Deerfield River Valley RISE Process Report

A flood resilience guide for the Towns of Dover, Readsboro, Whitingham, and Wilmington, VT.

DEERFIELD RIVER VALLEY

RISE

Resilience in Shifting Environments

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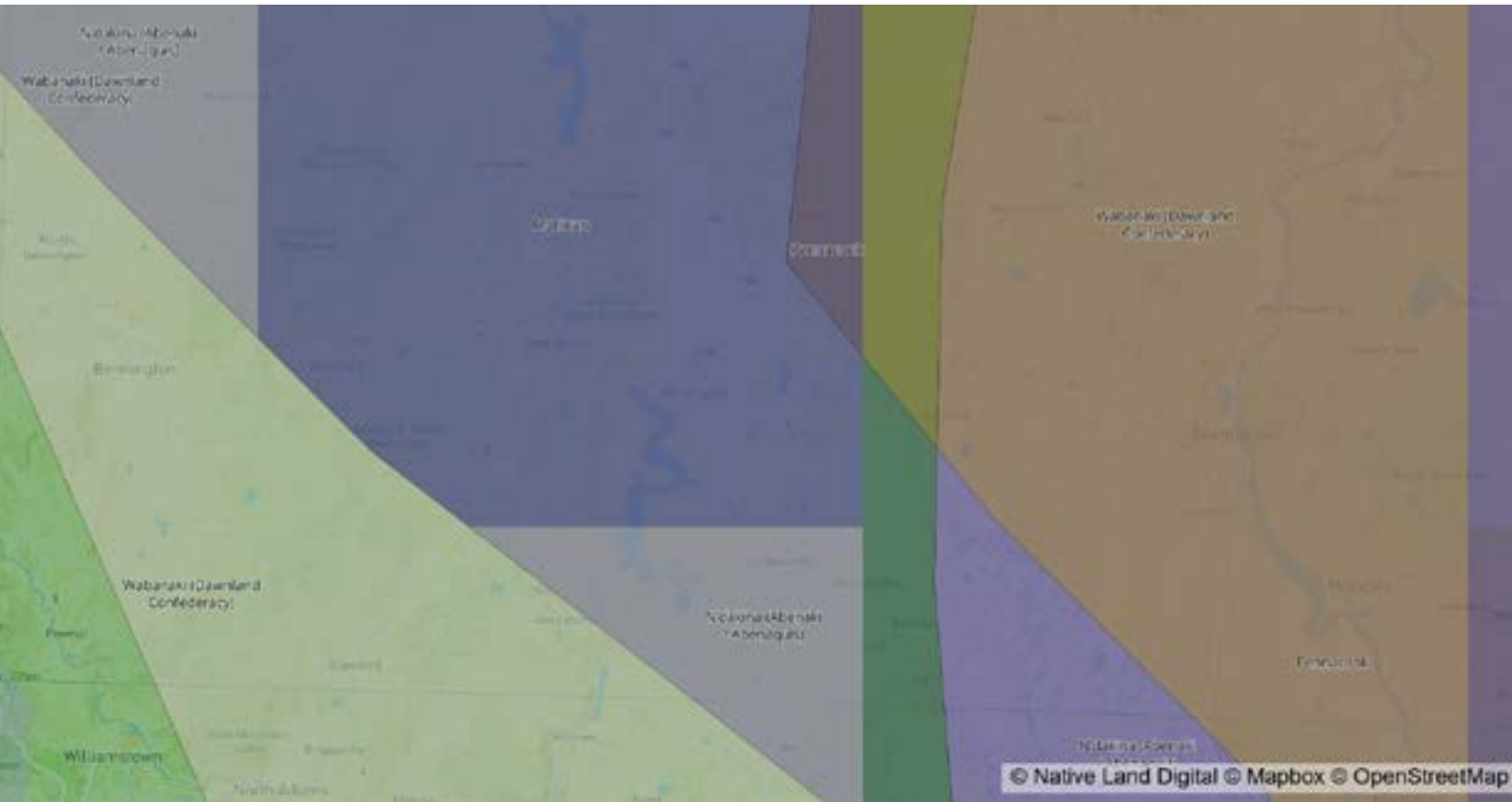
Ndakina as Ancestral Homeland

For the W8banakiak, Ndakina is not a metaphor or a concept on a map. In our language, Aln8ba8dwaw8gan, Ndakina means “our earth/world/soil” – literally, our Territory. It refers to our unceded ancestral homelands: the lands and waters where our creation stories are rooted and where our people have lived in relation since time immemorial. Ndakina is written into our language in a way that means to ensure that we cannot disconnect from the land, nor our responsibility towards it.

Today, Odanak and W8linak in Québec are the political, cultural, and genealogical strongholds of the W8banaki Nation after complete displacement from what is now Vermont, Massachusetts, New Hampshire, and Western Maine. These two communities carry the continuous line of our people: the language, families, political structures, and the responsibilities to territory.

Even though our recognized reserve lands are now north of the colonial border, Ndakina extends across what is now called the Canada–U.S. boundary. To us, there is one “state”: Ndakina. The border is a recent imposition that cuts across an older reality of continuous use, movement, and kinship.

Figure 1



Historical and Contemporary Relationships to These Lands and Waters

Historically, Ndakina was—and remains—a network of relationships rather than a set of hard, surveyor's lines. Our territories were fluid and followed waterways, geology, and seasonal movements. We shared, traded, intermarried, and allied with neighboring nations such as Nonotuck, Pocumtuck, and Woronocco.

Figure 2

In the area now called Southern Vermont, Southern New Hampshire, and Northern Massachusetts, the band known as the Sokoki (Sokwaki) lived, grew crops, traveled, hunted, and maintained villages. The towns of Dover, Readsboro, Whitingham, and Wilmington lie within hunting territories and travel corridors that were historically used by our people. The Connecticut River valley was a crucial route through the western portion of Ndakina—a highway of water connecting camps, villages, and seasonal sites.

Many of the people who lived in those southern territories eventually moved north and consolidated at Odanak, often via places such as the Schaghticoke near the mouth of the Hoosic River. Our ancestor, Chief Greylock (Wawanolette / Wawenorrawot), who played a major role in the 1700s, was born at Woronocco (Waranoke) in what is now western Massachusetts. Many families in Odanak today still carry his name in various forms (Wawanolette, Wawanoloath, Nolette), and other family names such as Msadoques are traceable to eastern Massachusetts.

Today, Odanak has 3,337 enrolled band members and W8linak has roughly 700 enrolled band members. Of these 4,000 W8banaki, approximately 3,500 live off reserve, throughout Ndakina and beyond, including in places such as New York, Vermont, New Hampshire, Maine, Massachusetts, Florida, as well as Ontario and Quebec. Many of us in the U.S. are there because our grandparents and great-grandparents moved for work in the early 1900s – for example, the Abenaki community in the Albany/ Troy area of New York, where several families from Odanak settled while regularly returning home multiple times a year.

Our diaspora is wide, but our connections are not broken. We continue to gather frequently in both Canada and the U.S., and we maintain strong family, cultural, and political ties to Odanak and W8linak, which we view as the seats of our governments and the hearts of our nation.

Waterways, Seasonal Movements, and Lifeways Connected to Rivers and Wetlands

We are a river people. Historically, our ancestors moved semi-nomadically across Ndakina along ancestral canoe routes, following the rhythms of seasons, wildlife, and water levels. Floodplains were not just hazards; they were fertile areas used to grow crops and to establish hunting camps and temporary living spaces.

Seasonal movements were flexible. Some years, our bands returned to the same areas; in other years, shifts in wildlife, weather, or safety influenced where we went. The floodplains and river valleys in the region you now call southern Vermont were part of this seasonal cycle, connected to a wider network of camps & villages stretching from the southern boundary of Ndakina up through the northern hunting grounds beyond Odanak.

Rivers and wetlands were foodways. American eel and yellow perch were important foods for W8banakiak. Eel provided a rich source of fat and nourishment, especially when smoked. Perch were a common subsistence fish that allowed our people to travel and live across Ndakina while relying on the rivers they paddled as both transportation and pantry.

Dams and other colonial interventions have fragmented these historical waterways. Routes that once allowed canoes—and fish such as eel and sturgeon—to move freely are now blocked. Where humans cannot pass, neither can these species. For many of us today, it is an Abenaki dream to return to these rivers and canoe the routes of our ancestors, but in many places that dream is limited by the physical reality of dams and altered flows.

Despite this, we are actively working to restore these relationships. Odanak has completed two habitat restoration projects focused on yellow perch and is engaged in dam-removal planning aimed at reconnecting habitat for American eel, yellow perch, and sturgeon. These efforts link cultural survival, foodways, and ecological restoration.

Environmental Imbalance, Climate Change, Flooding, and Teachings

Within our teachings, floods are not only disasters; they are part of cycles of beginnings and rebirth. They remind us that water will always seek its own path and that the world is constantly renewing itself. Environmental imbalance, from our perspective, reflects a sickness of the spirit: the greed and disregard of the society inhabiting the land. Climate change is understood as part of larger cycles of Earth, but human greed, pollution, and overuse are accelerating and intensifying those cycles. Grandmother Earth can heal herself; it is humanity that needs saving. The impacts are visible in our homelands today:

- Water and fish: Water quality is degraded, and species such as lake sturgeon, American eel, and other culturally important fish face serious pressures from dams, pollution, and altered flows.

- Forest and ash: Much of the land sold away from us illegally by the Crown has been converted to agriculture, leading to deforestation in southern Québec and the northern parts of Ndakina. Emerald ash borer and similar threats are killing black ash, a tree with deep cultural and practical importance.

- Climate zones and species ranges: Forest and climate zones are shifting northward. Maple trees and other key species are undergoing range changes, altering the ecological and cultural landscapes.

- Community impacts: Severe winter storms are creating more frequent power outages and disruptions, adding another layer to the pressures facing our communities.

- When planners consider flooding and "resilience," we ask that they recognize both these material impacts and the deeper spiritual context: floods, in our teachings, show us that balance will always be restored, with or without us.

Land Access, Stewardship, and Continuity of Presence

The U.S.–Canada border is one of the largest barriers to our contemporary access to Ndakina. It is not a border our ancestors recognized, yet today it restricts our ability to manage and care for the bulk of our ancestral territory.

The 1794 Jay Treaty recognized a limited right for "Indians to travel freely across the border," and Odanak and W8linak have a Memorandum of Understanding to cross with our Secure Certificate of Indian Status (SCIS) cards. Many of us use this regularly. But logistical access rights do not equal meaningful jurisdiction or control. We rely heavily on partnerships in the U.S. to carry out conservation and stewardship work within Ndakina stateside.

In Canada, another layer of dispossession arises from land loss and sales carried out without our consent. Significant areas of land—much of which is now agricultural—were sold out from under us by the Crown. This has transformed the physical landscape, contributed to deforestation, and degraded water quality and habitat.

Despite these obstacles, our continuity of presence is clear:

- Families from Odanak have maintained visible, public lives as Abenaki within the U.S. for generations—operating basket shops, travelling between Odanak and communities in New York, New England, and beyond.

- Our elders and their parents lived openly as Abenaki, not hiding their identities. Basket-making, seasonal travel, and cross-border movement were all part of our survival, our economy, and our cultural expression.

- Today, we continue to live, work, and conduct restoration and conservation projects throughout Ndakina, both north and south of the border.

When planners and decision-makers look at maps that show Odanak and W8linak north of the border, they may assume that the Abenaki story in Vermont and neighboring states is "past." That is incorrect. The families of Odanak and W8linak are the same families who historically lived in the regions now called Readsboro, Wilmington, Whitingham, Dover, and beyond. Our presence continues through our people, our language, our projects, and our responsibilities.

Respectful Collaboration and Knowledge-Sharing in Planning and Resilience Work

For us, the most important principle in any collaboration is respect. Knowledge must be shared, not extracted. We need to know that our stories, data, and expertise will not be taken, distorted, or used against us, especially in an era of serious Indigenous identity fraud and cultural erasure. A few key points for planners, officials, and community partners:

1. Recognize legitimate Abenaki governance and identity.

    a. The W8banaki Nation—Odanak and W8linak—holds the continuous political, cultural, and genealogical line of the Abenaki people.

    b. There are many Abenaki living in the U.S., but they are genealogically tied to Odanak, W8linak, or to families who intermarried with Penobscot and Passamaquoddy in Maine.

    c. Vermont's state-recognized groups are, collectively, not of Abenaki descent. Their narratives of "hiding in plain sight" directly contradict our documented history, erase our ancestors' dignity, and divert resources and decision-making away from the actual Abenaki people of the W8banaki Confederacy.

2. Understand our relationship to time.

    a. Many planning processes look on a horizon of 1–2, 5–10, or at most 25 years.

    b. In our decision-making, we think in terms of the past seven generations and the next seven generations—often 25–100 years, or even 500–1,000 years.

    c. When you plan "resilience," ask not just what a project will do in the next budget cycle, but what it will mean for your great-great-great grandchildren—and ours.

3. Decenter money as the only metric.

    a. Not everything requires a dollar sign. We encourage planners to ask:

        i. What benefit will this bring to the land and water, even if it brings us little or no personal gain?

        ii. Would we still do this project if there were no financial reward?

    b. Resilience, from our perspective, is about adaptability, persistence, and the courage to move forward when the odds are against you—not simply about protecting property values.

4. Commit to genuine, ongoing consultation and co-creation.

    a. Engage with Odanak and W8linak early and often in land-use, flood, and resilience planning.

    b. Respect our intellectual property: transcripts, maps, protocols, and other materials should only be used with our explicit permission and with full attribution (to the individual author, to Odanak/W8linak, or to BETO, as agreed).

c. Be prepared for long-term relationships, not one-off "consultations."

5. Value both scientific and cultural expertise.

   a. Our environmental office (Bureau Environnement et Terre d'Odanak) is engaged in concrete conservation work—like dam-removal feasibility for eel and perch, restoration projects, and broader species and habitat monitoring.

   b. Our cultural teachings about floods, water cycles, and long-term thinking are not separate from "technical" expertise; they are another form of sophisticated environmental knowledge.

What Planners in Readsboro, Wilmington, Whitingham, and Dover Should Know

The lands and rivers you work on are within Ndakina. They are not "formerly Abenaki" territories—they remain part of our ancestral homeland, where our ancestors lived, travelled, married, raised children, fought, traded, and survived epidemics and wars. As you plan for flooding, resilience, and land use:

- Remember that the Connecticut River Valley and its tributaries were, and should again become, living corridors for both people and species such as eel, perch, and sturgeon.
- Recognize that floodplains, wetlands, and riverbanks were historically places of sustenance, camp life, and agriculture for our people.
- Understand that our people were displaced northward because of colonization, warfare, disease, and land theft—but our descendants are still here, both in your towns and at Odanak and W8linak.
- Know that fraudulent claims to Abenaki identity and state recognition in Vermont actively undermine our ability to steward Ndakina and to participate as the rightful Abenaki nation in projects like yours.

We invite those who are serious about respectful, long-term collaboration to work directly with Odanak and W8linak. We bring not only lived experience and memory of these lands, but also professional expertise in ecology, wildlife management, and climate resilience. Above all, we bring an ethic of responsibility to Ndakina that has endured since time immemorial and that looks forward, always, to the world our great-great-great grandchildren will inherit.

Kchi Wliwni (Great Thanks),

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Abenaki of Odanak of the Degonzak Family
Biological Project Manager & Odanak Liaison
Bureau Environnment et Terre d'Odanak (BETO)
Odanak First Nation

A Statement from Deerfield River Valley RISE

As we embark on resilience planning work on these lands, we, as a studio, acknowledge our responsibilities as planners, as clearly articulated in the UN declaration on the Rights of Indigenous People, our own AICP Code of Ethics, and Vermont's own stated commitment to Truth & Reconciliation processes, to engage in meaningful ways with the direct descendants of people who have been violently displaced through the colonial process and had their lifeways interrupted.

