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Land Use Trends in the Upper Merrimack River Region

Conservation, Current Use, and Development

Prepared for the Upper Merrimack River Local Advisory Committee
by the Central New Hampshire Regional Planning Commission

Upper Merrimack River
Local Advisory Committee

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Acknowledgments

The following members of the Upper Merrimack River Local Advisory Committee were involved in this project:

Michele Tremblay, Boscawen
Chair and Upper Merrimack Monitoring Program Director

Stephen Landry, Boscawen
Vice Chair and Upper Merrimack Monitoring Program Sampling Supervisor

Gary Lynn, Bow
Secretary

Krista Crowell, Bow
Treasurer

Harry Anderson, Northfield

Rick Chormann, Concord

William Dawson, Northfield

Anne Emerson, Canterbury

David Kirkpatrick, Bow

Donna Liolis, Franklin

Tucker Noack, Franklin

Nancy Roy, Canterbury

Robert Sharon, Franklin

Brian Sullivan, Franklin

Nita Tomaszewski, Franklin

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Introduction

The Upper Merrimack River Local Advisory Committee (UMRLAC) is a volunteer committee made up of representatives from six communities along the Upper Merrimack River: Boscawen, Bow, Canterbury, Concord, Franklin, and Northfield. The Upper Merrimack River was designated in 1988 under RSA 483, the Rivers Management and Protection Act, and UMRLAC was formed in 1990. Since then, UMRLAC members have worked actively on behalf of the river, developing and updating a river management and implementation plan, establishing a nationally-acclaimed water quality sampling program, advising municipalities on river management and protection issues, and conducting significant public outreach and education efforts.

The latest update of the Upper Merrimack Management and Implementation Plan (2007) enumerated goals and implementation objectives relating to a range of topics in order to "help protect and manage the unique characteristics and resources of the upper Merrimack while recognizing these concerns:

- Preserve and enhance the water quality and natural, scenic, cultural and recreational values of the river corridor;
- Maintain local control;
- Increase public involvement and education;
- Respect the rights of private landowners;
- Recognize the need for balanced use; and
- Recognize present and future generations' use of the river.

The UMRLAC has worked to accomplish the Plan's objectives to achieve the broader goals. This report addresses Goal 16 of the 2007 Management and Implementation Plan, which states, "Land uses support the upper Merrimack River's designated uses, hydrologic functions, and the Rivers Management and Protection Act." The first

objective associated with Goal 16 (Objective LU-1) calls for river corridor municipalities to be provided with minimum impact principles that can be implemented as incentives and land use regulations. Specifically, the Plan calls for the following activities to carry out Objective LU-1:

- Inventory conservation and current use lands
- Provide update on regional development trends
- Circulate questionnaire to Planning Boards to obtain feedback on concerns and needs for resource information
- Develop materials on available resources for additional local land use control and stormwater management BMPs.

With Clean Water Act Section 604(b) funding administered by the New Hampshire Department of Environmental Services, UMRLAC partnered with the Central New Hampshire Regional Planning Commission (CNHRPC) to carry out these tasks. This report summarizes data on conservation, current use, and development trends in the Upper Merrimack River region, as well as the results of a questionnaire distributed to planning boards and conservation commissions within the river corridor. With the information provided, each community receives tailored information and resources to implement land use policies supportive of the River's designated uses and functions.

Conservation and Current Use Summary

CNHRPC worked with UMRLAC and municipal staff to develop maps and tables reflecting existing conservation and current use patterns in river corridor municipalities. **Maps 1-6** display this information for each of the six Upper Merrimack communities. GIS data on conserved and public lands from the statewide data clearinghouse, NH GRANIT, was mapped and verified by municipal staff and UMRLAC members. Municipal assessing and GIS parcel data were used to map properties enrolled in the current use program. Current use taxation allows property owners to pay property taxes based upon the existing use of the land (forest, agriculture, or unproductive/wetland) rather than on its development value, which is typically much higher. This mechanism provides an incentive for landowners not to develop their property. They must pay a penalty to remove land from the program to subdivide or develop it. As of 2010, over

half of New Hampshire's land base was enrolled in the current use program.[1] As important as the program is, land in current use cannot be considered true "conservation land," because owners are free to remove land from the program at any time, as long as they pay the applicable penalties.

Table 1 summarizes lands in various forms of conservation in the Upper Merrimack region. Figures were calculated in GIS. Data from NH GRANIT's Conservation and Public Lands layer categorizes parcels into the following protection levels:

1. **Permanent/Long-Term conservation land**: Land protected from development through conservation easement, restrictions, or outright ownership by an organization or agency whose mission includes protecting land in perpetuity; more than 50% of the area will remain undeveloped. Based upon GRANIT's definition of "permanent."

2. **Unofficial conservation land**: Land owned by an agency or organization whose mission is not conservation, but whose intent is to keep the land for conservation, passive recreation, or educational purposes. Not permanently protected.

3. **Unprotected water supply lands**: Lands owned or controlled by suppliers of public drinking water. Includes all supplies owned by a municipality or a subdivision of a municipality, and all private water systems that serve 500 people or more.

4. **Developed public open space**: Includes lands having active recreational use on more than 50% of the area, e.g., beaches, picnic areas, and ball fields.

It is important to note that, according to the GRANIT classifications, "permanent" conservation lands may include parcels that do not have a formal, legal protection mechanism. For example, state and county forests and town forests managed by Conservation Commissions are considered "permanent" conservation lands. It is possible that future policy changes could result in such parcels being sold, subdivided, or developed in the absence of perpetual legal protection. Therefore, the highlighted figures in Table 1 should be considered high estimates for land protection.

[1] According to SPACE, New Hampshire's Current Use Coalition. Available at http://www.nhspace.org/cu.shtml.

Table 1. Conservation Summary, 2011

	Franklin		Northfield		Canterbury		Boscawen		Concord		Bow	
Percent of Municipal Area in Permanent Conservation or Managed for Long Term Conservation	15.3%		1.1%		15.0%		11.4%		20.2%		16.0%	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Total Municipal Area (GIS calculation)	18,662		18,486		28,697		16,252		43,000		18,269	
Total Conservation Land (from GIS)	2,947	15.8%	197	1.1%	4,374	15.2%	2,928	18.0%	11,984	27.9%	3,907	21.4%
Permanent/Long-Term Conservation Land*	2,862	15.3%	197	1.1%	4,310	15.0%	1,848	11.4%	8,702	20.2%	2,917	16.0%
Unofficial Conservation Land	46	0.2%	0	0%	0	0%	1,065	6.6%	2,969	6.9%	961	5.3%
Unprotected Water Supply Land	38	0.2%	0	0%	0	0%	0	0%	0	0%	0	0%
Developed Public Open Space (Beaches, ballfields, parks)	0	0%	0	0%	0	0%	16	0.1%	313	0.7%	29	0.2%

Source: NH GRANIT Conservation and Public Lands data layer. *By GRANIT's definition, "permanent" conservation lands include parcels with deed restrictions and conservation easements, as well as lands publicly or privately owned by organizations with a mission emphasizing permanent conservation. Includes, for example, state/county forests and town forests formally managed by Conservation Commissions.

As indicated in **Table 1**, five of the six Upper Merrimack Communities have between ten and twenty percent of their municipal area in some form of conservation. Small areas in some communities are also considered unofficial conservation land (in Concord this includes a sizable area associated with St. Paul's School), water supply lands, and recreational areas. Northfield has a relatively small amount of land in conservation, at 197 acres (1.1%), none of which abuts the Merrimack River. Concord has the greatest

amount of recreational open space at 313 acres (0.7%). The variation in conservation land acreage across the six municipalities arises from a mix of factors, including historic development and ownership patterns, conservation funding availability, and political will for conservation projects.

Current use enrollment across the region also varies by community, as indicated in **Table 2**. Enrollment in current use ranges from 33.6% in Bow to a high of 66.7% in Canterbury. Just over 51% of the region's total area is enrolled in current use, consistent with the statewide average. A comparison of the most recent (2011) data to 2002 current use data shows that total enrollment in the Upper Merrimack region has increased slightly, from 45% to 51%.[2] This could be due in part to the economic recession: with less development pressure, more landowners may have placed their property in current use in order to reduce their tax burden, rather than keeping it available for development.

