0	$0	$0	0.0
Office - Mechanical - Barn	Office - Mechanical - Barn	1	Unit Heater		60.75		0.81 Et	Trane	GHND007D	B		No							0.0	0	0	$0	$0	$0	0.0
Lobby - Barn	Lobby - Barn	1	Electric Resistance Heat		6.82		1 COP	TPI Corporation	H3422T	W		No							0.0	0	0	$0	$0	$0	0.0
Main Office - Barn	Main Office - Barn	1	Electric Resistance Heat		2.05		1 COP	TPI Corporation	E2906-036C	W		No							0.0	0	0	$0	$0	$0	0.0
Restroom - Barn	Restroom - Barn	1	Electric Resistance Heat		2.05		1 COP	TPI Corporation	E2906-036S	W		No							0.0	0	0	$0	$0	$0	0.0

DHW Inventory & Recommendations

		Existing Conditions					Proposed Conditions							Energy Impact & Financial Analysis						
Location	Area(s)/System(s) Served	System Quantity	System Type	Manufacturer	Model	Remaining Useful Life	ECM #	Replace?	System Quantity	System Type	Fuel Type	System Efficiency	Efficiency Units	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Mechanical - Basement - FM	Fenwick Manor	1	Storage Tank Water Heater (≤ 50 Gal)	Bradford White	MITW50L6BN12	B		No						0.0	0	0	$0	$0	$0	0.0
Mechanical - Basement - CH	Carriage House	1	Storage Tank Water Heater (≤ 50 Gal)	Bradford White	MITW40L6BN12	B		No						0.0	0	0	$0	$0	$0	0.0
Mechanical Room - Barn	Barn	1	Storage Tank Water Heater (≤ 50 Gal)	Bradford White	MITW50L6BN12	B		No						0.0	0	0	$0	$0	$0	0.0

Low-Flow Device Recommendations

	Recommedation Inputs					Energy Impact & Financial Analysis						
Location	ECM #	Device Quantity	Device Type	Existing Flow Rate (gpm)	Proposed Flow Rate (gpm)	Total Peak kW Savings	Total Annual kWh Savings	Total Annual MMBtu Savings	Total Annual Energy Cost Savings	Estimated M&L Cost ($)	Total Incentives	Simple Payback w/ Incentives in Years
Fenwick Manor	6	2	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	1	$9	$14	$7	0.8
Carriage House	6	1	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	0	$5	$7	$4	0.8
Barn	6	1	Faucet Aerator (Lavatory)	2.20	0.50	0.0	0	0	$5	$7	$4	0.8

Plug Load Inventory

	Existing Conditions					
Location	Quantity	Equipment Description	Energy Rate (W)	ENERGY STAR Qualified ?	Manufacturer	Model
Fenwick Manor	3	Coffee Machine	500	No		
Fenwick Manor	13	Desktop	120	No		
Fenwick Manor	2	Fan (Ceiling)	200	No		
Fenwick Manor	1	Microwave	800	No		
Fenwick Manor	1	Paper Shredder	146	No		
Fenwick Manor	8	Printer (Medium/Small)	450	No		
Fenwick Manor	1	Printer/Copier (Large)	600	No		
Fenwick Manor	1	Refrigerator (Residential)	340	No		
Fenwick Manor	1	Toaster Oven	600	No		
Fenwick Manor	2	Electric Space Heater	1,000	No		
Carriage House	2	Coffee Machine	500	No		
Carriage House	5	Desktop	120	No		
Carriage House	1	Fan (Ceiling)	200	No		
Carriage House	1	Fan (Portable)	100	No		
Carriage House	1	Microwave	800	No		
Carriage House	1	Paper Shredder	146	No		
Carriage House	2	Printer (Medium/Small)	450	No		
Carriage House	1	Refrigerator (Mini)	175	No		
Carriage House	1	Toaster Oven	600	No		
Barn	1	Coffee Machine	500	No		
Barn	7	Desktop	120	No		
Barn	1	Electric Space Heater	1,000	No		
Barn	1	Fan (Portable)	100	No		
Barn	2	Microwave	800	No		
Barn	1	Lab Oven	1,000	No		
Barn	3	Printer (Medium/Small)	450	No		
Barn	2	Refrigerator (Mini)	175	No		
Barn	1	Smart Board	215	No		

