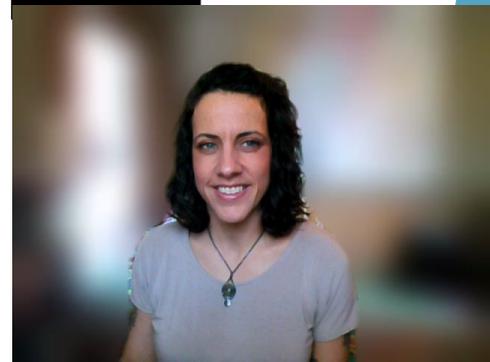


You will learn about...

- ▶ Total Maximum Daily Load Plans
- ▶ Three Implementation Phases
- ▶ How Phosphorus Reduction Targets are Determined
- ▶ Actions Needed to Meet Reductions





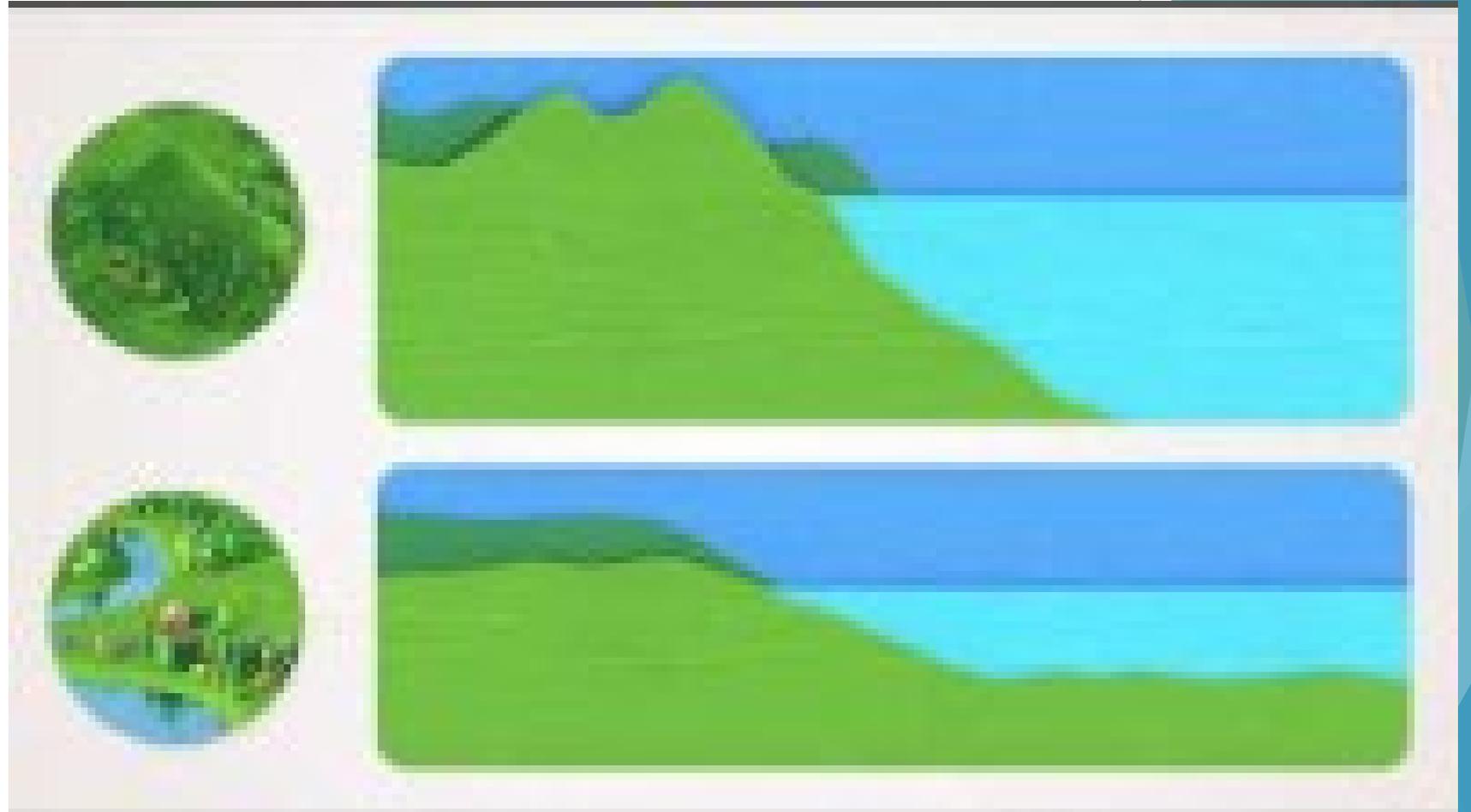
TMDL Basics

The What, Why, When, & How





What is a TMDL?