A closer look at the types of land in current use indicates that 83% of land in current use in the Upper Merrimack region is forest land. Farmland contributes the second highest amount at 10.4%, followed by wetlands at 4.9% and unproductive land at 1.7%. Boscawen, Canterbury, and Concord have the most farmland and wetlands, while Bow, Franklin, and Northfield are more predominantly forested.

[2] New Hampshire Department of Revenue Administration, Property Appraisal Division. Current Use reports available at http://www.revenue.nh.gov/munc_prop/current_use/reports.htm.

Table 2. Current Use Summary, 2011

	Franklin		Northfield		Canterbury		Boscawen		Concord		Bow		UMRLAC	
Percent of Municipal Area in Current Use	**46.9%**		**62.8%**		**66.7%**		**61.3%**		**42.2%**		**33.6%**		**51.4%**	
	Acres	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**	**Acres**	**%**
Total Municipal Area (GIS calculation)	**18,662**		**18,486**		**28,697**		**16,252**		**43,000**		**18,269**		**143,365**	
Total Acres in Current Use (from Assessing)	**8,749**	**100**	**11,614**	**100**	**19,152**	**100**	**9,968**	**100**	**18,142**	**100**	**6,131**	**100**	**73,756**	**100**
White Pine Managed	356	4.1	377	3.2	1,714	8.9	487	4.9	1,897	10.5	199	3.2	**5,029**	**6.8**
White Pine Unmanaged	1,559	17.8	2,250	19.4	670	3.5	2,256	22.6	4,404	24.3	802	13.1	**11,941**	**16.2**
Hardwood Managed	373	4.3	1,199	10.3	7,430	38.8	1,067	10.7	640	3.5	304	5	**11,012**	**14.9**
Hardwood Unmanaged	3,358	38.4	4,631	39.9	3,586	18.7	2,007	20.1	1,208	6.7	719	11.7	**15,510**	**21**
Other Managed	378	4.3	195	1.7	725	3.8	287	2.9	548	3	261	4.3	**2,394**	**3.2**
Other Unmanaged	1,659	19	1,438	12.4	2,236	11.7	1,518	15.2	2,183	12	2,811	45.8	**11,845**	**16.1**
Unproductive	116	1.3	114	1	268	1.4	72	0.7	3	0	648	10.6	**1,221**	**1.7**
Wetlands	162	1.8	486	4.2	1,017	5.3	847	8.5	996	5.5	125	2	**3,632**	**4.9**
Farmland	788	9	924	8	1,506	7.9	1,427	14.3	2,770	15.3	261	4.3	**7,677**	**10.4**

Source: Municipal assessing databases and NH GRANIT GIS data.

Conservation, Current Use, and Wildlife Habitat

It is possible for land in New Hampshire to be both permanently conserved and enrolled in current use. This is because many conservation parcels are managed productively for timber harvests or agricultural production. For example, a property owner may have sold or donated an easement on his or her land, but still cut timber or hay in accordance with easement language. **Table 3** compares conservation and current use lands in the Upper Merrimack region. Note that, in this case, "Lands in Conservation" includes all

GRANIT conservation lands. This encompasses varying levels of protection, not all of which are official or permanent. Calculations for the Town of Northfield could not be made due to the lack of GIS based parcel data.

The table shows that 61.4% of the region's area (not including Northfield) is enrolled in current use and/or has some form of conservation protection. Most of the land enrolled in current use (90%) has no form of protection against development. The 10% that is considered conservation land is once again a high estimate of protection, since this includes some lands that may be managed for conservation but have no perpetual legal development restriction.

Table 3. Conservation and Current Use Summary

	Franklin		Northfield		Canterbury		Boscawen		Concord		Bow		UMRLAC	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Total Municipal Area (GIS calculation)	**18,662**		**18,486**		**28,697**		**16,252**		**43,000**		**18,269**		**143,365**	
Total Land in Conservation And/Or Current Use (from GIS)	11,147	60	N/A	N/A	22,301	77.7	11,548	71.1	23,393	54.4	8,270	45.3	**76,659**	**61.4***
Percent of Municipal Area in Conservation		15		1.1		15		11.4		20.2		16		**14.5**
Percent of Municipal Area in Current Use		47		62.8		66.7		61.3		42.2		33.6		**51.4**
Unprotected Current Use Acres (Percentage of Unprotected CU Acres to Total CU Acres)	8,285	94	N/A	N/A	17,928	89.9	9,700	93	14,527	77.1	5,322	79.5	**55,762**	**89.7***

Source: Municipal assessing databases and NH GRANIT GIS data. Note that "land in conservation" includes all GRANIT conservation and public lands. This encompasses varying levels of protection, not all of which are official or permanent. *Total calculations for the UMRLAC region for land in conservation and/or current use and unprotected current use acreage do not include the Town of Northfield, because GIS parcel data was not available.

The UMRLAC was also interested in learning how conservation and current use enrollment compared spatially to high value habitat areas. Using 2010 New Hampshire Wildlife Action Plan (WAP) data from the Fish and Game Department, data were overlaid to examine this intersection. The WAP ranks habitats in three tiers based upon habitat condition. Tier 1 habitat, used in this study, is the highest ranked habitat in the state, indicating that it has good biological diversity, is connected with other similar patches in the landscape, and is minimally impacted by humans.[3] **Table 4** compares WAP Tier 1 habitat acreage with conservation and current use data to summarize how well protected high value habitat areas are in the Upper Merrimack region. The table indicates that three-quarters of WAP Tier 1 areas are enrolled in current use and/or have some form of development protection. However, only 22% of high ranking habitat areas are conserved (by GRANIT definitions), leaving the great majority (78%) of valuable habitat without any form of long-term protection. **Maps 1-6** show the intersection of conservation lands, current use enrollment, and high-ranking habitat areas.

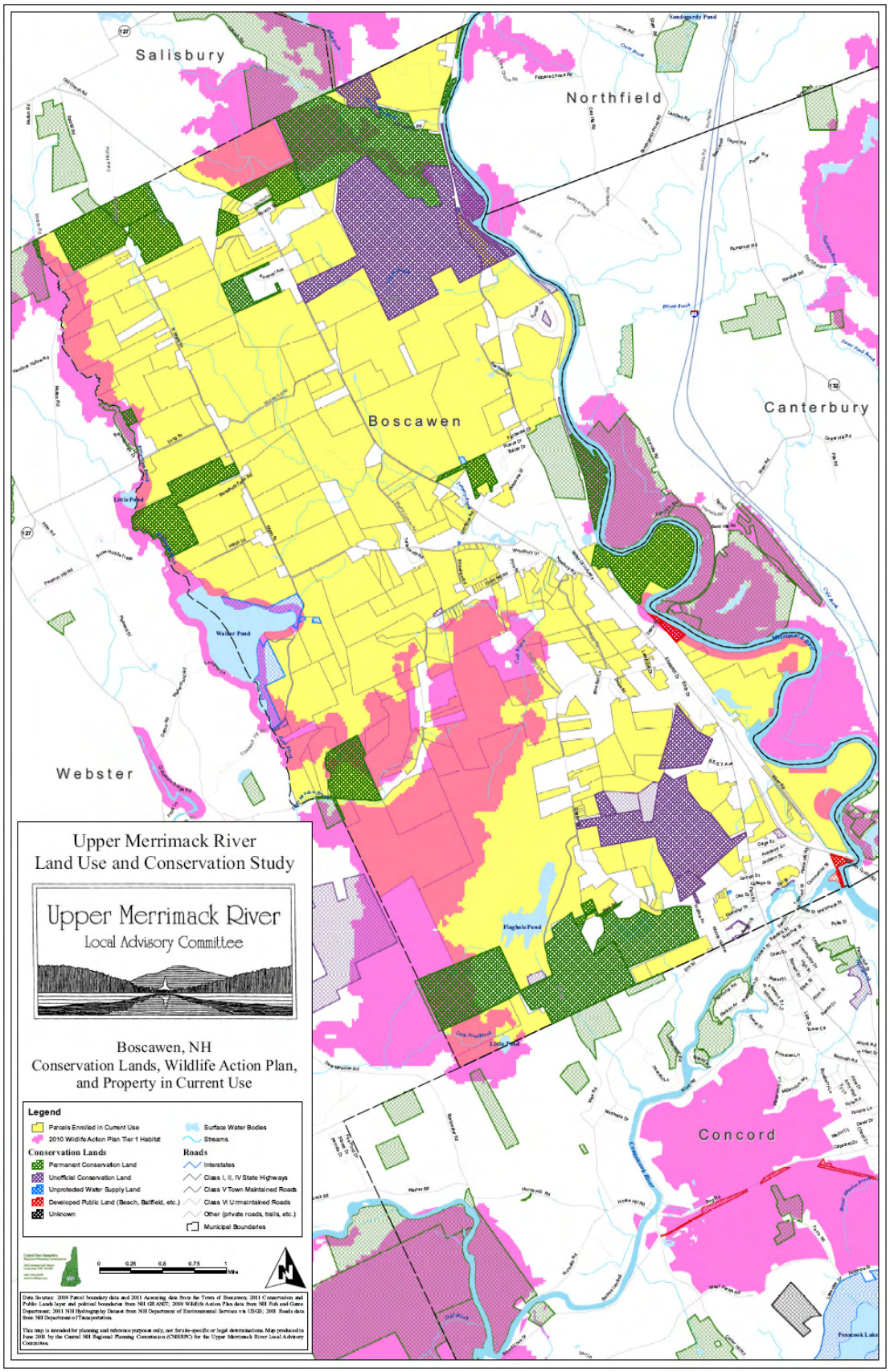
Table 4. Wildlife Action Plan, Conservation, and Current Use Summary

