State of New Jersey
THE PINELANDS COMMISSION
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Chris Christie
Governor

Kim Guadagno
Lt. Governor

General Information: Info@njpines.state.nj.us
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Mark S. Lohbauer
Chairman

Nancy Wittenberg
Executive Director

December 16, 2014

Mr. Robert Lupp
State Library – NJ Reference Section
185 West State Street
P.O. Box 520
Trenton, New Jersey 08625

Dear Mr. Lupp:

Enclosed are the Pinelands Commission meeting minutes for November 14, 2014 for your information.

Sincerely,

Melody A. Wood,
Receptionist

PC1
Enclosure: Minutes

PINELANDS COMMISSION MEETING[1]
Richard J. Sullivan Center
Terrence D. Moore Conference Room
15 Springfield Road
New Lisbon, New Jersey

MINUTES

November 14, 2014

Commissioners Present
Candace Ashmun, Alan W. Avery Jr., Bill Brown, Joe DiBello, Sean Earlen, Ed Lloyd, Paul E. Galletta, Richard Prickett, Robert Jackson, Jane Jannarone, Ed McGlinchey, Gary Quinn, Fran Witt and Chairman Mark Lohbauer. Also present were Executive Director Nancy Wittenberg, Governor's Authorities Unit Liaison Amy Herbold and Deputy Attorney General Kristen Heinzerling.

Commissioners Absent
D'Arcy Rohan Green.

Chairman Lohbauer called the meeting to order at 9:38 a.m.

DAG Heinzerling read the Open Public Meetings Act Statement.

Ms. Wittenberg called the roll and announced the presence of a quorum. (There were 14 Commissioners present.)

The Commission and public in attendance pledged allegiance to the Flag.

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[1] Please note that all attachments are maintained with the original minutes, but are not attached to copies. For information about attachments, please contact the office.

Mr. Larry Liggett provided an update on the following:

- The Cape May County Municipal Utilities Authority (CMCMUA)/ Woodbine Leachate study is complete. The CMCMUA Board will meet next week to discuss which option they will proceed with.
- Mr. Ed Wengrowski will present the results of the rapid landfill assessment at the next Pinelands Municipal Council meeting. The Council will meet on Tuesday, November 25, 2014 in Estell Manor.
- Staff met with Winslow Township to discuss the rezoning of the Township's Regional Growth Area.

Mr. Chuck Horner provided an update on the following:

- An application has been submitted to the Commission for the use of the abandoned Lenox china site in Galloway Township. The application is proposing a manufacturing facility at the site.
- A letter was recently sent to Stafford Township to advise the Township of the next steps to proceed with a Waiver of Strict Compliance for a compelling public need. The Township is proposing a stormwater management basin on the south side of Route 72 to alleviate flooding issues in Ocean Acres. The township would need a Waiver because the application does not meet the Commission's permitted land use standards.
- The Commission's staff has been spending many hours dealing with phone calls from residents in Buena Vista Township who are dissatisfied with the Township for various reasons. Most of the issues being raised by the public are not within the Commission's purview.

Commissioner Ashmun said she has many questions about Stafford Township and asked Mr. Horner about the next steps.

Mr. Horner said once the application is complete it will come before the Commission for a vote.

Ms. Wittenberg requested that Commissioner Ashmun inform staff of her questions.

Commissioner Lloyd asked Ms. Wittenberg if the approach to the basin application was the method agreed to by the Policy and Implementation Committee.

Ms. Wittenberg noted that the Committee could not reach consensus on one approach.

Public Development Projects and Other Permit Matters

Chairman Lohbauer said there are no Public Development applications or Waivers of Strict Compliance on this month's agenda.

Chairman Lohbauer asked for a motion to authorize the Commission to enter into a Memorandum of Agreement (MOA) with Stockton College.

Ms. Roth said should the College seek reinstatement, a resolution would need to be voted on by the full Commission.

Commissioner Ashmun said as long as concurrence means Commission action, she is okay with it.

Commissioner McGlinchey asked if the Executive Director has the ability to resolve a violation should it occur before suspending the MOA. He said sometimes what appear to be violations are actually just mistakes.

Ms. Wittenberg said yes, that is why the MOA uses the term "outstanding unresolved" violations.

Commissioner Galletta said he is in favor of entering into this MOA with Stockton College.

Ms. Wittenberg pointed out that Dr. Herman Saatkamp, President of Stockton College, was in the audience.

Chairman Lohbauer said he believes all parties will be served well by this MOA. He thanked Stockton College, the public and staff for all of their efforts to make this happen.

The Commission adopted the resolution by a vote of 14 to 0. All voted in favor.

Resolutions Relating to Municipal Ordinances

Chairman Lohbauer asked for a motion regarding Buena Vista Township Ordinance 17-2014.

Commissioner Galletta moved the adoption of a resolution Issuing an Order to Certify Ordinance 17-2014, Amending Chapter 115 (Development Regulations) of the Code of the Township of Buena Vista (See Resolution # PC4-14-38). Commissioner Brown seconded the motion.

The Commission adopted the resolution by a vote of 14 to 0. All voted in favor.

Public Comment on Agenda Items and Pending Public Development Applications

Jim Fraser, an Egg Harbor Township resident, provided comments on Application 1984-0314.016. He expressed his dismay that Egg Harbor Township constructed a 2,000 square foot deck to the existing restaurant at the municipal Golf Course without application to the Commission. He said the Township knows better and should suffer some consequence.

Fred Akers, a resident of Buena Vista Township, said volunteers are looking out for Buena Vista Township just as they did at Stockton College. He said the Township has violated its Land Use Code. He said making an application to fix a violation does not necessarily fix it.

Presentation

Chairman Lohbauer said he invited New Jersey Future to present the findings of its recently released report: "Growing Smart and Water Wise: Protection Water Resources in the Growth Areas of the New Jersey Pinelands."

Ms. Chris Sturm, Senior Director of State Policy at New Jersey Future introduced herself and thanked the Commission for inviting them to make a presentation today. She also introduced Dr. Dan Van Abs, a professor at Rutgers University who worked on the research and the study's policy recommendations.

Ms. Sturm said the study was funded by the William Penn Foundation, and NJ Future partnered with the Pinelands Preservation Alliance. She said the study focused on three areas with significant growth areas: Medford/Evesham, Hammonton and Tuckerton/Little Egg Harbor. She said water resources are being degraded and that is why there is a need to strengthen existing regulations and enforce the regulations currently in place. She said an alternative to using the Kirkwood-Cohansey needs to be developed.

Dr. Dan Van Abs said he performed the research along with his team; however no new field work was undertaken. The study analyzed existing data from a variety of sources. He said in most instances the HUC 14 watersheds were studied. See Presentation slides for further details. Link to the report: http://www.njfuture.org/research-publications/research-reports/growing-smart-water-wise/

Ms. Sturm reviewed the recommendations of the report. She said she envisioned the Commission spearheading the implementation of the recommendations.

Commissioner Galletta said he enjoyed the presentation and agreed with many of the recommendations but said he would like to know how much water withdrawal is too much.

Dr. Van Abs said the report provides the science. A policy decision needs be made on the threshold. The last question is what tool or model should be utilized when reviewing an actual permit application.

Carleton Montgomery, Pinelands Preservation Alliance, said the key issue is at what level of impact do you get unacceptable results and at what geographical scale do you judge those results. He said the Commission will be the leader in protecting the Kirkwood-Cohansey aquifer. He would like to see protective measures put in place within the Commission's jurisdiction and hopefully the state will follow.

Commissioner Earlen asked if the study researched the impacts the more stringent regulations to stormwater and water allocation would have on the farmers and businesses in the area.

Ms. Sturm said the funding did not allow for that. She said she knows that agricultural water use will be a big part of the challenge.

Bob Filipczak of Linwood, NJ said he is against the pipeline and burning fossil fuels. He supports clean energy such as solar and wind. He said the BL England site is ideal for either solar and/or wind energy. He said trash is a renewable resource and is in favor of co-firing plastic with coal.

Rich Bizub of the Pinelands Preservation Alliance said the New Jersey Geological Survey (NJGS) provides the technical support and reviews modeling for water allocation permits. He said that NJGS only reviews requests for water allocation permits to determine whether they would result in drawdown of over one foot. He said dropping the Kirkwood Cohansey aquifer by one foot could have a highly negative effect on wetlands. He said he went on the internet and typed in Tuckahoe Turf Farm soccer and came across a calendar of events. He said he noticed there is a tournament scheduled for April 2015.

Lee Rosenson of the Pinelands Preservation Alliance and New Jersey Audubon Society said he believes NJDEP makes the final decisions on water allocation permits. He recommended that the Commission explore who has jurisdiction over this matter. He said don't waste time waiting for more science on the water debate. He recommended moving forward with water conservation measures now.

Fred Akers said he recently attended the Gloucester County Master Plan meeting. He said he learned that the County plan was so old it was beginning to hinder municipal master plans.

Mr. Liggett added that Commission staff recently attended a similar meeting at Gloucester County to discuss the Master Plan and water related issues.

Lee Rosenson said it was noted recently that there are approximately 30,000 septic systems in the Pinelands and he was curious what kind of threat the septics pose to the water.

