From Planning to Action: Resilience & Clean Water for the Mad River Valley

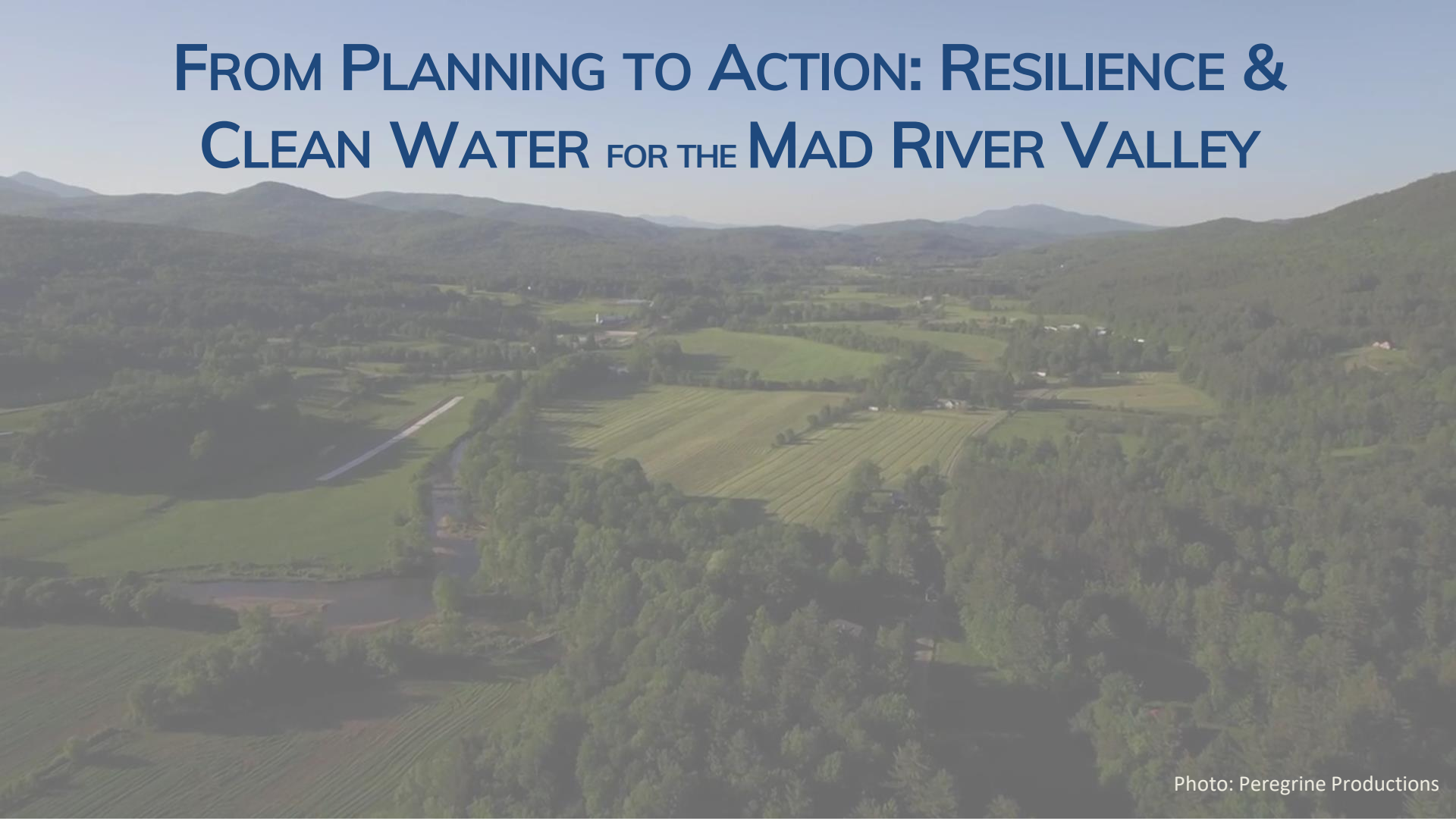


Photo: Peregrine Productions

RIDGE to RIVER
A Mad River Valley Coalition for Clean Water and Resilience

Corrie Miller
Executive Director, Friends of the Mad River
Representing Ridge to River Taskforce

FRIENDS OF THE MAD RIVER

Photo: Peregrine Productions

RIDGE to RIVER
A Mad River Valley Coalition for Clean Water and Resilience

Video

FRIENDS OF THE MAD RIVER

RIDGE to RIVER

Quality of Life in the Mad River Valley

Photos, clockwise: Kimberly Canarecci, Katrina Howe, Lindsey Vandal, Jody Kay Mitchell, Brad Long

Threats to our Quality of Life

Big Climate Events

Photos, clockwise:
Ember Photo, Jen Ryan Peterson, Kim Greenwood

Threats to our Quality of Life

Increasingly regular events…
and, just regular rain

Photos, clockwise:
Corrie Miller,
Peregrine Productions

Ridge to River

2015 Leahy Environmental Summ

HIGH MEADOWS FUND

RIDGE to RIVER

A Mad River Valley Coalition for Clean Water and Resilience

What We Know

Why It Matters

→What We Can Do

2016 Embracing A Mad River Forum

Ridge to River Taskforce

RIDGE to RIVER

A Mad River Valley Coalition for Clean Water and Resilience

Official Town Representatives:

