



**Module 2: Instructions**  
**Land Use and Resource Capacity**  
**Analysis**

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Prepared by State of New Jersey Highlands Water Protection and  
Planning Council in Support of the Highlands Regional Master Plan

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**HIGHLANDS PLAN CONFORMANCE  
MODULE 2: Land Use and Resource Capacity Analysis  
INSTRUCTIONS**

**Users must follow the protocols as prescribed below. Deviation or incomplete submittals will be determined to be incomplete and may be returned for correction.**

## **Purpose and Scope**

The Highlands Regional Master Plan (RMP) requires that conforming municipalities develop a local build-out analysis that incorporates the policies and objectives of the RMP. Specifically, conforming municipalities are required to “use the Highlands Build-Out Model to develop a local build-out analysis that incorporates RMP policies and objectives to evaluate land use capability and capacity planning” (Objective 6G4c). The RMP’s program Land Use Capability Analysis requires a Limiting Factor Analysis to examine three categories of constraints: 1) Land Based Capacity (developable lands); 2) Resource Based Capacity (septic system yield and water availability); and 3) Utility Based Capacity (public water and wastewater).

The Module 1 Report served as the first step in developing a local build-out analysis based on potential developable lands and existing municipal conditions; however, the Module 1 analysis does not represent a complete build-out until completion of Module 2 and Highlands Council approval of the Municipal Build-out Summary Report.

Local build-out analysis results will be used by conforming municipalities for other Plan Conformance activities and to assess current municipal conditions as they relate to RMP policies and objectives.

The Highlands Build-Out Model is not intended to be used at a block and lot level to determine the development potential of a parcel or whether a particular parcel or development project is consistent with the RMP, as the municipality must apply additional planning and zoning analysis to determine appropriate future sustainable development. Rather, local build-out analysis is intended for use at the municipal scale.

In addition, all of the data and figures regarding specific parcels, including but not limited to preserved open space and water and sewer service, are based on a review of the currently available information; however, unintentional inaccuracies may occur and may formally be addressed as RMP Updates. Any request for a formal determination to address updated information may be submitted to the Highlands Council in accordance with the RMP policies and procedures for RMP Updates.

## **Overview**

Module 2 is based on the results of Module 1. Module 2 evaluates whether and to what extent the build-out for potentially developable lands under current municipal zoning exceeds the current utility capacity conditions based on the Regional Master Plan (RMP). Municipalities and the Highlands Council will use the Module 1 results and the RMP to evaluate these limitations. (Module

1 included a “limiting factor” analysis regarding potential developable lands and the municipality’s available utility capacity where appropriate.) In addition, the Highlands Council will use this build-out information to determine whether there is sufficient water to support the projected RMP Municipal Build-out for both utility serviced areas and septic system lands.

Module 1 identified Preservation Area and Planning Area septic system yield based on the RMP and also identified the existing water supply and wastewater utility capacity and potential demands against that capacity for a municipality due to build-out of the RMP Existing Areas Served (EAS) based on existing zoning and land development conditions evaluated in accordance with the RMP. Module 2 requires municipalities to focus on these potential utility demands. This evaluation may result in the identification of conflicts where current municipal zoning creates demands that exceed available utility capacity. Alternatively, surplus utility capacity may be available to either use within the EAS or to extend wastewater service beyond the EAS, within the Existing Community Zone. The results, along with any identification of Water Availability constraints by the Highlands Council, will enable the municipality to examine the build-out implications of Plan Conformance. Upon completion of the Module 2 Land Use and Resource Capacity Analysis and receipt of the Municipal Build-out Summary Report from the Highlands Council, a municipality may commence Module 3, the development of a Housing Element and Fair Share Plan.

The results of Modules 1 and 2 not only support the work in Module 3 (Housing Element and Fair Share Plan), but also aid compliance with the Water Quality Management Planning Rules at N.J.A.C. 7:15. Please note that planning and implementation projects in 2010 and beyond may result in changes to utility capacity and Water Availability, which will be addressed through Plan Conformance and reflected in revised planning as required.