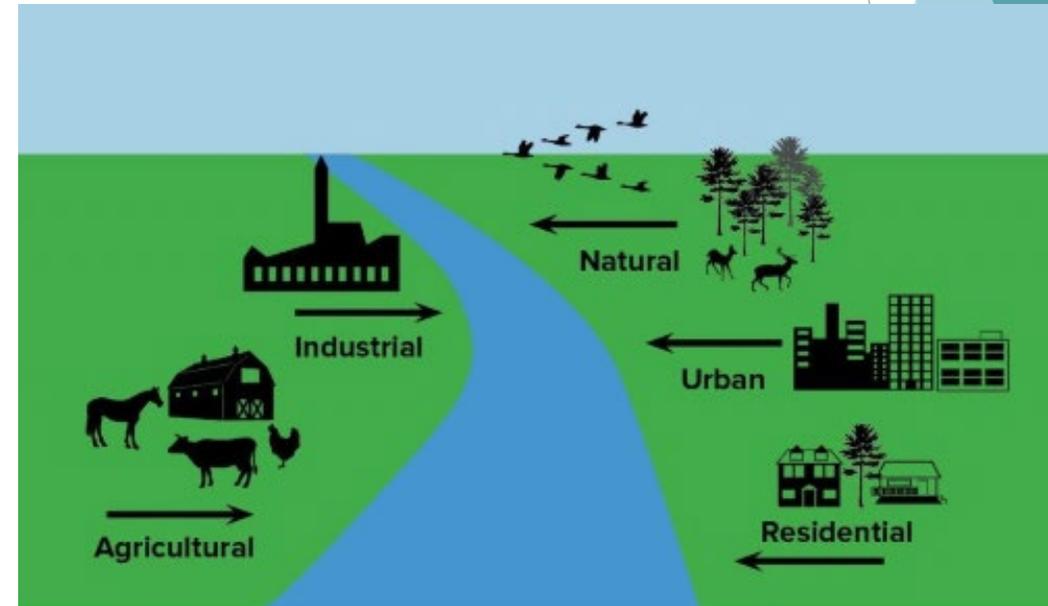
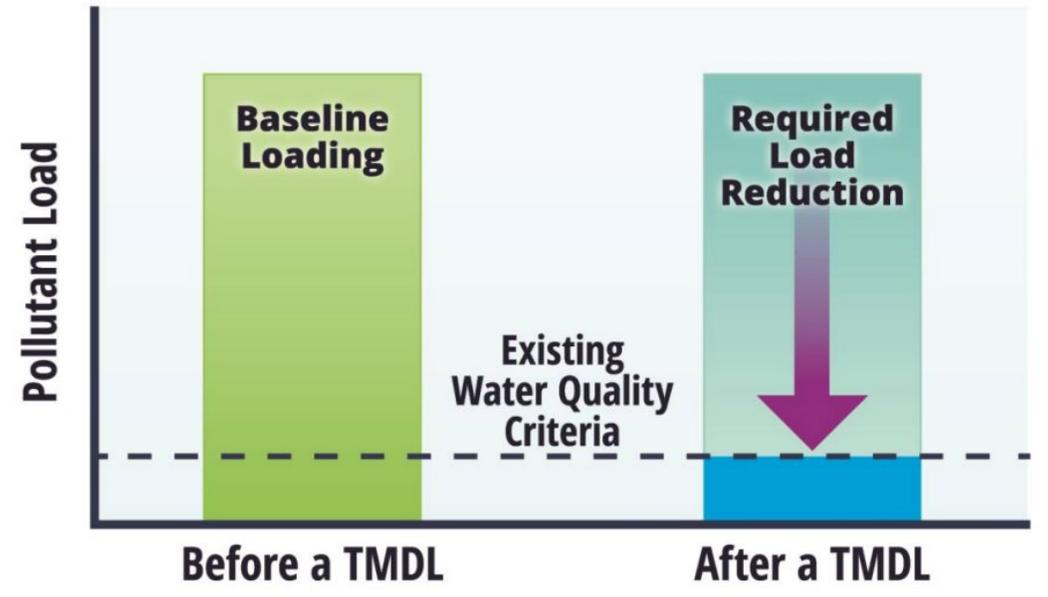