All of Vermont, including the four towns of Readsboro, Dover, Whitingham and Wilmington, lie within Ndakina, the unceded ancestral homelands of the W8banaki Nation (W8banakiak), including the Abenaki communities of Odanak and W8linak. Historically these lands also included Abenaki bands of Sokoki and Pennacook. We were pleased to be met with such openness to discussing the history of these lands with us. We were humbled to share genuine conversation about the cultural significance of these lands. We were honored to be met with an attitude of reciprocal relationship and desire for future partnership. These homelands include the vast river systems, floodplains, and land corridors that the Abenaki people lived with and on for millennia. Members of Odanak and W8linak, through longstanding genealogical and oral history, remember intimately their connection to Ndakina. Though currently displaced and alienated from the lands, they continue to hold cultural, emotional, and spiritual significance to the living descendants. As was impressed upon our interviewer a family may have canoed, fished upon, and lived beside the waterways that we have studied this semester for thousands of years, not as owners in the colonial sense, but as living kin. As expressed to us, the Abenaki maintain a deep longing to rekindle living the relationship with, and be in partnership with land use officials to help heal the lands and waters from the continued impacts of colonization, despite borders and any political challenges.

We recognize that a three month project is not enough time to begin the greater task of building reciprocal relationships built on trust, knowledge sharing and mutual respect. We hope that our initiation of this process will be seeds that will be picked up and find roots throughout Ndakina. This will mean approaching collaboration with humility, an attitude of reciprocity, processes built on Free, Prior and Informed Consent, and a commitment to sharing knowledge, not just for a season but for generations forward; supporting long-term stewardship across generations; and ensuring that planning decisions contribute to ecological health, cultural continuity, and the wellbeing of future descendants—current residents and those displaced, Abenaki and non-Abenaki alike.

We offer this statement not as a symbolic gesture, but as a formal recommendation for planners and officials in the area to commit to honoring the rights of the W8banaki Nation by engaging in meaningful relationship, ethical partnership, and forward-looking stewardship of the lands and waters of Ndakina.

In gratitude,

Deerfield River Valley RISE

DEERFIELD RIVER VALLEY RISE
RESILIENCE IN SHIFTING ENVIRONMENTS

02 Background & Existing Conditions

Southern Vermont, known for its rural charm, vibrant farm land, and close-knit community feel, has not been spared from the grueling impacts of climate change. The state of Vermont has felt the calamitous effects of flooding as increasingly common flood events wipe out infrastructure from major roadways, to business districts, and family homes. Fall 2025, the University of Massachusetts-Amherst Regional Planning Studio has explored the impacts of flooding in Southern Vermont and developed planning recommendations to support mitigation, adaptation and disaster response for Dover, Readsboro, Whitingham, and Wilmington, Vermont. These four towns sit in the Deerfield Valley and within the Windham Regional Commission (WRC) geography. WRC is a regional planning commission that oversees twenty seven towns in Windham, Windsor, and Bennington Counties.

Figure 1

Why a Flood Resiliency Plan?

When we first began this studio, we asked ourselves a simple question. What does it really mean for a community to live with water? We know that for those living and working in Dover, Readsboro, Whitingham, and Wilmington, living with water has become a reality.

***Our mission** is to help Dover, Readsboro, Whitingham, and Wilmington adapt to climate change and mitigate flood risk by creating equitable and lasting tools that connect public concerns with meaningful analysis. By honoring both local knowledge and regional data, we strive to identify the opportunities of varied futures.*

What To Expect

The **Four Town Flood Action Prioritization Playbook** includes four independent yet interrelated deliverables, listed below:

Process-Based Educational Materials

These materials were developed through the public engagement work the studio conducted between September - December 2025. These materials include a risk and asset mapping activity and "Ready or Not: The Climate Challenge," a board game that explores scenario planning for climate change futures. These materials have been designed to be reused and adapted to serve future planning efforts and underscore the importance of public engagement and education.

Community Floodproofing Toolkit

This toolkit empowers residents with the knowledge and resources needed to prepare for, respond to, and recover from flood events. It outlines residents' ability to measure flood risk with floodplain zoning and shares mitigation strategies to lessen the impact of future flood events.

Municipal and Regional Capacity Toolkit

The Municipal and Regional Capacity Toolkit addresses municipal (or regional) capabilities to gather resources and capitalize on the current regulatory state to promote future growth. This toolkit addresses regulatory needs, zoning language, and a prospective roadmap for future development.

Flood Action Funding Resource Guide

The Resilient Funding Guide is a consolidated resource guide that streamlines the application process for Federal and State funding opportunities. It includes references and resources to guide communities in developing alternative funding streams.

These four deliverables are organized as chapters in this Four Town Flood Action Prioritization Playbook. You can choose to read this playbook in any order. We recommend starting with the Background & Existing Conditions section and then moving to the deliverable(s) that apply to you and your community.

Background & Existing Conditions

Dover, Readsboro, Whitingham, and Wilmington are small, rural communities in Southern Vermont with aging populations and tourism-based economies thanks to their plentiful scenic and recreational natural resources. Wilmington is the largest of the towns, with a population of 1,844 people compared to Dover's 1,212, Whitingham's 1,352, and Readsboro's 766 (2023 ACS Five-Year Estimates). All four towns have an aging population with relatively small amounts of families and young adults. Dover's Mt. Snow ski resort is the region's tourism hub, and there is a large proportion of second home and seasonal rental housing stock to take advantage of the winter snow season and the recreational fishing, boating, and hiking opportunities in the warmer months. Farmstands can be seen alongside many town roads, and local maple syrup is widely available.

To get a fuller picture of the region's demographics, please visit our demographic data dashboard on our website: deerfieldvalleyrise.com.

Figure 2

The Regional Landscape

The four RISE towns sit in the Deerfield River Watershed, which stretches from Stratton Mountain in southern Vermont to the City of Greenfield in Northwest Massachusetts. It includes the Deerfield River and the North River in Southern Vermont, and these rivers' abundant tributaries that snake through the towns' mountainous terrain (Deerfield River Watershed Association, n.d.). The area's luscious green mountains and arable valleys are a gift from its glacial past, and marks from glacial striation can still be seen in Dover today (Kull, 1961; Vermont Department of Environmental Conservation, n.d.-b). In Southern Vermont, storms travel over the Green Mountains and break over the Deerfield River Valley, making flooding an increasingly common occurrence.

Wilmington and Whitingham sit at the foot of the Green Mountains. Their relatively low elevation makes them susceptible to inundation flooding as water flows downhill from higher elevations and overwhelms the Deerfield River.

Dover and Readsboro are mountain towns with many small tributaries that flow into the rivers below. Their higher elevations make them more susceptible to fluvial erosion as water flows at high pressure through the small waterways. Fluvial erosion explains how steep mountainsides emerge next to rivers and streams.

Regional Flood Risk Factors

Various factors have led to a steady increase in flood frequency in Southern Vermont in recent years. The first and foremost driver of increased flood risk is the **warming of the global surface temperature**, caused by greenhouse gas emissions from human activities (Lee et al., 2023). As the climate has warmed, the frequency and intensity of weather events like floods, droughts, and storms has increased; Southern Vermont has experienced all three with increasing frequency (FEMA, 2025b; Georgakakos et al., 2014; Lee et al., 2023; NOAA, n.d.). The 2021 Vermont Climate Assessment found that Vermont has seen a 21 percent in average annual precipitation since 1990 (Flood Safety Act, 2024).

Soil composition plays an important role in a landscape's ability to buffer intense rainfall. Healthy soils are rich with organic matter, deep, and stabilized by the presence of deep-rooted plants that cover the soil's surface (USDA, 2025). The permeability of soil is its ability to absorb water; when it rains, soil can absorb a certain amount of water and hold it until gravity pulls it downwards into the aquifer below.

In steeper areas, the mountainous terrain has created shallow, fragile soils and steep slopes (Town of Dover, 2024; Whitcomb Jr., 2011).

Inundation Flooding is the overflow of water from the riverbed that happens during high intesnsity rainfall. It impacts low elevations most.

Fluvial Erosion is erosion that happens during high velocity storm events. It impacts steep, mountaineous regions most.

The 2021 Vermont Climate Assessment found that Vermont has seen a 21 percent in average annual precipitation since 1990.

Flood Safety Act, 2024
2021 Vermont Climate Assessment

This landscape puts development at risk of flood damage due to fluvial erosion. In 2011, dramatic fluvial erosion during Tropical Storm Irene resulted in five homes in Readsboro being declared unsafe (Whitcomb Jr., 2011). Fluvial erosion can be seen in the steep cliffs along Goose City Road in Dover.

Allowing wooded environments to remain undeveloped, as they are in much of the towns, helps buffer the impacts of heavy rainfall. Developing in these areas, specifically at high elevations that drain down into the valley, means that the land becomes impermeable when covered by surfaces like asphalt and concrete. Increasing impermeable surfaces increase stormwater runoff which can overrun lower elevation areas with rushing, high-speed waters that spill over the riverbeds, causing inundation flooding.

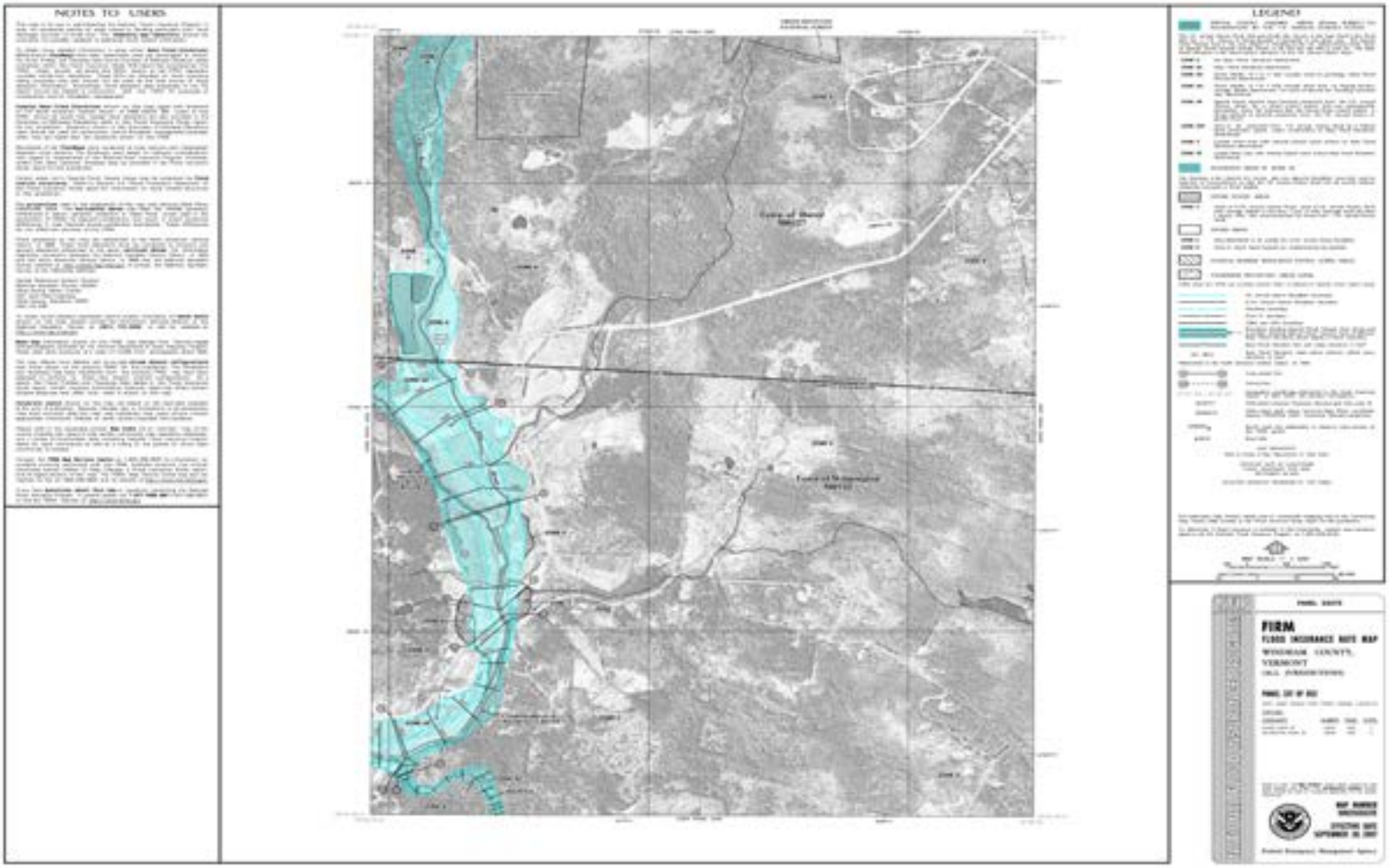
Regional Flood Risk Mapping & Support

Flood risk for regulatory purposes is currently mapped in two ways.

Federally, flood risk is measured in FEMA's flood insurance rate maps (FIRMs). These maps measure special flood hazard areas (SFHAs), which are defined as areas "subject to inundation by the 1% annual chance flood" (FEMA, 2007). Put in another way, this is the land that is projected to flood in the 100-year flood, which is the flood that is predicted to have a 1% chance of "being equaled or exceeded in any given year" (FEMA, 2007). The FIRMs for Readsboro were last updated on 12/2/2015; the other three towns' FIRMs were created 9/28/2007. The FEMA maps for all of the towns are currently up for revision (Vermont Department of Environmental Conservation, n.d.-a; Windham Regional Commission, 2022).

FEMA's National Flood Insurance Program (NFIP) offers federally-backed flood insurance to communities that enforce regulations in special flood hazard areas. Communities that adopt and enforce a floodplain management ordinance that regulates development in special hazard flood areas can offer FEMA flood insurance policies to their homeowners (FEMA Coordinator's Manual, 2025). All four towns are currently enrolled in the NFIP (FEMA, 2025a).

The State of Vermont measures flood risk with their River Corridor Base Map. River corridors contain



The above FIRM map shows the SFHA along the North Branch of the Deerfield River in Wilmington, VT.

Figure 3

the river and the area of land surrounding it that provides for river movement, floodplain, and riparian (river bank) functions necessary to maintain a minimally erosive river flow (Flood Ready Vermont, n.d.). Vermont's Act 121, passed in 2024, transferred regulatory control of river corridors to the state. River corridor regulations are implemented through a case-by-case project review process (Flood Ready Vermont, n.d.).

Dover, Readsboro, Whitingham, and Wilmington contain special hazard flood areas and river corridors, and flooding has historically shaped the built and social landscape of the Deerfield River Valley. Each town has experienced multiple flood events.

Historic Flood Events

Southern Vermont's mountainous terrain and converging tributaries have made the Deerfield River and its branches highly reactive to rainfall and snowmelt. Recorded flood events date back to the early 20th century, but the most significant and transformative in recent memory was Tropical Storm Irene (2011), which brought record-breaking rainfall across the region.

- Dover reported extensive washouts along Route 100 and Goose City Road, with steep slope erosion and blocked access to higher-elevation homes (Town of Dover, 2024).
- In Readsboro, several bridges, culverts, and riverbanks were destroyed. Approximately five homes were condemned due to fluvial erosion along the Deerfield River (Whitcomb Jr., 2011).
- In Whitingham, the Wardsboro Brook and tributaries overtopped their banks, damaging the town's roads and isolating residents.
- Wilmington's downtown area experienced catastrophic flooding when the Deerfield River overflowed, destroying Main Street businesses and homes (FEMA, 2012; Vermont Department of Environmental Conservation, 2012).

Even before Irene, historical records for the Deerfield watershed indicate frequent "bank full" events, floods that fill river channels and reshape their banks, approximately every 5-7 years (Flood Ready Vermont). These events, though smaller than Irene, have cumulatively weakened infrastructure, increased sediment load, and altered floodplain topography.

Post-Irene and Recent Flooding

Since 2011, Vermont has faced multiple heavy rainfall events leading to localized flash flooding, particularly in 2021 and 2023, both years ranking among the state's wettest (Vermont Climate Assessment, 2022).

