

Policy Issues for Council Discussion

1. Issue: Land Use Capability Map and LANDS Model

In the development of the final Regional Master Plan (RMP or Plan), the Land Use Capability Map (LUCM) will be refined based upon the development of a more sophisticated GIS land use model. Known as the LANDS model (Land Use Analysis Decision Support System), it will provide the Highlands Council with a powerful tool to assist with the development of a refined LUCM and to provide GIS information to municipalities, counties, and other interested parties during the Plan Conformance process.

Discussion: The LUCM in the Draft RMP was based upon a method utilizing 51 indicators to create the Protection Zone, the Conservation Zone and the Planned Community Zone. The use of the LANDS model will allow the Highlands Council to utilize additional indicators and refined analyses.

Recommendation: We recommend the development of a refined Land Use Capability Map that not only provides the general zone appropriate for an area, but also provides a sense of the actual capacity of each area for additional development (if any). This will allow the LUCM to include both land-based growth capacity (resource-based capacity or limitations) and infrastructure-based growth capacity (utility, water resources and transportation). The result of this approach will allow the Highlands Council to identify tiers within the zones. For example, the Planned Community Zone would be refined to show tiers of developed lands that have the capacity for additional growth or redevelopment and tiers of developed lands that have neither land-based capacity nor infrastructure-based growth capacity. As part of this process, we are updating water and sewer utility information and other data layers.

The next set of issue points address these issues in finer detail regarding the recommended ability to identify tiers within zones to address issues such as lake communities, redevelopment potential, transportation infrastructure, septic density, sewer capacity and water availability.

2. Issue: Lake Communities

The management of lands surrounding lakes is an important issue for the Highlands Region. Numerous comments raised concern that the existing lake communities should not be designated in the Planned Community Zone.

Discussion: We have been examining the creation of either a Lake Management Zone to be used as an additional zone on the Land Use Capability Map (LUCM) or a Lake Community District to be used as a separate overlay zone with management strategies. Addressing lake communities would allow for possible in-fill development where appropriate, but also would include elements designed to both protect natural resources and to enhance and restore the quality of lake environments. The fundamental goals of establishing a lake management zone or district in the Highlands Region are:

- 1) to protect, restore and enhance the water quality of Highlands lakes; and
- 2) to protect the unique character of Highlands lake communities

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Recommendation: We recommend the continued development of *tiers* of lake management within which management strategies will be applied to help protect lake water quality and value from the impacts of present and future development. These tiers would be based upon the following:

- **1,000 ft shoreland district** – land use compatibility standards and water quality standards (primarily focused on continuous pollutant sources that can contribute pollutants overland or through ground water over longer distances) will be developed and implemented for this area.
- **300 ft zone** for lake ecosystem standards and water quality standards, to address direct impacts upon the lake.
- **300 (min)-1,000 (max) ft visual/scenic district** – scaled based upon the view distance from the shoreline, which is determined through the size and layout of the lake, with larger lakes having longer sight distances.
- **Watershed** – As a long term strategy, the Council can refine lake management tiers when LiDAR data are available to include all land areas draining to each lake. Pollutant loadings analysis will be conducted (if not already performed) and restoration opportunities will be identified. Prior to having this mapping, broader RMP goals, objectives and policies for water quality will be developed to address many issues that affect lakes as well as streams.

3. Issue: Existing Areas Served Data

Data gaps currently exist with regards to areas served by sewer infrastructure, Existing Areas Served, in the Highlands Region.

Discussion: Some of these gaps, where information was not available and thus was not included in the draft Plan, have been filled with the assistance of municipalities and counties. Other gaps will require additional research and data collection.

Recommendation: We recommend that adding these systems is valuable and should be incorporated into the LUCM/LANDS Model. We will collect digital spatial data submitted based on an understanding of significant utility systems that were not included. Refinement of additional Existing Areas Served mapping will also occur through the Plan Conformance process.

4. Issue: Enhanced Growth Capacity of Developed Lands (Redevelopment Potential)

Significant comments were received on the designation of Planned Community Zone and Specially Planned Areas. Further delineation was recommended to address the ability to sustain additional development in these already developed lands.