	Franklin		Northfield		Canterbury		Boscawen		Concord		Bow		UMRLAC	
	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%	Acres	%
Total WAP Tier 1 Acres	**3,012**	**100**	**2,845**	**100**	**11,598**	**100**	**3,413**	**100**	**13,012**	**100**	**1,299**	**100**	**35,178**	**100**
WAP Tier 1 Acres Conserved or in Current Use	1,955	64.9	N/A	N/A	10,345	89.2	2,407	70.5	9,234	71	512	39.4	**24,453**	**75.6***
WAP Tier 1 Acres in Current Use	1,354	44.9	N/A	N/A	8,986	77.5	2,041	59.8	6,299	48.4	342	26.3	**19,021**	**58.8***
WAP Tier 1 Acres Conserved	703	23.3	38	1.3	2,072	17.9	447	13.1	4,229	32.5	176	13.5	**7,664**	**21.8**
WAP Tier 1 Acres NOT Conserved	2,309	76.7	2,807	98.7	9,526	82.1	2,966	86.9	8,784	67.5	1,123	86.5	**27,515**	**78.2**

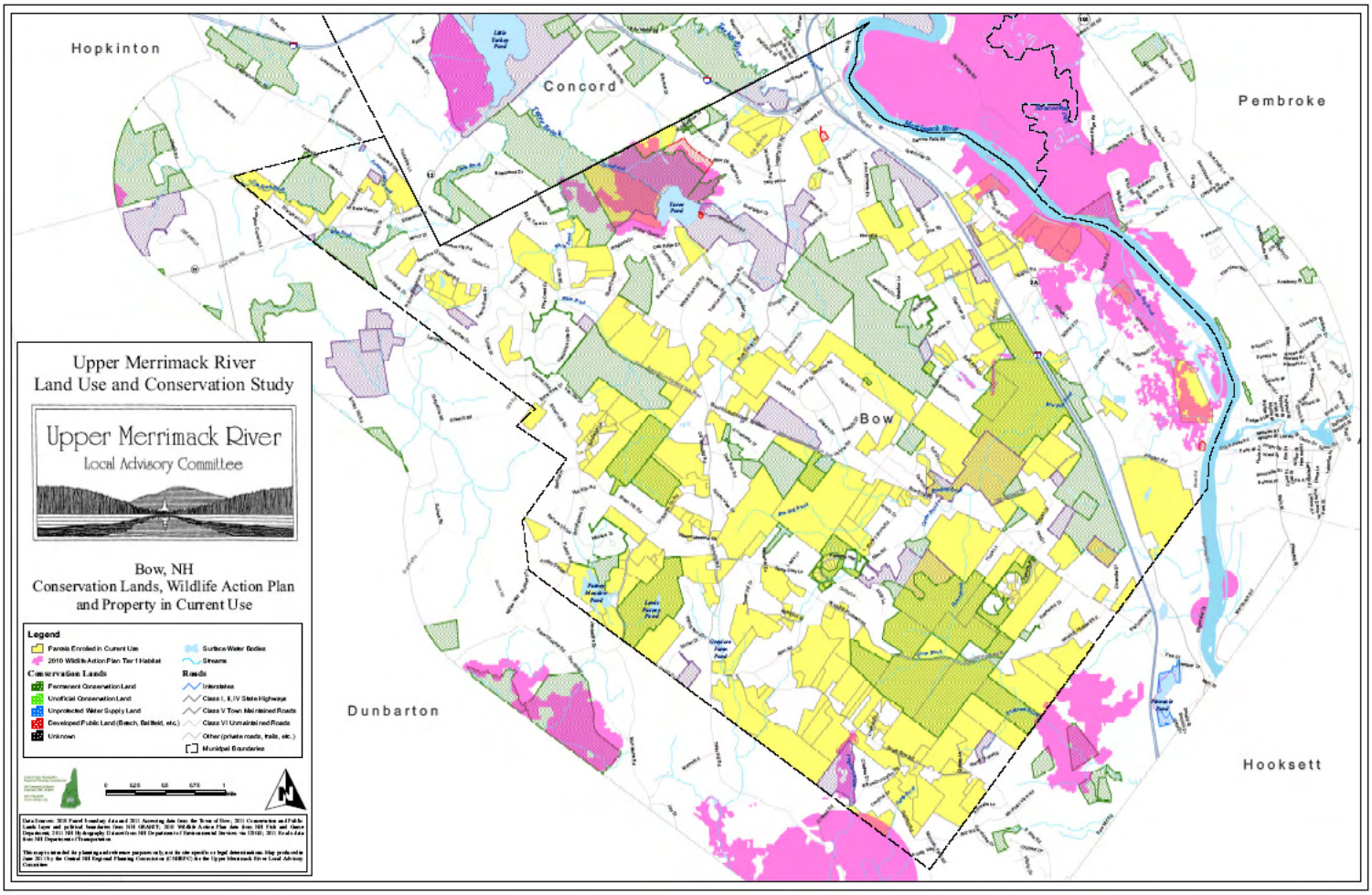
Source: 2010 Wildlife Action Plan GIS data; NH GRANIT GIS data, and municipal assessing data. Note: Lands in Conservation includes all GRANIT conservation lands. This encompasses varying levels of protection, not all of which are official or permanent. *Does not include the Town of Northfield.

[3] For more information on the NH Wildlife Action Plan habitat rankings, see http://www.wildlife.state.nh.us/Wildlife/Wildlife_Plan/highest_ranking_habitat.htm.

