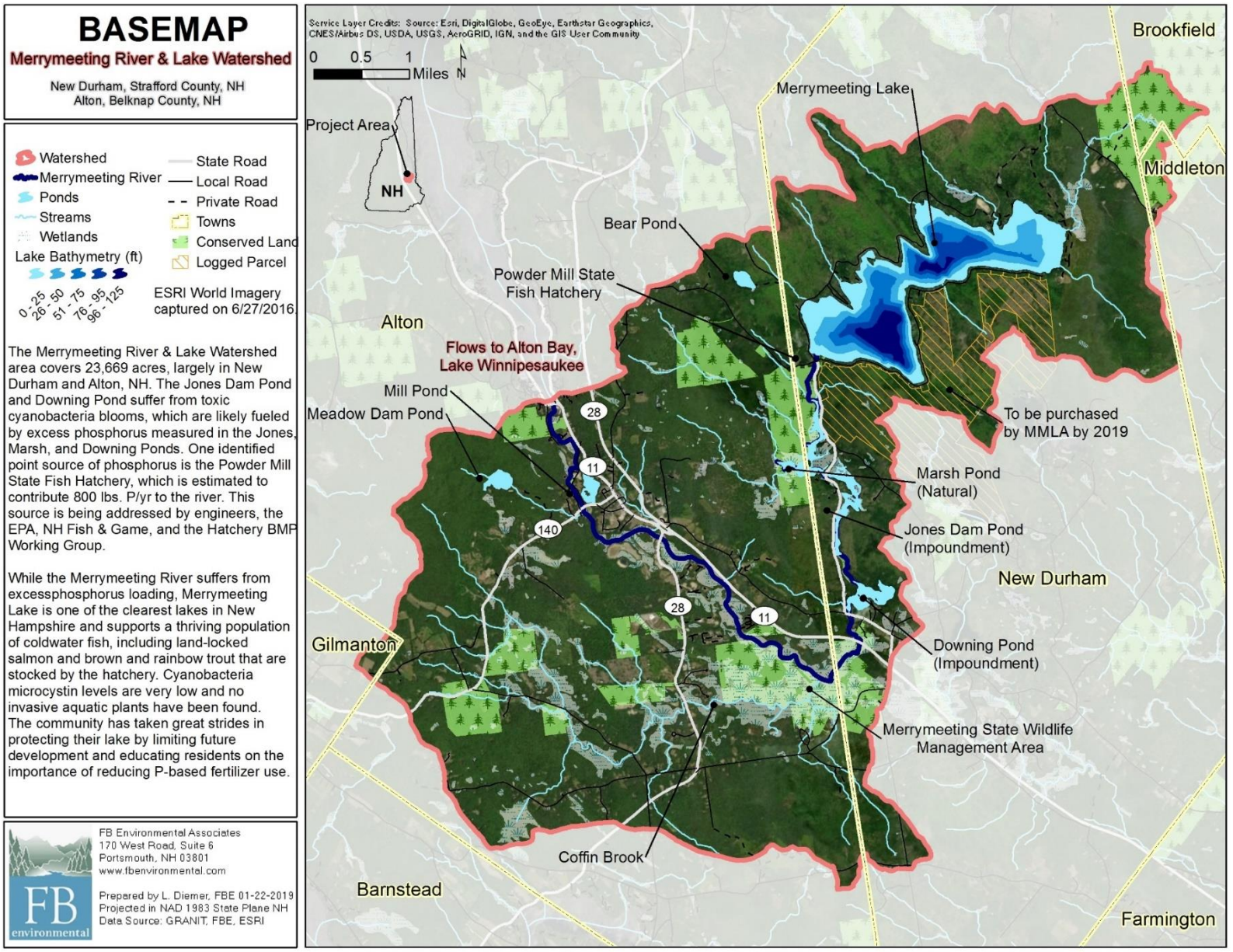
# APPENDICES

# APPENDIX A: THEMATIC WATERSHED MAPS




**MAP 1**

# LAND COVER

**Merrymeeting River & Lake Watershed**

New Durham, Strafford County, NH
Alton, Belknap County, NH

Towns
Watershed

ESRI World Imagery captured on 6/27/2016.

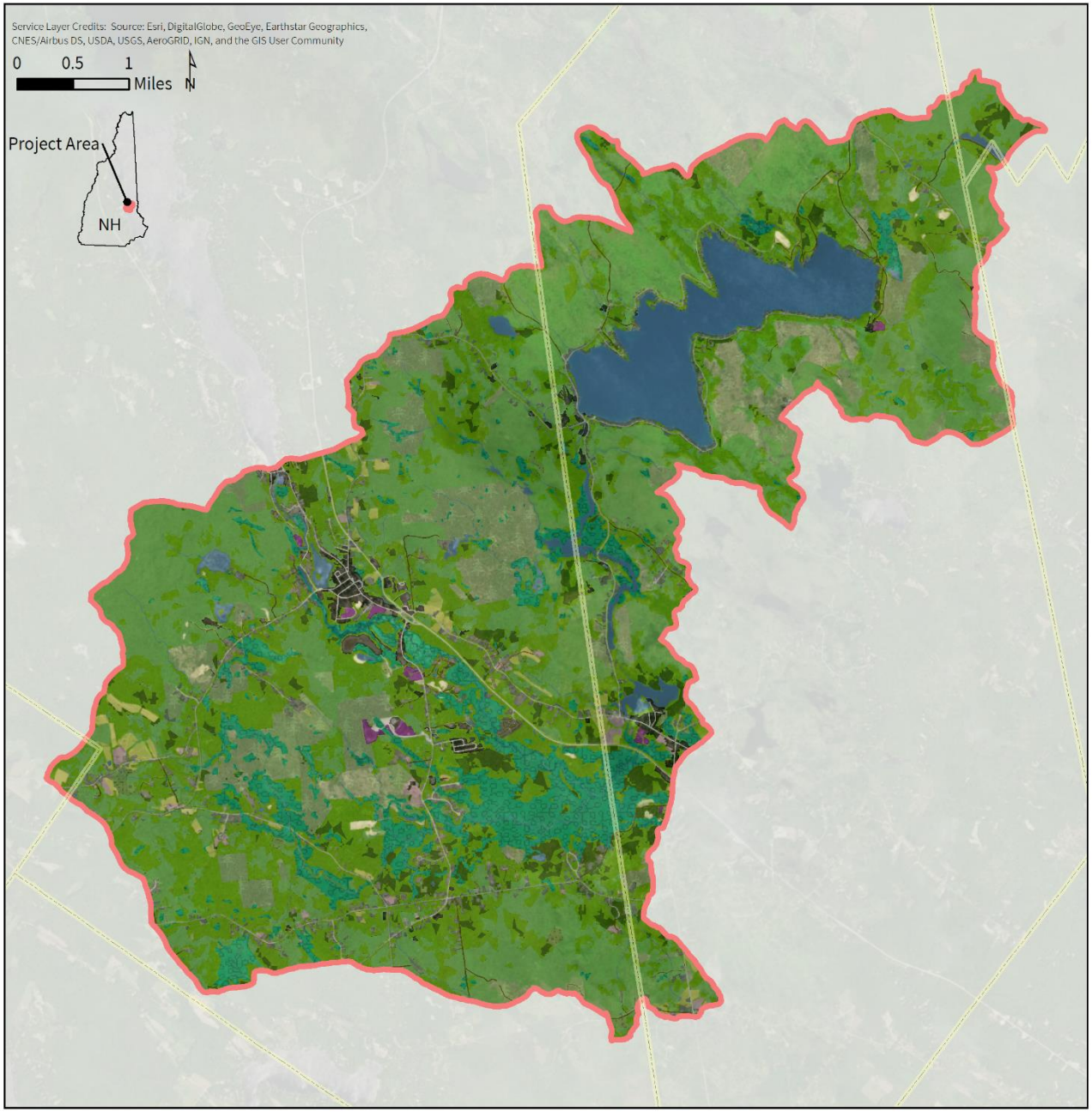
**Land Cover**

- Urban 1: Low Den Res
- Urban 2: Mid Den Res/Comm
- Urban 3: Roads
- Urban 5: Mowed Fields
- Agric 2: Row Crop
- Agric 3: Grazing
- Agric 4: Hayfield
- Forest 1: Deciduous
- Forest 2: Non-Deciduous
- Forest 3: Mixed
- Forest 4: Wetland
- Open 1: Water
- Open 2: Meadow
- Open 3: Excavation
- Other 1: Logging
- Other 2: Unpaved Road

One of the first and most important steps in modeling pollutant loading in the watershed is updating the land cover to better reflect the most recent aerials. The land cover of the Merrymeeting River and Lake watershed was updated from the NH Land Cover Assessment 2001 using ESRI World Imagery and Google Earth satellite images for 6/27/2016 and 9/11/2017, respectively. Land cover was carefully reviewed and updated to account for new development. Pie chart summarizes percent land cover areas by major category. Most of the watershed is forested (79%).

