

# **Lamoille Valley Rail Trail Management Plan August 2022**

## **Maintenance & Operations**

### **Best Management Practices**

There are existing best management practices already utilized by VTrans and Agency of Natural Resources (ANR) for managing and maintaining state-owned assets or state regulated actions. These existing best management practices may serve to inform the management practices for the Rail Trail Program. In particular, existing BMPs for mowing, managing non-native invasive species, managing beaver activities, and vegetated buffers should be adhered to as guidance or adapted to serve the unique needs of the rail trail corridor.

**Recommended Strategy:** Adapt and adopt best management practices for trail specific maintenance activities including surface inspection, vegetation management, wildlife management, and flood mitigation

Table 2 LVRT Asset Inspection and Condition Assessment Schedule

Asset	Process	Frequency	Responsibility	Coordinating or Supporting Partners
<b>Bridges</b>	Structural Inspection	Every 2 Years	Highway Division - Structures Section (Inspection)	Rail and Aviation Bureau (Review, Inventory, Program)
	Deck and Surface Condition Assessment	Annually in Spring Annually in Summer/Fall	VAST (Spring) Rail and Aviation Bureau	Rail and Aviation Bureau (Review, Inventory, Program)
<b>Tunnels &amp; Underpasses</b>	Structural Inspection	Every 2 Years	Highway Division - Structures Section	Rail and Aviation Bureau (Review)
<b>Cattlepasses</b>	Structural Inspection	Every 2 Years	Rail and Aviation Bureau	Rail and Aviation Bureau (Review, Inventory, Program)
<b>Culverts</b>	Structural Inspection	Every 5 Years (Every 2 Years if Deficient)	Rail and Aviation Bureau	Rail and Aviation Bureau (Review, Inventory, Program)
	Drainage and Condition Assessment	Annually in Spring Following Major Storm Events As Needed	Rail and Aviation Bureau	Regional Planning Commissions and/or Regional LVRT Stakeholder Groups
<b>Ditches</b>	Condition Assessment	Annually (or as needed)	Rail and Aviation Bureau	Regional Planning Commissions and/or Regional LVRT Stakeholder Groups
<b>Embankments</b>	Condition Assessment	Annually (or as needed)	Rail and Aviation Bureau	Regional Planning Commissions and/or Regional LVRT Stakeholder Groups
<b>Fencing</b>	Condition Assessment	Annually (or as needed)	Rail and Aviation Bureau	Regional Planning Commissions and/or Regional LVRT Stakeholder Groups
<b>Trail Surface</b>	Condition Assessment	Annually (or as needed)	Rail and Aviation Bureau	Regional Planning Commissions and/or Regional LVRT Stakeholder Groups
<b>Signage</b>	Regulatory and MM Signage Condition Assessment	Annually (or as needed)	Rail and Aviation Bureau	Regional Planning Commissions and/or Regional LVRT Stakeholder Groups
	Informational or Wayfinding Signage Condition Assessment	Annually (or as needed)	Regional LVRT Stakeholder Groups and/or Municipalities VAST (Winter)	Rail and Aviation Bureau
<b>Trailheads</b>	Condition Assessment	Annually (or as needed)	Regional LVRT Stakeholder Groups and/or Municipalities VAST (Winter)	Rail and Aviation Bureau
<b>Amenities</b>	Condition Assessment	Annually (or as needed)	Regional LVRT Stakeholder Groups and/or Municipalities VAST (Winter)	Rail and Aviation Bureau