## **Highlands Council – Technical Sufficiency Review**

The municipal Module 1 information submitted by the municipality was reviewed by the Highlands Council for technical sufficiency. The GDB fields [NJHC\_QA\_QC\_REVIEW] and [NJHC\_QA\_QC\_COMMENTS] were populated by the Highlands Council as part of the technical sufficiency review. If municipal Module 1 information required correction or clarification by the Highlands Council in order to be properly processed in the build-out, the details are indicated in these data fields. The municipality should review the NJHC QA/QC details and if any additional edits are required they shall be performed by the municipality using the Type A edit procedure described below.

## **Municipal Edit Procedures**

The municipal edit procedures for Module 2 are limited to two types of edits.

- A. The geodatabase information requires correction to either municipal submittals or Highlands Council edits. (SEE APPENDIX A INSTRUCTIONS)

- B. The municipal zoning used for RMP build-out application in RMP utility service areas requires correction. (SEE APPENDIX B INSTRUCTIONS)

**NOTE: It is critically important that the municipality not delete or edit any Module 2 GDB data fields other than those specified for editing in Appendix A and B.**

## **Scope of Work**

The Module 1 Summary Report indicates the build-out conditions for potential developable parcels based on the RMP for Septic System Yield, along with available municipal capacity for public water supply utilities and public wastewater utilities and the build-out for those service areas (EAS). Based on the nature and extent of municipal edits and the utility and water availability conditions, a revised Municipal Build-out Summary Report will be developed upon completion of Module 2 by the Highlands Council.

**Task 1:** The municipality is to conduct the following review of the geodatabase (GDB) and complete the Municipal Build-out Sign-off form that was included on the Module 2 CD-Rom information. Please note that the Municipal Build-out Sign-off Form must be submitted to the Highlands Council even if no edits are required, in order to proceed to next steps for RMP Build-out. **Please note that the municipality has a maximum of 15 days to complete the Task 1 activities.**

1. Review the Module 2 database information for both Highlands Council notations and modifications that address any Module 1 GDB edits or errors from the municipality's Module 1 submittal, in accordance with the instructions provided in Appendix A [Type A Edit]. If no Type A edits are required, complete the Municipal Build-out Sign-off form and submit it to the Highlands Council. However, if edits are necessary, provide edits and municipal verification in accordance with Appendix A, complete the Municipal Build-out Sign-off Form, and submit all materials to the Highlands Council.
2. Review the municipal zoning utilized by Highlands Council in the Module 1 RMP Build-out analysis for RMP EAS. (The Highlands Council relied on zoning information circa 2005.) If necessary, edit the municipal zoning in the Module 2 template in accordance with Appendix B [Type B Edit]. If no Type B edits are required, no additional verification is required at this time. However, if Type B edits are necessary, provide edits and municipal verification in accordance with Appendix B.
3. If no Task 1 edits (Type A or B) are required and the Module 1 Municipal Summary Report identified that the EAS build-out demands for utility capacity exceed available capacity for the municipality (i.e., utility capacity is a "limiting factor"), proceed to Task 2, Step 1.
4. If no Task 1 edits (Type A or B) are required and the Module 1 Municipal Summary Report indicated that utility capacity is not a "limiting factor" for the municipality, proceed to Task

2, Step 1.c if utility capacity remains and the municipality desires to extend its sewer service area beyond the existing area served. Otherwise, proceed to Task 2, Step 2.

5. If any Type A or B edits are required for Task 1 the municipality must submit the edited Module 2 template and the Municipal Build-out Sign-off Form to the Highlands Council for review prior to proceeding with Task 2. The nature and extent of the municipal edits will be evaluated by the Highlands Council to see if the RMP Build-out analysis requires an update prior to proceeding.

**Task 2:** The municipality shall utilize the results of Module 2 Task 1 to evaluate the municipal build-out results as related to utility capacity conditions. The following summarizes the Module 2 protocols required for this process. Once the RMP Utility Capacity conditions have been addressed as required, the Highlands Council will evaluate Water Availability constraints as needed.