FB Environmental Associates
170 West Road, Suite 6
Portsmouth, NH 03801
www.fbenvironmental.com

Prepared by L. Diemer, FBE 02-28-2019
Projected in NAD 1983 State Plane NH
Data Source: GRANIT, FBE, ESRI




## MAP 2

# SOIL SERIES

**Merrymeeting River & Lake Watershed**

New Durham, Strafford County, NH
Alton, Belknap County, NH

Watershed
Merrymeeting River
Ponds
Streams
Lake Bathymetry (ft)
0 - 25
26 - 50
51 - 75
76 - 95
96 - 125

Towns
State Road
Local Road
Private Road

ESRI World Imagery captured on 6/27/2016.

The soils in the Merrymeeting River and Lake watershed are a result of geologic processes in the region. The most prevalent soil group in the watershed is Gloucester extremely stony fine sandy loam (3,418 acres, 15%), followed by Metacomet fine sandy loam, very stony (2,163 acres, 10%), Tunbridge-Lyman-Becket complex, very stony (1,581 acres, 7%), Millsite-Woodstock-Henniker complex, very stony (1,560 acres, 7%), and Gloucester very stony fine sandy loam (1,448 acres 7%). These soils are all classified with having very stony material and have low runoff potential (Gloucesters) or moderately high runoff potential (Metacomet, Tunbridge, and Millsite).

The contrast of soil groups across town boundary lines between Belknap County (Alton) and Strafford County (New Durham) is a result of Belknap County having been mapped under a frigid temperature regime, while Strafford County was mapped under a mesic temperature regime. Therefore, soils of the same group have different map unit soil series names. The USDA Natural Resources Conservation Service is currently working to harmonize these differences by correlating map unit soil groups and data into one uniform set of data per region.

FB Environmental Associates
170 West Road, Suite 6
Portsmouth, NH 03801
www.fbenvironmental.com

Prepared by C. Bunyon, FBE 02-25-2019
Projected in NAD 1983 State Plane NH
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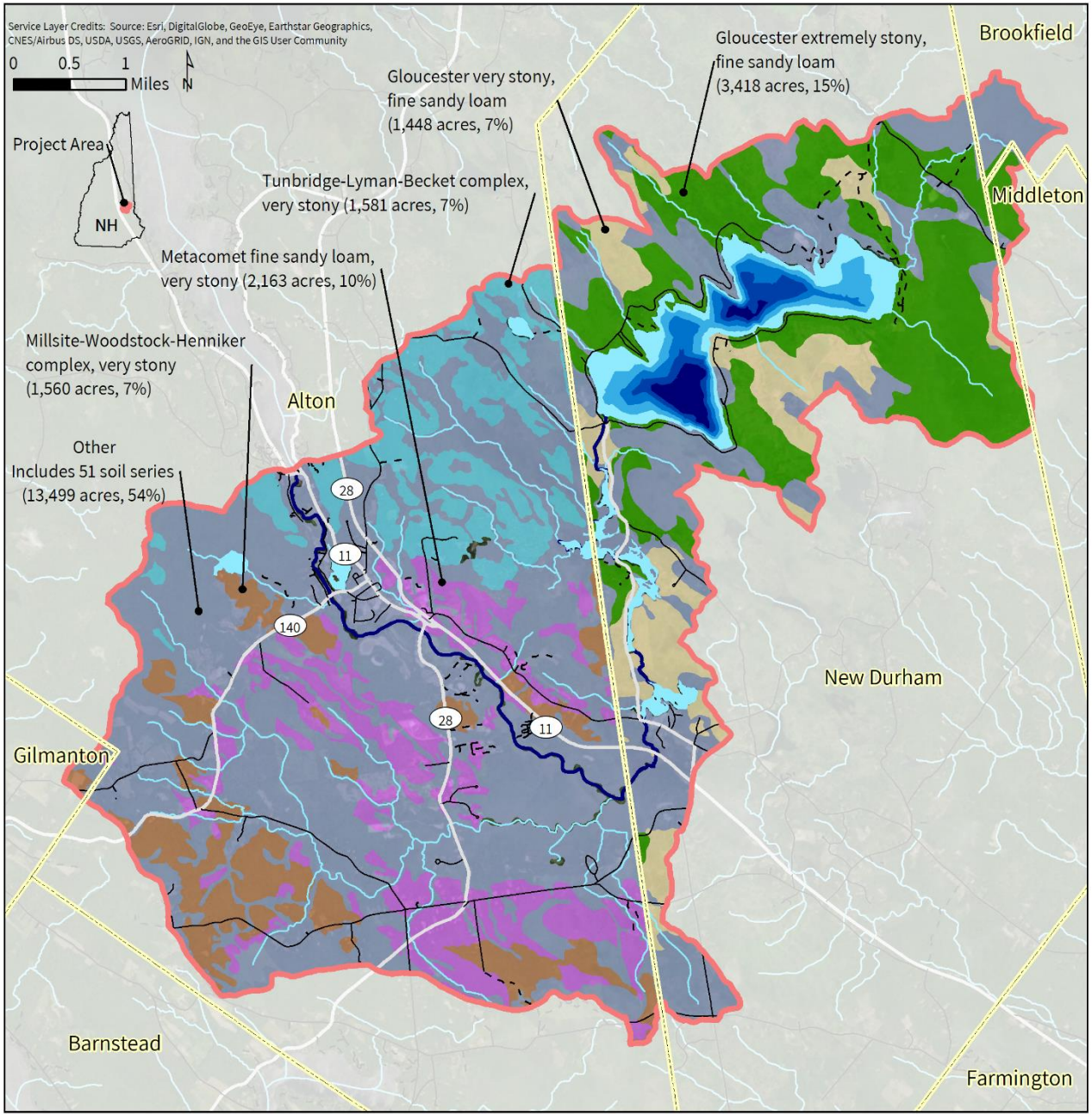
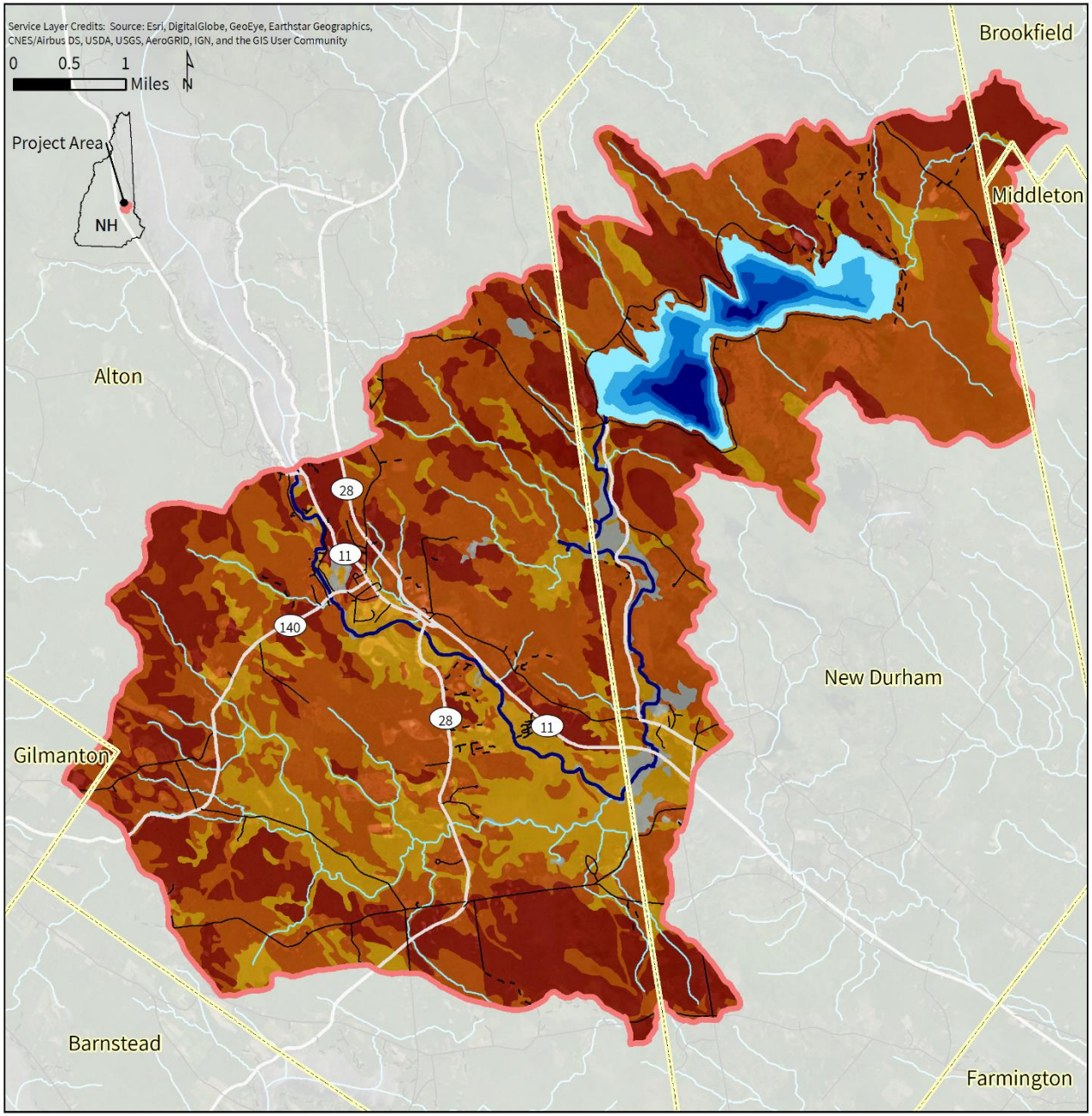



