Town of Durham and UNH: Watershed-Based Integrated Watershed Management Plan

- For the Oyster River Watershed -

November 29, 2012

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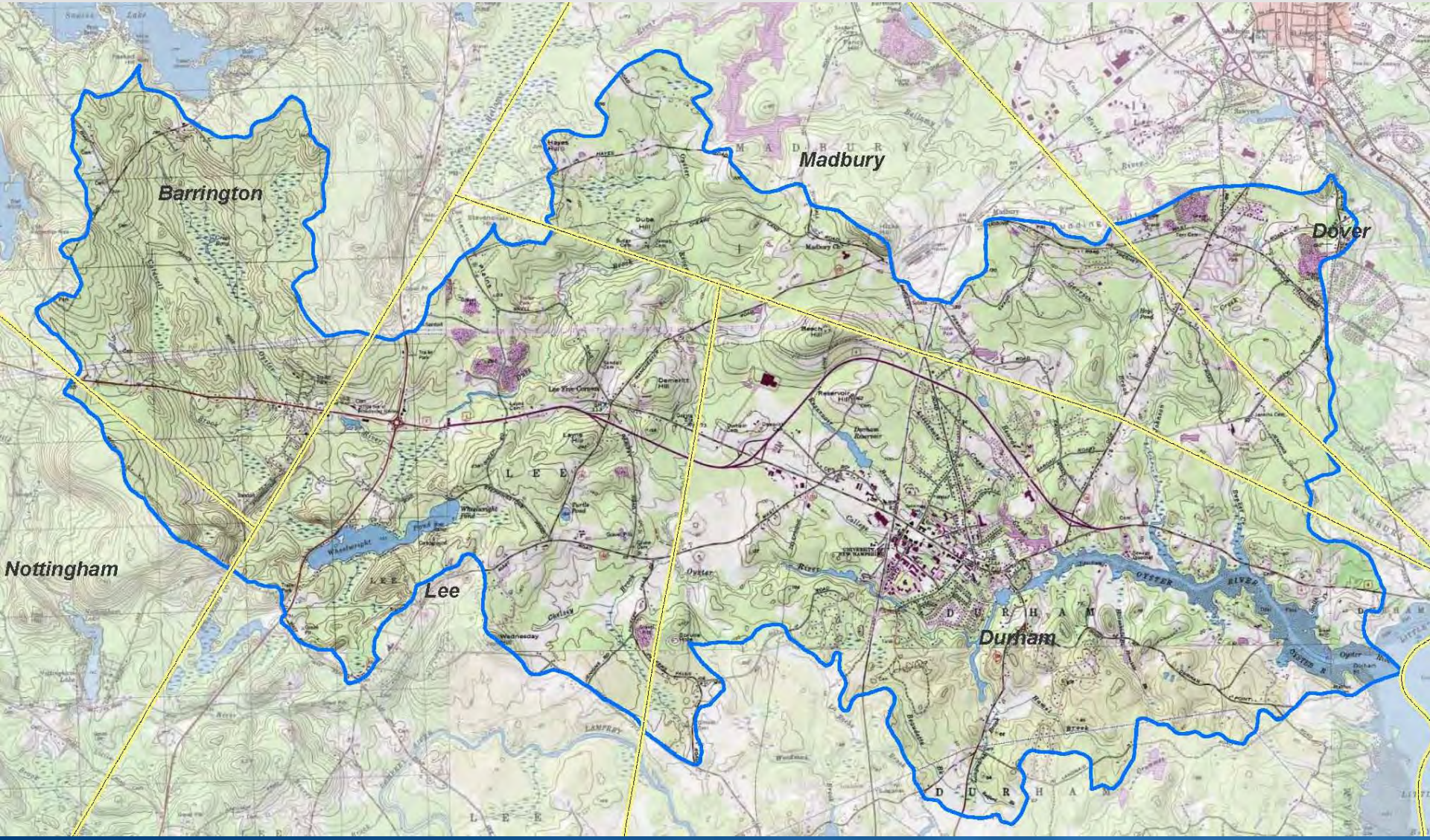
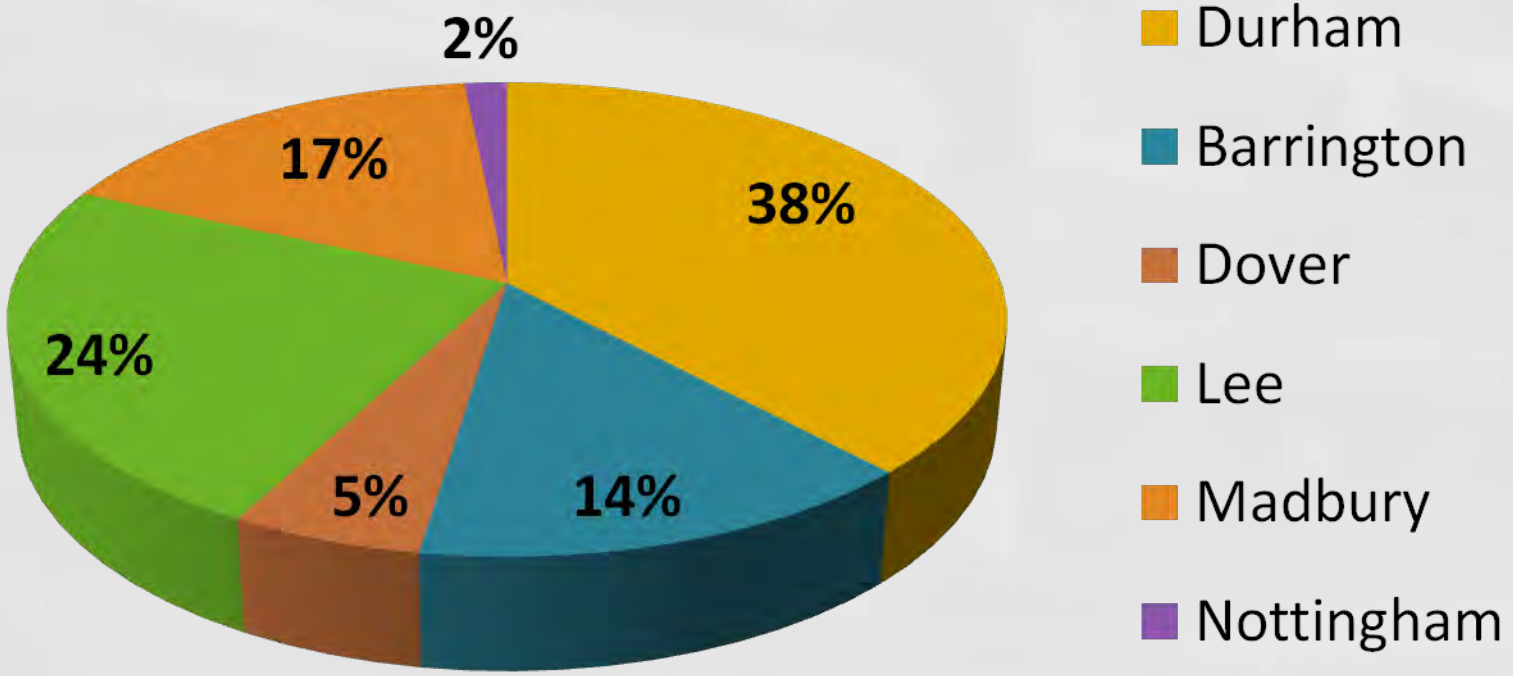
Dept. of Public Works

