



State of New Jersey

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HIGHLANDS REGIONAL MASTER PLAN MONITORING PROGRAM WATER RESOURCES TECHNICAL ADVISORY COMMITTEE MEETING

DATE: December 16, 2015

TIME: 12:30PM – 2:30PM

LOCATION: Highlands Council Office
100 North Road
Chester, NJ

ATTENDEES:

First Name	Last Name	Organization
Ron	Farr	North Jersey District Water Supply Commission
Jan	Gheen	NJDEP
Ernest	Hofer	Sussex County Water Quality PAC
John	Jimenez	Bethlehem Township
Ken	Klipstein	NJ Water Supply Authority
Howard	Matteson	CDM Smith
Dan	O'Rourke	CDM Smith
Chris	Obropta	Rutgers Cooperative Extension
Dave	Pfeifer	ANJEC
Chad	Pindar	Delaware River Basin Commission
Beth	Styles-Barry	Musconetcong Watershed Association
Dan	Van Abs	Rutgers University
Carl	Richko	NJ Highlands Council - Member
Mike	Sebetich	NJ Highlands Council - Member
Margaret	Nordstrom	NJ Highlands Council – Executive Director
Kelley	Curran	NJ Highlands Council – Staff
Chris	Danis	NJ Highlands Council – Staff
Casey	Ezyske	NJ Highlands Council – Staff
Jim	Hutzelmann	NJ Highlands Council – Staff
John	Maher	NJ Highlands Council – Staff

Corey	Piasecki	NJ Highlands Council – Staff
Jocelyn	van den Akker	NJ Highlands Council – Staff
Alex	Belensz	Regional Plan Association
Courtenay	Mercer	Regional Plan Association

MEETING PURPOSE:

Technical Advisory Committees (TACs) serve to engage those with specific technical content knowledge across the ten topic areas included in the Highlands Regional Master Plan (RMP). TAC membership represents academic institutions, business and industry, regulatory agencies, and non-government organizations each providing a unique perspective on their area of expertise. Each TAC will meet two times over the course of the RMP Monitoring Program project.

The purpose of TAC Meeting 1 was to review of the draft proposed indicators under consideration for analysis, as well as sample indicator reports demonstrating the type of output that is anticipated to be included in the Monitoring Program Recommendation Report (MPRR). As time allowed, the TAC could discuss potential milestones.

MEETING SUMMARY:

The meeting opened with welcome remarks by the MPRR project consultant, Courtenay Mercer, New Jersey Director at Regional Plan Association (RPA). After attendees introduced themselves, Ms. Mercer provided an overview of the meeting purpose and an explanation of the meeting materials, which included the Agenda, RMP Goals information sheet, Briefing Memo, and Draft Indicator Spreadsheets.

Participants were presented with several general questions regarding implementation indicators in the MPRR, including:

- Do the indicators adequately analyze the Water Resources goals and policies of the RMP?
Are there any missing indicators, or are any indicators listed in an inappropriate tier?
- For the sample indicators, does the proposed MPRR format present the indicator clearly (in its narrative, tables, charts, and maps)?
- For each indicator, what may serve as the appropriate corresponding milestone?

The TAC first discussed the draft proposed Tier 1 indicators (those with the strongest nexus to the goals and policies of the RMP), which would be analyzed as part of the MPRR.

The TAC noted that different types of preserved land could have varying impacts on water quality. For example, parks and recreational lands may serve to impair water quality if they contain large, highly compacted lawns and impervious surfaces. Accordingly, the TAC recommended that preserved lands within Critical Water Resource Areas be analyzed using the following breakdown: natural lands, non-natural lands and agricultural lands. RPA will set up a web-portal in order to receive feedback on specific Anderson Land Use/Land Cover (LULC) codes to be used in the analysis. Prime Groundwater Recharge Areas and Highlands Open Waters are defined based on HUC14 subwatersheds, so that should be the unit of analysis. However, Wellhead Protection Areas are not closely tied to subwatersheds, so these should be analyzed at a regional level. It was also recommended that the three Critical Water Resource Areas be analyzed separately within the same

indicator, but not indexed and/or weighted. The TAC further agreed that the quintile method of analyzing preservation and land use was appropriate, and that the analysis consider only the portion of the HUC14 subwatershed in the Highlands Region.

Participants recommended that a Tier 1 indicator be added to analyze changes in impervious surface cover by HUC14 subwatershed, as there is a significant nexus between impervious surface coverage and waterbody impairment. The break values for percent of impervious coverage were recommended at 2 percent, 10 percent and 25 percent in order to develop four value classes.

With regard to the Designated Use Support Analysis & Waterbody Impairment Index, it was noted that the name of the indicator was simplified to Surface Water Quality. The RMP used an integrated NJ Department of Environmental Protection (NJDEP) report that analyzed all designated uses and TMDLs as a weighted index by HUC14 subwatershed. It was recommended that the MPRR analysis show the number of designated uses not obtained (i.e., 0, 1, 2, 3, 4, or all 5) by HUC14, with a full breakdown of designated uses attainment/impairment in an appendix. The entire HUC 14 should be analyzed, not just the portion in the Highlands Region. Additionally, the analysis should include links to adopted TMDL plans for subwatersheds which have them, as well as summary appendix page documenting TMDLs in the Highlands Region.

The TAC identified a number of challenges in performing a Net Water Availability indicator analyses. Water use is reported at a coarse scale, and the availability of groundwater has been assumed to be fixed, so establishing a net water availability metric is very difficult. The scale of analysis also influences the results. Ultimately, it was agreed that performing a region-wide analysis was not practical given the small scale approach that would be required to yield accurate results. It was recommended that the Highlands Council update the Net Water Availability indicator as information becomes available through the completion of municipal Water Use and Conservation Management Plans.

