



State of New Jersey

Highlands Water Protection and Planning Council

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JON S. CORZINE
Governor

JOHN R. WEINGART
Chairman

DANTE DI PIRRO
Executive Director

MEETING AGENDA

Thursday, September 28, 2006 - 10:00 a.m.

1. CALL TO ORDER
2. ROLL CALL
3. OPEN PUBLIC MEETINGS ACT
4. PLEDGE OF ALLEGIANCE
5. APPROVAL OF MINUTES
6. CHAIRMAN'S REPORT (and Council Member Reports)
7. EXECUTIVE DIRECTOR'S REPORT
8. COMMITTEE REPORTS
 - a. Local Participation Committee – Councilmember Letts
9. DRAFT RMP WORK SESSION TOPICS *
 - a. Agricultural Protection and Sustainability (remainder from last meeting)
 - b. Highlands Open Waters and Riparian Areas
 - c. Water Availability
 - d. Smart Design Standards
10. ADJOURN

** This Council meeting will largely be devoted to the Work Session on the draft Regional Master Plan (Item #9 above) and will not include a general public comment period, but will provide opportunity for public comment on any proposed resolution before a vote is taken. Written comments will be accepted during the session. In addition, approximately 15 minutes after the adjournment of the Council meeting, members and staff will convene a Public Availability Session to solicit additional public comments.*

MINUTES

NEW JERSEY HIGHLANDS COUNCIL MEETING OF SEPTEMBER 28, 2006

JOHN WEINGART	)	CHAIRMAN
KURT ALSTEDE	)	COUNCIL MEMBERS
ELIZABETH CALABRESE	)	
TRACY CARLUCCIO	)	
TIM DILLINGHAM	)	
JANICE KOVACH	)	
MIMI LETTS	)	
ERIK PETERSON	)	
JACK SCHRIER	)	
MIKAEL SALOVAARA	)	
GLEN VETRANO	)	
TAHESHA WAY	)	
SCOTT WHITENACK	)	

PARTICIPATING VIA TELECONFERENCE:

DEBBIE PASQUARELLI	)
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CALL TO ORDER:

The Chairman of the Council, Mr. John Weingart, called the 35th meeting of the New Jersey Highlands Water Protection and Planning Council to order at 10:15 a.m.

ROLL CALL: The members of the Council introduced themselves.

PLEDGE OF ALLEGIANCE was then recited.

OPEN PUBLIC MEETINGS ACT:

Chairman Weingart announced that the meeting was called in accordance with the Open Public Meetings Act, N.J.S.A. 10:4-6, and that the Highlands Council had sent written notice of the time, date and location of this meeting to pertinent newspapers or circulation throughout the State.

CHAIRMAN'S REPORT:

Chairman Weingart welcomed new Council members Ms. Tahesha Way and Mr. Erik Peterson and invited them to say a few words.

Ms. Way thanked the Chairman, fellow Councilmembers, the Governor for appointing her, as well as the Senate. She noted that it was an honor to now be a part of the Council. Ms. Way also stated that she looks forward to the work, and that she is ready to begin. Mr. Peterson expressed his appreciation to Senator Lance for his recommendation, as well as to the Governor and Senate. He noted his interests regarding planning for the future generations of the state, and also noted he has watched the Council from the audience and has been very impressed with the level of discussion on each of the issues.

Mr. Weingart advised that the members would delay voting on the minutes until a few more members arrive. He noted an amended schedule for upcoming meetings was sent to the members via email over the last week which includes meetings every Thursday. He asked if any other members had reports, and since none did, he turned the meeting to Mr. Dante Di Pirro for the Executive Director's report.

EXECUTIVE DIRECTOR'S REPORT:

Mr. Di Pirro advised that the Governor has signed an Executive Order this week establishing new practices and procedures for independent authorities like the Council. He noted the order covers contracts and financial affairs and reported that the Highlands Council has already adopted many sound procedures and is in compliance with most of what is in the Order. He said that the Council's Director of Government Affairs and Operations is reviewing all the details in the order to be sure all new requirements are met, and will report back to the Council.

Mr. Di Pirro then introduced Mr. Jim Hutzelman who has joined the science unit and noted Mr. Hutzelman has a Master of Science degree in Water Resource Engineering, and is a licensed engineer with 10 years experience as a consultant, including work with the Nature Resources Conservation Service (NRCS). Mr. Di Pirro noted staff is excited to have him on board.

At that time Mr. Jack Schrier arrived and Mr. Weingart asked the members to consider the minutes as well as the summary of the Public Availability Session.

MINUTES OF SEPTEMBER 21, 2006:

Mr. Schrier motioned to approve, Ms. Elizabeth Calabrese seconded, Mr. Weingart requested that a revision be made in the Public Availability Session Comments to his response to Mr. Shope at the end of the session. He asked that it be changed to state that the Council would send copies of public comments received at the sessions to the Governor's office as an attachment to the minutes. Mr. Schrier and Ms. Calabrese accepted the change, all other members were in favor, no further comments were received, Ms. Janice Kovach, Mr. Peterson and Ms. Way abstained, and the minutes of September 21, 2006 were APPROVED.

COMMITTEE REPORTS:

Ms. Mimi Letts reported that the **Local Participation Committee** met on September 21, 2006 following the Council's work session and reviewed the calendar for presenting the 6 public hearings required after release of the draft plan. She noted the committee decided to leave as much time as possible after issuance of the draft RMP and that the committee recommends the fourth, fifth, and sixth weeks following the draft release as the scheduled timing for the hearings.

Ms. Letts noted the committee discussed the need for regional meetings to gain input from county and township officials. She said the schedule may not afford adequate time to hold meetings with everyone, but said that as many as can be accomplished will be scheduled. Ms. Letts advised that the hearings will require custodial fees which are estimated to cost between \$2,000 and \$3,000 dollars.

As to the hearing to be held in Trenton, locations being considered are the State Museum and the War Memorial Building. For Morris and Somerset counties, the tentative idea is to use the Haggerty Center of the Frelinghuysen Arboretum for a daytime session followed by an evening session. For Passaic and Bergen counties, the Ramapo College may be utilized, and in Sussex the Sussex County Technical School. For Warren County the Warren County Technical School, and in Hunterdon the Voorhees High School or North Hunterdon High School are being considered. She noted the hearing dates and locations have yet to be scheduled and confirmed.

Ms. Letts advised that representatives from the Warren County Environmental Commission and ANJEC have noted they will be undertaking some planning sessions and cautioned that some towns entirely in the planning areas have not been engaged and that the Council will need to be especially address those towns after their review of the draft plan.

Chairman Weingart advised that as in the past several meetings, at the conclusion of the meeting there will be a Public Availability Session and noted there are forms at the reception desk for anyone who cannot stay to the end to comment. He asked that the Council consider the Water Supply policy first instead of Agriculture.

DRAFT RMP WORK SESSION TOPICS:

Mr. Di Pirro noted that the staff had 18 topics to present for the Council's guidance for preparation of the map and text for the policy guidance element. To date the topics addressed include Significant Natural Areas, Historic Resources, Wastewater, Ground water Recharge, Steep Slopes, Forest, Scenic Areas, Agricultural, and Economic Baseline Indicators. He advised that staff will continue with the remainder of Agriculture, and address Highlands Open Waters and Riparian Areas, Water Availability and Site Design Standards. He noted there will be consideration of the draft Guiding Principles to help the staff draft the policy guidance element.

He advised that during the meetings of October 5th, 12th, 19th, and 26th staff will cover the balance of the 18 topics. Specifically those items are Land Preservation, TDR, Cash

Flow Timetable, Plan Conformance and staff will also introduce an integrated version of the Land Use Capability Map (LUCM). After the meeting today, Mr. Di Pirro said staff would have enough information on the topics to integrate into the map and have the ability to give recommendations for the LUCM.

Mr. Di Pirro stated that after release of the draft LUCM and document, there will be a Council meeting on November 2nd, and thereafter 6 public hearing comment sessions will be held. Mr. Di Pirro noted Ms. Letts mentioned the follow up for outreach following the release of the draft plan with municipalities. Mr. Di Pirro noted the short turn around time after public release of the draft plan, and said the staff will compile the materials and remain mindful that issues need to be addressed in advance of the public hearings to afford an opportunity for members of the public to provide comments. He noted the fact that staff is working to integrate materials based on comments that are made, and said there is a short amount of time to complete that integration.

Mr. Di Pirro noted that as to the level of detail staff anticipates for the October release of the draft RMP, that he believed the map and policy guidance element will be included with a level of detail will be at least as great as a typical local master plan. He advised that the plan will be well detailed so that towns have a clear guide and understand what the Council is proposing and what the effect will be.

In broad terms, Mr. Di Pirro pointed out that two major issues to consider as to policy and RMP framework pertain to Preservation Area considerations and Planning Area considerations. The Council will have discretion to identify where and whether the plan should relax standards in the Preservation Area where contamination is present, or where 70% or greater impervious cover is already present. He noted that the approach must be based on the requirements of the Highlands Act and that the Council must also review the Department of Environmental Protection (DEP) rules delegated pursuant to the Act. He advised that in Specially Planned Areas there may be times that the Council may deem it appropriate for some relaxation of standards. Conversely, in the Planning Areas, a major issue will be whether and to what degree resource protection standards need to be strengthened from existing regulatory systems. The Council may recommend in the RMP that those additional protections be made. Mr. Di Pirro stressed that the Council has authority to recommend stronger protections than what is established in the Act.

Ms. Pasquarelli asked Mr. Di Pirro for further clarification regarding designating protection areas in the Planning Area. Mr. Di Pirro noted that the natural resource analysis has identified some places in the Planning Area that warrant higher protection than what is currently in place under state regulation. The Council will need to determine which areas to afford additional protections. Ms. Pasquarelli asked if these were on a voluntary basis and Mr. Di Pirro replied that was correct and would be part of the plan for opting in. Mr. Schrier asked if the Council deems it appropriate to relax protections in the Preservation Area, whether it will need to go back to the Legislature to recommend the changes. Mr. Di Pirro replied that would not be necessary as a first step. He said the Council would work with the DEP where it identifies places where contamination has occurred to consider redevelopment measures at density levels that are higher than what may currently be allowed under the existing DEP regulations, but not any higher than allowed by the Highlands Act itself. He noted there is overlapping jurisdiction, and that

is the best viable avenue to take first, noting there are other avenues after that if protections can not be made. Mr. Weingart noted that there is a narrow margin of areas and criteria under which the Council can consider allowing development in the preservation area. Mr. Di Pirro replied that it would be areas defined as Specially Planned Areas, where the Act defines coastal redevelopment areas as areas where contamination is already present or more than 70% impervious cover. Mr. Di Pirro said that the Legislature shares the interest in remediating such areas and provide opportunity for the Council to suggest how to achieve that goal.

Ms. Letts noted that extra protections the Council places in planning areas are based on municipalities opting-in, and that the Council can not require them. Mr. Di Pirro noted her statement was correct and that these considerations are in the context of where the mandated resource analysis demands additional protections are necessary. Mr. Glen Vetrano joined the meeting at that time.

Mr. Di Pirro advised that many towns have come forward and said they agree that protection of their resources is desired, so there exists a good opportunity to work with them.

Mr. Dillingham noted the Act does authorize the Council to make recommendations to state agencies about updating their policies to the Council's standards. He noted it was important to stress that the RMP is a plan for the entire region, and the goal is to be consistent where resource assessments indicate that in instances where what is in place is not adequate that amendments should be made. Mr. Di Pirro agreed and said that the Council has authority to recommend coordination and consistency requirements to have all state agencies and entities with authority to meet its protection goals.

Mr. Whitenack noted that if the Council finds a high quality water source in a planning area, the Council could recommend protection but if a municipality doesn't opt-in, the Council could then inform the DEP and expect action on their part and at the same time involve the municipality and inform them about the grant program and TDR program to point out all that will be afforded to them through those programs if they opt-in.

Mr. Di Pirro agreed that was a good summary and advised that this is an honest natural resource analysis and assessment based on good science and that the policy decisions should all flow there from. Mr. Whitenack agreed that areas fitting this description will be found in the Planning Area.

Mr. Salovaara asked when the Council would be presented with a draft RMP. Mr. Di Pirro stated that as early as October 19th staff may be able to present a map and text. He noted that staff may even provide editorial text to the Council early next week and then examine background and introductory pieces. The following week the policy guidance element draft will be examined. Mr. Salovaara said that on October 26th everyone may object to individual pieces, and the Council may need to frame out how to work through the objections.

Mr. Weingart agreed that was one of the things he has spent considerable amounts of time contemplating, and said he would welcome any advice or input from members. Mr.

Weingart said he envisions that the entire draft plan will be presented at the October 26th meeting and that it will be introduced and seconded as a motion by members. Then, the Council could systematically address any possible changes as amendments to be introduced by members, each of which would then be voted up or down. He noted if there are a large number of changes that need to be considered, the meeting may be a lengthy one. Mr. Weingart also reminded that both Ms. Letts and Mr. Di Pirro alluded to the fact that when the Council approves the draft plan, the expectation should be that there will be changes needed resulting from the meeting, and that there may not be a clean, final version available to the public immediately at the conclusion of that meeting.

Mr. Weingart then asked Mr. Di Pirro to introduce the first policy document. Mr. Di Pirro advised that Highlands Open Waters and Riparian Areas would be presented by Mr. Steve Balzano and Ms. Chris Ross.

Highlands Open Waters and Riparian Areas:

Mr. Balzano noted that Highlands Open Waters and Riparian Areas are very substantive issues at the heart of the Highlands Act, the quality and quantity of water resources in the Highlands Region. With respect to protection of quality Highlands Open Waters collectively refers to all streams, lakes, wetlands and other surface water features. Protection of those features as well as adverse effects of those features as result of development of the adjacent lands, is very important to maintain water quality.

Mr. Balzano advised that one aspect of the policy recommendation addresses the protections needed for water resources where appropriate. He explained that riparian areas are those land areas directly adjacent to open waters which provide quality to the open water areas through surface waters. In some cases the riparian area can be defined by soil type and how water is transmitted over the ground and ultimately discharged into streams, wetlands or lakes. He noted riparian areas are very important to protect sources where ground water originates, because when sources are impaired it creates a “domino effect” which ultimately impairs receiving waters downstream.

Mr. Balzano said there have been a great deal of internal discussions among staff as to what protections are needed and appropriate as well as meeting the requirements of the Act. He said in an effort to clarify the staff have combined the items of Highlands Open Waters and Riparian Areas.

Mr. Balzano pointed to page 2 policy number 1 which acknowledges the necessary inclusion of an inventory of Highlands Open Waters in the RMP. The Council must address maintaining an inventory of Highlands Open Waters, and Mr. Balzano advised that maintenance will occur as site plans and applications are received, and those areas are captured and updated into the inventory of Highlands Open Waters. He said that as information is received it will continue to build on the foundation of the plan.

Mr. Balzano said item number 2 is the acknowledgement that the RMP will also contain an inventory and criteria for identification of and maintenance of Riparian Areas. For purposes of further defining Riparian Areas, the recommendation includes protection of flood prone and/or flood plain areas as well, where riparian soils containing hydric or

alluvial soils are present. Hydric soils are those which exhibit a shallow depth to the seasonal high water table, and alluvial soils are associated with deposits and sediments that are deposited as a result of a flood. Shallow depth soils in seasonal high water tables are those soils that exhibit characteristics where water is being transmitted just below the surface. This is the area where much of Highlands Open Waters originate in what is known as seeps or springs. They are also transmitted across the landscape just below the surface above what is known the restricted layer of soil. The protection of where water is concentrating under the surface is very important.

Mr. Balzano advised that protection of Riparian Areas is also crucial to protection of biological functions that stream corridors provide in the context of greenways, migratory pathways for fish and wildlife and are important to be captured. The recommendation for identifying Riparian Areas is that they consist of the lands that are within 300 feet of streams and open water bodies as a wildlife corridor.

Mr. Balzano said item number 3 identifies the regional significance of Highlands Open Waters and Riparian Areas as requiring the highest protections. He noted they are the most important resources to be protected and included in the LUCM. Mr. Balzano advised that a series of indicators have been identified to differentiate when a stream is ecologically or socially significant because it contributes to the drinking water supply and its protection is required by the Act.

Mr. Balzano noted where areas are impaired, restoration and enhancement become the primary management for the plan to prevent further impairment and where possible enhance the resource quality. He said the concept of utilizing the resource value to differentiate the regions into zones is the first step. The second would be on a site plan review level. Mr. Balzano said that the resources will inform where development can occur on a site plan level following the LUCM zone standards and smart design standards.

Mr. Balzano said the first standard proposed addresses regional watershed indicators and the values assigned to each HUC14 subwatershed area. A second indicator used to inform identification of subwatersheds is habitat quality for rare, threatened and endangered species. A third indicator is the extent of development that exists in subwatersheds and negative indicators that more development would create impairment.

Based upon those indicators staff has defined three resource value watershed classes as high, moderate, and low resource value watersheds. The high quality areas are predominantly in natural state, have high quality water resources requiring high level of protection to maintain their values. Low value watersheds are identified based on land use practices and are recommended for restoration and enhancement rather than protection.

Mr. Schrier asked Mr. Balzano to explain what a "HUC" is for those who may not know. Mr. Balzano replied that HUC stands for Hydrologic Unit Code. He noted that watersheds are the lands that drain to specific points on the map, and that HUC14 is the designation given to the smallest defined unit you can physically identify on the ground. The largest areas identified are known as watershed management areas.

Mr. Balzano pointed to item number 4, and said watersheds are the entire area contributing to a stream and riparian areas deal with the condition of the areas immediately adjacent to a stream. Stream corridors that are in good condition, with strong vegetation, are predominantly natural with high quality habitat for water and wetland dependent species in pristine condition are classified as High Integrity Riparian Areas. Low Integrity classification is assigned to Riparian Areas with low amounts of vegetation, and great amounts of impervious cover.

Ms. Letts asked where the data was obtained to draw the conclusions as to Riparian Areas. Mr. Balzano advised that a comparison and combination of conclusions was based on research that has been completed through the resource analysis and the resulting data which supports identification of what is significant.

Mr. Balzano noted that item number 4A has been updated and identifies the regional district overlay zones which incorporate the three classifications of high, moderate and low quality values. Watershed and riparian integrity values inform the definitions of the zone. They inform where the protection zone should be to maintain and protect resources with high integrity Riparian Areas. Ms. Carluccio said that she appreciated the new section 4A which makes it easier to visualize the areas as they relate to zones. Mr. Di Pirro noted that was a suggestion from the last meeting which was incorporated into the document.

Mr. Balzano said the standards that apply to activities in the Regional Protection Zone recognize that buffers alone are not sufficient alone to protect the quality of the resource based on its value. The purpose is to capture the whole resource, so those HUC14s and entire subdrainage areas that are indicated as high value, must be included. Ms. Carluccio commented that this is absolutely fundamental and she appreciated the changes made which are necessary for the approach of protecting the resources. She agreed that buffers alone are not enough because when you look at previous attempts made by the state or by federal agencies toward protection, it is very clear that Riparian Areas are very important.

Mr. Balzano stated that item number 5 addresses the standards to be applied and followed according to the zone. The first bullet point prohibits new land uses or alterations of existing uses that would be detrimental to the ecological integrity of the area. The second bullet prohibits adjustments except as necessary to protect public health and safety or to provide for minimum practical use in the absence of any alternatives. The third bullet identifies opportunities where the restoration and enhancement of previously impaired Highlands Open Waters or Riparian Areas are feasible and appropriate. The management strategy is to prevent activities that would deteriorate the resource value.

Ms. Carluccio said with regard to the final part of bullet number four that the term "except for" could be taken out because there may be places within Specially Planned Areas where lands of high quality exist in the middle of an area classified as degraded. She thought that they should also be given an opportunity for improvement and not be excluded.

Mr. Balzano said item number 6 addresses the standards for activities within the Regional Conservation Zone. The first bullet point prohibits adjustments and states that adjustments and revisions would be allowed only upon demonstration to the Highlands Council that the ecological integrity of the area can be maintained and/or restored.

Ms. Carluccio asked if after implementation there will be a waiver process. Mr. Tom Borden stated that an existing waiver process is built into the statute for the Preservation Area requirements, and that in the planning area it is envisioned that in high resource areas similar waivers that are appropriate for higher protection standards, the Municipal Land Use Law will address those. Ms. Carluccio asked whether the Council couldn't address the issues which will be considered during a waiver process, instead of bringing the whole level of protection down for the Regional Conservation Zone. Mr. Whitenack asked who would grant the waiver.

Mr. Borden stated that for Specially Planned Areas the Council considers waivers, and it would have to judge all areas on that highest level and noted that the zones are identifiably different based on their conditions. He noted that on the local level for lands not identified as specially planned, variances and waivers are addressed by the MLUL by municipalities and may be reviewed by the Council. Ms. Letts asked if the Council will oversee municipalities' authority and Mr. Borden said that was correct and it would provide a supervisory role and that the statute has a defined time period for Council review.

Mr. Dillingham said the Council could decide that there may not be waivers to the standards. He thought since the Council has authority he believed it should stick as close as possible to the waivers in the Act. He noted that basically it could be construed that the Council will shape custom made requirements for Specially Planned Areas. He believed the section would be improved if this was taken out and addressed separately.

Mr. Whitenack said that he thinks the process and application standard should be more discretionary in the Planning Area and that the Council should not interject itself everywhere possible. Mr. Dillingham suggested there should be a separate section in the plan addressing the conditions and standards to be met for allowing waivers. Mr. Weingart said that the reasons for the application of waivers will vary and in some cases the reason for the exception will be unique to the individual policy. If the Council says "this is the policy except," it will read as if the other exceptions do not apply. He noted this will be a major part of that decision.

Mr. Salovaara asked where waivers are that are built into the statute, and Mr. Borden noted they are in sections 30 through 36. Mr. Borden advised section 35 identifies there is a two step process, public health and safety, and redevelopment. It dictates that where the Highlands Council has determined an area is appropriate for redevelopment in the Preservation Area it will define the standards and conditions to apply to projects in those Specially Planned Areas.

Mr. Weingart asked if the recommendation was that the policy state where there is a waiver request, that would be decided by the Council. Mr. Borden advised that section 11 outlines the Council's authority and there are two issues as to specific authority in

Specially Planned Areas. Outside Specially Planned Areas, through the definition of zones, the Council will create effective prohibitions on uses and standards within the zones on a graded basis. The exceptions or waivers will be graded down through the zones and standards. In terms of exceptions, there will be waivers as to what uses can be allowed and ultimately on a site plan standard how to waive a specific ordinance provision on a site standard. Mr. Borden advised that the plan conformance guidelines outline how specific and stringent they are applied on the municipal level and there are checks and balances processes for granting waivers in municipalities.

Ms. Calabrese asked for clarification where a municipality grants a waiver, does it automatically come to the Council for review. Mr. Borden said no, and that the authority is discretionary and would apply as to certain projects. Ms. Letts noted there are 88 municipalities and asked how the Council will be able to know what is going on in every one and also how it would be able to manage reviewing all waivers. Mr. Borden said during plan conformance it will be clear which applications should not be made. He stated there will be criteria outlined and a checklist of items which have to be met first to allow a waiver to be applied for.

Ms. Letts noted she would like to avoid having waivers, because if the Council approves for one town for one reason, another town will demand the same. Mr. Borden agreed, and noted that is why there are permitted uses defined in the zones to prohibit certain uses. Ms. Carluccio asked why the Council would want to lower the bar for the Conservation Zone and that she didn't see why it has to approach the conservation area as having a "less strict" regulatory hand than the Protection Zone because in the Act the Council is required to take care of and protect and enhance the areas in both Planning and Preservation Areas.