1. The municipality identified in Module 1 the development potential of lands that were located in an RMP Existing Area Served (EAS) served by public water supply systems and public or on-site community wastewater systems. The RMP Build-out requires that these potential developable lands, available municipal utility capacity conditions and local zoning be evaluated in accordance with the RMP and the Highlands Regional Build-out Impact Factors (See Appendix C).

The results of this analysis were reported in the Module 1 Municipal Summary Report (see Table 1) and tracked in the geodatabase. The results are used in this step to determine whether the land-based build-out from Module 1 is constrained by wastewater utility capacity, or whether surplus wastewater capacity can support additional sewer growth.

- a. If the Module 1 Municipal Summary Report identified that build-out demands are greater than the available utility capacity, the build-out demand will be reduced in the utility service area to align with existing utility capacity. Using the final results from Module 2 Task 1, the Highlands Council will reduce the local build-out proportionately for both residential and non-residential development to determine the constrained build-out that is within the available capacity identified in Module 1. The results will be reported in a final Municipal Build-out Summary Report at the end of Task 2. **Note:** no change to the boundaries of the RMP EAS will occur, but the calculated build-out from that EAS will be reduced due to the utility capacity constraint.
- b. If utility capacity remains after build-out of the RMP EAS, the municipality may propose expansion of sewer service beyond the RMP EAS. In Module 2, such proposed expansions may occur only within the Planning Area where previously approved by NJDEP as a Sewer Service Area through a current Wastewater Management Plan. (Refer to Appendix B data field #37 for the identification of parcels that are associated with the RMP LUCM EAS.) Additionally, such proposed expansions may occur only within the

Existing Community Zone (excluding the Environmentally Constrained Sub-Zone) and Lake Community Zone. Priority shall be given to those developments in such areas that address prior round affordable housing obligations (as identified in certified Fair Share Plans or court-approved plans) or that have already received prior final municipal approval. Municipalities may also reserve available utility capacity for redevelopment, TDR receiving zones or affordable housing within the EAS, rather than extending the sewer service area.

The municipal utility capacity expansion evaluation shall be conducted by the municipality using a separate Excel file and submitted to the Highlands Council. **Submit the completed Excel file to Roger Keren (roger.keren@highlands.state.nj.us) via email along with the Municipal Build-out Sign-off Form.** For each parcel proposed to be added to the sewer service area, the file shall report the Block, Lot, Wastewater Utility Provider, zoning type, and currently zoned density (du/acre value and /or FAR value) for parcels that were identified based on the following criteria:

- i. In data field#37 as a “no” or a “split” parcel for RMP LUCM EAS;
    - ii. Identified in data field #24 and #25 as a “yes”;
    - iii. Identified in data field #26 as “sewer” ; and
    - iv. Identified in data field#30 as having enough developable lands to either meet the RMP requirement for 2 dwelling unit per acre (residential zones), or having a minimum of 1400 sq ft of developable area for non-residential zones.
  - c. The results of Step 1.b shall be submitted to the Highlands Council for verification and next steps for the build-out. The Highlands Council will evaluate the municipal Excel file for build-out of the lands from Step 1.b using RMP minimum density values of 2 du/acre or a FAR value of 0.84, or the municipal zoning if it is of greater density than the RMP values, to determine if the demands generated by the proposed sewer service area expansion are within the remaining utility capacity for the municipality.
  - d. Where lands that were used to calculate septic system yields in Module 1 are proposed for sewer service (in accordance with criteria identified in 1.b), the Highlands Council will provide a recalculated septic system yield for the remaining lands. Otherwise, the septic system yield from Module 1 shall remain unchanged.
2. Based on the municipal build-out results from Step 1 above for utility areas and the Module 1 RMP septic system yield, the Highlands Council will determine whether Net or Conditional Water Availability will be an additional constraint on municipal build-out. If so, the Highlands Council will provide the Water Availability and shortfall for each relevant source HUC14 subwatershed. Where a source HUC14 subwatershed is shared among municipalities, the water availability will be prorated accordingly. The local build-out in such cases must be reduced to eliminate the shortfall, in the following order:
- a. Reduce build-out demands for any sewer service expansion proposed in Step 1.c above.