Discussion: The Planned Community Zone requires additional refinement to identify tiers of developed lands that have the potential to accommodate additional development and/or redevelopment. This analysis is also necessary to provide additional definition on the identification of Potential TDR voluntary Receiving Zones. This information will be used to support the Smart Growth Component which includes the Council policy that growth inducing aspects of the Regional Master Plan are “discretionary” and shall be based upon local desire in accordance with statutory and regional conditions.

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Recommendation: We recommend that the Planned Community Zone be refined to include tiers based upon redevelopment potential. We have conducted an analysis that characterizes Census blocks by their potential for increased development value on vacant, underutilized and existing developed lands. The analysis is limited to developed lands, as identified in the Developed Lands Analysis. The following five indicators, when combined and aggregated, will help define both the location and extent to which enhanced growth capacity exists, and will be used to help define the boundaries and development capacity of Planned Community Zones and Specially Planned Areas.

Partially Vacant Indicator
Economically Underutilized Indicator
Vacant Indicator
Multi-modal Transit Indicator
Local Conditions Indicator

Based upon the aggregation of these five indicators, a rank of “Tier 1” or “Tier 2” will be assigned to those Highlands Census blocks that satisfy the following criteria.

Tier 1 Rank – Those Census blocks that have a higher number of parcels that are characterized as economically underutilized, unconstrained vacant, have potential for infill or refill, are located within communities with access to a multi-modal transit connection or local initiatives suggest redevelopment potential. These Census block groups may serve as appropriate TDR voluntary Receiving Zones.

Tier 2 Rank – Those Census blocks that show some indication of redevelopment potential. Some parcels are characterized as underutilized, represent the potential for infill, or are unconstrained vacant lands. In addition, transit multi-modal opportunities are more limited than in Tier 1.

5. Issue: Regional Transportation System

A Regional Transportation System analysis is needed to refine the Developed Land Inventory and the LUCM/LANDS Model.

Discussion: The purpose of identifying the Regional Transportation System is to understand the movement of people and goods throughout the Highlands Region, contribute to the overall picture of regional development patterns, and provide the information necessary to understand how system improvements would support or conflict with the RMP. It also serves to identify regional interfaces between land use and roadway /transit networks in order to inform land use intensity. Identifying those areas with existing development that are serviced by multi-modal transportation opportunities will help to facilitate the utilization of appropriate lands for development and redevelopment and promote smart growth.

The analysis must consider all modes of transportation and the unique roadway/transit system of the Highlands Region as it relates to travel both within and across the Region. The Highlands Region includes many highway-oriented business corridors, which vary greatly in

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size and scale, but are all dependent upon flows of traffic and convenient access. Due to the geography, size and development patterns that are characteristic of the Highlands Region, it is important that the regional transportation system include multi-modal opportunities that are sensitive to the context of the surrounding land uses and community character.

Recommendation: We recommend the identification of regional roadway/transit corridors and multi modal opportunities. It is recommended that the following six indicators, relating to the transportation system analysis, be used to refine the Planned Community Zone for the LUCM/LANDS Model:

Transportation corridors - Includes developed lands within 1/4 mile of significant US routes, state routes, and specified county routes.

Interchanges and intersections - Includes developed lands within 1/2 mile of buffered roadway interchanges and intersections.

Train station "inner core" - Includes developed and undeveloped lands within 1/2 mile "inner core" buffer of train stations in or within 1/2 mile of the Highlands Region.

Train station "outer core" - Includes developed and undeveloped lands within a 1 mile "outer core" buffer of train stations in or within 1 mile of the Highlands Region.

Park & rides - Includes all developed lands within a 1/2 mile buffer from all NJDOT park and ride locations in or within 1/2 mile of the Highlands Region.

Bus routes - Includes all NJ Transit and major private bus carriers in the Highlands Region, which operate daily basis on any of the US, State or County routes.