- In July 2023, heavy rains caused major road closures in southern Vermont, highlighting that vulnerabilities remain even after infrastructure improvements.
- Readsboro's ongoing culvert replacement project, initiated post-Irene, illustrates the long-term recovery timeline typical of small, resource-constrained municipalities (Interview: Gig Zboray, 2025).

Local flood mitigation projects like increased culvert sizing, streambank stabilization, and the protection of riparian buffers have improved resilience, but uneven implementation across towns shows the continuing challenge of balancing cost, maintenance, and ecological function.

TS Irene Local Disaster Response

When Tropical Storm Irene struck in August 2011, the four towns faced different but interrelated challenges in communication, coordination, and recovery. Each community's response reflected its local governance capacity, geography, and social networks.

Dover

Dover's emergency response relied heavily on coordination with Windham County Emergency Management. The steep, forested terrain limited access to high-elevation homes, and road washouts disrupted supply lines. The town's post-Irene resilience planning focused on improving stormwater drainage and developing a Culvert Inventory and Maintenance Program (Town of Dover, 2024).

Readsboro

Communication breakdowns were among the most critical issues. For days, phone lines were limited to local calls within Readsboro, leaving emergency responders isolated (Interview: Omar Smith, 2025). The Readsboro Fire Department became the central command, coordinating evacuations, emergency food distribution, and initial damage assessments.

Grassroots organizations later filled communication gaps. Local resident Omar Smith helped establish improved community radio systems and emergency messaging networks post-Irene, ensuring that communication during future disasters could be handled more effectively.

Whitingham

In Whitingham, Fire Chief and Road Commissioner Stanley Janovsky played a central leadership role, working with the Vermont Agency of Transportation to reopen access routes (Kaplan, 2012). His dual responsibilities allowed for rapid decision-making on debris clearance and emergency repairs. Local volunteerism was particularly strong, with residents using private equipment to stabilize roads and direct traffic during isolation.

Wilmington

Wilmington's downtown was among the hardest hit. Local emergency services coordinated with the Deerfield Valley Rescue Squad and Vermont National Guard for evacuations and medical support. Recovery planning began immediately with the Wilmington Planning Commission, which later developed a flood hazard bylaw amendment to restrict rebuilding in high-risk floodplain zones (Town of Wilmington, 2024).

Together, these local responses demonstrate how small, rural municipalities with limited administrative capacity relied on strong community networks and local leadership to manage unprecedented disaster conditions. The legacy of Irene continues to influence local hazard mitigation and infrastructure design today.

Connection to Scenario Planning

The history of repeated flood events across the Deerfield Valley makes one thing clear - uncertainty is the new normal. Each community's past recovery efforts reveal both the strengths and the limits of local capacity when faced with evolving climate impacts. To move beyond reacting to disasters toward proactively shaping resilient futures, our studio turned to scenario planning. This approach allows Dover, Readsboro, Whitingham, and Wilmington to explore multiple plausible futures, consider how different combinations of policy, funding, and population trends could unfold, and identify strategies that remain effective no matter which path the region takes.

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03 Scenario Planning

The primary goal of scenario planning is improved decision-making
(Goodspeed, 2020)

Traditionally, planners have made plans based on their expectation of the future. By predicting future events, planners have tried to create roadmaps for their community to prosper. Unfortunately, these predictive plans are often highly dependent on the planners accurately predicting what the future brings.

For example: If a town predicts a population increase, planners would typically spend their time preparing for an influx of development. If this development occurs, the plans may have guided the community to a more prosperous future. However, if population instead stagnates or decreases, the planners will have spent their time unwisely. This plan (and others like it) are contingent; uncertainty surrounding future events can limit the effectiveness of plans that try to predict the future. A recession, pandemic, or changing migration patterns can disrupt expected trends and largely nullify the expected benefit of plans that rely on a "certain" future.

To better account for uncertainty, planners have borrowed a technique from military logistics known as scenario planning. Scenario planning is a procedural tool for making future decisions. It takes in a diversity of inputs, data, thought, and deliberation, and engages with uncertainty to make plans adaptable to various future outcomes (Goodspeed 2019).

Scenario planning asks 'what if?'. It does so by experimenting with changing multiple variables, called driving forces, to produce a number of possible futures. Scenario planners then test potential planning actions for their performance in each scenario; a planning action that is projected to have positive results in all scenarios is robust. This planning approach forces us to challenge assumptions and ways of thinking, but must have boundaries to ensure it is useful. This is why the scenarios are formed systematically from driving forces, and why we establish criteria for evaluating actions in the scenarios.

Scenarios are a set of reasonably plausible but structurally different futures; what might happen in the future if certain things happen now (Avin 2001). They are stories about events that would impact planning decisions if they occurred, and they are also "dramatic rehearsals" of planning actions, tools, and policies (Myers & Kitsuse 2000). They are essentially planning thought experiments with an analytical system for creation, exploration, and analysis. They are not forecasts or predictions— rather, scenarios are versions of the future that plans can be tested against to ensure the recommendations are robust (i.e. are effective regardless of what the future actually brings).

Future planning is often lackluster because it only falls into the predictive category; planners often rely on forecasts and projections as the most likely future, and work backwards from there. The future is something which we can change! It is the object of our actions. Scenario planning acknowledges our collective agency in shaping and changing what the future brings.

(Myers & Kitsuse 2000)

Why Scenario Planning Matters for Flood Resilience

Climate planning has often relied on projections and highly scientized processes. These predictive processes frame the future as an inevitable consequence and remove agency from groups to change that future. In reality, the future is an object of manipulation, discussion, and debate —a combination of those inevitable things that will come no matter what and the outcomes of actions we take now (Cole 2001).

[Exploratory Scenario Planning (XSP)] focuses on the implications of different futures. Rather than relying on a single vision of the future, XSP envisions multiple possible futures—desirable and otherwise—and provides a process for assessing how best to prepare for the uncertainties at play while pursuing an overarching vision.

(Stapleton 2020)

We used exploratory scenario planning because it allowed us to be fluid in engaging with potential futures. Exploratory scenario planning sidesteps many of the issues in purely predictive planning processes and requires less time and software than other forms of climatological modeling.

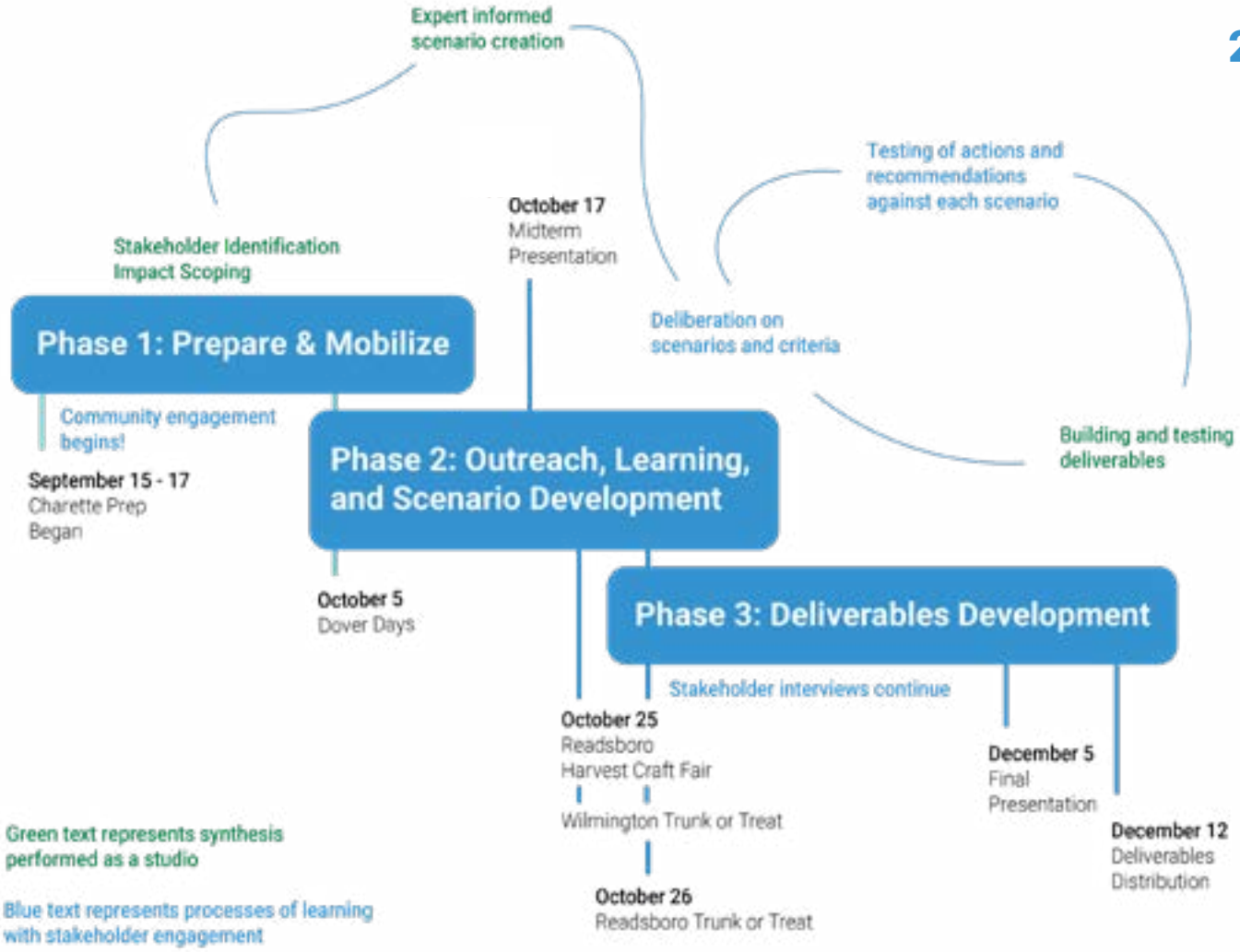
We do not know what the future holds for these towns. Our job is to help each one best prepare themselves for whatever future does come, and that requires adaptable tools that work despite unforeseen or unpredictable changes. Exploratory scenario planning lets us understand specific challenges related to trade-offs between the risks faced and the costs experienced by our communities. These include the valuation of low-probability but catastrophic impacts, like dam failures and 500-year floods, trade-offs related to capacity and funding, governance, and questions of agency (Tompkins 2007).

Scenario-Based Engagement

We primarily engaged stakeholders with our scenarios during interviews, which allowed us to experiment with the directions of driving forces, the names and graphics for the scenarios, and the language describing the outcomes in each scenario. The three scenarios were revised numerous times to reflect feedback from interviews and our

People who are intimidated by the classical scenario planning approach—who say, "I can't possibly do that because I don't have a million dollars and two years"—find great value in XSP, which allows for exploratory scenario planning for the future in smaller places, on smaller budgets, and at smaller scales.

- Amanda Carbonell,
vice president of programs,
Lincoln Institute of Land Policy
(Stapleton 2020)



Our studio's public engagement timeline is built around our scenario planning work. Figure 1

midterm presentation. Our analysis of the four towns as a system combined with rounds of deliberative engagement with key stakeholders produced three different scenarios that are helpful for planning for the future.

The Scenarios

As the Deerfield Valley continues to experience recurring flood events, communities across Dover, Readsboro, Whitingham, and Wilmington face an uncertain future. The question is no longer if flooding will happen, but how often and how severely. Traditional planning methods that prepare for a single, most-likely future fall short in addressing the range of possibilities these towns could encounter in the coming decades. Scenario planning provides a framework to move beyond prediction and towards preparation, helping communities make decisions that remain effective across multiple potential futures. Through stakeholder interviews, engagement activities, and collaborative discussions, our studio developed three distinct yet plausible scenarios that illustrate how different combinations of funding, regulation, and demographic change could shape the region's resilience capacity.

DRIVERS	OUTCOMES
State & Federal Regulations ▲	Floodplain Buffer expanded. Development is prohibited in hazardous areas.
State & Federal Funding ▼	FEMA Funding has been discontinued. State Funding stretched thin, priority is given to population centers.
Demographic Shift ▼	More second homeowners move into the region and dominate the housing market, business landscape, tax base, etc. Permanent residents & local workforce will be priced out of the area.

Figure 2

Private Paradise

In Private Paradise, environmental regulations are tightened to protect flood-prone areas, but financial support from higher levels of government is limited. The increased presence of second homeowners comes to dominate the housing market, town, business economy, tax base, and town culture. Locals are slowly forced out by a burgeoning luxury and short-term rental housing market, which fuels boutique and recreational-related business growth that seasonally serve the high and middle-class tourists. The year-round population decreases. Wealthy developers can afford to front flood-insurance costs and the risk of developing without FEMA buyout options, but locals cannot. Average home values and median household income skyrocket, which supports the accompanying growth, but the town as it exists now fades away. The towns slowly lose their cultural basis and local knowledge, but benefit from tax-base increases. Municipalities face the difficult balance between environmental protection and sustaining their tax base. Infrastructure upgrades happen unevenly, driven more by private wealth than public investment. This creates an environmentally conscious yet socially inequitable landscape, where flood resilience exists primarily for those who can afford it, and long-term residents face mounting challenges in maintaining affordability and community cohesion.

Figure 3

Rural Regression

The region experiences shrinking populations, reduced workforce capacity, and aging infrastructure. Both state support and local tax revenues decline, limiting municipalities' ability to maintain essential services such as schools, emergency response, and road maintenance. Locals and second homeowners move away as flooding continues to be an issue that cannot be remedied by the available funding sources. Without outside support, these towns can no longer support themselves. Disaster response requests may not be met by FEMA, leaving towns to fend for themselves when the floods do come. There are no FEMA buyouts and flood-insurance subsidies requirements become too stringent for the region to qualify, or don't exist, meaning many homeowners go without insurance and cannot afford to rebuild if their property is damaged. Flood damage discourages reinvestment and makes recovery slow and fragmented.

Locals with economic mobility have the option to move or rebuild in floodplains, and some do choose to rebuild in dangerous areas. The second-home real estate market slows down. Families that try to sell have trouble because their property values are quite high, and have been for some time, but there are no amenities around to draw in buyers. Large homes sit on the market. People's children cannot afford to live here when they are adults, and young people look elsewhere for opportunity. Communities focus on low-cost, community-led, and no-regrets actions that prevent further loss even under financial and institutional constraints. This scenario underscores the importance of grassroots capacity, mutual aid, and strategic prioritization when formal systems can no longer provide adequate support.

DRIVERS	OUTCOMES
State & Federal Regulations ▲	Development in floodplains and fluvial erosion areas is prohibited. The floodplain area is expanded.
State & Federal Funding ▲	New Federal and State funding for renewable energy, buyouts, and disaster recovery is readily available.
Demographic Shift ▲	More families and young people move in as the populations of permanent residents and second homeowners grow.

Figure 4

Green Growth

This is the boomtown scenario. Floodplain areas are expanded, and affected homes can receive buyout funds. An influx of outside funding for infrastructure upgrades, repairs, and disaster relief led to the implementation of flood mitigation strategies and smart growth. Mt. Snow continues to be a regional draw. Year-round recreation, including in newly protected floodplain areas, as well as a flourishing renewable energy sector, helps draw in families and young people. Development occurs in highland areas. Communities successfully secure grant funding, coordinate on shared infrastructure projects, and modernize zoning and land use practices to reflect flood risks. Disaster response requests are reliably met by FEMA, and alternative funding sources are secured for recovery and mitigation. Resilient infrastructure, well-maintained culverts, and green infrastructure projects become standard practice. Public engagement and inter-town cooperation remain high, allowing for collective problem-solving and long-term capital planning. This scenario represents a future in which resources, leadership, and community willpower converge to create a resilient and adaptive Deerfield Valley.

Together, these three scenarios form the foundation of our studio's analytical framework. They help identify actions that are robust and effective under most conditions as well as those that are conditional or vulnerable depending on how the future unfolds. By comparing each deliverable and recommended action against the assumptions embedded in each scenario, our team was able to test for feasibility, equity, and long-term effectiveness. The resulting scenario scorecard allows decision-makers to visualize which strategies work across all futures, and which may need adaptation.