**MAP 3**

# SOIL EROSION HAZARD

**Merrymeeting River & Lake Watershed**

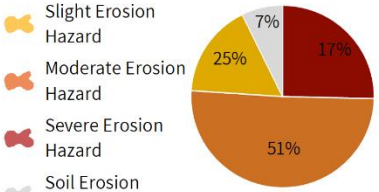
New Durham, Strafford County, NH
Alton, Belknap County, NH




- Watershed
- Merrymeeting River
- Ponds
- Streams
- Towns
- State Road
- Local Road
- Private Road

Lake Bathymetry (ft): 0-25, 26-50, 51-75, 76-95, 96-125

ESRI World Imagery captured on 6/27/2016.




Soil erosion hazard is dependent on a combination of factors, including land contours, climate conditions, soil texture, soil composition, permeability, and soil structure. Soil erosion hazard should be a primary factor in determining the rate and placement of development within a watershed. According to the web soil survey's Land Management and Erosion Hazard metadata, a rating of "slight" indicates little to no erosion is likely to occur, "moderate" indicates some erosion is likely to occur, and roads or infrastructure may require occasional maintenance with simple erosion control practices, and "severe" indicates that significant erosion to the landscape is expected, and roads and other infrastructure will require frequent maintenance and large erosion control practices.

FB Environmental Associates
170 West Road, Suite 6
Portsmouth, NH 03801
www.fbenvironmental.com

Prepared by C. Bunyon, FBE 02-25-2019
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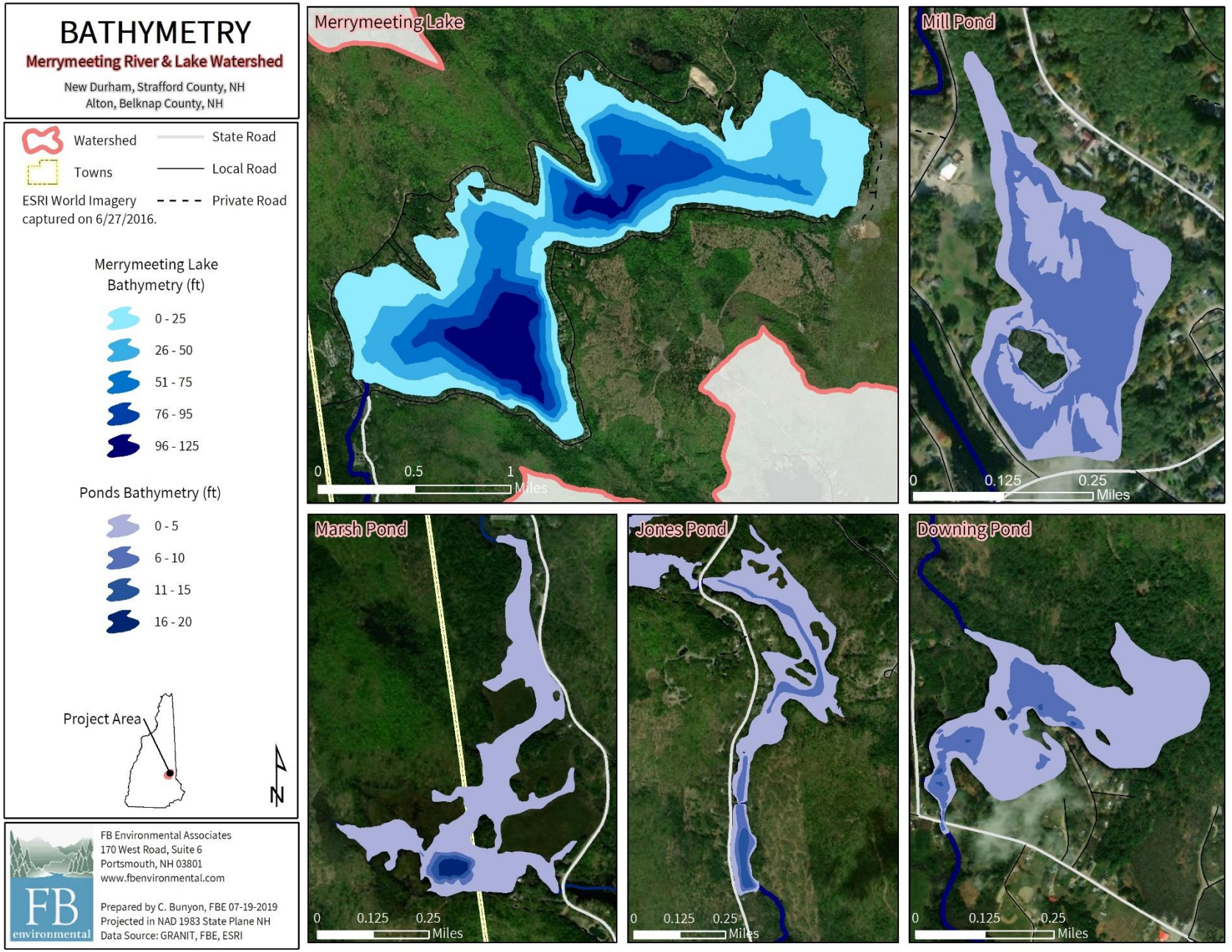
## MAP 4