Duxbury:	Erin Lander (SB)
	Alan Quackenbush (PC)
Fayston:	Jared Cadwell (SB)
	Carol Chamberlin (PC)
Moretown:	John Hoogenboom (SB)
	Dara Torre (PC)
Waitsfield:	Sal Spinosa (SB)
	Brian Voigt (PC)
Warren:	Bob Ackland (SB)
	Mike Bridgewater (PC)

Businesses & Community Participants:

Richard Czaplinski, Friends of the Mad River

Brad Long, Waitsfield

Kinny Perot, Friends of the Mad River

Margo Wade, Sugarbush Resort

Eric Brattstrom, Warren

Dotty Kyle, Warren

RIDGE to RIVER

A Mad River Valley Coalition for Clean Water and Resilience

Taskforce Support

Leadership:

Friends of the Mad River

Organizational Partners:

Central Vermont Regional Planning Commission

Mad River Valley Planning District

Consultants and Researchers:

Community Workshop LLC

Stone Environmental

Vermont League of Cities and Towns

Watershed Consulting Associates LLC

Too Much, Too Fast, Too Many…

WHAT WE KNOW

- **Too much water** reaching streams and River
- Water moving **too fast**
- Water carrying **too many pollutants (and sediment)**
- Causing **too much damage & costing too much money**

Photos, clockwise:
Ember Photo, Jen Corrie
Miller, Peregrine Productions

WHY IT MATTERS

If we ***slow down*** rainwater and snowmelt and help it ***sink into the ground*** …

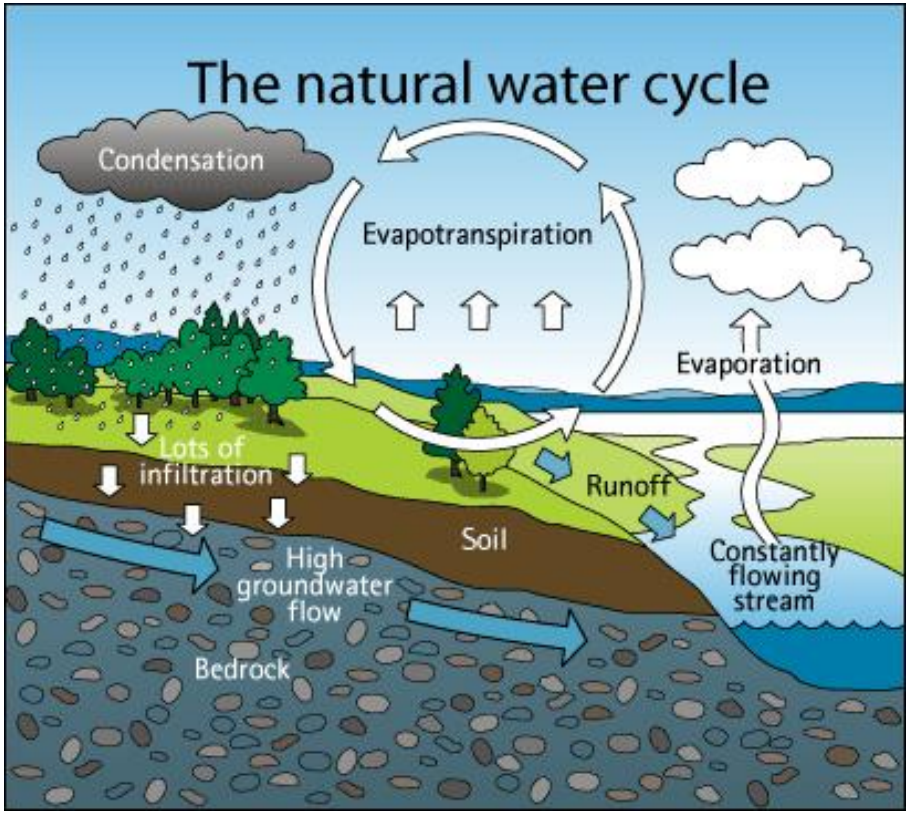
→ we are less vulnerable in larger rain events

→ we reduce infrastructure maintenance costs

→ we benefit from cleaner swimming holes & ground water

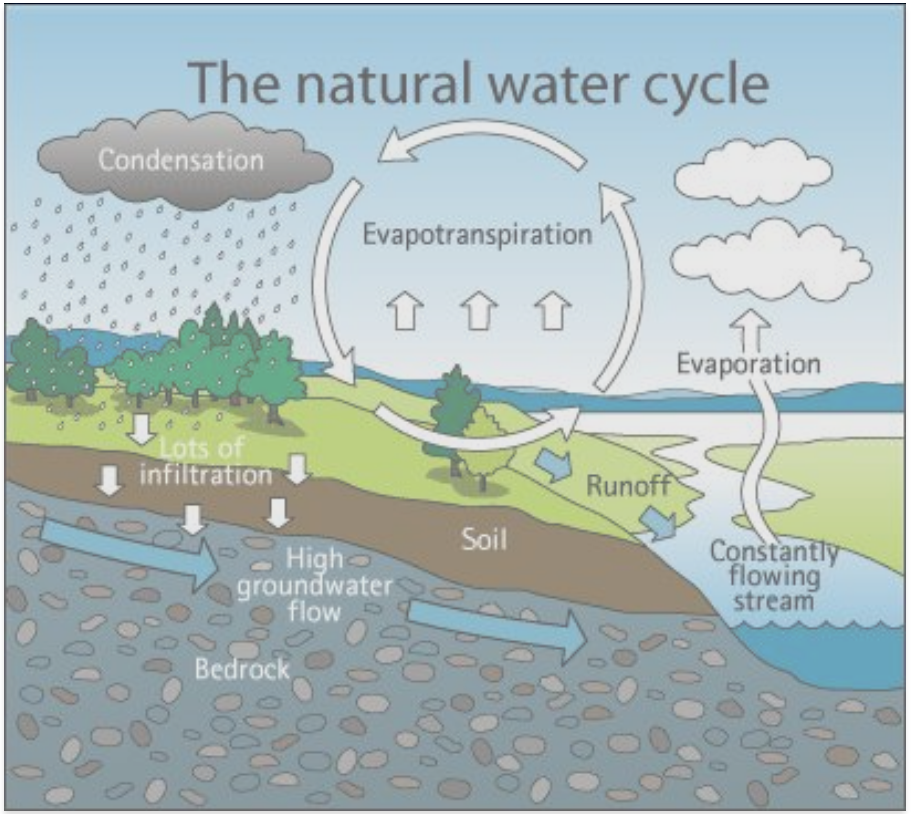
Multiple Benefits!