Mr. Dillingham said setting aside waivers and odd circumstances the Council is discussing accommodating a minimal amount of growth. He said it should be directed to impaired zones in the middle zone but asked if this would also occur in areas outside the ones the Council designates as Specially Planned Areas. Part of this discussion relates back to the conversation the week before regarding agriculture, and if the Council wants growth concentrated around existing development then it has to recognize that.

Mr. Salovaara wanted to know when the Council will have a list of Specially Planned Areas and Mr. Balzano noted the areas will be identified in the draft plan. Mr. Salovaara said that will be an open issue for argument and asked if the Council could have the list this month. Mr. Balzano said it is being done this month. Mr. Salovaara asked if the Council is suggesting its standards are less strict than the DEP or legislative standards set forth in section 36. Mr. Balzano said the legislative intent is to allow for waivers where appropriate. Mr. Borden said section 35 discusses the waiver, and section 36 sets forth the criteria. He said the Council is identifying a region and the DEP reviews on a site specific level. Mr. Salovaara asked if that explanation could be spelled out somewhere within the policy, and Mr. Borden said that it could. Ms. Carluccio suggested that the Council cite section 10 as its authority.

Mr. Borden noted that item number 7 identifies the standards for the development zone in the LUCM. Mr. Dillingham said the word "identify" is not strong enough if the Council

wants the standards built into ordinances. Ms. Letts agreed, and said what if a stream is present running through 200 feet of a property and an applicant says they want to fix one portion of the stream, then will the whole stream have to be fixed. She asked for clarification and details as to what restoration encompasses. Mr. Weingart said these points get into conformance. Mr. Dillingham said if the concept is to put the growth in one area, and to restore some lost areas, the Council needs to define it. He noted there are many ways to perform restoration and these are the questions for implementations. Ms. Letts said she would like to know more about where they will be built into the plan and at some point the Council needs to discuss them.

Ms. Way asked if pre-conformance would be when the Council would define practical uses because semantically it will mean different things for different people. Mr. Balzano said that the guidelines will quantify as much as possible the requirements for practical. He noted relief would only be granted upon a demonstration that there is no other relief possible.

Mr. Balzano stated that item number 8 defines the Resource Protection Standards in a zone and what can happen in a zone, and addresses particular site plans and advised these were the requirements to be addressed. The most important is protective area buffers with four areas of protection based upon the quality of the waterway and the level of protection that applies to each resource. The categories are: Highlands Waters, Special Waters, Exceptional Waters, and Intermediate Waters.

Ms. Carluccio asked what the difference was between special waters and exceptional waters. Mr. Balzano replied that special waters are where trout are present and noted the protection doesn't vary or lessen, the category is just different because they are present. Mr. Balzano noted that in situations where there are urban areas with resources designated as Intermediate Waters, buffers are reduced to 75 feet. Ms. Carluccio said that she would like 150 feet to replace 75 feet, and 300 feet to replace 150 feet to provide for healing of those areas. She also asked if another sentence could be added to the first bullet because there may be exceptions and have the language state "at least 300 feet" because it may be that the stream itself is low integrity, but the Council may tie its hands if it designates it as low integrity because the Council may find species that require larger buffers.

Mr. Schrier said that Ms. Carluccio's suggestion goes back to setting everything at 600 feet. He said the numbers recommended were arrived at scientifically and suggested the addition of a provision to provide for the instances Ms. Carluccio mentioned warranting larger buffers. Ms. Letts advised that Parsippany passed an ordinance that defined certain uses that couldn't be conducted in certain radius of its wells. She thought the Council should also define the uses that are dangerous, such as gas stations or chemical storage facilities. Mr. Balzano said the general goal is to avoid disturbance. Whether its 300, 600, or 1,000 foot buffers, he noted that sometimes if the goal is to protect an ecosystem it is not about footage and relates back to the zone definition. Mr. Dillingham said if someone comes in to do a project and the Council require they do an inventory, the Council needs flexibility where a protected resource is found requiring more protection. Ms. Carluccio noted that for ecosystem protection, 300 feet has been used in the Pinelands. Mr. Weingart noted that it is obvious that everyone will have different

opinions on buffers, and reminded that this will be one of those issues that is going to be debated. He encouraged the members to provide their suggestions to the staff.

Mr. Balzano read bullet 3 under item number 8 and Ms. Carluccio said the explanation should be more explicit.

Mr. Dillingham noted that as a placeholder, the question should be addressed as to why riparian buffers don't start at the inland edge of a buffer. He asked how the Council will deal with lands that are currently not developed but may be in the future and pointed out that when the Council examines lands that shouldn't have been developed but have been – it will need to find a way to custom base extend to those areas that should be included.

Mr. Balzano said number 9 addresses smart design standards and is where the Council may capture some uses that would be inappropriate like Ms. Letts mentioned. Subparagraph a) states that the Council will prohibit any development activity within a high resource area, b) outlines limited development activity within a moderate resource value, and c) allows development or redevelopment of previously developed areas through LID and BMP programs.

Item number 10 addresses Regional Growth Standards recommended for the RMP including development of regional stormwater and wetland mitigation plans subject to review and approval by the Council.

Item number 11 addresses Pre-Conformance Strategies and relates to what Ms. Letts mentioned within the second bullet point where technical guidelines and procedures for development of the stream corridor are outlined.

Item number 12 addresses Conformance Strategies recommended in furtherance of the goals and requirements of the Act to ensure successful implementation of the RMP during the conformance period.

Item number 13 addresses the 5-year Resource Protection and Planning Goals which recommends development methods for continued refinement of Highlands Open Water Inventory with an emphasis on identification of headwater streams and seeps and springs.

Item number 14 addresses Coordination and Consistency Considerations that are recommended to promote active participation in the implementation of the RMP among state and federal agencies and provides the requirement to develop a coordinated regulatory review program with the NJDEP to ensure consistency of permit actions, open space acquisition priorities, surface water quality standards and restoration activities including amendments to existing regulatory programs to encourage consistency with the protection goals of the RMP.

Item number 15 addresses the Local Participation Considerations recommended to promote understanding and support for the RMP resource protection goals at the local level with the development of educational and technical training programs for municipal officials and interested watershed organizations.

Mr. Weingart asked if there were any questions before the Council breaks for lunch. Mr. Salovaara commented regarding the prior topic of Scenic Resources at a previous meeting, and noted that the 88 master plans in all the towns have scenic items designated within them. He asked that the staff review them and identify what would meet the Council's definition of scenic. Second, he asked if minimum lot sizes will be provided to the Council in the future. Mr. Balzano replied they would and Mr. Di Pirro noted that staff has considered when it should present that information to the Council.

LUNCH BREAK:

Mr. Weingart called for the lunch break at 12:30 p.m. At 1:15 p.m. he called the meeting back to order and advised the Water Availability document would be addressed.

Mr. Weingart reminded that the Council will meet at 4:00 p.m. on October 12th and November 2nd, and at 10:00 a.m. on October 5th, 19th, and 26th.

Water Availability:

Mr. Balzano said the fundamental drinking water resources of the Highlands Region are addressed in the Executive Summary section of the policy document. It is built on a concept of maintenance of base flow which is the portion of water that is most critical to maintain water reserves in the reservoirs during periods of drought. During periods of low flow in a drought, are the most critical times to ensure availability. At some point the reduction in base flow will affect water availability, and this policy deals with recognizing the importance of addressing capacity throughout the region.

Mr. Balzano noted that Mr. Dan Van Abs at the New Jersey Water Supply and Bob Canace at NJGS with DEP, as well as the whole team at USGS, have been extraordinarily helpful in guiding the staff and have done the lion's share of the work and research on this subject.

Item number 1 addresses the estimated Ground Water Capacity for each subwatershed using the Low Flow Margin of Safety Method and adjust the results to reflect consumptive uses in reference drainage basins. Mr. Balzano expressed that this element was by far the most complex and difficult issue he has ever dealt with in his entire career. The variables are numerous and their interactions and effects are extremely complex and difficult.

Policy item number 2 deals with Ground Water Availability and the percentages and allocations of water supply which is the amount of water available and thresholds are established by multiplying ground water capacity by selected percentages that are related to the nature of the environmental resources and conservation objectives of the RMP for each regional zone in the LUCM.

Mr. Balzano noted there is a great deal of difficulty in determining the ratio of ground water capacity to water availability. He noted there is a balance and advised that a chart is provided on page 2 which outlines the standards for estimating Ground Water

Availability. He noted one recommendation is a threshold of 20% for the Regional Development Zone.

Ms. Carluccio wanted to know how the 10% threshold was reached in the Conservation Zone and what the technical reason was versus the social reason. Mr. Balzano said that it is a reflection of a mid-way point between two extremes. It was determined that 10% was a reasonably based estimate. He added that it was decided that erring on the side of caution would be recommended so that water is not overcommitted to more than what can be handled.

Ms. Letts asked for a real life example such as if I want to build ten houses, how much water could one have. Mr. Balzano said if the density calculation affords ten gallons per household per day, but the zone only provides 5 gallons per day, then you would only build half the houses. He noted the Council would use a build out model and a municipality will look at its zoning to see if it can meet certain density. He noted these calculations will be done during conformance in a build out model to estimate water demand. He noted a threshold would be set and a municipality during conformance would address how it zones to ensure it doesn't exceed the capacity limits. They can choose how to use their resources, whether it is for commercial or mixed use development. Ms. Letts noted that would be a very difficult task and Mr. Balzano agreed that it will be very complex issue and difficult for municipalities to make that transition. He noted that the Council is not asking municipalities to do this calculation, and advised that provisions are made so the staff and Council will give them the information to use for the calculations. Ms. Letts asked how the Council will know if they go over the 20% threshold. Mr. Balzano noted they will apply to the Council and Mr. Borden noted they will be provided grant funding to assist in municipal actions during conformance.

Mr. Balzano said the maximum threshold calculates the safe yield of a reservoir. The 10% is intended as the amount that will not constitute harm and is the maximum withdrawal amount permitted before effects on reservoirs have to be evaluated. Mr. Balzano said it is not "cut and dry" as to say that if you are at 11% you are reducing the yield of a reservoir. The 10% is a policy decision staff feels is the best recommendation to the Council to meet the requirements of the Act to not impair or harm the resource, and feel that it is a conservative estimate.

Ms. Carluccio said an analysis was done to determine how much water is available for a system based upon after the amount already allocated is subtracted out – but asked about reservoirs that the Council doesn't have data for. Mr. Balzano said the 10% addresses total availability to a municipality and there are many municipalities that are in a deficit. To provide for existing needs impairing the resource is addressed. He noted the 10% is a reasonable threshold estimate for sustainability. Ms. Letts asked if this would supersede the DEP limitations as to how much water is allocated and Mr. Balzano said this is intended as a planning tool to ensure that municipalities do not zone in excess of their water supply capacity. He noted DEP will always have the ability to review project applications under water allocations, and staff is working very closely with DEP and they are advancing the same approach in their water supply rules, so that they can work side by side with what the Council has determined. Ms. Letts noted there are already

restrictions on how much water can be used by the DEP. Mr. Balzano noted that the cumulative effects of all the withdrawals have impacted ground water availabilities.

Item 3 is the estimate Net Ground Water Availability which is achieved by subtracting from ground water availability an estimate of maximum monthly consumptive ground water and surface water use other than from reservoir storage for that subwatershed.

Item number 4 is based on available information, to identify subwatersheds that may require adjustments to Net Water Availability to account for both the exportation and importation of ground water and surface water from and into that watershed.

Mr. Dillingham asked if the model is not completed how will missing data be accounted for. Mr. Balzano said we will partition the distribution of the water and you will have a percentage. Even in conformance additional information will be needed, and there may be refinements to account for more accurate information as it is obtained.

Item number 5 addresses what Ms. Letts mentioned regarding two types of areas and water availability deficit areas. Mr. Balzano noted these are red basins on the map and the towns along with the Council will develop a plan to address the fact that they need to enhance and incorporate conservation to reduce use and free up water. Mr. Balzano noted that growth cannot be accommodated until remedies are provided and that would be where interbasin transfers could be considered.

Ms. Carluccio said that the concept of interbasin transfers is huge, and needs to be discussed, because she felt it could be construed as “robbing Peter to pay Paul.” She suggested the Council utilize the approach that it is supposed to be protecting and enhancing the water. Mr. Balzano noted staff was not introducing a policy that is suggesting interbasin transfer. He advised that allocation is the DEP’s delegated authority.

Mr. Alstede asked if the policy addressed all uses as to water threshold, and asked for a real life example as to acreage – such as is it one house per 100 acres. Mr. Balzano said it varies by HUC but he would work out an example rather than throw out a number. Mr. Weingart noted that everyone would be interested in that. Mr. Balzano said the second area of concern under item number 5 is the current water availability in a constrained area.

Item number 6 addresses future allocation and all the estimates are based on 2003 data and to identify future constrained areas, where projections at full withdrawal of the water are considered and what the effect will be and whether that would tip them into a deficit.

Item 7 addresses the standards to be applied at the zone and site plan level with proposed language for inclusion in the Policy Guidance Element of the RMP contained in bullets hereunder. Mr. Dillingham asked what would be recommended for future constrained areas and whether growth should be directed to those areas or not. Mr. Balzano replied that it would not be directed to areas where it will adversely affect downstream areas. Ms. Carluccio wants item number 7 to be carefully reviewed to be sure nothing included in the section goes against the Act as far as Specially Planned Areas are concerned.

Mr. Balzano noted that item number 8 restricts consumptive and depletive uses of ground water and surface waters within to no more than 10% percent of ground water capacity based on the low flow margin.

Ms. Carluccio asked about agricultural uses and said they are not required by the Department of Agriculture to recycle or reuse water. Mr. Alstede suggested the Council could consider that when it examines the zones, and asked if he could see the overlay of these areas.

Ms. Letts asked what happens if one protected zone receives its water from another zone not in the same watershed, and also asked how the large the zones are which are being identified. Mr. Balzano said generally the zones are large, with the HUC 14 unit being the smallest mapping unit at approximately 3 square miles or about 2,000 acres. Ms. Letts asked about a town which has one or two HUC14s, but their water system is not in their zone. She asked if they are importing water from an area not even in the Highlands at all, how will the Council apply these standards to places that receive water from other places. Mr. Balzano said they have the provision to adjust the numbers to account for that and they still apply. He advised if a municipality receives its water from a well in a separate HUC14, that well would have to be within the thresholds for that HUC14. He noted it is regardless of where the water is sent to because you cannot exceed the capacity of the HUC14 to provide for that water, and the method of calculation examines where the water is withdrawn. Mr. Balzano said where water comes from will be addressed in the importation/exportation requirements. Where deficits are present, they would be remedied at the source.

Mr. Balzano said these issues are all reasons why the Council is so important and why regional planning is very significant. The problems are beyond all political boundaries.

Item number 10 addresses the Resource Protection Standards recommended to include limiting consumptive and depletive water uses in Current Water Availability Constrained areas to 5% of the Ground Water Capacity to ensure continued stream flows to downstream Water Availability Deficit Areas. Mr. Balzano noted best management and irrigation practices are addressed in the section.

Ms. Carluccio suggested that provision for allowing certain withdrawals to occur as long as mitigation is provided should go under item number 11 of smart design standards, and that the last bullet should say something to the effect of “require proposed uses within the deficit areas to provide supply with recycled and reused water whenever feasible.” She thought the concept of prohibition of new use of water unless absolutely necessary could be included as preventative steps and thought another bullet could be added to further outline recreational and non-essential uses such as fountains and golf courses.

Mr. Balzano noted item number 11 recommends the smart design standards to establish mandatory water recycling/reuse measures within Specially Planned Areas to minimize net water use. He noted that as to Ms. Carluccio’s suggestion the rule could be general and delete Specially Planned Areas. The section also requires uses of water conservation devices for any redevelopment or development activity which would include renovations

of existing single family homes. Mr. Balzano said modern water conservation devices are much more efficient.

Item number 12 addresses Regional Growth Standards which require that wastewater management plans or amendments demonstrate that the proposed service area will not directly or indirectly result in an encroachment of net water availability, or an increase in the severity of a water availability deficit area. Mr. Balzano noted this recognizes that situations cannot be created where wastewater demands exceed water capacity supply.

Mr. Balzano said that highest priority will be given to allocation of remaining net water availability to TDR receiving zones adopted by a municipality approved by the Highlands Council. Ms. Carluccio said she suggests an additional bullet which may or may not belong in this number, but she wants the concept of restoring water quantity and quality should be addressed because when water has been removed from use due to pollution around superfund sites, a goal of restoration should be added to help growth areas. She believes this issue is over-arching and should be included throughout the document.

Mr. Weingart suggested that Mr. Balzano cue up the overlay that Mr. Alstede asked to see earlier.

Mr. Dillingham asked if language could be included pointing out that key pieces of the policy recommendations the Council makes as appropriate for the region depend upon authorities outside of the Council's direct authority. He notes that in good faith other agencies will attempt to adhere with the RMP but as Mr. Alstede mentioned, Mr. Dillingham notes that one allocation decision can be made despite what the RMP states. The collaboration and cooperation is essential for success of the plan.

Mr. Balzano provided a demonstration of the result of a series of water capacity in comparison to existing uses. He noted that existing uses were examined in relation to water capacity to inform the percentages, and said that the number of basins in green exceed 5% which is the vast majority of the region is currently below 5% consumptive use. Mr. Balzano said this illustrates what greatly informed the thresholds. The next slide illustrated the number of areas that exceed 10%. Mr. Balzano then showed the slide illustrating in blue those watersheds that exceed 20% which is the upper threshold and are the deficit areas. Watersheds in yellow are less than 5% threshold and there is no restriction on those areas. The areas in red are the areas that require remedy to relieve water supply constraints.

Mr. Balzano explained as to zone definitions different characteristics are considered such as forest areas, watershed quality, riparian area quality, proximity to train stations, access to wastewater infrastructure and capacity, all are considered. He noted that percentage limitations will vary and noted that HUCs in light blue at 10% may be within a protection zone which will trigger a 5% threshold and create the change to a deficit watershed. Mr. Balzano noted the program is designed to allow capacity to be adjusted based upon what the zone definition is and then apply management strategies at the municipal level based upon that outcome.

Mr. Alstede asked why 20% is chosen. Mr. Balzano said the analysis performed identified that generally between 20% and 30%, watersheds were identified as being greatly impaired and it was determined that 20% was the target maximum level where degradation to a stream would not be forced. He noted many limitations are present and a provision is included to address that as the Council gains information it can make adjustments if the 20% was too low.

Mr. Balzano next demonstrated a slide of basins that have serious water capacity limitations and deficit areas greater than 20%. Mr. Balzano said that benefits of viewing all the areas of constraint in detail will allow the Council to focus on allocation of State resources where it is most needed and provides the most benefit.

Mr. Alstede said he sees that most of the areas with water limitations are within the planning area, and Mr. Balzano noted that there are areas in both planning and preservation where the most development is present.

Mr. VanAbs noted for the areas captured in the 5% threshold, could be 4.9% and conversely others are .1%. He said there are huge variations within each portion. If an area is at 22% then the likelihood is that water conservation applied effectively could bring the level to below 20%. However, Mr. VanAbs said if an area is at 125% which was the maximum that was found, there is no way that concentrated conservation efforts will achieve 20%. Mr. VanAbs stated that each will be categorized whether they are very close to the maximum or slightly above the maximum which will be easier to determine what can be done. It is the areas way over the maximum that will completely different issues.

Mr. Balzano also showed a slide which illustrated areas where water is withdrawn from a basin and shipped out as exports. It also demonstrated areas where water is received at a basin and discharged as wastewater returns as imports. He noted that the analysis becomes more and more complex and that the focus is on the depletive uses piece.

Mr. Weingart noted there were still five more policy areas within the Water Availability document and noting the time that has been spent he suggested the Council consider whether it would continue to discuss them or move on to the remainder of Agriculture discussions. He noted that the members could review and submit comments in writing to the staff. It was decided that Ms. Kim Kaiser would pick up where the Council left off at its last meeting with the Agricultural Protection policy document.

Agricultural Protection and Sustainability:

Ms. Kaiser pointed to the top of page 6 under the remainder of item number 8 where policy recommendations are made for coordination with the Department of Agriculture to explore innovative programs addressing the need for development of those programs for active Highlands region farmers. Programs are recommended to address the need for state pension plans and health care programs as well as state loan guarantee, life insurance and equity insurance programs.

She noted the second recommendation is to encourage coordinated review of internal and external policies and plan of county and state agencies that impact farms. Ms. Kaiser noted the third recommendation is to encourage examination of agricultural viability issues with an example provided noting that New Jersey regulations do not allow farmers to sell “raw milk” while neighboring states do so.

Ms. Kaiser said that item number 9 addressed the Local Participation Considerations which are recommended to promote the understanding and support for the RMP resource protection goals at the local level. She noted that it is recommended to assist municipal and county entities to gather agriculture and horticulture resource information to update and track the data. The second is to develop educational and technical training programs to promote viable economically sustainable agricultural industry in communities.

Ms. Kaiser noted the third bullet addresses educating the public on the economic and cultural resource value of maintaining a viable sustainable agricultural industry. The fourth bullet addresses educating landowners adjacent to farms within the Agricultural Resource Area of the activities that may take place on the farm and the ramifications of the Right to Farm Act. The fifth recommendation is to encourage farmers to participate in land use planning and decision making. Ms. Kaiser noted the last bullet provides for instructional programs in towns and schools to the residents and students options beyond the standard curriculum since many next generation farmers may include individuals who do not come from agricultural backgrounds.

Ms. Letts asked if the first bullet under item 9 to assist municipal and county entities to gather data is something that they currently do, or whether this is something new that will be required via conformance. Ms. Kaiser said this is a local participation requirement that ideally will make data collection systems among sister-agencies uniform, and in that respect it is recommended that they report back. Ms. Letts suggested that the wording could be changed to say “request assistance from municipal and county” to help the Council collect data rather than the Council help them because they may not be doing so now.

Mr. Di Pirro said that may depend on how best to acquire the data. One thing Ms. Kaiser encountered while attempting to gather information on both open space and farmland preservation was that there is not one place where the information is stored, including the State level. He noted that as to local governments the data became further diffuse and this is the attempt to pull it together. Ms. Letts thought consideration should be given to the towns because they may see the requirement and feel that they cannot meet this burden.

Ms. Calabrese asked if the last bullet point could be clarified as to schools providing curriculum options. Ms. Kaiser noted that the Council could provide public education programs to be held at schools.

Mr. Dillingham said that many farmers voice concerns over restrictions on the speculative development value of their land and that they cannot obtain bank loans for operational costs which impact upon their ability to farm. He said that this concern continually comes up in the debate over land use and farmland preservation and wants to

know if the Department of Agriculture has examined this issue. Mr. Dillingham added that barriers for new farmers also need to be addressed. He said there seems to be a series of real issues that are impediments to the maintenance of the agriculture industry that have not made it into the document. Mr. Weingart asked if there were any further questions, and noted that he agreed with what Mr. Dillingham just said. Ms. Kaiser advised that there are meetings scheduled for the following week with representatives from Department of Agriculture, SADC and the Farm Bureau so those issues are currently being discussed.

Mr. Dillingham said he read a recent article in a South Jersey newspaper that reported on discussions with young farmers who are part of legacy families which have been farming for generations, and one thing notable was that they were very optimistic about participation in agriculture, but they also noted some of the challenges they face. He said it was a very insightful article and offered to share it with Ms. Kaiser.

