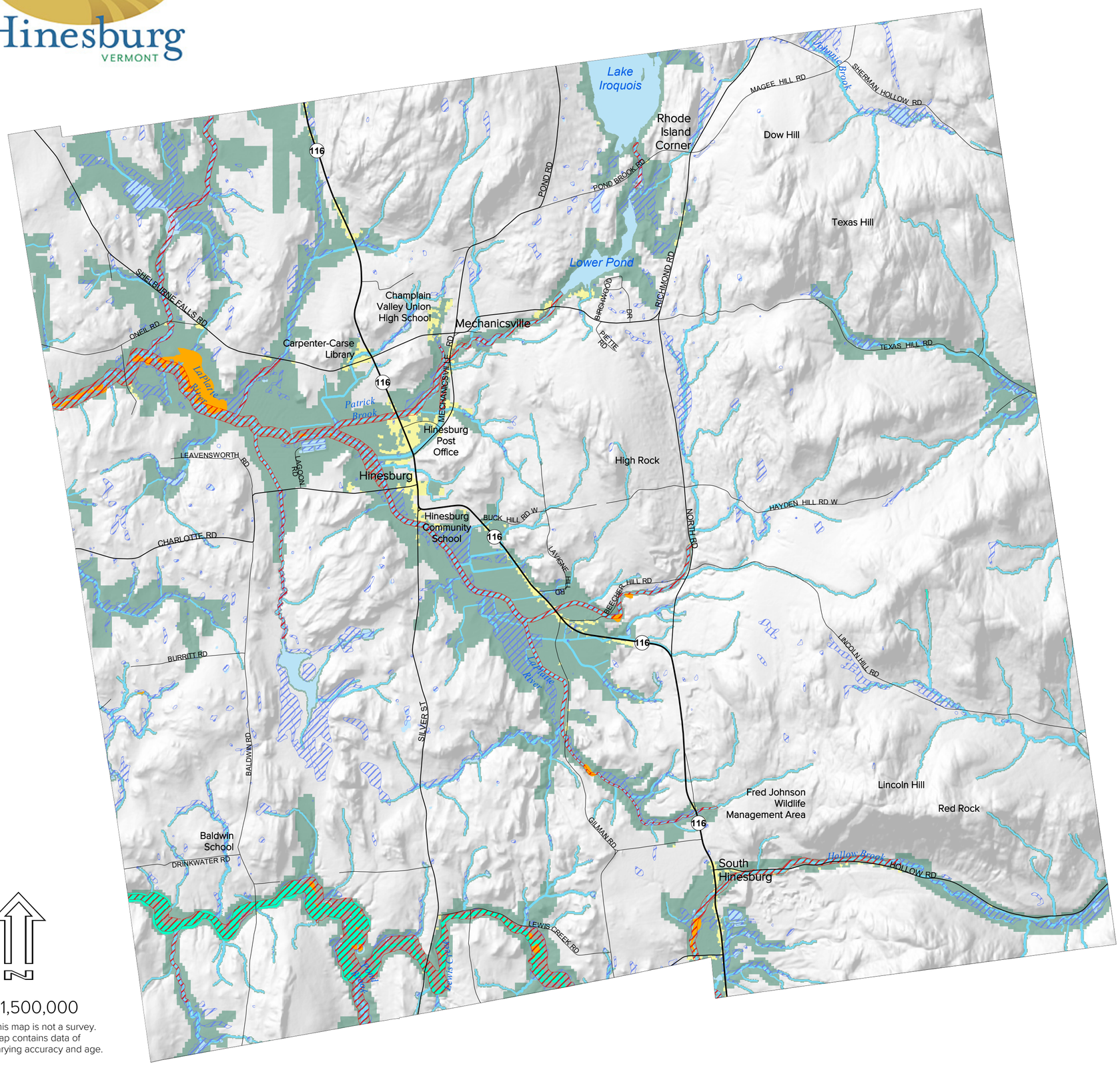
Surface Water, Wetland, and Riparian Resources