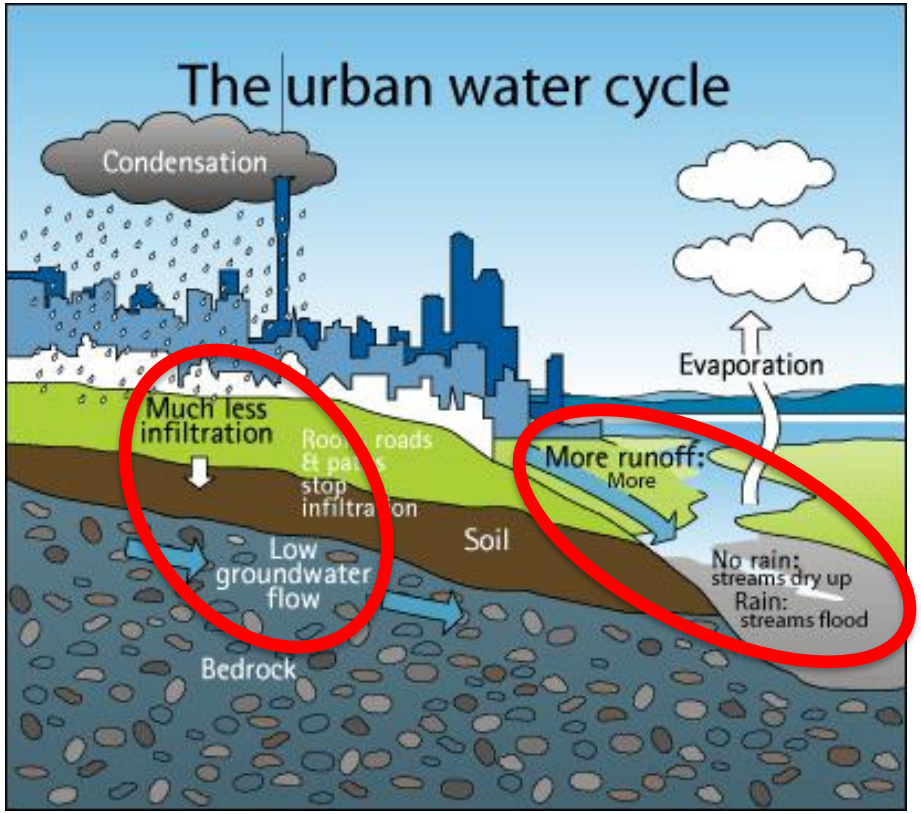
Remember This?