Oyster River Watershed



Percentage of the Oyster River Watershed within Each Community



Multi-Dimensional Integrated Watershed Plan

- Durham and UNH must comply with two MS4 Permits & one wastewater NPDES Permit.
- Combine UNH and Durham's wastewater and MS4 stormwater NPDES Permit obligations into a Watershed-Based Integrated Single-Permit approach.
- Balanced Approach to Achieve Water Quality Objectives through "Sustainable Limit of Technology" upgrade at WWTF and Green NPS Controls.
- Integrate interests of ALL watershed stakeholders with a thoughtful approach to improving water quality.

Integrated Watershed Plan Goals

- Collaboration: Encourage participation & involvement of ALL watershed stakeholders
- Sustainability: Combine sustainable BNR WWTF upgrade with GREEN and Non-Structural measures that involve less O&M
- Cost Effectiveness: Identify most Cost-Effective solutions balancing capital & operational costs of Point and Non-points source controls

Integrated Watershed Plan - **COLLABORATION**

- Expand on current efforts by UNH, NHDES, PREP, SWA, VRAP, Watershed Groups, Conserv. Comms.
- Integrate Durham & UNH resources to comply with CWA obligations (3 NPDES permits → 1 permit).
- Comprehensive Water Quality Monitoring Plan developed/implemented by a ***RESEARCH TEAM***
  - Vanasse Hangen Brustlin (VHB) and Woodard & Curran
  - Town of Durham/UNH Facilities
  - UNH Natural Resource Dept.
  - NHDES & PREP

Integrated Watershed Plan - **COLLABORATION**

- Solicit support and input from stakeholders inside and outside OR watershed boundaries.
- Outreach and Education (technical, political, solution based).