BATHYMETRY
Merrymeeting River & Lake Watershed
New Durham, Strafford County, NH
Alton, Belknap County, NH
Watershed
Towns
State Road
Local Road
Private Road
ESRI World Imagery captured on 6/27/2016.
Merrymeeting Lake Bathymetry (ft)
0 - 25
26 - 50
51 - 75
76 - 95
96 - 125
Ponds Bathymetry (ft)
0 - 5
6 - 10
11 - 15
16 - 20
Project Area
N
FB Environmental Associates
170 West Road, Suite 6
Portsmouth, NH 03801
www.fbenvironmental.com
Prepared by C. Bunyon, FBE 07-19-2019
Projected in NAD 1983 State Plane NH
Data Source: GRANIT, FBE, ESRI
Merrymeeting Lake
0 0.5 1 Miles
Mill Pond
0 0.125 0.25 Miles
Marsh Pond
0 0.125 0.25 Miles
Jones Pond
0 0.125 0.25 Miles
Downing Pond
0 0.125 0.25 Miles

**MAP 5**

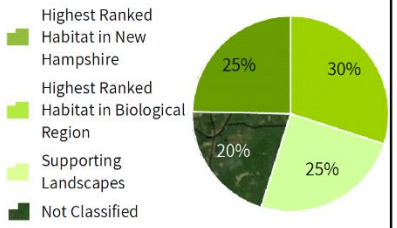
# HIGH VALUE HABITAT

**Merrymeeting River & Lake Watershed**

New Durham, Strafford County, NH
Alton, Belknap County, NH

Watershed
Towns
ESRI World Imagery captured on 6/27/2016.

State Road
Local Road
Private Road




New Hampshire Fish and Game Department (NHFGD) ranks habitat based on value to the State, biological region (areas with similar climate, geology, and other factors that influence biology) and supporting landscape. These habitat rankings are published in the State's 2015 Wildlife Action Plan, which serves as a blueprint for prioritizing conservation actions to protect species of greatest conservation needs in New Hampshire. 25% of the Merrymeeting River and Lake watershed (including the lake and Coffin Brook) have been classified as Highest Ranked Habitat in New Hampshire. The Merrymeeting River is not classified because no occurrences of aquatic species of conservation concern have been found and the river does not meet requirements for high ranking stream habitat: a functional network length ≥ 10 miles, a riparian index score of ≤ 25, no dams holding ≥ 10% of mean annual flow, and < 2% impervious surfaces.

FB Environmental Associates
170 West Road, Suite 6
Portsmouth, NH 03801
www.fbenvironmental.com

Prepared by C. Bunyon, FBE 02-25-2019
Projected in NAD 1983 State Plane NH
Data Source: GRANIT, FBE, ESRI


**MAP 6**

# PHOSPHORUS LOAD

**Merrymeeting River & Lake Watershed**

New Durham, Strafford County, NH
Alton, Belknap County, NH

- Watershed
- Towns
- State Road
- Local Road
- Private Road

Phos Load (kg/yr) by Land Cover

- 0-0.5
- 0.5-2.0
- 2.0-4.0
- 4.0-8.0

ESRI World Imagery captured on 6/27/2016.

Due to the numerous and irregularly-sized sub-basins with complex routing and attenuation, we normalized the watershed area to 1000 sq.ft. mapped grid cells. High-phosphorus export areas represent concentrated areas of development or agriculture that may be impacting water quality and/or have a greater potential to impact water quality if proper stormwater controls are not in place. Many of these areas were identified during the watershed survey as needing some level of remediation. Phosphorus loads shown here account for the watershed load only (based on land cover export) and does not include other sources, such as point sources, atmospheric deposition, waterfowl, septic systems, or internal loading, that are not spatially mapped.

FB Environmental Associates
170 West Road, Suite 6
Portsmouth, NH 03801
www.fbenvironmental.com