APPENDIX B: ENERGY STAR STATEMENT OF ENERGY PERFORMANCE

Energy use intensity (EUI) is presented in terms of *site energy* and *source energy*. Site energy is the amount of fuel and electricity consumed by a building as reflected in utility bills. Source energy includes fuel consumed to generate electricity consumed at the site, factoring in electric production and distribution losses for the region.

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ENERGY STAR® Statement of Energy Performance

N/A

ENERGY STAR® Score[1]

New Jersey Pinelands Commission (Fenwick Manor, Carriage House, & Barn)

Primary Property Type: Office
Gross Floor Area (ft²): 12,122
Built: 1820

For Year Ending: August 31, 2021
Date Generated: January 31, 2022

1. The ENERGY STAR score is a 1-100 assessment of a building's energy efficiency as compared with similar buildings nationwide, adjusting for climate and business activity.

Property & Contact Information

Property Address	Property Owner	Primary Contact
New Jersey Pinelands Commission (3 Building Campus) 15 Springfield Road New Lisbon, New Jersey 08064	New Jersey Pinelands Commission PO Box 359 New Lisbon, NJ 08064 609-894-7300	Jessica Lynch PO Box 359 New Lisbon, NJ 08064 609-894-7300 jessica.lynch@pinelands.nj.gov

Property ID: 19501565

Energy Consumption and Energy Use Intensity (EUI)

Site EUI
42.3 kBtu/ft²

Source EUI
66.1 kBtu/ft²

Annual Energy by Fuel

Natural Gas (kBtu)	362,692 (71%)
Electric - Grid (kBtu)	150,169 (29%)

National Median Comparison

National Median Site EUI (kBtu/ft²)	74.5
National Median Source EUI (kBtu/ft²)	116.4
% Diff from National Median Source EUI	-43%

Annual Emissions

Greenhouse Gas Emissions (Metric Tons CO2e/year)	33

Signature & Stamp of Verifying Professional

I _____ (Name) verify that the above information is true and correct to the best of my knowledge.

LP Signature: _____ Date: _____

Licensed Professional

___ _____
,
(___)___-_____
_____

Professional Engineer or Registered Architect Stamp (if applicable)

APPENDIX C: GLOSSARY

TERM	DEFINITION
Blended Rate	Used to calculate fiscal savings associated with measures. The blended rate is calculated by dividing the amount of your bill by the total energy use. For example, if your bill is $22,217.22, and you used 266,400 kilowatt-hours, your blended rate is 8.3 cents per kilowatt-hour.
Btu	*British thermal unit*: a unit of energy equal to the amount of heat required to increase the temperature of one pound of water by one-degree Fahrenheit.
CHP	*Combined heat and power*. Also referred to as cogeneration.
COP	*Coefficient of performance*: a measure of efficiency in terms of useful energy delivered divided by total energy input.
Demand Response	Demand response reduces or shifts electricity usage at or among participating buildings/sites during peak energy use periods in response to time-based rates or other forms of financial incentives.
DCV	*Demand control ventilation*: a control strategy to limit the amount of outside air introduced to the conditioned space based on actual occupancy need.
US DOE	*United States Department of Energy*
EC Motor	*Electronically commutated motor*
ECM	*Energy conservation measure*
EER	*Energy efficiency ratio*: a measure of efficiency in terms of cooling energy provided divided by electric input.
EUI	*Energy Use Intensity:* measures energy consumption per square foot and is a standard metric for comparing buildings' energy performance.
Energy Efficiency	Reducing the amount of energy necessary to provide comfort and service to a building/area. Achieved through the installation of new equipment and/or optimizing the operation of energy use systems. Unlike conservation, which involves some reduction of service, energy efficiency provides energy reductions without sacrifice of service.
ENERGY STAR	ENERGY STAR is the government-backed symbol for energy efficiency. The ENERGY STAR program is managed by the EPA.
EPA	*United States Environmental Protection Agency*
Generation	The process of generating electric power from sources of primary energy (e.g., natural gas, the sun, oil).
GHG	*Greenhouse gas* gases that are transparent to solar (short-wave) radiation but opaque to long-wave (infrared) radiation, thus preventing long-wave radiant energy from leaving Earth's atmosphere. The net effect is a trapping of absorbed radiation and a tendency to warm the planet's surface.
gpf	*Gallons per flush*