6. Issue: Water Availability

Public comments and discussions with NJDEP raised issues regarding some aspects of the water availability section of the Draft RMP.

Discussion: Water availability is a complex and changing field. Subsequent to release of the Draft RMP, NJDEP has developed policies for the next New Jersey Statewide Water Supply Plan and has proposed major changes to the Water Quality Management Planning Rules. The NJDEP, in the Statewide Water Supply Plan, is using the same technical approach used by the Council for the Draft RMP (the Low Flow Margin method, the calculation of consumptive and depletive water uses, and the use of the EcoFlow Goals approach to provide a basis for certain thresholds). In addition, public comments raised issues regarding some aspects of the Draft RMP policies that provided valuable insights. Appropriate changes to the water availability approach and policies are being recommended for Council consideration. However, the recommended changes are not major, but rather refine the approach and policies.

Recommendation: We recommend no change in the derivation of Low Flow Margin and the standard thresholds for the Planned Community Zone or the Protection Zone. In addition, it is recommended that the following changes be made in water availability policy:

1. Assign water availability thresholds to entire HUC14 subwatersheds rather than zones within subwatersheds, based on the dominant zone (>75% of the subwatershed) or on the Watershed Condition Indicator.

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2. Cross-reference NJDEP rules protecting water supply safe yields from new consumptive and depletive water uses, and reduce water availability thresholds in upstream HUC14 subwatersheds by 2-3% LFM (to a minimum of 5% LFM) to address the impacts of new water uses that NJDEP does not regulate.
3. Provide limited, conditional water availability in deficit subwatersheds. Realization of this availability would be conditioned upon 125% mitigation (no change from Draft RMP).
4. For HUC14 subwatersheds upstream of deficit subwatersheds, change the policy from a fixed 5% LFM (which resulted in additional deficit subwatersheds) to a policy of 5% LFM above current consumptive and depletive water uses (but not above the standard thresholds).
5. Distribute available water within a HUC14 subwatershed on the basis of RMP development and redevelopment potential.

The following matrix would result for water availability:

Recommended Water Availability Thresholds			
Zone	Standard Threshold	Upstream of Deficit HUC14	HUC14 In Deficit
Protection (PZ)	5% LFM	5% LFM	Existing D/C + 1% LFM
Conservation (CZ)	5% LFM non-ag, 10% LFM ag	Existing D/C + 5% LFM (up to Standard Threshold)	Existing D/C + 1% LFM
Planned Community (PCZ)	20% LFM	Existing D/C + 5% LFM (up to Standard Threshold)	Existing D/C + 2% LFM

D/C = depletive and consumptive water uses

7. Issue: Septic Density

This is a major policy issue that was only partially addressed in the Draft RMP and elicited many public comments requesting further information. The basic issue is what septic system density is appropriate in the various zones of the Highlands Region. A detailed issue paper is being developed, the basics of which are summarized here along with a short discussion of next steps. Council staff has not reached a point where actual septic system densities have been estimated.

Discussion: Septic system density is a commonly used indicator of environmental, and especially water quality, impacts within communities. Nitrate concentration is a useful surrogate of the many types of pollutants discharged by properly functioning septic systems. It is critical to note that addressing these indicators alone will not necessarily address the other related issues; therefore, conservative assumptions are used. NJDEP has established a nitrate dilution method for use in New Jersey that has several key variables; most but not all

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of the standard variables (e.g., household size, nitrate loading per person) are appropriate for Highlands use as well.

A key question is how septic system densities should vary among the LUCM zones. NJDEP has proposed changes to both the Water Quality Management Planning and Ground Water Quality Standards rules that will establish a Statewide 2 mg/L nitrate concentration as the antidegradation threshold for new development. Accordingly, the threshold for the Highlands Region should be at least as protective given the sensitivity of the Region. Based upon the Council's detailed analysis of the Highlands Region, the median concentrations in subwatersheds dominated by the Conservation Zone is approximately 1.88, which corresponds well to the 2 mg/L threshold used in NJDEP's proposal. The Protection Zone median concentrations are significantly lower, as would be expected of areas predominantly in forest. Lastly, the Planned Community Zones are anticipated to rely primarily on public sewers. NJDEP proposes that local priorities and information may result in more stringent thresholds; the following recommendations will be consistent with those regulations. More stringent policies will result in lower septic system densities for new development, and vice versa. Science can provide an understanding of the current situation and the risk analysis involved in policy choices. Once a policy decision is made, the science will then be used to translate the policy into numeric standards or thresholds.