For the Streamflow indicator, participants discussed the difficulty in determining regional streamflow trends due to the limited number of on-line gauging stations. The existing on-line gauging stations are scattered throughout the region, and many are located in the middle or higher reaches of subwatersheds, which limits the ability for trends to be analyzed at the subwatershed level. For the development of the RMP, the United States Geologic Survey (USGS) used statistical methods to aggregate streamflow characteristics to subwatersheds. This approach would need to be undertaken with new data again in order to garner a meaningful analysis. It was recommended that the indicator remain a Tier 1, but it will likely not be possible to analyze for this MPRR process. Ultimately, the indicator should analyze change in median September flow and 7Q10 flow statistics. It was recommended that, as part of the Science and Research Agenda, the Highlands Council contact the USGS to evaluate and suggest locations for new gauging stations that would allow for a more simplified analysis of streamflow conditions in the Region.

With regard to the Water Use indicator, it was clarified that the analysis was conducted using water allocations from the NJWaTr database. More recent data should be used as opposed to older data when available. Participants were satisfied with the analysis.

Participants then examined Tier 2 and 3 indicators, which are anticipated to compliment and supplement Tier 1 indicator analyses in order to better explain trends. Participants questioned why Ground Water Quality was listed as a Tier 2 indicator. There are a lot of different measures that

could be used as an indicator of groundwater quality. Participants agreed that nitrate concentration would be the best and most practical metric to analyze, and suggested that water quality data can be acquired from water purveyors and water supply wells through the Private Well Testing Act. However, groundwater-based public water systems generally do not monitor raw water quality, and ambient groundwater monitoring occurs at only a few Highlands water quality wells. Participants recommended that Ground Water Quality be moved to a Tier 1, but requires research and it will likely not be possible to analyze for this MPRR process. It was further recommended that, as part of the Science and Research Agenda, the Highlands Council work with the USGS to coordinate data assemblage and analysis metrics.

TAC members noted that NJDEP possesses data on macroinvertebrates (AMNET monitoring and fish (IBI index) [Tier 3 indicators], and asked if that data had been applied to the RMP or the MPRR process. Ms. Mercer responded that this data is the basis of NJDEP's designated use analysis that is being used for the Surface Water Quality indicator.

Ms. Mercer then reviewed the final proposed changes to the Water Resources indicators:

Critical Water Resource Areas Index:

- Analyze Wellhead Protection Areas at regional level, and Prime Groundwater Recharge Areas and Open Water Protection Areas at HUC14 subwatershed level
- Perform preserved land analysis using the following breakdown: natural lands, non-natural lands and agricultural lands (according to Anderson LULC classification)
- Analyze only the portion of the HUC14 in the Highlands Region

Ground Water Quality:

- Moved to Tier 1, but "Requires Research" due to lack of data
- Analyze nitrate concentration to assess trends in ground water quality.
- Science and Research Agenda - Highlands Council will work with the USGS to coordinate data assemblage and analysis metrics. Determine feasibility of LUCM zone and/or subwatershed medians.

Impervious Surface Cover (previously Tier 0):

- Analyze change in impervious surface coverage by HUC14 subwatershed using discussed break points (2 percent, 2-10 percent, 10-25 percent, and 25+ percent)

Net Water Availability:

- Indicator to be updated by Highlands Council as data becomes available from municipal Water Use Conservation Management Plans

Streamflow:

- Tier 1, but "Requires Research" due to reliance on USGS flow statistics and lack of gauges
- Science and Research Agenda - evaluate and suggest locations for new gauging stations that would allow for a more simplified analysis of streamflow conditions in the Region. Evaluate suitability of existing gauging network to update flow statistics. Highlands Council will approach USGS regarding feasibility of updating data.

Surface Water Quality Index:

- Rename to Surface Water Quality
- Show number of designated use impairments by HUC14 subwatershed, with a full breakdown of designated non-attainment uses in an appendix
- Provide link to adopted TMDL plans, with a summary appendix page
- Analyze the entire HUC14

Water Use:

- No suggested changes

UPDATED DRAFT WATER RESOURCES INDICATORS:

TIER 1 INDICATORS:

- **Critical Water Resource Areas:** Measures the change in land use and preservation within Wellhead Protection Areas, Prime Groundwater Recharge Areas and Open Water Protection Areas.
- **Ground Water Quality:** Measures change in ground water nitrate concentration by LUCZ and HUC14 subwatershed.
- **Impervious Surface Cover:** Measures change in impervious surface coverage by HUC14 subwatershed.
- **Surface Water Quality:** Measures change in designated use support status and impairment by HUC14 subwatershed.
- **Streamflow:** Measures change in streamflow at stream flow gauging stations (locations TBD after consultation with USGS).
- **Water Use:** Measures change in water withdrawal by subwatershed for major use types, including agricultural, commercial, industrial, irrigation, mining, potable supply, and power generation.

TIER 2 AND 3 INDICATORS:

- **Aquatic Invasives:** Measures change in the proliferation of aquatic invasives.
- **Fish Consumption Advisories:** Measures change in the number of location of fish consumption advisories.
- **Fish IBI Assessment:** Measures change in the Fish Index of Biotic Integrity Assessment of Highlands Region waters.
- **Private Well Contamination:** Measures change in the percentage of tested wells exceeding maximum contaminant levels.
- **Water Deficits:** Measures change in land use or preservation in water deficit areas.