Source: Lake Champlain Basin Program, VT.
<https://www.lcbp.org/news-and-media/media2/video/clean-water-commitment/>



TMDL Overview

- ▶ A TMDL is the "Total Maximum Daily Load", or the maximum amount of pollution that a waterbody may receive without exceeding Vermont's Water Quality Standards, herein referred to as a pollution budget
- ▶ Loading or Base Load is the current amount of pollution (in this case phosphorus as a limiting nutrient) that flows into a waterbody (such as Champlain and Memphremagog) from each of the major land use sectors (e.g., agriculture, developed lands, forested lands, etc)

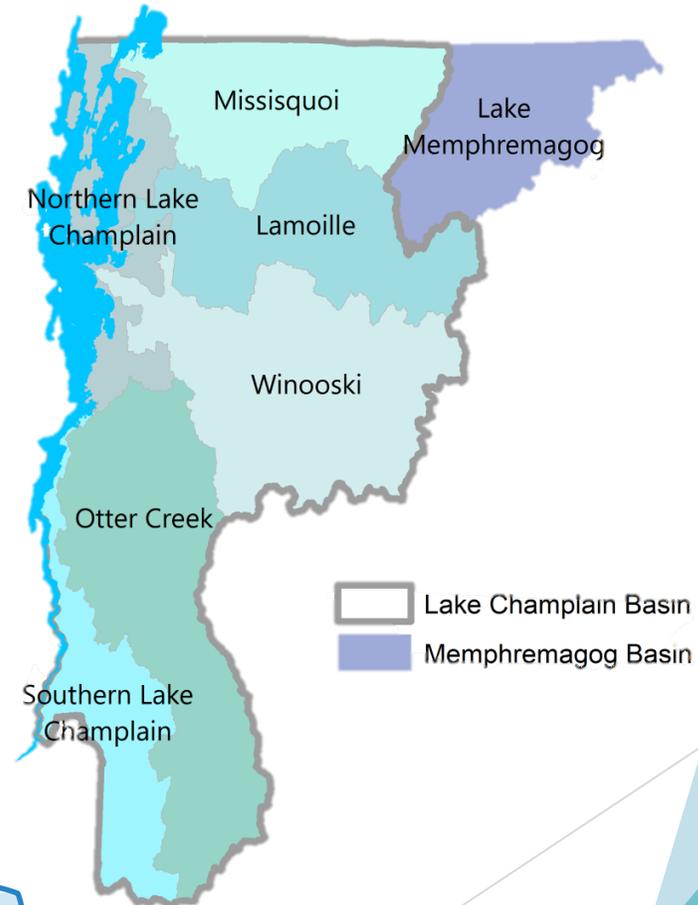


There are many possible sources of pollution in a watershed.



Why do we have TMDLs for Lake Champlain and Lake Memphremagog?