Mr. Di Pirro noted that in response to some members' questions the terms would be identified as Site Design Standards to reflect that these are the standards that apply at the site application review level. Mr. Di Pirro noted that in earlier papers the term was formerly referred to as smart design, but this would more accurately reflect what the Council would like to capture. Mr. Di Pirro turned to Ms. Christine Danis and Ms. Maryjude Haddock-Weiler for presentation and consideration of the Smart Design Standards policy document.

Site Design Standards:

Ms. Danis noted that the planning staff have provided an approach for understanding how the resource constraints and site development constraints might look from a site planning level. She noted that taking a step back and considering how communities develop and redevelop, how the approach to bulk standards and zoning uses drive the ultimate site design. Ms. Danis said the result of past building practices do not afford for resource protection, or maximization of open space and on-site infiltration of stormwater. She noted that as regulations are examined inside and outside the Highlands, several approaches are used for over-arching ways to address how site development can be implemented throughout the region. Ms. Danis said as a planning staff it recommended to support municipalities and counties to educate and think differently about how development occurs. Also considered is how the development design complements the existing development and resource protection.

Ms. Danis said that four specific approaches to evaluate development, redevelopment and in-fill which are Conservation Development, Green Building Policies, Low Impact Development and Community and Neighborhood Design. Examples are given as to what may occur at the municipal level when reviewing an application or aligning their ordinances with the RMP.

To demonstrate item number 1, Conservation Development is an approach that captures an efficient use of land. It requires compact development alternatives to utilize land more efficiently and maximize opportunities for contiguous open space. An implementation strategy may be to require municipal and county ordinances to include at a minimum the

following development standards in order to support land use efficiency, with allowances for relief in redevelopment and in-fill projects. It encourages additional strategies and best management practices.

Ms. Danis noted the first bullet under Implementation Strategies recommends requiring clustering of development to maximize the percentage of the site to be devoted to the preservation of open space for active and passive recreation in critical environmental areas such as slopes, wetlands riparian corridors, streams and ponds. Ms. Danis said the approach examines the site and evaluates where the best places for growth are on the site.

Ms. Danis said bullet number 2 requires a landscape plan which specifies indigenous plant species wherever feasible, and bullet number 3 requires that elements of the site plan be interwoven and provide connections between neighborhoods and the natural environments.

Ms. Danis explained that the power point slide illustrated existing conditions in a rural setting. The example was a piece of land consisting of approximately 175 acres, with a farm, some open space, patches of forest, and wetlands present. The slide also showed 45 houses built in the usual two-acre zoning and how the Council might approach redevelopment. She noted that from a conservation perspective the site could be redesigned to protect forest and wetland areas while still providing character and well being into the landscape.

She continued to show a series of slides comparing different types of developments on the same amount of land. Conventional methods clearly cause disconnection to roads and small villages lose all connectivity to the community resulting in conditions of sprawl. Ms. Danis noted that there are ways to stop sprawl and to build and in-fill differently around current sprawl patterns to support connectivity. She noted this may not ultimately be the way the Council will go for raw tracts of land, but as it considers current development patters, there are ways to curb previous behavior to develop communities differently to preserve resources and improve quality of life.

Mr. Salovaara asked about the two acre zoning, and asked if that was what the Council is considering approving on undeveloped land in the Preservation Area. Specifically he wanted to know if the Council is contemplating two acre zoning as a recommendation for undeveloped farmland in the preservation area under the mandates of the Act. Ms. Danis said that was not the case. She said the scenario she was demonstrating would be in a Planning Area and not to be destined for the Preservation Area and is regional example. Mr. Salovaara said he must return to his blind to the line question again as to Preservation and Planning areas. Mr. Dillingham said he agreed with Mr. Salovaara.

Ms. Danis said item number 2 recognizes the establishment of Green Building Standards to promote conservation and efficient use of energy and Highlands Resources. She noted the approach was to require the design and construction of energy efficient buildings to reduce air, water and land pollution and environmental impacts from energy production and consumption.

Ms. Pasquarelli asked if bullets number 2 and 3 under item number 2 as related to water conservation, on what basis relative to the Act should the Council be considering to require other measures that are pro-environment that seem to exceed the scope or intent or omission of relative to the Act. Mr. Balzano noted the Act speaks to the issue of energy conservation and the issue of lot clearing is inherent in protection of all natural resources. He said recycling and reuse is general conservation principles that may not be specified in the Act, but it is consistent with the purpose and intent.

Mr. Weingart noted that it is also cited in the end of the document as to smart growth strategies and principles for appropriate patterns consistent with the Act.

Ms. Danis noted that item number 3 addressed Low Impact Development standards which focus on natural hydrologic features of the land and minimize stormwater impacts. The approach is to require on-site stormwater management design that maintains, restores and enhances the pre-existing natural drainage patterns of the site. She read the balance of the section which states impervious cover shall be minimized to increase stormwater infiltration and reduce runoff.

Ms. Carluccio said this section could also be expanded to include a goal of achieving a balanced hydrologic regime. Ms. Danis noted that the requirement is also made for existing stormwater management systems to be designed based on nature approach to utilize vegetative channels where feasible rather than standard concrete curb and gutter configuration to decrease flow velocity and allow for stormwater filtration and infiltration. Ms. Danis read the remainder of section 3 and also presented power point slides illustrating different methods of development to support enhancement of bioretention areas. She asked if members had questions.

Mr. Alstede asked if the redevelopment patterns envision inclusion of public utilities. Ms. Danis said that this is not to be misconstrued as the site development pattern for the Highlands region. It serves as an example for how the Council would approach site development from a holistic, design based approach, not a bulk standard use approach where land is typically parcelized. All infrastructure, water supply, wastewater and resource protection measures still need to be considered. Mr. Balzano said these approaches might apply in the Conservation Zone.

Mr. Alstede said some would consider clustering as occurring on an acre, while others believe it is on ten acre lots. Ms. Letts said cluster development in her area would be three houses on ten acres. Mr. Alstede said the Council should be prepared to state as part of the septic density policy that it has to propose septic lot density and how small a lot may be to allow for clustering.

Mr. Alstede said in this region people are convinced that bigger is better as to lot sizes and asked how the Council could push cluster-type development keeping in mind nitrates considerations and existing ten acre zoning which have been defended by municipalities in court. Mr. Balzano said the goal is to reduce the area of disturbance.

Ms. Danis said that is the challenge and the market drives existing zoning and building practices. At the local level it is an attempt to try to introduce a smaller, more efficient lifestyle. She said that the trend for more efficient lifestyles do exist in many places.

Mr. Schrier stated that Ms. Letts was not joking when she said what will the Council do as far as requirements to how many houses are built per acre when she said 3 houses per acre. He noted that in his neighborhood there would likely be one house on ten acres which directly affects the restrictions to be imposed.

Ms. Calabrese noted that sprawl is the issue which has brought the Council to the point it is at, where effective changes need to be made and implemented to protect the resources.

Ms. Danis said item number 4 addressed Community and Neighborhood Design standards which promote development opportunities to support a variety and choice of housing options, mixed uses and redevelopment. She showed a slide with a lot of 45' x 90' in size, which had a number of proposed improvements such as pervious decking, and a rain collection cistern. She noted there is currently only 1% of mixed use in the region, that 57% is two houses per acre, and the rest is one house per 20 acres.

Ms. Letts said that there is a need for mixed use design and there should be a place in the future for communities that enable residents to walk to a store for a loaf of bread, and where children can walk to school. She noted that the way developments have been done in the past, there is no way children can walk because the schools are too far away. She noted that in the south, there are some very wise practices being done to maintain natural vegetation and incorporating shopping into their residential neighborhoods. Ms. Letts asked that the last bullet be specific and state discourage designs such as cul de sacs.

Mr. Peterson asked if an examination was done as to what effect cluster housing has on property taxes. He noted that in Hunterdon County the larger lots are the ones getting top dollar and he also asked who will steward the open space. Ms. Danis said that is an important point and that the Council needs to provide for stewardship programs and a management strategy because of the associated costs to municipalities.

Mr. Peterson said one concern to be considered as to recommending cluster type development is that people have vastly different lifestyles over time, and said that while residents today may push for cluster housing the next generation may not.

Mr. Salovaara said that the Council should not suggest something that goes farther than the science. He said if the science dictates that one house on 40 acres can be built, it should be based on the science. Mr. Alstede said septic lot density is science based on what we want to use.

Ms. Letts noted that she has seen the same price on houses whether they are built on a big lot or a small lot. Mr. Peterson noted that maybe premium prices are attributable to the nature of the community, such as whether there are ten houses within a quarter mile, or a hundred.

Ms. Carluccio noted that what Mr. Salovaara mentioned was correct as to relying on septic density as a determining factor for lot size, and the Council could be in conflict with itself.

Mr. Weingart noted that any members who have changes or suggestions to please relay them to the other members. Mr. Schrier commended the staff for the major improvements it has made since the first meeting in taking the Council to where it is now.

Mr. Alstede commented on Mr. Dillingham's mention of the enthusiasm in the article about South Jersey young farmers, he noted there are a lot of young farmers in the Highlands as well. An impediment is that they need to live where they work because so much of what needs to be done on a farm, whether it's caring for livestock or being nearby to fix a problem, requires that farmers be close by, but now they can't live there because they can't subdivide because rules won't permit. Mr. Alstede said farmers need to have generation to generation viability and that there has to be an accommodation, with the SADC needing to consider this issue as well. He said it is one of the biggest challenges for successful family operations and sustainable farming.

Mr. Weingart asked if there were any additional comments on any of the issues.

Mr. Salovaara said he continues to think about the pre-conformance process which has been articulated, and he noted his concern is that it will not work because it could pervert the intentions of the Act. He said it will continue to concern him until the Council reviews the draft RMP and that he will have a hard time reconciling what he hears will be attempted and what may turn out to be practical. Mr. Weingart asked if he could elaborate on why he thinks that it won't be done. Mr. Salovaara said that municipalities who need to come into conformance have to know what they have to do to come in conformance and he fears they will see it as too difficult. Municipalities may not embrace the process of working with the Council because of that difficulty. He asked Mr. Borden to help him understand how this will be achieved. Mr. Borden advised that he would consider Mr. Salovaara's concerns and will address them.

Mr. Weingart noted the meeting should adjourn at that time to provide the public availability session and reminded the Council will meet on October 5 at 10:00 a.m.

ADJOURN:

Mr. Schrier motioned to adjourn, Mr. Salovaara seconded, all were in favor, and the meeting ADJOURNED at 3:45 p.m.

<u>Vote on the Approval of Minutes</u>	<u>Yes</u>	<u>No</u>	<u>Abstain</u>	<u>Absent</u>
Councilmember Alstede	_____	_____	_____	__x__
Councilmember Calabrese	_____	_____	_____	__x__
Councilmember Carluccio	__x__	_____	_____	_____
Councilmember Dillingham	__x__	_____	_____	_____
Councilmember Kovach	__x__	_____	_____	_____
Councilmember Letts	__x__	_____	_____	_____
Councilmember Pasquarelli	_____	_____	__x__	_____
Councilmember Peterson	_____	_____	_____	__x__
Councilmember Salovaara	__x__	_____	_____	_____
Councilmember Schrier	__x__	_____	_____	_____
Councilmember Vetrano	_____	_____	_____	__x__
Councilmember Way	__x__	_____	_____	_____
Councilmember Weingart	__x__	_____	_____	_____
Councilmember Whitenack	__x__	_____	_____	_____



Dated: October 5, 2006

John Weingart, Chairman

DRAFT FOR CHAIR REVIEW
NEW JERSEY HIGHLANDS COUNCIL
LOCAL PARTICIPATION COMMITTEE

CHAIR REPORT
FOR THE MEETING OF SEPTEMBER 21, 2006

On September 21, 2006, the Local Participation Committee held a meeting at the New Jersey Highlands Council office in Chester, New Jersey. Notice of the meeting was provided to the public on the Highlands Council's web site. Council members present at the meeting were: Mimi Letts, John Weingart, Tracy Carluccio, Scott Whitenack, and Debbie Pasquarelli. Council staff members present were: Dante Di Pirro, Tom Borden, and Patty Sly. Committee Chairwoman Mimi Letts called the meeting to order at 4:40 p.m. Ms Letts referenced her presentation of the Chair report which she made during the Council meeting.

The Committee reviewed the draft calendar of hearings and other activities anticipated to occur between the release of the draft Regional Master Plan and the plan adoption. The Committee sought to find a balance between leaving appropriate time before the hearings begin in order for materials to be made available for consideration, and sufficient time for the Council and staff to consider the public comments. Some Committee members expressed concern about the aggressive time table, but agreed that we must stay on course to meet deadline. The Committee recommended holding the 6 public hearings in the 4th, 5th and 6th weeks following draft release. In addition, two Council meetings will be held in the 6th, 7th and/or 8th weeks in order to consider the comments. Throughout the 8 week public comment period, written comments would be welcomed and shared with Council members and staff.

The Committee discussed the need for reviewing the draft with county and municipal officials. It was suggested that we hold regional meetings – one in the north, one centrally, and one in the southern part of the region. We will need to address concerns and questions of the municipal officials, the freeholders and the technical staff. In terms of a process for open houses to answer questions from the public, the Committee requested staff determine how to best structure the open houses.

The Committee reviewed the information gathered on prospective public hearing locations. The Committee acknowledged the need to pay room use and custodial fees in many instances and understands that this may run \$2,000 or \$3,000 total. Based on the input, the recommended venues are as follows:

Trenton: The State Museum, or the War Memorial

Morris/Somerset: The Hagerty Center at Frelinghuysen Arboretum, Morristown, perhaps scheduling both day and evening sessions

Passaic/Bergen: Ramapo College, Mahwah

Sussex: Sussex County Technical School, Sparta

Warren: Warren Hills High School or Warren County Technical School, Washington

Hunterdon: Voorhees High School, Glen Gardner, or North Hunterdon High School

Staff will make reservations given the calendar guidance, room availability and consideration of holidays. The Committee reviewed the draft agenda for each hearing and recommended that the hearing officers be Council members, ideally from the region in which each hearing is held. They affirmed the need for a 15 minute overview with appropriate visuals.

Ms Letts then opened the meeting to public comment. A representative from Warren County Environmental Commission emphasized the importance of public outreach and stated that her organization, in conjunction with ANJEC, was planning information sessions. She added that people need time to “chew on things.” She also cautioned that some towns entirely in the planning area have not been engaged and will need a lot of information.

Chairwoman Letts adjourned the meeting at 5:45 p.m.

Policy Consideration: **Highlands Open Waters and Riparian Area Protection Requirements**
Status: **For Consideration by the Highlands Council at the September 28, 2006 Work session**
Date: **September 27, 2006**

EXECUTIVE SUMMARY

Highlands Open Waters are defined by Section 2 of the Highlands Act as all springs, streams including intermittent streams, wetlands and bodies of surface water, whether natural or artificial, located wholly or partially within the boundaries of the Highlands Region, but shall not mean swimming pools. They are a critical public trust resource and an essential source of drinking water for the State of New Jersey. These waters provide protection against floods and help to ameliorate the affects of prolonged droughts. They are also important habitat for numerous plant and animal species including many endangered and threatened in the State. Highlands Open Waters provide a wealth of agricultural, recreational and aesthetic uses for both residents and visitors alike, helping to contribute to a vibrant regional economy.

Riparian areas are areas adjacent to and hydrologically interconnected with rivers and streams. They are areas that exhibit periodic inundation or saturation of soils, are subject to periodic flooding and include wildlife corridors within 300 feet of a surface water feature. Riparian areas serve as an interface between surface water bodies and terrestrial ecosystems and play a critical role in helping to maintain the quality and ecological integrity of Highlands Open Waters.

Highlands Open Waters and Riparian Areas must be protected in order to further the goals of the Highlands Act to: protect, restore and enhance the quality and quantity of surface and ground waters; to preserve contiguous areas of land in their natural state; and to protect the natural, scenic and other resources of the Highlands Region.

Staff's overall approach is (1) to put these waters and areas in the appropriate district overlay zone based on resource value (high, medium and low) for purposes of creating the Land Use Capabilities Map (Protection Zone, Conservation Zone and Development Zone) and (2) to establish buffers and a review zone to protect these natural resources. With regard to the latter, staff recommends 300' protection buffers from each edge of the Highlands Open Water feature with certain exceptions that would reduce the buffers to 150 or 75 feet in certain circumstances. Riparian Areas outside the buffers would constitute a Review Zone; any proposed development within the Review Zone would trigger a review under defined standards during site plan review.

Staff's specific recommendations are set forth in the following section and listed by number.

I. STAFF POLICY RECOMMENDATIONS

(*) FOR THE PURPOSE OF DELOPING THE LAND USE CAPABILITY MAP

[The Regional Master Plan will have a section describing how the Land Use Capability Map was created. The Council will review that language in the next several weeks when reviewing the draft Plan before release.]

- 1) The RMP will include and maintain an inventory of **Highlands Open Waters** (HOW).

Highlands Open Waters include springs and seeps, streams (including intermittent streams), wetlands, and other bodies of surface water throughout the Highlands Region

Rationale: The Highlands Act includes a regional goal to protect, restore, and enhance the quality and quantity of the surface water and ground waters of the Highlands Region. Sections 10.b.(1) and 10.c.(1).

The accurate delineation of springs, streams (including intermittent streams), wetlands and bodies of surface water in the Highlands Region, which collectively comprise HOW, is of great importance in order to identify and protect the Region's critical water resources.

- 2) The RMP will include and maintain an inventory of **Riparian Areas** to protect stream corridors, water quality, and ecological resources.

Riparian Areas consist of the areas that are adjacent to and hydrologically interconnected with streams and associated water features such as a lake or pond, including; wetlands, flood prone areas including the 100-year floodplain; riparian soils including soils that are hydric, alluvial or exhibit a shallow depth to the seasonal water table; and a wildlife corridor including lands adjacent to and within 300 feet each side of a surface water feature.

Rationale: The Highlands Act includes a regional goal to protect, restore, and enhance the quality and quantity of the surface water and ground waters of the Highlands Region. Sections 10.b.(1) and 10.c.(1). The accurate delineation of the natural Riparian Area is important to protect water resources. Flood prone areas provide flood storage and reduce flow velocities that damage stream channels. Adjacent wetlands are integral to the lifecycle of many species in aquatic ecosystems. Riparian soils help maintain the quality of water entering those surface waters. Wildlife corridors maintain movement corridors for fish and wildlife that are necessary to maintain the health of aquatic and terrestrial wildlife populations. Natural vegetation along the surface waters attenuate pollutants moving to those waters, and provides energy sources to the open waters through deposition of organic matter.

- 3) The Land Use Capability Map will include protection needs of **Highlands Open Waters** based on **Regional Watershed Indicators**. A **Regional Watershed Indicators** value will be assigned to each HUC14 subwatershed.

Regional Watershed Indicators shall be established based on the following indicators of watershed quality: 1) forest resource value (percent total forest, core forest and proportion of total forest), 2) habitat quality (the percent of a subwatershed that contains habitat for species of concern including rare, threatened or endangered species) and 3) extent of developed lands within a subwatershed. A watershed value class shall be assigned to each HUC14 subwatershed based on a cumulative assessment of all the watershed indicators.

The following watershed value classes will be included in the RMP:

- **High Resource Value Watershed** - A high resource value watershed will include those HUC14 subwatersheds that contain predominantly forest lands and/or include a

significant portion of the watershed as high quality habitat based on the presence of suitable habitat for rare, threatened or endangered species. A high value watershed typically consists of limited pre-existing developed within the watershed. A high value watershed shall also be established within all watersheds draining to a surface water supply drinking water reservoir.

- **Moderate Resource Value Watershed** - A moderate resource value watershed will include those HUC14 subwatersheds that may contain a high proportion of forest lands or habitat quality but typically consist of significant levels of pre-existing development.
- **Low Resource Value Watershed** - A low resource value watershed will include those HUC14 subwatersheds that do not contain a high proportion of forest or high quality habitat and typically consist of significant levels of pre-existing developed lands.

Rationale: Section 11 of the Highlands Act requires a Resource Assessment of Highlands resources in order to maintain the overall ecological values of the Highlands Region. Watershed value will be assigned using a cumulative assessment of the watershed indicators (i.e., three forest metrics, habitat quality and percent developed land) for each HUC14 to assess their regional significance and to ensure that the level of protection afforded is adequate. The collective peer-reviewed scientific literature identifies these as sound indicators for characterizing watershed condition.

- 4) The Land Use Capability Map will include protection needs of **Riparian Areas**. A **Riparian Area Integrity** value will be assigned to each HUC14 subwatershed.

Riparian Area Integrity values will be assigned according to the following indicators of riparian area condition including: 1) percent natural vegetation (the percent of the riparian area that consists of natural vegetation); 2) water/wetland dependent species habitat quality (the percent of the riparian area that contains habitat for water/wetland dependent rare, threatened and endangered species); 3) impervious area (the percent of the riparian area that consists of impervious surfaces); 4) the frequency of road crossings of stream per linear stream mile; and agricultural use (the percent of the riparian area that is in agricultural use). A Riparian Area Integrity class shall be assigned to each HUC14 subwatershed based on a cumulative assessment of all the riparian land use/land cover indicators.

The following Riparian Area integrity classes will be included in the RMP:

- **High Integrity Riparian Area** - These areas include subwatersheds with Riparian Areas that exhibit predominantly natural vegetation including high quality habitat for water/wetland dependent species, and a generally low incidence of impervious area, agricultural uses and/or road crossings.
- **Moderate Integrity Riparian Area** - These areas include subwatersheds with Riparian Areas that contain a higher incidence of impervious area, agricultural uses and/or road crossings but still retain a high proportion of natural vegetation including high quality habitat for water/wetland dependent species.
- **Low Integrity Riparian Area** - These areas include subwatersheds with Riparian Areas that contain a high proportion of impervious area, agricultural uses and/or road crossings and minimal natural vegetation including high quality habitat for water/wetland dependent species.

Rationale: Section 11 of the Highlands Act requires a Resource Assessment of Highlands resources in order to maintain the overall ecological values of the Highlands Region. Riparian Area integrity will be assigned using a cumulative assessment of the five land use/land cover indicators for each HUC14 to assess their regional significance and to ensure that the level of protection afforded is adequate. The collective peer-reviewed scientific literature identifies these as sound indicators for measuring the integrity of riparian areas.

4A) District overlay zones in the **Land Use Capability Map** (Regional Protection Zone, Regional Conservation Zone and Regional Development Zone) will be created using the value classes of the resources (high, medium and low) as follows:

- Put into the **Regional Protection Zone** all HUC14 subwatersheds that are **High Resource Value Watersheds**.
- Put into the **Regional Protection Zone** all HUC14 subwatersheds that are **High Integrity Riparian Areas**.
- Put into the **Regional Conservation Zone** all HUC14 subwatersheds that are: 1) **Moderate Resource Value Watershed**, or 2) **Moderate Integrity Riparian Area**.
- Put into the **Regional Development Zone** all HUC14 subwatersheds that exhibit **Low Resource Value Watersheds** and **Low Integrity Riparian Areas**, notwithstanding other resource protection concerns.

(*) ZONE AND SITE STANDARDS

[These standards are to be applied at the zone and site plan level. Following each bullet is language that is proposed for inclusion in the Policy Guidance Element of the Plan. Though Members will have the opportunity to review that language when you review the Policy Guidance Element, your input at this juncture would be very beneficial.]