Commissioner McGlinchey said before the Commissions breaks into closed session he wanted to touch on Mr. Fraser's comments. He said he reviewed some of the correspondence between the Commission and Egg Harbor Township and was bothered that the Township administrator thought it was okay to build an addition because of a prior approval for impervious coverage. He said the municipality should be held to a higher standard and a fee should be issued for staff's time to review something after the fact.

Closed Session Resolution

DAG Heinzerling read a resolution to retire into closed session to discuss collective bargaining and potential litigation regarding Tuckahoe Turf Farms.

Commissioner Lloyd moved to retire into closed session. Commissioner Prickett seconded the motion. The Commission agreed to retire into closed session by a vote of 14 to 0, beginning at 11:48 a.m.

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-14- 37

TITLE: Authorizing the Executive Director to Execute a Permit Streamlining Memorandum of Agreement between The Richard Stockton College of New Jersey and the New Jersey Pinelands Commission

Commissioner Galletta **moves and Commissioner** Ficken **seconds the motion that:**

WHEREAS, the New Jersey Pinelands Commission (the Commission) is a public body, corporate and politic which was established to prepare and administer the Pinelands Comprehensive Management Plan (the "CMP") to protect the resources of the Pinelands Area of the State of New Jersey; and

WHEREAS, Section 6 of the Pinelands Protection Act authorizes the Commission "to enter into any and all agreements or contracts, execute any and all instruments, and do and perform any and all acts or things necessary, convenient, or desirable for the purposes of the Commission to carry out any power expressly given in this act"; and

WHEREAS, the Richard Stockton College of New Jersey is a New Jersey State institution of higher education, organized pursuant to N.J.S.A. 18A-64-1 et seq., and is located within the Pinelands Area of Galloway Township, Atlantic County; and

WHEREAS, N.J.A.C. 7:50-4.52(c)1 authorizes the Commission to enter into intergovernmental memoranda of agreement (MOA) with any agency of the Federal, State or local government which authorizes such agency to carry out specified development activities without securing individual development approvals from the Commission, provided the specified development activities are consistent with the provisions of N.J.A.C. 7:50-5 and 6; and

WHEREAS, on December 9, 2009, the Board of Trustees of the Richard Stockton College of New Jersey approved a new master plan for the College (the April 2010 Master Plan); and

WHEREAS, the April 2010 Master Plan sets forth a comprehensive plan for the future development and expansion of the college campus in recognition of increased enrollment and projections of future growth; and

WHEREAS, the Commission certified the College's April 2010 Master Plan on September 10, 2010 by adoption of Resolution #PC4-10-48; and

WHEREAS, approval of the 2010 Master Plan indicated the Commission's acceptance of the land use and threatened and endangered species plans set forth therein for the College but in no way relieved the College of its obligation to submit applications for development to the Commission for review and approval pursuant to N.J.A.C. 7:50-4.51 et seq.; and

WHEREAS, the College requested that the Pinelands Commission consider authorizing an alternate permitting process MOA for the approval of development activities to be conducted within the Designated Development Areas set forth within the certified April 2010 Master Plan; and

WHEREAS, the alternate permitting process established by the proposed MOA does not eliminate Commission review of any development proposed to be located within a Designated Development Area, but rather expedites such review by eliminating the submission of individual formal public development applications for such development; and

WHEREAS, the MOA requires the Executive Director to determine that any proposed development project that is submitted pursuant to the MOA's alternate permit process is consistent with the requirements of the MOA, the 2010 Master Plan, the 2010 Stormwater Plan and the provisions of Subchapters 5and 6 of the Pinelands CMP, in order to issue a written authorization allowing construction of such development project to proceed; and

WHEREAS, the MOA prohibits any development project within any Designated Development Area to commence absent receipt of written authorization from the Commission staff that the proposed development is consistent with the requirements of this MOA, the 2010 Master Plan, the 2010 Stormwater Plan, and the provisions of Subchapter 5 and 6 of the Pinelands CMP; and

WHEREAS, the Pinelands Commission has duly considered all public testimony submitted to the Commission concerning the MOA and has reviewed the Executive Director's report and the MOA, revised as of November 5, 2014; and

WHEREAS, the Pinelands Commission finds that the MOA, dated November 5, 2014, satisfies the standards of N.J.A.C. 7:50-4.52(c)1 which authorizes the Commission to enter into such an agreement; 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 the Pinelands Commission agrees to enter into the November 5, 2014 Memorandum of Agreement between The Richard Stockton College of New Jersey and the New Jersey Pinelands Commission, attached hereto.

BE IT FURTHER RESOLVED that the Pinelands Commission authorizes its Executive Director to execute the November 5, 2014 Memorandum of Agreement between The Richard Stockton College of New Jersey and the New Jersey Pinelands Commission.

Record of Commission Votes

	AYE	NAY	NP	ABS		AYE	NAY	NP	ABS		AYE	NAY	NP	ABS
Ashmun	X				Galletta	X				Prickett	X			
Avery	X				Jackson	X				Quinn	X			
Brown	X				Jannarone	X				Rohan Green			X	
DiBello	X				Lloyd	X				Witt	X			
Earlen	X				McGlinchey	X				Lohbauer	X			

Adopted at a meeting of the Pinelands Commission

Date: Nov. 14, 2014

Nancy Wittenberg
Executive Director

Mark S. Lohbauer
Chairman

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Lt. Governor

General Information: Info@njpines.state.nj.us
Application Specific Information: AppInfo@njpines.state.nj.us

Mark S. Lohbauer
Chairman

Nancy Wittenberg
Executive Director

November 5, 2014

REPORT ON A MEMORANDUM OF AGREEMENT BETWEEN THE RICHARD STOCKTON COLLEGE AND THE NEW JERSEY PINELANDS COMMISSION

FINDINGS OF FACT

The proposed Memorandum of Agreement ("MOA") between the Richard Stockton College ("Stockton" or the "College") and the New Jersey Pinelands Commission (the "Commission") would streamline the permit application process for implementation of the College's 2010 Master Plan. Specifically, the proposed MOA would authorize the College to engage in development activities delineated in the April 2010 Commission approved Master Plan without securing individual development approvals from the Commission. Instead, the MOA requires the College to submit a narrative description, detailed site plans depicting all proposed improvements and land disturbances, and other information for each proposed development to be constructed within a Designated Development Area. Through these submittals, the College must demonstrate consistency with the 2010 Master Plan, the 2010 Stormwater Management Master Plan and the land use and environmental standards of Subchapter 5 and 6 of the Pinelands CMP. Thus, the proposed MOA is intended to facilitate, consistent with the requirements of the CMP, the implementation of the development areas delineated in the 2010 Master Plan. The 2010 Master Plan is intended to guide all on-campus development for Stockton's 1,560 acre campus for the next twenty years. The proposed MOA would also approve the College's 2010 Stormwater Management Master Plan. As required by N.J.A.C. 7:50-4.52(c)1, all development to be conducted under this proposed MOA will be consistent with the provisions of the Pinelands Comprehensive Management Plan (CMP). No deviations from the land use or environmental standards of the Pinelands CMP are proposed. As a result, the proposed MOA is consistent with the requirements of the Pinelands CMP. Moreover, because this MOA establishes an alternate permitting process in accordance with N.J.A.C. 7:50-4.52(c)1, no further action by the Commission would be required unless the College changes: 1) the number and/or type of residential units; 2) the extent of clearing; 3) the amount of impervious cover; or 4) any other material aspect of any development proposed within a Designated Development Area delineated in the 2010 Master Plan and such changes involve substantive variances or waivers of the Pinelands CMP or the 2010 Master Plan. Additionally, a formal development application would be required for any proposed development to be located outside of a Designated Development Area or that is not consistent with the terms of this MOA, the 2010 Master Plan or the Stormwater Plan. Additional findings are included in the "whereas" paragraphs of the proposed MOA amendment and are incorporated herein by reference.

PUBLIC HEARING

Pursuant to N.J.A.C. 7:50-4.52(c)3, a public hearing to receive testimony concerning the proposed MOA was duly advertised and noticed. The hearing was held by Executive Director Nancy Wittenberg on October 2, 2012 at 7:00 p.m. at the Galloway Township Municipal Building, 300 E. Jimmie Leeds Road, Galloway, New Jersey. Approximately seven people attended the hearing, of which three individuals

October 5, 2012 letter from Jaclyn Rhoads, Director for Conservation Policy, Pinelands Preservation Alliance

October 4, 2012 letter from Fred Akers, Administrator, Great Egg Harbor Watershed Association & River Council

October 5, 2012 comments from William J. Cromartie, Ph.D.

Copies of these three submittals have been attached to this report.

OUTSTANDING VIOLATIONS AND ADDITIONAL WRITTEN COMMENT PERIOD

Through the public comment process, the Commission staff became aware of a number of potential land development violations that had occurred at Stockton's campus. Of the approximately 11 violations identified by a commenter, only four were determined to be violations and required application to the Commission. Commission staff advised Stockton that these violations had to be addressed before it would move forward with the remaining administrative process for the proposed MOA and present it for consideration by the Commission's Policy & Implementation Committee and the full Commission.