Scenario planning therefore becomes more than an academic exercise; it is a resilience-building tool. It helps these four towns make informed, forward-looking choices grounded in uncertainty rather than hindered by it. Whether the Deerfield Valley moves toward coordinated investment, a privatized economy, or a shrinking population base, this process ensures that planning today remains relevant tomorrow. In short, scenario planning provides the flexibility, foresight, and community-centered perspective necessary for Vermont's southern towns to live and thrive with water.

Testing our Tools

We used our scenarios to analyze or test the effectiveness of our recommended actions. This was largely a theoretical process. We asked ourselves, how would X tool work if Y scenario were to come true? While it is impossible to predict the future and give a definitive answer about how well our tools would work, we can base our predictions on a thorough understanding of the driving forces and the effectiveness of similar tools in similar contexts. Further, we set strict parameters for the testing process, using systematic analysis to determine how drivers would affect certain measurements in each scenario, and then determining whether a specific tool works to continue that effect, negate it, or has no impact.

We used a scorecard to test the performance of our tools and develop a list of robust actions to pursue. These recommendations are discussed in detail in the Recommendations section of this report, and the scorecard result of each tool is displayed in its section.

Tools that we think will be helpful in multiple scenarios are robust. We prioritized robust actions in the recommendations. Robust decisions that are likely to be beneficial under many differing conditions. Some tools might seem incredibly effective in just one or two scenarios but not the other(s). These kinds of tools are contingent actions and are still worthwhile pursuits, but will require additional weighing of trade-offs in the future. Some actions with low barriers of entry are incredibly helpful for specific reasons, but score low on the testing.

The scorecard is made up of 18 indicators, split between three domains: the built, natural, and social environments. These are things we measured to test if our tools are successful. They are quantitative and qualitative, and based on what we heard from community members in the four towns. Our chosen indicators are measurable results that help define community resilience, demonstrate success of our tools, and, most importantly, are things that the people who live and work in the four towns care about. The scorecard estimates how our tool will influence the movement or behavior of each indicator across each of the scenarios. Actions that improve (X) number of indicators on average across the scenarios are designated as high-impact. The degree of variability between the scores in each scenario produced determines whether the action is robust or contingent.

Town planners can use our scoring methods to test the effectiveness of new tools or policies that they may explore in the future. Our metrics are tailored to the communities of Dover, Readsboro, Whitingham, and Wilmington and are designed to be flexible and durable, to support community planning into the future.

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04
Public Engagement

The future of the Deerfield River Valley is uncertain; we don't know when or how climate change will impact the region, and the longevity of government funding for disaster response and mitigation is threatened by the current political climate (Tompkins et al., 2007). Small towns like Dover, Readsboro, Whitingham, and Wilmington struggle to prepare for the risks associated with climate change as their capacity is stretched thin by immediate pressures. In order to best help the four towns, we knew that we would need to develop a comprehensive understanding of the community's concerns and priorities that would guide the creation of our deliverables. This fall, we've engaged with local knowledge in the valley so we could return action items, decision support tools, and educational resources that assist towns in engaging with uncertainty (Tompkins et al., 2007). Our engagement work builds on the previous work done by the Center for Resilient Metro-Regions at UMass-Amherst and the Architects Foundation.

Our public engagement plan focused our efforts on learning, multiple analysis, reflection, and refinement.

Our approach was multi-pronged; it included tabling events, games, surveys, formally scheduled and informal interviews, and on the ground observation and engagement. Tabling events and game sessions gave us insights into how residents were thinking about future planning and information about the known risks and opportunities in the four towns. Interviews gave us the opportunity to talk with stakeholders and gather specific information to shape our understanding of what our project needed to do.

We approached our engagement from the mindsets of the student and the researcher; we wanted to learn from those we were engaging with and to incorporate their local knowledge with our outside research. As a whole, our theoretical framework for engagement assumes that residents are not mere data-points, but living experts on their communities and partners, co-researchers and co-authors of their own resilience (Sandoe 2025).

Engagement Plan

The Preparation and Mobilization phase was designed for the team to learn as much as we could about the community's concerns, priorities, and needs. The project began with a stakeholder identification process, which built upon the work of the Center for Resilient Metro Regions and the American Institute of Architects "4 Town Flood Adaptation Project" charrette (Center for Resilient

Metro-Regions, University of Massachusetts-Amherst & American Institute of Architects, 2025). A charrette is a multi-day collaborative planning or design process which involves third party professionals, in our case research professors, undertaking an intensive window of community engagement to create a report addressing potential solutions to an identified problem—in this case, flooding. Our team shadowed this process and built upon the final charrette report with our deliverables. The final charrette can be accessed on our website, www.deerfieldvalleyrise.com .

During the second phase, Outreach, Learning, and Scenario Development, we continued our engagements and worked to theoretically map out the region as a complex system so that we could examine the external forces currently shaping southern Vermont. Critical examination of these drivers led to the creation of three scenarios, which serve as tools for thinking about what could happen in the future (see Chapter 2: Scenario Planning).

In phase three, Deliverables Development, we continued to gather important information, but also began to incorporate scenario exploration in interviews. We explored the implications of our scenarios with key stakeholders and gathered feedback on the scenarios' usefulness. Exploration of these scenarios informed our deliverables development, as community members helped us brainstorm effective tools in each scenario.

Stakeholder Identification and Recruitment Strategies

Stakeholder identification was an iterative process. While the stakeholders engaged in this process are not representative of the entire community, we did engage with a wide range of stakeholders from the region.

We tabled at community events by coordinating with event organizers. We advertised our events, survey, and materials on our website, the Vermont Digger and Vermont WCAX Channel 3 News. We interviewed lay and professional stakeholders as well as elected representatives.

Organizations Engaged
Brattleboro Development Credit Corporation
Ingram & May: Financial Consultant
Meg Streeter Real Estate
Brattleboro Development Credit Corporation
Vermont Department of Environmental Conservation, Watershed Management Division
Odanak Abenaki First Nation
Wilmington Works

Figure 1

Indigenous Communities Outreach

The four towns are located within the ancestral lands of the displaced Abenaki peoples. We reached out to the four State recognized tribes through the Vermont Commission on Native American Affairs (VCNAA). We learned that the majority of the Abenaki Nation are actually displaced outside of Vermont state lines, at Odanak and W8linak reserves in Canada, as well as upstate New York.

A representative from our studio virtually attended VCNAA meetings to discuss what opportunities there might be for meaningful, reciprocal, non-extractive participation within their communities. A series of additional one-on-one meetings with members of the Vermont recognized Elnu tribe were held. Participants decided how they wish to be identified, what could be shared publicly, and what permissions should accompany their words and materials. Transparency, consent, reciprocity and relationship-building were central to this part of the project.

The AICP Code of Ethics guides planners to pursue engagement with Indigenous communities that are currently displaced and estranged from the region. Vermont's Truth and Reconciliation Commission's expressed mission to attend to the historical harms inflicted on Indigenous peoples further reinforced our decision to involve the local Native community. Guidance on our engagement was taken from Indigenous planning literature, which emphasized reflexivity, transparency, sharing of power and honoring wishes around identity, co-authorship and consent (Sandoe 2025).

Many Indigenous communities frame climate change within a longer arc of environmental disruption connected to colonization and land dispossession and are eager to partner with planning professionals and agencies for ecological stewardship and to restore the long interrupted relationships with beloved N'dakina and their cultural practices (Sandoe 2025). We affirm that the traditional ecological understanding of displaced Indigenous communities is also a vital component of lived experience in resilience planning.

Democracy Cube

We drew on Fung's (2006) Democracy Cube to articulate our participant selection, our mode of communication and engagement, and the extent of participants' authority in the process (Fung, 2006). Using the three dimensions of Authority and Power, Participant Selection, and Communication and Design, we were able to compare our initial engagement plan with the actualized engagement activities conducted over the course of the semester. Authority and Power describes the extent to which public participation dictates outcomes. At one end, the decisions that participants make become policy. At the other, participants have no expectation that their words will input final decisions. Participant selection refers to the groups whose participation targets, on a scale from most to least diffuse; the general public, met wherever they are, at one end, and government officials and decision makers at the other. Communication and Design describes the mode of participation, the structure through which participation is held. At one end participants are simply informed, with no structure in place for them to be involved. At the other end, participants are involved throughout the process, and engage in discussions, workshops, and knowledge sharing.

Using this analytical framework, we are able to reflect on the limitations of our public engagement work

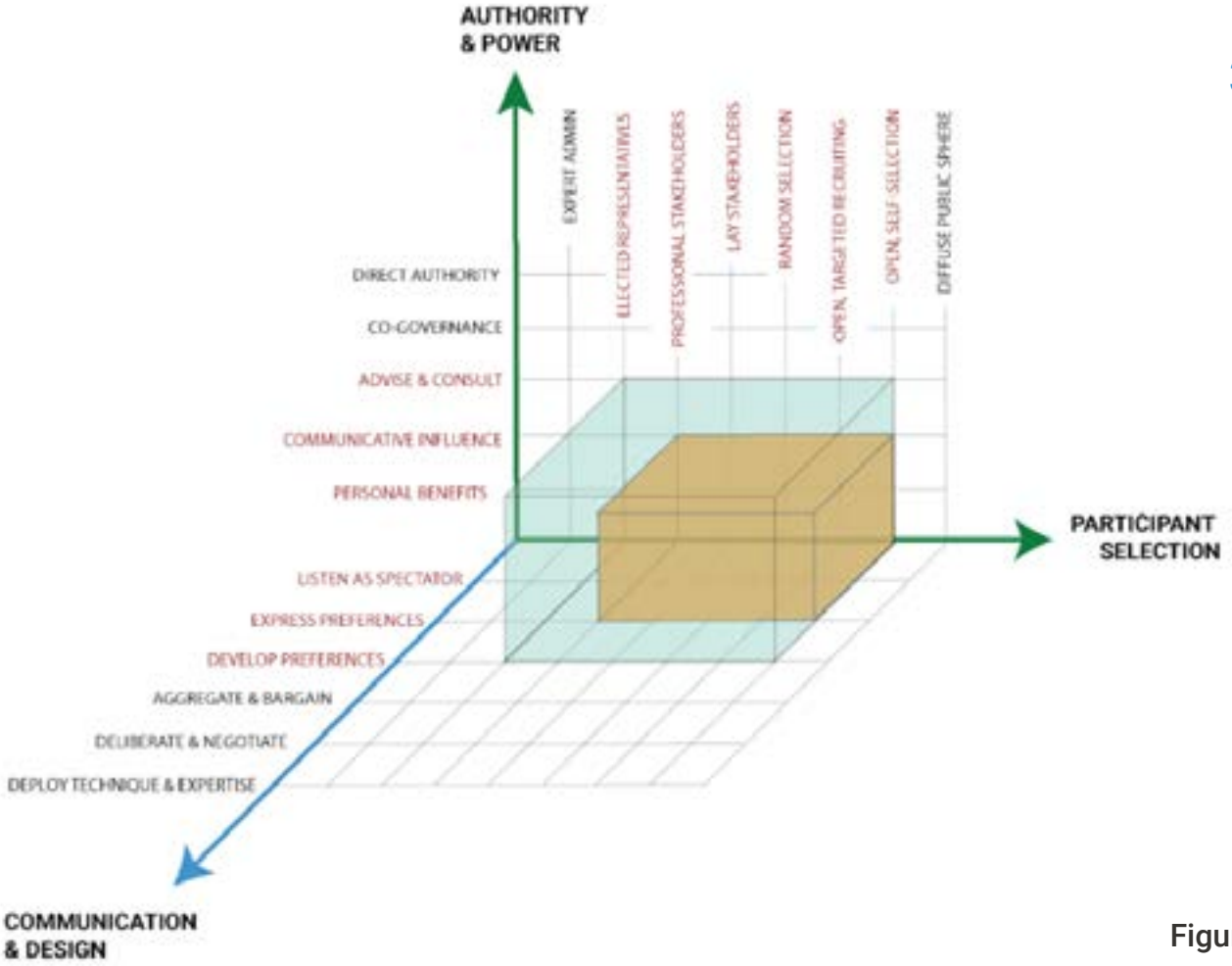

Figure 2

and highlight recommendations for public engagement in the four towns in the future. The blue cube in figure x illustrates our initial public engagement plan, while the orange cube illustrates the reality of its implementation. As illustrated in figure x, our engagement plan reflects aspirations for a more inclusive production of deliverables. Given our own time constraints and limited capacity, we were only able to implement a limited version of our public engagement plan.

We planned to grant our participants the authority and power to advise and consult through our stakeholder interviews, surveys, and tabling activities, but upon reflection we feel that the frequency of our communication with stakeholders did not allow them direct influence in the development of our deliverables. Our communication and design was similarly limited by time constraints; our process required us to engage with participants, develop deliverables, and iterate deliverables simultaneously.

The mechanisms of our participant selection fell under what Fung qualifies as **mini-publics** "that intentionally gather citizens in discrete bodies to discuss or decide matters of public concern" (Fung, 2006, 68). Our stakeholder interviews targeted professional and lay stakeholders, including Windham Regional Commission staff, local and regional municipal staff, and residents and professionals with distinct knowledge and experience (Fung, 2006). Our tabling activities and scenario planning board game targeted specific pre-planned events to reach a broader set of residents in the four towns, allowing for open, targeted recruitment. Our online survey was publicized at events, our website, and through advertising to provide open self-selection for participants (Fung, 2006). Surveys were sent out targeting elected officials at the State and Federal level, but received no response.

Engagement Activities

This section contains details of our six types of engagement activities.

Charrette

Our project began in full with our attendance of the Four-town Housing Planning & Flood Adaptation Charrette held by the Center for Resilient Metro-Regions and the Architects Foundation in tandem with the Windham Regional Commission. The charrette was a multi-day process of meetings with the public across the four towns and semi-public meetings with selectboard members and key stakeholders. Our team attended all meetings throughout the week and visited each of the four towns. We listened in on conversations between the architects, planners, and stakeholders, who had been working together for months leading up to the charrette. We also toured important locations in each town, such as recent FEMA buyout sites in Readsboro and the high water markings in Wilmington.

We conducted our first asset and risk mapping activity at the charrette, and asked normative questions about potential development sites, flood risk, and community assets. Connections made during this event led to interviews, meetings, and attendance at public events later on.

Our team gained a clearer picture of how community members understand their towns and the places that matter most to them. Community members voiced concerns about project funding, capacity limitations, and ongoing housing challenges. Flood risk is an area of much concern, and high risk areas such as Goose City Road in Dover and downtown Wilmington were shared with us. The charrette emphasized the limited capacity of these small towns, and the concerns we heard shaped both our deliverables and scenario planning process. A key concern we learned about at the charrette is the availability of state and federal funding for disaster response and recovery; this state and federal funding later became one of our key driving forces in our scenarios.

Mapping Risks and Assets Activity

In this activity, we asked community members to place stickers or push-pins on a town map by identifying community assets and risks:

Community assets are any place that is culturally important to the community's social or physical landscape. Examples of assets are local businesses, natural resources, public services, meeting spaces, physical infrastructure, and so on.

Risks are places that are at a high risk of flooding or are in need of general improvement. Examples of risks include places adjacent to water bodies that flood often or recently closed businesses that have left the community lacking an asset, like a grocery store or a gathering space.

