

WESTMORE TOWN PLAN
Proposed Plan Amendment
Originally adopted 4/8/2013

Selectboard hearing date on proposed amendment:

July 9, 2018

5:30 p.m.

Westmore Municipal Building

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1. PURPOSE OF THE TOWN PLAN

This plan will be effective only to the degree the community wishes to work together to make it so. Westmore is a very unique and special place. This belief gives rise to a sense of identity, affection, loyalty, and shared commitment to the town's welfare. These feelings are among Westmore's greatest resources and important assets.

The plan serves several functions. It helps define the community by laying out the general vision or direction for future development in the town. It identifies local needs and desires which are then written into an "implementation plan" which guides the actions and priorities of public officials. It clearly defines the Town's position on certain issues which leads to increased standing in Act 250 hearings and offers suggestions for improving local land use regulations. The plan also plays a role in Public Utility Commission (PUC) (Section 248) hearings. Before issuing a Certificate of Public Good, for most projects, the PUC must find that the "purchase, investment, or construction, with respect to an in-state facility, will not unduly interfere with the orderly development of the region with due consideration having been given to the recommendations of the municipal and regional planning commissions, the recommendations of the municipal legislative bodies, and the land conservation measures contained in the plan of any affected municipality." (30 V.S.A., §248(b)(1) Finally, an approved town plan is necessary for certain grant applications, including Municipal Planning Grants, and Community Development Block Grants. The plan itself has no regulatory power but it establishes a legal basis for adopting and enforcing zoning bylaws and flood hazard regulations, and it can help influence future decisions by setting a framework for the discussion, identifying issues and recommending actions.

The desire of the Planning Commission (PC) is to pull together the information we have received throughout the planning process into a document that reflects the vision and goals of the people who live in Westmore. Adoption of a plan represents a community decision about the town's future character, its priorities for land use, conservation of physical resources, and the encouragement of well-considered, responsible development. Westmore does not exist in isolation from the region and will be affected by what happens in other municipalities.

The residents of Westmore are custodians of a town with unquestioned natural beauty and significant resources which require diligent attention. Through adoption and implementation of the Plan, the Town and its residents are exercising their best stewardship for those resources which nature, history, and geography have so abundantly endowed.

2. OVERALL VISION

The unique and special character of Westmore is derived from a combination of two principal factors: the historic, rural, seasonal character of the community and the infinite magnificence of Westmore's Willoughby Lake along with its other pond, mountain and farm settings. The Town's existing rural and seasonal character is partially an outgrowth of its agrarian and tourist/recreational past and is apparent today in its seasonally dynamic but tranquil community. The diversity of scenery, geographic location, natural beauty, natural resources and people of the

1 Town of Westmore create an essence of the town. These qualities can be found, and maintained,
2 only in a community that continues to cultivate a close association with the land, and to nourish
3 an appreciation and respect for both the productivity and physical limitations on the natural
4 environment.

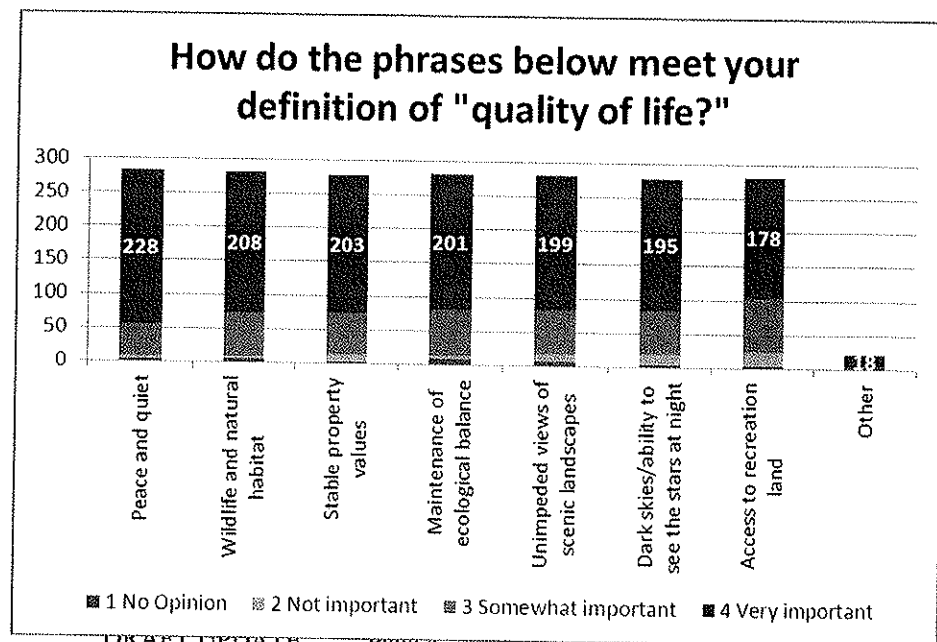
5
6 We recognize that although there may be general agreement on the need to maintain the natural
7 and cultural quality of life in Westmore, people have different ideas on how to accomplish this.
8 Therefore, the Town should provide information to landowners of the various options available
9 to them and let them decide. In general, the Town should encourage actions through knowledge
10 and the landowner's desire to enhance her/his position and quality of life. Land use regulations
11 should be kept to a minimum and be enacted only on those areas critically important to
12 maintaining the quality of life in Westmore and to protect the public health, safety, and welfare.
13

14 The community should strive to reach a sustainable balance in using our natural resources. With
15 the underlying goals of maintaining water quality, scenic resources, and critical habitat, the
16 town's natural resources should be used to support the local economy in forestry, farming and
17 tourism. Westmore's economy should focus on local self-sufficiency and creating jobs from
18 within the community. Industries that produce "value added" products from local natural and
19 cultural resources should be encouraged. It is through greater self-reliance that our economy and
20 future will be self-sustaining.