Stockton subsequently submitted public development applications to resolve the outstanding violations. The applications involved: 1) improvements to two courtyards located between existing buildings on the campus; 2) construction of a 1,000 linear foot paved emergency access road within the limits of a pre-existing cleared and gravel access road that predated adoption of the Pinelands CMP; 3) paving of a .053 acres within an adjacent parking area and the reconfiguration of the parking area to create an additional 175 parking spaces; and 4) construction of a 160 space stone parking lot and the removal, restoration and revegetation of a second parking area that had been constructed without application to the Commission. All of the proposed development was located within an area designated as a "development area" within the 2010 Master Plan. The Commission approved the first public development application on January 1, 2014 and the remaining three applications on March 14, 2014.

Given the amount of time that had passed between the public comment period on the proposed MOA and resumption of the administrative process required for its consideration, the Commission decided to afford the public an additional opportunity to provide comment on the proposed MOA. On September 10, 2014, the Commission posted notice of an additional written comment period on its website. A copy of the proposed MOA, dated September 9, 2014 and including attachments, was also posted on the Commission's website on that date. Notice was also published in the Press of Atlantic City on September 15, 2014. The additional written public comment period closed at the close of business on October 15, 2014. No additional public comment was received.

EXECUTIVE DIRECTOR'S ANALYSIS OF THE COMMENTS

Much of the public comment received at the hearing and, subsequently, in writing, focused on four main points: 1) Stockton's prior violations of the Pinelands CMP and concerns regarding the potential for continued violations occurring as a result of the MOA; 2) Water quality degradation issues arising out of existing stormwater features at the Campus and concerns regarding use of low impact development techniques as part of the stormwater management plans for specific development projects located within a designated development area when proposed in the future; 3) Loss of biodiversity as a result of development on the campus; 4) Opposition to the development of areas delineated in the 2010 Master

Finally, the MOA requires the College to attend a meeting of the Commission's Policy & Implementation Committee meeting on a biennial basis to provide the Committee with a synopsis of the development that has occurred at the College in accordance with the terms of the MOA and any proposed development that the College anticipates conducting in the upcoming two-year period. These briefing sessions will keep the Commission and the public better informed of the development activities occurring at the College and provide ongoing opportunity for dialogue between the Commission and the College concerning development at the campus.

In light of these provisions, the Executive Director believes that the proposed MOA will encourage development activities to be conducted at the College in accordance with the requirements of the alternate permitting process of the MOA and the Pinelands CMP.

B. Water Quality Degradation as a Result of Continued Use of Existing Outmoded Stormwater Structures and Lack of Utilization of Low Impact Development techniques in the College's 2010 Stormwater Management Master Plan

Comments: Two of the commenters expressed concerns regarding the continued discharge of untreated stormwater directly into Lake Fred and adjacent wetlands and through a drainage ditch into Morses Mill Stream. One commenter indicated that the College has been permitted to grandfather these outdated structures. Another commenter stated that any MOA that does not directly address these outmoded stormwater structures makes a mockery of the CMP process that mainly serves to waive strict compliance with the CMP. Lastly, one commenter expressed concerns with the College's 2010 Stormwater Management Master Plan, because 1) the plan does not address utilization of stormwater basins throughout the development, instead of using low impact development techniques and 2) the plan is missing documentation to demonstrate how nutrient reduction requirements will be met. This commenter stated that if these deficiencies are not corrected now, the applicant is not likely to fulfill these requirements in the future, since the Commission does not have enforcement powers and the MOA will already be in effect.

Response: With regard to the pre-existing, outmoded stormwater structures, these are pre-existing conditions that pre-date the enactment of the Pinelands Protection Act and the promulgation of the Pinelands CMP. These conditions have not been "grandfathered" through the Commission's approval of the 2010 Master Plan or through this MOA, rather it is the pre-existing nature of these conditions, that permits their continued use. The Commission does not have the regulatory authority to mandate that the College cease utilization of these structures.

The Executive Director disagrees that approval of this alternate permitting process MOA, without addressing the pre-existing outmoded stormwater structures, makes a mockery of the CMP process. As noted above, these are pre-existing conditions. Although such direct discharges would not be permitted if proposed as a stormwater management technique today, the Commission does not have the regulatory authority to order the College to address this issue. Additionally, the within MOA does not authorize a waiver of the requirements of the Pinelands CMP. This is not a deviation MOA. In accordance with N.J.A.C. 7:50-4.52(c)1, the MOA establishes an alternate permitting process and permits development that is consistent with the requirements of the Pinelands CMP to proceed without the need to secure individual development approvals from the Commission.

Finally, with regard to the 2010 Stormwater Management Master Plan, the MOA requires the College to submit information for each proposed development project demonstrating each project's consistency

The 1990 MOA did not impose any obligation on the College to permanently preserve any lands. Rather, the 1990 Facilities Master Plan identified different geographic areas on the College's property and identified specific uses within each such area. Within the Rural Development Area portion of the campus, environmental study and experimentation was identified within an approximate 168 acre area and passive recreation (including intramural athletic fields) was identified for a 643 acre area. Other portions of the Rural Development Area were specified for intercollegiate athletic fields and related facilities (approximately 84 acres), an observatory and associated facilities (approximately 14 acres), and an approximately 69 acre area for the storage of clean soil and cut vegetation and a borrow pit. The Commission approved these specific uses within the Rural Development Area and the College was permitted to engage in these uses within the portions of its campus located within the Rural Development Area.

The College has, in fact, restricted the uses in the Rural Development Area to those uses specified in the 1990 Master Plan for the past 20 years. It accomplished this obligation through administrative action rather than through other options, such as easements. However, since the 2010 Plan focused its protection efforts on lands to be managed for their natural resource values (rather than for a variety of other uses as was the case in 1990), deed restrictions (i.e., easements) were the appropriate means to achieve permanent protection of important natural resource lands on and proximate to the College's campus. The College recorded the required deed restriction on November 5, 2010.

Lastly, as discussed above, the College's certified 2010 Master Plan has resulted in the permanent preservation of 1,275 acres, 1,000 acres of which are located directly on the College's campus and the additional 257 acres located offsite. This represents 170 acres more than the 1990 acreage. This acreage includes wetlands, wetlands buffers, forested corridors and critical habitat for rare plant and animals. These lands also qualify as high integrity pursuant to the Commission's Ecological Integrity Assessment. More importantly, this acreage will be conserved in its natural state through the imposition of a deed restriction, which has already been filed.

CONCLUSION AND RECOMMENDATION

The proposed MOA between The Richard Stockton College and the New Jersey Pinelands Commission will establish an alternate permitting process pursuant to N.J.A.C. 7:50-4.52(c)1, which will authorize Stockton College to engage in development activities delineated in the College's April 2010 Master Plan. This is not a deviation MOA. As required by N.J.A.C. 7:50-4.52(c)1, all development activities conducted by Stockton will comply with the land use and environmental standards, Subchapter 5 and 6, respectively, of the Pinelands CMP. The sole purpose of this MOA is to streamline the permit application process for the College by eliminating the obligation to secure individual Pinelands public development approvals from the Commission for development activities to be conducted within the Designated Development Areas established within the certified 2010 Master Plan. Formal Pinelands public development applications would still be required if the College changes: 1) the number and/or type of residential units; 2) the extent of clearing; 3) the amount of impervious cover; or 4) any other material aspect of any development proposed within a Designated Development Area delineated in the 2010 Master Plan and such changes involve substantive variances or waivers of the Pinelands CMP or the 2010 Master Plan. Additionally, a formal development application would be required for any proposed development to be located outside of a Designated Development Area or that is not consistent with the terms of this MOA, the 2010 Master Plan or the Stormwater Plan. The proposed MOA will also approve the College's 2010 Stormwater Management Master Plan. The proposed MOA is consistent with the requirements of the Pinelands CMP. The Executive Director, therefore, recommends that the

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-14- 38

TITLE: Issuing an Order to Certify Ordinance 17-2014, Amending Chapter 115 (Development Regulations) of the Code of the Township of Buena Vista

Commissioner Galletta **moves and Commissioner** Brown **seconds the motion that:**

WHEREAS, on July 12, 1991, the Pinelands Commission fully certified the Master Plan and codified Land Use Ordinances of Buena Vista Township; and

WHEREAS, Resolution #PC4-91-97 of the Pinelands Commission specified that any amendment to the Township's certified Master Plan and codified 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 #PC4-91-97 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 September 8, 2014, Buena Vista Township adopted Ordinance 17-2014, amending Chapter 115 (Development Regulations) of the Code of the Township of Buena Vista by revising various standards related to signs, including establishing new standards applicable to changeable copy and electronic message center signs; and

WHEREAS, the Pinelands Commission received an adopted copy of Ordinance 17-2014 on September 12, 2014; and

WHEREAS, by letter dated September 19, 2014, the Executive Director notified the Township that Ordinance 17-2014 would require formal review and approval by the Pinelands Commission; and

WHEREAS, a public hearing to receive testimony on Ordinance 17-2014 was duly advertised, noticed and held on October 8, 2014 at the Richard J. Sullivan Center, 15C Springfield Road, New Lisbon at 9:30 a.m.; and

WHEREAS, the Executive Director has found that Ordinance 17-2014 is consistent with the standards and provisions of the Pinelands Comprehensive Management Plan; and

WHEREAS, the Executive Director has submitted a report to the Commission recommending the issuance of an order to certify that Ordinance 17-2014, amending Chapter 115 (Development Regulations) of the Code of the Township of Buena Vista, is in conformance with the Pinelands Comprehensive Management Plan; and

WHEREAS, the Commission's CMP Policy and Implementation Committee has reviewed the Executive Director's report and has recommended that Ordinance 17-2014 be certified; and

WHEREAS, the Pinelands Commission has duly considered all public testimony submitted to the Commission concerning Ordinance 17-2014 and has reviewed the Executive Director's report; and

WHEREAS, the Pinelands Commission accepts the recommendation of the 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

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Lt. Governor

Mark S. Lohbauer
Chairman

Nancy Wittenberg
Executive Director

REPORT ON ORDINANCE 17-2014, AMENDING CHAPTER 115 (DEVELOPMENT REGULATIONS) OF THE CODE OF BUENA VISTA TOWNSHIP

October 31, 2014

Buena Vista Township
Municipal Building
P.O. Box 605
890 Harding Highway
Buena, NJ 08310

FINDINGS OF FACT

I. Background

The Township of Buena Vista is located in the southern Pinelands in Atlantic County. Pinelands municipalities adjacent to Buena Vista Township include the Townships of Hamilton and Weymouth, and the Boroughs of Buena and Folsom in Atlantic County; Maurice River Township and the City of Vineland in Cumberland County; and, Franklin and Monroe Townships in Gloucester County.