Prepared by L. Diemer, FBE 04-01-2019
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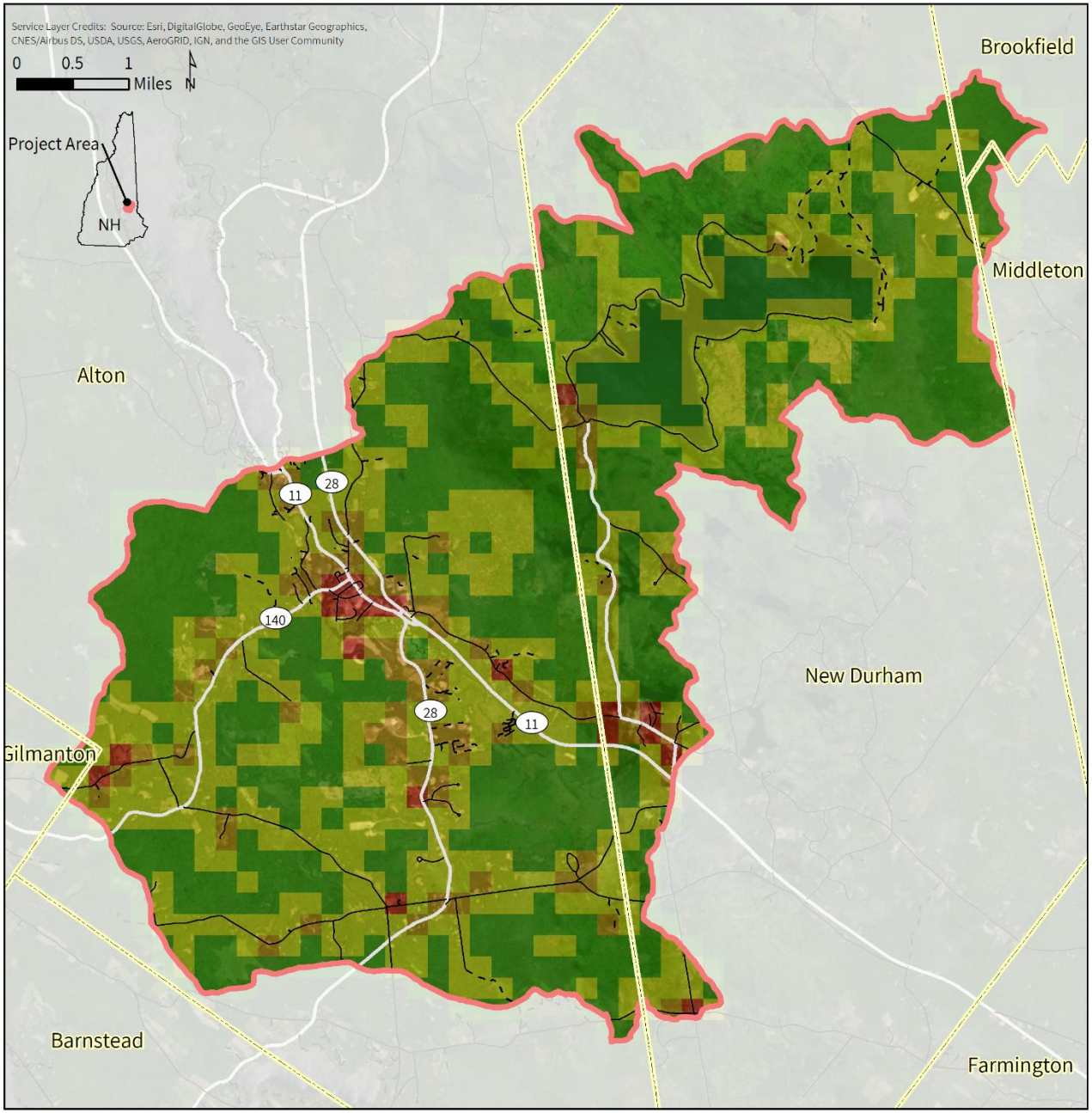
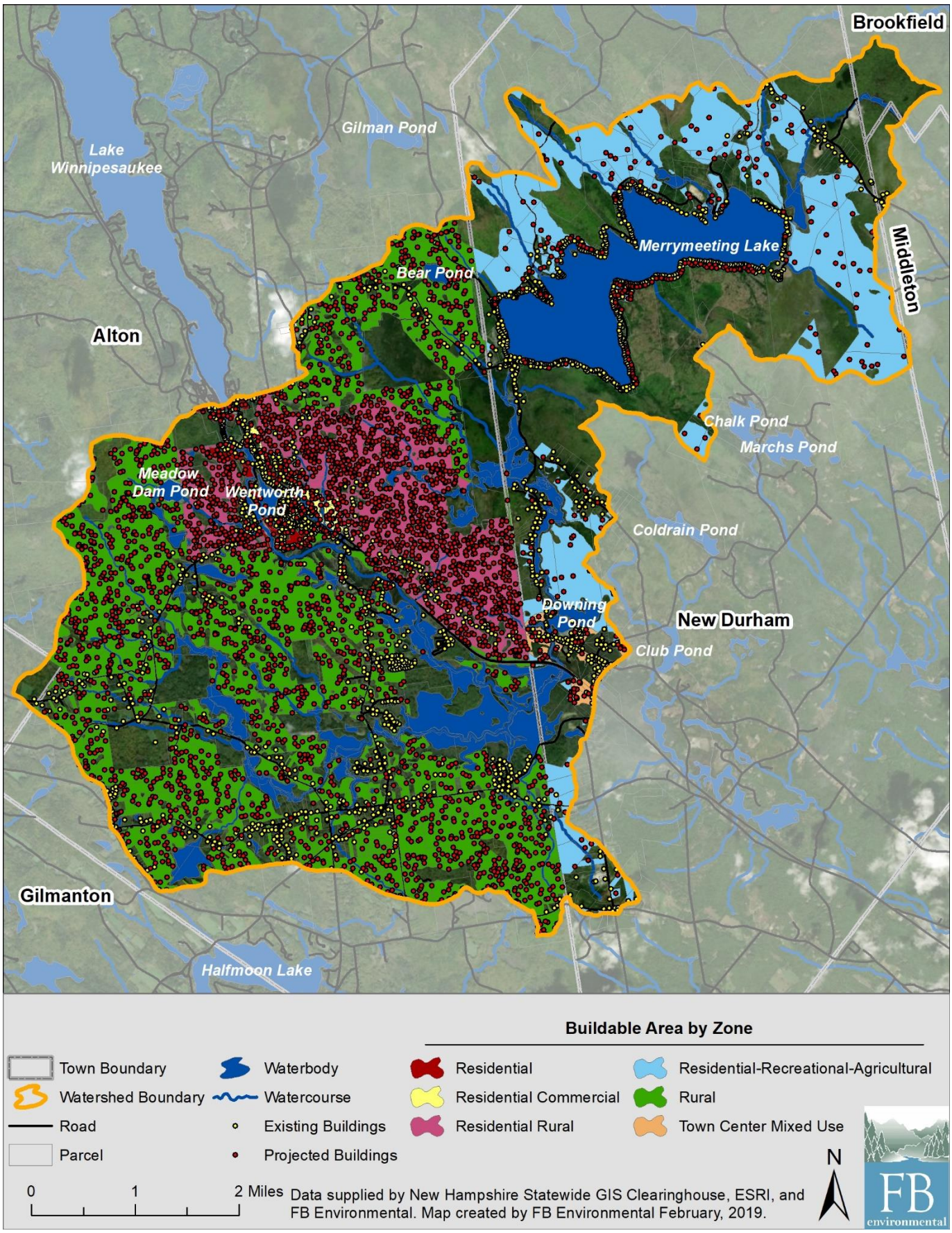
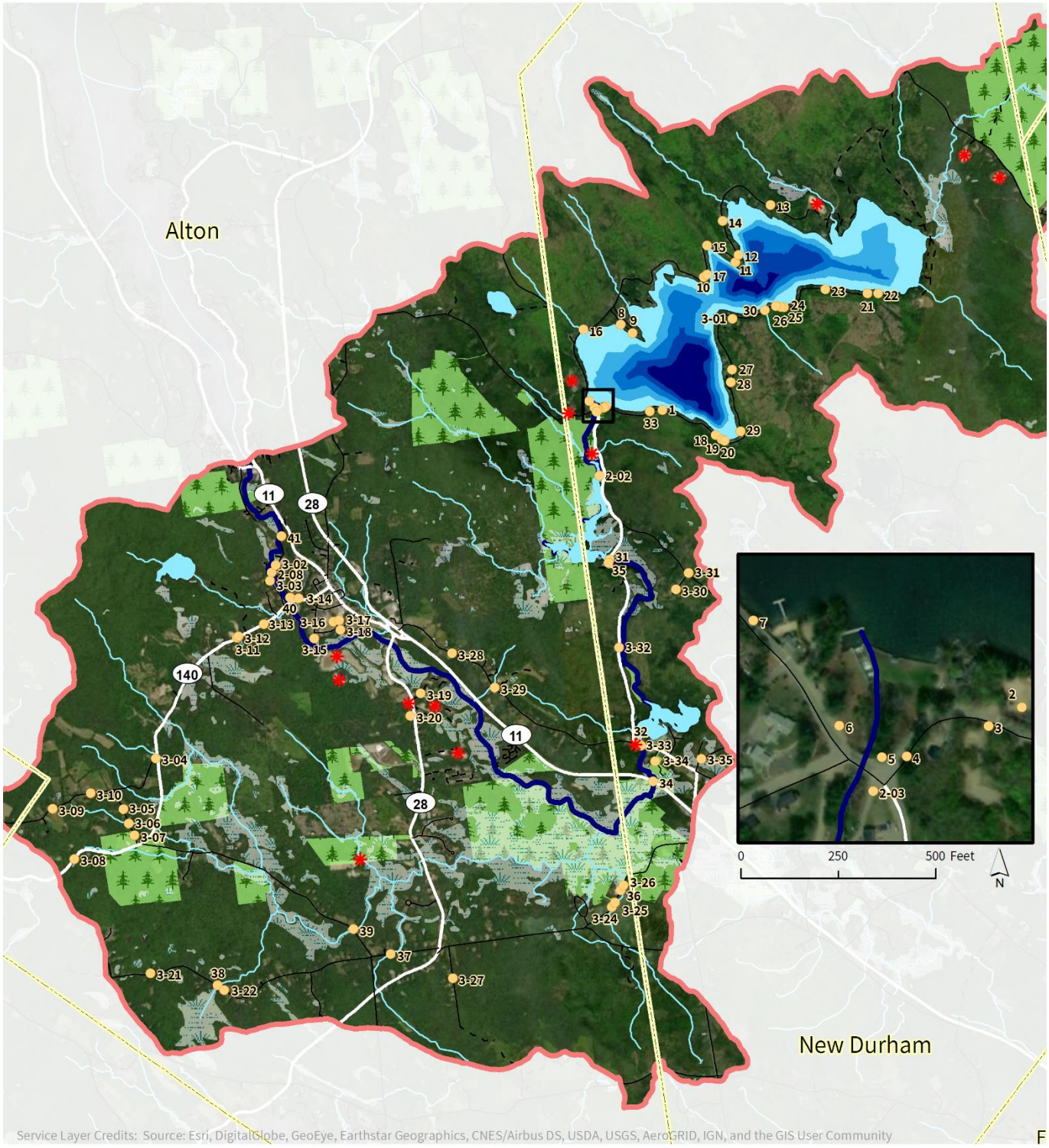