Source: Auckland Council

It's Changing





Source: Auckland Council

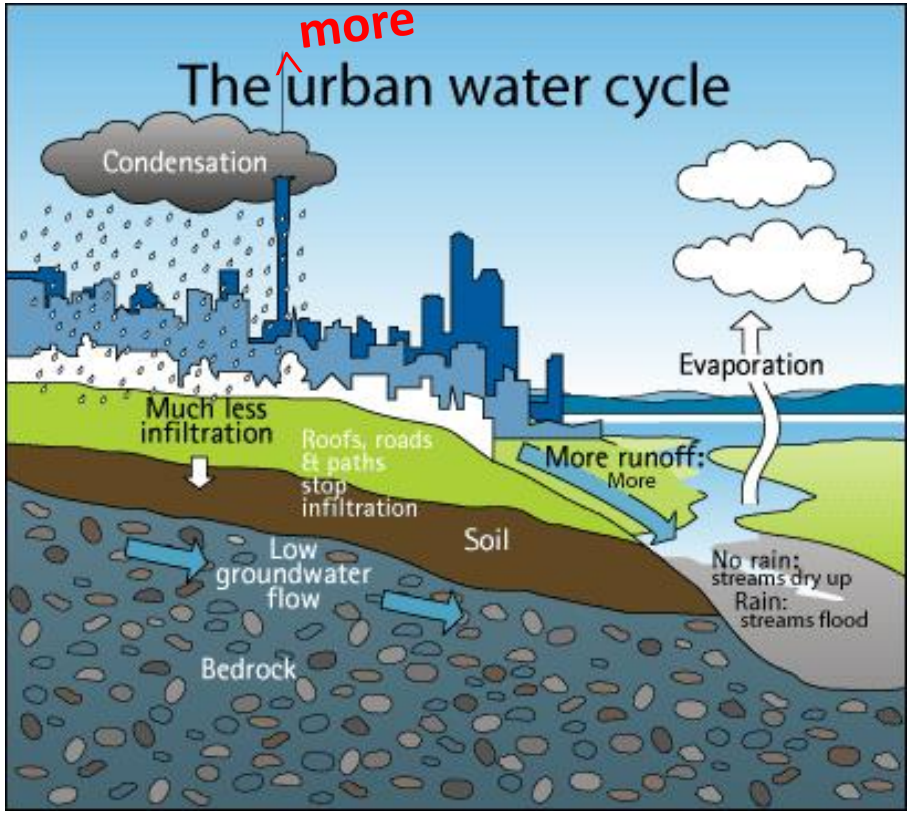
Longtime Mindset

Pave It, Pipe It & Pump It

"Get the water away…and fast"

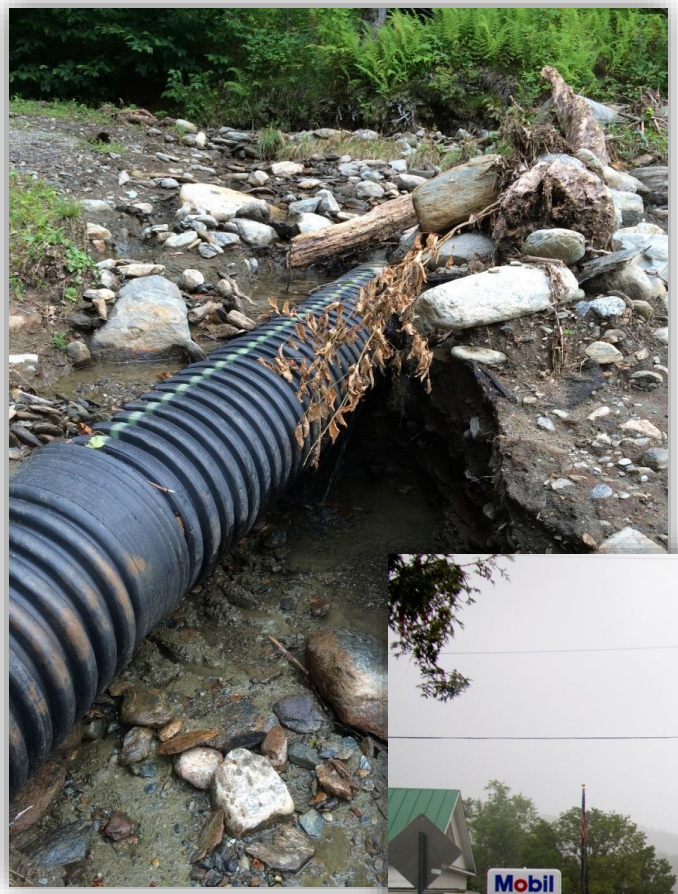
- *Impervious Surfaces*
- Pipes
- Pavement

→ Too Much…Too Fast…
Too much water
Moving too fast
Too dirty
Too much damage



Source: Auckland Council

Rethink with Realities of Climate Change



Photos, in order:
Corrie Miller,
Ember Photo,
Kim Greenwood