On July 11, 1991, the Pinelands Commission fully certified the Master Plan and Land Use Ordinances of Buena Vista Township.

On September 8, 2014, Buena Vista Township adopted Ordinance 17-2014, amending Chapter 115 (Development Regulations) of the Township's Code by revising various standards related to signs, including establishing new standards applicable to changeable copy and electronic message center signs. More specifically, Ordinance 17-2014 permits changeable copy and electronic message center signs in certain portions of the Township's Pinelands Villages and Pinelands Town. The Pinelands Commission received a certified copy of Ordinance 17-2014 on September 12, 2014.

By letter dated September 19, 2014, the Executive Director notified the Township that Ordinance 17-2014 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 17-2014, amending Chapter 115 (Development Regulations) of the Code of Buena Vista Township, introduced on August 25, 2014 and adopted on September 8, 2014.

PVI District is located within the Pinelands Village of Milmay. The PVI District begins at the intersection of Tuckahoe Road and McDonald Avenue and extends southeasterly to near the intersection of Tuckahoe Road and Line Street.

The scenic management standards of the CMP include a prohibition on signs that are designed to attract attention by physical or lighting change in the Pinelands Area. However, by their very nature, changeable copy and EMC signs involve scrolling messages or advertisements that move or change on a regular basis. This presents a potential conflict with the CMP, which also requires that the character and composition of signs in the Pinelands Area be harmonious with the scenic values of the Pinelands, to the maximum extent practical. It is important to note that the sign standards set forth in the CMP were written in 1980, prior to the use of digital or LED technology in association with on-site or off-site advertising signs. Also noteworthy is the fact that the CMP does not dictate the type of lighting (internal or external) that signs in the Pinelands Area must use. Therefore, it is not the use of LED technology (internal illumination) that raises an issue. Rather, it is the fact that digital or LED signs often involve the changing of one static image to another, or even the use of video, to attract attention.

Ordinance 17-2014 incorporates numerous standards to control the location, size and appearance of changeable copy and EMC signs, including a restriction on the frequency with which the advertisements on such signs may change. As noted above, Ordinance 17-2014 also limits changeable copy and EMC signs to nonresidential and mixed-use zones within Pinelands Town and Village management areas. Within said zones, virtually all types of residential and nonresidential development are permitted by the CMP and the Township's ordinances. Accordingly, the standards adopted by Ordinance 17-2014 adequately address concerns with scenic management.

Ordinance 17-2014 is consistent with the land use and development standards of the Comprehensive Management Plan. 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.

Written comments were accepted through October 10, 2014 and were received from the following:

October 8, 2014 letter from Theresa Lettman, Director of Monitoring Programs, Pinelands Preservation Alliance (see Exhibit #1)

October 8, 2014 email from Temma Fishman (see Exhibit #2)

October 10, 2014 email from Fran Brooks (see Exhibit #3)

October 10, 2014 letter from Fred Akers, Administrator, The Great Egg Harbor Watershed Association (see Exhibit #4)

EXECUTIVE DIRECTOR'S RESPONSE

Theresa Lettman's letter (submitted on behalf of the Pinelands Preservation Alliance), Temma Fishman's email, and Fran Brooks' email all express the belief that EMC signs constitute "light" or "visual" pollution. As such, they argue that EMC signs will have a detrimental effect on the viewsheds of the Pinelands Area. To a greater or lesser extent, all illuminated signs, and, for that matter, all illumination of any kind, constitutes a source of "light" or "visual" pollution. As a result, all illuminated objects, in varying degrees, detrimentally affect the viewsheds of the Pinelands Area. However, there is no reason to believe that internally illuminated signs (like EMC signs) would produce a more detrimental effect on Pinelands' viewsheds, or constitute a greater source of "light" or "visual" pollution, than externally illuminated signs, which are, and always have been, permitted throughout the Pinelands Area. In fact, given that Ordinance 17-2014 imposes a maximum luminance level on such signs and that it imposes a requirement that all EMC signs be equipped with automatic dimming controls to adjust the light emitted during ambient low-light conditions and night, it is quite possible that such (internally) illuminated signs will have a less detrimental impact than traditional, externally illuminated signs. Ms. Lettman and Ms. Fishman both express concern that EMC signs will negatively affect wildlife. Again, while all artificial illumination will have some impact upon nearby wildlife, there is no reason to believe that EMC signs would produce a more detrimental impact upon Pinelands' wildlife than more traditional, externally illuminated signs.

Ms. Lettman's letter also expresses her concern that Buena Vista Township lacks the ability to enforce the standards established by Ordinance 17-2014. While Ms. Lettman's concerns may be sound, the ability of a municipality to implement and enforce its own ordinances is not one of the certification standards set forth at N.J.A.C. 7:50-3.39, with the exception of ordinances that adopt alternate permitting programs pursuant to N.J.A.C. 7:50-3, Part VIII. The Commission cannot decline to certify a municipal land use ordinance for that reason. The Commission's sole concern when determining whether to certify a municipal ordinance is whether said ordinance is in conformance with the minimum standards of the CMP. The standards adopted by Ordinance 17-2014 address such varied aspects of EMC signs as the location, size, and appearance of such signs; the frequency with which the advertisements on such signs may change; and, the maximum luminance levels of such signs. Accordingly, the standards adopted by Ordinance 17-2014 are consistent with the CMP and adequately address concerns with scenic management.

Ms. Lettman's letter expresses the belief that EMC signs violate N.J.A.C. 7:50-6.107(a). The scenic management standards of the CMP do indeed prohibit signs that are designed to attract attention by

permit EMC signs in Pinelands Villages. Whether Buena Vista Township is, or is not, a "serial violator" of its own codes as well as the CMP is irrelevant to the present inquiry. As noted above, the Commission's sole concern when determining whether to certify a municipal ordinance is whether said ordinance is in conformance with the minimum standards of the CMP. Buena Vista Township's alleged prior violations simply are not germane to whether the standards established by Ordinance 17-2014 are consistent with the CMP.

Mr. Akers' letter goes on to note that, thus far, the Commission's approval of other ordinances permitting EMC signs has restricted the use of such signs to "growth areas only." Mr. Akers encourages the Commission to be consistent with its prior decisions on this issue. As noted above, it is, indeed, the Commission's position that, within development-oriented management areas (Pinelands Regional Growth Areas, Pinelands Towns, and Pinelands Villages), where virtually all types of residential and nonresidential development are permitted by the CMP, it is entirely consistent with the CMP for a municipality to permit the use of EMC signs. The Pinelands Village Residence/Commerce (PVRC) Zone, the Pinelands Village Exclusive Industry (PVI) Zone, and the Pinelands Town – Commerce (PT) Zone, permit a wide variety of principal uses, including single-family detached houses, hotels, hospitals, warehouses, and, correctional facilities. The use of EMC signs is not inconsistent with such a broad array of permitted uses.

CONCLUSION

Based on the Findings of Fact cited above, the Executive Director has concluded that Ordinance 17-2014 complies with Comprehensive Management Plan standards for the certification of municipal master plans and land use ordinances. Accordingly, the Executive Director recommends that the Commission issue an order to certify Ordinance 17-2014 of Buena Vista Township.

PWT/SRG/CBV
Attachments

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

Executive Director's Report on
Buena Vista Township Ord. 17-2014
October 31, 2014
Exhibit #1

October 8, 2014

Susan Grogan
Pinelands Commission
15 Springfield Road
P.O. Box 359
New Lisbon, NJ 08064

Re: Buena Vista Ordinance 17-2014

Dear Ms. Grogan:

Buena Vista Township has passed Ordinance 17-2014 which allows for electronic message signs in the Pinelands Town and Village Management areas of the township. PPA believes this ordinance should not be certified because it is not in conformance with the CMP. Section 7:50-3.1 (d) states:

> *A local authority **that incorporates all of the elements of this Plan** in its local plan and ordinances will be assured of certification. In contrast, municipal plans and ordinances that deviate from the essential nature of this Plan are unlikely to be certified. However, it is a policy of this Plan to allow municipalities the greatest degree of flexibility and discretion in the preparation of local plans and ordinances so **long as the plans and ordinances do not conflict with the ultimate objectives and minimum requirements of this Plan**.*

Buena Vista's ordinance conflicts with the minimum requirements of Section 7:50-6.106 on signs which requires each municipality to adopt provisions in its ordinances that contain section 7:50-6.107 (a). This section states:

> ***No sign**, other than warning or safety signs, which is designed or intended to attract attention by sudden, intermittent or rhythmic movement, or physical or lighting change, shall be permitted in any area.*

Buena's ordinance permits changeable copy and electronic message center signs which allow the message to change every 8 seconds. Lighting with changes that are this frequent will be very dramatic at night time.