Recommendation: We recommend the following approach to the creation of septic density policies:

1. Allowable septic system densities for new development should be tailored to each LUCM zone in the Planning Area, reflecting the impacts of existing nitrate levels, recognizing the legislative and regulatory distinction between the Preservation and Planning Areas, and addressing issues such as lakes communities, brownfields and redevelopment areas where a combination of restoration, alternative technology and nondegradation or antidegradation (depending on Preservation or Planning Area location) may be appropriate.
2. Where nitrate dilution models are used in the RMP, the modeling assumptions used by NJDEP in its Highlands Rules regarding nitrate concentrations and loads from septic systems should be used.
3. Recharge by HUC14 subwatershed should be used as the basis for nitrate dilution, consistent with other RMP analyses. However, drought ground water recharge should be used as a conservative factor to address nitrate impacts in smaller watersheds, headwaters areas and aquifers with limited storage capacity, all of which are common in the Highlands Region.
4. The development yields from dilution models should be based on the privately owned, developable areas, and should not include preserved lands within the subwatershed.

Council staff is working on a method that will reflect this recommended approach. The goal of this method is to determine the capacity of the system to sustain additional septic systems for each LUCM Zone in each subwatershed, without violating the nitrate objectives for that

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area. This capacity will be one of several factors in determining the ultimate land use capability for each area.

The septic density requirements in the NJDEP Highlands Rules for the Preservation Area would apply there, without change, regardless of LUCM Zone. In the Planning Area, the approach will establish appropriate densities for the Protection Zone and the Conservation Zone based on goals of the Highlands Act. In some areas, the existing nitrate levels are such that no further degradation should be allowed (e.g., densely developed lake communities on septic systems), and management efforts should be focused on reducing concentrations over time. However, because each HUC14 subwatershed has its own level of drought recharge and available land for development, the resulting densities will vary by HUC14.

Next Steps

Council staff is in the process of calculating the privately owned, developable lands in each HUC14, which is critical information for determining the septic system density values for each HUC14 and LUCM Zone. Staff is further investigating issues related to the nitrate dilution targets, to determine the most appropriate approach for recommendation to the Council, including further discussions with USGS on results of its modeling work. Finally, the staff will meet with Demicco and Associates for an in-depth review and critique of the recommendations and all underlying work.

8. Issue: Agricultural Resources

Concerns were raised over the use of Important Farmland Soils in the RMP in the development of the Agricultural Resource Area and Conservation Zone.

Discussion: We have been coordinating with the Department of Agriculture (NJDA) and the State Agriculture Development Committee (SADC) regarding proposed use of Important Farmland Soils. We conducted an analysis of the relative amount of Important Farmlands Soils within the four soil class types (Prime, Statewide Importance, Local, and Unique). The results demonstrated a consistent percentage throughout the Highlands Region and that over 111,000 of the 181,000 acres of Prime Soils were captured in the Agricultural Resource Area. These results demonstrate that Important Farmland Soils, along with other criteria, substantially defined a regional agricultural landscape.

Recommendation: After discussion with NJDA and SADC, we recommend that Important Farmland Soils continue to be used as an appropriate criterion, in addition to other criteria, to use in establishing the Agriculture Resource Area. Thus, it is recommended that no LUCM/LANDS mapping changes need to be made to the Agriculture Resource Area map.

