

# Lake Champlain

## Total Maximum Daily Loads (TMDLs) Phase 1 Implementation Plan

Public Informational Meetings

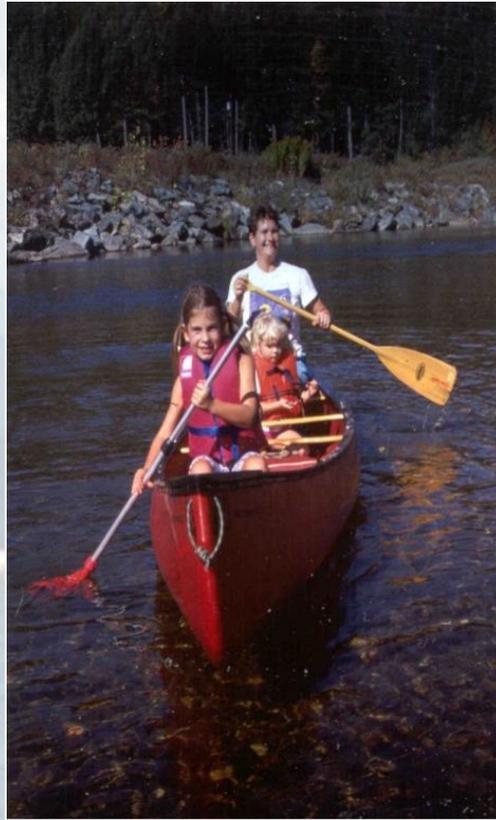
State of Vermont  
August 2016

# Meeting Agenda

- Introductions & Agenda Review
- Vermont Clean Water Act & Lake Champlain TMDL
- “All In” Approach
- Why we Need a Clean Lake Champlain
- Achieving Results
- Key Elements of the Phase I Implementation Plan
- Questions and Answers

# Lake Champlain is a Critical Community Asset

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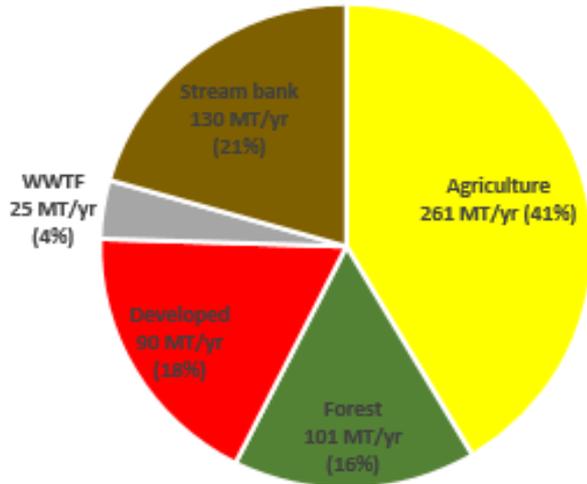


# Land Uses Harm Lake Champlain

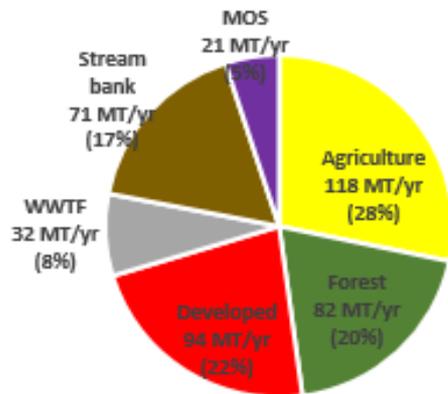
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Base Load  
631 Metric Tons/Year



Vermont Reduction  
Required = 213 mt/yr (34%)



TMDL Loading Capacity and Allocations  
418 Metric Tons/yr

34% phosphorus  
reduction over  
20 years



# “All In” Approach

Wastewater  
Treatment



Developed  
Land  $\geq$  3 acres

Forestry



River  
Channels



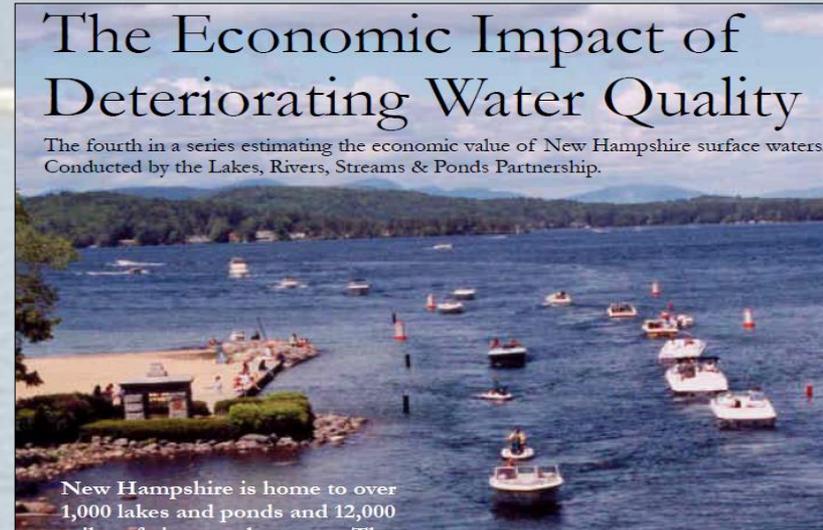
Agriculture



Roads

# Why We Need a Clean Lake

- Provide for the human use of water resources
  - Drinking water
- Support Tourism, at annual spending of \$2.5 billion
  - Lake Champlain a key attraction for visitors
  - Second home-owners in towns bordering the Lake spend \$150 million annually
  - Overnight visitors in Champlain Valley spend over \$300 million annually
  - Day visitors spend \$30 million annually
- Maintain Property Values
- Support the Vermont State Brand