5) The following standards shall be incorporated into the **Regional Protection Zone** of the **Land Use Capability Map**, as follows:

- Prohibit new land uses or the alteration of existing land uses in the Regional Protection Zone that would alter or be detrimental to the ecological integrity of a Highlands Open Water or Riparian Area.
- Prohibit adjustments and revisions to Highlands Open Water or Riparian Area protection requirements except as necessary to protect public health and safety, or to provide for minimum practical use in the absence of any alternative.
- Identify opportunities where the restoration and enhancement of previously impaired Highlands Open Waters or Riparian Areas are feasible and appropriate.

- Prioritize acquisition, development restrictions and/or TDR credit bonuses for lands within both High Resource Value Watersheds and High Integrity Riparian Areas except for those lands within a Specially Planned Area as determined by the Highlands Council.

Rationale: The Highlands Act requires the development of a Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12. An evaluation of the condition of the watershed (i.e., watershed value) and the integrity of the Riparian Area of a HOW within a subwatershed facilitates an assessment of its regional significance to ensure that the level of protection afforded is adequate and appropriate. The results are used as one input to the Land Use Capability Map. Applicable Resource Protection and Smart Design standards can then be assigned based on regional indicators of watershed value and Riparian Area integrity to the extent they are appropriate and necessary to protect, restore or enhance ecological value.

6) The following standards shall be incorporated into the **Regional Conservation Zone** of the **Land Use Capability Map**, as follows:

- Prohibit adjustments and revisions to Highlands Open Water or Riparian Area protection requirements except when within a Specially Planned Area, as determined by the Highlands Council, and upon demonstration that the ecological integrity of the Highlands Open Water or Riparian Area can be maintained and/or restored. Allow for adjustments and revisions to Highlands Open Water or Riparian Area protection requirements necessary to protect public health and safety, or to provide for minimum practical use in the absence of any alternative.
- Identify opportunities where the restoration and enhancement of previously impaired Highlands Open Waters or Riparian Areas are feasible and appropriate. .

Rationale: The Highlands Act requires the development of a Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12. An evaluation of the condition of the watershed (i.e., watershed value) and the integrity of the Riparian Area within a subwatershed facilitates an assessment of its regional significance to ensure that the level of protection afforded is adequate and appropriate. The results are used as one input to the Land Use Capability Map. Applicable Resource Protection and Smart Design standards can then be assigned based on regional indicators of watershed value and Riparian Area integrity to the extent they are appropriate and necessary to maintain ecological value.

7) The following standards shall be incorporated into the **Regional Development Zone** of the **Land Use Capability Map**, as follows:

- Allow for adjustments and revisions to Highlands Open Water or Riparian Area protection requirements only upon demonstration that the ecological integrity of the Highlands Open Water or Riparian Area can be maintained and/or restored.

- Identify opportunities where the restoration and enhancement of previously impaired Highlands Open Waters or Riparian Areas are practical.

Rationale: The Highlands Act requires the development of a Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12. An evaluation of the condition of the watershed (i.e., watershed value) and the integrity of the Riparian Area within a subwatershed facilitates an assessment of its regional significance to ensure that the level of protection afforded is adequate and appropriate. The results are used as one input to the Land Use Capability Map. Applicable Resource Protection and Smart Design standards can then be assigned based on regional indicators of watershed value and Riparian Area integrity to the extent they are appropriate and necessary to maintain ecological value

- 8) The following **Resource Protection Standards** are recommended for the RMP to protect, restore and enhance Highlands Open Water, including:

- Establish a **Protective Area Buffer** adjacent to Highlands Open Waters according to the following resource categories:
 - **Highlands Waters** – Includes those Highlands Open Waters that are contained within the Highlands Preservation Area.
 - **Special Waters** – Includes those Highlands Open Waters that drain to a Category One (C1) or Trout Production waters (TP), or that are upstream of, are within the same HUC14 subwatershed, and are hydrologically interconnected with, a C1, TP, or Highlands Waters.
 - **Exceptional Waters** - Includes those Highlands Open Waters other than Highlands Waters or Special Waters that drain to a FW1 waterway or include habitat for water/wetland dependent threatened or endangered species. In addition, this will include any other waters (which are not considered Highlands Waters or Special Waters) that are upstream, of, are within the same HUC14 subwatershed, and are hydrologically interconnected with an Exceptional Water.
 - **Intermediate Waters** - All remaining Highlands Open Waters that are not a Highlands, Special, and Exceptional Waters and consist of waters that are man made (excluding vernal pools) and hydrologically isolated from a surface water feature within the same HUC14 subwatershed.
- **Protection Area Buffers** of a Highlands Open Water shall be established to maintain existing uses, avoid further impairment and encourage opportunities to restore ecological integrity where appropriate. All Highlands Open Waters shall receive a **300-foot Protection Area Buffer** from each edge of the Highlands Open Waters feature with the following exceptions:
 - **Exceptional Waters** within a HUC14 subwatershed that exhibit a Low Resource Value Watershed and a Low Integrity Riparian Area receive a **150-foot** protection area buffer from each edge of the Highlands Open Waters feature

- All **Intermediate Waters** receive a **150-foot** protection area buffer from each edge of the Highlands Open Waters feature, except for those that are within a HUC14 subwatershed that exhibits a Low Resource Value Watershed and a Low Integrity Riparian Area. These Intermediate Waters receive a **75-foot** protection area buffer from each edge of the Highlands Open Waters feature.
- Prohibit new, or alteration of existing, land uses within either a Highlands Open Waters Protection Area Buffer or Riparian Area that would alter or be detrimental to the ecological integrity of a Highlands Open Water or Riparian Area except as necessary to protect public health and safety, or to provide for minimum practical use in the absence of any alternative.
- All development activities within the **Riparian Area**, as defined by the Highlands Council, will be subject to review under the resource protection standards in the RMP.
- Require inclusion of resource protection standards for Highlands Open Waters Protection Area Buffers and Riparian Area within municipal zoning and land use ordinances.
- Require inclusion of Highlands Open Waters Protection Area Buffers and Riparian Area within municipal Open Space Plans.

Rationale: Highlands Open Waters are subject to significant regulatory control, limiting development activity due to their importance as a public trust resource. A number of existing state statutory or regulatory programs impose restrictions adjacent to Highlands Open Waters in order to maintain the integrity of the aquatic systems. These programs include the Surface Water Quality Standards at N.J.A.C. 7:9B, Flood Hazard Area Control Rules at N.J.A.C. 7:13, the Freshwater Wetlands Protection Act Rules at N.J.A.C. 7:7A, Stormwater Management Rules at N.J.A.C. 7:8, and the Highlands Water Protection and Planning Act Rules at N.J.A.C. 7:38. It is important to note that although the designation of Special, Exceptional or Highlands Waters designations and establishment of a Riparian Area may exceed the protection requirements under existing state regulatory programs, it is not intended to replace or supersede any New Jersey Department of Environmental Protection (NJDEP) statutory authority.

RMP resource protection standards are assigned based on the resource protection goals of the Highlands Act according to regional indicators of water quality and ecological integrity. The RMP Standards support the necessity to determine the amount and type of human development and activity the Highlands Region can sustain while still maintaining the ecological value of the Highlands Region. Section 11.a.(1)(a). The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12.

9) The following **Smart Design Standards** are recommended for the RMP, including:

- Establish minimum site design guidelines and permissible uses within a Highlands Open Water Protection Area Buffers or Riparian Areas consistent with Regional Watershed Indicator as follows:

- a) Prohibit any development activity within a High Resource Value Watershed with the exception of maintenance of pre-existing uses. No increases in limits of disturbance or increase to pre-existing impervious area shall be permitted within a Highlands Open Waters protection buffer or Riparian Area. Restoration of impaired areas shall be required wherever practical.
 - b) Development activities within a Moderate Resource Value Watershed shall be limited to maintenance of pre-existing uses or other compatible uses that do not result in the disturbance and alteration to a Highlands Open Waters protection buffer or Riparian Area. Minimal increases in pre-existing impervious area shall be permitted only upon approval of a Stream Corridor Protection/Restoration Plan and LID BMP program approved by the Highlands Council. Restoration of impaired areas shall be required wherever practical.
 - c) Allow development activities within a Low Resource Value Watershed to encourage redevelopment of previously developed areas and allow for other compatible uses that do not result in the disturbance and alteration to a Highlands Open Waters protection buffer or Riparian Area. Increases in pre-existing impervious area shall be permitted upon approval of a Stream Corridor Protection/Restoration Plan and LID BMP program approved by the Highlands Council. Restoration and enhancement of impaired areas shall be a required element of any site plan application.
- Require inventory of Highlands Open Waters including the identification of headwater streams, seeps or springs, subject to review and approval of Highlands Council, as a mandatory requirement for any site plan application.
 - Require implementation of a Stream Corridor Protection/Restoration plan and Low Impact Development (LID) Best Management Practices (BMPs) as a required element of any development activity proposed within a Highlands Open Water protection area buffer or Riparian Area.

Rationale: RMP standards are assigned based on regional indicators of HOW quality. The RMP Standards support the necessity to determine the amount and type of human development and activity the Highlands Region can sustain while still maintaining the ecological value of the Highlands Region. Section 11.a.(1)(a). The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12.

10) The following **Regional Growth Standards** are recommended for the RMP, including:

- Require development of Regional Stormwater/Wetland Mitigation Plan, subject to review and approval of Highlands Council.
- Require participation in a Regional Stormwater/Wetland Mitigation Plan, where applicable, as a mandatory requirement for any site plan application.

Rationale: RMP standards are assigned based on regional indicators of HOW quality. The RMP Standards support the necessity to determine the amount and type of human

development and activity the Highlands Region can sustain while still maintaining the ecological value of the Highlands Region. Section 11.a.(1)(a). The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Sections 11.a.(1) , 11.a.(6) and 12.

(*) POST ADOPTION, COORDINATION AND PARTICIPATION STRATEGIES

[Following each bullet is language that is proposed for inclusion in the Policy Guidance Element of the Plan. Though Members will have the opportunity to review that language when you review the Policy Guidance Element, your input at this juncture would be very beneficial.]

- 11) The following **Pre-Conformance Strategies** are recommended to ensure successful implementation of the RMP prior to the initiation of the conformance period, including:

- Develop technical guidelines for the Identification Highlands Open Waters and Riparian Areas.
- Develop technical guidelines and procedures for development of Stream Corridor Protection/Restoration Plans, Open Space Plans and for development and implementation of Low Impact Development BMPs.
- Develop technical review procedures for proposed adjustments and revisions to Highlands Open Waters and Riparian Area requirements.

Rationale: RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Highlands Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. Sections 11.a.(3), 14 and 15. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region.

- 12) The following **Conformance Strategies** are recommended in furtherance of the goals and requirements of the Highlands Act to ensure successful implementation of the RMP during the conformance period, including:

- Require inclusion of Highlands Open Waters and Riparian Area Protection Element, Stream Corridor Protection/Restoration Plans, Regional Stormwater/Wetland Mitigation, and Open Space Plans into Municipal and/or County conformance documents, Master Plans, Zoning and Land Use Ordinances, as appropriate.

Rationale: RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. Sections 11.a.(3), 14 and 15. The RMP is a “living document” and will continue to be refined and developed in support of regional planning

goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region.

- 13) The following **5-year Resource Protection and Planning Goals** are recommended in furtherance of the goals and requirements of the Highlands Act to ensure continued refinement and development of the RMP, including:

- Develop methods for continued development and refinement of Highlands Open Water Inventory with an emphasis on identification of headwater streams and headwater seeps/springs.
- Develop a wetland habitat functional assessment to ensure levels of Highlands Open Waters protection requirements are appropriate to maintain existing resource value for water quality treatment, flood prevention, protection of base flows of streams and wildlife habitat.
- Continue development of a Regional Stream Integrity model at a HUC17 level to establish protection requirements of Highlands Open Waters based on biological and water quality indicators.
- Coordinate activities among public and private entities to encourage regional restoration activities and open space acquisition strategies.
- Develop recommendations for reclassification of Surface Water Quality Standards at N.J.A.C. 7:9B for Highlands Open Waters consistent with the resource protection goals of the RMP.

Rationale: The Highlands Act requires the Highlands Council to periodically revise and update the RMP at least once every six years. Section 8.a. RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region. Sections 11.a.(3), 14 and 15.

- 14) The following **Coordination and Consistency Considerations** are recommended to promote active participation in the implementation of the RMP among state and federal agencies:

- Develop a coordinated regulatory review program with the NJDEP to ensure consistency of permit actions, open space acquisition priorities, surface water quality standards and restoration activities, including amendments to existing regulatory programs, to encourage consistency with the resource protection goals of the RMP.

- Coordinate with the NJDEP to develop and implement a regional stormwater and wetland mitigation program to address impacts to Highlands Open Waters and Riparian Areas from existing non-point pollution sources, and wetland impacts from land development activities within the Highlands Region.
- Coordinate with NJDEP to expand Ambient Biological Monitoring Network (AMNET) to include additional stations in the Highlands Region.
- Coordinate with the New Jersey Department of Transportation, county and regional transportation planning agencies, to promote a regional program for restoration and mitigation of impacts to Highlands Open Waters and Riparian Areas that are compatible with the resource protection goals of the RMP.
- Coordinate with the USDA Natural Resource Conservation Service and NJDA to promote Highlands Open Water and Riparian Areas protection requirements and standards for existing agricultural uses to the maximum extent practical.
- Coordinate with the NJDEP Bureau of Forestry to develop and implement forest management practices to promote Highlands Open Water and Riparian Areas protection requirements and standards for forestry activities on public and private lands to the maximum extent practical.

Rationale: RMP Implementation Strategies support the necessity to determine what local, State, and federal programs and policies may best be coordinated to promote the goals, purposes, policies, and provisions of the RMP. Sections 11.a.(4). The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region.

15) The following **Local Participation Considerations** are recommended to promote the understanding and support for the RMP resource protection goals at the local level:

- Develop educational and technical training programs for municipal officials and interested watershed organizations to promote consistent standards for the protection, restoration and acquisition of important waters and riparian areas of the Highlands Region.
- Develop educational and technical training program for municipal officials on resource protection standards, restoration and mitigation practices, and Low Impact Development BMPs to minimize impacts from land development activities on Highland Open Waters and Riparian Areas.
- Coordinate with municipal Environmental Commissioners and watershed organizations to encourage a comprehensive stream monitoring program within the Highlands Region.

Rationale: RMP Implementation Strategies support the necessity to provide for the maximum feasible local government and public input into the Highlands Council's operations. Section 11.a.(3)(emphasis added). The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local

support from all levels of government and the support of the stakeholders of the Highlands Region.

II. REQUIREMENTS OF THE HIGHLANDS ACT AND RMP GOALS RELATED TO HIGHLANDS OPEN WATERS AREA PROTECTION REQUIREMENTS:

Goals of the Highlands Act:

In accordance with Section 10 of the Highlands Act, the overarching goal of the Regional Master Plan “with respect to the entire Highlands Region shall be to protect and enhance the significant values of the resources thereof in a manner which is consistent with the purposes and provisions of this act.” Section 10.a.

The Highlands Act establishes specific goals relating to protection of Highlands Open Waters. Those goals with respect to the Preservation Area shall be to:

- protect, restore, and enhance the quality and quantity of surface and ground waters. Section 10.b.(1).
- preserve extensive and, to the maximum extent possible, contiguous areas of land in its natural state, thereby ensuring the continuation of a Highlands environment which contains the unique and significant natural, scenic, and other resources representative of the Highlands Region. Section 10.b.(2).
- protect the natural, scenic, and other resources of the Highlands Region, including but not limited to contiguous forests, wetlands, vegetated stream corridors, steep slopes, and critical habitat for fauna and flora. Section 10.b.(3).

In addition, the goals with relating to protection of Highlands Open Waters with respect to the Planning Area shall be to:

- protect, restore, and enhance the quality and quantity of surface and ground waters. Section 10.c.(1).
- preserve to the maximum extent possible any environmentally sensitive lands and other lands needed for recreation and conservation purposes. Section 10.c.(2).
- protect and maintain the essential character of the Highlands environment. Section 10.c.(3).

Requirements of the Highlands Act:

Resource Assessment

The Highlands Act includes specific requirements relating to protection of Highlands Open Waters requiring the development of a Resource Assessment for the Highlands Region which “(a) determines the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to **surface and ground water quality and supply; contiguous forests and woodlands; endangered and threatened animals, plants, and biotic communities;** ecological factors relating to the protection and enhancement of agricultural or horticultural production or activity; air quality; and **other appropriate considerations affecting the ecological integrity of the Highlands Region.**” Section 11.a.(1)(a)(emphasis added).

Smart Growth Component

The Highlands Act also includes specific requirements relating to protection of open waters requiring the development of a Smart Growth component that includes “an assessment, based upon the resource assessment prepared pursuant to paragraph (1) of subsection a. of this section, of opportunities for appropriate development, redevelopment, and economic growth, and a transfer of development rights program.... In preparing this component, the council shall:

- (a) prepare a **land use capability map**;
- (b) identify **existing developed areas** capable of sustaining redevelopment activities and investment;
- (c) identify **undeveloped areas** in the planning area, which are **not significantly constrained by environmental limitations** such as steep slopes, wetlands, or dense forests, are not prime agricultural areas, and are located near or adjacent to existing development and infrastructure, that could be developed;
- (g) identify **special critical environmental areas and other critical natural resource lands** where development should be limited. Section 11.a.(6)”(emphasis added).

Preservation Area Assessment

For the Preservation Area, Section 12 of the Highlands Act requires “a **land use capability map** and a comprehensive statement of policies for planning and managing the development and use of land in the preservation area, which shall be based upon, comply with, and implement the **environmental standards**” adopted by NJDEP and the **Resource Assessment prepared the Highlands Council** under Section 11. Section 12.(emphasis added).

Section 12 specifically requires implementation “that will ensure the continued, uniform, and consistent protection of the Highlands Region in accordance with the goals, purposes, policies, and provisions of this act, and shall include:

- a. a preservation zone element that **identifies zones within the preservation area where development shall not occur** in order to protect water resources and environmentally sensitive lands and which shall be permanently preserved through use of a variety of tools, including but not limited to land acquisition and the transfer of development rights; and
- b. minimum standards governing municipal and county master planning, development regulations, and other regulations concerning the development and use of land in the preservation area, including, but not limited to, standards for minimum lot sizes and **stream setbacks**, construction on steep slopes, maximum appropriate population densities, and **regulated or prohibited uses** for specific portions of the preservation area. Section 12.(emphasis added).

Preservation Area Requirements

The NJDEP’s rules at N.J.A.C. 7:38-3.6 requires a 300-foot buffer adjacent to Highlands open waters in which no disturbance is permitted with the exception of linear development, which shall be permitted provided that there is no feasible alternative for the linear development outside the Highlands open water or Highlands open water buffer. See N.J.A.C. 7:38-3.6(b). This rule implements the 300 foot requirement in the Preservation Area pursuant to Section 34.a.

- a. a prohibition on major Highlands development within 300 feet of any Highlands open waters, and the establishment of a 300-foot buffer adjacent to all Highlands open waters; provided, however, that this buffer shall not extend into the planning area.

Section 34.b. requires “measures to ensure that existing water quality shall be maintained, restored, or enhanced, as required pursuant to the "Water Pollution Control Act," P.L.1977, c. 74 (C.58:10A-1 et seq.) or the "Water Quality Planning Act," P.L.1977, c. 75 (C.58:11A-1 et seq.), or any rule or regulation adopted pursuant thereto, in all Highlands open waters and waters of the Highlands.” Similarly, Section 34.g. requires that the “antidegradation provisions of the surface water quality standards and the stormwater regulations applicable to category one waters to be applied to Highlands open waters.”

The NJDEP’s rules at N.J.A.C. 7:38-3.7 prohibits any net displacement of flood storage volume within a flood plain. There shall be no displacement of flood storage volume onsite or the proposed activities, both individually and cumulatively, displace no more than 20 percent of the flood storage volume onsite as long as an equal or greater volume of flood storage is created offsite. N.J.A.C. 7:38-3.7(b). This rule implements the zero net fill requirement in the Preservation Area pursuant to Section 34.f.

The NJDEP’s rules at N.J.A.C. 7:38-3.5(a) prohibits development or activity if it will result in impervious surface of greater than three percent of the land area of a lot. This rule implements the impervious surface requirements in the Preservation Area pursuant to Section 34.h.

The NJDEP’s rules at N.J.A.C. 7:38-3.11 prohibits development or activity if it will jeopardize the continued existence of species listed pursuant to "The Endangered and Nongame Species Conservation Act," P.L.1973, c. 309 (C.23:2A-1 et seq.) or the "Endangered Plant Species List Act," P.L.1989, c. 56 (C.13:1B-15.151 et seq.), or which appear on the federal endangered or threatened species list, and will not result in the likelihood of the destruction or adverse modification of habitat for any rare, threatened, or endangered species of animal or plant. This rule implements the species protection requirements in the Preservation Area pursuant to Section 36.a(4).

In addition, Section 36 of the Highlands Act requires that NJDEP’s permitting review approval without a waiver may be issued only upon a finding that the proposed major Highlands development:

(1) would have a **de minimis impact on water resources** and would not cause or contribute to a significant degradation of surface or ground waters. In making this determination, the commissioner shall consider the extent of any impacts on water resources resulting from the proposed major Highlands development, including, but not limited to, the regenerative capacity of aquifers or other surface or ground water supplies, increases in stormwater generated, increases in impervious surface, increases in stormwater pollutant loading, changes in land use, and changes in vegetative cover;

(2) would cause **minimal feasible interference with the natural functioning of animal, plant, and other natural resources** at the site and within the surrounding area, and **minimal feasible individual and cumulative adverse impacts to the environment** both onsite and offsite of the major Highlands development;

(3) will result in **minimum feasible alteration or impairment of the aquatic ecosystem** including existing contour, vegetation, fish and wildlife resources, and aquatic circulation of a freshwater wetland;

(4) will **not jeopardize the continued existence of species** listed pursuant to "The Endangered and Nongame Species Conservation Act," P.L.1973, c. 309 (C.23:2A-1 et seq.) or the "Endangered Plant Species List Act," P.L.1989, c. 56 (C.13:1B-15.151 et seq.), or which

appear on the federal endangered or threatened species list, and will not result in the likelihood of the destruction or adverse modification of habitat for any rare, threatened, or endangered species of animal or plant;

(5) is located or constructed so as to neither endanger human life or property nor otherwise impair the public health, safety, and welfare;

(6) would result in minimal practicable degradation of unique or irreplaceable land types, historical or archeological areas, and existing public scenic attributes at the site and within the surrounding area; and

(7) meets all other applicable department standards, rules, and regulations and State laws.”
Section 36 (emphasis added)

Local Participation Component

A component to provide for the maximum feasible local government and public input into the council's operations, which shall include a framework for developing policies for the planning area in conjunction with those local government units in the planning area who choose to conform to the regional master plan. Section 11.a.(3)(emphasis added).

Coordination and Consistency Component

A coordination and consistency component which details the ways in which local, State, and federal programs and policies may best be coordinated to promote the goals, purposes, policies, and provisions of the regional master plan, and which details how land, water, and structures managed by governmental or nongovernmental entities in the public interest within the Highlands Region may be integrated into the regional master plan. Section 11.a.(4)(emphasis added).

III. TECHNICAL BASIS AND JUSTIFICATION FOR STAFF RECOMMENDATIONS

In furtherance of the requirements and goals of the Highlands Act as summarized above, the Highlands Open Waters Protection Area Requirements of the Ecosystem Management element of the RMP is intended to further the protection, restoration and enhancement of surface waters.