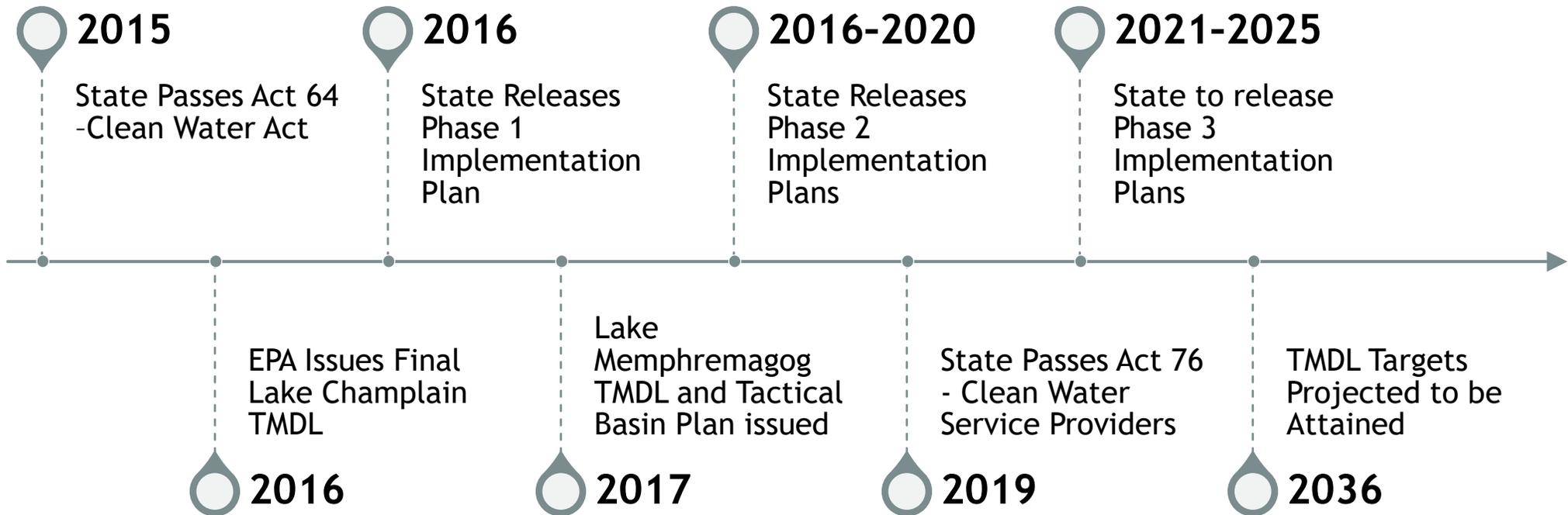
- ▶ Elevated phosphorus levels
- ▶ Toxic Cyanobacteria blooms
- ▶ Concerns for public safety and enjoyment of water-based recreation
- ▶ Impacts to the economy and people's livelihoods



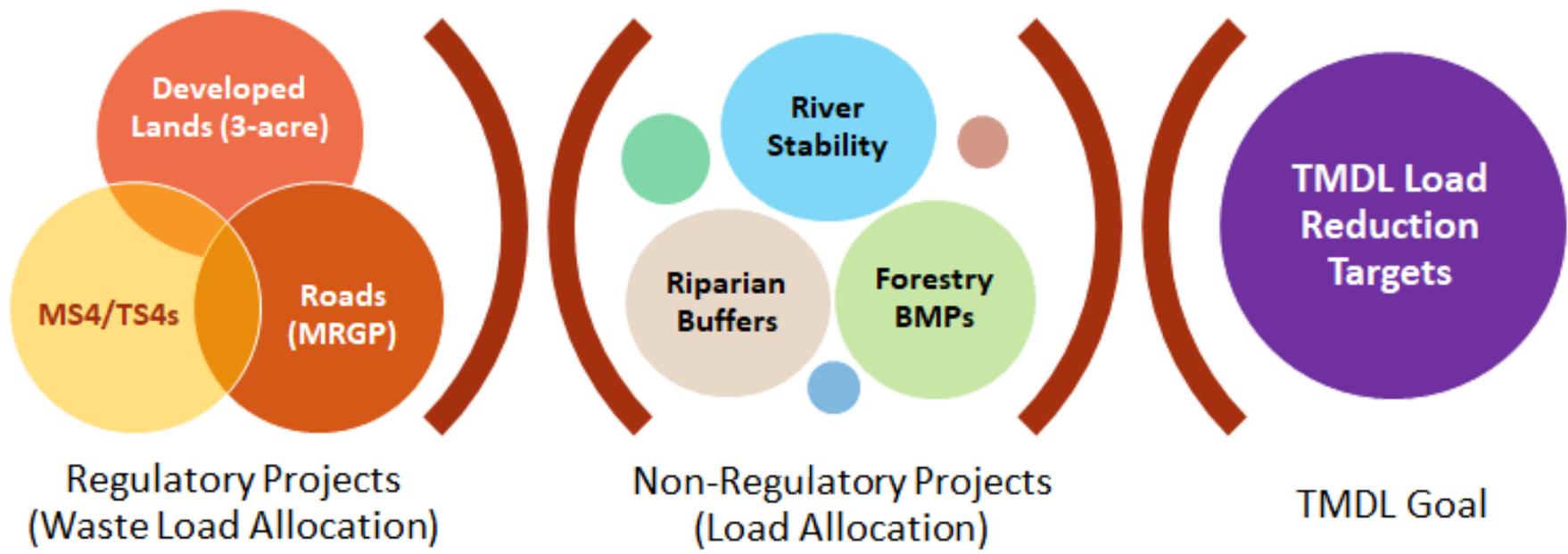
Click on the video to learn more about cyanobacteria - <https://www.youtube.com/watch?v=ea0EHw5suDs>



When are we expected to achieve the Lake Champlain and Memphremagog TMDLs?