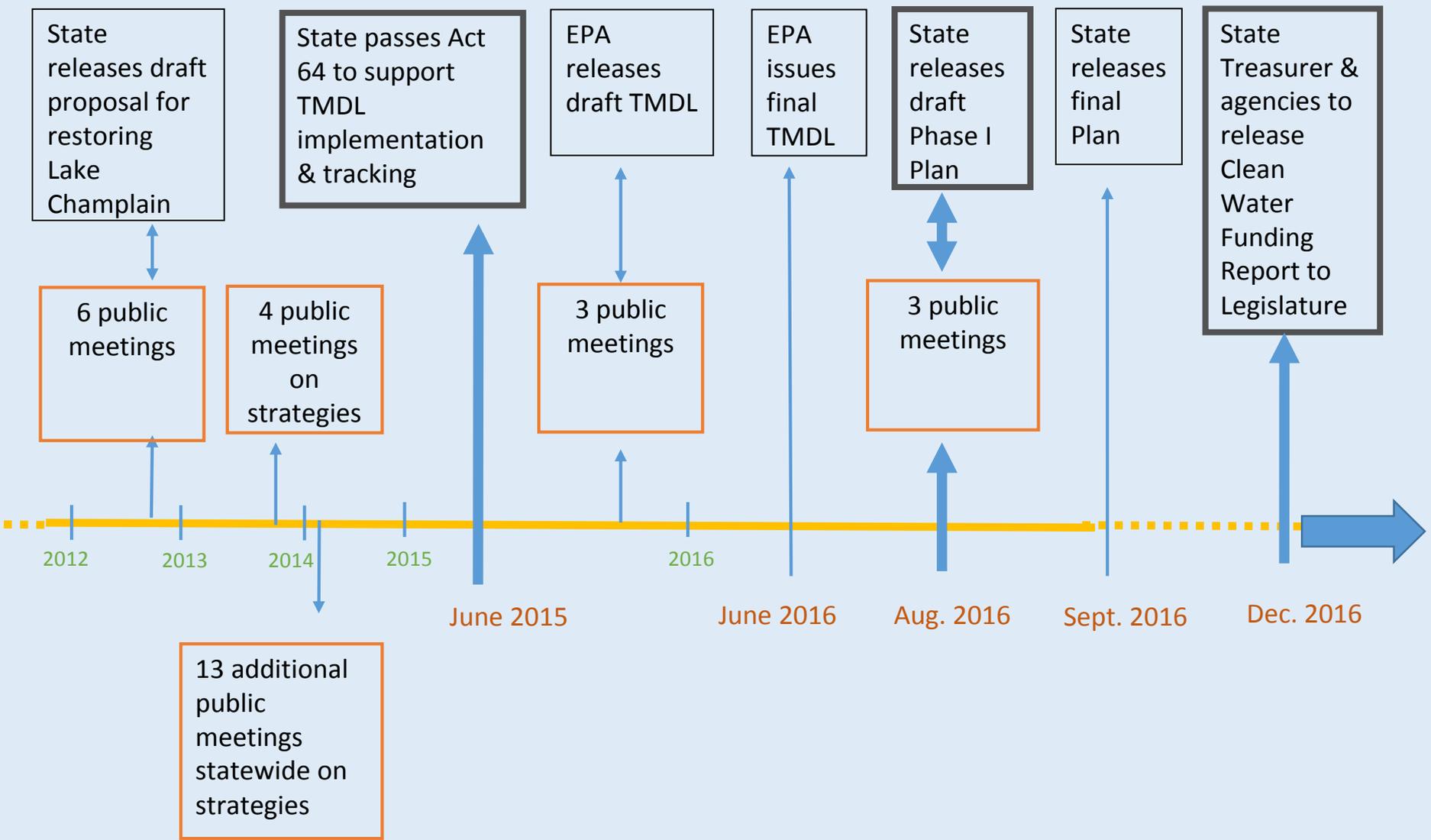
# Achieving Results

- Environmental Protection Agency Accountability
- Purpose: Provide transparent way to gauge Vermont's progress
- Accountability Framework
  - State's completion of 2016 commitments
  - State's completion of 2017 commitments
  - Scheduled completion and updates of Phase II Tactical Basin Plans over 20 year planning horizon
  - Implementation of Tactical Basin Plans
    - Interim Report Cards per watershed every 2.5 years
    - Final report Cards per watershed at 5 year intervals