Our mapping activities then gave us a broad picture of the four towns' vulnerabilities and strengths. As seen in Figure 3, the community identified a total of 45 risk areas and 53 assets, with some variation

Figure 3

Total Risk Areas	45
Dover Risks	9
Readsboro Risks	7
Whitingham Risks	12
Wilmington Risks	17

Total Community Assets	53
Dover Assets	13
Readsboro Assets	10
Whitingham Assets	7
Wilmington Assets	23

between the towns: Dover (9 risks, 13 assets), Wilmington (17 risks, 23 assets), Whitingham (12 risks, 7 assets), and Readsboro (7 risks, 10 assets). These insights came from events like Dover Day, Harvestcraft Fair, and a meeting with the Wilmington Planning Commission, where we primarily heard from residents, families, business owners, and other local representatives. Residents and families pointed out the places where they spend most of their time, like schools, playgrounds, neighborhoods, and workplaces, while business owners highlighted locations where flooding has directly affected their operations. These inputs helped us refine the key drivers in our project, revise our initial scenarios, and sharpen the overall direction of our deliverable by grounding it in community-identified risks and assets.

The above data collected was digitized to create an online map that displays information about each asset or risk point. This map can be viewed with the aid of our online GIS story map, accessible on our website: deerfieldvalleyrise.com.

Community Investment Activity

(Trunk or Treat)

To engage youth in the four towns and broaden our understanding of their concerns, we designed a banking activity that allowed youth participants to invest in assets that they felt are important and/or are perceived as underfunded. Kids were given an allotment of money and four asset "banks" to choose to fund: roads, schools, playgrounds, and grocery stores. As the activity progressed, the glass "banks" filled up, allowing kids to pick their investment based on the choices their peers made.

This activity allowed us to gather quick and honest preferences from youth and families about what their communities need and prioritize most. Throughout our data collection at Readsboro and Wilmington, we found schools were the most preferred investment option; children told us that their schools needed more funding. We ran this activity at the Trunk or Treats in Readsboro and Wilmington, and the results are seen below.

In addition to engaging youth in planning for the future, we were able to learn what services youth value in their community through their investment choices. This activity served a dual purpose: allowing us to gain a youth perspective while also connecting with parents about our project through the distribution of flyers and coloring pages with a QR for our website.

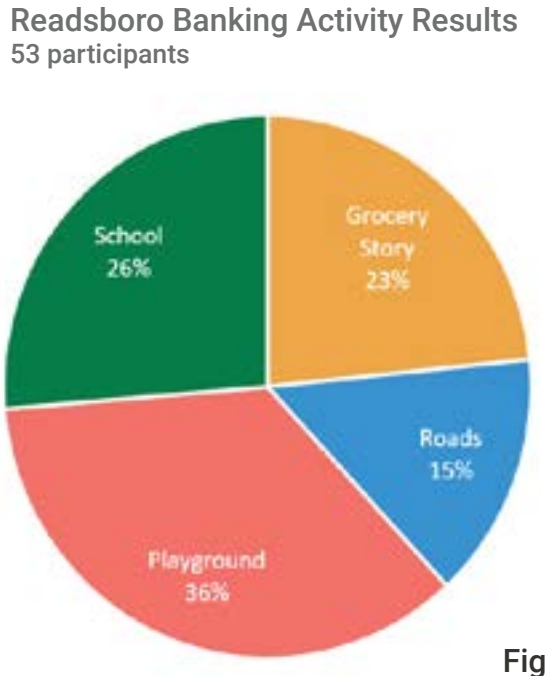

Figure 4

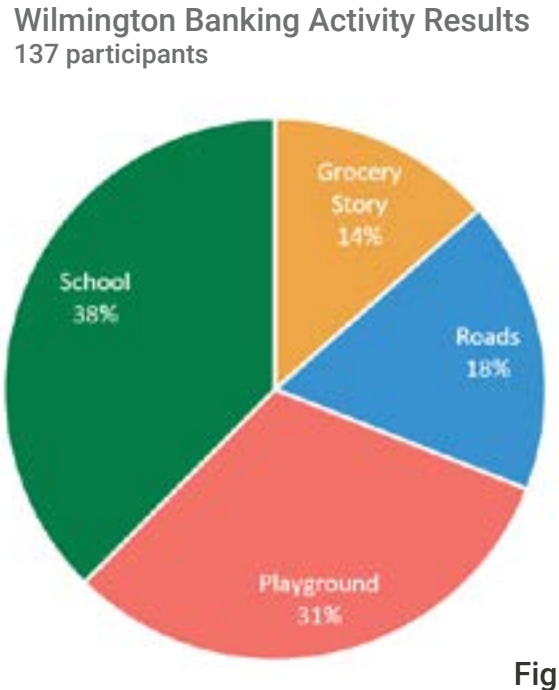

Figure 5

Ready or Not: The Climate Challenge

Ready or Not: The Climate Challenge is a strategic board game that allows participants to discover the complexity of local governance and resilience planning through and helps residents learn while forging closer bonds with their neighbors and sparking meaningful conversations about their shared community.

This game was designed to help participants explore the impact of climate change on their community and larger region. By having players make their own choices regarding development patterns, funding allocation, shared services (and more) on a gameboard, they discover how their choices can influence a town's long-term resilience. The game incorporates random events (based on the driving forces we identified in the scenario planning process) to simulate future uncertainty, ensuring that the game is challenging and infinitely replayable. Each round, players' towns are subject to the uncertainty of random events like flooding, infrastructure damage, or a market crash that impact their town in unexpected ways. Players must ensure that their town can continue to provide the required resources despite a varied and unpredictable future.

This game was refined through extensive testing with a diverse range of participants including high school students, undergraduate students, Amherst town council members, and community members from Wilmington. Facilitating the game with these groups revealed how different audiences engage with the game and helped us create a final product that is accessible, engaging, and fun for all levels of experience in planning and climate resilience. By simulating potential scenarios, this game encourages meaningful discussion and reveals actionable insights.

In our game, the Deerfield Valley was renamed the Foxfield Valley and Dover became Clover, Readsboro became Beartown, Whitingham became Walnutville, and Wilmington became Maple Valley. Renaming and simplifying the geography of the towns allows participants to think abstractly and creatively while playing the game, not sticking too closely to the landscape that they know.

Surveys

To provide an asynchronous, remote opportunity for public participation, we made a survey available to the public on our website on October 3rd, 2025. This survey asked residents of the four towns to tell their flood stories.

We created two custom surveys to target Dover, Readsboro, Whitingham, and Wilmington's Vermont State Senators and Representatives and U.S. Senators and Congresswoman. These surveys utilized short form open ended questions to gain insight on interactions between municipal, State, and Federal government with a focus on changing federal funding for disaster recovery and hazard mitigation. On November 3rd, 2025, we emailed surveys to the following VT State Senators and Representatives and to VT U.S. Senator Bernie Sanders and Peter Welch VT U.S. Congresswoman Becca Balint.

A summary of survey results can be viewed on our website: deerfieldvalleyrise.com.

Senator	Town(s)
Seth Bongartz	Readsboro and Wilmington
Robert Plunkett	Readsboro and Wilmington
Wendy Harrison	Dover and Whitingham
Nader Hashim	Dover and Whitingham

Figure 6

Representative	Town(s)
Jonathan Cooper	Readsboro
Emily Carris Duncan	Wilmington
Laura Sibilia	Dover and Whitingham

Figure 7

Stakeholder Interviews

We engaged with community leaders and community members with specialized knowledge in a series of interviews, most held virtually over Zoom. In each interview, we asked a series of questions exploring residents' relationship with their town and perceived need for future change. In our interviews, we were able to learn from community members' experiences and knowledge with a depth not available in the other engagement settings.

Feedback from stakeholders helped us refine the scenarios so they were distinctly different, plausible, and helpful for thinking about the future in Readsboro, Wilmington, Whitingham, and Dover. Our scenario refinement continued throughout the engagement process to ensure that our internal deliberations and action testing would be as effective as possible. As the scenarios neared their final form, stakeholders were able to explore the implications and outcomes of the scenarios rather than simply provide feedback.

The interviews were fairly informal, with open-ended questions and no more than two interviewers (Avin and Dembner 2001).

Figure 8

The interviewees listed in Figure 6 represent a mix of long-time locals, municipal officials, regional partners, and people with firsthand experience of recent flood events. We asked a wide range of questions focused on what people treasure most in their towns, what they hope will remain in the future, and what vulnerabilities they see, especially related to flooding. Across these interviews, several quotes stood out for how bluntly they captured local realities and aspirations.

One participant told us, “I shouldn’t have been allowed to rebuild… nobody should build or be allowed to rebuild in a floodplain,” (9/17/25).

Another noted, “Locals are realizing their children won’t be able to live here,” (10/15/25).

One of our most recent participants emphasized the importance of regional cooperation, where “No one town is big enough to not need the others” (11/14/25).

These insights helped us identify the issues that are the most important to both residents and town boards, which helped us refine our scenarios to better reflect community values, long-term goals, and the challenges that residents endure.

Our Purpose

When we first spent time in the community during the charette, we quickly learned how incredibly busy town administrative officials are. Stretched thin as they are, decision makers in the four towns don't have the time to do the extensive public engagement work that can help build community buy-in for flood resilient policies. Limited municipal capacity is an issue for many towns, creating a need for consultants to fill in areas that staff members cannot (Fung, 2006).

Our planning studio served as intermediaries between the four towns and the Windham Regional Commission. We used our time , resources, and labor power to lay the groundwork for the decision makers in the four towns. We brought in scenario planning as a framework to acknowledge the collective agency in shaping and changing what the future brings in the four towns (Myers & Kitsuse 2000). Specifically, we used exploratory scenario planning so that we could use our strengths to the project's advantage. Exploratory scenario planning (XSP) allowed us to be fluid in engaging with potential futures and gave us room to incorporate learning as we went along.

Our toolkits represent the result of our engagement, research, and coordination with WRC. Making long-term decisions in the four towns requires consideration of both climate change uncertainty and local capacity for action (Tompkins et al. 2007). Our engagement work and the analysis contained within this document attempted to cover some of the cognitive heavy lifting needed to plan for the future effectively so decision makers, who may be stretched thin or dealing with important decisions about the present, have a list of tools with the when, where, why, and how.

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05 Recommendations

This report contains concise recommendations that the communities of Dover, Readsboro, Whitingham, and Wilmington can build upon to mitigate flood damages, adapt to shifting environments, and strengthen their disaster response capacities. Our deliverables offer well-informed advice, practical guidance, and templates that can help local leaders move toward a safer and more resilient future.

We tested components of deliverables against three scenarios to determine the magnitude of impact each may produce depending on future conditions. We asked ourselves, how would X tool work if Y scenario were to come true?

As described in the Scenario Planning section, the scorecard is made up of 16 indicators which are split between three domains: the built, natural, and social environments. The indicators are measures that reflect what people who live and work in the four towns care about. Each deliverable component was tested against all indicators in each of the three scenarios. We used a likert scale of -1, 0, and 1 to demonstrate negative, positive, or no impact. This gave us scores for the action's performance in each of our three potential futures, which we used to analyze whether the action was robust or contingent. A green box in our table means that the action was worthwhile in that scenario. No green box means it was not useful enough in that scenario. The average of the three scores gave us an overall (aggregate) number which is reflected in the action's "impact," high, medium, or low designation.

The 17 indicators used in the testing are displayed in Figure 2 on the next page.

Figure 1

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Capital Improvement Program	Resilient Funding Guide				High	$$$

This deliverable component scored well in each of the three scenarios. Because of its high score in each of the three scenarios, it is a **robust** action with a high impact. T

Scenario Planning Indicators

	Indicator	Unit of Measurement
Built Environment	Flood Risk	% of total infrastructure within a flood zone
	Developable Areas	% of total land area that can legally be developed
	Education Coverage	Average distance of residents' travel from home to school
	Water/Sewer Coverage	% of structures connected to municipal sewer and/or water
	Low/No Cost Options	# of low/no cost flood resilience actions accessible for individuals at the household level (ex: flood insurance)
	Regional Connectivity	Flood-resilient road connectivity rating, based on measures such as number of isolated road segements, dependence on high-traffic corridors vulnerable to flooding, and access to essential resources at the neighborhood level
	Impermeable Surfaces	Impermeable surfaces per capita
Social Environment	Land Value	Cost of homeownership (the ratio of the median home value divided by the median household income, adjusted for inflation)
	Local Economy	# of local businesses per capita
	Household Expenses	Household expenses (median utility cost)
	Emergency Response	Average time of response to 911 call
	Education Quality	Average standardized test scores
	Education Availability	# of schools per capita
Natural Environment	Cost Analysis	Town expenses / revenue
	GHG Emissions	Carbon per capita (metric tons per capita)
	Soil Stability	% of structures built on stable soil
	Greenfields and Open Space	$ of total land area that has never been developed

Figure 2

Figure 3

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Whitingham ERAF Steps	Municipal & Regional CapacityToolkit				Mid	$$$

his is an example of a **contingent** action with a medium impact score. While this deliverable component scored high in the first two scenarios it was less impactful in the Rural Regression scenario. A component that is designated medium is still a worthwhile action and its effectiveness may increase if paired with another action.

Figure 4

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Readsboro Zoning 1 Reduce Minimum Lot Size	Municipal & Regional CapacityToolkit				Low	$

This component scored well in the first two scenarios, but was minimally impactful in the Rural Regression scenario, which makes it a **contingent** action. Because this component has a low aggregate score, it is a low-impact component. Contingent low-impact actions can serve as stepping stones for higher impact actions. They also tend to be the least costly to implement.

The complete table, with all of the deliverable components, is in Figure 5 on the next page. All of the deliverable components are discussed in their respective sections, the Community Floodproofing Toolkit, the Municipal and Regional Capacity Toolkit, and the Resilient Funding Guide. Each deliverable section will conclude with the scoring tables, pulled from this complete table, of each of the components discussed in that section. These tables will be accompanied by notes about the components' scores and key takeaways for implementation.

Action items at the top of the table in Figure 5 are robust, meaning they are viable in each of our three futures, and high impact, meaning they positively affect many indicators in each of the scenarios. Actions further down the table are either less impactful or contingent. It's important to note that a low score in our testing does not mean the action is not worth doing. Contingent actions require additional weighing of trade-offs in the future, as our testing indicated that they are helpful in some potential futures but not all. Some actions are paired, meaning they should be done consecutively or in unison. For example, a flood reserve fund may be difficult to implement without a Capital Improvement Program. Implementing these two actions simultaneously could increase the efficiency of both. Many robust actions will require time and effort to implement, and may not yield immediate returns. Doing some of the low-hanging fruit from the bottom of the table can get the ball rolling, and make more significant actions less costly to implement later on.

Beyond our Recommendations

Regional collaboration is an essential step in achieving enduring long term resilience in the Deerfield River Valley. Beyond our recommendations, towns can expand mutual aid agreements and formalize regular communication between essential personnel like highway managers and emergency response teams. Planners can broaden public engagement work to include traditionally underrepresented groups and state legislators and senators. Regional coordination can increase administrative capacity and improve flood resilience.