- b. Where Step 2.a does not eliminate the shortfall, reduce the build-out from the EAS and septic system areas in the following order:
  - i. Where EAS demands contribute to the shortfall, the EAS build-out will be reduced as in Step 1.a above. Again, this step reduces the build-out associated with the EAS, not the boundaries of the EAS itself.
  - ii. Where RMP Septic System Yield demands contribute to the shortfall, the water demands from septic system yield in that HUC 14 subwatershed shall be reduced by the consumptive/depletive water use values indicated in Appendix C.
3. Module 2 municipal build-out will be a combination of the RMP septic system yield from Module 1, and the build-out for utility service areas (as constrained by utility capacity from Step 1 above), as further constrained by Water Availability in Step 2. For the purposes of this build-out, the constraints caused by utility capacity and Water Availability are assumed to be long-term constraints. As stated previously, planning and implementation projects in 2010 and beyond may result in changes to utility capacity and Water Availability, which may be addressed in later stages of Plan Conformance and reflected in revised planning.

**Task 3:** Once Task 1 and Task 2 are complete, the Council will provide a final Municipal Build-out Summary report, which the municipality shall use in Module 3, to support the development of a Housing Element and Fair Share Plan. The report represents the municipal build-out conditions reflective of utility capacity and water availability constraints were relevant. The constrained utility capacity and water availability are not parcel based but reductions based on gallons per day flow or water demand at the facility and municipal level. The assignment of RMP septic system yield and RMP utility capacity is conducted in Module 3 in support of the Housing Element and Fair Share Plan.

**Please note that information determined to be Incomplete based on the Highlands Council's quality assurance/quality control review will be flagged and returned to the municipality for further evaluation.**

## **Technical Proficiency**

**Please note that the technical proficiency requirements for Module 2 are the same as Module 1 as it is a continuation of the Module 1 data evaluation.**

**System Requirements:** ESRI ArcGIS Desktop 9.3 (ArcInfo, ArcView or Arc Editor Editions)

The data review portion of this process is intended for proficient Geographic Information System (GIS) users with the appropriate software and hardware for editing both tabular and spatial attributes in personal (single user) geodatabases. Operations include overlaying spatial data,

appending, joining and relating tables, heads-up digitizing, structured query language and importing/exporting to/from Microsoft Access and Excel applications.

**Professional Staff or Consultant Requirements:** Proficient with system requirements specified above. Requires New Jersey Professional Planning or Professional Engineering License for verification of land use conditions represented in the build-out analysis. Lead consultant must be both familiar and experienced with parcel based build-out analysis as a means to evaluate public water and sewer utility service capacity conditions and the evaluation of developable lands for septic system yield analysis. Familiarity also required with the tax assessor MOD IV data, municipal zoning and land use ordinances, NJDEP Land Use/Land Cover data and preserved open space/farmlands related to all levels of government, non-profit organizations and water supply authorities. Familiarity is required with the NJDEP regulations at N.J.A.C. 7:10, 7:9A, and 7:15 regarding drinking water, subsurface disposal system, and water quality management planning, respectively. Local knowledge of parcel based land use conditions, water and wastewater utility service providers, preserved open space/farmlands lands and municipal owned lands required for analysis of developable lands that inform the build-out and capacity condition evaluation.

## **Module 2 – Electronic Information**

Municipalities will receive the Module 1 Municipal Summary Report, Module 2 Instructions, Municipal Build-out sign-off Form and Module 2 GDB on the Module 2 CD-Rom. The municipality is to submit Module 2 Task 1 information to the Highlands Council using the pre-labeled CD-Rom provided by the Highlands Council. The municipality is to submit the Module 2 Task 2 Excel file information via email to Roger Keren ([roger.keren@highlands.state.nj.us](mailto:roger.keren@highlands.state.nj.us)).

APPENDIX A – Module 1 GDB Municipal Edit Instructions

APPENDIX B – Module 2 RMP Build-out Database Field Descriptions and Municipal Edit Instructions

APPENDIX C – Highlands Regional Build-out Impact Factors