

**North & South Branch Raritan Watershed Management Area
Stormwater Management & Hydrology Work Group
Strategy Worksheet NSSM-S2B1 & NSSM-S2B5**

<p>Strategy: Municipal Regulatory Systems to Maintain Ground Water Recharge NSSM-S2B1: Implement municipal regulatory systems to maintain 100% of pre-development recharge using structural and non-structural methods in order to maintain annual ground water recharge rates. NSSM-S2B5: Establish alternate runoff control techniques that facilitate infiltration and recharge.</p>	<p>Strategy Priority: H (H/M/L)</p>
<p>Objectives Addressed by Strategy: NSSM-O2B: By 2005, no net loss of baseflow in any location of the WMA.</p>	<p>Strategy Schedule: (Begin/End)</p>
<p>Narrative Description of Strategy: This strategy will require the infiltration of stormwater runoff from new developments in order to maintain ground water recharge and baseflow in subwatersheds of the WMA. Use of structural and nonstructural methods identified by the NJDEP will be implemented and tracked for effectiveness. The 100% infiltration required proposed in the new NJDEP Stormwater Management Regulations should ensure that ground water recharge does not decrease in an areas as a result of future development; however, measures to track the effectiveness of stormwater BMPs should be implemented.</p> <p>Between 1986 and 1995, the WMA lost nearly 6% of its estimated average rate of recharge (from 12.91 inches per year in 1986 to 12.15 inches per year in 1995). During the same time period, all 51 subwatersheds (HUC-14s) in the WMA experienced losses in ground water recharge, with losses ranging between 1.26% and 25.81%. The majority of the losses ranged between 0 and 10%. The headwaters of the Lamington River watershed lost approximately 26% of its estimated annual recharge (the highest loss in the WMA) due to conversion of large tracts of forested land to commercial land uses. Baseflow comprises an average of 70% of the mean annual flow at five gauging stations in the Highlands Province and 42% of the mean annual flow at six gauging stations in the Piedmont Province. Runoff is a higher percentage of total streamflow in the Piedmont due to the presence of shallow soils with low permeability. Within the WMA, extreme low flows during dry periods in the later summer have occurred with greater frequency in the 1990s. This may be an indication that water tables in the area are dropping. Development pressure and suburban sprawl are converting a great deal of forested and agricultural land to urban land uses. Along with urban land uses comes an increase in impervious cover that both increases stormwater runoff and decreases ground water recharge and baseflow, along with bridges over streams, stormwater outfall structures and other changes to the stream corridor.</p>	
<p>Areawide WQM Plan Consistency Determination Issues: NA</p>	

Action Plan (Steps or Tasks)	Responsible Parties for Planning, Design & Implementation	Responsible Parties for Oversight	Resource Needs (L,M,H,VH)	Committed or Recommended Resources	Major Challenges and Opportunities	Evaluation Method & Indicators	Schedule and Milestones for Implementation
1. Identify structural and nonstructural techniques to infiltrate stormwater runoff on-site.	C: R: NJDEP, Counties, Municipalities, NSSM	C: R: NJDEP, N&S Branch WMAC	L	C: R: Existing resources	Opportunity: Use of techniques in NJDEP Stormwater BMP Manual	List of techniques	

C = Committed; R = Recommended

General Estimates: Low = \$5,000 - \$50,000; Moderate = \$50,000 - \$250,000; High = \$250,000 - \$1 million; Very High = over \$1 million

Acronyms: NJDEP= NJ Department of Environmental Protection; BMP=Best Management Practices; SCD=Soil Conservation District; CBT=Corporate Business Tax; NJPDES= NJ Pollutant Discharge Elimination System; NJAC= NJ Administrative Code

Committee Abbreviations: N&S Branch WMAC = North & South Branch Raritan Watershed Management Area Committee; NSSM = North & South Branch Raritan Stormwater Management & Hydrology Work Group; NSHW = North & South Branch Headwaters & Stream Management Work Group; NSEO = North & South Branch Raritan Education & Outreach Work Group; RBEO = Raritan Basin Education & Outreach Committee; RBC = Raritan Basin Council; TAC = Technical Advisory Committee

Action Plan (Steps or Tasks)	Responsible Parties for Planning, Design & Implementation	Responsible Parties for Oversight	Resource Needs (L,M,H,VH)	Committed or Recommended Resources	Major Challenges and Opportunities	Evaluation Method & Indicators	Schedule and Milestones for Implementation
2. Identify places where soils/substrates are and are not conducive to ground water recharge via stormwater infiltration areas/BMPs.	C: R: NJDEP, Counties, NSSM	C: R: N&S Branch WMAC	L	C: R: Existing resources, developer costs (for specific sites)	Challenge: Soils data only allow general analysis at large scale	List of areas where the 100% infiltration requirement is or is not likely to be feasible	
3. In areas where it is not conducive to implement the 100% infiltration requirement on-site, identify potential locations for mitigation off-site.	C: R: NJDEP, Counties, NSSM	C: R: N&S Branch WMAC	L-M	C: R: Existing resources	Challenge: Ownership considerations exist. Must have policy on mitigation using public property (e.g., road right of way space)	List of potential mitigation sites	
4. Compare existing ordinances to identified techniques and identify gaps.	C: R: Watershed associations, SCDs, Counties	C: R: N&S Branch WMAC	M	C: R: Foundations, CBT, existing resources	Challenge: Ordinance review is a detailed process that requires local knowledge of underlying reasons for practices	Complete ordinance analyses	
5. Test validity and viability of ordinances (technical and political).	C: R: NJDEP, Watershed Associations, SCDs, Counties	C: R: N&S Branch WMAC	M	C: R: Foundations, CBT, existing resources	Challenge: The method must focus on key issues, not local variability that reflects geographic differences	Testing method Complete analysis	

Action Plan (Steps or Tasks)	Responsible Parties for Planning, Design & Implementation	Responsible Parties for Oversight	Resource Needs (L,M,H,VH)	Committed or Recommended Resources	Major Challenges and Opportunities	Evaluation Method & Indicators	Schedule and Milestones for Implementation
6. Provide assistance to municipalities on how to implement ordinance changes to fill the gaps and implement identified techniques.	C: R: NJDEP, Watershed Associations, SCDs, Counties	C: R: N&S Branch WMAC	L to M	C: R: Foundations, CBT, existing resources	Challenge: Ordinance changes must be tailored to local needs Opposition from municipalities	Recommended changes to ordinances	
7. Implement changes to ordinances.	C: Municipalities (in compliance with municipal NJPDES stormwater permits) R: Municipalities	C: NJDEP R:	M	C: R: Local resources	Opportunity: NJDEP will require local ordinances be in conformance with NJAC 7:8 for municipal stormwater permits	Adopted ordinance revisions Implementation of identified techniques	