Table 4 General Seasonal Maintenance Activities

Activity	Coordination	Response / Labor	Season				Frequency				
			Spring	Summer	Fall	Winter	Annually	Monthly	Weekly	After Storm	As Needed
General											
Safety Issue or Hazard Mitigation	VTrans Rail Trails	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor	X	X	X	X				X	
Trash and Litter Removal	VTrans Rail Trails Regional LVRT Stakeholder Group VAST (Winter)	VTrans Rail Trails or Volunteer (minor - moderate collection) Contractor (moderate - substantial collection) Contractor (hauling) VAST (Winter)	X	X	X	X		X		X	
Natural Debris Removal	VTrans Rail Trails VAST (Winter)	VTrans Rail Trails (minor) Contractor	X	X	X	X				X	
Vandalism	VTrans Rail Trails	VTrans Rail Trails (minor) Contractor	X	X	X	X				X	
Signage Maintenance and Repair	VTrans Rail Trails	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor VAST (Winter)	X	X	X	X				X	
Encroachments	VTrans Rail Trails	VTrans Rail Trails Law Enforcement	X	X	X	X				X	

Table 5 Trail Surface Seasonal Maintenance Activities

Activity	Coordination	Response / Labor	Season				Frequency				
			Spring	Summer	Fall	Winter	Annually	Monthly	Weekly	After Storm	As Needed
Trail Surface											
Patching and Remedial Repairs	VTrans Rail Trails	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor	X	X	X	X					X
Regrading	VTrans Rail Trails	Contractor	X	X	X		X				X
Shoulder Stabilization	VTrans Rail Trails	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor	X								X
Bridge Deck & Railing Repair	VTrans Rail Trails VAST (Winter)	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor VAST	X								X
Grooming	VAST	VAST VAST Snowmobile Clubs				X			X	X	X

Table 6 Drainage Seasonal Maintenance Activities

Activity	Coordination	Response / Labor	Season				Frequency				
			Spring	Summer	Fall	Winter	Annually	Monthly	Weekly	After Storm	As Needed
Drainage											
Erosion Repair / Slope Stabilization	VTrans Rail Trails	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor	X	X	X					X	X
Culvert Clearing	VTrans Rail Trails	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor	X	X	X		2 X			X	X
Ditch Clearing	VTrans Rail Trails	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor	X	X	X		X			X	X
Flood / Standing Water / Ice Jam Mitigation	VTrans Rail Trails	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) Contractor	X			X					
Beaver Management	VTrans Rail Trails VT Fish & Wildlife	VT Fish & Wildlife Contractor	X	X	X						X

Table 7 Vegetation Management Seasonal Maintenance Activities

Activity	Coordination	Response / Labor	Season				Frequency				
			Spring	Summer	Fall	Winter	Annually	Monthly	Weekly	After Storm	As Needed
Vegetation Management											
Mowing	VTrans Rail Trails	Contractor		X			2 X				
Crossing / Sight Line Trimming	VTrans Rail Trails	Contractor		X			3 X				
Invasive Species Management	VTrans Rail Trails Regional LVRT Stakeholder Group	Volunteer Contractor (disposal)		X				X			
Hazardous Tree Removal	VTrans Rail Trails	Contractor		X			X				
Tree Pruning / Trimming	VTrans Rail Trails	VTrans Rail Trails (minor) Contractor	X	X	X	X	X			X	X
Tree Blowdown Removal	VTrans Rail Trails VAST (Winter)	VTrans Rail Trails (minor) Maintenance Districts (*emergency only) VAST (Winter) Contractor	X	X	X	X				X	X
Brush Cutting	VTrans Rail Trails	VTrans Rail Trails (minor) Contractor	X	X	X		X				X
Leaf Clearing / Blowing	VTrans Rail Trails	VTrans Rail Trails (minor) Contractor			X		2 X				X