The Ecosystem Management program element is intended to identify natural and ecological resources in need of protection for inclusion in the Land Use Capability Map and RMP implementation policies. It also evaluates the effects of land development and other stresses on those resources, and establishes the overall strategies and policies necessary to protect, enhance and restore, where appropriate, their value.

Highlands Open Waters are a critical public trust resource and an essential source of drinking water for the State of New Jersey. These waters provide protection against floods and help to ameliorate the affects of prolonged droughts. They are also important habitat for numerous plant and animal species including many endangered and threatened in the State. Highlands Open Waters provide a wealth of agricultural, recreational and aesthetic uses for both residents and visitors alike, helping to contribute to a vibrant regional economy.

Land development activities in and adjacent to Highlands Open Waters and Riparian Areas impair the quality and integrity of our water resources and the ecological integrity of aquatic systems. They generate significant pollution loadings from stormwater runoff, atmospheric fallout, and soil erosion resulting in water quality degradation, altered runoff patterns, and increased incidence of flooding.

While erosion and soil loss by surface runoff are considered predominant sources, pollution from failing septic systems, runoff from agricultural lands, and leaching of fertilizers and pesticides/herbicides from adjacent residential and commercial development are also of major concern.

The RMP includes an inventory of Highlands Open Waters and establishes the extent of HOW Protection Area needed to maintain existing uses, avoid further impairment and allow for opportunities to restore ecological integrity where appropriate. The extent of the Highlands Open Water Protection Area informs development of the RMP and Land Use Capability Map. The integrity of waters is also evaluated based on Regional HOW Watershed Indicators to assess the regional significance and protection needs using available land use and/or ecological indicators at a subwatershed (HUC14) level. These indicators help to inform the level of protection and appropriate land use standards that are needed to ensure that the quality of Highlands Open Waters and Riparian Areas will be maintained or restored, and the health of aquatic systems will be maintained.

These approaches are based on the best available science and the results of the Resource Assessment performed in support of the RMP, and reinforced through the scientific literature and existing state or federal regulatory programs, where applicable. In addition, as required by Section 12 of the Highlands Act for the Preservation Area, these approaches are based upon, comply with, and implement the environmental standards adopted by NJDEP and the Resource Assessment performed by the Highlands Council. This requirement of the Highlands Act authorizes the Highlands Council to integrate results of these two elements of the Act into a unified approach for the protection of Highlands resources.

The Highlands Council worked in cooperation with the Rutgers University - Grant F. Walton Center for Remote Sensing and Spatial Analysis (CRSSA) to inventory Highlands Open Waters in the Highlands Region. A technical memorandum titled *Technical Approach for the Inventory and Classification of Highlands Open Waters* provides a discussion of the technical methods and preliminary results for incorporation into the RMP.

IV. GLOSSARY

This section defines the terms that are used to develop the approach and methods that informed the proposed policy actions for this RMP element. Topic specific glossaries will contribute to the general RMP glossary of terms.

Agricultural Uses – Existing uses of land for agricultural or horticultural activities for the purpose of the production of crops or raising of livestock.

Agricultural Resource Area – An area designated by the Highlands Council as important for the continuation of agricultural activities within the Highlands Region.

Category One Waters – Category One (C1) waters are those waters designated in the tables in N.J.A.C. 7:9B-1.15(c) through (h), for purposes of implementing the antidegradation policies set forth at N.J.A.C. 7:9B-1.5(d), for protection from measurable changes in water quality characteristics because of their clarity, color, scenic setting, other characteristics of aesthetic value, exceptional

ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource(s).

Developed Lands – Previously developed lands including residential, commercial, industrial and public service uses and attendant features.

Endangered Species - Endangered species are those whose prospects for survival in New Jersey are in immediate danger because of a loss or change in habitat, over-exploitation, predation, competition, disease, disturbance or contamination.

Exceptional Waters – A Highland Open Water area that is subject to a 300 feet protection area buffer as determined by the Highlands Council. May be reduced to 150 feet under limited circumstances.

High Resource Value Watershed – A watershed that consists of indicators suggesting high resource value including significant forest cover, high quality habitat, low development and agricultural activity as determined by the Highlands Council.

Highlands Open Waters – all springs, streams including intermittent streams, wetlands and bodies of surface water, whether natural or artificial, located wholly or partially within the boundaries of the Highlands Region, but shall not mean swimming pools. *Section 2.*

Highlands Open Water Protection Area Buffer – The area adjacent to a Highlands Open Water feature necessary to protect the value and integrity of the resource as determined by the Highlands Council.

Highlands Waters – A Highland Open Water area that occurs with the Highlands Preservation Area and is subject to a 300 feet protection area buffer.

Hydrologic Unit Code – Hydrologic Unit Code (HUC) means an area within which water drains to a particular receiving surface-water body, which is identified by a specific digit number, or “hydrologic unit code.” The HUC codes were developed by the U.S. Geological Survey. *N.J.A.C. 7:38-1.4.*

HUC14 - An area within which water drains to a particular receiving surface-water body, which is identified by a fourteen-digit number, or “hydrologic unit code.” In New Jersey, a HUC14 correlates to a subwatershed. *N.J.A.C. 7:38-1.4.*

Habitat Quality - The degree to which habitat is suitable for one or more species designated as rare, threatened or endangered in New Jersey.

Intermediate Waters – A Highland Open Water area that is subject to a 150 feet protection area buffer as determined by the Highlands Council. May be reduced to 75 feet under limited circumstances.

Low Impact Development (LID) Best Management Practices – Low Impact Development is an environmentally sensitive approach to storm water management that emphasizes conservation and the use of existing natural site features integrated with distributed, small scale storm water

controls to more closely mimic natural hydrologic patterns in residential, commercial and industrial settings. LID best management practices involve comprehensive land planning and engineering design to maintain and enhance the hydrologic regime of urban lands and development within watersheds. LID standards and best management practices are supported by the New Jersey Stormwater Management Rules, N.J.A.C. 7:8 and the “New Jersey Stormwater Best Management Practices Manual” developed by the New Jersey Department of Environmental Protection, in coordination with the New Jersey Department of Agriculture, the New Jersey Department of Community Affairs, the New Jersey Department of Transportation, municipal engineers, county engineers, consulting firms, contractors, and environmental organizations.

Low Resource Value Watershed – A watershed that consists of indicators suggesting significant levels of impairment due to past human development activity as determined by the Highlands Council.

Open Space Plan – A planning document developed at a municipal or county level that includes an inventory of existing public open space, acquisition strategies and priorities, and stewardship goals for a specific geographic area.

Moderate Resource Value Watershed – A watershed that consists of indicators suggesting moderate resource value due to past development and agricultural uses as determined by the Highlands Council.

Riparian Area – Areas adjacent to and hydrologically interconnected with rivers and streams that exhibit period inundation or saturation of soils, are subject to periodic flooding and include wildlife corridors within 300 feet of a surface water feature.

Rare Species – Those species which may be widely distributed in the state, but consist of restricted distribution and/or population levels and have experienced recent declines in populations that may jeopardize their continued survival in the state if current trends continue.

Regional Stormwater/Wetland Mitigation Plan - A planning document developed at a municipal or county level that identifies areas appropriate for improvement as a regional stormwater or wetland mitigation site(s) including strategies for its implementation at the local or regional level.

Regional Watershed Indicator – Includes characteristics of watershed condition that are indicators of the quality and ecological integrity of Highlands Open Waters including Forest Resource Value, Habitat Quality, and Developed Lands.

Specially Planned Area – Previous developed lands that contain characteristics appropriate for redevelopment, including infill and adaptive reuse, based on limited resource constraints due to past development patterns. Within the Preservation Area a Redevelopment Area is limited to an area or site that contains at least 70% impervious area or is a Brownfield site determined to be appropriate for redevelopment by the Highlands Council and NJDEP.

Special Waters – A Highland Open Water area that is subject to a 300 feet protection area buffer as determined by the Highlands Council.

Stream Corridor Protection/Restoration Plan – A planning document developed at a municipal or county level that identifies lands adjoining streams and other Highlands Open Water features in need of protection and/or restoration including strategies for its implementation at the local level.

Threatened Species - Threatened species are those who may become endangered if conditions surrounding them begin to or continue to deteriorate.

Trout Production (TP) Waters – Surface waters in New Jersey that are designated at N.J.A.C. 7:9B-1.15(b) through (g) as trout production waters for use by trout for spawning or nursery purposes during their first summer.

Policy Consideration:

Water Availability

Status:

**For Consideration by the Highlands Council at
the September 28, 2006 Work session**

Date:

September 26, 2006

EXECUTIVE SUMMARY

The Highlands Act recognizes the importance of the Highlands Region as the “essential source of drinking water, providing clean and plentiful drinking water for one-half of the State's population.” The need to ensure adequate water supplies is fundamental to ensuring that there are adequate water supplies to support human development and activities in the Highlands Region and in those areas of the State which rely on Highlands waters. In addition, water availability is fundamental to the protection of the important ecological values in the Highlands Region.

The following analysis recommends the use of low flow stream statistics to provide the best regionally available scientific method for estimating capacity of Highlands ground water supplies to maintain both ecological flow needs and sustainable human consumption. The low flow margin of safety methodology is provides an estimate of ground water availability based on projected changes in a base flow of a stream. This methodology is an important tool to provide reliable estimates of water availability that can be used as sustainable land use capacity thresholds.

The purpose of this approach is to determine ground water availability thresholds by taking ground water capacity estimates for each subwatershed in the Highlands Region and multiplying those capacity estimates by selected percentages that are related to the nature of the environmental resources and conservation objectives of the Regional Master Plan for each regional zone in the Land Use Capability Map. In addition, the approach includes the need to identify source water protection areas as those subwatersheds that contribute to and include a surface water supply reservoir or potable on-stream water supply intakes in the Highlands Region.

Staff's specific recommendations are set forth in the following section and listed by number.

I. STAFF POLICY RECOMMENDATIONS

1. Estimate **Ground Water Capacity** for each subwatershed using the **Low Flow Margin of Safety Method**. Adjust the results to reflect consumptive uses in reference drainage basins.

Rationale: The RMP Standards support the necessity to determining the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to surface and ground water quality and supply. Section 11.a.(1)(a). The Highlands Act does not specify a method to determine ground water capacity, and therefore this policy paper recommends a technically sound method, based on available information, that addresses the intent of the Act. The use of low flow stream statistics provides the best regionally available scientific method for estimating capacity of ground water supplies to maintain both ecological flow needs and sustainable human consumption. The Low Flow Margin of Safety Method is focused on September as the month that historically has the lowest median flows, and is based on statistical analyses using reference drainage basins with minimal consumptive uses. The initial estimates of groundwater capacity for each subwatershed are then adjusted by multiplying the Low Flow Margin by 1.02 to correct for consumptive uses within reference drainage basins (2 percent of the Low Flow Margin, on average, for basins with readily available data).

2. Establish **Ground Water Availability** thresholds by multiplying Ground Water Capacity by selected percentages that are related to the nature of the environmental resources and conservation objectives of the RMP for each regional zone in the Land Use Capability Map. Identify **Source Water Protection Areas** as those subwatersheds that contribute to and include a surface water supply reservoir or potable on-stream water supply intakes in the Highlands Region. Modify Net Water Availability to protect the safe yield of these surface water supplies.

Standards for Estimating Ground Water Availability		
Land Use Capability Map Area	Ground Water Availability Thresholds (as a Percent of Ground Water Capacity)	Ground Water Availability Thresholds for Subwatersheds Draining to Surface Water Intakes and Reservoirs (as a Percent of Ground Water Capacity)
Regional Protection Zone	5	5
Regional Conservation Zone	10	5
Regional Development Zone	20	10

Rationale: The Low Flow Margin of Safety Method was developed by the United States Geological Survey (USGS) based on nationally accepted statistical approaches. It is an important tool to provide reliable estimates of water availability that can be used as sustainable land use capacity thresholds. However, care needs to be taken to recognize the limitations in available data to address the inherent uncertainties regarding estimates of water availability (regardless of the method used) in order to avoid over allocation of water resources. This can be accomplished by using conservative thresholds (as a percent of the low flow margin) of estimating water availability.

The low flow margin methodology estimates ground water availability based on projected changes in a base flow of a stream. Ground water recharge is an important consideration in helping to maintain base flow. Increases in impervious cover from past development activities within a subwatershed can reduce the amount of groundwater that is available as base flow and, as such, limits the amount of groundwater that is available for consumptive human use. However, the relationship is complex and not necessarily a 1:1 ratio. These and other data uncertainties can be addressed through establishing thresholds of water availability that are deliberately conservative to stringently limit the risk that the Ground Water Availability estimates do not impair the ecological processes of a stream. The proposed thresholds of water availability are intended to address the following limitations, including but not limited to: climate change; watershed and land use changes; gauging stations limitations such as placement of stations and length of record; limitations in understanding of the relationship between stream flow and aquatic ecosystem integrity; variation of impacts within individual watersheds and sub-watersheds based on past water use and land use patterns including loss of recharge due to impervious cover.

The threshold of water availability for the Regional Protection Zone is highly protective of stream flows in order to maintain the integrity of aquatic ecosystems. Consumptive and depletive water uses (and the associated land uses) within this zone is stringently limited to ensure protection of the ecosystem. The Regional Conservation Zone recognizes that significant ecological resources also exist in these areas and the thresholds on availability limit consumptive and depletive water use to be very protective of these resources. However, it is recognized that agricultural water uses will occur in this zone as well as limited, low density development. The Regional Development Zone threshold is based on an empirical examination of known watershed issues regarding stream flows and aquifer capacity; the threshold is set

below the level at which reductions in stream flow have shown evidence of these impacts. In limited circumstances, there may be justification to allow a higher percentage of water availability where it can be demonstrated through subsequent detailed hydro-ecological studies that such an increase is sustainable. However, in the absence of those studies a lower percentage of water availability is recommended. Also a factor is the Preservation Area requirement in Section 34.d of the Highlands Act that NJDEP water allocations permits ensure maintenance of stream base flows, minimization of depletive use, maintenance of existing water quality, and protection of ecological uses.

Upstream consumptive and depletive uses can reduce safe yields for downstream surface water supplies. This policy reserves nearly all water capacity for maintaining base flow to protect against loss of system safe yields due to upstream consumptive and depletive uses. However, it also recognizes that a certain level of water use should be accommodated if that water is returned to the system essentially unchanged in quantity and quality, so that downstream water users are not harmed. The percentages recommended will allow a minimal amount of consumptive use within the Regional Protection and Conservation Zones (5 percent) and a slight higher level within the Regional Development Zone (10 percent).

Future research is needed to provide additional understanding of the ecological flow needs of streams and the implications of the change in land use condition, such as loss of recharge, on maintenance of base flow. Subsequent analysis may allow for adjustments of water availability thresholds where it can be demonstrated that there will be no impairment on the ecology of the stream, or may allow for development of new methods that provide for more detailed analysis of water availability estimates. (see Section III).

3. Estimate **Net Ground Water Availability** by subtracting from Ground Water Availability an estimate of maximum monthly consumptive ground water and surface water use (other than from reservoir storage) for that subwatershed.

Rationale: Most ecological impacts of ground water use relate to stream base flow reductions exhibited in the months of September and October; both NJGS and USGS models indicate that flows in those months are related to periods of maximum withdrawal (generally July or August), reflecting a lag effect. Although annual base flow reductions are roughly equal to the annual consumptive use, the available ground water models indicate that the impact of the maximum month use on September flows is not 1:1, but roughly 1:0.9. Therefore, the consumptive use estimates for each subwatershed is adjusted to account for this effect (multiplying the USGS maximum monthly consumptive use estimates by 0.9).

Surface water consumptive withdrawals (other than from reservoirs) have the same impact on aquatic ecosystems as the consumptive use of ground waters. Unlike ground water uses, the effects are direct and immediate and so no adjustment factor is needed. The effects of reservoir withdrawals are more complicated because they come from storage, rather than necessarily from stream flow, and therefore are addressed in Recommendation 5.

4. Based on available information, identify subwatersheds that may require adjustments to Net Water Availability to account for both the **exportation and importation** of ground water and surface water from and to that subwatershed.

Rationale: Ground and surface water exports (also known as depletive uses) reduce base flow beyond the effects of consumptive uses, while imports can add to base flow during critical periods. Therefore, all need to be accounted for to understand water availability. Developing an understanding of these impacts requires a detailed knowledge of how withdrawals are linked to water supply service areas, how water supply service areas are linked to wastewater service areas, and how the wastewater service areas are linked to effluent discharges. While each wastewater service area generally has a single discharge point, many water supply service areas have multiple water sources (e.g., well fields, purchases from

other water purveyors, combined reservoir/well field operations). Although both the withdrawal and discharge points are known, the linkages are not fully known at this time. Information has been collected on water withdrawals that may be depletive water uses (exports) and known effluent returns that may be imports, provided separately for each subwatershed. These can be used qualitatively identify areas in need of further analysis, but cannot be directly subtracted from or added to Net Water Availability without further research.

5. Identify **Water Availability Deficit Areas** where the Net Water Availability is less than zero. Identify **Current Water Availability Constrained Areas** as subwatersheds that are upstream of and contributing flow to a HUC14 subwatershed with consumptive and depletive water uses that exceed 20% of Ground Water Capacity, regardless of LUCM zone.

Rationale: Where Net Water Availability is already negative, this is a clear indication that existing water uses are exceeding available water resources and pose a significant threat to the surface water supplies or the integrity of Highlands waters and the aquatic ecosystems on which they depend. Measures will be needed to the maximum extent practicable so that the Net Water Availability is no longer negative, and preferably is positive. Options include limiting future consumptive and depletive uses, reducing existing consumptive and depletive water uses or providing alternative water supplies from other resources (where water and infrastructure is available). This analysis must occur on a subwatershed or watershed basis, as appropriate.

6. Identify **Future Water Availability Constrained Areas** where consumptive water uses at full allocation exceed Net Water Availability.

Rationale: Projection of consumptive water uses at full allocation (maximum permitted withdrawals based on NJDEP water allocation permits) provides an indicator of the potential future stress on water resources based on existing NJDEP permits, assuming that no constraints exist on development to reduce those demands. In these areas, the RMP should reduce projected consumptive and depletive uses through land use controls and other measures to avoid exceeding water availability thresholds.

(*) ZONE AND SITE STANDARDS

[These standards are to be applied at the zone and site plan level. Following each bullet is language that is proposed for inclusion in the Policy Guidance Element of the Plan. Though Members will have the opportunity to review that language when you review the Policy Guidance Element, your input at this juncture would be very beneficial.]

7. The following standards shall be incorporated into the **Regional Protection Zone** of the Land Use Capability Map (LUCM), as follows:
 - Restrict consumptive and depletive uses of ground and surface waters by HUC14 subwatershed to no more than 5 percent of Ground Water Capacity based on the Low Flow Margin method.
 - Restrict consumptive and depletive uses of ground and surface waters within **Source Water Protection Areas** to no more than 5 percent of Ground Water Capacity based on the Low Flow Margin method.
 - Give highest priority for the use of Net Water Availability to Specially Planned Areas and TDR Receiving Areas as determined by the Highlands Council.

- Develop management plans to reduce consumptive and depletive uses of ground and surface waters in Water Availability Deficit Areas within this zone to restore the deficit, to the maximum extent practicable.

Rationale: The first goal of the Highlands Act for the RMP in both the Preservation Area and Planning Area is to protect, restore and enhance the quality and quantity of surface and ground waters. The Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Section 11.a.(1) and (6), and Section 12. The Resource Assessment provisions emphasize the importance of determining the amount and type of human development and activity that the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values, with special reference to surface and ground water quality and supply. The Regional Protection Zone contains the most concentrated areas of contiguous, high quality environmental resources, and therefore consumptive and depletive uses of ground and surface waters should be very stringently limited within this zone. Also a factor is the Preservation Area requirement of Section 34 that NJDEP water allocations permits ensure maintenance of stream base flows, minimization of depletive use, maintenance of existing water quality, and protection of ecological uses.

8. The following standards shall be incorporated into the **Regional Conservation Zone** of the Land Use Capability Map, as follows:
 - Restrict consumptive and depletive uses of ground and surface waters to no more than 10 percent of Ground Water Capacity based on the Low Flow Margin method.
 - Restrict consumptive and depletive uses of ground and surface waters within **Source Water Protection Areas** to no more than 5 percent of Ground Water Capacity based on the Low Flow Margin method, unless detailed safe yield studies demonstrate that increased levels, not to exceed a 10 percent maximum, can be sustained without reducing existing safe yields.
 - Give highest priority for the use of Net Water Availability to agricultural producers using best management practices for irrigation, and to Specially Planned Areas or TDR Receiving Areas as determined by the Highlands Council.
 - Develop management plans to reduce consumptive and depletive uses of ground and surface waters in Water Availability Deficit Areas within this zone to restore the deficit, to the maximum extent practicable.

Rationale: The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Section 11.a.(1) and (6) and Section 12. The Resource Assessment provisions emphasize the importance of determining the amount and type of human development and activity that the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values, with special reference to surface and ground water quality and supply. The Rural Conservation Zone includes both significant agricultural areas and sensitive natural resources. Therefore consumptive and depletive uses of ground and surface waters should be limited within this zone. Priority for additional consumptive uses, where Net Water Availability is positive, should be to agricultural uses, in recognition of the Highlands Act provision for the promotion of compatible agricultural uses and opportunities. Similar provisions exist for brownfield restoration and redevelopment, which also would receive priority as Specially Planned Areas. Section 10.b.

9. The following standards shall be incorporated into the **Regional Development Zone** of the Land Use Capability Map, as follows:
 - Restrict consumptive and depletive uses of ground and surface waters to no more than 20 percent of Ground Water Capacity based on the Low Flow Margin method, unless detailed, watershed-based

hydro-ecological studies demonstrate that a higher percentage, not to exceed 30 percent, can be sustained without harming the integrity of Highlands waters, aquatic ecosystems or other water uses.

- Restrict consumptive and depletive uses of ground and surface waters within **Source Water Protection Areas** to no more than 10 percent of Ground Water Capacity based on the Low Flow Margin method, unless detailed safe yield studies demonstrate that increased levels, not to exceed a 20 percent maximum, can be sustained without reducing existing safe yields.
- Develop management plans to reduce consumptive and depletive uses of ground and surface waters in **Water Availability Deficit Areas** within this zone to restore the deficit, to the maximum extent practicable.
- Give highest priority for allocation of net available water capacity to Specially Planned Areas or regional growth areas that can accommodate TDR Receiving Zones.

Rationale: The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Section 11.a.(1) and (6) and Section 12. These provisions emphasize protection of Highlands resources, but then encourage development that is consistent with smart growth and State Development and Redevelopment Plan provisions, is supported by infrastructure, and will result in appropriate development patterns.

10. The following **Resource Protection Standards** are recommended, including:

- Limit consumptive and depletive water uses in Current Water Availability Constrained Areas to 5% of the Ground Water Capacity to ensure continued stream flows to downstream Water Availability Deficit Areas.
- Ensure best management practices for agricultural irrigation practices through all available state and federal programs.
- Require that proposed consumptive or depletive water uses within Water Availability Deficit Areas or a Current Water Availability Constrained Areas be required to provide mitigation equal to 125% of the proposed new consumptive or depletive water uses through a permanent reduction of existing consumptive and depletive water uses.

Rationale: The RMP Standards support the necessity to determining the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to surface and ground water quality and supply. Section 11.a.(1)(a). The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Section 11.a.(1) and (6) and Section 12.