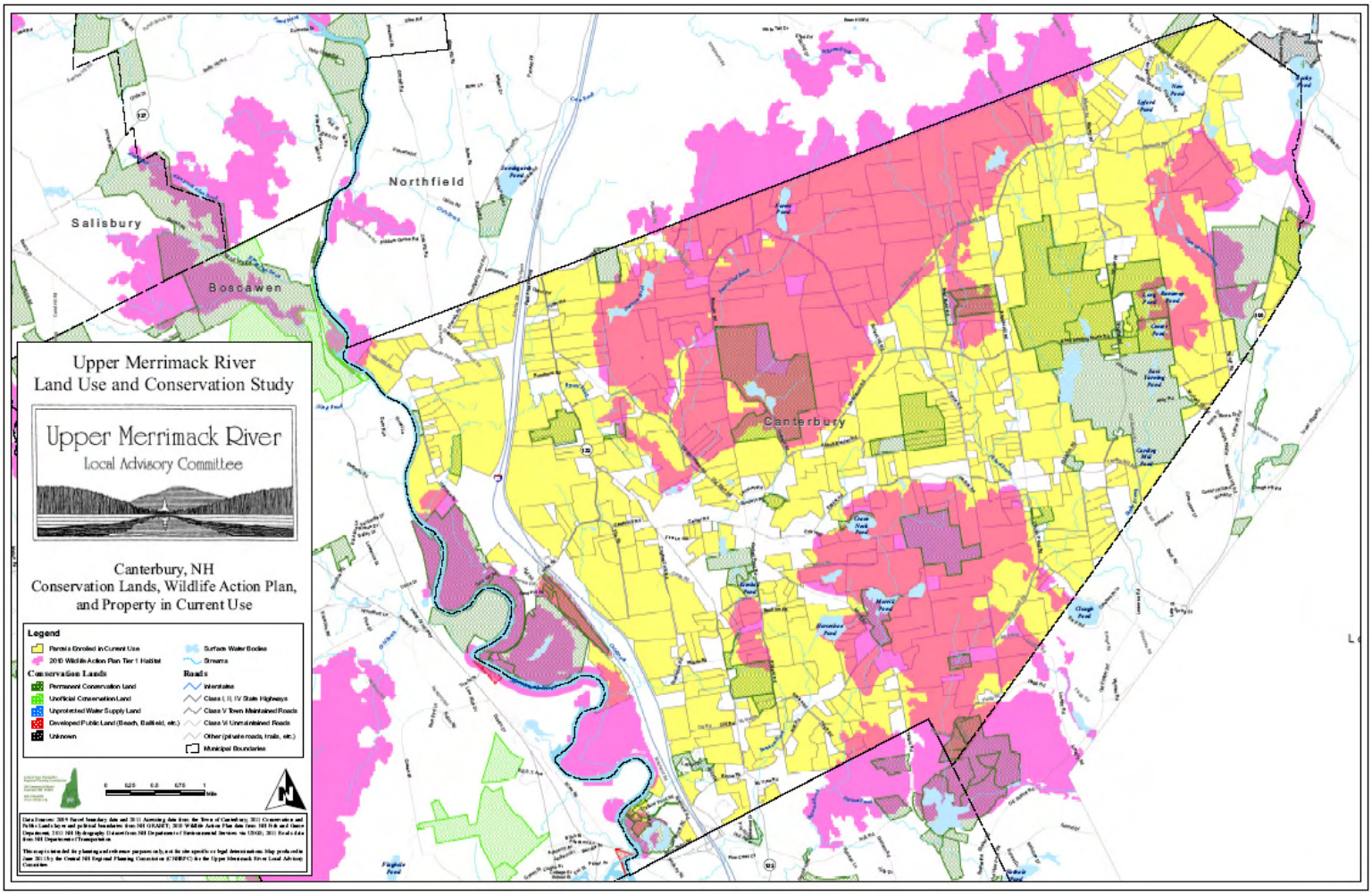
Map 1. Boscawen Conservation, Current Use, and Wildlife Action Plan



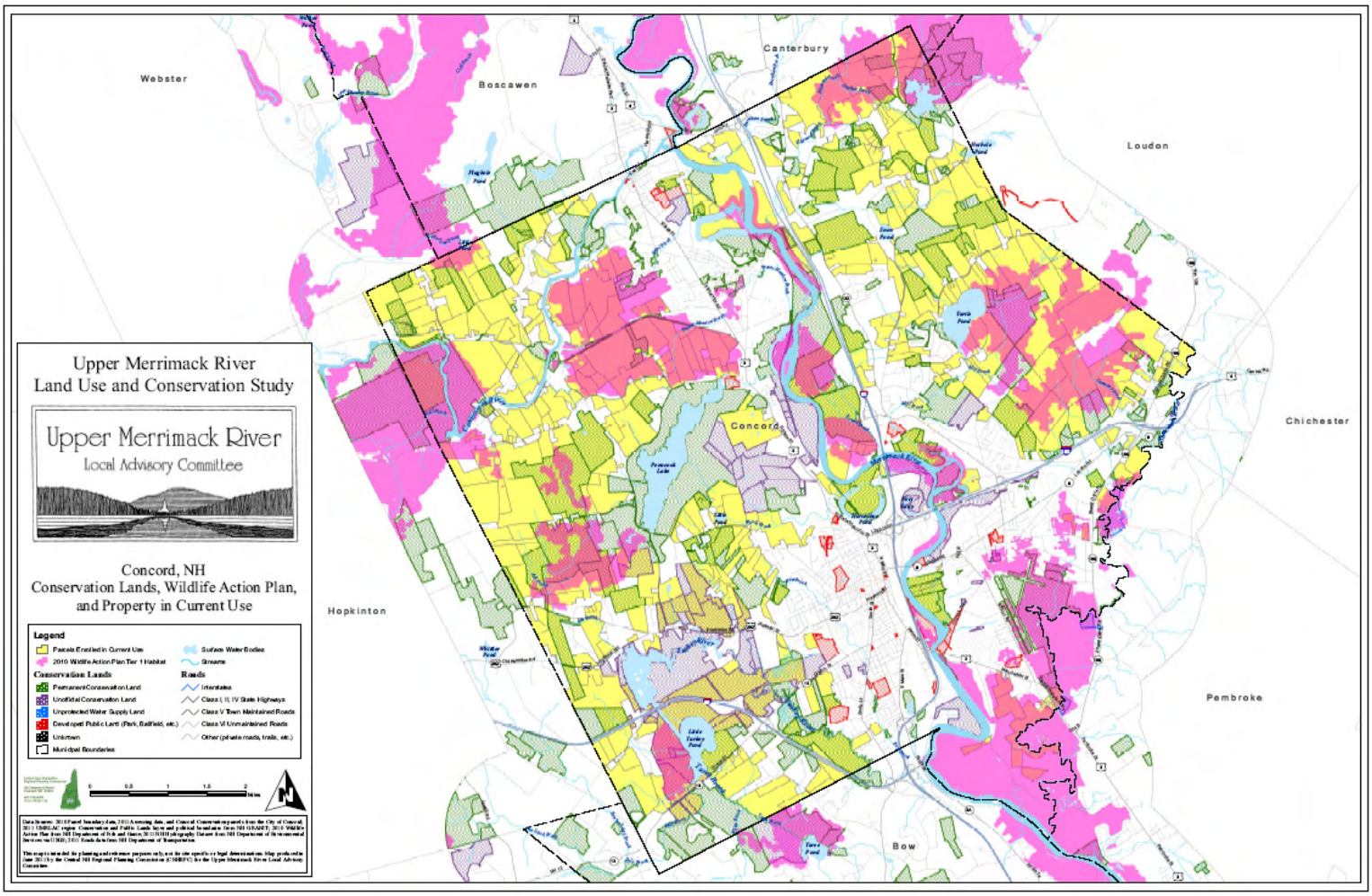
Map 2. Bow Conservation Lands, Current Use, and Wildlife Action Plan