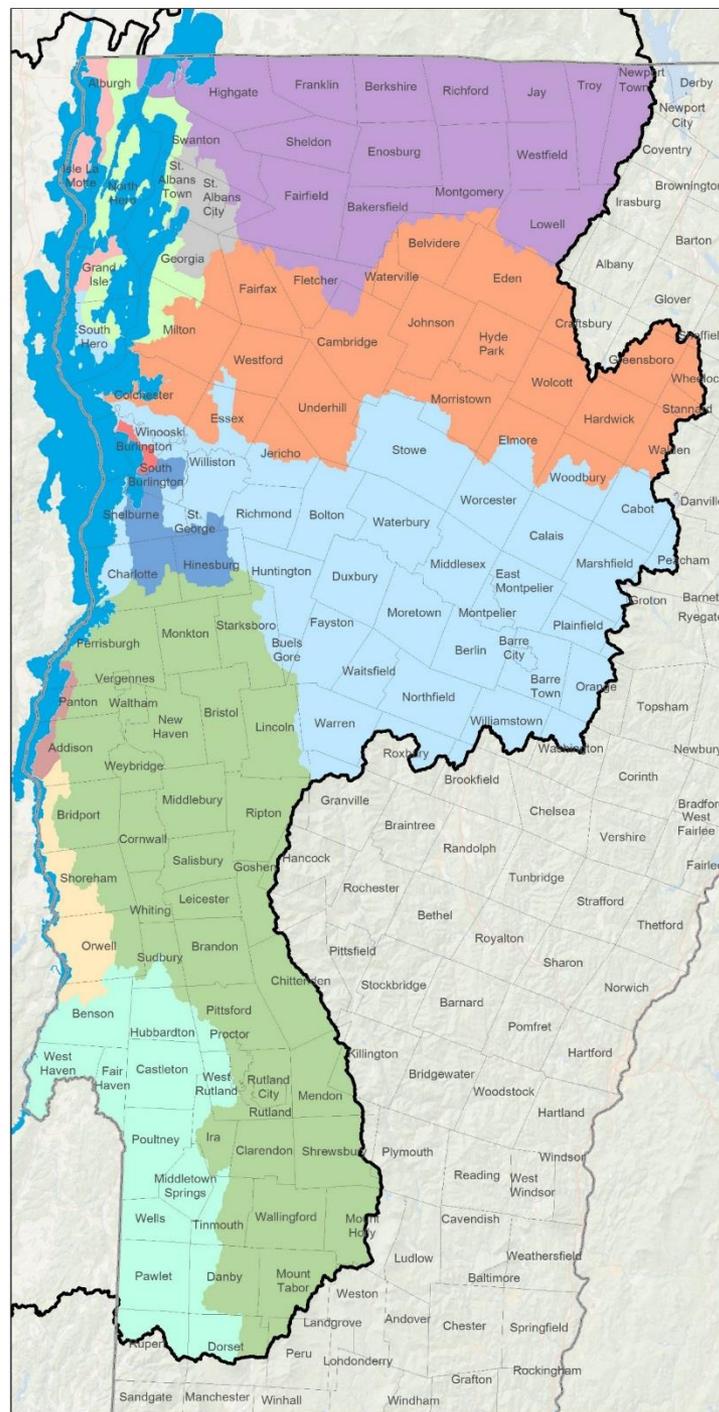
# Achieving Results

- Environmental Protection Agency Accountability
  - Consequences if the State fails to make satisfactory progress
- Reporting to Vermont Legislature
  - Clean Water Fund Investment Reports
  - Vermont Clean Water Act Implementation
- Partners
  - Information, technical assistance, municipal support