Emerging Mindset

Slow It, Spread It & Sink It

"Land is a sponge…keep water local"

- Porosity & Permeability
- *Softer* Engineering
- *Green* Infrastructure

→ Use our Natural Assets to strengthen our community

Source: baidu

WHAT WE KNOW

THE LANDSCAPE

WHAT WE KNOW

Road Mileage, Slope & Density

437 miles of roadway in the MRV

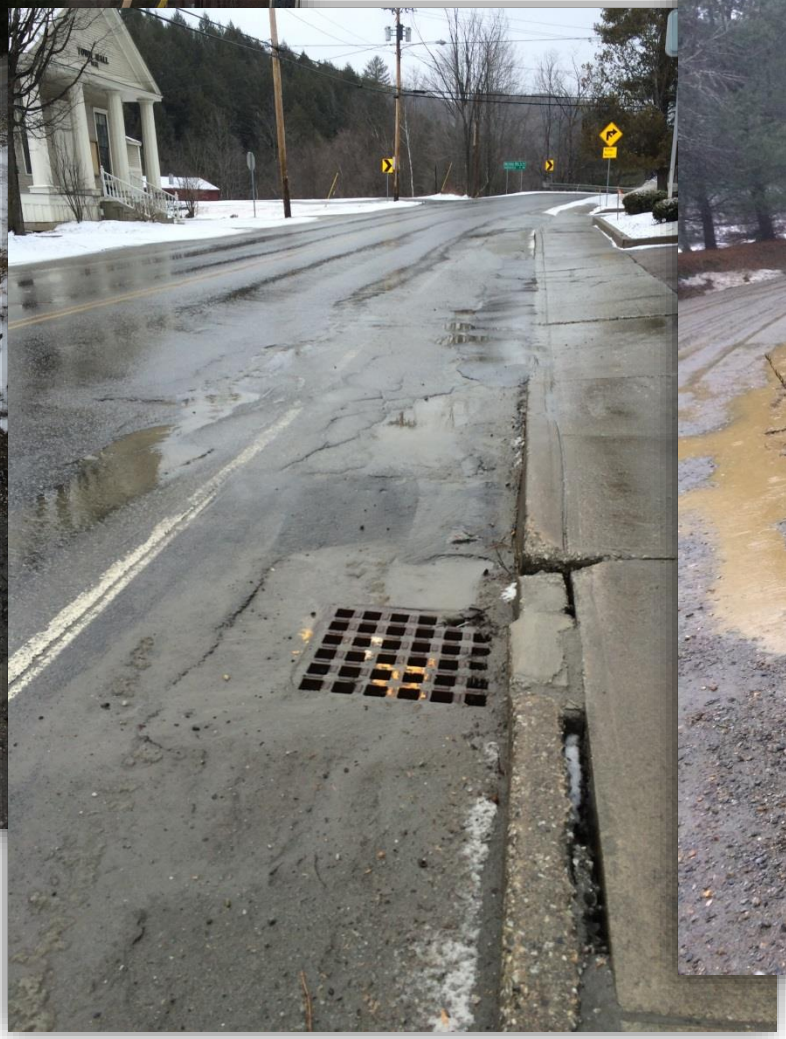
- 290 miles are **public,** maintained by VTrans & municipalities (66%)
- 147 miles are **private** roads and driveways (33%)