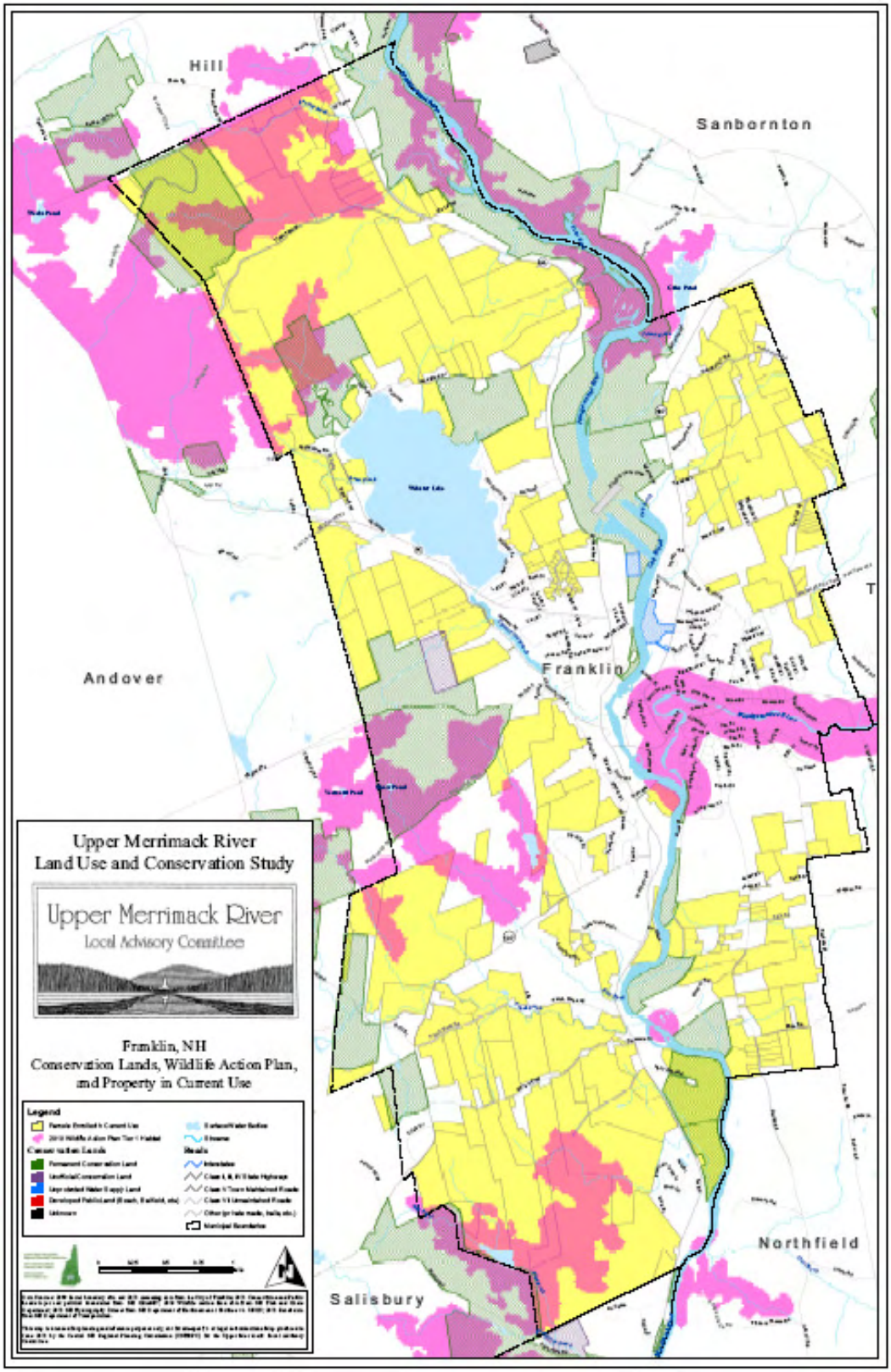
Map 3. Canterbury Conservation Lands, Current Use, and Wildlife Action Plan



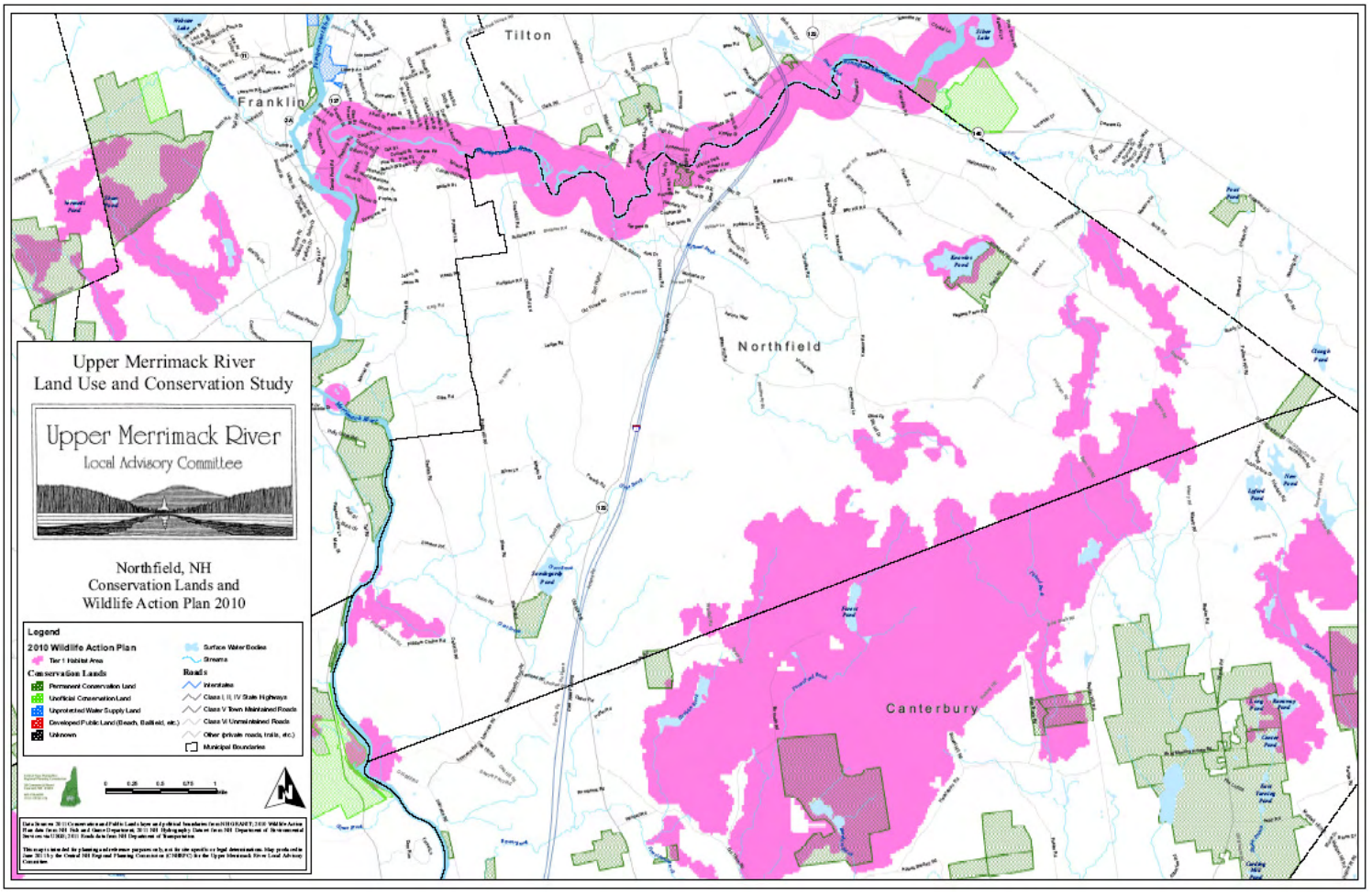
Map 4. Concord Conservation Lands, Current Use, and Wildlife Action Plan



Map 5. Franklin Conservation Lands, Current Use, and Wildlife Action Plan



Map 6. Northfield Conservation Lands and Wildlife Action Plan



(No GIS Parcel/Current Use data available)

Regional Development Trends

Land use patterns and trends over time have a direct impact on the health of our rivers. As more land is developed and natural land cover is converted to impervious surfaces, more stormwater runoff carries pollutants and sediments into rivers and lakes. The Upper Merrimack River Management and Implementation Plan developed by UMRLAC calls for land uses that more fully support the River's designated uses and ecological functions. This study compiled information on recent population changes, housing and commercial development, and permit activity to assess regional development trends.