Buena Vista wants these electronic message center signs to be permitted in the Pinelands Town and Village Management areas within the township. The PRVC and PVI zones include portions of the villages of Newtonville, Milmay and Richland.

Ecological light pollution

Travis Longcore and Catherine Rich

Ecologists have long studied the critical role of natural light in regulating species interactions, but, with limited exceptions, have not investigated the consequences of artificial night lighting. In the past century, the extent and intensity of artificial night lighting has increased such that it has substantial effects on the biology and ecology of species in the wild. We distinguish "astronomical light pollution", which obscures the view of the night sky, from "ecological light pollution", which alters natural light regimes in terrestrial and aquatic ecosystems. Some of the catastrophic consequences of light for certain taxonomic groups are well known, such as the deaths of migratory birds around tall lighted structures, and those of hatchling sea turtles disoriented by lights on their natal beaches. The more subtle influences of artificial night lighting on the behavior and community ecology of species are less well recognized, and constitute a new focus for research in ecology and a pressing conservation challenge.

Front Ecol Environ 2004; 2(4): 191–198

As diurnal creatures, humans have long sought methods to illuminate the night. In pre-industrial times, artificial light was generated by burning various materials, including wood, oil, and even dried fish. While these methods of lighting certainly influenced animal behavior and ecology locally, such effects were limited. The relatively recent invention and rapid proliferation of electric lights, however, have transformed the nighttime environment over substantial portions of the Earth's surface.

Ecologists have not entirely ignored the potential disruption of ecological systems by artificial night lighting. Several authors have written reviews of the potential effects on ecosystems or taxonomic groups, published in the "gray" literature (Health Council of the Netherlands 2000; Hill 1990), conference proceedings (Outen 2002; Schmiedel 2001), and journal articles (Frank 1988; Verheijen 1985; Salmon 2003). This review attempts to integrate the literature on the topic, and draws on a conference organized by the authors in 2002 titled *Ecological Consequences of Artificial Night Lighting*. We identify the roles that artificial night lighting plays in changing ecological interactions across taxa, as opposed to reviewing these effects by taxonomic group. We first discuss the scale and extent of ecological light pollution and its relationship to astronomical light pollution, as well as the measurement of light for ecological research. We then address the recorded and potential influences of artificial night lighting within the nested hierarchy of behavioral and population ecology, community ecology, and ecosystem ecology. While this hierarchy is somewhat artificial and certainly mutable, it illustrates the breadth of potential consequences of ecological light pollution. The important effects of light on the physiology of organisms (see Health Council of the Netherlands 2000) are not discussed here.

In a nutshell:

- Ecological light pollution includes chronic or periodically increased illumination, unexpected changes in illumination, and direct glare
- Animals can experience increased orientation or disorientation from additional illumination and are attracted to or repulsed by glare, which affects foraging, reproduction, communication, and other critical behaviors
- Artificial light disrupts interspecific interactions evolved in natural patterns of light and dark, with serious implications for community ecology

The Urban Wildlands Group, PO Box 24020, Los Angeles, CA 90024-0020 (longcore@urbanwildlands.org)

Astronomical and ecological light pollution: scale and extent

The term "light pollution" has been in use for a number of years, but in most circumstances refers to the degradation of human views of the night sky. We want to clarify that this is "astronomical light pollution", where stars and other celestial bodies are washed out by light that is either directed or reflected upward. This is a broad-scale phenomenon, with hundreds of thousands of light sources cumulatively contributing to increased nighttime illumination of the sky; the light reflected back from the sky is called "sky glow" (Figure 1). We describe artificial light that alters the natural patterns of light and dark in ecosystems as "ecological light pollution". Verheijen (1985) proposed the term "photopollution" to mean "artificial light having adverse effects on wildlife". Because photopollution literally means "light pollution" and because light pollution is so widely understood today to describe the degradation of the view of the night sky and the human experience of the night, we believe that a more descriptive term is now necessary. Ecological light pollution includes direct glare, chronically increased illumina-

Figure 2. Distribution of artificial lights visible from space. Produced using cloud-free portions of low-light imaging data acquired by the US Air Force Defense Meteorological Satellite Program Operational Linescan System. Four types of lights are identified: (1) human settlements – cities, towns, and villages (white), (2) fires – defined as ephemeral lights on land (red), (3) gas flares (green), and (4) heavily lit fishing boats (blue). See Elvidge et al. *(2001) for details. Image, data processing, and descriptive text by the National Oceanic and Atmospheric Administration's National Geophysical Data Center.*

■ Behavioral and population ecology

Ecological light pollution has demonstrable effects on the behavioral and population ecology of organisms in natural settings. As a whole, these effects derive from changes in orientation, disorientation, or misorientation, and attraction or repulsion from the altered light environment, which in turn may affect foraging, reproduction, migration, and communication.

Orientation/disorientation and attraction/repulsion

Orientation and disorientation are responses to ambient illumination (ie the amount of light incident on objects in an environment). In contrast, attraction and repulsion occur in response to the light sources themselves and are therefore responses to luminance or the brightness of the source of light (Health Council of the Netherlands 2000).

Increased illumination may extend diurnal or crepuscular behaviors into the nighttime environment by improving an animal's ability to orient itself. Many usually diurnal birds (Hill 1990) and reptiles (Schwartz and Henderson 1991), for example, forage under artificial lights. This has been termed the "night light niche" for reptiles and seems beneficial for those species that can exploit it, but not for their prey (Schwartz and Henderson 1991).

In addition to foraging, orientation under artificial illumination may induce other behaviors, such as territorial singing in birds (Bergen and Abs 1997). For the northern mockingbird (*Mimus polyglottos*), males sing at night before mating, but once mated only sing at night in artificially lighted areas (Derrickson 1988) or during the full moon. The effect of these light-induced behaviors on fitness is unknown.

Constant artificial night lighting may also disorient organisms accustomed to navigating in a dark environment. The best-known example of this is the disorientation of hatchling sea turtles emerging from nests on sandy beaches. Under normal circumstances, hatchlings move away from low, dark silhouettes (historically, those of dune vegetation), allowing them to crawl quickly to the ocean. With beachfront lighting, the silhouettes that would have cued movement are no longer perceived, resulting in disorientation (Salmon *et al.* 1995). Lighting also affects the egg-laying behavior of female sea turtles. (For reviews of effects on sea turtles, see Salmon 2003 and Witherington 1997).

Changes in light level may disrupt orientation in nocturnal animals. The range of anatomical adaptations to allow night vision is broad (Park 1940), and rapid increases in light can blind animals. For frogs, a quick increase in illumination causes a reduction in visual capability from which the recovery time may be minutes to hours (Buchanan 1993). After becoming adjusted to a light, frogs may be attracted to it as well (Jaeger and Hailman 1973; Figure 3).

Birds can be disoriented and entrapped by lights at night (Ogden 1996). Once a bird is within a lighted zone at night, it may become "trapped" and will not leave the lighted area. Large numbers of nocturnally migrating birds are therefore affected when meteorological conditions bring them close to lights, for instance, during inclement weather or late at night when they tend to fly lower.

(2000) investigated the effects of roadway lighting on black-tailed godwits (*Limosa l. limosa*) in wet grassland habitats. Breeding densities of godwits were recorded over 2 years, comparing lighted and unlighted conditions near a roadway and near light poles installed in a wet grassland away from the road influence. When all other habitat factors were taken into account, the density of nests was slightly but statistically lower up to 300 m away from the lighting at roadway and control sites. The researchers also noted that birds nesting earlier in the year chose sites farther away from the lighting, while those nesting later filled in sites closer to the lights.

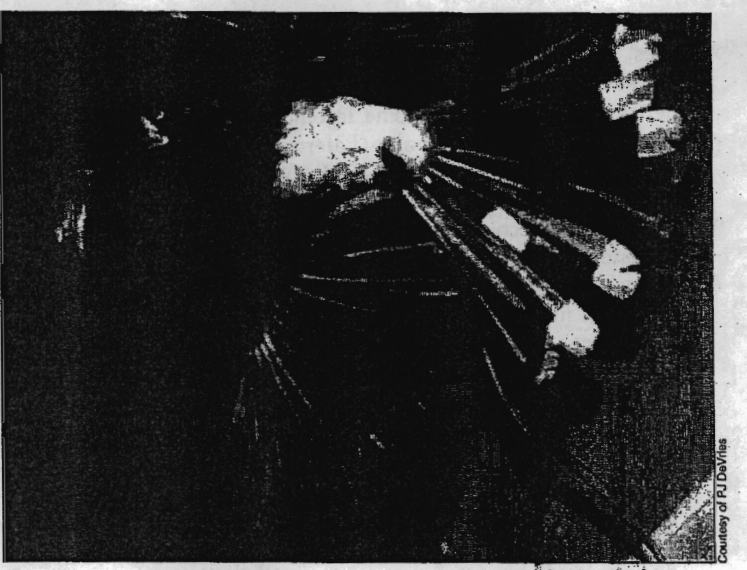

*Figure 5. Crowned hornbill (*Tockus alboterminatus*) hawking insects at a light at the Kibale Forest National Park, Uganda.*

Communication

Visual communication within and between species may be influenced by artificial night lighting. Some species use light to communicate, and are therefore especially susceptible to disruption. Female glow-worms attract males up to 45 m away with bioluminescent flashes; the presence of artificial lighting reduces the visibility of these communications. Similarly, the complex visual communication system of fireflies could be impaired by stray light (Lloyd 1994).