Phase-1 Natural Resources Inventory



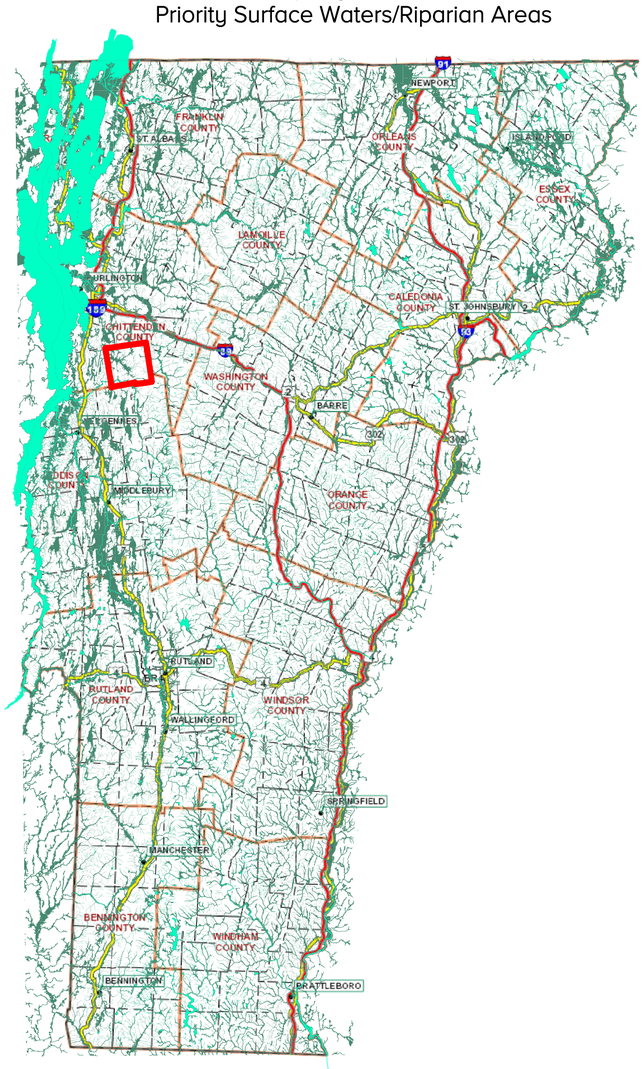
N

1:1,500,000

This map is not a survey.
Map contains data of varying accuracy and age.

Map produced: 12/21/2020
Map Coordinate System: VT State Plane (NAD 83)

Vermont Exemplary Surface Waters and Priority Surface Waters/Riparian Areas



VCGI

- Highest Priority Aquatic Habitats
- Highest Priority Surface Waters and Riparian Areas
- Priority Surface Waters and Riparian Areas
- Floodplain Forest (Confirmed and Potential)
- Wetlands (Advisory)
- Fluvial Erosion Hazard Areas

Water, Wetland, and Riparian Layers
Surface waters, wetlands, and their associated riparian areas are essential for people and wildlife. In addition to providing habitat for multiple Species of Greatest Conservation Need (SGCN) (Vermont Wildlife Action Plan Team, 2015), they provide and recharge drinking water sources. Wetlands, river corridors, floodplain forests, and riparian forests are also an important water resource as they help to filter out and attenuate sediments, excess nutrients, and other contaminants damaging to water quality and habitat. Taken in concert with Vermont's priority forest blocks—see the Forest Block, Connectivity, and Resiliency Resources Map—the interconnected network of large forest blocks, streams, rivers, ponds, lakes, and riparian corridors allow for movement of wildlife and plants across the landscape, as well as continuity of other ecological processes critical to Vermont's waterways and biodiversity (Sorenson and Zaino, 2018).

The following data layers were used and/or developed during the inventory and analysis of surface water, wetland, and riparian resources.