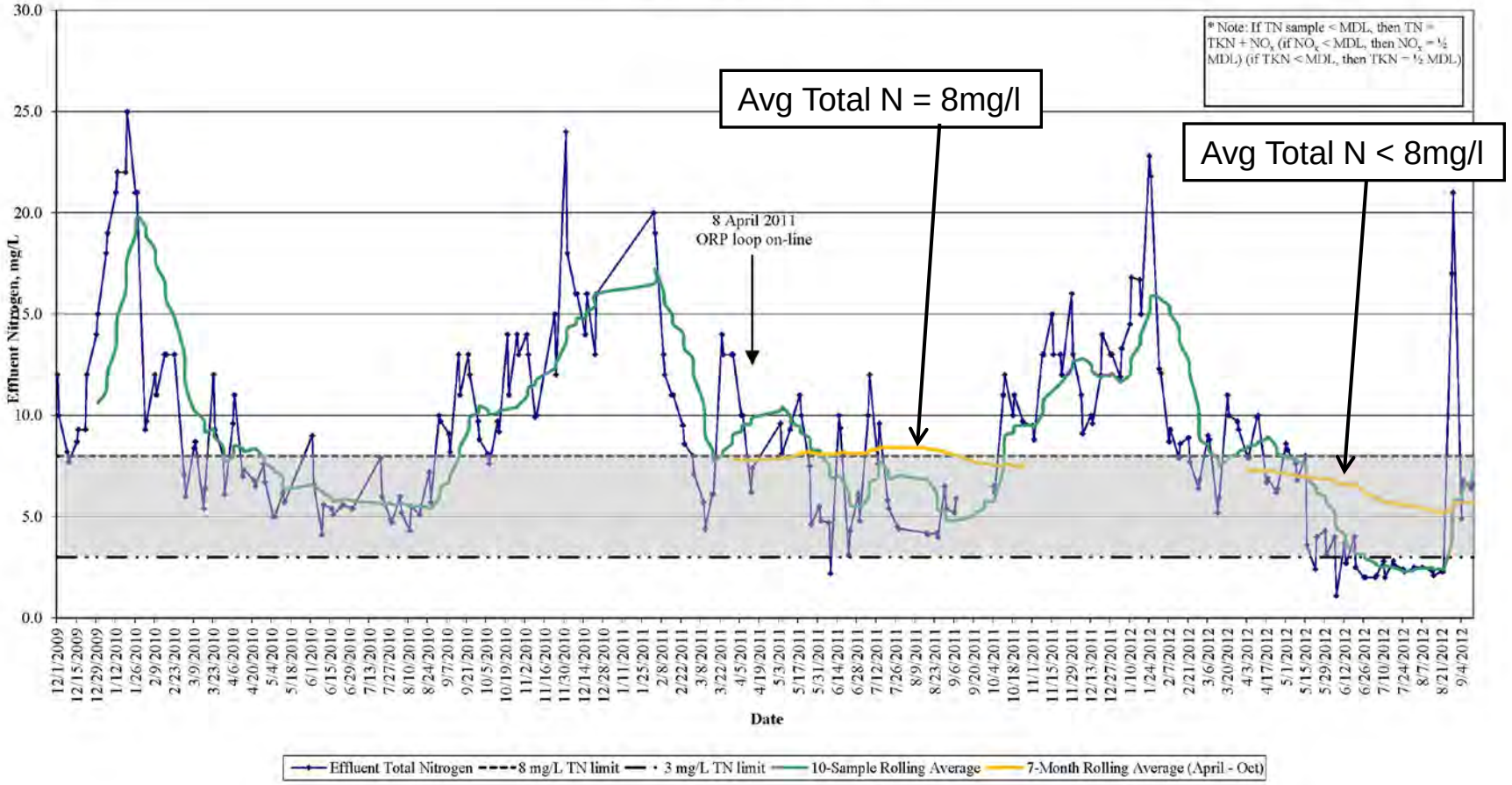
Integrated Watershed Plan - **SUSTAINABILITY**

- Pilot the “Sustainable Limit of Technology” for biological nutrient removal at the WWTF **without** supplemental chemicals

{SEE CHART ON NEXT SLIDE}

Total Nitrogen Concentration Dec 2009 to Sept 2012

Wastewater Treatment Plan Effluent – Durham, NH



Integrated Watershed Plan - **SUSTAINABILITY**

- Pilot the "Sustainable Limit of Technology" of biological nutrient removal at the WWTF
- Explore Opportunities beyond MS4 areas and WWTF.
- Develop other sustainable approaches for Durham, UNH and other communities (i.e. nutrient trading).

Integrated Watershed Plan – **COST EFFECTIVENESS**

- Avoid Chemical Enhanced Limit of Technology
- Balance Capital Costs at WWTF and NPS Controls.
- Target resources to “Hot Spots” to achieve greatest results using GREEN technologies and management (ie. raingarden retrofits and fertilizer management)

2012 Oyster River High School Raingarden Project

- Cost Effectiveness
- Collaboration
- Sustainability

2012 Oyster River High School Raingarden Project

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2012 Oyster River High School Raingarden Project

Integrated Watershed Plan – **COST EFFECTIVENESS**

- Comprehensive Water Quality Monitoring Plan to combine the needs of 3 separate NPDES permits
- NPS Controls result in other Pollutant Load Reductions in addition to the Targeted Pollutant.

Durham/UNH Proposed IP Elements

- Develop Oyster River Watershed Mngt Plan (this is an “adaptive plan”)
- Public Education and Outreach to Engage All Stakeholders
- Pilot “Sustainable Limit of Technology” WWTF Optimization Measures in 2013 & 2014
- Comprehensive Baseline WQ Monitoring

Durham/UNH IP Elements (cont.)

- Enhance Storm System GIS Mapping / Asset Mgt Program
- Implementation Schedule to Achieve N Reduction Goals
- Develop N Load Reduction Tracking/Accounting Program
- Comprehensive Monitoring Program to Track WQ Conditions and Progress

IWP Adaptive Elements