How will Vermont achieve the TMDLs?





Implementation Plan Phases



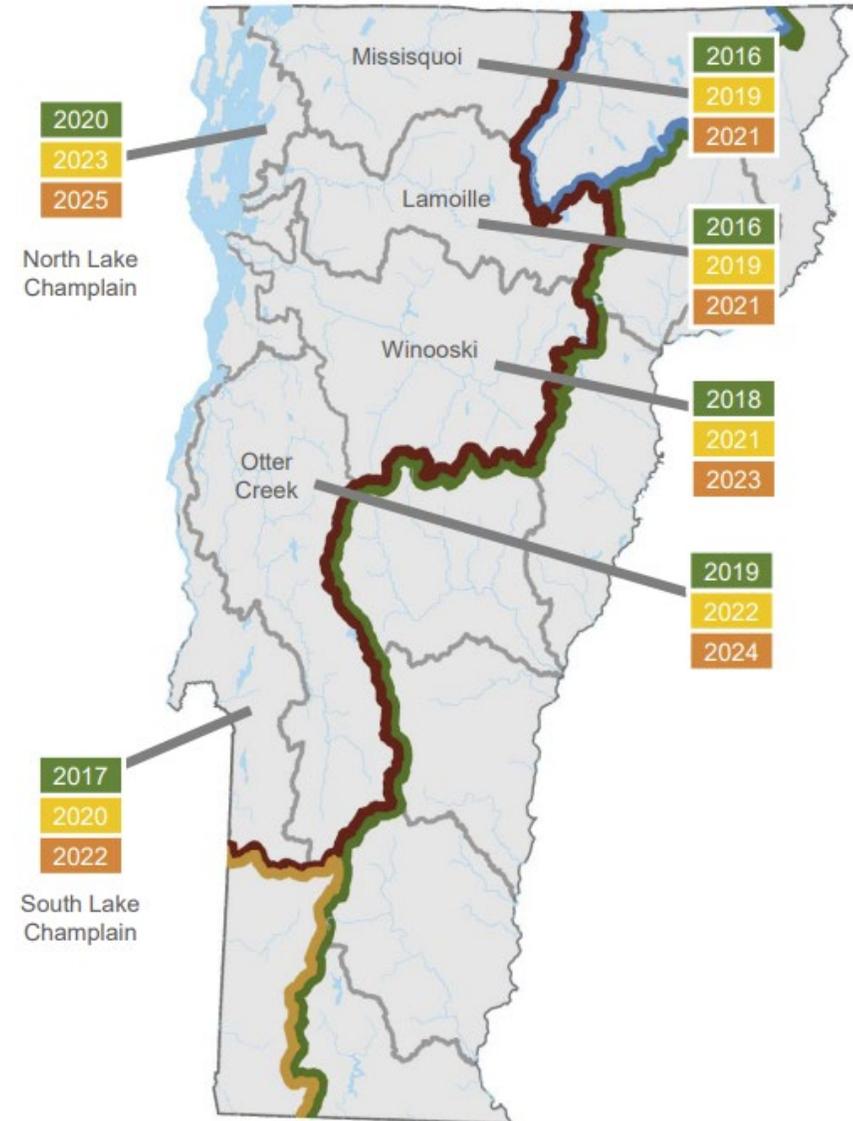
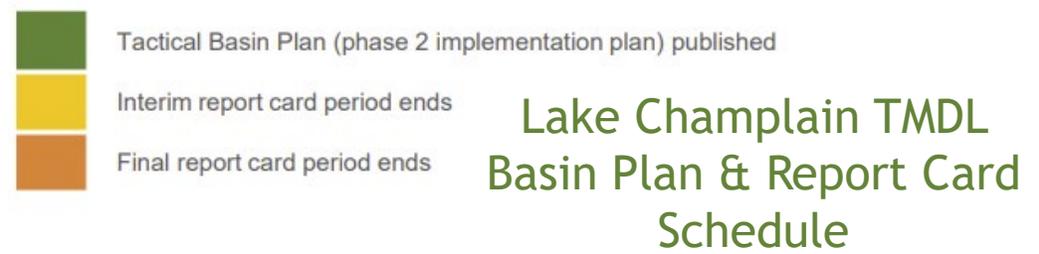
Phase 1 Plan Overview