# Lake Champlain TMDL and Phase I Implementation Plan Key Milestones 2012-2016

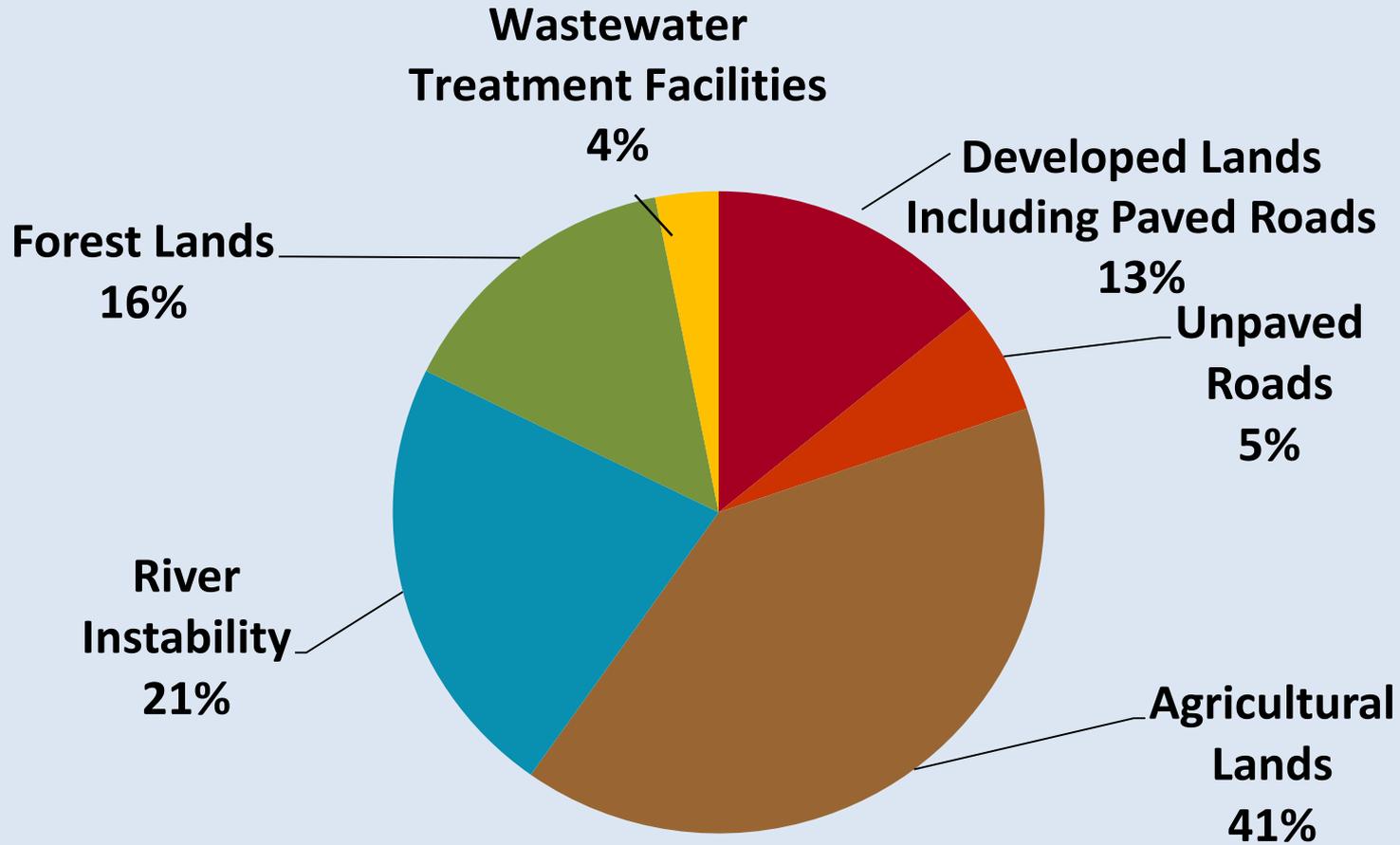


# Vermont Segments of the Lake Champlain Basin



-  LC Basin
- Lake Segment**
-  Burlington Bay
-  Isle La Motte
-  Main Lake
-  Malletts Bay
-  Missisquoi Bay
-  Northeast Arm
-  Otter Creek
-  Port Henry
-  Shelburne Bay
-  South Lake A
-  South Lake B
-  St Albans Bay

# Vermont Phosphorus Sources to Lake Champlain 2001-2010 Base Loads



# Restoring Lake Champlain: Phase I Implementation Plan

Pollution Sources



Draft Plan  
Commitments

# Pollution Source

## Agricultural Runoff

Cropland erosion



Buffer along roadside drainage ditch

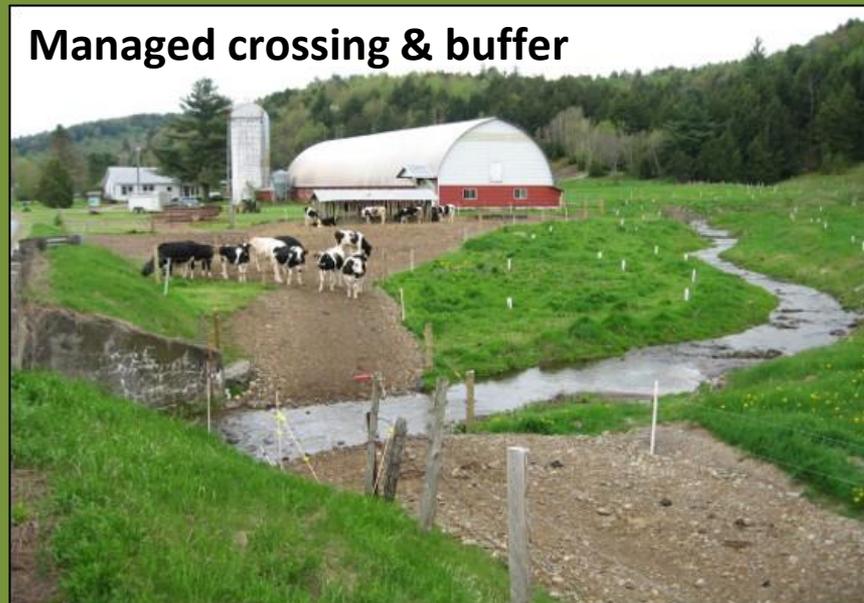


Problem: Agricultural runoff if not managed appropriately can contribute phosphorus loading to surface waters

# Phase I Plan Commitments:

## Farm Support

- Initiate Custom Manure Operator Certification
- Provide Farm Education on Water Quality
- Create Nutrient Management Workgroup
- Support Nutrient Management Programming & Implementation
- Increase farm technical support
- Conduct tile drain research; prepare report & recommendations
- Increase outreach in critical watersheds



# Phase I Plan Commitments: Farm Support

- Conduct On-Farm Surveys to identify technical support needs
- Implement the Environmental Stewardship Program
- Provide continued grant support (e.g., CIG, RCPP)
- Review all cost-share programs for improvement opportunities
- Focus on grassed waterways and livestock exclusion
- Revitalize Capital Equipment Assistance Program



# Phase I Plan Commitments: Compliance & Enforcement

- Revise the Required Agricultural Practice Rules
- Inspect all Large Farms annually
- Inspect all Medium Farms every 3 years
- Inspect all Certified Small Farms every 7 years
- Prioritize inspections (dairy, livestock and other; impaired watersheds)
- Continue DEC/EPA Concentrated Animal Feedlot Operations (CAFO) inspections
- Enhance inspection protocols & training (e.g., Nutrient Management)
- Establish standard meetings & develop formal agreements between VAAF, DEC & AGO
- Revise the Penalty Matrix
- Require Best Management Practices (BMPs) where RAPs are insufficient