However, while the soils used for the development of the LUCM/LANDS are sufficient, additional indicators should be utilized for the identification of farmland preservation prioritization in the Agricultural Priority Area. After discussions with the NJDA and SADC, we began the examination of two specific issues: farms with 50% or more prime soils and farms contiguous to (within 1 mile of) preserved farmland, as factors in determining minimum standards for ranking farms for preservation. These factors will continue to be examined for the Agricultural Priority Area and it is recommended that the indicators be

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used to rank agricultural conservation value in the Final Plan. Finally, additional agricultural policy and forestry policy recommendations will be discussed in upcoming Council worksessions.

9. Issue: Vernal Pool Boundary

Council received public comments expressing both support for, and strong objections to, the Draft RMP policy and LUCM mapping methodology of 1,000-foot buffers around NJDEP-confirmed vernal pools.

Discussion: Vernal pools are unique ecosystems that:

- Provide critical breeding habitat for a variety of amphibian and invertebrate species, maintaining ecological integrity and providing amphibian and invertebrate breeding habitat;
- Contribute significantly to local biodiversity by supporting plants, animals, and invertebrates that would otherwise not occur in the landscape;
- Contribute significant amounts of food to adjacent habitats;

For pool-breeding amphibian species, studies indicate amphibian travel distances from vernal pools to surrounding terrestrial habitat of 400 to 4,000 feet. The Draft RMP buffer of 1,000 feet is approximately double the average migration distance of adult spotted salamanders and blue-spotted salamanders. This buffer was used as a data layer for the LUCM and as a basis for site-specific development restrictions. However, the two uses are not directly connected.

Additional resources for vernal pool protection areas have been examined. For vernal pools located on privately-owned, small parcels of land, the Metropolitan Conservation Alliance recommends three rings of buffers (vernal pool depression, 100-foot protection zone, 750-foot amphibian life zone) around vernal pools in which differing degrees of management activities are recommended. Similarly, the Metropolitan Conservation Alliance recommends three rings of buffers (vernal pool depression, 100-foot protection zone, 400-foot amphibian life zone) around vernal pools located in “managed” forests (i.e., forest canopy disturbance followed by renewed forest growth and not subject to permanent conversion to development, roads, and associated impervious surfaces) in which differing degrees of management activities are recommended.

Recommendation: We recommend the continued use the 1,000 foot buffer for the development of the LUCM. For development review, we recommend that more refined review zones be established to create tiers of protection to vernal pools. These tiers would be based upon quality and ecological significance and vernal pools would be scored for biological value and critical terrestrial habitat condition.

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10. Issue: Karst Topography

Many comments have been received on the need exists to identify karst features in the Highlands Region and to develop relevant resource protections standards.

Discussion: Karst is a type of topography that is formed over carbonate rock formations (such as limestone and dolomite) by dissolving or solution of the rock by water. This process causes surface depressions and the development of such features as sinkholes, sinking streams, enlarged bedrock fractures, caves, and underground streams. Sinkholes function as funnels, directing surface water runoff into karst aquifers with little or no attenuation of any transported contaminants. Soils in sinkhole bottoms may be thin or non-existent. Sinking streams range in size from intermittent streams to perennial rivers. They may sink through a segment of the stream bed or through a discrete opening such as a fracture or cave entrance. In addition to ground water concerns, communities in karst areas must contend with safety concerns as sinkholes can have damaging effects to large manmade objects.

Recommendation: We recommend that using existing New Jersey Geologic Survey and United States Geological Survey data for those areas of the Highlands Region that are underlain by carbonate rocks be mapped and identified as a Carbonate Rock Area. Further, land areas that drain surface water into the Carbonate Rock Area should be identified and delineated, since changes in the quantity, quality, and rate of discharge of surface water runoff from upslope lands can impair ground water resources in the Carbonate Rock Area. A Model Ordinance should be recommended or required for municipalities that are in the Carbonate Rock Area or drain surface water to it.

11. Issue: Deferring to Pre Conformance or Conformance

The appropriateness of deferring development of specific substantive provisions and programs until “pre-conformance” and/or conformance.

Discussion: The Draft RMP included a number of provisions which identified substantive matters which would be developed during “pre conformance” and conformance periods. The deferral of substantive provisions was a subject of considerable public comment and has been identified as an area of needed improvement in order to provide counties and municipalities with a complete understanding of the substantive implications of the next-generation of the RMP.