Table 8 Trailheads and Trailside Amenities Seasonal Maintenance Activities

Activity	Coordination	Response / Labor	Season				Frequency				
			Spring	Summer	Fall	Winter	Annually	Monthly	Weekly	After Storm	As Needed
Trailheads and Trailside Amenities											
Mowing	VTrans Rail Trails Municipal Agreements Regional LVRT Stakeholder Group	Municipal Staff Volunteers Contractor		X				X			
Trimming / Edging		Municipal Staff Volunteers		X				X			
Landscape Maintenance (weeding, mulching, planting, etc.)			X	X	X		X				
Water Utility (on/off if present)			X		X		X				
Plowing Trailhead Parking		Municipal Staff Volunteers Contractor				X			X	X	X
Litter Removal		Municipal Staff Volunteers	X	X	X	X			X		
Trash / Recycling Receptacle Emptying			X	X	X	X			X		
Restroom Maintenance			X	X	X	X			X		
Pet Waste Station Emptying and Restocking			X	X	X	X			X		
Information Kiosk Material Restocking			X	X	X	X			X		
Information Kiosk Updates							X				

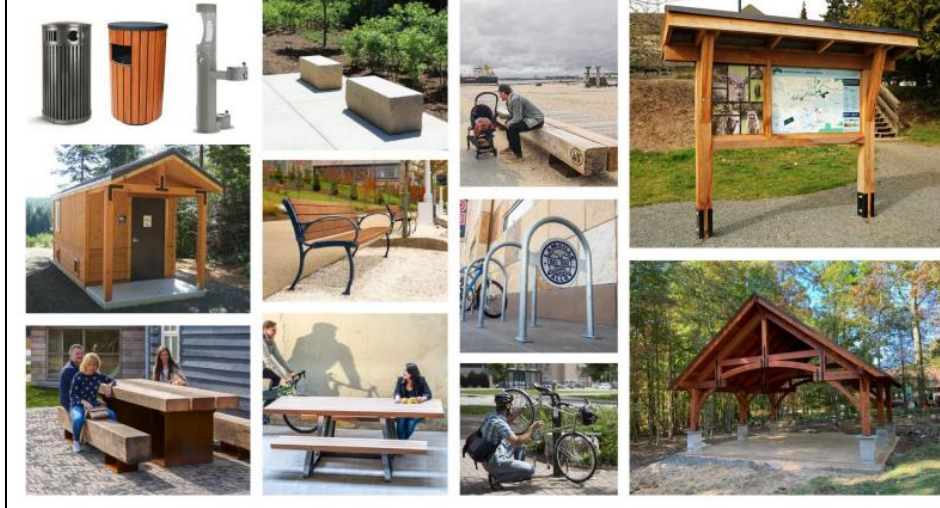
It is important to note that for the maintenance activities outlined in the tables above, coordination will primarily fall to the Rail Trail Program staff. This includes setting up and executing contracts and agreements with other parties, which will largely take place in winter for the upcoming season. Even when agreements are in place for other entities to have some role in coordination of maintenance activities, like VAST in winter or municipalities and Regional LVRT Stakeholder Groups at trailheads, Rail Trail Program staff will continue to be the primary, year-round coordinating entity. This role includes oversight and inspection to verify contracts and agreements are being executed appropriately.

## **Economic Development & Community Connections**

### **Overview**

The economic development opportunities presented by the LVRT can be fully realized through fostering safe and comfortable connections to trail-adjacent communities, promoting existing services and amenities available along the trail, supporting improvements to services and amenities, and aligning with local and regional plans to amplify economic revitalization efforts already in motion. The greatest opportunity for stimulating the local economy entails promoting and marketing the trail to visitors while encouraging trail users to venture into towns and village centers, or other locations with services and amenities off trail, while empowering community members to be engaged stewards of the trail and fostering an inviting environment for trail users.