# Pollution Source

## Road Runoff from State Highways

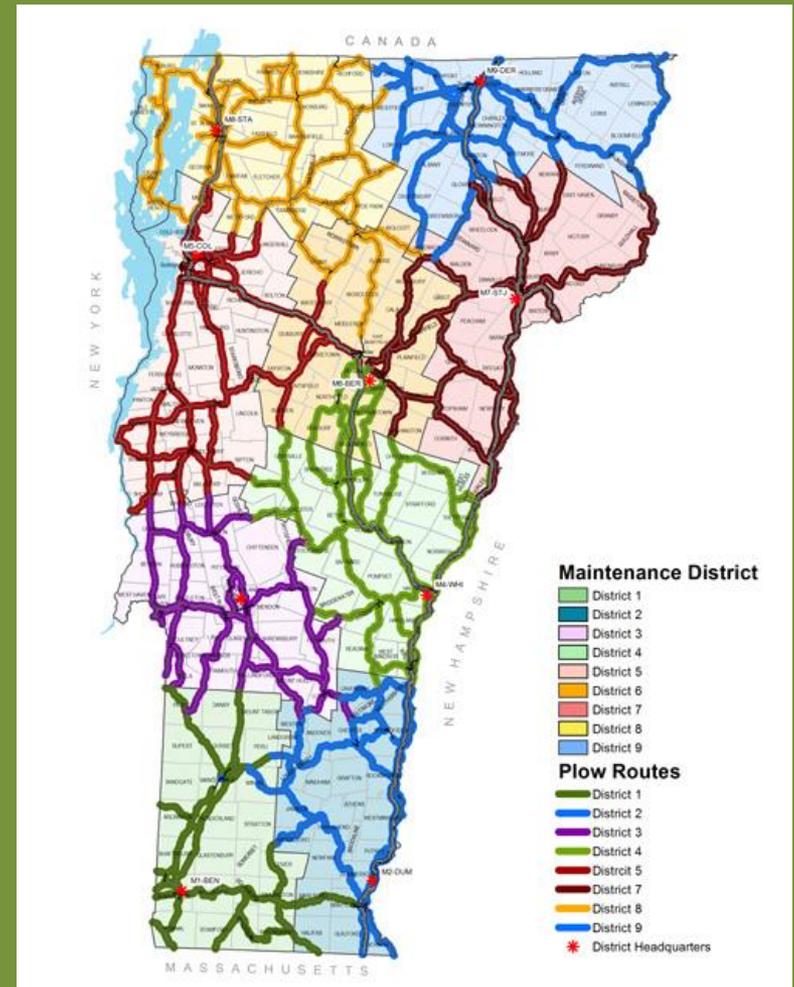


Problem: Roads, including state highways, can concentrate stormwater and deliver phosphorus-containing sediments to surface waters

# Phase I Plan Commitments:

## *TS4 General Permit*

- To address stormwater management needs on state highways (and VTrans developed lands)
- Use of BMPs to reduce erosion
- To be issued by Dec. 2016



# Pollution Source

## Municipal Road Runoff



Problem: Municipal roads need erosion-control improvements to prevent sediment carrying phosphorus pollution from reaching surface waters

# Phase I Plan Commitments:

## *Municipal Roads General Permit*

- To bring roads up to basic maintenance standards
- Focus on priority road segments
- Use of Best Management Practices (BMPs) to reduce erosion
- Financial and technical assistance available to municipalities
- Elements of the permit include an inventory, prioritization & schedule for implementation
- General permit to be issued by December, 2017
- All municipalities will have permits in place by 2021



# Pollution Source

## Stormwater Runoff of Developed Lands



Problem: Stormwater runoff, hitting hard surfaces, mobilizing sediments and nutrient pollution (e.g. phosphorus) and discharging into waterways

# Phase I Plan Commitments:

## *Stormwater treatment of runoff from developed lands*

- New developed lands general permit, targeting parcels with  $\geq 3$  acres of impervious surface
- Require stormwater retrofits of existing impervious surface
- General permit to be issued by December 2017
- Will involve targeted lands in the Basin having permit coverage no later than 2023, targeted land in rest of the state no later than 2028



# Phase I Plan Commitments:

## *Revised Stormwater Manual for New Developments*

- Incorporate and expand the use of Green Stormwater Infrastructure (GSI)
- Increase phosphorus removal requirements
- Add guidance/requirements for better site design and planning strategies (Low Impact Development principles)
- Add stormwater treatment practice (STP) siting guidance, Such as restrictions on STP placement in sensitive water resource locations, buffers and river corridors
- Deadline: December 2016