11. The following **Smart Design Standards** are recommended, including:

- Establish mandatory water recycling/reuse measures within Specially Planned Areas, to minimize net water use.
- Establish mandatory stormwater reuse for irrigation purposes within Specially Planned Areas to minimize both the volume of stormwater discharges and water withdrawals for irrigation purposes.
- Require use of water conservation devices for any redevelopment or development activity including renovations to existing single family residences and commercial/industrial buildings.

Rationale: The RMP Standards support the necessity to determining the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to surface and ground water quality and supply. The Highlands Act requires the development of Land Use Capability Map and

minimum standards based upon the Resource Assessment and Smart Growth Component. Section 11.a.(1) and (6) and Section 12. Water capacity should be used efficiently in all cases. Therefore, standards are needed to ensure water conservation, and also beneficial reuse of wastewater on-site to both reduce consumptive water uses and reduce effluent discharges.

12. The following **Regional Growth Standards** are recommended, including:

- Require that wastewater management plans or amendments demonstrate that the proposed service area will not directly or indirectly result in an exceedance of the Net Water Availability or an increase in the severity of a Water Availability Deficit Area.
- Give highest priority for allocation of remaining New Water Availability to TDR Receiving Zones adopted by a municipality and approved by the Highlands Council.

Rationale: The RMP Standards support the necessity to determining the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to surface and ground water quality and supply. Section 11.a.(1)(a). The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component. Section 11.a.(1) and (6) and Section 12. The RMP establishes areas suitable for sewer service based on goals and provisions of the Highlands Act, and therefore wastewater management plans should likewise be in conformance with the RMP. Because expansion of sewer service areas can increase depletive water uses (transfers) it is important to ensure that the wastewater management plans are compatible with Highlands water availability. In addition, allocation of water availability to TDR Receiving Zones maximizes the benefit of the capacity to society, supporting both compact development forms and the preservation of critical natural resources (in the TDR Sending Zones).

(*) POST ADOPTION, COORDINATION AND PARTICIPATION STRATEGIES

[Following each bullet is language that is proposed for inclusion in the Policy Guidance Element of the Plan. Though Members will have the opportunity to review that language when you review the Policy Guidance Element, your input at this juncture would be very beneficial.]

13. The following **Pre-Conformance Strategies** are recommended to ensure successful implementation of the RMP prior to the conformance period, including:

- Establish growth thresholds by municipality based on limitations in Net Available Water.
- Develop technical guidelines and procedures for Low Impact Development (LID) best management practices (BMPs) to mitigate for losses to base flow as a result of consumptive or depletive water uses.
- Develop detailed management recommendations of subwatershed water withdrawal impacts and evaluate regulatory implications for **Water Availability Deficit Areas, Current Water Availability Constrained Areas or Future Water Availability Constrained Areas** (e.g., areas that exhibit a current or projected water availability deficit).

Rationale: RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Highlands Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. Sections 11.a.(3), 14 and 15. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the

support of the stakeholders of the Highlands Region. For water supply planning, municipalities will need guidance on how to use Net Water Availability results based on HUC14 subwatersheds within their local planning process and development review ordinances. For specific subwatersheds, further analysis of depletive water uses will be needed to provide this guidance.

14. The following **Conformance strategies** are recommended to ensure successful implementation of the RMP during the conformance period, including:

- Require amendments to wastewater management plans within **Water Availability Deficit Areas, Current Water Availability Constrained Areas or Future Water Availability Constrained Areas** to demonstrate that the proposed service area will not directly or indirectly contribute to an exceedance of the Net Water Availability or an increase in the severity of a water availability deficit.
- Require that thresholds and limitations of ground water availability be included in Municipal Master Plans and implementing land use ordinances.

Rationale: RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. Sections 11.a.(3), 14 and 15. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region. Ensuring conformity of wastewater management plans to the water availability provisions of the RMP (and by extension, to the local plans based on their conformance with the RMP) will ensure that wastewater service areas are compatible with the quantity of available water and the priorities for its use.

15. The following **5-year Resource Protection and Planning Goals** are recommended to promote continued refinement and development of the RMP, including:

- Develop a program for improving estimates of Net Water Availability, including testing, development and adoption of ecologically based assessment techniques to evaluate the flow needs of streams necessary to maintain the health of aquatic ecosystems, and its relationship with consumptive water uses and estimates of water availability for both ground and surface water resources.
- Evaluate potable water supply reservoir Safe Yield and Passing Flow requirements and examine the effects of passing flows on Highlands open waters and the effects of upstream consumptive and depletive water uses on safe yields. Recommend regulatory changes to NJDEP as appropriate.
- Develop a more refined Hydrologic Unit Map using high resolution digital elevation modeling (LiDAR) to provide more detailed geographic estimates of water availability.
- Develop more refined estimates of the effects on Net Water Availability regarding the exportation and importation of water and wastewater.

Rationale: The Highlands Act requires the Highlands Council to periodically revise and update the RMP at least once every six years. Section 8.a. RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region. Sections 11.a.(3), 14 and 15. Implementation of the science

agenda and the other recommendations will provide a continuing improvement to the scientific basis of water availability estimates.

16. The following **Coordination and Consistency Considerations** are recommended to promote active participation in the implementation of the RMP among state and federal agencies:

- Develop a coordinated monitoring program with the New Jersey Department of Environmental Protection to track ground water and surface water uses within the Highlands and improve consumptive and depletive use estimates.
- Develop a coordinated monitoring program with the New Jersey Department of Environmental Protection and the United States Geological Survey to track ground water levels and surface water flows to fill critical data gaps.
- Develop a coordinated regulatory review program with the New Jersey Department of Environmental Protection to ensure consistency of water allocations, safe yield, mandatory passing flows and inter-basin transfers with the resource protection goals of the RMP.
- Collaborate with the New Jersey Department of Environmental Protection to develop standardized methods for evaluating and updating safe yield of potable water supply reservoirs and surface water intakes.
- Coordinate with New Jersey Department of Environmental Protection to discourage the net increase in water resources transfers, from any HUC14 subwatershed that may cause or contribute to a deficit in available water resources.
- Collaborate with the New Jersey Geological Survey to further refine and develop an Ecological Flow Goals model for subsequent application in the Highlands that evaluates the affects of water and land use on the ecological flow regimes of Highlands waters.
- Develop technical guidance with the New Jersey Department of Agriculture to promote best management practices for water conservation, water reuse and irrigation efficiency in farm operations.
- Develop technical guidance and implementation approaches with the New Jersey Department of Environmental Protection to promote water conservation measures and mitigate for water distribution system losses in Highlands municipalities and in municipalities supplied with Highlands water.

Rationale: RMP Implementation Strategies support the necessity to determine what local, State, and federal programs and policies may best be coordinated to promote the goals, purposes, policies, and provisions of the RMP. Sections 11.a.(4). The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region. Coordination on water use management issues will be a critical aspect of RMP implementation.

17. The following **Local Participation Considerations** are recommended to promote the understanding and support for the RMP resource protection goals at the local level:

- Develop educational program for municipal officials on water conservation measures and LID BMPs to reduce consumptive and depletive uses of water supplies.

- Develop training and educational program for municipal and county planning board and environmental commissioners on methods for using water capacity thresholds in Municipal Land Use decision making.

Rationale: RMP Implementation Strategies support the necessity to provide for the maximum feasible local government and public input into the Highlands Council's operations. Section 11.a.(3). The RMP is a "living document" and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region.

II. REQUIREMENTS OF THE HIGHLANDS ACT AND RMP GOALS RELATED TO AVAILABLE WATER CAPACITY:

Findings of the Highlands Act:

The Highlands Act includes specific legislative findings relating to water availability:

The Legislature further finds and declares that the New Jersey Highlands is an **essential source of drinking water, providing clean and plentiful drinking water for one-half of the State's population**, including communities beyond the New Jersey Highlands, from only 13 percent of the State's land area; that the New Jersey Highlands contains other exceptional natural resources such as clean air, contiguous forest lands, wetlands, pristine watersheds, and habitat for fauna and flora, includes many sites of historic significance, and provides abundant recreational opportunities for the citizens of the State." Section 2. (emphasis added).

"The Legislature further finds and declares that in the New Jersey Highlands there is a mountain ridge running southwest from Hamburg Mountain in Sussex County that separates the eastern and the western New Jersey Highlands; that **much of the State's drinking water supplies originate in the eastern New Jersey Highlands**; and that planning for the region and the environmental standards and regulations to protect those water supplies should be developed with regard to the differences in the topography of the Highlands Region and how the topography affects the quality of the water supplies." Section 2. (emphasis added).

Goals of the Highlands Act: In accordance with Section 10.a of the Highlands Act, the overarching goal of the Regional Master Plan "with respect to the entire Highlands Region shall be to protect and enhance the significant values of the resources thereof in a manner which is consistent with the purposes and provisions of this act."

Requirements of the Highlands Act:

Resource Assessment

The Highlands Act includes a goal to "protect, restore and enhance water quality and quantity of surface and ground waters." Sections 10(b)1 and 10(c)1. The resource assessment component of the RMP must determine "the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to surface and ground water quality and supply..." Section 11.a.(1)(a).

Smart Growth Component

The Highlands Act includes specific requirements relating to wastewater capacity, requiring the development of a Smart Growth component that includes "A smart growth component that includes an assessment, based upon the {the Resource Assessment}, of opportunities for appropriate development, redevelopment,

and economic growth, and a transfer of development rights program which shall include consideration of public investment priorities, infrastructure investments, economic development, revitalization, housing, transportation, energy resources, waste management, recycling, brownfields, and design such as mixed-use, compact design, and transit villages. In preparing this component, the council shall:

- (a) prepare a land use capability map;
- (b) identify existing developed areas capable of sustaining redevelopment activities and investment;
- (c) identify undeveloped areas in the planning area, which are not significantly constrained by environmental limitations such as steep slopes, wetlands, or dense forests, are not prime agricultural areas, and are located near or adjacent to existing development and infrastructure, that could be developed;
- (d) identify transportation, water, wastewater, and power infrastructure that would support or limit development and redevelopment in the planning area. This analysis shall also provide proposed densities for development, redevelopment, or voluntary receiving zones for the transfer of development rights; identify potential voluntary receiving zones in the planning area for the transfer of development rights through the appropriate expansion of infrastructure or the modified uses of existing infrastructure;
- (f) issue model minimum standards for municipal and county master planning and development regulations outside of the preservation area, including density standards for center-based development to encourage, where appropriate, the adoption of such standards;
- (g) identify special critical environmental areas and other critical natural resource lands where development should be limited; and
- (h) identify areas appropriate for redevelopment and set appropriate density standards for redevelopment. Any area identified for possible redevelopment pursuant to this subparagraph shall be either a brownfield site designated by the Department of Environmental Protection or a site at which at least 70% of the area thereof is covered with impervious surface.” Section 11.a.(6)(emphasis added).

As such, the Smart Growth component will be dependent upon and linked to the Resource Assessment, including the determination of available water.

Preservation Area Assessment

For the Preservation Area, Section 12 of the Highlands Act requires “a land use capability map and a comprehensive statement of policies for planning and managing the development and use of land in the preservation area, which shall be based upon, comply with, and implement the environmental standards” adopted by NJDEP and the Resource Assessment prepared the Highlands Council under Section 11.

Section 12 specifically requires implementation “that will ensure the continued, uniform, and consistent protection of the Highlands Region in accordance with the goals, purposes, policies, and provisions of this act, and shall include:

- a. a preservation zone element that identifies zones within the preservation area where development shall not occur in order to protect water resources and environmentally sensitive lands and which shall be permanently preserved through use of a variety of tools, including but not limited to land acquisition and the transfer of development rights; and
- b. minimum standards governing municipal and county master planning, development regulations, and other regulations concerning the development and use of land in the preservation area, including, but not limited to, standards for minimum lot sizes and stream setbacks, construction on steep slopes, maximum appropriate population densities, and regulated or prohibited uses for specific portions of the preservation area. Section 12.

Preservation Area Requirements

Section 34 of the Highlands Act requires the following:

“...any diversion of more than 50,000 gallons per day, and multiple diversions by the same or related entities for the same or related projects or developments of more than 50,000 gallons per day, of waters of the Highlands shall require a permit pursuant to the "Water Supply Management Act," P.L.1981, c.262

(C.58:1A-1 et seq.), and any permit issued pursuant thereto shall be based on consideration of individual and cumulative impacts of multiple diversions, maintenance of stream base flows, minimization of depletive use, maintenance of existing water quality, and protection of ecological uses. Any new or increased diversion for nonpotable purposes that is more than 50% consumptive shall require an equivalent reduction in water demand within the same subdrainage area through such means as groundwater recharge of stormwater or reuse. Existing unused allocation or allocations used for nonpotable purposes may be revoked by the department where measures to the maximum extent practicable are not implemented to reduce demand. All new or increased diversions shall be required to implement water conservation measures to the maximum extent practicable.”

In addition, Section 36 of the Highlands Act requires that NJDEP’s permitting review approval without a waiver may be issued only upon a finding that the proposed major Highlands development:

- (1) would have a de minimis impact on water resources and would not cause or contribute to a significant degradation of surface or ground waters. In making this determination, the commissioner shall consider the extent of any impacts on water resources resulting from the proposed major Highlands development, including, but not limited to, the regenerative capacity of aquifers or other surface or ground water supplies, increases in stormwater generated, increases in impervious surface, increases in stormwater pollutant loading, changes in land use, and changes in vegetative cover;
- (2) would cause minimal feasible interference with the natural functioning of animal, plant, and other natural resources at the site and within the surrounding area, and minimal feasible individual and cumulative adverse impacts to the environment both onsite and offsite of the major Highlands development;
- (3) will result in minimum feasible alteration or impairment of the aquatic ecosystem including existing contour, vegetation, fish and wildlife resources, and aquatic circulation of a freshwater wetland;
- (4) will not jeopardize the continued existence of species listed pursuant to "The Endangered and Nongame Species Conservation Act," P.L.1973, c. 309 (C.23:2A-1 et seq.) or the "Endangered Plant Species List Act," P.L.1989, c. 56 (C.13:1B-15.151 et seq.), or which appear on the federal endangered or threatened species list, and will not result in the likelihood of the destruction or adverse modification of habitat for any rare, threatened, or endangered species of animal or plant;
- (5) is located or constructed so as to neither endanger human life or property nor otherwise impair the public health, safety, and welfare;
- (6) would result in minimal practicable degradation of unique or irreplaceable land types, historical or archeological areas, and existing public scenic attributes at the site and within the surrounding area; and
- (7) meets all other applicable department standards, rules, and regulations and State laws.” Section 36.

In addition, Section 73 requires that “[p]rior to the adoption of any revision to the New Jersey Statewide Water Supply Plan . . . the department shall consult with the Highlands Water Protection and Planning Council, established pursuant to section 4 of P.L.2004, c. 120 (C.13:20-4), concerning the possible effects and impact of the plan upon the Highlands regional master plan, adopted pursuant to section 8 of P.L.2004, c. 120 (C.13:20-8), and the water and other natural resources of the Highlands Region.”

Local Participation Component

A component to provide for the maximum feasible local government and public input into the council's operations, which shall include a framework for developing policies for the planning area in conjunction with those local government units in the planning area who choose to conform to the regional master plan. Section 11.a.(3).

Coordination and Consistency Component

A coordination and consistency component which details the ways in which local, State, and federal programs and policies may best be coordinated to promote the goals, purposes, policies, and provisions of the regional master plan, and which details how land, water, and structures managed by governmental or

nongovernmental entities in the public interest within the Highlands Region may be integrated into the regional master plan. Section 11.a.(4).

III. TECHNICAL BASIS AND JUSTIFICATION FOR STAFF RECOMMENDATIONS

The Highlands Act describes the concept of water availability generally as the amount of water supply that can be used to support human development and activity while maintaining Highlands ecological values: this concept is herein termed “water availability.” To meet the statutory requirement, it is necessary to define water availability in a manner that allows the Highlands Council to provide useful information to municipalities and other entities. The purpose of this element of the RMP is to:

- estimate the natural capacity of ground water resources throughout the Highlands Region,
- estimate the extent to which ground water resources must be reserved to sustain the aquatic ecosystem,
- determine the extent to which ground water resources, beyond those required to sustain aquatic ecosystems, should be reserved to maintain yields of existing public water supply systems,
- provide estimates of water resources available for human uses,
- determines areas where the use of water may have exceeded the ability of the resource to sustain that use, and
- identify appropriate management strategies that can help ameliorate such deficits.

Key issues include:

- defining the conditions by which water availability is estimated;
- determining the most appropriate geographic unit area for assessing water availability;
- determining whether and how water availability may be defined differently among the overlay zones of the Land Use Capability Map in the RMP; and
- determining how to compare the current uses of water to water availability so that areas of deficit and surplus may be identified.

The water resources element of the RMP estimates the amount of water necessary to protect the ecological integrity of Highlands waters, and that which is “available” for human uses such as potable water supply, industry or agriculture. The RMP then seeks to ensure that projected human needs do not diminish the availability of ground water that is critical for ecological maintenance and for existing water supplies, such as reservoirs.

Base flow is the amount of ground water seepage into a stream, and provides all of the natural stream flow during dry periods. Protection of base flow is critical to maintaining healthy aquatic ecosystems and protecting potable surface water supplies, particularly during periods of drought. Consumptive uses of ground water and surface water can reduce base flows during low flow periods, impair the ecological function and integrity of Highlands waters, and reduce the reliability of potable water supplies. Other stream flow parameters can also be critical to ecosystem integrity, such as higher flow pulses, flood flows, etc., but less information is available to address them at this time. Unfortunately, no method is currently available to the Highlands Council that provides a direct, causative and measurable relationship between aquatic ecosystem integrity and stream flows. For this reason, the Highlands Council focused on the severity and duration of low flows as a reasonable surrogate for ecosystem impacts.

The Highlands Council investigated a variety of low flow statistical methods to derive estimates of **Ground Water Capacity** to help inform policies regarding surface and ground water protection requirements and available water supply, which in turn are used to establish sustainable thresholds to growth within the Highlands Region. This approach is intended to meet the dual goals of protecting the ecological integrity of Highlands waters and defining and protecting water supply.

The Highlands Council worked in cooperation with the United States Geological Survey - New Jersey Water Science Center to develop appropriate methods to assess ground water capacity and availability in the Highlands Region. A technical memorandum titled Overview of Water Capacity Analysis Methods and Methods Comparison discussed the methods considered for incorporation into the RMP. The results of these evaluations were reported in a technical memorandum titled Low Flow Characteristics of Streams and Estimates of Ground Water Capacity.

It should be noted that there are always uncertainties in modeling processes, because no model can fully reflect reality and because data and methodology limitations always exist. The Highlands Council focused on providing a sound conceptual approach that can be augmented, updated or even replaced as better science and data become available. Key areas for research revolve around the known uncertainties in the process:

- Climate change – Scientific consensus has been developing in the last decade that the increase in greenhouse gases is and will be causing increases in global temperatures. The climatic impacts of these increases on a regional basis are less clear, and local impacts are even less clear. Models can be developed that assess the sensitivity of hydrologic systems to changes in rainfall patterns and densities, evaporation and transpiration rates, etc. Management approaches can be used to then ensure sustainability based on the most likely impacts.
- Gauging station accuracy – Stream monitoring stations are mechanical devices that are routinely checked for accuracy, but will always have a certain potential for inaccuracy based on the limitations of the technology and the gauging station sites. USGS considers records to be of “excellent” quality if 95% of daily measurements are within 5% of the true value. Models can address the sensitivity of results to the potential for measurement differences from true values.
- Data record limitations such as number of stations, stream types covered and length of record – There is a relatively limited number of stream monitoring stations in the Highlands. Very few of them monitor stream flows from very small drainage basins (e.g., those of first or second order streams) that might be more sensitive to the impacts of development, such as impervious surfaces or stormwater systems, or of localized water withdrawals. Length of record issues can only be solved by time, which makes the establishment of new monitoring stations in critical areas a very time-sensitive issue.
- Watershed and Land Use Changes – Reforestation has been noted in several areas of New Jersey, as previously farmed areas are allowed to regrow forest cover. This process can increase recharge. Deforestation also occurs, related to new development and (rarely) to new agricultural development, which can reduce recharge. The impervious and semi-pervious surfaces associated with development also modify both recharge and runoff patterns and quantities, although new regulations require retention of pre-construction recharge rates. Reduction in recharge can have a corresponding affect on base flow of streams and as such on the capacity of ground water systems. An improved understanding of this issue will allow for a more robust water availability modeling approach.
- Improved understanding of how each of these factors affects recharge, stream base flows and water availability are important.
- Conceptual model limitations regarding direct correlations between stream flows and aquatic ecosystem integrity – Considerable research is occurring on this issue nationally, and NJDEP is working with USGS to develop a model that addresses this issue in part, the NJ Hydroecological Assessment Tool. However, this tool is based on assumptions drawn from research regarding the link between flow statistics and ecological impacts. Other methods such as R2Cross and Wetted Perimeter which rely on in-stream conditions may also be useful in further refining estimates of water availability. More research is needed to develop a stronger link, and should include field research on actual stream ecosystem flow needs to establish better conceptual models and to “ground truth” what is developed.

- The potential variation of impacts within individual watersheds and subwatersheds based on water use and land use patterns – The analyses for water availability relied on the HUC14 subwatershed as the smallest “accounting unit” feasible at this time. However, water uses and water availability are not always uniform across the subwatershed. There are two methods to improve the analysis over time: developing smaller scale drainage areas using the upcoming LiDAR topography data; and better linkages between the source of water and the land areas where the water is actually used. Both should be pursued.
- Undocumented water uses – NJDEP regulates certain classes of water uses through the water allocation permit and agricultural water use programs, and has information on some smaller potable water uses through the safe drinking water program. However, information on other small water uses is limited, and methods need to be developed to update estimates of non-regulated water uses.
- The need for updated consumptive use assumptions by water use type – The USGS provided consumptive use estimates by water use type based on assumptions of consumptive use as a percentage of total use. Improved information on the actual consumptive use percentages will provide a more robust basis for both water availability and water conservation activities.

IV. GLOSSARY

Consumptive Use – That part of water withdrawn that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock or otherwise removed from the immediate water environment other than by transport through pipelines and other conveyances as potable water or wastewater.

Depletive Use – Those water uses that physically transfer water from one watershed to another through pipelines and other conveyances as potable water or wastewater, resulting in a loss of water to the originating watershed.

Ground Water Availability – As it relates to the development of the Highlands Regional Master Plan, ground water availability is defined as the rate of ground water use that can occur in an area without contravening the goals and objectives of the Highlands Act. It is that portion of the ground water capacity of a subwatershed that can be provided for human use without harm to other ground water users, aquatic ecosystems or downstream users. Net Ground Water Availability is Ground Water Availability minus the impact of the maximum month consumptive use for the target year (2003).

Ground Water Capacity – The natural ability of a subwatershed to support stream flow over time, during dry weather climatic conditions. It is based upon the Low Flow Margin component of the Low Flow Margin of Safety Method.