gpm	*Gallon per minute*
HID	*High intensity discharge:* high-output lighting lamps such as high-pressure sodium, metal halide, and mercury vapor.
hp	*Horsepower*
HPS	*High-pressure sodium*: a type of HID lamp.
HSPF	*Heating seasonal performance factor:* a measure of efficiency typically applied to heat pumps. Heating energy provided divided by seasonal energy input.
HVAC	*Heating, ventilating, and air conditioning*
IHP 2014	US DOE Integral Horsepower rule. The current ruling regarding required electric motor efficiency.
IPLV	*Integrated part load value:* a measure of the part load efficiency usually applied to chillers.
kBtu	One thousand British thermal units
kW	*Kilowatt*: equal to 1,000 Watts.
kWh	*Kilowatt-hour*: 1,000 Watts of power expended over one hour.
LED	*Light emitting diode*: a high-efficiency source of light with a long lamp life.
LGEA	*Local Government Energy Audit*
Load	The total power a building or system is using at any given time.
Measure	A single activity, or installation of a single type of equipment, that is implemented in a building system to reduce total energy consumption.
MH	*Metal halide*: a type of HID lamp.
MBh	*Thousand Btu per hour*
MBtu	*One thousand British thermal units*
MMBtu	*One million British thermal units*
MV	*Mercury Vapor:* a type of HID lamp.
NJBPU	*New Jersey Board of Public Utilities*
NJCEP	*New Jersey's Clean Energy Program:* NJCEP is a statewide program that offers financial incentives, programs and services for New Jersey residents, business owners and local governments to help them save energy, money, and the environment.
psig	Pounds per square inch gauge
Plug Load	Refers to the amount of power used in a space by products that are powered by means of an ordinary AC plug.
PV	*Photovoltaic:* refers to an electronic device capable of converting incident light directly into electricity (direct current).

SEER	*Seasonal energy efficiency ratio:* a measure of efficiency in terms of annual cooling energy provided divided by total electric input.
SEP	*Statement of energy performance:* a summary document from the ENERGY STAR Portfolio Manager.
Simple Payback	The amount of time needed to recoup the funds expended in an investment or to reach the break-even point between investment and savings.
SREC	*Solar renewable energy credit*: a credit you can earn from the state for energy produced from a photovoltaic array.
TREC	*Transition Incentive Renewable Energy Certificate:* a factorized renewable energy certificate you can earn from the state for energy produced from a photovoltaic array.
T5, T8, T12	A reference to a linear lamp diameter. The number represents increments of 1/8th of an inch.
Temperature Setpoint	The temperature at which a temperature regulating device (thermostat, for example) has been set.
therm	100,000 Btu. Typically used as a measure of natural gas consumption.
tons	A unit of cooling capacity equal to 12,000 Btu/hr.
Turnkey	Provision of a complete product or service that is ready for immediate use.
VAV	*Variable air volume*
VFD	*Variable frequency drive*: a controller used to vary the speed of an electric motor.
WaterSense®	The symbol for water efficiency. The WaterSense® program is managed by the EPA.
Watt (W)	Unit of power commonly used to measure electricity use.