Deliverable Scoring

Figure 5

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Reducing Residential Flood Risk	Community FloodproofingToolkit	■	■	■	High	$$
Capital Improvement Program	Resilient Funding Guide	■	■	■	High	$$$
Flood Reserve Fund	Resilient Funding Guide	■	■	■	High	$$
Stormwater Utility Fee	Resilient Funding Guide	■	■	■	Mid	$$$
Wilmington Zoning 2 Expand Design Review	Municipal & Regional CapacityToolkit	■	■	■	High	$
Wilmington Zoning 3 Protect Wetlands	Municipal & Regional CapacityToolkit	■	■	■	High	$
Readsboro Zoning 4 Flood Hazard Overlay	Municipal & Regional CapacityToolkit	■	■	■	High	$
Wilmington ERAF Steps	Municipal & Regional CapacityToolkit	■	■	■	Mid	$$$
Whitingham Zoning 7 Multi-Family Dwellings	Municipal & Regional CapacityToolkit	■	■	■	Mid	$
Whitingham Zoning 6 Two-Family Dwellings	Municipal & Regional CapacityToolkit	■	■	■	Mid	$
Strategic Conservation	Municipal & Regional CapacityToolkit		■	■	High	$$
Dover ERAF Steps	Municipal & Regional CapacityToolkit	■	■		Mid	$$$
Whitingham ERAF Steps	Municipal & Regional CapacityToolkit	■	■		Mid	$$$
Whitingham Zoning 5 Planned Unit Development	Municipal & Regional CapacityToolkit	■	■	■	Mid	$
Whitingham Zoning 4 Reduce Off-Street Parking	Municipal & Regional CapacityToolkit	■	■		Mid	$
Dover Zoning 2 Minimum Lot Size	Municipal & Regional CapacityToolkit	■	■		Mid	$
Readsboro Zoning 1 Reduce Minimum Lot Size	Municipal & Regional CapacityToolkit	■	■		Low	$
Dover Zoning 1 Parking	Municipal & Regional CapacityToolkit	■	■		Low	$
Wilmington Zoning 1 Regulatory Goals	Municipal & Regional CapacityToolkit	■	■		Low	$
Whitingham Zoning 3 Remove By-Right Parking	Municipal & Regional CapacityToolkit	■			Low	$
Whitingham Zoning 2 Zoning Map Update	Municipal & Regional CapacityToolkit				Low	$
Whitingham Zoning 1 Discretionary Permitting	Municipal & Regional CapacityToolkit				Low	$
Readsboro Zoning 3 Standardize Frontage	Municipal & Regional CapacityToolkit				Low	$
Readsboro Zoning 2 Reduce Zoning Districts	Municipal & Regional CapacityToolkit				Low	$

GG = Green Growth

PP = Private Paradise

RR = Rural Regression

Appendices

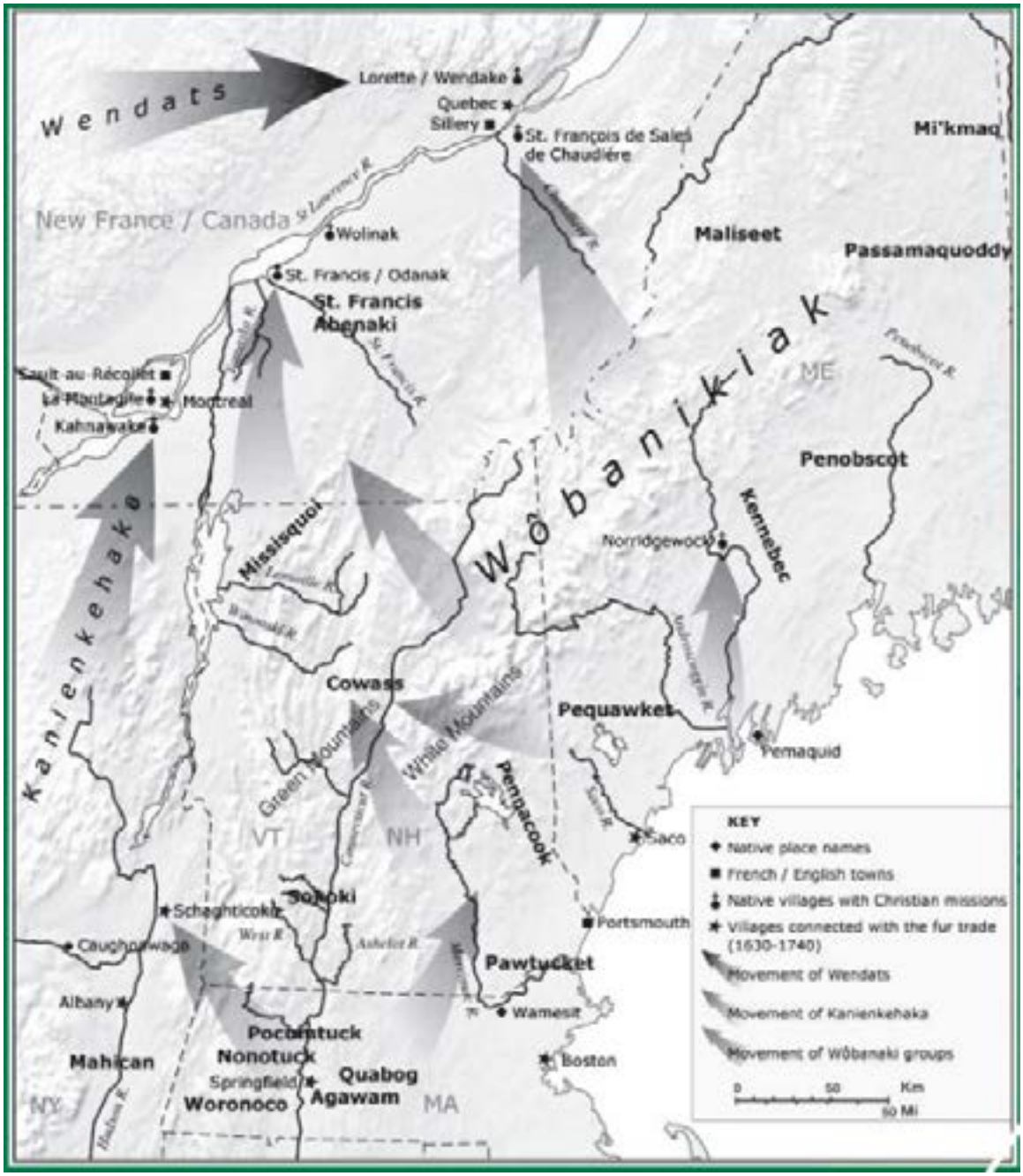
Appendix A1 - Chapter 01: Figures

Figure 1: Native Land Digital Map

Native Land Digital. (n.d.). Native Land Digital Map [Digital Map]. Native Land Digital. Retrieved October 16, 2025, from https://native-land.ca/maps/native-land

Figure 2: Stakeholder Interviews

Created by Deerfield River Valley RISE.



Native Land Digital. (n.d.). Wôbanikiak Migration Patterns [Map]. Retrieved December 13, 2025, from https://native-land.ca/listings/territories/abenaki-abenaquis

Appendix A2 - Chapter 02: Figures

Figure 1: Regional Locator Map

Vermont Agency of Natural Resources. (2024). Stormwater Municipal Boundaries [GIS Feature Layer]. https://geodata.vermont.gov/datasets/VTANR::stormwater-municipal-boundaries/about

VT Center for Geographic Information. (2025). County Boundaries [GIS Feature Layer]. https://geodata.vermont.gov/datasets/VCGI::vt-data-county-boundaries-1/about

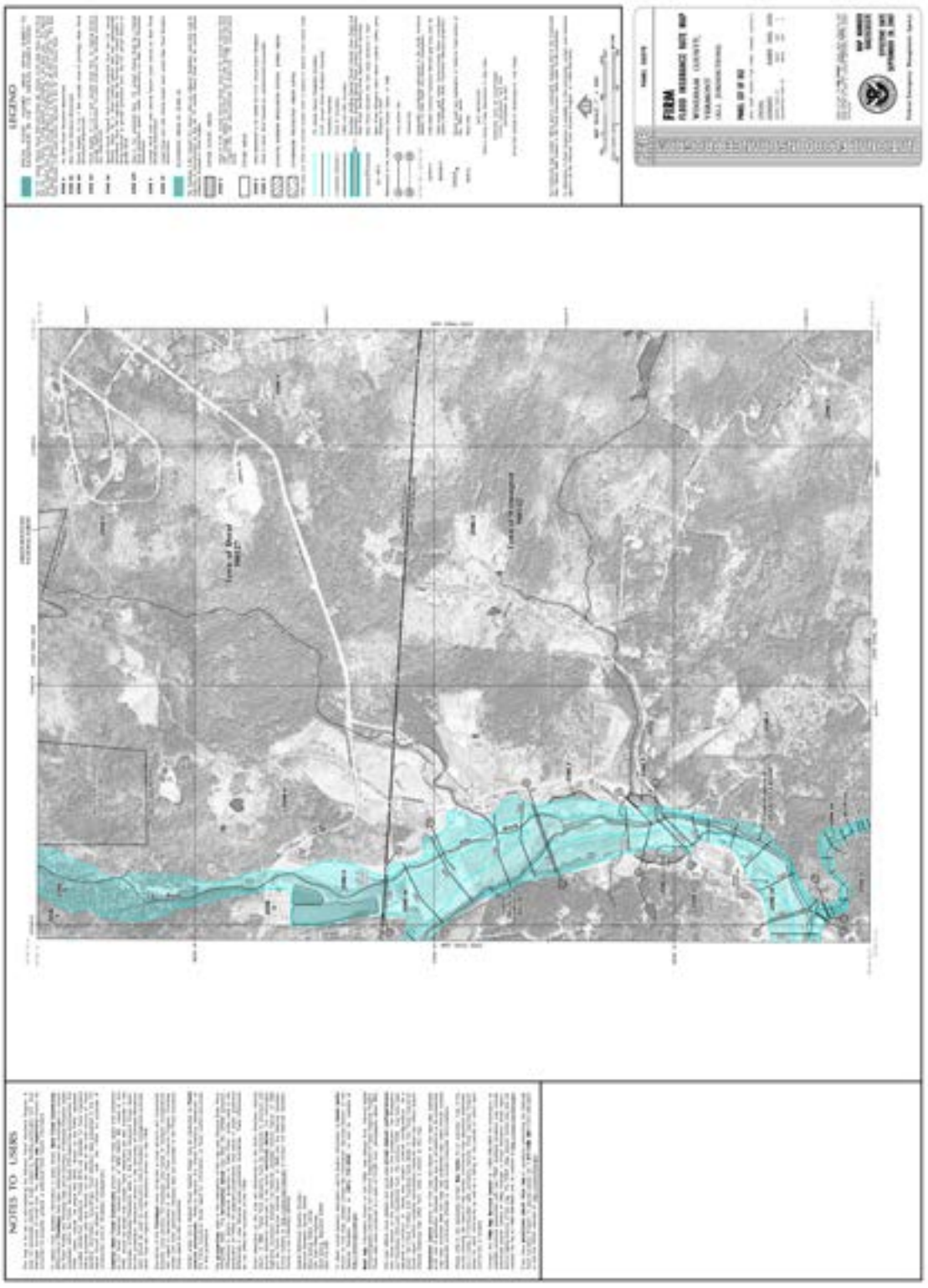
Figure 2: Regional Connectivity Map

Created by Sam Cash of Deerfield River Valley RISE.

Windham Regional Commission. (n.d.). Basin 12 (Deerfield, North, Green Rivers), Vermont portion [Map]. https://www.windhamregional.org/gis/watershed-maps

Figure 3: Flood Insurance Rate Map Panel 50025C0337E

Created by the Federal Emergency Management Agency (FEMA) in September 2007.



FEMA. (2007). FIRM Panel 50025C0337E [Map]. FEMA. https://msc.fema.gov/portal/availabilitySearch?addcommunity=500127&communityName=DOVER,%20TOWN%20OF#searchresultsanchor

Figure 4: Four Towns Flood History

Created by Charlotte Collins of Deerfield River Valley RISE.

Data compiled from Local Town Knowledge and the following organizations:
National Climatic Data Center (NCDC), Federal Emergency Management Administration (FEMA)

Figure 6: Stakeholder Interviews

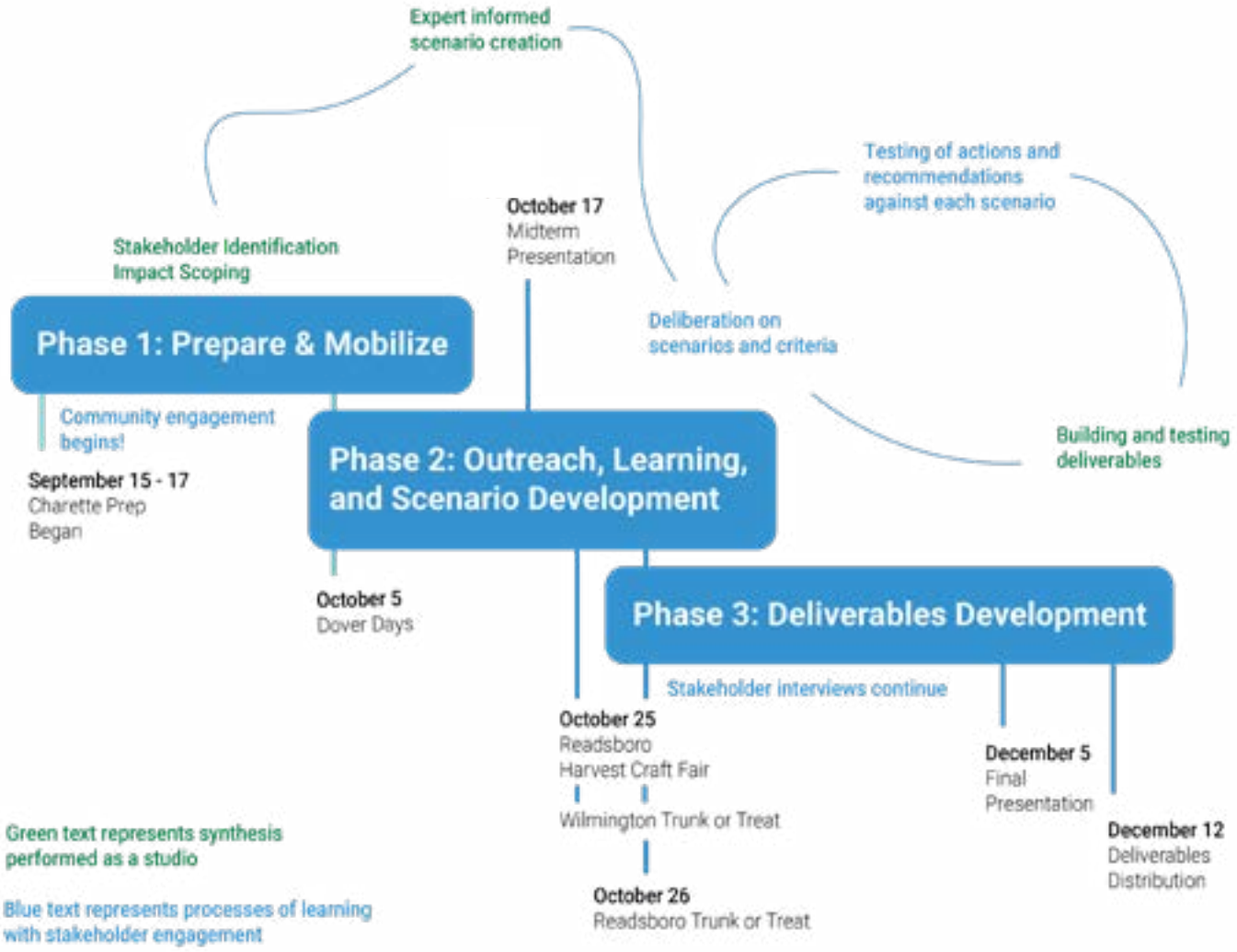
Created by Deerfield River Valley RISE.

Date	Interviewee	Interviewer(s)	Affiliation	Role
10/8/2025	Meg Staloff	Seth Price and Marcelina Joao	Brattleboro Development Credit Corporation	Southern Vermont Economy Program Specialist and Comprehensive Economic Development Strategy Implementation Specialist
10/15/2025	Gig Zboray	Julia Opel	Whitingham, Readsboro	Town Manager of Whitingham, former resident of Readsboro, and current resident of Whitingham
10/27/2025	Omar Smith	Sam Cash and Charlotte Collins	Readsboro	Former selectboard member of Readsboro, resident of Readsboro, member of volunteer Fire.
11/7/2025	Gretchen Hvaerlu	Danny Villalobo-Ortiz and Seth Siegel	Ingram & May: Financial Consultant	Consulted businesses after Hurricane Irene and testified as to their economic hardships.
11/10/2025	Meg Streeter	Seth Price and Liana Rice	Meg Streeter Real Estate	Owner and Operator
11/14/2025	Adam Grinold	Liana Rice and Grace Rennison; Marcelina and Seth P as participants	Brattleboro Development Credit Corporation	Executive Director
11/19/2025	Josh Carvajal	Charlotte Collins	Vermont Department of Environmental Conservation, Watershed Management Division	River Management Engineer
11/21/2025	Conor Cubit	Lakota Sandoe	Odanak Abenaki First Nation	Citizen of Odanak Abenaki First Nation; Biological Project Manager and States-side Liason for the Odanak Land and Environment Office, Odanak Abenaki First Nation
11/24/2025	Conor Cubit	Lakota Sandoe	Odanak Abenaki First Nation	Citizen of Odanak Abenaki First Nation; Biological Project Manager and States-side Liason for the Odanak Land and Environment Office, Odanak Abenaki First Nation

Appendix A3 - Chapter 03: Figures

Figure 1: Public Engagement & Scenario Planning Timeline

Created by Sam Cash and Charlotte Collins of Deerfield Valley River RISE. Based on Tompkins (2007).