- ▶ Established VT's commitments to achieve phosphorus reductions
- ▶ Timeline to achieve goals via the Accountability Framework
- ▶ Policy commitments for farming, developed lands, wastewater facilities, forests, wetlands, rivers, and lakes.
- ▶ Technical assistance, funding and financial incentives



Phase 2 Plan Overview

- ▶ Tactical Basin Plans (TBP)
- ▶ Geographically targeted strategies in the TBP Implementation Table
- ▶ TBP Interim & Final Report Cards to track progress of actions
- ▶ 5-year planning cycle

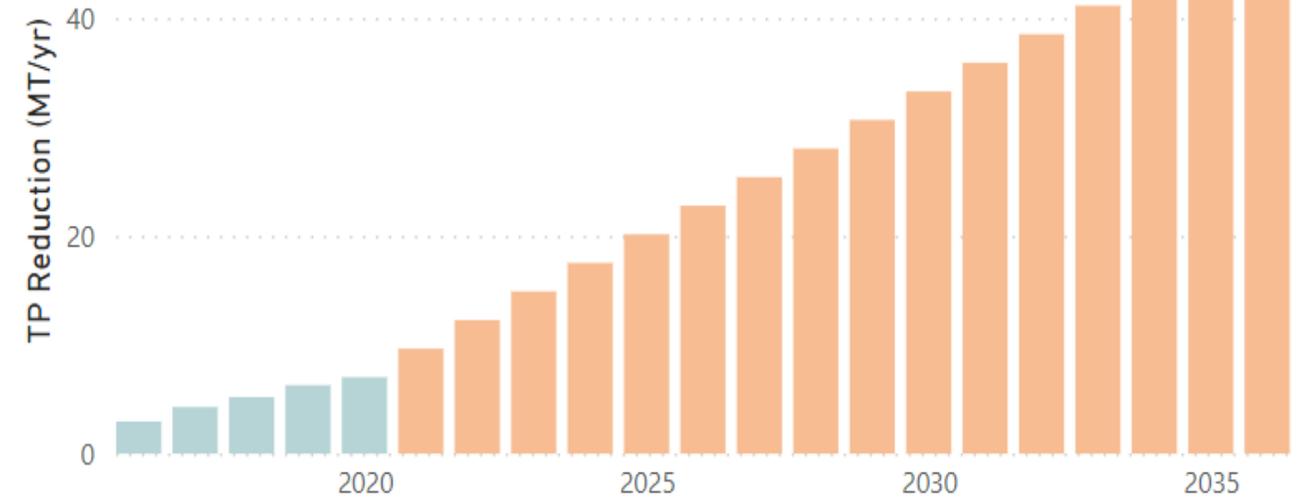


Phase 3 Plan Overview

- ▶ Tactical Basin Plans
- ▶ Progress achieved since 2016 by sector
- ▶ Sector specific reduction requirements for the next 5 years
- ▶ Gap identification
- ▶ Project tracking and accounting meets accountability framework

Target Setting for Agricultural Sector

● Achieved ● Future





Clean Water
Service
Provider
(CWSP)
Target Setting



Clean Water Service Provider Targets

$$\text{TMDL reductions} - \text{Regulatory reductions} = \text{CWSP target reductions}$$

$$\text{CWSP target reductions} \times \text{Sector costing rates} = \text{Total dollars need per sector}$$

$$\text{Total dollar need} \times \text{Scaling to available budget and capacity} = \text{Year-1 reduction targets and fund allocations}$$



Regulatory Reductions

Regulatory

90%

67%

100% (except basin 2/4 & 6)