Figure 23 Recommended Trailside Amenities



AMENITY/TRAILHEAD ELEMENT	COST**	UNIT	REMARKS
Map Kiosk (Wayfinding/Information/Map Kiosk)	\$2,700-3,300*	EA.	Includes One 36"x48" Wayfinding Map (\$300)
Entry / Arrival Signage	\$3,000-4,000*	EA.	
6' Bench with Back	\$2,100*	EA.	
Rustic Wooden Bench	3,100*	EA.	
6' Stone Slab Bench	\$3,300	EA.	Solid Cut Stone Seat Wall, \$550/L.F.
Picnic Table Set	\$2,500-5,600*	EA.	
Trash and Recycling Receptacle	\$1,800*	EA.	
Bike Rack	\$140*	EA.	
Bike Repair Station with Pump	\$1,600*	EA.	
Water Fountain / Bottle Filling Station (Integrated into Pavilion)	\$2,000-6,000*	EA.	Does Not Include Utility Work
Water Fountain / Bottle Filling Station (Freestanding)	\$9,000-12,000*	EA.	Does Not Include Utility Work
Pavilion	\$300-500	S.F.	Open Air Structure, Does not Include Restrooms
Shade Tree	\$700	EA.	2.5-3" Caliper, Mixed Varieties
Ornamental Tree	\$725	EA.	12-14' Height, Mixed Varieties
Shrub	\$65	EA.	18-24" Wide, Mixed Varieties
Groundcover/Ornamental Grasses	\$35	EA.	2 Gallon Pot, Mixed Varieties
Crushed Stone Paving	\$12	S.F.	
Concrete Paving	\$10	S.F.	
Brick Paving	\$35	S.F.	Includes Concrete Sub-base
6' Tall Chainlink Fence	\$25	L.F.	Black Vinyl Coated

**NOTES:**

\*Prices shown do not include installation costs

\*\*Additional project costs may be required (permitting, design, grading, demolition, utility work, freight, etc.)

Leveraging the economic development opportunities that come with the completion of the LVRT and its draw to northern Vermont communities is a high priority. According to the Agency of Commerce and Community Development, the marketing and tourism industry in Vermont generates \$3 billion annually and makes up 10% of Vermont's workforce. The LVRT is poised to benefit from the state's reputation as a recreation tourism destination, tapping into the many recreational opportunities that are already sought by visitors to the state. Other trail systems have evaluated the impact a trail has on local and regional economies, gaging the return on the initial trail investment and justifying the continued support for management and maintenance of the trail system once it is established. These impacts can be quantified as direct, indirect, and induced impacts to the region, based on direct visitor spending at businesses, indirect spending to support the area businesses, or induced spending from the revenues of those direct or indirect purchases.

## **Missisquoi Valley Rail Trail**

### **Economic Impact Study**

In conjunction with the Marketing and Wayfinding Project, a trail counting effort and economic impact analysis was conducted for annual use on the Missisquoi Valley Rail Trail. Economic impacts of the MVRT were projected using a computer-based model—the Money Generation Model (MGM2). The MGM2 model was developed by the National Park Service and is used to model the economic impact of national parks and other recreational assets across the country. The model demonstrates the immense value of trails and recreational assets as an economic engine, by estimating the economic impact of spending associated with trail use at the trail systems in terms of changes in jobs, tax impacts, and total sales (gross regional product).

Based on projections from the MGM2 Economic Model, trail users currently generate approximately \$1,991,000 in sales, 32 jobs and \$208,000 in federal, state and local taxes in the local economy each year, including direct, indirect and induced effects.

While non-local trail use is only estimated at 20% of current trail traffic volume, this visitation accounts for 67% of the total economic impacts of the trail. This highlights the critical importance of bringing additional non-local visitation to the trail to help spur economic development, and suggests that even slight shifts in the percent of non-local visitation to the trail could create a relatively large impact.

As a goal of the MVRT Wayfinding, Branding and Marketing Plan was to increase non-local awareness and use of the trail, the project projected the economic impacts of a 20% growth in non-local trail traffic volumes. For this thought exercise, they assumed current levels of local use would remain stable. Based on projections from the MGM2 Economic Model, trail users under this scenario would generate approximately \$2,278,000 in sales, 36 jobs and \$241,000 in federal, state and local taxes in the local economy, including direct, indirect and induced effects.



Please review the full reports for more information about the findings and methodology of the [trail counting](#) and [economic impact analysis](#).