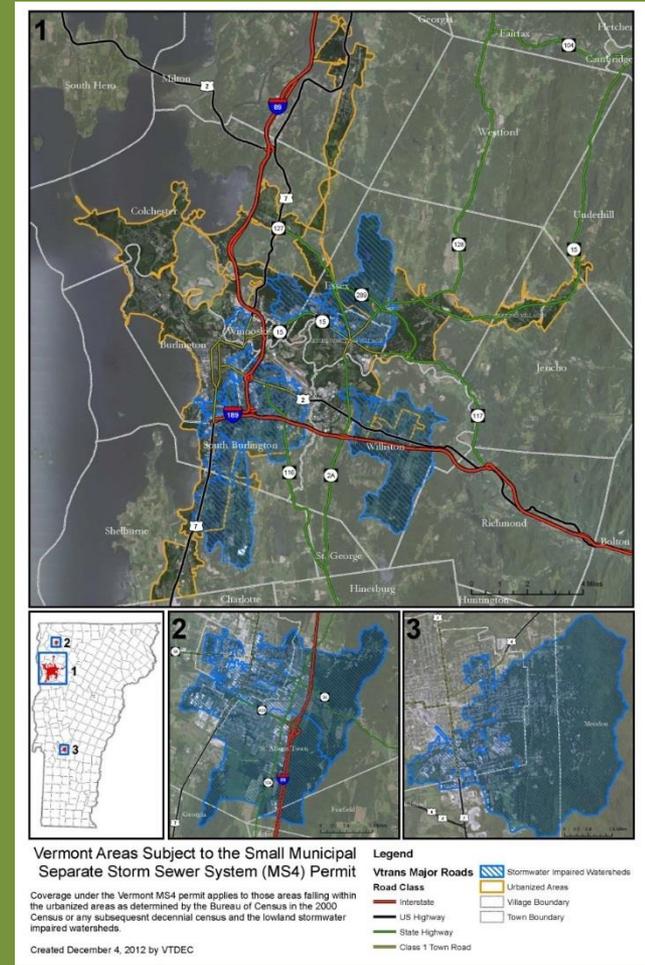
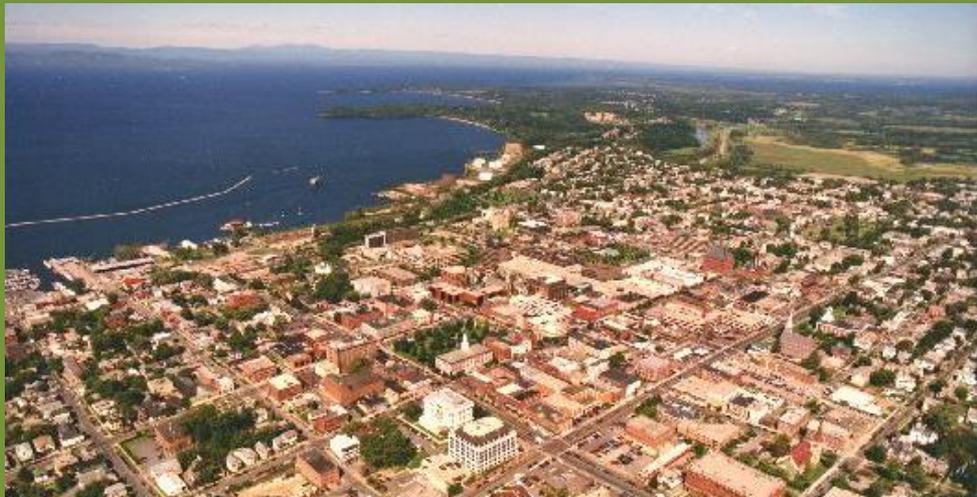


Green stormwater infrastructure  
Montpelier

# Phase I Plan Commitments:

## *Revision to the MS4 Permit*

- Permits for the Municipal Separate Storm Sewer Systems (MS4s) will be re-issued to include phosphorus control plans
- Entire municipality will be designated as part of the MS4
- Deadline: December, 2017



# Pollution Source

## Discharges from Wastewater Treatment Facilities



Problem: Wastewater treatment facilities contribute some phosphorus pollution loading to Lake Champlain

# Phase I Plan Commitments:

## *Wastewater Treatment Facilities*

- Targeting Five watersheds: Main Lake, Shelburne Bay, Burlington Bay, St. Albans Bay, Missisquoi Bay
- Annual load limit at permitted flow:
  - Large facilities (>0.2 mgd): Annual load limit at 0.2 mg/L
  - Medium facilities (0.1-0.2 mgd): Annual load limit at 0.8 mg/L
  - Small facilities (<0.1 mgd): Keep currently permitted annual load
- 25 facilities will need to reduce phosphorus permit limits
- Facilities in other watersheds:  
Keep currently permitted annual load
- The State will issue discharge permits for all facilities in Lake Champlain Basin by 2021



# Pollution Source

## Degraded Natural Resources



Floodplain development



Converted wetland to cornfield

### Problem:

- Over-dredging and loss of floodplains, stream meanders and wetlands heighten flood hazards, increase erosion and degrade water quality
- Development of shoreland and stormwater runoff can degrade water quality of upland lakes

# Phase I Plan Commitments:

## *Natural Resources Restoration*

- Adopt new rules to address development exempt from municipal regulation to limit new floodplain encroachments and maintain the flood storage functions of wetlands and floodplains
- Increase natural resources restoration projects
- Use incentives to enhance municipal flood hazard bylaws



# Phase I Plan Commitments:

## *Natural Resources Restoration*

- Implement Shoreland Protection Act
- Conduct upland lake assessments to identify nutrient pollution sources