- **Steep Slope:** Of private roads & drives, 60 miles (40%) have slopes > 15%
- **High Road Densities:** 1/2 of MRV subwatersheds have road densities that compare to outer Chittenden County towns (2.2 km/sq km)

All Roads

WHY IT MATTERS

Runoff Causes
Maintenance Issues



Roads Act as **Fast** Route to Streams
→ Flash Flooding

Runoff Carries **Pollutants and Sediment** to Rivers/Streams

WHY IT MATTERS

Private Drives

Few Construction Standards

Often in Highest, Steepest Areas

THE LANDSCAPE

WHAT WE KNOW

Recreational Trails

We love the outdoors!

300+ miles of managed recreational trails in the MRV

- Many miles used as trails but not managed

If poorly sited, not well-built, or not maintained, trails can have a big impact.

WHAT WE KNOW

Forest Cover Loss

~500 acres of forest cover lost in 10 years

Between 2001-2011, the National Land Cover Database shows that within the Mad River Watershed:

- 468 acres of “Forest” cover changed to “Shrubland/Herbaceous” class
- 34 acres of “Forest” cover changed to “Developed” land cover class

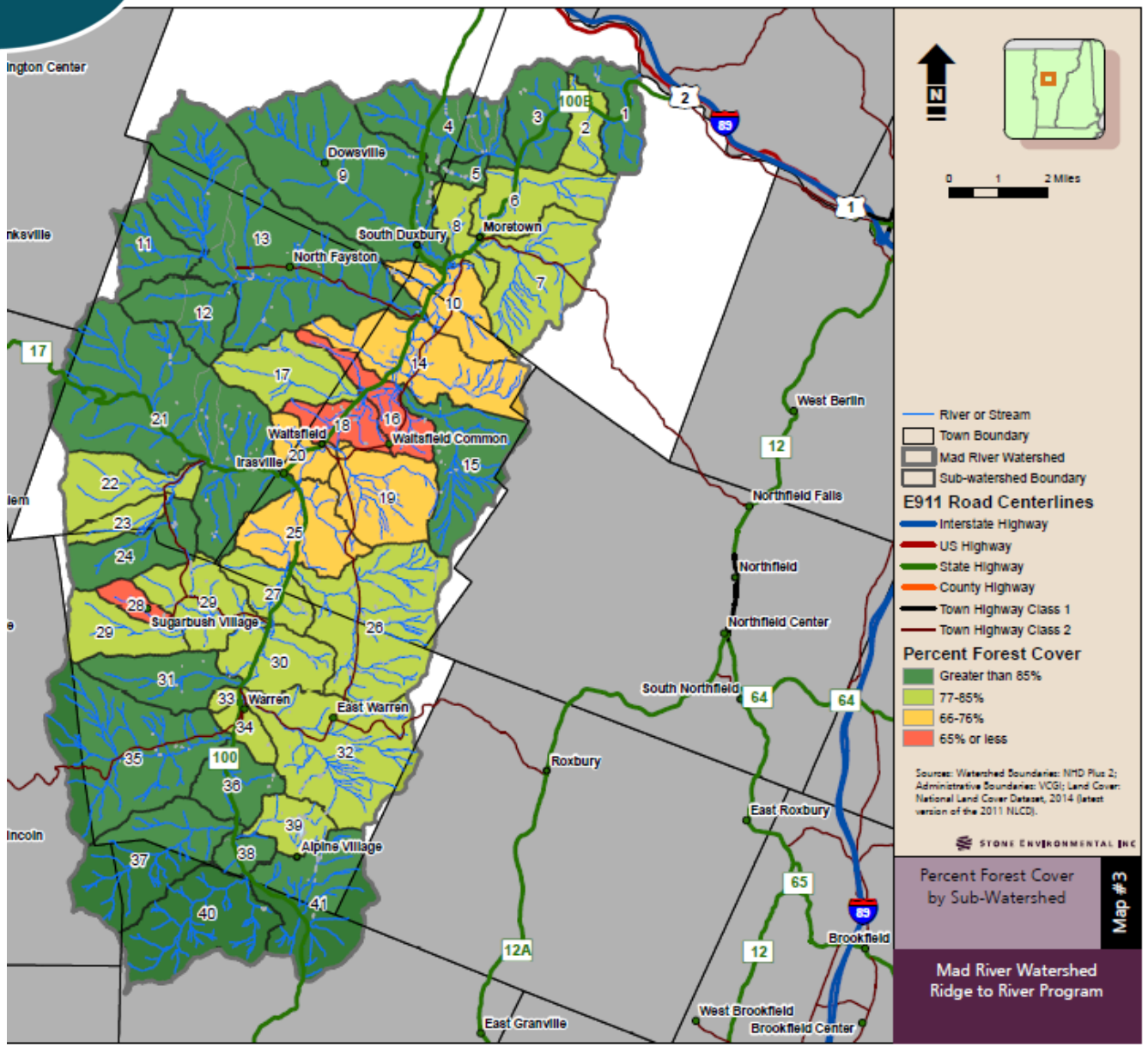
WHY IT MATTERS

Forest Cover Value

Studies in Pacific Northwest mark an observed transition in downstream channels being severely degraded when forest cover threshold is below 65%.

Red = < 65% forest cover:

- Mad Direct in Waitsfield x2
- Rice Brook



TOWN PLANNING

Minor Land Disturbances

WHAT WE KNOW

On-the-Ground Interviews suggest that minor, unregulated land disturbing activities are a major source of erosion, sedimentation, and flooding in the watershed.

- driveway culvert replacement, or small culverts
- view clearing
- residential soil disturbance and soil moving
- backyard "quasi" forestry

WHY IT MATTERS

Across the watershed landscape, these small actions add up to much larger impacts.

TOWN PLANNING

WHAT WE KNOW

New Development

Most MRV development falls under state and local stormwater runoff permitting thresholds.

State: Most MRV development is 1 and 2-family structures

→ Often does not trigger state stormwater permitting thresholds

Local: Local, municipal regulations address temporary construction site erosion controls

→ Limited in mitigating the impacts of new impervious surfaces over the long-term

TOWN PLANNING

Enforcement Challenge

WHAT WE KNOW

Regulation effectiveness hinges on the capacity of municipal staff and volunteers to enforce it.

Staff Zoning Administrators (usually part-time positions) & Development Review Boards (volunteer positions) have a lot on their shoulders:

- conduct development review
- enforce regulatory documents
- ensure community involvement

WHY IT MATTERS

→ MRV ZAs and DRB members report that there's a need to invest in training and support for staff and board members.

The MRV Cares

WHAT WE KNOW

THE COMMUNITY

Valley Residents Care about Water

- 100% of survey respondents care about clean water
- 97% say managing stormwater protects their quality of life

Many Residents are Aware & Taking Action

- Only one respondent had never heard the terms "pollution," "runoff," and "sediment"
- 85% report actively trying to minimize erosion and runoff on their properties

→Stormwater Action is Limited by Resources & Skills

WHAT WE CAN DO

The Moral of the Story

Small & dispersed problems across the watershed can add up to a lot of damage.

BUT…

Small & dispersed changes can add up to a lot of good.

Photo: Joshua Schwartz

WHAT WE CAN DO

Action Framework

WHAT WE CAN DO

Action Framework

Storm Smart **Development**

WHAT WE CAN DO

STORM SMART

Stormwater Master Plans – Locate problem areas on an existing site & opportunities for retrofit

- → Warren School
- → Harwood Union (Duxbury)
- → Mad River Glen Parking Lot (Fayston)
- → Fayston School
- → Mt Ellen (Fayston)
- → Fuller Hill Rd (Warren)