Tompkins, E. L., Few, R., & Brown, K. (2007). Scenario-Based Stakeholder Engagement: Incorporating Stakeholders Preferences into Coastal Planning for Climate Change. Journal of Environmental Management, 88(4), 1580–1592. https://doi.org/10.1016/j.jenvman.2007.07.025

Figure 2: Private Paradise Scenario Card

Created by Sam Cash and Charlotte Collins of Deerfield Valley River RISE.

DRIVERS	OUTCOMES
State & Federal Regulations ▲	Floodplain Buffer expanded. Development is prohibited in hazardous areas.
State & Federal Funding ▼	FEMA Funding has been discontinued. State Funding stretched thin, priority is given to population centers.
Demographic Shift ▼	More second homeowners move into the region and dominate the housing market, business landscape, tax base, etc. Permanent residents & local workforce will be priced out of the area.

Figure 3: Rural Regression Scenario Card

Created by Sam Cash and Charlotte Collins of Deerfield Valley River RISE.

DRIVERS	OUTCOMES
State & Federal Regulations	Restrictions on development in floodplains are removed.
State & Federal Funding	FEMA Funding has been discontinued. State Funding stretched thin, priority is given to population centers.
Demographic Shift	Without outside investment these towns can no longer support themselves. Recovery from flood disasters takes longer or do not occur. Cycles of fragmentation & outmigration ensue.

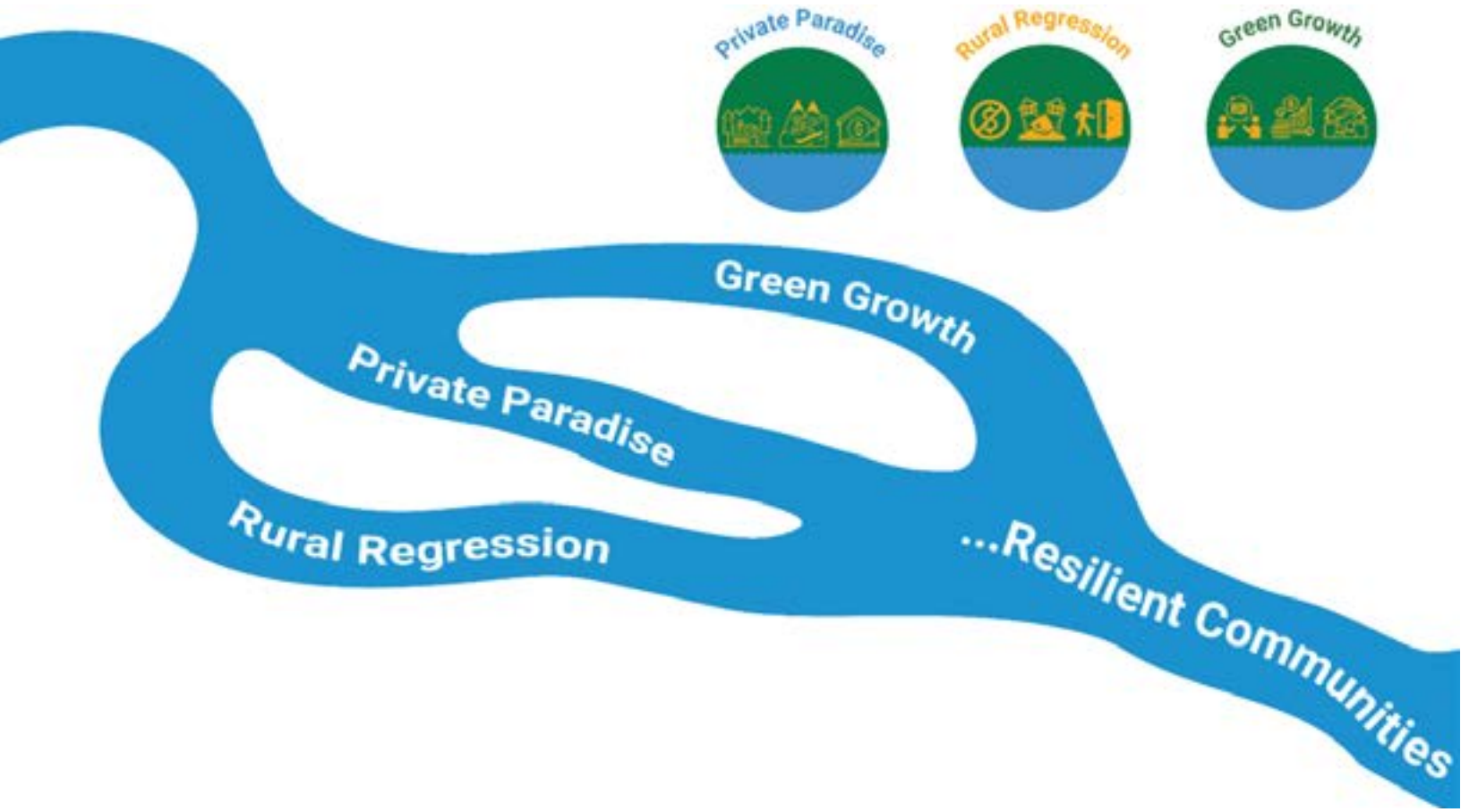
Figure 4: Green Growth Scenario Card

Created by Sam Cash and Charlotte Collins of Deerfield Valley River RISE.

DRIVERS	OUTCOMES
State & Federal Regulations ▲	Development in floodplains and fluvial erosion areas is prohibited. The floodplain area is expanded.
State & Federal Funding ▲	New Federal and State funding for renewable energy, buyouts, and disaster recovery is readily available.
Demographic Shift ▲	More families and young people move in as the populations of permanent residents and second homeowners grow.

Figure 5: Scenario Planning “River”

Created by Sam Cash of Deerfield Valley River RISE.
Supplementary figure not included in chapter.



Appendix A5 - Chapter 05: Figures

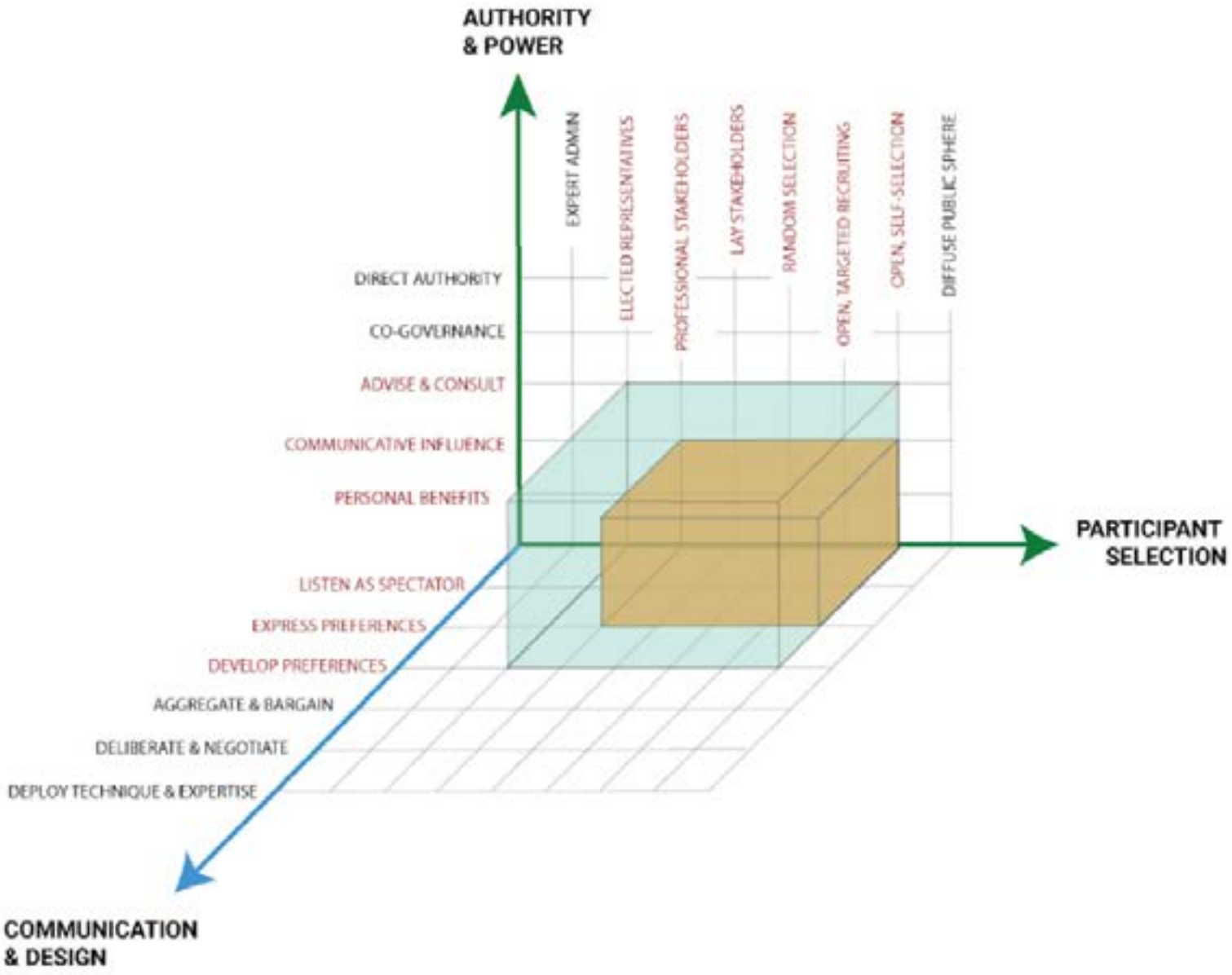
Figure 1: Organizations Engaged

Created by Charlotte Collins of Deerfield Valley River RISE.

Organizations Engaged
Brattleboro Development Credit Corporation
Ingram & May: Financial Consultant
Meg Streeter Real Estate
Brattleboro Development Credit Corporation
Vermont Department of Environmental Conservation, Watershed Management Division
Odanak Abenaki First Nation
Wilmington Works

Figure 2: Fung's Democracy Cube

Created by Sam Cash of Deerfield River Valley RISE. Based on Fung (2006).



Fung, A. (2006). Varieties of Participation in Complex Governance. Public Administration Review, 66(Special Issue: Collaborative Public Management), 66-75 (10 pages).

Figure 3: Community Risks and Assets Count

Created by Charlotte Collins of Deerfield River Valley RISE.
Counts of data collected during the Risks & Assets Mapping Activity.

Total Risk Areas	45
Dover Risks	9
Readsboro Risks	7
Whitingham Risks	12
Wilmington Risks	17

Total Community Assets	53
Dover Assets	13
Readsboro Assets	10
Whitingham Assets	7
Wilmington Assets	23

Figure 4: Readsboro Banking Activity Results

Created by Deerfield River Valley RISE.
Data collected at the Readsboro Trunk or Treat event.

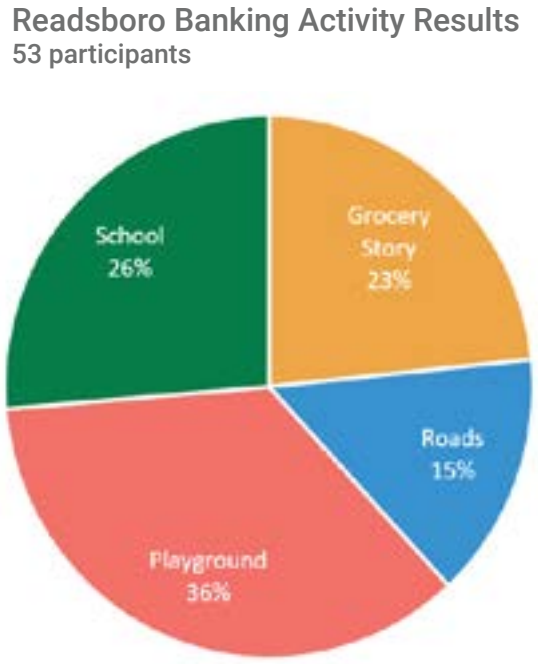


Figure 5: Wilmington Banking Activity Results

Created by Deerfield River Valley RISE.
Data collected at the Readsboro Trunk or Treat event.

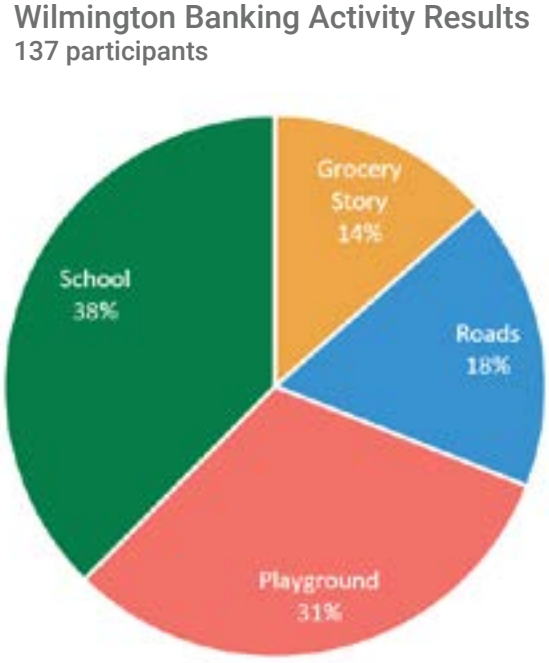


Figure 6: Senators Contacted

Created by Deerfield River Valley RISE.
No response was received.

Senator	Town(s)
Seth Bongartz	Readsboro and Wilmington
Robert Plunkett	Readsboro and Wilmington
Wendy Harrison	Dover and Whitingham
Nader Hashim	Dover and Whitingham

Figure 7: Representatives Contacted

Created by Deerfield River Valley RISE.
No response was received.

Representative	Town(s)
Jonathan Cooper	Readsboro
Emily Carris Duncan	Wilmington
Laura Sibilia	Dover and Whitingham

Figure 8: Senators Contacted

Created by Deerfield River Valley RISE.
No response was received.

Appendix A6 - Chapter 06: Figures

Figure 1: Robust Example

Created by Deerfield Valley River RISE.

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Capital Improvement Program	Resilient Funding Guide				High	$$$

Figure 3: Contingent Example

Created by Deerfield Valley River RISE.

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Whitingham ERAF Steps	Municipal & Regional CapacityToolkit				Mid	$$$

Figure 4: Contingent Example, Low Impact

Created by Deerfield Valley River RISE.

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Readsboro Zoning 1 Reduce Minimum Lot Size	Municipal & Regional CapacityToolkit				Low	$

Figure 2: Scenario Planning Indicator

Created by Deerfield Valley River RISE.

Scenario Planning Indicators

	Indicator	Unit of Measurement
Built Environment	Flood Risk	% of total infrastructure within a flood zone
	Developable Areas	% of total land area that can legally be developed
	Education Coverage	Average distance of residents' travel from home to school
	Water/Sewer Coverage	% of structures connected to municipal sewer and/or water
	Low/No Cost Options	# of low/no cost flood resilience actions accessible for individuals at the household level (ex: flood insurance)
	Regional Connectivity	Flood-resilient road connectivity rating, based on measures such as number of isolated road segements, dependence on high-traffic corridors vulnerable to flooding, and access to essential resources at the neighborhood level
	Impermeable Surfaces	Impermeable surfaces per capita
Social Environment	Land Value	Cost of homeownership (the ratio of the median home value divided by the median household income, adjusted for inflation)
	Local Economy	# of local businesses per capita
	Household Expenses	Household expenses (median utility cost)
	Emergency Response	Average time of response to 911 call
	Education Quality	Average standardized test scores
	Education Availability	# of schools per capita
Natural Environment	Cost Analysis	Town expenses / revenue
	GHG Emissions	Carbon per capita (metric tons per capita)
	Soil Stability	% of structures built on stable soil
	Greenfields and Open Space	$ of total land area that has never been developed

Figure 5: Scorecard Results Table

Created by Sam Cash of Deerfield River Valley RISE.