Artificial night lighting could also alter communication patterns as a secondary effect. Coyotes (*Canis latrans*) group howl and group yip-howl more during the new moon, when it is darkest. Communication is necessary either to reduce trespassing from other packs, or to assemble packs to hunt larger prey during dark conditions (Bender *et al.* 1996). Sky glow could increase ambient illumination to eliminate this pattern in affected areas.

Because of the central role of vision in orientation and behavior of most animals, it is not surprising that artificial lighting alters behavior. This causes an immediate conservation concern for some species, while for other species the influence may seem to be positive. Such "positive" effects, however, may have negative consequences within the context of community ecology.

■ Community ecology

The behaviors exhibited by individual animals in response to ambient illumination (orientation, disorientation) and to luminance (attraction, repulsion) influence community interactions, of which competition and predation are examples.

Competition

Artificial night lighting could disrupt the interactions of groups of species that show resource partitioning across illumination gradients. For example, in natural communities, some foraging times are partitioned among species that prefer different levels of lighting. The squirrel treefrog (*Hyla squirrela*) is able to orient and forage at lighting levels as low as 10^{-5} lux and under natural conditions typically will stop foraging at illuminations above 10^{-3} lux (Buchanan 1998). The western toad (*Bufo boreas*) forages only at illuminations between 10^{-1} and 10^{-5} lux, while the tailed frog (*Ascaphus truei*) forages only during the darkest part of the night at below 10^{-5} lux (Hailman 1984). While these three species are not necessarily sympatric (ie inhabiting the same area), and differ in other niche dimensions, they illustrate the division of the light gradient by foragers.

Many bat species are attracted to insects that congregate around light sources (Frank 1988). Although it may seem that this is a positive effect, the increased food concentration benefits only those species that exploit light sources and could therefore result in altered community structure. Faster-flying species of bats congregate around lights to feed on insects, but other, slower-flying species avoid lights (Blake *et al.* 1994; Rydell and Baagøe 1996).

Changes in competitive communities occur as diurnal species move into the "night light niche" (Schwartz and Henderson 1991). This concept, as originally described, applies to reptiles, but easily extends to other taxa, such as spiders (Frank pers comm) and birds (Hill 1990; Figure 5).

Predation

Although it may seem beneficial for diurnal species to be able to forage longer under artificial lights, any gains from increased activity time can be offset by increased predation risk (Gotthard 2000). The balance between gains from extended foraging time and risk of increased preda-

engineers to improve equipment to measure light characteristics at ecologically relevant levels under diverse field conditions. Researchers should give special consideration to the tropics, where the constancy of day–night lighting patterns has probably resulted in narrow niche breadths relative to illumination. Aquatic ecosystems deserve increased attention as well, because despite the central importance of light to freshwater and marine ecology, consideration of artificial lighting has so far been limited. Research on the effects of artificial night lighting will enhance understanding of urban ecosystems – the two National Science Foundation (NSF) urban Long Term Ecological Research sites are ideal locations for such efforts.

Careful research focusing on artificial night lighting will probably reveal it to be a powerful force structuring local communities by disrupting competition and predator–prey interactions. Researchers will face the challenge of disentangling the confounding and cumulative effects of other facets of human disturbance with which artificial night lighting will often be correlated, such as roads, urban development, noise, exotic species, animal harvest, and resource extraction. To do so, measurements of light disturbance should be included routinely as part of environmental monitoring protocols, such as the NSF's National Ecological Observatory Network (NEON). Future research is likely to reveal artificial night lighting to be an important, independent, and cumulative factor in the disruption of natural ecosystems, and a major challenge for their preservation.

Ecologists have studied diel and lunar patterns in the behavior of organisms for the greater part of a century (see Park 1940 and references therein), and the deaths of birds from lights for nearly as long (Squires and Hanson 1918). Humans have now so altered the natural patterns of light and dark that these new conditions must be afforded a more central role in research on species and ecosystems beyond the instances that leave carcasses on the ground.

■ Acknowledgements

We thank PJ DeVries for his photographs, and B Tuttle and C Elvidge for the satellite image. Research was supported in part by the Conservation and Research Foundation. We are grateful for constructive comments and advice from W Briggs, BW Buchanan, KD Frank, JE Lloyd, JR Longcore, MV Moore, WA Montevecchi, G Perry, and M Salmon.

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LIGHT POLLUTION AND THE IMPACTS ON BIODIVERSITY, SPECIES AND THEIR HABITATS

P. DEDA, I. ELBERTZHAGEN, M. KLUSSMANN
Secretariat of the Convention on the Conservation of Migratory Species of Wild Animals (UNEP-CMS)

What is ecological light pollution?

Longcore and Rich describe artificial light that alters the natural patterns of light and dark in ecosystems as "ecological light pollution".[7]

Ecological light pollution comprises direct glare, chronically increased illumination and temporary, unexpected fluctuations in lighting. The sources of ecological light pollution are very various and found in nearly every ecosystem in the form of "sky glow, illuminated buildings and towers, streetlights, fishing boats, security lights, lights on vehicles, flares on offshore oil platforms, and even lights on undersea research vessels".[7]

Impacts of light pollution

Because the study of light pollution is still in its early days the impacts of this problem are not fully understood. While the increased brightness of the night sky is the most familiar of the many effects of light pollution (it is the most obvious and astronomers recognized it many years ago) many other alarming aspects are still unexplored: for example, the fact that light pollution leads to a great wastage of energy. On a global scale, approximately 19% of all electricity used produces light at night.[18] The by-product of electric illumination generated by the burning of fossil fuels, is the discharge of greenhouse gases. These gases are responsible for global warming and the exhaustion of non-renewable resources.

Light pollution produces many other impacts on the environment. Harmful effects involve the animal kingdom, the vegetable kingdom and mankind. While light pollution is eminently detrimental to nocturnal and migratory animals and to animals in flight, it also produces harmful effects on plants.

Figure 1. © Merlin D. Tuttle, Bat Conservation International, Inc.

IMPACTS ON PLANTS

Plants use darkness in many different ways. The management of their metabolism, their development and their life programmes are affected. Plants measure and react to night length which means the duration of darkness. For this reason short-day plants require long nights. If such a plant is illuminated

11

Paul Tyshchenko - Public Comment re: Buena Vista Township Ordinance 17-2014 Electronic Message Signs

Executive Director's Report on
Buena Vista Township Ord. 17-2014
October 31, 2014
Exhibit #2

From: Temmafish <temmafish@aol.com>
To: <planning@njpines.state.nj.us>
Date: 10/8/2014 5:51 PM
Subject: Public Comment re: Buena Vista Township Ordinance 17-2014 Electronic Message Signs

Dear Ms. Grogan:

I object to this ordinance which would allow electronic message signs in the Pinelands Town and Village Management areas of the township, because it does not conform to the CMP.

The lighting of these electronic message center signs would change every 8 seconds. This would be very disturbing to wildlife such as the barred owl, whip-poor-will and warblers who classify as threatened and/or endangered. These signs would constitute serious light pollution disturbing life in the dark, rural areas of PInelands. Please uphold the CMP and do not allow these signs here.

Thank you for consideration of this matter and for noting my message for public comment.

Sincerely,

Temma Fishman

Temma Fishman
609-654-0718
temmafish@aol.com

October 10, 2014

Executive Director's Report on
Buena Vista Township Ord. 17-2014
October 31, 2014
Exhibit #3

Ms. Susan Grogan
Pinelands Commission
15 Springfield Road
P.O. Box 359
New Lisbon. NJ 08064

Re: Buena Vista Ordinance 17-2014 (by Email to Paul Leaken, Communications Officer)

Dear Ms. Grogan:

I am writing to oppose the certification of Buena Vista Township's Ordinance 17-2014, which was adopted September 8, 2014. The Ordinance will allow electronic message signs in the township's Pinelands Town and Village areas. The Ordinance should not be certified for the following reasons:

A principal goal of the CMP is to maintain the traditional character and integrity of Pinelands villages and towns. The importance of this goal is emphasized by the CMP's statement that infill development within Pineland's towns and villages be "compatible" with their character and integrity (CMP, 1980, page 391). Buena Vista Township's ordinance to permit electronic message signs within Pinelands Towns and Village areas directly conflicts with the CMP's goal to maintain the traditional character and integrity of its villages and towns.