Hydrologic Unit Code – Hydrologic Unit Code (HUC) means an area within which water drains to a particular receiving surface-water body, which is identified by a specific digit number, or “hydrologic unit code.” The HUC codes were developed by the U.S. Geological Survey. *N.J.A.C. 7:38-1.4.*

HUC14 - An area within which water drains to a particular receiving surface-water body, which is identified by a fourteen-digit number, or “hydrologic unit code.” In New Jersey, a HUC14 correlates to a subwatershed. *N.J.A.C. 7:38-1.4.*

Low Flow Margin of Safety Method – This method is an ecologically-oriented approach for the purpose of defining ground water capacity based on a margin between two stream low flow statistics. The low flow statistic used traditionally in quantifying surface water safe yields is the lowest total flow over seven consecutive days during a ten-year period, the 7Q10. The 7Q10 is also often used to define an extreme low flow condition. A

critical flow regime for aquatic ecology is the lowest monthly flow, which in New Jersey and the Highlands Region tends to occur most years in September. The “Low Flow Margin” is the difference between the September median flow in a stream and the 7Q10 flow. The Low Flow Margin of Safety is the Low Flow Margin multiplied by a percentage based on the ecological sensitivity of the subwatershed, and is equivalent to total ground water availability.

Low Impact Development – Low Impact Development (LID) is an approach to land development that uses various land planning and design practices and technologies to simultaneously conserve and protect natural resource systems and reduce infrastructure costs. LID allows land to be developed, but in a cost-effective manner that helps mitigate potential environmental impacts.

Net Water Availability – The value resulting from subtracting the impacts of maximum consumptive water uses (both surface and ground water) from total ground water availability, as adjusted for depletive water uses and water imports. This value is then modified as needed to protect downstream potable water supply intakes and reservoirs for surface water supplies, and to protect downstream flows in subwatersheds with deficits in net water availability.

Passing Flow - The volume of water required by statute or NJDEP permit to be flowing past a specified point in a river or stream in a specified time - generally measured per hour or per day. Passing flows may be used to trigger cessation of withdrawals or releases from storage to augment flows.

Safe Yield - The annual amount of water that can be provided for human use from a source of supply over a repeat of the drought of record, reflecting passing flows requirements, demand patterns, watershed conditions and precipitation patterns.

Source Water Protection Area - The area contributing water flow to a potable water supply well or surface water intake used for a public water supply system, from which pollutants if present could move to the intake or well. A wellhead protection area is an example of an SWP area.

Water Availability Deficit Areas – Subwatersheds where Net Water Availability is less than zero.

Water Availability Constrained Areas – Subwatersheds that contribute flows to a Water Availability Deficit Area are considered Current Water Availability Constrained Areas. Subwatersheds where consumptive water uses at full allocation (based on NJDEP permits) exceed Net Ground Water Availability are considered Future Water Availability Constrained Areas.

V. REFERENCES

- NJ Department of Environmental Protection. 1996. New Jersey Statewide Water Supply Plan.
- NJ Highlands Council. 2006a. Revised 11 April 2006. “Overview of Water Capacity Analysis Methods and Methods Comparison”
- NJ Highlands Council. 2006b. “Technical Memorandum – Low Flow Characteristics of Streams and Estimates of Ground-Water Capacity”
- NJ Highlands Council. 2006c. “Technical Memorandum – Ecological Flow Goals: Hydroecological Integrity Assessment and Effects of Water Withdrawals in Four Gaged Stream Basins in the New Jersey Highlands Methodology and Results”

Policy Consideration: **Site Design Standards**
Status: **Draft for Consideration by the Highlands Council at
the September 28, 2006 Work Session**
Date: **September 26, 2006**

EXECUTIVE SUMMARY

One of the goals of the Regional Master Plan is to ensure that growth, where it is permitted, is done in a manner that protects the Highlands environment from the individual and cumulative adverse impacts of that growth. Section 10.c.(9). One way to achieve this goal is to require that growth (in any of the Regional Master Plan's three district overlay zones), must follow certain site design requirements in order to protect natural resources and promote smart growth. Staff recommends that an applicant be required to satisfy site design standards during site plan review and that these standards include: conservation development (an approach that maximizes the use of open space, resource conservation and community character); green building (an approach that promotes that conservation and efficient use of energy and natural resources); low impact development (an approach designed to maintain, restore and enhance preexisting natural drainage patterns) and community and neighborhood design (an approach that promotes mixed uses, redevelopment, adaptive re-use, infill development and a choice of housing options). Staff is advancing categories and certain specific standards through this policy paper. Details will be developed during Pre-Conformance as set forth below.

I. STAFF POLICY RECOMMENDATIONS

(*) SITE SPECIFIC STANDARDS

[These standards are to be applied during site plan review. Following each bullet is language that is proposed for inclusion in the Policy Guidance Element of the Plan. Though Members will have the opportunity to review that language when you review the Policy Guidance Element, your input at this juncture would be very beneficial.]

1) Staff recommends the establishment of **Conservation Development** standards to maximize the use of open space, resource conservation and community character.

Approach – Efficient use of land

- Require compact development alternatives to utilize land more efficiently and maximize the opportunities for contiguous open space.

Implementation Strategies

Require municipal and county ordinances to include, at a minimum, the following development standards in support of efficient use of land and allow for relief of minimum percentages in redevelopment and infill projects also encourage additional strategies and best management practices:

- Require the clustering of development and a minimum percentage of the site devoted to preserve open spaces comprised of active recreation, passive recreation, trail systems,

and critical environmental areas, such as, steep slopes, habitat lands, wetlands, riparian corridors, streams, ponds, and forest.

- Require a landscape plan which specifies indigenous plant species wherever feasible.
- Require, where feasible, an open space component as an integral part of a site plan.
- Require that open space elements of a site plan be interwoven throughout to provide connections between the neighborhoods and the natural environment.

Rationale: The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component, Sections 11.a.(1), 11.a.(6) and 12. The RMP will apply a Conservation Development approach which is a creative land use technique that allows a community to guide growth to the most appropriate areas within a parcel of land to avoid impacts to the environment and to protect the character defining features of the property. For example Conservation Development reduces impacts through a site analysis that requires the maximum protection of environmentally sensitive areas first and then a flexible development pattern to address lot size or density.

2) Staff recommends the establishment of **Green Building** standards to promote the conservation and efficient use of energy and Highlands resources.

Approach - Green Building approaches for energy and resource efficiency

- Require the design and construction of energy efficient buildings to reduce air, water, and land pollution and environmental impacts from energy production and consumption.

Implementation Strategies

Require municipal and county ordinances to include the following development and redevelopment standards at a minimum in support of energy and resource efficiency and encourage additional strategies and best management practices:

- Require the design and construction of energy efficient structures for development and redevelopment.
- Require water conservation measures and techniques (water efficient landscaping, rain collection systems, use of greywater reuse systems to irrigate landscaping, eliminate the use of potable water for non-potable use, such as, landscape irrigation and toilet flushing).
- Require efficient landscape maintenance practices (use of greywater to irrigate landscaping, limit daytime lawn watering, require evapo-transpiration irrigation controllers to limit unnecessary watering, encourage native and drought-tolerant plant species).

- Require limitations on vegetative disturbance and clearing and grading to the necessary construction envelope.
- Require design that maximizes solar gain for winter warmth and minimizes sun exposure during high temperature summer conditions.
- Promote the re-use and recycling of building materials in demolition and adaptive re-use projects.

Rationale: The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component, Sections 11.a.(1), 11.a.(6) and 12. The RMP will consider the use of the LEED Green Building Rating SystemTM which encompasses the standards that many builders, architects, landscape architects, engineers and planners are incorporating into their professional disciplines. LEED is a rating system which gives points for meeting specific green building, sustainable design and smart growth goals. LEED standards have been developed and adopted for sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality. The RMP will also consider existing local, state and federal programs that support green building policies.

3) Staff recommends **Low Impact Development** standards to protect the natural hydrologic features of the land.

Approach - Minimize Stormwater Impacts

- Require on-site stormwater management design that maintains, restores, and enhances, the pre-existing natural drainage patterns of the site. Site design shall minimize impervious cover as a means to increase stormwater infiltration and reduce stormwater runoff.

Implementation Strategies

Require municipal and county ordinances to include the following at a minimum in support of energy and resource efficiency and encourage additional strategies and best management practices:

- Require a site-specific hydrologic study for all development proposals that result in an increase in or alteration to pre-existing impervious cover or clearing of existing forest to predict and understand the velocity, volume and pattern of water flow into, through, and off the site.
- Require stormwater management systems to be based upon a “design with nature” approach.
- Require the use of vegetated channels, where feasible, rather than the standard concrete curb and gutter configuration, to decrease flow velocity and allow for stormwater filtration and infiltration.

- Require that the dimensional requirements for impervious surfaces be minimized, such as, streets, driveways, parking areas, and sidewalks and that they be supported with on-site stormwater management techniques.
- Require stormwater to be retained on site to the maximum extent possible and provide the maximum quality and quantity controls available.
- Require submission of a nonstructural stormwater management plan which provides for on-site infiltration and recharge of stormwater for development and redevelopment proposals to the maximum extent possible.
- Require stormwater management plans to make use of grass channels, dry swales, wet swales, infiltration basins, bioswales and water gardens, green roofs, and other low impact mechanisms, where feasible for stormwater attenuation.

Rationale: The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component, Sections 11.a.(1), 11.a.(6) and 12. Low Impact Development is an environmentally sensitive approach to storm water management that emphasizes conservation and the use of existing natural site features integrated with distributed, small scale storm water controls to more closely mimic natural hydrologic patterns in residential, commercial and industrial settings. LID best management practices involve comprehensive land planning and engineering design to maintain and enhance the hydrologic regime of urban lands and development within watersheds. LID standards and best management practices are supported by the New Jersey Stormwater Management Rules, N.J.A.C. 7:8 and the “New Jersey Stormwater Best Management Practices Manual” developed by the New Jersey Department of Environmental Protection, in coordination with the New Jersey Department of Agriculture, the New Jersey Department of Community Affairs, the New Jersey Department of Transportation, municipal engineers, county engineers, consulting firms, contractors, and environmental organizations.

4) Staff recommends **Community and Neighborhood Design** standards to promote development opportunities that support a variety and choice of housing options, mixed uses and redevelopment, adaptive re-use and infill development. The focus of the suggested policies in this section is on fostering growth and economic development according to efficient land use and sustainable policies.

Approach - foster growth and economic development according to efficient land use and sustainable policies.

- Require community and neighborhood design that supports a variety and choice of housing options, mixed uses and redevelopment, adaptive re-use and infill development.

Implementation Strategies

Require municipal and county ordinances to include the following at a minimum in support of community and neighborhood design and encourage additional strategies and best management practices:

- Require center-based, compact development alternatives and advocate for development and/or redevelopment in existing communities that can be served by existing infrastructure systems.
- Require and facilitate, where appropriate, the redevelopment of brownfields and greyfields, while limiting development on greenfields.
- Require accessibility to a wide range of housing types across a wide scale of market and rental prices to enable citizens from diverse economic and age groups to live within a community.
- Require site plan and subdivision regulations which foster mixed use developments. Where appropriate, require mixed use development.
- Require municipal master plan circulation elements to integrate with the land use elements and shall address local and regional transportation and transit interconnections.
- Require the development of comprehensive transportation plans at every level of government that advocate for pedestrian and bicycle access, green street policies, and context sensitive design.

Rationale:

The RMP will promote smart growth design principles that foster a strategic approach to development decisions which uses planning to guide, design, develop, revitalize and build communities for all stakeholders. The RMP Site Design Standards will promote a unique sense of community and place; preserve and enhance valuable natural and cultural resources; equitably distribute the costs and benefits of development; expand the range of transportation, employment and housing choices in a fiscally responsible manner; value long-range, regional considerations of sustainability over short term incremental geographically isolated actions; and promotes public health and healthy communities. These standards serve to support furtherance of the goals and requirements of the Highlands Act to encourage appropriate economic development opportunity throughout the Highlands Region. The Highlands Act requires the development of Land Use Capability Map and minimum standards based upon the Resource Assessment and Smart Growth Component, Sections 11.a.(1), 11.a.(6) and 12.

(*) POST ADOPTION, COORDINATION AND PARTICIPATION STRATEGIES

[Following each bullet is language that is proposed for inclusion in the Policy Guidance Element of the Plan. Though Members will have the opportunity to review that language when you review the Policy Guidance Element, your input at this juncture would be very beneficial.]

5) Staff recommends the following **Pre-Conformance Strategies**:

- Add detail to the Site Design Standards so that they are comprehensive and provide needed standards for county and municipal officials.

Rationale: RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Highlands Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. Sections 11.a.(3), 14 and 15. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, county and local support from all levels of government and the support of the stakeholders of the Highlands Region.

6) Staff recommends the following **Conformance** strategies:

- Require the inclusion of the Site Design Standards in municipal/county conformance documents, master plans, zoning and land use ordinances as appropriate.
- Facilitate a Site Design Standards visioning process with select municipalities in support of Conformance Guidelines.

Rationale: RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. Sections 11.a.(3), 14 and 15. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County, and local support from all levels of government and the support of the stakeholders of the Highlands Region.

7) Staff recommends the following **5-year Resource Protection and Planning Goals:**

- Augment the Site Design Standards in support of regional planning initiatives.
- Develop an assessment protocol for evaluating implementation of the Site Design Standards.

Rationale: The Highlands Act requires the Highlands Council to periodically revise and update the RMP at least once every six years. Section 8.a. RMP Implementation Strategies support the necessity to determine what activities, data and programs will be required of both the Council and municipal and county stakeholders during the Plan Conformance process as well as what initiatives will require longer term planning goals. The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, County and local support from all levels of government and the support of the stakeholders of the Highlands Region. Sections 11.a.(3), 14 and 15.

8) Staff recommends the following **Coordination and Consistency Considerations:**

- Ensure state and federal funding is leveraged in support of RMP initiatives.

- Establish a Highlands Interagency Team that meets regularly at the Council offices to coordinate consistency amongst agencies.
- Coordinate with the Department of Community Affairs to evaluate Site Planning and Design Standards in support of a Residential Site Improvement Standards amendment and local ordinances specific to the Highlands Region.

Rationale: RMP Implementation Strategies support the necessity to determine what local, State and federal programs and policies may best be coordinated to promote the goals, purposes, policies, and provisions of the RMP. Sections 11.a.(4). The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, county and local support from all levels of government and the support of the stakeholders of the Highlands Region.

9) Staff recommends the following **Local Participation Considerations:**

- Provide education and technical support for Highlands Region Site Planning and Design Standards at the county and municipal level.
- Provide Highlands Region stakeholder education about RMP natural resource protection, energy conservation and subdivision and site planning protocols.

Rationale: RMP Implementation Strategies support the necessity to provide for the maximum feasible local government and public input into the Highlands Council's operations. Section 11.a.(3). The RMP is a “living document” and will continue to be refined and developed in support of regional planning goals. In order to facilitate regional planning goals it is imperative that the RMP have State, county and local support from all levels of government and the support of the stakeholders of the Highlands Region.

II. REQUIREMENTS OF THE HIGHLANDS ACT AND RMP GOALS RELATED TO REGIONAL MASTER PLAN STANDARDS:

Findings of the Highlands Act:

The Highlands Act includes specific legislative findings relating to the protection of water supplies:

“The Legislature further finds and declares that the protection of the New Jersey Highlands, because of its vital link to the future of the State's drinking water supplies and other key natural resources, is an issue of State level importance that **cannot be left to the uncoordinated land use decisions of 88 municipalities, seven counties, and a myriad of private landowners**; that the State should take action to delineate within the New Jersey Highlands a preservation area of exceptional natural resource value that includes watershed protection and other environmentally sensitive lands where stringent protection policies should be implemented; that **a regional approach to land use planning in the preservation area should be established to replace the existing uncoordinated system.**” Section 2. (emphasis added).

“The Legislature therefore determines, in the light of these findings set forth hereinabove, and with the intention of transforming them into action, that it is in the public interest of all the citizens of

the State of New Jersey to enact legislation setting forth **a comprehensive approach to the protection of the water and other natural resources of the New Jersey Highlands**; that this comprehensive approach should consist of the identification of a preservation area of the New Jersey Highlands that would be subjected to stringent water and natural resource protection standards, policies, planning, and regulation; that this comprehensive approach should also consist of the establishment of a Highlands Water Protection and Planning Council charged with the preparation of a regional master plan for the preservation area in the New Jersey Highlands as well as for the region in general; that this comprehensive approach should also include the adoption by the Department of Environmental Protection of stringent standards governing major development in the Highlands preservation area; that, because of the imminent peril that the ongoing rush of development poses for the New Jersey Highlands, immediate, interim standards should be imposed on the date of enactment of this act on major development in the preservation area of the New Jersey Highlands, followed subsequently by adoption by the department of appropriate rules and regulations; that it is appropriate to **encourage in certain areas of the New Jersey Highlands, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial, and industrial development, redevelopment, and economic growth, in or adjacent to areas already utilized for such purposes, and to discourage piecemeal, scattered, and inappropriate development, in order to accommodate local and regional growth and economic development in an orderly way while protecting the Highlands environment from the individual and cumulative adverse impacts thereof**; that the maintenance of agricultural production and a positive agricultural business climate should be encouraged to the maximum extent possible wherever appropriate in the New Jersey Highlands; and that all such aforementioned measures should be guided, in heart, mind, and spirit, by an abiding and generously given commitment to protecting the incomparable water resources and natural beauty of the New Jersey Highlands so as to preserve them intact, in trust, forever for the pleasure, enjoyment, and use of future generations while also providing every conceivable opportunity for appropriate economic growth and development to advance the quality of life of the residents of the region and the entire State. Section 2. (emphasis added).

Goals of the Highlands Act:

In accordance with Section 10 of the Highlands Act, the overarching goal of the Regional Master Plan “with respect to the entire Highlands Region shall be to protect and enhance the significant values of the resources thereof in a manner which is consistent with the purposes and provisions of this act.” Section 10.a.

For examination of Site Design standards, all of the goals are included with respect to the Preservation Area:

- protect, restore, and enhance the quality and quantity of surface and ground waters. Section 10.b.(1).
- preserve extensive and, to the maximum extent possible, contiguous areas of land in its natural state, thereby ensuring the continuation of a Highlands environment which contains the unique and significant natural, scenic, and other resources representative of the Highlands Region. Section 10.b.(2).
- protect the natural, scenic, and other resources of the Highlands Region, including but not limited to contiguous forests, wetlands, vegetated stream corridors, steep slopes, and critical habitat for fauna and flora. Section 10.b.(3).

- preserve farmland and historic sites and other historic resources. Section 10.b.(4).
- preserve outdoor recreation opportunities, including hunting and fishing, on publicly owned land. Section 10.b.(5).
- promote conservation of water resources. Section 10.b.(6).
- promote brownfield remediation and redevelopment. Section 10.b.(7).
- promote compatible agricultural, horticultural, recreational, and cultural uses and opportunities within the framework of protecting the Highlands environment. Section 10.b.(8).
- prohibit or limit to the maximum extent possible construction or development which is incompatible with preservation of this unique area. Section 10.b.(9).

In addition, the goals with respect to the Planning Area shall be to:

- protect, restore, and enhance the quality and quantity of surface and ground waters. Section 10.c.(1).
- preserve to the maximum extent possible any environmentally sensitive lands and other lands needed for recreation and conservation purposes. Section 10.c.(2).
- protect and maintain the essential character of the Highlands environment. Section 10.c.(3).
- preserve farmland and historic sites and other historic resources. Section 10.c.(4).
- promote the continuation and expansion of agricultural, horticultural, recreational, and cultural uses and opportunities. Section 10.c.(5).
- preserve outdoor recreation opportunities, including hunting and fishing, on publicly owned land. Section 10.c.(6).
- promote conservation of water resources. Section 10.c.(7).
- promote brownfield remediation and redevelopment. Section 10.c.(8).
- encourage, consistent with the State Development and Redevelopment Plan and smart growth strategies and principles, appropriate patterns of compatible residential, commercial, and industrial development, redevelopment, and economic growth, in or adjacent to areas already utilized for such purposes, and discourage piecemeal, scattered, and inappropriate development, in order to accommodate local and regional growth and economic development in an orderly way while protecting the Highlands environment from the individual and cumulative adverse impacts thereof. Section 10.c.(9).
- promote a sound, balanced transportation system that is consistent with smart growth strategies and principles and which preserves mobility in the Highlands Region. Section 10.c.(10).

Requirements of the Highlands Act:

Resource Assessment

The Highlands Act includes specific requirements relating to protection of ground water recharge areas requiring the development of a Resource Assessment for the Highlands Region which “(a) determines the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values thereof, with special reference to surface and ground water quality and supply; contiguous forests and woodlands; endangered and threatened animals, plants, and biotic communities; ecological factors relating to the protection and enhancement of agricultural or horticultural production or activity; air quality; and other appropriate considerations affecting the ecological integrity of the Highlands Region; and

(b) includes an assessment of scenic, aesthetic, cultural, historic, open space, farmland, and outdoor recreation resources of the region, together with a determination of overall policies required to maintain and enhance such resources.” Section 11.a.(1)(a) and (b).

Smart Growth Component

The Highlands Act require the development of a Smart Growth component that includes “an assessment, based upon the resource assessment prepared pursuant to paragraph (1) of subsection a. of this section, of opportunities for appropriate development, redevelopment, and economic growth, and a transfer of development rights program which shall include **consideration of public investment priorities, infrastructure investments, economic development, revitalization, housing, transportation, energy resources, waste management, recycling, brownfields, and design such as mixed-use, compact design, and transit villages.** In preparing this component, the council shall:

- (a) prepare a land use capability map;
- (b) identify existing developed areas capable of sustaining redevelopment activities and investment;
- (c) identify undeveloped areas in the planning area, which are not significantly constrained by environmental limitations such as steep slopes, wetlands, or dense forests, are not prime agricultural areas, and are located near or adjacent to existing development and infrastructure, that could be developed;
- (d) identify transportation, water, wastewater, and power infrastructure that would support or limit development and redevelopment in the planning area. This analysis shall also provide proposed densities for development, redevelopment, or voluntary receiving zones for the transfer of development rights;
- (e) identify potential voluntary receiving zones in the planning area for the transfer of development rights through the appropriate expansion of infrastructure or the modified uses of existing infrastructure;
- (f) **issue model minimum standards for municipal and county master planning and development regulations outside of the preservation area, including density standards for center-based development to encourage, where appropriate, the adoption of such standards;**
- (g) identify special critical environmental areas and other critical natural resource lands where development should be limited; and
- (h) identify areas appropriate for redevelopment and set appropriate density standards for redevelopment. Any area identified for possible redevelopment pursuant to this subparagraph shall be either a brownfield site designated by the Department of Environmental Protection or a site at which at least 70% of the area thereof is covered with impervious surface. (emphasis added).

Preservation Area Assessment

For the Preservation Area, Section 12 of the Highlands Act requires “a land use capability map and a **comprehensive statement of policies for planning and managing the development and use of land in the preservation area,** which shall be based upon, comply with, and implement the environmental standards” adopted by NJDEP and the Resource Assessment prepared the Highlands Council under Section 11. Section 12.(emphasis added).

Section 12 specifically requires implementation “that will ensure the continued, uniform, and consistent protection of the Highlands Region in accordance with the goals, purposes, policies, and provisions of this act, and shall include:

- a. a preservation zone element that identifies zones within the preservation area where development shall not occur in order to protect water resources and environmentally sensitive lands and which

shall be permanently preserved through use of a variety of tools, including but not limited to land acquisition and the transfer of development rights; and

b. minimum standards governing municipal and county master planning, development regulations, and other regulations concerning the development and use of land in the preservation area, including, but not limited to, standards for minimum lot sizes and stream setbacks, construction on steep slopes, maximum appropriate population densities, and regulated or prohibited uses for specific portions of the preservation area. Section 12. (emphasis added).

Local Participation Component

A component to provide for the maximum feasible local government and public input into the council's operations, which shall include a framework for developing policies for the planning area in conjunction with those local government units in the planning area who choose to conform to the regional master plan. Section 11.a.(3).