Warren School SWMP, sub-surface chambers, & raingarden

Storm Smart **Development**

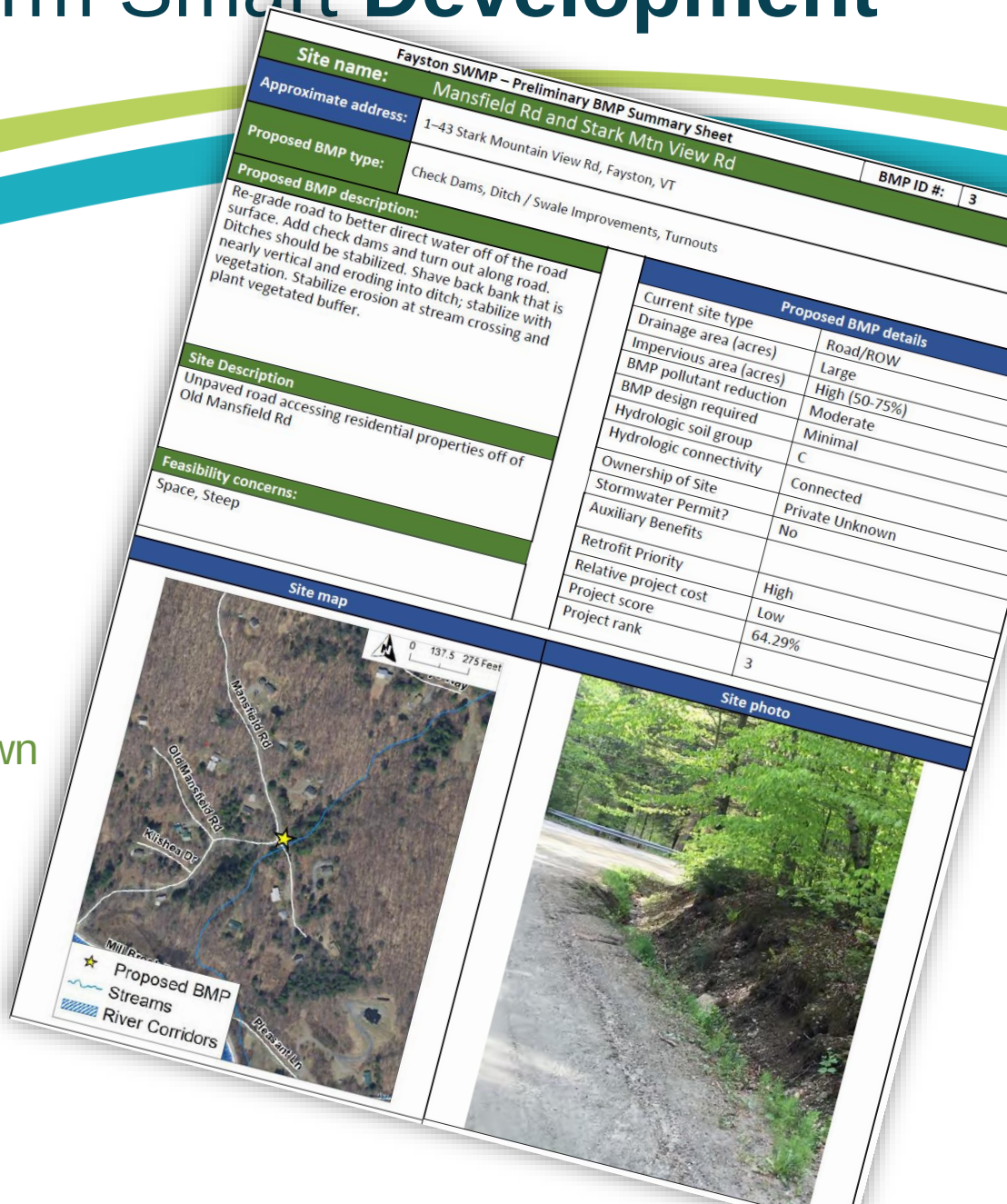
WHAT WE CAN DO

STORM SMART

Town-Wide Stormwater Master Plans –

→ Top 20 prioritized sites / Town

→ 6 – 30% Engineering Plans / Town



Fayston SWMP – Preliminary BMP Summary Sheet

Site name:	Mansfield Rd and Stark Mtn View Rd
Approximate address:	1–43 Stark Mountain View Rd, Fayston, VT
Proposed BMP type:	Check Dams, Ditch / Swale Improvements, Turnouts
BMP ID #:	3

Proposed BMP description:
Re-grade road to better direct water off of the road surface. Add check dams and turn out along road. Ditches should be stabilized. Shave back bank that is nearly vertical and eroding into ditch; stabilize with vegetation. Stabilize erosion at stream crossing and plant vegetated buffer.

Site Description
Unpaved road accessing residential properties off of Old Mansfield Rd

Feasibility concerns:
Space, Steep

Proposed BMP details	
Current site type	Road/ROW
Drainage area (acres)	Large
Impervious area (acres)	High (50-75%)
BMP pollutant reduction	Moderate
BMP design required	Minimal
Hydrologic soil group	C
Hydrologic connectivity	Connected
Ownership of Site	Private Unknown
Stormwater Permit?	No
Auxiliary Benefits	
Retrofit Priority	High
Relative project cost	Low
Project score	64.29%
Project rank	3

Site map

Site photo

Storm Smart **Municipalities**

WHAT WE CAN DO

STORM SMART

Photo by Friends of the Mad River

Road Roundtables – Opportunities for road crews to gather and share challenges, tips, techniques, and solutions.

→ 5 Roundtables (so far) organized by R2R Selectboard representatives

Storm Smart **Homesites**

WHAT WE CAN DO

STORM SMART

Engaging home-owners in small changes on their properties, that collectively make a difference

- Home visit
- Individualized GSI/BMP “prescriptions”
- Support for simple actions

Photo by Corrie Miller

WHAT WE CAN DO

STORM SMART

Storm Smart **Homesites**

Storm Smart **Homesites**

WHAT WE CAN DO

STORM SMART

→ Add small fixes like planting trees, digging a waterbar, letting grass grow longer..