MRGP, three-acre permit, TS4 and MS4 permits

Agriculture

Streams

Forests

Developed

Non-regulatory

10%

33%

88% for Basin 2/4
90% for Basin 6

The remaining developed lands reduction targets



Regulatory

90%

Agriculture

10%

- ▶ Required Agricultural practices
- ▶ Projects funded by NRCS and AAFM



Non-regulatory

- ▶ Natural Resource projects on farms
- ▶ Projects on non-RAP farms



Regulatory

67%



Streams

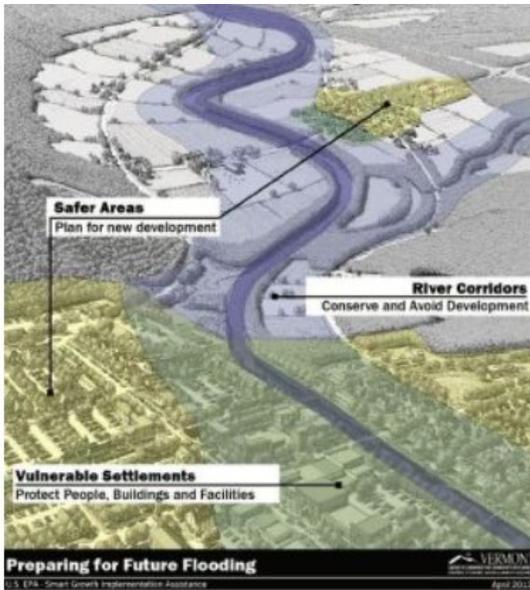


33%

Non-regulatory

- ▶ Implementation of stream alteration regulations and Act 250
- ▶ Town river corridor adoption

- ▶ River corridor easements, riparian buffer plantings, stream restoration projects



Regulatory

100% (except basin 2/4 & 6)



Forests



Non-regulatory

88% for Basin 2/4
90% for Basin 6

- ▶ Implementation of the Acceptable Management Practices (AMPs) for forestry operations.



- ▶ Reducing sedimentation from forest roads.



Regulatory

MRGP, three-acre permit, TS4 and MS4 permits

- ▶ Implementation of permit programs

Developed

Non-regulatory

The remaining developed lands reduction targets

- ▶ Non regulatory stormwater and road BMPS and lakeshore restoration.



Clean Water Service Provider Targets

TMDL reductions - Regulatory reductions = CWSP target reductions

CWSP target reductions x Sector costing rates = Total dollars need per sector

Total dollar need x Scaling to available budget and capacity = Year-1 reduction targets and fund allocations



Sector costing rates



Stream Sector Average
\$11,000 per kg

Floodplain/stream restoration - \$17,000 per kg

River corridor easement - \$10,000 per kg

Riparian buffer restoration - \$5,000 per kg

Target sector	Project categories	Average cost per kg
Streams	Floodplain/stream restoration, River corridor easement, Riparian buffer restoration	\$11,000
Developed	Stormwater BMPs, Road BMPs, Riparian buffer restoration, Lake Shoreline restoration, Lake shoreland runoff treatment	\$16,000
Farm	Riparian buffer restoration, Lake shoreline restoration	\$7,000
Forest	Forest road BMPs	\$10,000



Clean Water Service Provider Targets

TMDL reductions - Regulatory reductions = CWSP target reductions

CWSP target reductions x Sector costing rates = Total dollars need per sector

Total dollar need x Scaling to available budget and capacity = Year-1 reduction targets and fund allocations