**MAP 7**


Brookfield
Gilman Pond
Lake Winnipesaukee
Merrymeeting Lake
Bear Pond
Middleton
Alton
Chalk Pond
Marchs Pond
Meadow Dam Pond
Wentworth Pond
Coldrain Pond
Downing Pond
New Durham
Club Pond
Gilmanton
Halfmoon Lake
Buildable Area by Zone
Town Boundary
Watershed Boundary
Road
Parcel
Waterbody
Watercourse
Existing Buildings
Projected Buildings
Residential
Residential Commercial
Residential Rural
Residential-Recreational-Agricultural
Rural
Town Center Mixed Use
0
1
2 Miles
N
Data supplied by New Hampshire Statewide GIS Clearinghouse, ESRI, and FB Environmental. Map created by FB Environmental February, 2019.
FB environmental

**MAP 8**




## Merrymeeting River & Lake Watershed Survey Results

New Durham, Strafford County, NH & Alton, Belknap County, NH

FB Environmental Associates
170 West Road, Suite 6
Portsmouth, NH 03801
www.fbenvironmental.com

Prepared by L. Diemer, FBE 10-02-2018
Projected in NAD 1983 State Plane NH
Data Source: GRANIT, FBE, ESRI

Project Area
NH

State Road
Local Road
Private Road
Towns
Conserved Land
Watershed
Merrymeeting River
Ponds
Streams
Wetlands
Vulnerable Areas (Need Follow-Up)
Erosion "Hotspot" Sites
Lake Bathymetry (ft)
0 - 25
26 - 50
51 - 75
76 - 95
96 - 125
0
0.5
1 Miles
N

**MAP 9**

# APPENDIX B: BMP MATRIX

| SITE ID | IMPACT | DESCRIPTION OF PROBLEM | RECOMMENDATIONS | TSS lbs/yr | TP lbs/yr | TN lbs/yr | Est. Low Cost | Est. High Cost |
|---|---|---|---|---|---|---|---|---|
| **2-02** | High | Merrymeeting River boat access ramp off Merrymeeting Rd downstream of fish hatchery, surface erosion | Maintain boat access ramp (local groups repaved with recycled asphalt with infiltration pavers at launch) | 378 | 0.57 | 0.59 | $3,000 | $5,000 |
| **2** | High | Town Beach, new catch basin installed in 2018 to catch rainwater before going into the lake, ponding around catch basin, but eventually infiltrates | Regularly clean out catch basin to ensure long-term function | 192 | 0.44 | 1.39 | $3,000 | $5,000 |
| **3** | High | South Shore Rd across from public beach, overflow parking entrance and road shoulder/ditch erosion, flows into Site #4 | Install turnouts or open top culverts to divert water off overflow parking entrance drive, armor ditches with vegetation/check dams and/or riprap | 1,262 | 3.02 | 1.76 | $100,000 | $150,000 |
| **4** | High | Culvert at the beginning of South Shore Rd, roadside erosion downhill (from Site #3) to culvert causing blockage and sediment deposition to river | Enlarge and lengthen culvert, install plunge pool/sediment basin, stabilize inlet and outlet with riprap, armor ditch with vegetation/check dams and/or riprap | Combined w/ #3 | | | | |
| **5** | High | Bridge on Merrymeeting Rd below the dam, water runs down South Shore Rd (and some from the boat landing parking lot/Powder Mill Rd) and empties into the river (concentrated stormwater flowpath from catch basin carrying sediment), contributing flows from Site #4 and #6 | Divert and treat flows from upstream contributing sources first, consider pull-off area for riprap settling basin | 1,253 | 2.76 | 2.42 | $100,000 | $150,000 |
| **6** | High | Bridge on Merrymeeting Rd below the dam, water runs from state boat landing parking lot and Powder Mill Rd to river, gully formation on parking lot and poor ditch formation evident | Stabilize state boat landing parking lot, armor ditches with vegetation/check dams and/or riprap, recrown road to keep runoff from crossing the road, install settling basins and turnouts or a catch basin and cross culvert from Powder Mill Rd | Combined w/ #5 | | | | |
| **31** | High | Merrymeeting Rd Bridge (north runoff), road shoulder and ditch erosion, state-owned with multiple raceways to direct stormwater to river | Stabilize and armor road shoulder and access, install turnout/settling basin | 491 | 1.24 | 0.73 | $15,000 | $30,000 |
| **35** | High | Merrymeeting Rd Bridge (south runoff), road shoulder and ditch erosion, state-owned with multiple raceways to direct stormwater to river | Stabilize and armor road shoulder and access, install turnout/settling basin | 761 | 1.65 | 1.40 | $15,000 | $30,000 |
| **3-15** | High | Pine St, dirt trail access with paved stormwater routing to river from private property at end of Pine St | Remove paved stormwater channel, install turnouts to vegetated/riprap infiltration areas | 275 | 0.72 | 0.49 | $40,000 | $65,000 |
| **3-06** | High | Horne Rd, gully formation sending sediment plume down road without proper shoulder and ditch to stream crossing (upstream), water feeding stream from opposite road ditch, across road is steep bank with washed out material | Install and armor road shoulder and ditches with turnouts to settling basins | 797 | 1.59 | 9.29 | $15,000 | $30,000 |
| **3-07** | High | Horne Rd, improper shoulder and ditch formation leading to erosion issues | Install and armor road shoulder and ditches with turnouts to settling basins | 813 | 0.35 | 0.69 | $5,000 | $15,000 |
| **3-21** | High | Stockbridge Corner Rd, deep gully ditch erosion on both sides with flow in one ditch and from property with pipe and riprap (high groundwater; ephemeral/intermittent drainage through ditch to stream) | Install and armor road shoulder and ditches with turnouts to settling basins | 6,250 | 2.66 | 5.31 | $30,000 | $50,000 |

| SITE ID | IMPACT | DESCRIPTION OF PROBLEM | RECOMMENDATIONS | TSS lbs/yr | TP lbs/yr | TN lbs/yr | Est. Low Cost | Est. High Cost |
|---|---|---|---|---|---|---|---|---|
| **3-22** | High | Stockbridge Corner Rd, deep gully ditch erosion | Install and armor road shoulder and ditches with turnouts to settling basins | 2,500 | 1.06 | 2.13 | $15,000 | $20,000 |
| **39** | High | Coffin Brook Rd stream crossing, road at slight grade, sediment runoff from road with concentrated flowpaths (including paved channels) to stream | Stabilize and armor road shoulder, install turnout/settling basin | 555 | 1.35 | 0.75 | $15,000 | $30,000 |
| **3-10** | High | Halls Hill Rd, ditch gully erosion | Install and armor road shoulder and ditches with turnouts to settling basins | 1,000 | 0.43 | 0.85 | $5,000 | $10,000 |
| **3-09** | High | Halls Hill Rd, ditch gully erosion | Install and armor road shoulder and ditches with turnouts to settling basins | 2,250 | 0.96 | 1.91 | $15,000 | $20,000 |
| **3-26** | High | Stockbridge Corner Rd, steep slope construction leading to ponded area on road surface | Stabilize steep slopes and loose gravel with vegetation/riprap, install and armor road shoulder and ditches with turnouts to settling basins | 504 | 1.15 | 0.70 | $15,000 | $30,000 |
| **40** | High | Letter S Rd at Rt 140 (near Alton Fire Depart), narrow section of land between Mill Pond and Merrymeeting R, Alton road agent is aware and has attempted fixes, but large underwater stone culvert passes water from Mill Pond to the river, Mill Pond impacted by historic laundromat point source, road shoulder erosion and minimal buffer between road and water | Armor shoulder with stone or grass, stabilize banks, install erosion controls, add to buffer | 506 | 0.99 | 2.32 | $30,000 | $50,000 |
| **3-29** | High | Russell Way at Moore Farm, driveway entrance erosion | Install turnouts and settling basins/rain gardens | 441 | 1.03 | 0.60 | $15,000 | $30,000 |
| 3-02 | High | Jones Recreation parking area, runoff from road to rec area access, rills and sheet flow evident | Install turnout and settling basin | 438 | 1.02 | 0.57 | $15,000 | $30,000 |
| 3-25 | High | Stockbridge Corner Rd, gully formation with evidence of significant flow and sediment deposition, stream nearby | Install and armor road shoulder and ditches with turnouts to settling basins | 2,250 | 0.96 | 1.91 | $15,000 | $30,000 |
| 11 | Med | 1 Owls Head Rd, erosion buried culvert, hay bales and silt fencing present but not functioning | Stabilize culvert inlet/outlet, armor ditch with vegetation/riprap | 1,980 | 0.84 | 1.68 | $5,000 | $15,000 |
| 3-33 | High | Main St by Downing Pond dam, access unstable with abandoned eroding pavement and gravel | Minimize and define access point and gravel area (for parking possibly), add to buffer and build up/stabilize river banks | 477 | 0.94 | 4.89 | $15,000 | $30,000 |
| 41 | High | Letter S Rd (near the Alton Highway Depart), road shoulder erosion into Merrymeeting River, minimal buffer between road and water, high-use fishing area, several concentrated stormwater flowpaths, runoff from Alton Highway Depart side access drive, likely jumping road to river | Armor shoulder with stone or grass, stabilize banks, install erosion controls, add to buffer | 802 | 1.66 | 6.28 | $30,000 | $50,000 |
| 34 | High | Route 11, runoff from the highway eroded a sand bank into the river, located at boat landing off Rt 11 near Johnson's Restaurant | Stabilize and armor road shoulder, install turnout/settling basin | 648 | 0.90 | 7.50 | $15,000 | $30,000 |
| 3-14 | High | Mill Pond parking area, pool formation at low spots and eroding launch point with minimal buffer | Add to buffer, stabilize access point, regrade and install infiltration drainages around parking area | 283 | 0.67 | 4.00 | $15,000 | $20,000 |
| 33 | Med | 46 South Shore Rd, poor roadside ditching allows erosion of shoulder across the road near the lake | Create and armor ditch with vegetation/check dams and/or riprap | 534 | 0.72 | 2.59 | $5,000 | $15,000 |
| 17 | Med | North Shore Rd, large sediment plume at buried culvert | Armor ditch with vegetation/check dams and/or riprap, install turnout | 1,650 | 0.70 | 1.40 | $5,000 | $15,000 |