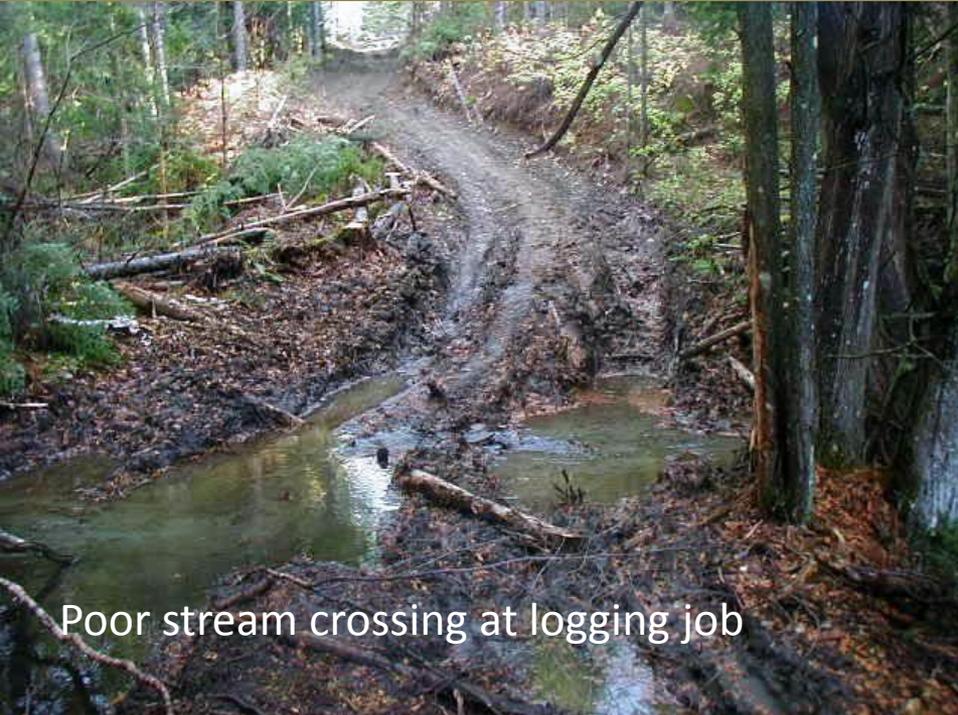
North Point of Lake Eden (1910)



Restored shoreland

# Pollution Source

## Runoff from Logging Operations



Problem: Timber harvesting can lead to significant erosion, particularly at stream crossings and along steep roads

# Phase I Plan Commitments:

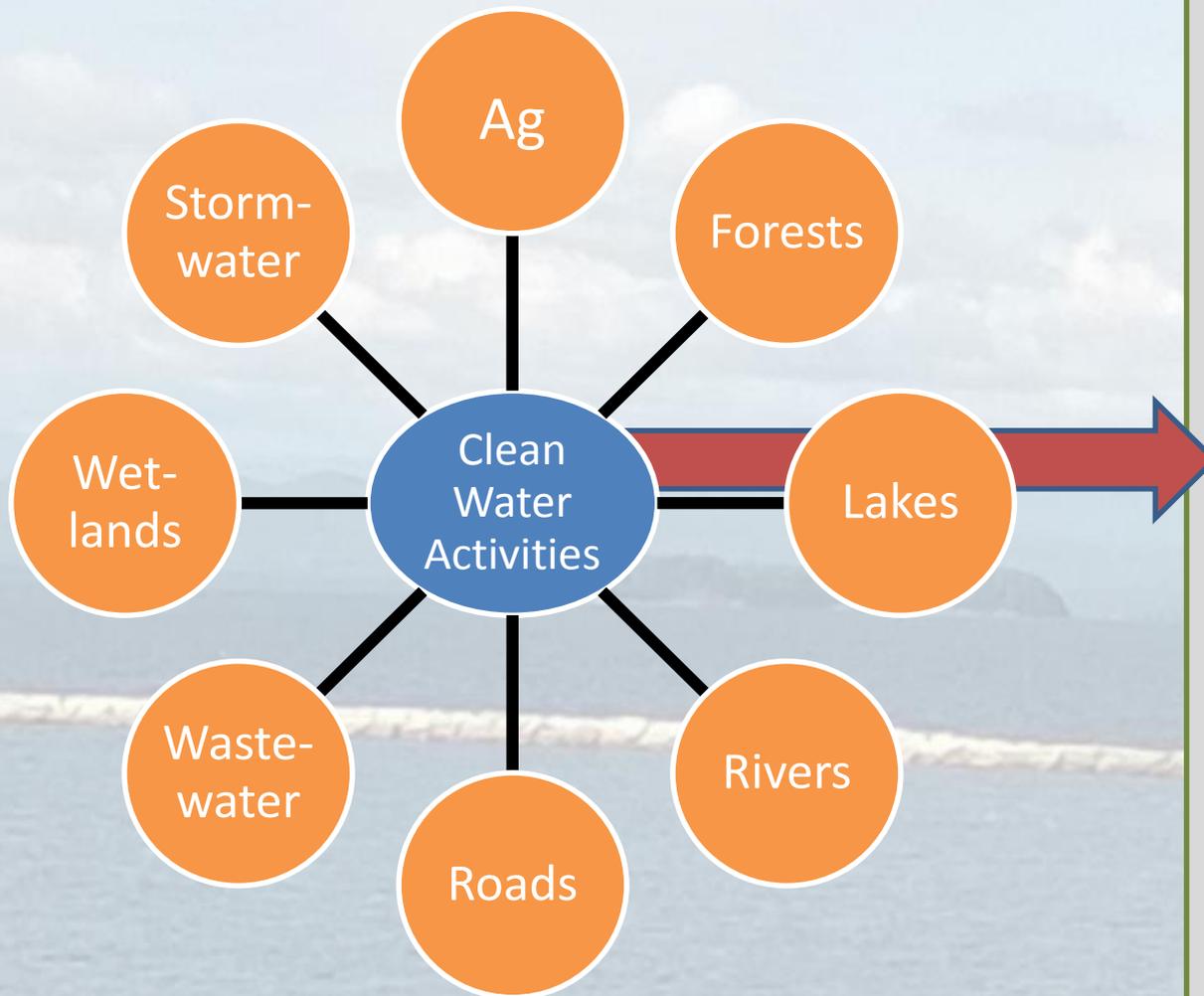
## *Revise Forestry Acceptable Management Practices*

- Specify compliance with State stream alteration rule and general permit, referencing stream crossings
- Enhance standards for skid trails, truck roads and temporary stream crossings on logging operations
- Provide education and training
- Issue update by December 2016