Highest Priority Aquatic Habitats
These are rivers, streams, lakes, and ponds that support important aquatic species and/or habitats. This includes surface waters with known concentrations of rare species and/or exceptional species diversity. This layer also includes the best examples of each different aquatic habitat type found across Vermont's ponds and lakes. Vermont's ponds and lakes support a variety of aquatic habitat types, often influenced by different combinations of water chemistry, temperature, underlying geology, and water depth. These aquatic habitats were identified by state ecologists and biologists during the *Vermont Conservation Design* (Zaino et al., 2018; Vermont Conservation Design Team, 2019). This layer integrates a variety of hydrologic and biological data.

Priority Surface Waters and Riparian Areas
Includes the town's network of streams and rivers and immediately adjacent valley bottoms, floodplains, and riparian areas. These areas were identified by state ecologists and biologists during the *Vermont Conservation Design* (Sorenson et al., 2015; BioFinder/Vermont Conservation Design Team, 2019) as they are critical to natural stream, river, and floodplains processes, contribute to broader ecological connectivity across the landscape, and provide important wildlife and plant habitat. Surface waters and riparian areas were prioritized based on land cover and land use.

Highest Priority: All non-developed land within the network of surface waters and immediately adjacent valley bottoms. Riparian vegetation and forest cover in these areas help to protect and buffer surface water quality, condition, and function.

Priority: All developed land within the network of surface waters and immediately adjacent valley bottoms.

Floodplain and Potential Floodplain Forest
Location of verified and potential floodplain forests along rivers and major streams (3rd order streams and higher). Based on topographic position, these forested areas are likely subject to flooding and other floodplain processes. Potential floodplain sites were remotely mapped by Native Geographic using 2018 Vermont Ortho aerial imagery, 2016 NAIP aerial imagery, and high-resolution elevation data. Generally delineated at a scale of 1:5,000 or finer. In 2020, Native Geographic LLC verified a selection of floodplain forest sites through windshield surveys and site visits.

Wetlands (Advisory)
Depicts the location of wetlands mapped by University of Massachusetts in 1997, using 1993 aerial imagery. Based on review of 2018 and 2016 aerial photos and site visits made during the Phase-1 Natural Resource Inventory, Native Geographic, LLC made some minor revisions to this layer, changing the extent and type of some wetlands. This layer contains the most up-to-date and detailed wetlands mapping available in town but should be used as an advisory tool. The town's jurisdictional wetlands are identified in the *Vermont State Wetlands Inventory*.

Fluvial Erosion Hazard Areas
Fluvial Erosion Hazard Areas (FEH) are a municipal zoning overlay that includes lands immediately adjacent to a river/stream that may be at higher risk to river/stream-related erosion. The FEH overlay encapsulates the river/stream potential meander pattern, floodplains, and areas of active channel movement. This data layer was developed in 2010 by Vermont Department of Environmental Conservation (DEC) and the Town of Hinesburg. The layer is included in the Town Plan (Map 7). Since FEH areas were adopted by the Town of Hinesburg, DEC has shifted to consideration of river corridor areas – a change in language, types of streams considered, and recommended corridor protection width.

Surface Waters
Streams, rivers, ponds, lakes, and other surface waters mapped by the USGS and extracted from the 2010 Vermont Hydrography Dataset (VHD). The VHD is derived from the National Hydrography Dataset, a nationwide effort to map the country's surface waters.

References

BioFinder/Vermont Conservation Design Team. 2019 BioFinder 3.0 Development Report. Vermont Agency of Natural Resources. Montpelier, VT.

Sorenson, E., Zain, R., Hilke, E. and E. Thompson. 2015. *Vermont Conservation Design-Part 1: Landscape Features Technical Report*. Vermont Fish and Wildlife Department. Montpelier, VT.

Vermont Wildlife Action Plan Team. 2015. *Vermont Wildlife Action* Plan 2015. Vermont Fish & Wildlife Department. Montpelier, VT.

Analysis by: Native Geographic, LLC