Population Change

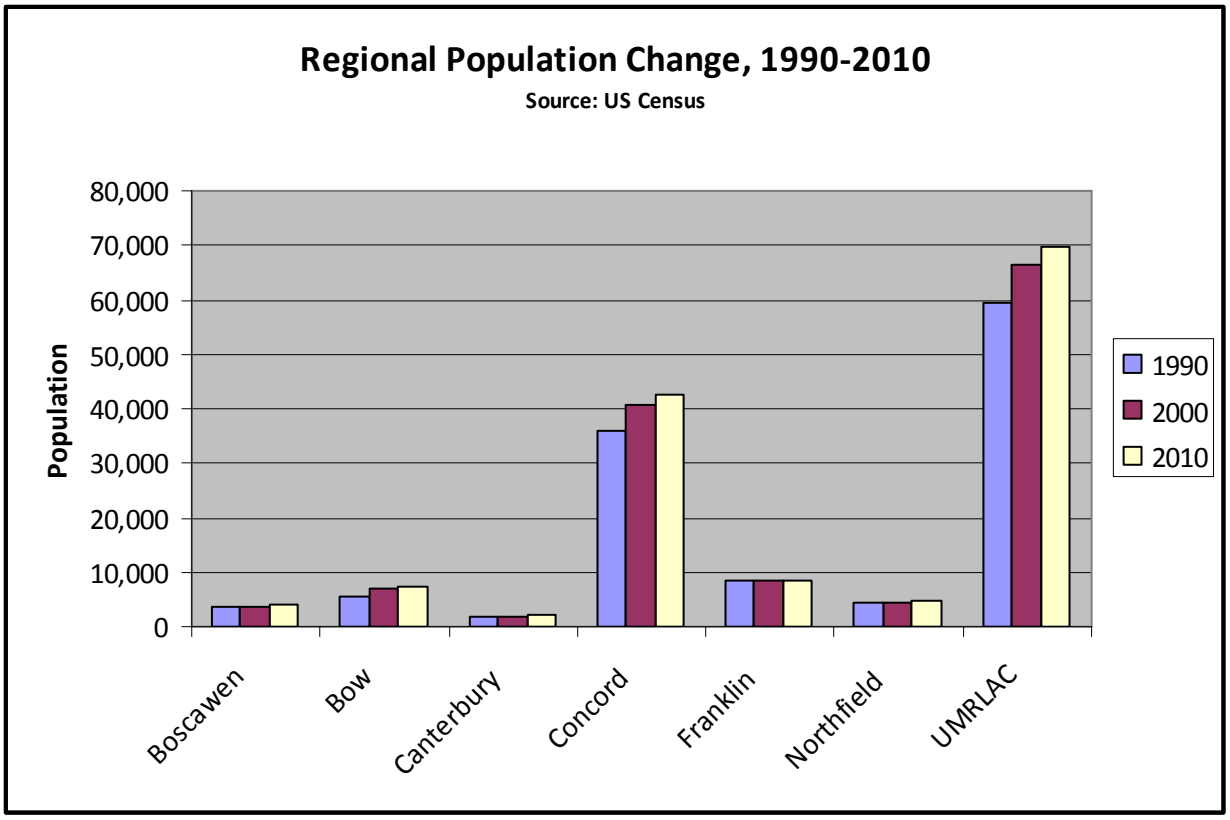
Between 2000 and 2010, the six communities in the Upper Merrimack region grew by 5.1%. This was slightly below the statewide total population growth rate of 6.5%. Concord added the most inhabitants, at 2,008, during the period, while Franklin only increased by 72 residents. Canterbury's population grew by the fastest rate, at 18.8%, from 1,979 to 2,352 residents. Growth in the 2000s was much slower than in the previous decade, when communities in the Upper Merrimack region grew by 11.9%. **Table 5** and **Figure 1** display recent population changes.

Table 5. Regional Population Change, 2000-2010

	1990	2000	2010	'00-10 Change (#)	'00-10 Change (%)
Franklin	8,304	8,405	8,477	72	0.9
Northfield	4,263	4,548	4,829	281	6.2
Canterbury	1,687	1,979	2,352	373	18.8
Boscawen	3,586	3,672	3,965	293	8
Concord	36,006	40,687	42,695	2,008	4.9
Bow	5,500	7,138	7,519	381	5.3
UMRLAC	**59,346**	**66,429**	**69,837**	**3,408**	**5.1**
New Hampshire	**1,109,252**	**1,235,786**	**1,316,470**	**80,684**	**6.5**

Source: 1990, 2000, and 2010 US Census.

Figure 1. Regional Population Change, 1990-2010



Recent Building Activity

The number of building permits issued annually in a community or region can provide a general indication of development pressure. Data gathered from municipalities, summarized in **Table 6** and **Figure 2,** shows a peak in building permit activity in the early and mid-2000s, followed by a clear decline through 2011. 2003 saw the greatest number of permits issued across the Upper Merrimack region. Throughout the period, single family homes accounted for the most permits. Commercial permits followed, although commercial building permit data was not available for all communities in all years and included some repair, renovation, and rebuilding activity. Multi-family units were the third most prevalent permit type, followed by a relatively small number of mobile home units. Between 2000 and 2011, a total of 2,928 residential building permits were issued in the Upper Merrimack Region, and 1,467 commercial permits were reported. Data for individual communities is displayed in **Tables 7-12.**

Table 6. Recent Building Permit Activity

UMRLAC Region Building Permits, 2000-2011													
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Change**
Single Family	205	235	300	249	276	198	139	105	52	33	40	31	**1,863**
Multi-family	44	7	120	252	61	97	92	122	87	11	87	0	**980**
Mobile Home	8	7	8	8	17	9	9	1	11	3	2	2	**85**
Total	257	249	428	509	354	304	240	228	150	47	129	33	**2,928**
Commercial*	149	113	108	111	144	138	122	142	136	94	99	111	1,467

** Commercial data not available for all communities. Commercial permits may include repairs, renovation, or rebuilds.*

Source: Municipal offices and Town Reports.

Figure 2. Recent Building Permit Activity

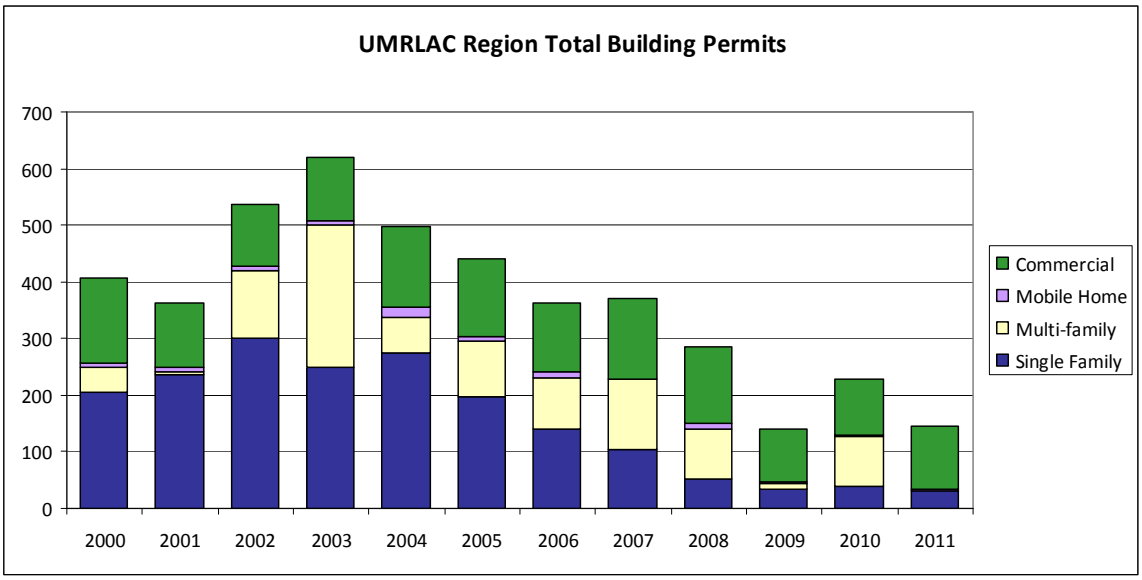


Table 7. Boscawen Building Permit Activity

Boscawen Building Permits													
Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**Change**
Single Family	13	16	10	8	18	21	22	9	4	3	3	2	**129**
Multi-family	0	0	6	4	0	3	0	0	0	0	0	0	**13**
Mobile Home	0	0	1	0	8	6	2	1	7	0	0	0	**25**
Total	**13**	**16**	**17**	**12**	**26**	**30**	**24**	**10**	**11**	**3**	**3**	**2**	**167**
Commercial*	0	1	1	0	1	5	1	2	7	4	4	4	**30**

**Commercial building permits all for replacement or renovation. No new commercial construction.*

Table 8. Bow Building Permit Activity

Bow Building Permits													
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Change
Single Family	34	30	57	29	24	25	16	13	14	0	11	8	**261**
Multi-family	0	1	73	87	8	16	0	14	0	0	20	0	**219**
Mobile Home	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**34**	**31**	**130**	**116**	**32**	**41**	**16**	**27**	**14**	**0**	**31**	**8**	**480**
Commercial*	NA	NA	NA	NA	NA	NA	8	6	3	2	9	NA	**28**