Recommendation: We recommend that the RMP include substantive provisions (goals, policies, objectives and implementation programs) for each of the substantive matters reserved for development during pre-conformance and conformance. Some of the substantive provisions would be based on best available materials from other programs and jurisdictions, but would be subject to provisions that make it clear that during conformance, alternative municipal or county programs which are equal to or superior to the substantive provisions of the RMP would be accepted by the Highlands Council in making a conformance determination.

Technical Issues for Council Update

12. Issue: Exemptions

The effect of exemptions on the amount of development activity that will occur in the Highlands Region is not reflected in the RMP.

Discussion: In order to properly assess the amount of development activity that will occur as a result of the seventeen exemptions built into the Highlands Act, it is necessary to estimate exempt development activity. The analysis will assist with the refinement of the TDR program and Developed Land Analysis for the Highlands Region.

Recommendation: Because of the number of exemptions and the variability of many of the exemptions, we recommend that the analysis focus on Exemptions #1, 2, 4, and 5. This approach will include the use of the 2005 MOD IV parcel data and Highlands Composite Zone data, which includes assessment data from January 10, 2004 through January 9, 2005. This data set is the one most proximate to the August 10, 2004 effective date of the Act. This will result in an overlay map to show the extent of development possible in these exemption categories as of early 2005; the analysis will include a statement acknowledging that some exemptions will have been exercised (the lots developed) since the date of the most recent data.

13. Issue: State Plan Designated Centers

Numerous commenters argued that the Draft Plan did not adequately consider existing centers that have been designated by the State Planning Commission.

Discussion: There are twenty-one (21) existing State Plan Designated Centers in the Highlands Region they different expiration dates. They are not mapped in the RMP.

Recommendation: We recommend that the twenty-one (21) existing State Plan Designated Centers be mapped and used as an overlay in support of the Smart Growth Component. The types of Designated Centers and their respective expiration dates will be included in the RMP. In addition, the nature and extent of environmentally sensitive and/or resource features within the Designated Centers will be evaluated and included as narrative in the Smart Growth Component.

14. Issue: Inventory of Potentially Contaminated Sites (Brownfield Sites)

The RMP encourages the redevelopment of Brownfield sites but considers the updating of an inventory to be undertaken during “pre-conformance.”

Discussion: The *Regional Development and Design Technical Report* includes a Contaminated Site Inventory. Sites were categorized into two tiers; Tier 1 sites are considered to have somewhat more complex contamination issues than Tier 2.

Recommendation: We recommend that the current 2005 based dataset is generally sufficient for reference in the next-generation RMP. The current Contaminated

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Site Inventory is based on 2005 data and is a compilation of existing data sets, pared down in order to gain the most appropriate and useful information.

The only update that is recommended at this time is the addition of the approximately 17 Highlands sites that are included in the NJDEP's Non-Operating Landfills with Evidence of Groundwater Impact (July 2007).

15. Issue: Steep Slopes

The current RMP policies are focused on the impacts of physical disruption. However concerns have been raised about aesthetic impacts of steep slope use.

Discussion: The Council received comments questioning how the draft RMP site-specific standards for steep slopes and the NJDEP Highlands Rules provisions for steep slopes would apply within the Preservation Area. Similarly, the NJDEP proposed Water Quality Management Planning Rules includes a requirement for steep slope ordinances that differs from the draft RMP. In addition to addressing the impacts of physical disruption to steep slopes, policies are required that address the aesthetic impacts of steep slope use.

Recommendation: We recommend that the NJDEP rules apply within the Preservation Area and that these rules be strengthened with NJDEP's use of the provisions in the RMP to improve protection of that resource. With respect to addressing aesthetic impacts, the recommendation is that a sound municipal ordinance that addresses these impacts be utilized as a model. One such ordinance is used by Washington Township (Sec.217-38 "Steep Slope, ridgeline, mountainside, hillside, and viewshed protection area ordinance").