Coordination and Consistency Component

A coordination and consistency component which details the ways in which local, State, and federal programs and policies may best be coordinated to promote the goals, purposes, policies, and provisions of the regional master plan, and which details how land, water, and structures managed by governmental or nongovernmental entities in the public interest within the Highlands Region may be integrated into the regional master plan. Section 11.a.(4).

III. TECHNICAL BASIS AND JUSTIFICATION FOR STAFF RECOMMENDATIONS

The Highlands Act calls a new approach to land use decision-making based on a comprehensive, regional protection of the Highlands Region and its critical resources. Its passage signaled a critical change in thinking about how land use decisions should be made. The legislation declared that it is time for a change in how our resources are thought about, how our decisions are made, and how lands are ultimately managed. The Legislature called for a departure from “the uncoordinated land use decisions” of the past and the “piecemeal scattered and inappropriate development” that resulted from those decisions. (Section 2). The Highlands Act called for region-wide resource protection, conservation and management of our natural and built resources, and site design principles to foster efficient patterns of compatible development and economic growth.

The Regional Master Plan will be organized to meet each of these objectives and will propose policies and strategies to support their implementation. A planning framework has been established to integrate the full range of issues associated with Highlands protection from the macro to the micro scale; from regional protection decisions to site specific sustainable design decisions. Smart growth and green strategies are therefore woven throughout the RMP, and will be incorporated in the strategies and policies that lead to the development of the Land Use Capability Map (LUCM).

Smart growth and sustainable design are complementary planning approaches. Smart growth guides development toward appropriate locations where efficient infrastructure supports neighborhoods of people, houses, jobs, schools, and open spaces. Sustainable design balances the various elements of the built and natural landscape to deliver long term beneficial results for the environment, the

economy and our society. Together sustainable and smart growth policies serve as integral components of every land use management decision at every scale in the Highlands.

The concept of sustainability and its application to land use management guides regional preservation decisions (smart conservation) and helps to identify potential areas that may be appropriate for growth. At the more micro scale of site design, sustainable smart growth practices allow for the implementation of sustainable or “green” building practices. A green building process incorporates environmental considerations into every phase of development and embraces a holistic approach throughout each decision step.

While smart growth is a laudable concept, the true success is in the implementation. Smart growth establishes the principles and framework; and from these we can draw a series of implementation strategies designed to achieve each of the smart growth principles. These strategies can be organized and advanced in the RMP through the use of site design and sustainable green policies and standards.

The overall goal of protecting and enhancing the significant values of the resources of the Highlands is clearly a major facet of design and sustainable green standards. Locating, designing and constructing structures to be energy and resource efficient with minimal impact on the environment are a major premise of green, sustainable thinking. Likewise, design and sustainable green standards call for preservation of critical environmental areas, farmland, natural beauty and open spaces. Smart growth advocates and practitioners recognize the value of these natural open spaces to provide environmental quality and health benefits for both people and plant and animal wildlife. Design and sustainable land use management, which includes smart conservation, preserves land areas that help protect surface and ground water resources.

Site Design and green policy standards will be developed for individual RMP elements, such as Highlands open waters, significant natural areas, or growth areas. These standards were developed by building upon the research and models of local, state, and national programs. The standards and guidelines devised for the Highlands have been organized according to three major encompassing categories: Regional Resource Protection that focus on Highlands resource protection, restoration and enhancement; Smart Design Standards that promote regional conservation and resource efficiency; and Regional Growth Standards that support community development and redevelopment.

The policies and standards which are reported here are a partial list of the policies and standards which are proposed to be included in the RMP. They have been drawn from those already presented to the Council for their consideration; as well those related to green policies, efficient land development, and conservation measures. They will continue to be developed as the RMP is drafted and will be refined and added to during the pre-conformance and conformance time periods to follow.

The Pre-Conformance timeframe will allow for the Highlands Region Site Planning and Design Standards to be finalized. During Conformance counties and municipalities will work with the Highlands Council in order to align local planning documents, standards and ordinances with the RMP.

The five year planning goals will continue to recognize and support smart growth principles, green practices and innovative approaches for the Highlands Region. The Coordination and Consistency program will serve as a mechanism to leverage innovative/alternative approaches and RMP Standards with federal and state agency support. The Local Participation program is critical to RMP implementation and success. Local stakeholders and all levels of government will require education, technical support and a clear and concise understanding of the Conformance process.

IV. GLOSSARY

Conservation Development – a creative land use technique that allows a community to guide growth to the most appropriate areas within a parcel of land to avoid impacts to the environment and to protect the character defining features of the property. *The Rhode Island Conservation Development Manual*

Green Homes Office - The New Jersey Department of Community Affairs' is charged with advocating, educating and providing technical assistance relative to green design for homes in the State. Its mission is to fundamentally improve the environmental performance, energy efficiency, quality, and affordability of housing in New Jersey. The Office oversees several green programs: NJ Affordable Green (NJAG), NJ High Performance Homes, and NJ Home Energy Raters Alliance.

Green Infrastructure – the process of integrating ecological systems and natural open space into the fabric of development.

LEED (Leadership in Energy and Environmental Design) - The U.S. Green Building Council (USGBC) is a coalition of leaders from all segments of the building industry who are working to facilitate the development of environmentally-responsible, sustainable and healthy places to live and work. It was formed in 1993 with a mission to accelerate the adoption of green building practices, technologies, policies and standards.

LEED Green Building Rating System™ – The LEED rating system encompasses the standards that many builders, architects, landscape architects, engineers and planners are incorporating into their professional disciplines. LEED is a rating system which gives points for meeting specific green building, sustainable design and smart growth goals. LEED standards have been developed and adopted for sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality.

Location Efficiency - includes a prerequisite for transportation efficiency and another for water and stormwater infrastructure efficiency. Additional credits are proposed to be earned through such locational choices as brownfields redevelopment, infill, access to public spaces and schools and the reduction of automobile dependence.

Low Impact Development (LID) Best Management Practices – Low Impact Development is an environmentally sensitive approach to storm water management that emphasizes conservation and the use of existing natural site features integrated with distributed, small scale storm water controls to more closely mimic natural hydrologic patterns in residential, commercial and industrial settings. LID best management practices involve comprehensive land planning and engineering design to maintain and enhance the hydrologic regime of urban lands and development within

watersheds. LID standards and best management practices are supported by the New Jersey Stormwater Management Rules, N.J.A.C. 7:8 and the “New Jersey Stormwater Best Management Practices Manual” developed by the New Jersey Department of Environmental Protection, in coordination with the New Jersey Department of Agriculture, the New Jersey Department of Community Affairs, the New Jersey Department of Transportation, municipal engineers, county engineers, consulting firms, contractors, and environmental organizations.

National Association of Home Builders developed the Model Green Home Building Guidelines (NAHB Guidelines) - highlight ways that mainstream home builders can incorporate environmental concerns into a holistic approach to home construction. The NAHB Guidelines are organized according to a series of guiding principles related to facets of their industry: Lot design, preparation, and development; resource efficiency; energy efficiency; water efficiency; indoor environmental quality; operation, maintenance and homeowner education; and global impact.

New Jersey Housing and Mortgage Financing Agency (NJHMFA) - provides low cost financing for developers of affordable housing and is dedicated to implementing policies and practices to help transform the market and aid the development of more sustainable and energy efficient affordable housing. They are coordinating with the Green Homes Office to develop green building policies, initiatives and incentives within the Agency. NJHMFA also has two proposed energy efficiency programs:

- ☀ SEERMAH: designed to assist property managers assess, plan for, and finance improvements to their multi-family affordable housing properties that will benefit the long-term health of the residents, the property and the environment. The main focus of the program is energy.
- ☀ SUNLIT (Solar Underwriting with Low Income Tax Credits): will utilize and combine existing financing programs to help incorporate photovoltaic (PV) technology into new affordable rental housing projects.

Residential Site Improvement Standards (RSIS) – the Site Improvement Advisory Board established by (C.40:55D-40.3) and the Department of Community Affairs in accordance with (C.40:55D-40.1 et seq.) develops and oversees the site improvement standards for residential development known as the Residential Site Improvement Standards (RSIS).

Smart Code – a form-based approach model that integrates development code in a streamlined format incorporating Smart Growth principles, New Urbanism principles, Transect-based planning, environmental and zoning regulations, and regional, community and building-scaled design provisions. *Duany Plater-Zybeck and Company and Placemakers.com – Smart Code Manual Version 8*

Smart Growth – A strategic approach to development decisions which uses “planning to guide, design, develop, revitalize and build communities for all that: have a unique sense of community and place; preserve and enhance valuable natural and cultural resources; equitably distribute the costs and benefits of development; expand the range of transportation, employment and housing choices in a fiscally responsible manner; value long-range, regional considerations of sustainability over short term incremental geographically isolated actions; and promotes public health and healthy communities.” *American Planning Association, Policy Guide on Smart Growth*

Specially Planned Area - Previously developed lands that provide opportunities for redevelopment, including infill and adaptive reuse, based on limited resource constraints due to past

development patterns. Within the Preservation Area a Specially Planned Area is limited to an area or site that contains at least 70% impervious area or is a Brownfield site determined to be Specially Planned Area by the Highlands Council and NJDEP.

Sustainable – Capable of equitably meeting the vital human needs of the present without compromising the ability of future generations to meet their own needs by preserving and protecting the area's ecosystems and natural resources. "The concept of sustainability describes a condition in which humans use of natural resources, required for the continuation of life, is in balance with Nature's ability to replenish them." *American Planning Association, Policy Guide on Planning for Sustainability*

Guiding Principles

DRAFT - For Consideration at the Work Session of September 28, 2006
and Use in Regional Master Plan

Executive Summary

While the Highlands Act establishes certain goals and requirements, in most instances it empowers the Highlands Council to determine how these goals and requirements will be met. Staff has developed a set of guiding principles designed to summarize the approach the Council is taking to meet the mandates of the Act. Staff anticipates that the discussion and inclusion of these principles into the Plan will assist the development of the Plan and the understanding of readers of the Plan. Staff has organized the guiding principles into three categories:

- Regional Protection Principles
- Regional Conservation Principles
- Regional Development Principles

The principles are often interrelated and are not presented in any priority order-- they are all important in carrying out the purposes and intent of the Act.

Staff is presenting the guiding principles today to get feedback on comprehensiveness and general guidance. We encourage Members to email us with specific language suggestions after the work session.

After obtaining feedback from Members, staff anticipates that the principles will be amended and then included in the draft Policy Guidance Element that Members will review in an upcoming work session before public release of the draft Plan.

Regional Protection Principles

Protect, restore and enhance drinking water resources. Focus regional, county, and municipal planning and protection on the significance of the Highlands Region as the essential source of providing clean and plentiful drinking water and incomparable water resources for the State of New Jersey.

Protect the legacy of the Highlands region. Approach resource protection and enhancement from a regional perspective in order to protect the natural beauty and public trust values of the Highlands Region and to avoid the individual and cumulative adverse impacts to Highlands resources.

Protect and enhance Highlands resources. Protect and enhance the significant values of Highlands resources including surface and ground waters, clean air, contiguous forest lands, woodlands, wetlands, pristine watersheds, habitat for fauna and flora, endangered and threatened animals, plants, and biotic communities, vegetated stream corridors, steep slopes, environmentally sensitive lands, as well as aesthetic, cultural, historic, open space, agricultural, horticultural, and outdoor recreation resources of the Highlands Region.

Promote the sustainability of the Highlands ecosystem. Determine the amount and type of human development and activity which the ecosystem of the Highlands Region can sustain while still maintaining the overall ecological values of the Highlands Region.

Encourage State funding for land preservation and stewardship. Encourage strong and significant commitment by the State for a stable fund for the acquisition, restriction, and stewardship of exceptional Highlands resource value lands.

Promote the identification of significant Highlands resources as a planning tool. Identify and assess significant Highlands resources through the evaluation of resource integrity, value, condition, extent, and contiguity.

Identify areas not significantly constrained by Highlands resources. Identify areas which are not significantly constrained with Highlands resources that may serve as appropriate development opportunities.

Promote ecological approaches for water supply management. Insure the protection of ground water and surface water supplies with respect to maintaining aquatic and terrestrial ecosystem integrity.

Involve the community. Encourage community participation in the development of a community vision for the future of the Highlands Region.

Regional Conservation Principles

Promote resources management and land stewardship. Approach the management of Highlands resources within a regional context that utilizes sound science to direct resource protection strategies, restoration targets, and balance eco-tourism and growth opportunities.

Promote agricultural and horticultural sustainability. Preserve and promote the agricultural and horticultural industry as a vital component of the economy, welfare, and cultural landscape of the Highlands Region.

Promote green policies. Promote green building practices for development and redevelopment within the Highlands Region.

Promote resource efficiency. Promote the siting, design, and construction of energy efficient buildings to protect, enhance, and conserve Highlands resources.

Design with nature. Promote low impact development, ecologically sensitive and restorative design principles and objectives.

Conserve resources. Promote resource conservation measures and techniques at both a local and regional scale.

Regional Development Principles

Adopt a regional perspective. Approach land use planning decisions, infrastructure investments, and economic development initiatives from a regional perspective.

Advocate for mixed use development. Support the integration of mixed land uses into communities as a critical component of creating compact or walkable neighborhoods that provide opportunities for residential, commercial, and industrial development as well as opportunities for recreation, education, and economic viability and development.

Encourage center-based growth. Direct development and redevelopment to existing communities that can be served by existing or planned infrastructure.

Encourage compact building design. Encourage compact building design as an alternative to conventional, land consumptive development.

Discourage inappropriate development patterns. Discourage piecemeal, scattered, and inappropriate development patterns throughout the Highlands Region.

Provide for full range of housing. Provide quality housing with a variety and choice of housing options for people of all income levels.

Promote a sound transportation system. Promote transportation systems that support smart growth, green policies, transportation choices, connections to pedestrian and bicycle networks, and mobility options.

Promote remediation opportunities. Provide tools for the identification of remediation and redevelopment opportunities at contaminated sites.

Encourage inter-municipal cooperation. Encourage opportunities for shared services and inter-municipal agreements that reduce repetitive service provisions and capital outlays.

Be innovative. Incorporate innovative and alternative approaches as a means for achieving regional planning goals.

HIGHLANDS WATER PROTECTION AND PLANNING COUNCIL PUBLIC AVAILABILITY SESSION - SEPTEMBER 28, 2006

At 4:00 p.m. on September 28, 2006, immediately following the meeting of the Highlands Water Protection and Planning Council, Chairman John Weingart convened a public availability session. Joining him were Councilmember Janice Kovach and Ms. Debbie Pasquarelli via telephone.

Nicole Goger, Farm Bureau. Ms. Goger said that it has been very difficult for the audience to hear the members speaking today and said she added that it was upsetting that only two Council members had remained to hear the public comments. She noted the public waited all day to speak and thanked Mr. Weingart and Ms. Kovach for staying to hear comments. Ms. Goger said she hoped the members all read the public comments summary and would take them into consideration. She noted that she has also been submitting her written comments on the previous week late on Wednesday afternoons. Mr. Weingart replied he would check to make sure he received her comments the day before. Mr. Weingart added that the other members are receiving the summaries prior to the following meeting and that they are included in members' meeting packets. Ms. Debbie Pasquarelli replied she agreed with what Ms. Goger said and noted that she couldn't hear most of the conversations between members and could only hear the presenters. Ms. Pasquarelli said in addition to the six technical documents that members had to review in the last 36 hours, the members are also receiving minutes and public comments to review. She said there has to be a better effort to get some materials to members sooner for them to prepare for the meetings.

Julia Somers, NJ Highlands Coalition. Ms. Somers noted that she is similarly concerned that the public comments are not getting through to all Council members in time for them to read them. Ms. Somers said that maybe staff should consider providing Council members details regarding the difference between density and zoning, because they seemed confused and Ms. Somers noted they are two very important concepts. Ms. Somers said storm water management should be considered as part of the design standards and said for example, where a developer is required to come before a planning board and using the topography of a site, it should show the location and natural resources, roads, driveways or storm water management technologies before a single house is sited. She thought that approach would produce a much better plan. She added that practices in the past have always been the reverse, the roads and storm water management and utilities go in last, and it is a disservice to a good plan.

Nancy Chambellan, Warren County Environmental Commission. Ms. Chambellan said that on page 6 of the Open Waters and Riparian document, her concern is the Department of Environmental Protection's (DEP) Category One (C1) classifications are an unreliable way to assign protection categories such as special waters in Warren County. She stated that the fish surveys that have been done by the DEP reflect a great difference in the current level of what was present across the Highlands Region when the survey was done. Other counties are current to 2002 but such fish surveys have not been done in Warren since 1974. Ms. Chambellan says as special waters on page 6, there has to be C1 streams present to make the category. She said specifically the Musconetcong and Pequest in Warren have not yet been implemented as C1 candidates and are delayed

since 2002. Ms. Chambellan noted that the Forest Study Survey of 2002 recommended immediate and the highest level of protection for both of those rivers. She said that the Musconetcong also meets the criteria for being wild and scenic as well. Ms. Chambellan noted the challenge for the Council to reconcile vast difference between federal protection recommendations and the current status of DEP C1 candidates. Ms. Chambellan urged the Council to implement policies to protect to the highest level possible for Warren County's special waters because the C1 characterization has not been successful. Ms. Chambellan added that regarding site design standards under green building methods, she said that she has sustained a disability from indoor air pollution she said she would favor that the Council remain careful to balance energy efficiency with indoor air quality and not create measures which are incompatible with quality of life.

Wilma Frey. Ms. Frey stated that in the site design standards document under bullet point 2 of the green building section which requires efficient landscape maintenance, the language should be strengthened to should minimize the use of lawn areas as well as limiting watering lawns. Ms. Frey stated that in the community and neighborhood design standards of the same document, she noted a bullet should be added to provide for an open space greenway plan required for community design standard. She noted the section identifies the need for a list of other plans, and so the greenway open space plan should not be left off the list. It should integrate the neighborhood and have conservation and recreation purposes. Ms. Frey thought the open space plan can also be used as individual site plans to view the overall site and environmentally sensitive features.

Helen Heinrich, Farm Bureau. Ms. Heinrich said she was at a meeting most of the day at the SADC and arrived at the Council meeting an hour ago in time to hear various members to indicate that the Highlands Plan could end up being an elitist, large lot situation which could make TDR very difficult to conduct equity protections. She asked whether the staff needs more information on density because she thought there are plenty of places in the Highlands with density present. Ms. Heinrich said it was disturbing to her to listen to the Council members' rhetoric about zoning and thought someone on the board should have spoke up for the other mandates. Mr. Weingart noted that Ms. Heinrich missed much of the meeting and advised that there had been considerable other discussions about mandates in the Act between the members that she missed. Ms. Heinrich said that was true, and then said that the design standards address conservation development but there is no mention of using it to preserve farmland as well as open space. She noted that farmland preservation should be included in the open space provisions and the stewardship issues have to be covered so that the town will not be burdened. Lot size averaging combines clustering and large lot sizes so that one lot includes a farm house and a reasonable amount of land to farm as preserved. Ms. Heinrich noted that the guiding principles are not specific enough as to the Highlands area. She noted that the Act speaks directly to preserving equity and thought the Council should have an equity policy which is over-arching. She brought a copy of such a policy from the State plan. Ms. Heinrich provided a copy of a document by the Board of Architects as to what rules pertain to professionals conducting site planning. She noted there are many types of professionals who can address planning methods and as a result licensed professionals should be more broadly defined.

Eric Stiles, Conservation Vice-President, NJ Audubon Society. Mr. Stiles noted he had worked in the past with the Department of Environmental Protection and was a landscape biologist with experience in endangered species and that he has also worked with the Park Service. Mr. Stiles said that Mr. Balzano's characterizations of the science behind riparian areas and significant natural areas being made to the Council as being cutting edge is true. He noted that they are not cutting edge in the sense that they are ahead of the science, they are cutting edge in the realm of land use policy, because they are based on contemporary science. Mr. Stiles commended the Council for planning that reflects the current knowledge base of landscape ecology. He thought it was important to make that statement to the public and the Council, and noted while the Council recognizes some of the issues of landowner equity, to keep in mind that in order to make good decisions, good information is crucial and he thought the staff should be commended for providing that information to the Council. He also wanted to clarify regarding differentiations between policy decisions based on science, that the information provided to the Council as to 600 feet for a wildlife corridor is based on science, and as the Council receives this information that there are a number of balancing issues. He stated his support for comments at the meeting by Councilmember Carluccio as to her concerns over exceptions being made in the Specially Planned Areas as to standards when she said that protections in the conservation areas should apply in both areas, and to not throw out the underlying data as they are all very important, valuable locations. He noted his concern that locations where threatened and endangered species are present in what are determined to be low value areas, despite their presence, now have a 150 foot buffer.

David Shope, Long Valley. Mr. Shope said with regard to Riparian Areas, that he believes suddenly his land is very valuable because it provides clean water to others, and he wanted to know how he can cash in. As to item number 5 bullet point 2, where minimum practical use is required, Mr. Shope said that he believed that was longhand for "avoid a taking." He asked if this meant that farming will have to continue at a loss, and wondered if that was his minimum practical use. Mr. Shope said that the term pristine means untouched, and he doesn't believe there is a square inch in New Jersey that is untouched. Mr. Shope also thought regarding water availability he asked if he will be paid by his neighbors with one and two acre lots, that use his land for groundwater recharge and nitrate dilution. Mr. Shope said that golf courses are 90% to 100% consumptive and DEP approves the use of water for golf courses and does not understand how that is justified while his land down the street is being restricted. Mr. Shope said that well and septic systems use 20% depletively, and the water that leaves the area via United Jersey which is owned by Suez and RW. Lee, is 75-100% by DEP's own documentation. Mr. Shope said that interbasin transfer is done all the time, they are doing this in Newark from the Raritan Basin up to the north. Mr. Shope said that regarding water deficit areas, he wanted the Council to consider developing a policy where deficits can be ameliorated by the area in deficit buying watershed land. He said it is not a unique concept and that Newark and Jersey City have done it and it is a better choice than taking people's equity.

Elizabeth George-Chenaria, NJ Builders Association. Ms. George-Chenaria said she agreed with some of the earlier comments, and noted it is disappointing that the other Council members chose not to spend the time to remain and hear the comments. She

noted the NJBA would like to reiterate that there is an enormous need for housing in New Jersey that is not being met. As the Council nears completion of drafting the Highlands RMP which is a new regional approach to land use planning, the NJBA is discouraged that the Council hasn't provided any further information as to where housing would be supported in the region. The NJBA suggests that some other economic indicators are worthy of being analyzed and tracked to capture more fully the economic conditions of the Highlands Region. Ms. George-Chenaria suggested more data is needed regarding supply and pricing of housing units within the region. She noted unemployment data should be expanded on salary ranges and the types of occupations. New Jersey has lost many of its jobs to other states. She said the Council should identify realistic housing opportunities in the region. She said that the Council should not extend public comments period following adoption of the draft RMP. Ms. George-Chenaria provided her comments in writing.

Mr. Weingart reminded that the Council has been meeting every Thursday for several weeks and is doing so in order to get the draft plan discussed and out so that the entire public has time to review, not just the people who come to the meetings. He noted everyone on the Council reads the summaries of all public comments received and advised that if anyone feels that they're not being summarized correctly to kindly let him know to have them revised. Ms. Patty Sly added that whenever comments are submitted in writing, we will not collapse them and they are given to the members in full form.

Mr. Weingart thanked everyone for their comments and said that the Council will be meeting again next week at 10:00 a.m. on October 5th, 2006.