**Source: Town Reports. May include commercial new construction, additions, or renovations.*

Table 9. Canterbury Building Permit Activity

Canterbury Building Permits													
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Change
Single Family	20	15	27	32	24	14	12	13	5	4	4	4	**174**
Multi-family	0	0	0	2	0	0	2	0	0	1	0	0	**5**
Mobile Home	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**20**	**15**	**27**	**34**	**24**	**14**	**14**	**13**	**5**	**5**	**4**	**4**	**179**
Commercial	NA	NA	NA	NA	4	1	1	0	3	2	0	0	**11**

Table 10. Concord Building Permit Activity

Concord Building Permits													
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Change
Single Family	99	111	155	100	131	76	58	52	16	20	20	12	**850**
Multi-family	44	5	39	161	49	38	89	109	85	9	67	0	**695**
Mobile Home	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Total	**143**	**116**	**194**	**261**	**180**	**114**	**147**	**161**	**101**	**29**	**87**	**12**	**1,545**
Commercial	148	110	103	105	135	122	110	133	115	84	98	104	**1,367**

Table 11. Franklin Building Permit Activity

Franklin Building Permits													
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Change
Single Family	11	28	24	42	49	36	23	12	11	4	2	3	**245**
Multi-family	0	0	2	-5	2	4	1	-1	0	1	0	0	**4**
Mobile Home	8	0	5	7	9	3	7	0	3	2	2	2	**48**
Total	**19**	**28**	**31**	**44**	**60**	**43**	**31**	**11**	**14**	**7**	**4**	**5**	**297**
Commercial	0	0	1	3	1	8	0	0	2	0	1	2	**18**

Table 12. Northfield Building Permit Activity

Northfield Building Permits													
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Change
Single Family	28	35	27	38	30	26	8	6	2	2	0	2	**204**
Multi-family	0	1	0	3	2	36	0	0	2	0	0	0	**44**
Mobile Home	0	7	2	1	0	0	0	0	1	1	0	0	**12**
Total	28	43	29	42	32	62	8	6	5	3	0	2	**260**
Commercial	1	2	3	3	3	2	2	1	6	2	1	1	27

** Commercial data not available for all communities. Commercial permits may include repairs, renovation, or rebuilds.*

NHDES Permit Activity

State environmental permits represent another measure of how much landscape change is occurring in the Upper Merrimack Region. The New Hampshire Department of Environmental Services (NHDES) issues permits for a number of activities, including those associated with their Wetlands, Alteration of Terrain, and Shoreland programs. Wetlands permits are issued any time a project over a certain size proposes to disturb an identified wetland, such as by dredging and filling, or the construction of stream crossings. Alteration of Terrain permits must be obtained when a project disturbs an area due to earth moving and excavation. Activities are reviewed for impacts on soil erosion and stormwater management. Shoreland permits are required under the Shoreland Water Quality Protection Act (SWQPA), and concern the subdivision and development of properties located along the state's surface water bodies.

Figure 3 summarizes NHDES permits issued throughout the Upper Merrimack region between 2000 and 2011. **Tables 13-16** show permits issued by type and community. Interestingly, while the pattern of building permit activity followed a clear trajectory in keeping with the general economic climate, as discussed above, the issuance of NHDES permits over the past twelve years did not mirror that pattern. In fact, 2003, which saw the greatest number of building permits issued, had relatively few environmental permits (29 total). It should be noted that Shoreland permits only began to be issued in 2008.

Figure 3. Summary of NHDES Permit Activity, 2000-2011

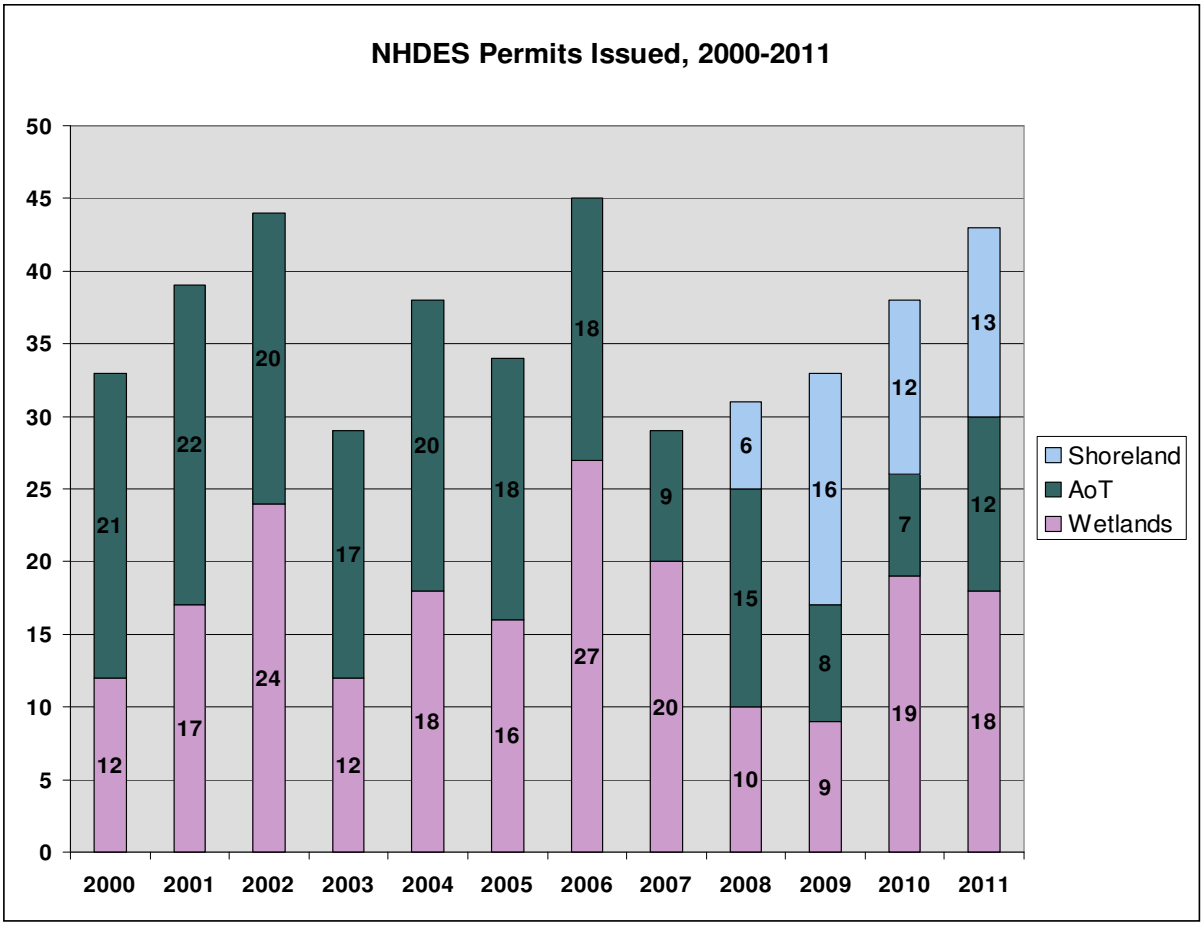


Table 13. Wetlands Permits Issued, 2000-2011

NHDES Wetlands Permits Approved, 2000-2011
UMRLAC Region

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	TOTALS
Boscawen	1	2	1	2	0	2	1	5	0	1	0	0	**15**
Bow	2	6	6	4	2	5	6	4	3	0	9	1	**48**
Canterbury	1	3	2	1	5	1	1	3	3	0	2	0	**22**
Concord	6	4	12	4	6	7	10	4	2	5	7	6	**73**
Franklin	2	2	1	1	3	1	3	4	0	0	0	1	**18**
Northfield	0	0	2	0	2	0	6	0	2	3	1	10	**26**
UMRLAC	**12**	**17**	**24**	**12**	**18**	**16**	**27**	**20**	**10**	**9**	**19**	**18**	**202**

Data Source: NH Department of Environmental Services One Stop Data and Information Database