| SITE ID | IMPACT | DESCRIPTION OF PROBLEM | RECOMMENDATIONS | TSS lbs/yr | TP lbs/yr | TN lbs/yr | Est. Low Cost | Est. High Cost |
|---|---|---|---|---|---|---|---|---|
| 13 | Med | 253 North Shore Rd, road shoulder/ditch erosion into unstable culvert and stream | Stabilize inlet/outlet, install and armor ditch with stone, install sediment basin and check dams | 1,563 | 0.66 | 1.33 | $5,000 | $15,000 |
| 10 | Med | 87 North Shore Rd, steep ditch erosion buried culvert | Clean out culvert and ditch, armor ditch with vegetation/check dams and/or riprap | 1,513 | 0.64 | 1.29 | $5,000 | $15,000 |
| 3-24 | High | Stockbridge Corner Rd, minimal buffer between road and channelized stream with bank undercutting | Add to buffer, stabilize and build up banks, consider redirecting/meandering stream channel or adding roughness to slow flows | 1,650 | 0.70 | 1.40 | $15,000 | $30,000 |
| 1 | Med | 45 South Shore Rd, extensive ditch erosion about 100 feet from the lake, culvert has catch basin on the other side of road that is not cleaned regularly | Clean out catch basin, line ditch and inflows with riprap (or vegetate ditch and install check dams) | 563 | 0.24 | 0.48 | $3,000 | $5,000 |
| 18 | Med | 108 South Shore Rd, erosion of ditch allows sand to move over the road | Armor ditch with vegetation/check dams and/or riprap, install turnout | 259 | 0.57 | 0.55 | $5,000 | $15,000 |
| 3-04 | High | Halls Hill Rd, road shoulder runoff to ditch with gully formation | Install and armor road shoulder and ditches with turnouts to settling basins | 226 | 0.28 | 0.59 | $5,000 | $15,000 |
| 36 | High | Tributary to Coffin Brook off Stockbridge Corner Rd showed eroded streambank and debris on banks, road erosion into stream at culvert | Stabilize and armor road shoulder, install turnout/settling basin, investigate changes in stream geomorphology | 441 | 0.61 | 2.06 | $15,000 | $30,000 |
| 3-18 | High | Barnes Ave, private drive gully erosion, runoff across road with sediment plume and deep gully formation, plow debris | Install turnouts and/or open top culverts with armored ditching | 600 | 0.26 | 0.51 | $5,000 | $15,000 |
| 15 | Med | 115 North Shore Rd, road shoulder/ditch erosion | Armor ditch with vegetation/check dams and/or riprap, install turnout | 252 | 0.50 | 0.78 | $5,000 | $15,000 |
| 3-08 | High | 725 Rt 140, gully erosion off driveway, stream crossing to other side of drive | Install turnouts and/or open top culverts with armored ditching | 234 | 0.10 | 0.20 | $3,000 | $5,000 |
| 3-13 | High | Rt 140, gully ditch erosion from Rt 140 and driveway across Rt 140, runs off into woods as concentrated flowpath to stream | Install and armor road shoulder and ditches with turnouts to settling basins | 1,250 | 0.53 | 1.06 | $15,000 | $30,000 |
| 2-08 | High | Alton Power Dam by NHFGD, poor/degraded buffer (grass clippings in water, mowed grass on both sides of dam) | Vegetate shoulder, plant/improve buffer (with pollinator garden similar to one nearby) | 77 | 0.17 | 0.96 | $5,000 | $10,000 |
| 3-03 | High | End of Riverside Rd, gully formation and sheet flow down steep private driveway | Install turnouts and/or open top culverts, consider catch basin with infiltration field | 209 | 0.51 | 0.26 | $15,000 | $30,000 |
| 37 | High | Streambank erosion at 510 Stockbridge Corner Rd, bank toe scouring/undercutting from high flows (degradation and widening) | Investigate changes in stream geomorphology | 2,100 | 0.89 | 1.79 | $30,000 | $50,000 |
| 20 | Med | 118 South Shore Rd, erosion of ditch and roadside bank directly into lake, gully formation evident | Stabilize shore area by rebuilding slope and staking coir logs and vegetation down to water, place riprap at toe of slope | 2,250 | 0.96 | 1.91 | $15,000 | $30,000 |
| 38 | High | 188 Stockbridge Corner Rd, roadside erosion to culvert | Stabilize and armor road shoulder, install turnout/settling basin | 368 | 0.45 | 1.01 | $15,000 | $30,000 |
| 23 | Med | 343 South Shore Rd, steep bank erosion into buried culvert | Armor ditch with vegetation/check dams and/or riprap, install settling basin | 938 | 0.40 | 0.80 | $5,000 | $15,000 |
| 16 | Med | 371 Merrymeeting Rd at Mt Bet Brook, roadside erosion downhill to culvert directly into lake | Armor ditch with vegetation/check dams and/or riprap, install turnout | 342 | 0.40 | 1.30 | $5,000 | $15,000 |
| 3-35 | Low | Birch Hill Rd, road shoulder erosion down Smith Ln | Install and armor road shoulder and ditches with turnouts to settling basins | 292 | 0.67 | 0.29 | $5,000 | $15,000 |