Temporary stream crossing along logging road

# Tracking Our Progress



## Annual Clean Water Performance Report (Act 64)

Social Measures

Investment Measures

Performance Measures

Environmental Measures

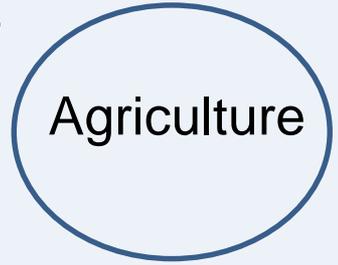
TMDL

Cobenefits

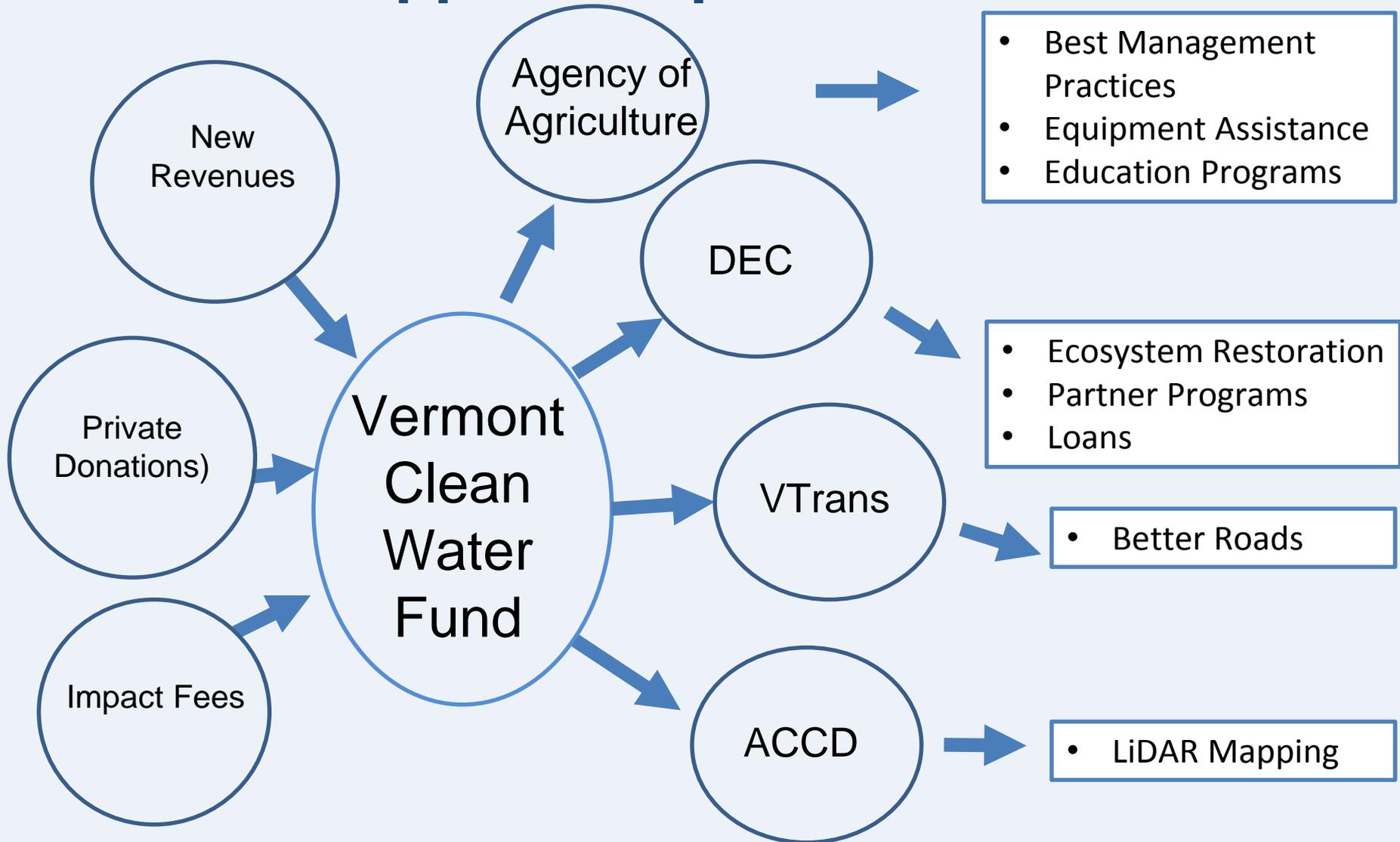
Revenue Sources

# Revenue Sources that Support Vermont's Clean Water Needs

Targeted Actions



# Vermont's Clean Water Fund Supports Implementation



See: [www.cleanwater.Vermont.gov](http://www.cleanwater.Vermont.gov)

# Act 64, Section 4: Legislative Report: Funding Clean Water Improvements Statewide

Recommend long-term funding sources for Clean Water Fund.

Recommendations shall Include:

- (1) Proposed revenue sources
- (2) Recommendation for incentivizing Best Management Practices
- (3) Estimated amount of revenue to be generated by source
- (4) Summary of how each source will be administered, collected and enforced
- (5) Assessment of whether the State should use bonds to finance water quality improvements
- (6) Legislative proposal to implement each of the proposed revenue sources

# Questions?

<http://dec.vermont.gov/watershed/cwi/restoring>



Send comments to: [anr.cleanwatervt@Vermont.gov](mailto:anr.cleanwatervt@Vermont.gov)