Table 14. Alteration of Terrain Permits Issued, 2000-2011

NHDES Alteration of Terrain Permits Approved, 2000-2011
UMRLAC Region

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	TOTALS
Boscawen	0	1	1	1	3	2	2	0	0	1	0	0	**11**
Bow	6	7	3	4	2	3	5	2	3	3	0	0	**38**
Canterbury	1	1	0	2	1	0	2	0	1	0	0	0	**8**
Concord	13	10	16	8	13	11	5	7	6	2	7	10	**108**
Franklin	1	0	0	1	1	2	2	0	3	0	0	1	**11**
Northfield	0	3	0	1	0	0	2	0	2	2	0	1	**11**
UMRLAC	**21**	**22**	**20**	**17**	**20**	**18**	**18**	**9**	**15**	**8**	**7**	**12**	**187**

Data Source: NH Department of Environmental Services One Stop Data and Information Database

Table 15. Shoreland Permits Issued, 2008-

NHDES Shoreland Protection Permits Approved, 2008-2011
UMRLAC Region

	2008	2009	2010	2011	TOTALS
Boscawen	0	0	1	0	**1**
Bow	0	0	1	1	**2**
Canterbury	1	2	0	4	**7**
Concord	3	6	5	5	**19**
Franklin	2	7	5	3	**17**
Northfield	0	1	0	0	**1**
UMRLAC	**6**	**16**	**12**	**13**	**47**

Data Source: NH Department of Environmental Services One Stop Data and Information Database

Questionnaire Results

In December 2011, the UMRLAC distributed a questionnaire to area planning boards and conservation commissions to assess planning perspectives and resource information needs. The questionnaire asked about innovative land use controls in place, priority given to the Merrimack River and its watershed in decision making, top planning concerns, and additional information requests. Five of the six communities responded to the survey.

Out of the five responding communities, Bow and Concord have the greatest number of innovative land use planning controls already in place, with at least ten each. Northfield has seven types of land use controls in place, while Boscawen and Franklin listed four each. The most common controls in place include conservation subdivisions, wetlands protection, aquifer protection, excavation regulations, floodplain ordinances, and deduction of land with development constraints from buildable acreage calculations. None of the responding communities has low impact development standards in place, agricultural incentive zoning, or setbacks on agricultural fertilizer application more stringent than RSA 483.

Interestingly, there were a few discrepancies in reporting land use controls between conservation commissions and planning boards. This indicates a need for greater communication between the bodies, to ensure that all members clearly understand what is in place and what is not.

Conservation commissions and planning boards also responded differently on how highly they prioritize the Upper Merrimack River in their decision-making process. Conservation commissions reported a higher priority given overall than planning boards.

The protection of drinking water sources is a top planning concern for four of the five responding communities, shared by both conservation commissions and planning boards. Other top concerns include protection of habitat and movement corridors, and protection of recreational access and use of water resources along the Merrimack.

Additional concerns are prevention of stormwater runoff and nonpoint source pollution, regulation of hazardous materials and solid waste, and protection of working and agricultural landscapes.

The responding boards were least concerned with minimizing development generally,

protecting vernal pools, and streamlining permitting processes for environmentally conscious development.

The most frequently reported types of information desired by respondents included low impact development standards, updates on the Surface Water Quality Protection Act, and funding sources for land conservation. Some conservation commissions were also interested in co-occurrence and Natural Resource Inventory maps and information on easements. Single requests were made for conservation subdivision ordinance language, timber harvesting and agricultural BMPs.

A separate question was posed inquiring about how highly the Merrimack River was prioritized in local master plans. This was intended to be compared with responses to the earlier prioritization question to see how congruent planning and conservation decisions are with the stated or interpreted intent of the master plan. Nearly all respondents identified the same priority level in both their master plan and current decision-making.

In many communities, it may appear that the Planning Board and Conservation Commission are pursuing very different goals. The perception is that "development" is at odds with "conservation," when in fact, this may not be the case at all when looking at *specific* conservation objectives. For instance, the questionnaire responses suggest that "protecting the river" is a higher priority for conservation commissions than for planning boards, but when looking at *specific* acts of protection both boards are more in line. "Drinking water protection" or "flooding," for instance, may be specific issues that are priorities for both boards. The word "conservation" means different things to different people, and, without specifics, those perceptions shape responses and attitudes. Questionnaire responses indicate that: 1) both boards see certain *specific* acts of conservation as important to the objectives of both groups; and, 2) while conservation-minded groups may speak of a broader goal of "conservation," they may find it more productive to interact with other groups from the standpoint of a *specific* conservation goal. Conversely, planning boards may want to delve into specific issues and conservation targets with conservation commissions, to get at shared priorities. It thus becomes a communication issue and not necessarily a difference in policy.

Conclusions and Next Steps

The health of the Upper Merrimack River depends on the extent and quality of development throughout the watershed. Major impacts on water quality and quantity can result from sediment and non-point source pollution from stormwater runoff, as well as the presence or absence of riparian buffer areas, extent of impervious surface

coverage, and the handling of waste of all kinds with respect to waterways. Communities can support water quality and protection of the River's designated uses through implementation of innovative land use controls. This report summarizes existing conservation patterns, current use enrollment, recent development trends, and resource information needs of municipal boards.

Region-wide, approximately 14.5% of land is in some form of conservation[4] and 51% of land is enrolled in current use. Combined, 61% of land is conserved and/or in current use. However, 90% of land enrolled in current use is not permanently protected. This is not unexpected: the purpose of the current use program is to provide a tax incentive for landowners to hold onto their property without feeling financial pressure to subdivide or develop it. It is not intended as a perpetual conservation mechanism. However, it can be considered an important tool for open space protection in the medium term.

The Upper Merrimack region contains over 35,000 acres of top-ranked Tier 1 habitat as indentified in the 2010 New Hampshire Wildlife Action Plan (WAP), representing approximately one-quarter of the region's total area. Only 22% of WAP Tier 1 acres are conserved, and 59% are enrolled in current use. More than three-quarters of top-ranked habitat acres are not protected.

According to the Society for the Protection of NH Forests, each single family home results in the total conversion of 1.4 acres of land from natural cover. According to SPNHF's projections, another 225,000 acres of forests may be converted by 2030 statewide. Single family homes represent nearly two-thirds (64%) of the residential building permits issued in the Upper Merrimack region between 2000 and 2011.

A recent US Forest Service report[5] ranks the greater Merrimack River watershed *number one in the country* for total acreage in private forest projected to experience the most change due to increased housing density by 2030, and number four nationally expected to experience the most change in water quality as a result of such development.

At the moment, however, the region is in a lull of building activity. Since 2000, building permit activity peaked in 2003 and has decreased sharply over the past five years. Still, while the population of the UMRLAC region grew by 5% between 2000 and 2010, the total number of housing units increased by 12%. This disproportionate rise in housing (predominantly single family homes) compared to population growth suggests shrinking

[4] "Permanent conservation lands" as defined by GRANIT include areas managed for long term protection from development, but not all have deed restrictions or permanent conservation easements. Therefore, not all "permanently conserved" lands should be absolutely or permanently protected.

[5] Stein, S., et. al. Private Forests, Public Benefits: Increased Housing Density and Other Pressures on Private Forest Contributions. Portland, OR: US Department of Agriculture, 2009. Available at http://www.fs.fed.us/openspace/fote/benefits.html.

household sizes and can be a potential indicator of sprawl development. Meanwhile, the landscape continues to be altered under various NHDES permits. Since 2000, the number of permits issued peaked in 2002, but has not tracked consistently with building permits. Roughly equal numbers of permits are issued each year for Wetlands, Alteration of Terrain, and Shoreland projects.

A survey of planning boards and conservation commissions indicates that many communities in the region have already implemented a number of innovative land use controls that help to support the river's designated uses. Local boards are most concerned with protecting drinking water quality, but also share concerns about habitat corridors, recreational access to the Merrimack, and use of water resources. When asked about resource information needs, the most oft-cited needs were stormwater management standards, information on changes to the Shoreland Water Quality Protection Act, and funding sources for conservation.

The Upper Merrimack River Local Advisory Committee stands ready to support local planning and conservation bodies in their efforts to better protect the Upper Merrimack River watershed. A summary of resources, tailored to fit the needs of each community, will be distributed throughout the region in 2012. By providing the tools and information requested, it is hoped that communities will take further steps to adopt innovative land use controls. With strong local control, the valuable shared resources associated with the Merrimack River can be protected for all residents and users, both present and future.