Deliverable Component	Contained In	GG	PP	RR	Impact	Cost
Reducing Residential Flood Risk	Community FloodproofingToolkit	■	■	■	High	$$
Capital Improvement Program	Resilient Funding Guide	■	■	■	High	$$$
Flood Reserve Fund	Resilient Funding Guide	■	■	■	High	$$
Stormwater Utility Fee	Resilient Funding Guide	■	■	■	Mid	$$$
Wilmington Zoning 2 Expand Design Review	Municipal & Regional CapacityToolkit	■	■	■	High	$
Wilmington Zoning 3 Protect Wetlands	Municipal & Regional CapacityToolkit	■	■	■	High	$
Readsboro Zoning 4 Flood Hazard Overlay	Municipal & Regional CapacityToolkit	■	■	■	High	$
Wilmington ERAF Steps	Municipal & Regional CapacityToolkit	■	■	■	Mid	$$$
Whitingham Zoning 7 Multi-Family Dwellings	Municipal & Regional CapacityToolkit	■	■	■	Mid	$
Whitingham Zoning 6 Two-Family Dwellings	Municipal & Regional CapacityToolkit	■	■	■	Mid	$
Strategic Conservation	Municipal & Regional CapacityToolkit		■	■	High	$$
Dover ERAF Steps	Municipal & Regional CapacityToolkit	■	■		Mid	$$$
Whitingham ERAF Steps	Municipal & Regional CapacityToolkit	■	■		Mid	$$$
Whitingham Zoning 5 Planned Unit Development	Municipal & Regional CapacityToolkit	■	■	■	Mid	$
Whitingham Zoning 4 Reduce Off-Street Parking	Municipal & Regional CapacityToolkit	■	■		Mid	$
Dover Zoning 2 Minimum Lot Size	Municipal & Regional CapacityToolkit	■	■		Mid	$
Readsboro Zoning 1 Reduce Minimum Lot Size	Municipal & Regional CapacityToolkit	■	■		Low	$
Dover Zoning 1 Parking	Municipal & Regional CapacityToolkit	■	■		Low	$
Wilmington Zoning 1 Regulatory Goals	Municipal & Regional CapacityToolkit	■	■		Low	$
Whitingham Zoning 3 Remove By-Right Parking	Municipal & Regional CapacityToolkit	■			Low	$
Whitingham Zoning 2 Zoning Map Update	Municipal & Regional CapacityToolkit				Low	$
Whitingham Zoning 1 Discretionary Permitting	Municipal & Regional CapacityToolkit				Low	$
Readsboro Zoning 3 Standardize Frontage	Municipal & Regional CapacityToolkit				Low	$
Readsboro Zoning 2 Reduce Zoning Districts	Municipal & Regional CapacityToolkit				Low	$

GG = Green Growth

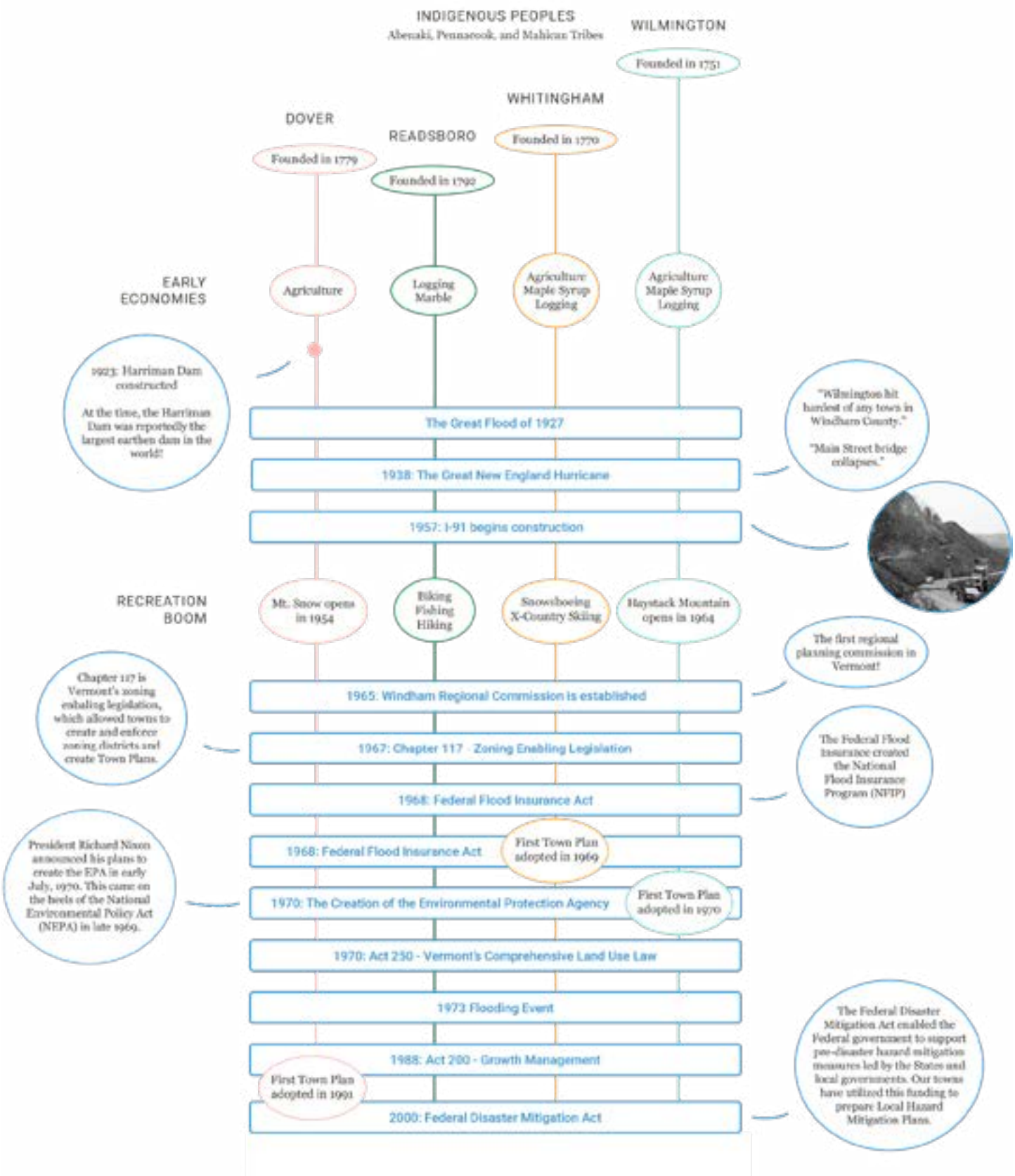
PP = Private Paradise

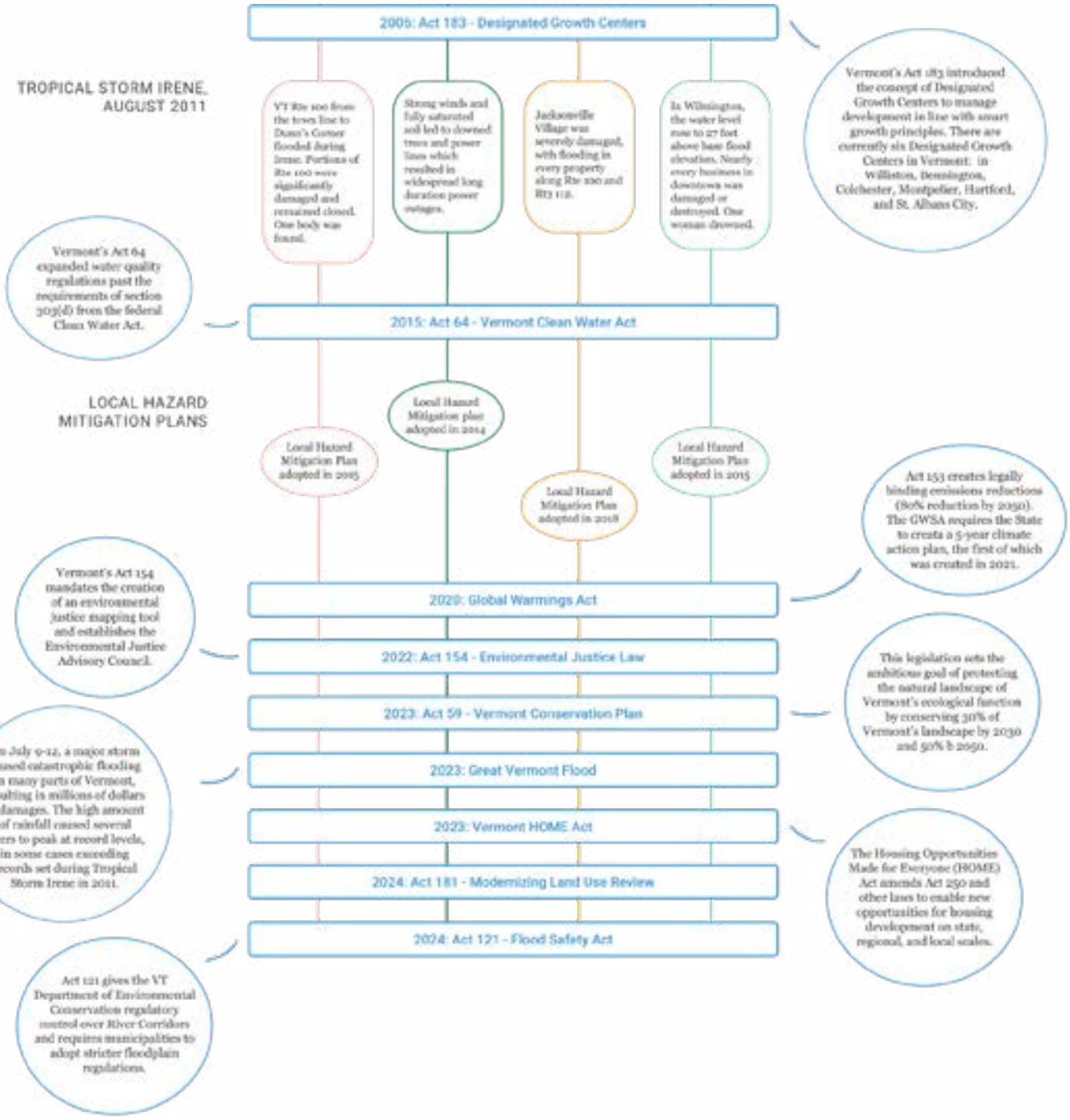
RR = Rural Regression

Appendix AM - Additional Materials

Figure 1: Historical Timeline

Created by Charlotte Collins and Seth Siegel of Deerfield Valley River RISE.




2005: Act 183 - Designated Growth Centers
Vermont's Act 183 introduced the concept of Designated Growth Centers to manage development in line with smart growth principles. There are currently six Designated Growth Centers in Vermont: in Williston, Bennington, Colchester, Montpelier, Hartford, and St. Albans City.
TROPICAL STORM IRENE, AUGUST 2011
VT Rte 100 from the town line to Dunn's Corner flooded during Irene. Portions of Rte 100 were significantly damaged and remained closed. One body was found.
Strong winds and fully saturated soil led to downed trees and power lines which resulted in widespread long duration power outages.
Jacksonville Village was severely damaged, with flooding in every property along Rte 100 and Rte 112.
In Wilmington, the water level rose to 27 feet above base flood elevation. Nearly every business in downtown was damaged or destroyed. One woman drowned.
Vermont's Act 64 expanded water quality regulations past the requirements of section 303(d) from the federal Clean Water Act.
2015: Act 64 - Vermont Clean Water Act
LOCAL HAZARD MITIGATION PLANS
Local Hazard Mitigation Plan adopted in 2015
Local Hazard Mitigation plan adopted in 2014
Local Hazard Mitigation Plan adopted in 2018
Local Hazard Mitigation Plan adopted in 2015
Act 153 creates legally binding emissions reductions (80% reduction by 2050). The GWSA requires the State to create a 5-year climate action plan, the first of which was created in 2021.
Vermont's Act 154 mandates the creation of an environmental justice mapping tool and establishes the Environmental Justice Advisory Council.
2020: Global Warmings Act
2022: Act 154 - Environmental Justice Law
This legislation sets the ambitious goal of protecting the natural landscape of Vermont's ecological function by conserving 30% of Vermont's landscape by 2030 and 50% b 2050.
2023: Act 59 - Vermont Conservation Plan
On July 9-12, a major storm caused catastrophic flooding in many parts of Vermont, resulting in millions of dollars in damages. The high amount of rainfall caused several rivers to peak at record levels, in some cases exceeding records set during Tropical Storm Irene in 2011.
2023: Great Vermont Flood
2023: Vermont HOME Act
The Housing Opportunities Made for Everyone (HOME) Act amends Act 250 and other laws to enable new opportunities for housing development on state, regional, and local scales.
2024: Act 181 - Modernizing Land Use Review
2024: Act 121 - Flood Safety Act
Act 121 gives the VT Department of Environmental Conservation regulatory control over River Corridors and requires municipalities to adopt stricter floodplain regulations.

G - Glossary

Aquifer	An underground layer of water consisting of permeable rock.
Contingent scenarios	Actions that have moderate or low impact in different futures. The success of these actions are dependent on multiple, uncertain future conditions. (Avin et al., 2001), (Cole, 2001), (Goodspeed, 2019), and (Goodspeed, 2020).
Exploratory scenario planning	Focuses on the implications of different futures. Envisions multiple possible futures and provides a process for accessing how best to prepare for the uncertainties at play while pursuing an overarching vision. (Stapleton, 2020)
FEMA	The United States Federal Emergency Management Agency
FIRMs	FEMA's Flood Insurance Rate Maps. These maps depict the 100-year floodplain; properties in the floodplain are eligible for the National Flood Insurance Program.
Fluvial erosion	Erosion that happens during high velocity storm events; impacts steep, mountaineous regions most.
Infilitration	The absorption of water into the soil; eventually, that water drains into the aquifer.
Inundation flooding	The overflow of water from the riverbed that happens during high intensity rainfall; impacts low elevations most.
Mini-public	A public engagement mechanism that gathers citizens in discrete bodies to discuss or decide matters of public concern. (Fung, 2006)
NFIP	National Flood Insurance Program
Public engagement	Engaging with residents to reflect their wants and needs in research products. Focused efforts on learning, multiple analysis, reflection, and refinement. Often conducted in small group settings, interviews, or surveys. (Tompkins et al., 2007)
River corridor	Contains the river and the area of land surrounding it that provides for river movement, floodplain, and riparian functions necessary to maintain a minimally erosive river flow. (Flood Ready Vermont, n.d.)
Robust actions	Actions that have high impact in multiple future scenarios and score well in most if not all indicators. (Avin et al., 2001), (Cole, 2001), (Goodspeed, 2019), and (Goodspeed, 2020)

Scenario planning	A procedural for making future decisions. Includes diverse inputs, data, thought, and deliveration. Engages with uncertainty to make plans adaptable to various future outcomes. (Goodspeed, 2019)
Scenario-based engagement	Utilizing public engagement to inform the direction of driving forces and scenario creation. As seen in this report, but also see (Tompkins et al., 2008)
Soil composition	The physical makeup of the soil that determines the soil's ability to buffer rainfall through infiltration.
Stakeholders	Community leaders who have knowledge or expertise in their specialized field. This definition can also be broadened to include any party who is impacted by a proposed planning decision.

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