The primary functional characteristic of any sign is the manner in which it displays its content. Traditionally, content was displayed in a static and unlit manner. Modern concessions are now routinely made to allow the illumination of signs. However, even now, on-premise signs, are typically displayed in a static manner as they have always been.

The CMP recognizes the importance of a static display to the visual character of the Pinelands by expressly prohibiting moving images, except to provide for public safety.

> No sign, other than warning or safety signs, which is designed or intended to attract attention by sudden, intermittent or rhythmic movement, or physical or lighting change, shall be permitted in any area (Section 7:50-6.107(a) of the "Mandatory sign provisions).

The enforcement of the letter and spirit of this requirement is particularly important in Pinelands towns and villages because their visual and spatial characteristics were defined by a vernacular of past generations. That vernacular was static. It relied on color and physical design to identify the business.

There is nothing traditional about the display of changing electronic signs which, under this ordinance, could "flip" every eight seconds and have transitional visual effects. Digital signs are very different in their appearance from static signs. First, they are significantly brighter than static signs. Second, because their content is displayed for a period measured in seconds, they identify the business based on change. This is different from a static sign, which

The Great Egg Harbor Watershed Association

P.O. Box 109
Newtonville, NJ 08346

856-697-6114
akers@gowebway.com

Executive Director's Report on
Buena Vista Township Ord. 17-2014
October 31, 2014
Exhibit #4

October 10, 2014

Ms. Susan Grogan
Pinelands Commission
15 Springfield Road
P.O. Box 359
New Lisbon. NJ 08064
Submitted via email: planning@njpines.state.nj.us

RE: Buena Vista Ordinance 17-2014

Dear Ms. Grogan:

The Great Egg Harbor Watershed Association appreciates the opportunity to comment on the referenced ordinance, and we recommend that you and the Pinelands Commission approve this ordinance **with the condition that electronic messaging center (EMC) signs not be permitted in any Pinelands Village zones, such as the PRVC and PVI zones.**

We offer the following summary comments:

1. Buena Vista Twp. is one of several Pinelands Municipalities that has not update its sign ordinances in years or decades, and updating old ordinances in strict compliance to the CMP is beneficial to the continued protection of the Pinelands.

2. The CMP was written with strong concerns that signs be controlled and have limited impacts on scenic and natural resources, and any new sign ordinances should be consistent with the original intent of the CMP, especially regarding sections 7:50-3.1 (d), 7:50-6.106, 7:50-6.107 (a)

3. Recently, the Pinelands Commission has approved other Municipal sign ordinances with conditions limiting EMC signs to growth areas only, such as Monroe Twp., and the Pinelands Commission should be very consistent with their approvals for sign ordinances between one municipality and another.

4. In the past, the Pinelands Commission approved a change in the Land Capability Map from Rural Development Area to Pinelands Town in Buena Vista Twp. to allow commercial and residential development on sewer similar to a Regional Growth Area, and this should be the zone where EMC signs are permitted in BVT,

RESOLUTION OF THE NEW JERSEY PINELANDS COMMISSION

NO. PC4-14- 39

TITLE: To Accept the Fiscal Year 2013 Audit Report

Commissioner Lloyd **moves and Commissioner** Prickett **seconds the motion that:**

WHEREAS, the audit of the Pinelands Commission Fiscal Year 2013 Financial Statements, Notes to the Financial Statements and Schedules of Federal and State Assistance was performed by the Office of the State Auditor; and

WHEREAS, the Fiscal Year 2013 Audit Report contains one finding regarding Inadequate Application of Internal Controls; and

WHEREAS, the Business Office will establish additional controls over the financial report process that will include the itemized balances of the Pinelands Conservation Fund accounts and installation of a new Accounting System; 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 Pinelands Commission hereby accepts the attached Audit Report for Fiscal Year 2013 and directs that it be included as a publication available through the Pinelands Commission's website.

Record of Commission Votes

	AYE	NAY	NP	ABS		AYE	NAY	NP	ABS		AYE	NAY	NP	ABS
Ashmun	X				Galletta	X				Prickett	X			
Avery	X				Jackson	X				Quinn	X			
Brown	X				Jannarone	X				Rohan Green			X	
DiBello	X				Lloyd	X				Witt	X			
Earlen	X				McGlinchey	X				Lohbauer	X			

Adopted at a meeting of the Pinelands Commission

Date: Nov. 14, 2014

Nancy Wittenberg
Executive Director

Mark S. Lohbauer
Chairman

Development Areas

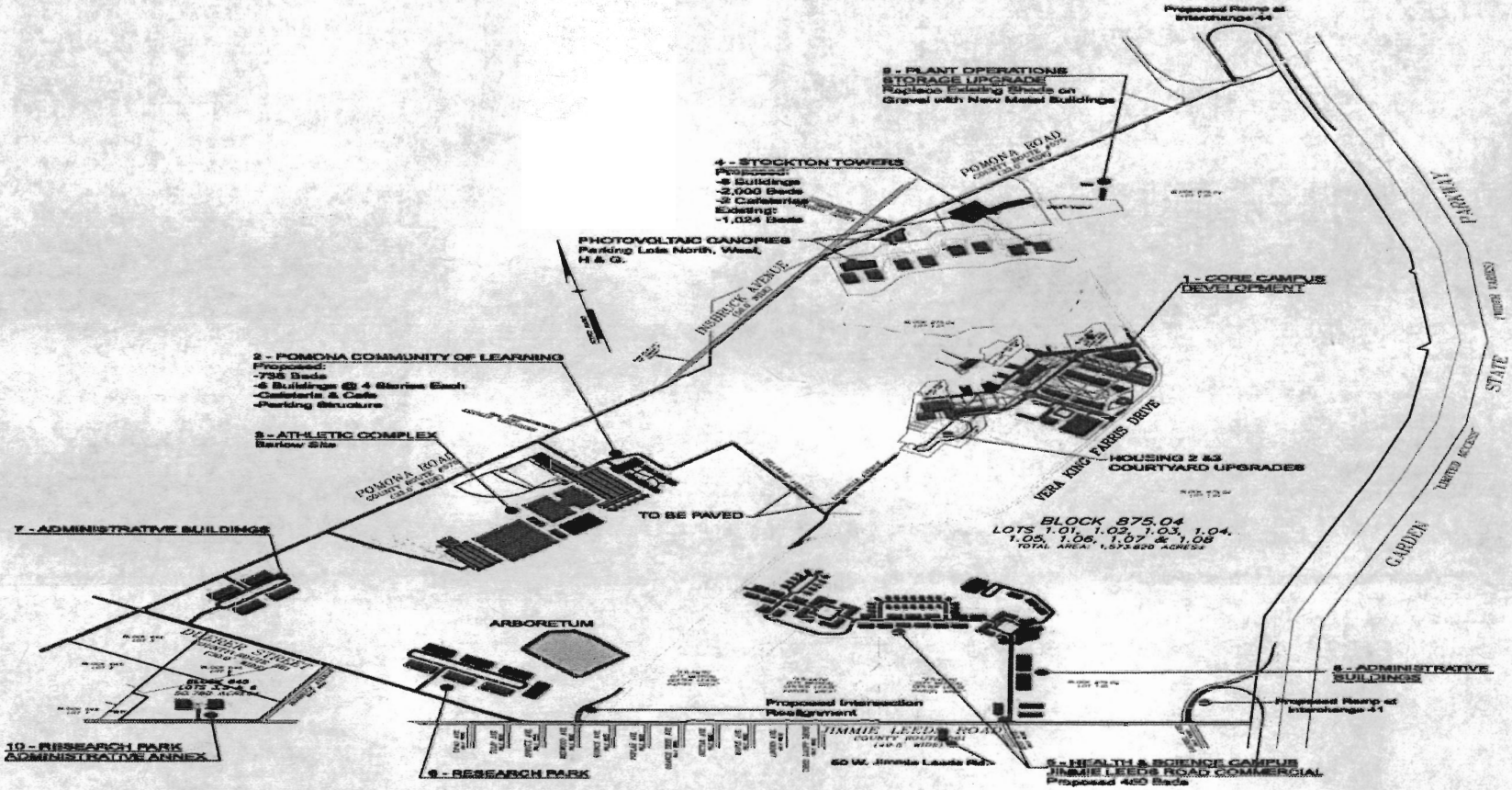
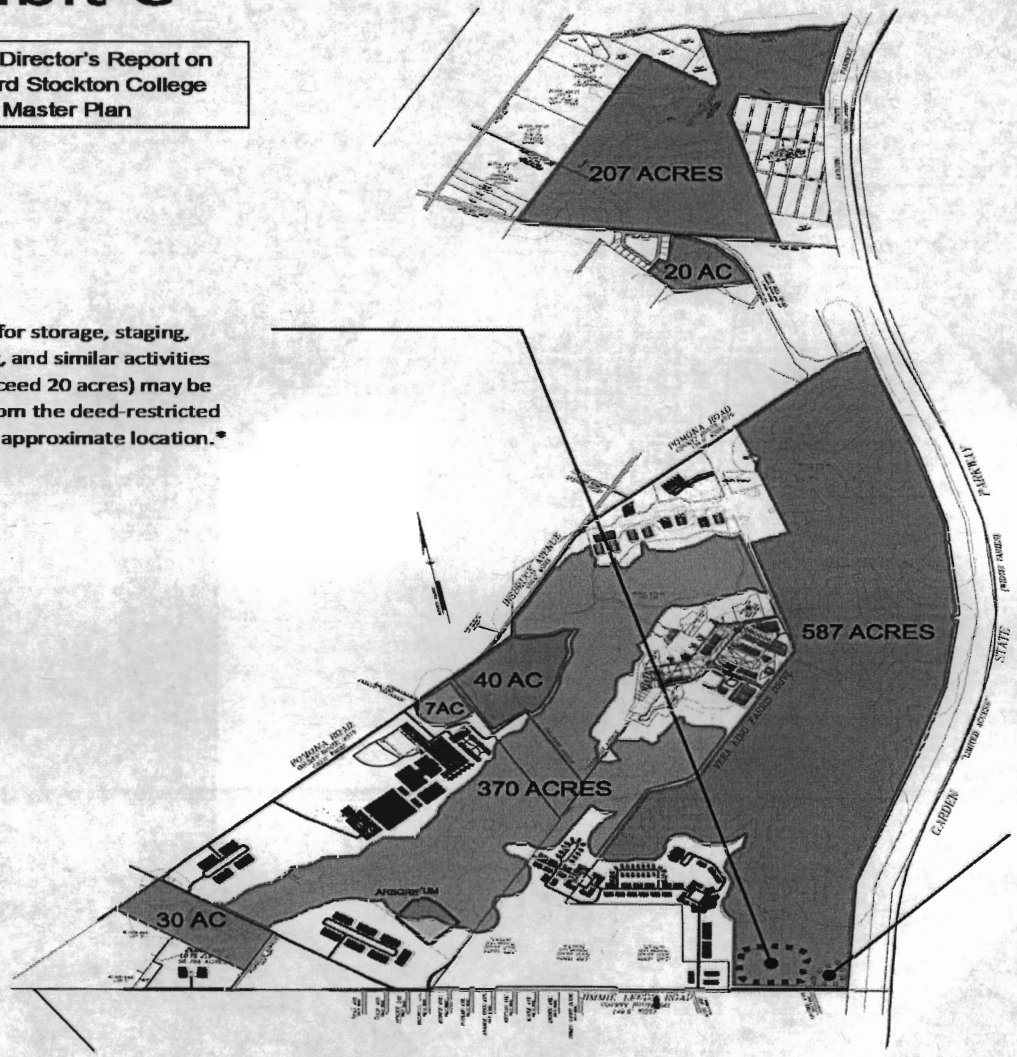