WHAT WE CAN DO

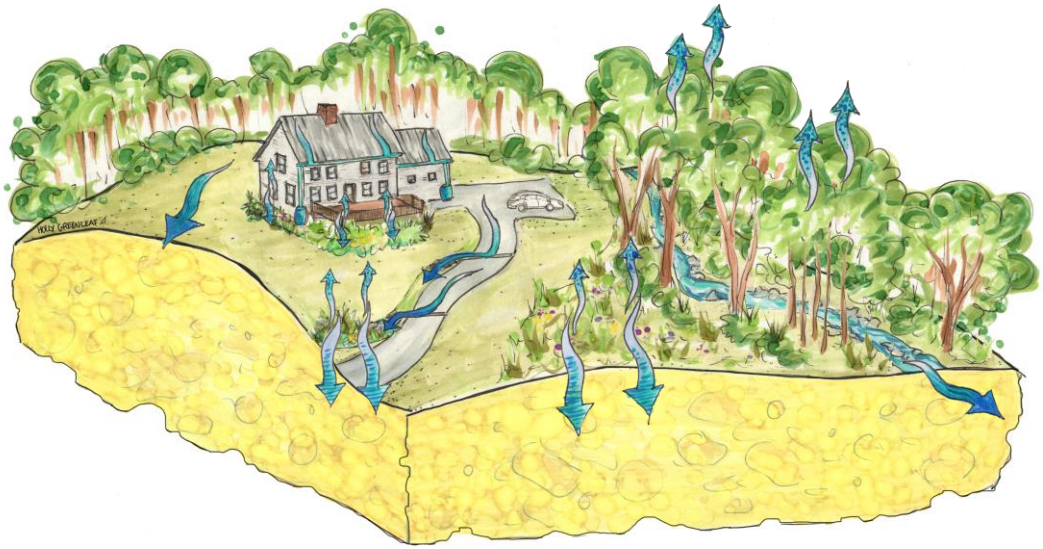
STORM SMART

Storm Smart **Homesites**

WHAT WE CAN DO

STORM SMART

Storm Smart **Homesites**



Storm Smart **Homesites**

WHAT WE CAN DO

STORM SMART

→ 35+ homesite visits this summer
→ People making small changes!

"What a great program – we got the expert advice we were looking for along with follow-up visits for feedback and to help us implement solutions! This is a win/win for the river and anyone with a driveway."
-Kyle Lewis, Waitsfield resident

Photo by Corrie Miller

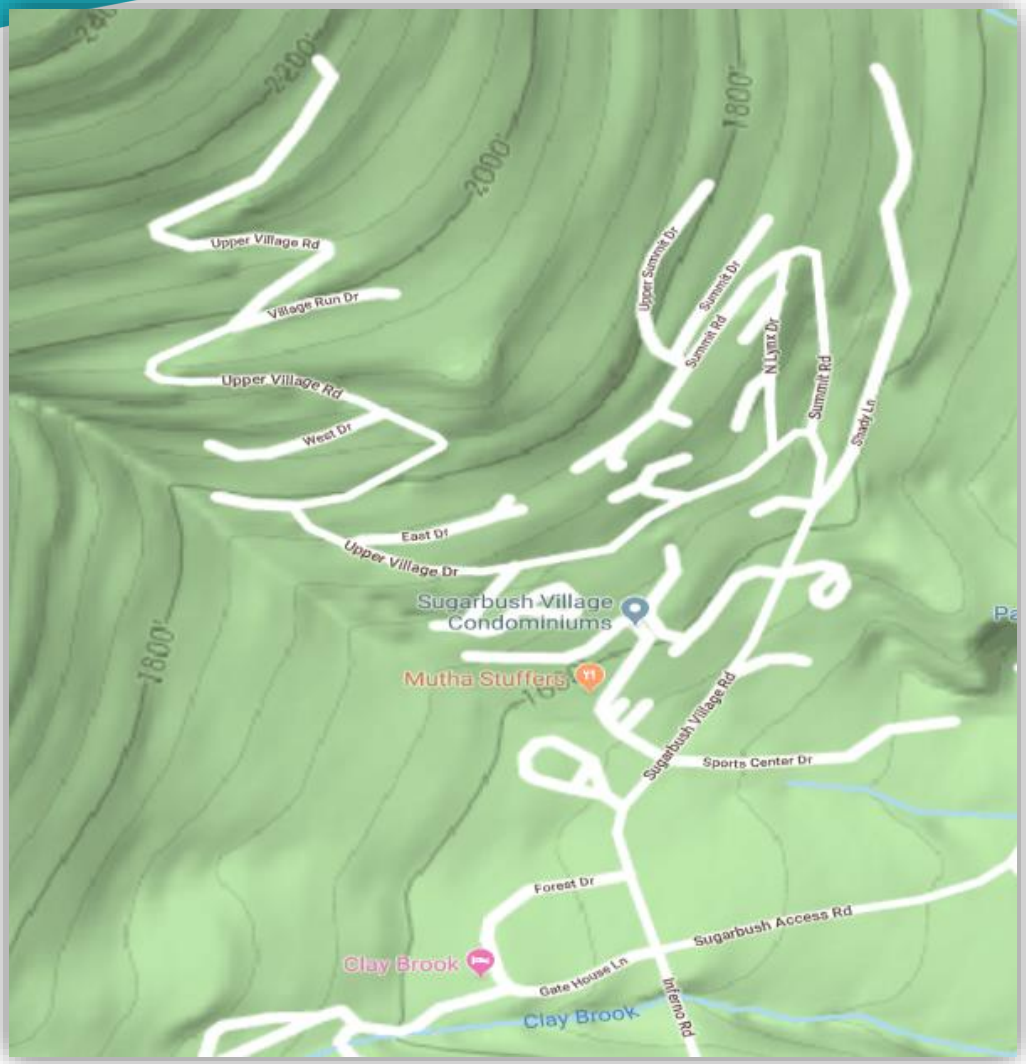
Storm Smart **Private Drives**

WHAT WE CAN DO

STORM SMART

Identify and engineer solutions to complex shared private driveway challenges

→ Engineering plans at 6 private driveway networks



To Date…

Dollars Brought to the Mad River = ~$476,000

WHAT WE CAN DO

STORM SMART

To Do…

Photo: Joshua Schwartz

Questions? Comments?

Thank you!

Corrie Miller
Friends of the Mad River
corrie@friendsofthemadriver.org • (802) 496-9127

or

Ridge to River Taskforce Members
www.ridgetoriver.org