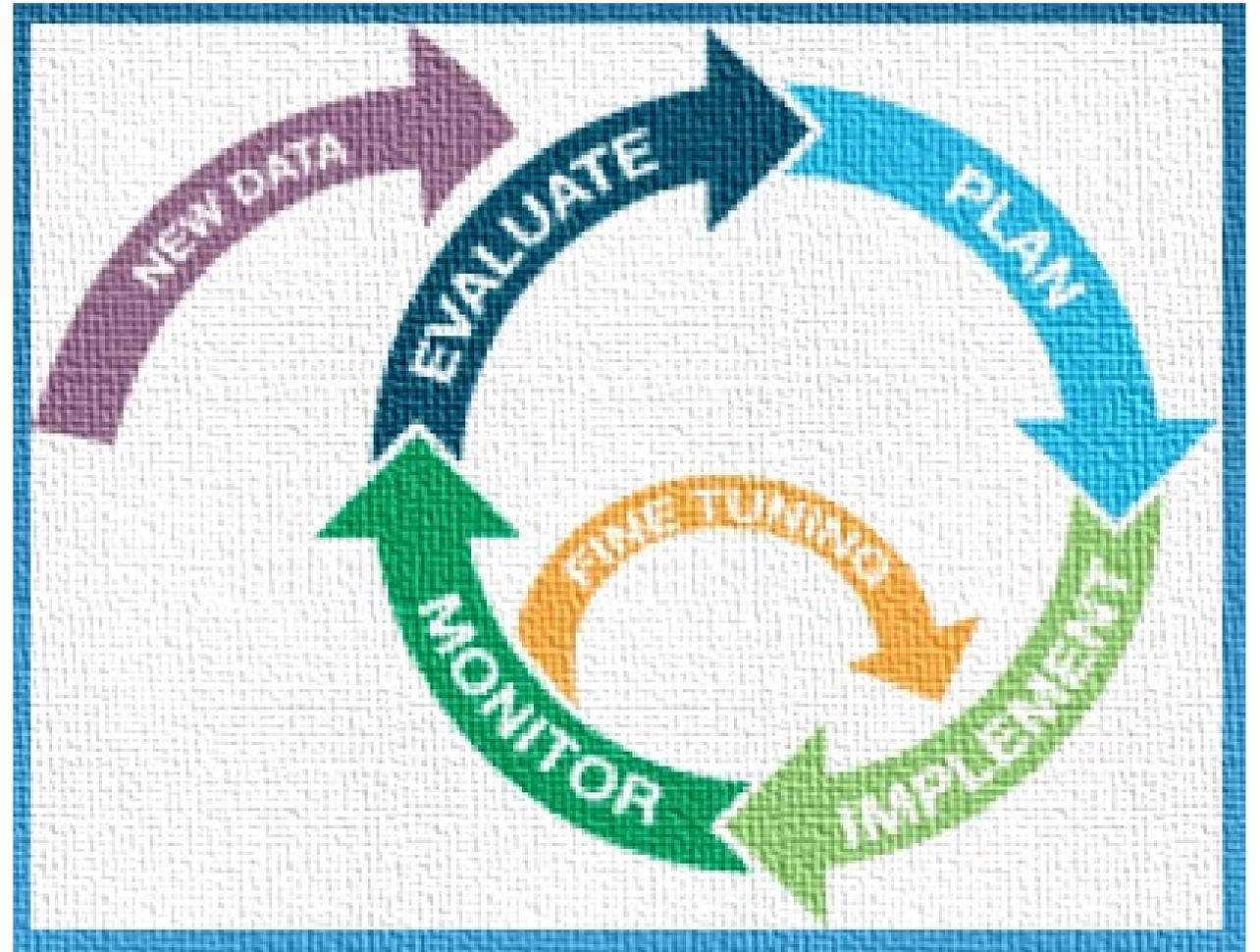
Scaling to available budget

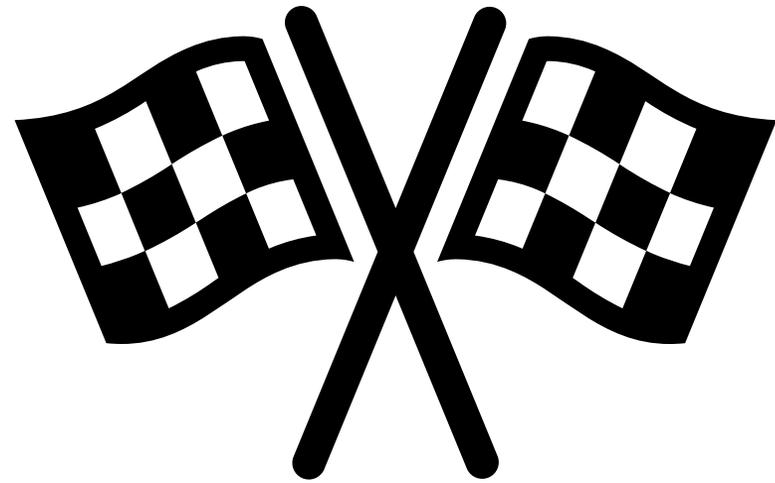
- ▶ Proposed \$7,000,000 budget for the Formula Grant to ramp-up capacity.
- ▶ Minimum funding level of \$650k set per basin.
- ▶ Scaling of reduction targets and funds based on these available funds.



Adaptive Management

- ▶ Adaptive annual targets set using new information.
- ▶ Deeper dive as part of five-year Tactical Basin Plan updates





Now you should know about...

- ▶ Total Maximum Daily Load Plans
- ▶ Three Implementation Phases
- ▶ How Phosphorus Reduction Targets are Determined
- ▶ Actions Needed to Meet Reductions



Survey & FAQ Development



Please fill out the survey linked in this video or scan the QR code to help us measure our efficacy



There is a question box in the survey that will be used to prepare an FAQ

<https://forms.office.com/g/q04GHjkAuV>