Exhibit C

Executive Director's Report on The Richard Stockton College April 2010 Master Plan



An area for storage, staging, stockpiling, and similar activities (not to exceed 20 acres) may be excluded from the deed-restricted lands in this approximate location.*

Approximately 9 acres may be excluded from the deed-restricted lands to accommodate a proposed Garden State Parkway exit ramp and improvements ancillary thereto in this approximate location.*

Exhibit C. – Sensitive Lands to be Deed Restricted (amended from Exhibit 7 of the Richard Stockton College of New Jersey April 2010 Master Plan)

* Area not drawn to scale

NJ Pinelands Commission November 14, 2014

GROWING SMART AND WATER WISE

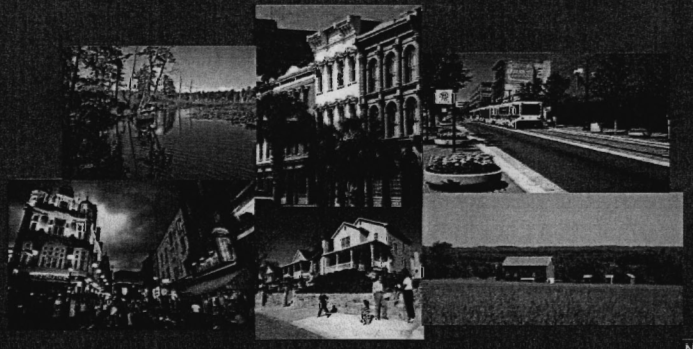
Protecting Water Resources in the Growth Areas of the New Jersey Pinelands

Chris Sturm, New Jersey Future
Daniel J. Van Abs, PhD, PP/AICP, Rutgers University

NEW JERSEY FUTURE

About New Jersey Future

Smart Growth research, policy, advocacy and assistance



www.njfuture.org

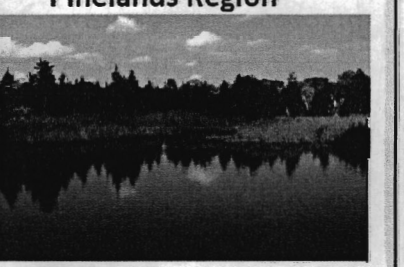
NEW JERSEY FUTURE

- Main Question: **What lessons can be learned from the water resources impacts of historic and recent development in three Pinelands growth areas?**
- Synthesis and Analysis – no field work

What We Assessed

- Demographics
- Land use/land cover
- Impervious surfaces
- Riparian areas
- Flood prone areas
- Forest areas
- Wetland areas
- Infiltration
- Protected lands
- Water quality
- Water availability
- Water infrastructure
- Build-out potential

Effects of Land Development on Water Resources of the Pinelands Region



Prepared for New Jersey Future by

Daniel J. Van Abs, PhD, PP/AICP
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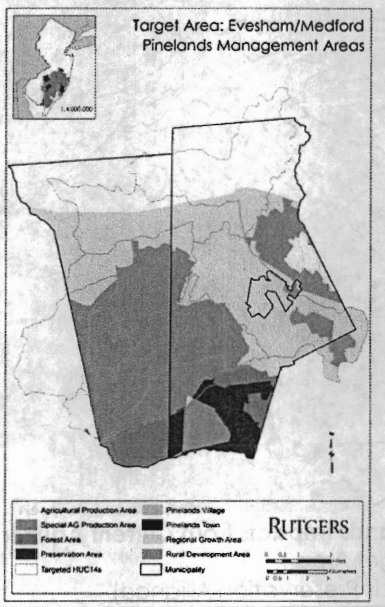
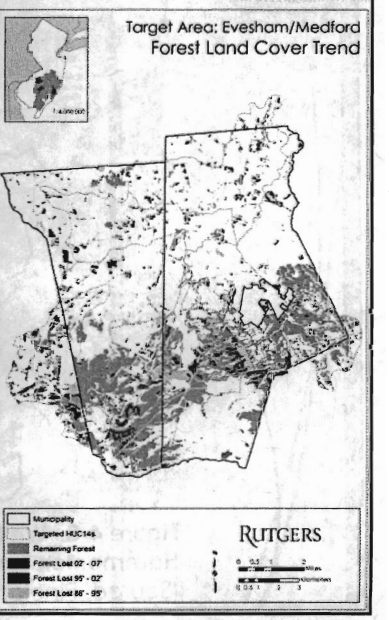
June 2014

Forest Losses





Water Quality and Availability

Quality

- Ground and surface water quality harmed by land uses
- SW – pH, nutrients, arsenic and mercury are common issues
- GW – Nitrates, sodium chloride, contaminated sites

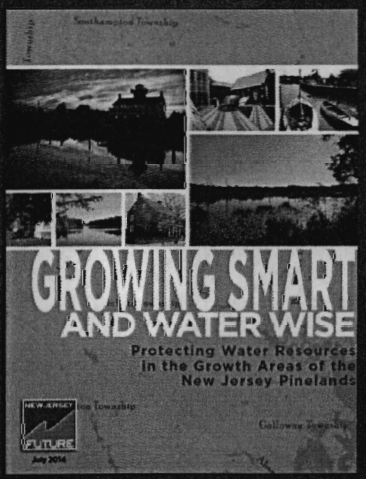
Availability

- We know what goes in (recharge)
- We know flows in many streams
- We know what is used
- **But how much use is too much?**

Key Actions for Consideration

- **Water Withdrawals** – New standards related to ecological impacts
- **Water Quality** – Expand beyond focus on nitrates in Pinelands CMP
- **Restoration** – Use redevelopment as a means of achieving restoration; requires standards and management practices
- **Watershed Plans** – Address watersheds that straddle Pinelands boundaries
- **Growth Area Plans** – address aggregate impacts of planned land uses

Recommendations



NEW JERSEY FUTURE

Regional and Statewide Recommendations

Water Supply Protection

1. Strengthen existing regulatory and planning thresholds for water system allocations
   - Limit water withdrawals
     - Watershed scale impacts to groundwater
     - Site-specific scale impacts to aquatic ecosystems
   - Protect the K-C aquifer and support sustainable growth
     - Aggressive investigation and consideration of water supply alternatives

NEW JERSEY FUTURE

Water Supply Protection, continued

2. Improve Existing Water System Efficiency
   - Establish clear standards for compliance with Pinelands CMP
   - Strengthen NJDP Water Allocation Permits rule
3. Improve Water Supply Planning
4. Explore Regulatory Incentives for Water Recharge

NEW JERSEY FUTURE

Thank you

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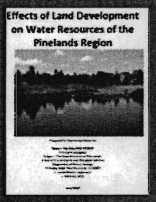
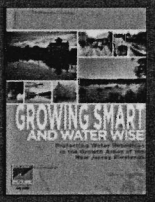
http://humanecology.rutgers.edu/faculty.asp?fid=101

Resources

http://www.njfuture.org/research-publications/research-reports/growing-smart-water-wise/





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