| SITE ID | IMPACT | DESCRIPTION OF PROBLEM | RECOMMENDATIONS | TSS lbs/yr | TP lbs/yr | TN lbs/yr | Est. Low Cost | Est. High Cost |
|---|---|---|---|---|---|---|---|---|
| 2-03 | High | Fish hatchery driveway, road surface erosion of driveway by river | Add pavement and grade, install turnout | 375 | 0.16 | 0.32 | $5,000 | $15,000 |
| 3-34 | Low | New Durham Sports Complex on Smittys Way, road runoff | Install turnouts and settling basins/rain gardens | 315 | 0.70 | 0.44 | $5,000 | $15,000 |
| 32 | High | Main Street Bridge downstream of Downing Pond, broken bridge sides allowing stormwater to run into river, two ends of bridge have state-paved raceway for stormwater coming down the street to be diverted directly into the river | Repair bridge and divert raceways to infiltration area | 108 | 0.31 | 0.27 | $15,000 | $30,000 |
| 9 | Med | 31 Meaders Point Rd, stormwater erodes roadside downhill from owner's culvert which carries water/sediment directly into the lake | Divert water away from lake to a catch basin with infiltration field | 247 | 0.61 | 0.37 | $15,000 | $30,000 |
| 25 | Med | 298 South Shore Rd, road shoulder erosion onto property | Stabilize and armor road shoulder, install turnout/settling basin | 625 | 0.27 | 0.53 | $5,000 | $15,000 |
| 30 | Med | 284 South Shore Rd, culvert erosion/collapse | Enlarge and lengthen culvert, stabilize inlet and outlet with riprap, armor ditch with vegetation/check dams and/or riprap | 444 | 0.58 | 1.59 | $15,000 | $30,000 |
| 7 | Med | 302 Merrymeeting Rd, concentrated flowpath from road to lake | Armor ditch with vegetation/check dams and/or riprap, install turnout | 600 | 0.26 | 0.51 | $5,000 | $15,000 |
| 19 | Med | 113 South Shore Rd, same erosion as Site #18 but further down the road, sand fills a catch basin which empties to lake | Armor ditch with vegetation/check dams and/or riprap, install turnout or infiltration catch basin | 234 | 0.54 | 0.45 | $15,000 | $30,000 |
| 12 | Med | 151 North Shore Rd, steep shoulder/ditch erosion | Armor ditch with vegetation/check dams and/or riprap, install turnout | 521 | 0.22 | 0.44 | $5,000 | $15,000 |
| 29 | Med | 140 South Shore Rd, road edge crumbling from flows carrying sediment from road to private driveway near the lake | Stabilize and armor road shoulder and access, install turnout/settling basin | 93 | 0.21 | 0.08 | $5,000 | $15,000 |
| 26 | Med | 292 South Shore Rd, road erosion onto steep sloped property at two locations | Stabilize and armor road shoulder and access, install turnout/settling basin | 500 | 0.21 | 0.43 | $5,000 | $15,000 |
| 3-20 | Low | Ehlen Way, new road with significant erosion, some hay bales, mulch, and riprap in place, but not effective enough | Install and armor road shoulder and ditches with turnouts to settling basins | 4,594 | 1.95 | 3.90 | $30,000 | $50,000 |
| 3-30 | Low | Penny Ln, road shoulder erosion on steep grade | Stabilize road shoulder material and install turnouts from road to ditches at multiple locations | 1,125 | 0.48 | 0.96 | $5,000 | $15,000 |
| 3-17 | Low | Vacant commercial lot at Village Circle, very steep slope with loose gravel | Stabilize loose gravel on hillslope, ensure proper construction BMPs implemented | 906 | 1.86 | 10.34 | $30,000 | $50,000 |
| 3-16 | Low | Alton Central School, opportunity for some visible improvements - demonstration site | Reconfigure parking lot drainage so that stormwater is directed to multiple rain gardens in current grassed medians | 293 | 1.04 | 13.19 | $15,000 | $30,000 |
| 3-19 | Low | Baxter Place, road erosion with rills near water, exposed mulch pile, loose gravel off side of the road along wood edge | Install turnouts and/or open top culverts with armored ditching | 410 | 0.57 | 1.27 | $15,000 | $30,000 |
| 8 | Med | 15 Meaders Point Rd, washed out parking area across road flows down camp steps into lake, early Sept 2018 storm eroded 2 yards of aggregate down embankment to lake, site located at bottom of two | Regrade road to divert water away from lake to a catch basin with infiltration field | 282 | 0.67 | 0.37 | $30,000 | $50,000 |

| SITE ID | IMPACT | DESCRIPTION OF PROBLEM | RECOMMENDATIONS | TSS lbs/yr | TP lbs/yr | TN lbs/yr | Est. Low Cost | Est. High Cost |
|---|---|---|---|---|---|---|---|---|
| | | small hills, water is pitched from the road to the stairs of a house | | | | | | |
| 3-01 | Med | Kendra Ln, steep road grade to South Shore 3rd with gully formation and loose gravel | Stabilize road shoulders and ditches with riprap/vegetation, install turnouts and open top culverts | 375 | 0.16 | 0.32 | $5,000 | $15,000 |
| 14 | Med | 183 North Shore Rd, erosion from road surface/shoulder over culvert | Stabilize inlet/outlet, install and armor ditch with stone, install sediment basin and check dams | 375 | 0.16 | 0.32 | $5,000 | $15,000 |
| 3-12 | Low | Stone Meadow Commons, new development road leads down steep grade without good ditch or shoulder formation | Install and armor road shoulder and ditches with turnouts to settling basins | 742 | 0.87 | 3.91 | $15,000 | $30,000 |
| 3-11 | Low | Along Rt 140 at Irving Oil Company entrance, pool formation with large sand patch | Minimize and define entrance (vegetate rest), install settling basin at pool | 367 | 0.87 | 0.68 | $15,000 | $30,000 |
| 3-05 | Low | Horne Rd, gravel road without defined shoulder and ditch causing gully formation on slight grade, sand plume forming at end of rock wall heading into field | Install and armor road shoulder and ditches with turnouts to settling basins | 1,667 | 0.71 | 1.42 | $15,000 | $30,000 |
| 3-27 | Low | Chamberlain Rd, road surface, shoulder, and ditch erosion with sediment plumes leading out to wooded area | Install and armor road shoulder and ditches with turnouts to settling basins | 1,667 | 0.71 | 1.42 | $15,000 | $30,000 |
| 28 | Med | 100 ft from Sunset Dr on South Shore Rd, road shoulder erosion to culvert | Stabilize and armor road shoulder, install turnout/settling basin, recrown road to divert flows away from overtopping culvert | 660 | 0.28 | 0.56 | $15,000 | $30,000 |
| 3-32 | High | Merrymeeting Rd, minimal buffer with road elevation close to water, multiple water access points that could be stabilized | Regrade road elevation higher, add to buffer and build up/stabilize river bank, stabilize access points | 751 | 1.03 | 3.60 | $150,000 | $200,000 |
| 24 | Med | 300 South Shore Rd, road erosion into bank and down into property undermining road | Stabilize and armor road shoulder, install turnout/settling basin | 150 | 0.06 | 0.13 | $5,000 | $15,000 |
| 21 | Med | 378 South Shore Rd, buried culvert | Enlarge and lengthen culvert, stabilize inlet and outlet with riprap, armor ditch with vegetation/check dams and/or riprap | 275 | 0.12 | 0.23 | $15,000 | $30,000 |
| 22 | Med | 388 South Shore Rd, crushed culverts | Enlarge and lengthen culvert, stabilize inlet and outlet with riprap, armor ditch with vegetation/check dams and/or riprap | 275 | 0.12 | 0.23 | $15,000 | $30,000 |
| 3-28 | Low | New Durham Rd, driveway erosion from road runoff and recent earth movement around ditch and culvert | Armor road shoulder and ditch with riprap and/or vegetation | 281 | 0.12 | 0.24 | $5,000 | $15,000 |
| 27 | Med | 400 ft from Sunset Dr on South Shore Rd, road shoulder erosion over unstable culvert outlet | Stabilize and armor road shoulder, install turnout/settling basin, recrown road to divert flows away from overtopping culvert | 413 | 0.18 | 0.35 | $30,000 | $50,000 |
| 3-31 | Low | Across from Penny Ln entrance, gravel road with loose material and minimal ditching, possibly for logging | Install and armor road shoulder and ditches with turnouts to settling basins | 185 | 0.23 | 0.73 | $15,000 | $30,000 |
| | | | **TOTAL:** | **64,266** | **56.11** | **132.32** | **$1,272,000** | **$2,340,000** |