21
22 Westmore's rich array of natural resources has long been considered an integral part of the
23 community's cultural heritage, and this has been reflected in the town plan. Unless updated and
24 readopted, the town plan expires every eight years, creating an opportunity to reassess long-held
25 beliefs and identify new and emerging concerns. In the summer of 2012, the Westmore Planning
26 Commission conducted a community survey to reassess views on natural resources and gain
27 insights into how the town plan may better reflect community values. The survey asked
28 respondents to rank the significance of natural areas and means to protect them. The survey also
29 sought feedback on a variety of strategies for protecting the town's scenic resources and for
30 defining quality of life in Westmore. The Planning Commission received nearly 300 responses,
31 representing a 44% return
32 rate.

33 Rural Ambiance

34
35 Not surprisingly, survey
36 respondents cherished the
37 rural ambiance of the
38 community. "Peace and
39 quiet" was the most
40 defining attribute of
41 quality of life, yet all
42 other factors ranked high
43 as well. One of the
44 important features of
45 living on a rural lake is
46



1 the opportunity to be able to enjoy the moon from a canoe, to look out from your dock and see
2 the stars and night sky, to feel like you live in a quiet remote area. As more people have built
3 homes, walkways and docks, the amount of outside lighting has increased. There are more street
4 lights, walkways are lit-up, and flood lights illuminate the night woods. The traditional lights
5 flickering in the warm windows have been changed by bright deck lights and lighted stairways.
6 The qualities of a rural lake have been diminished. The rural ambiance has been decreased. And
7 as more people move to the area, the problem may get worse. The lake residents should be
8 aware that the lights on their stairway illuminate more than just the stairs themselves.
9

10 Our community's rural character, is seen by many to be in peril. A number of respondents had
11 much to say regarding impacts from existing wind developments in nearby towns of Sheffield
12 and Lowell, both of which can be seen heading west from Hinton Hill toward Willoughby Lake,
13 and both of which add flashing red lights to Westmore's otherwise dark night skyline. Other
14 threats to Willoughby's rural ambiance include runoff and loss of active farming and its
15 associated working landscape.
16

17 Willoughby as a National Natural Landmark

18
19 The Willoughby Lake area was designated as a National Natural Landmark (NNL) in 1967, just
20 five years after the NNL program was created. This designation is permanent and should factor
21 prominently into any local, state, or federal land use policies.

22 To be designated, NNL sites must demonstrate the best remaining examples of specific
23 biological and/or geological features. Today there are fewer than 600 sites that have earned this
24 designation through the U.S. and U.S. territories, and there are only 12 sites in Vermont. Here is
25 how the Willoughby Lake Area is described in the National Natural Landmarks Directory
26 (2009).
27

28 *"Lake Willoughby, a deep, cold-water lake within Lake Willoughby Natural Area*
29 *lies in a u-shaped trough cut into granite by glacial scouring. Mountains and*
30 *1,500-foot cliffs rise abruptly from the lake's east and west shores. It is the*
31 *deepest lake in Vermont and one of the most significant and scenic examples of*
32 *glacial erosion in the northeast."*
33

34 The NNL program regulations require the National Park Service to monitor the condition of each
35 designation site in order to ensure that they still contain the values and conditions that qualified
36 them for designation in the first place. A guiding principle for monitoring is to ensure that the
37 resource remains unimpaired or in a natural condition, and that the site's "natural integrity has
38 not been diminished." (<http://www.nature.nps.gov>) The designation also impacts any
39 development that requires federal permits (such as National Environmental Protection Act).
40 Finally, although the designation is permanent, it may be removed if the resources for which the
41 site was designated are lost or destroyed.
42

43 NNL designation can include public and/or private lands, and the designation is not tied to any
44 administrative boundary. Although the Willoughby designation area is identified as "state-
45 owned" land, it is impossible to evaluate the significance of the Willoughby Lake and Cliffs area
46 without considering its dramatic backdrop of forested high elevation areas that rise from every

1 point on the horizon surrounding it. The lake area and the village are at the bottom of a unique
2 topographical bowl configuration that creates a spectacular 360-degree viewshed.
3

4 While scenic natural beauty is a hallmark of life in the Northeast Kingdom, Westmore's iconic
5 viewshed of Willoughby defines the community both culturally and economically. Westmore's
6 identity is tied to a landscape that has served as inspiration for artists and writers and has made
7 the community a destination for more than a century. The lake area draws visitors worldwide,
8 who spend on recreation, dining, and entertainment establishments all over the Northeast
9 Kingdom. While the NNL designation can and should be taken into account for all federal
10 permitting process, it should be a critical factor in local land use decisions as well, including Act
11 250 and Section 248. Given the significance of this designation, the Westmore Town Plan asserts
12 that any development of 100 feet or higher that can be viewed from any point in the NNL
13 designation area be considered a development of substantial regional impact.
14
15
16

17 3. POLICY STATEMENTS

- 19 1. Land use regulations should be kept to a minimum and be enacted only on those areas
20 critically important to maintaining the quality of life in Westmore and to protect the
21 public health, safety and welfare of the community. (throughout plan)
- 22 2. Protecting water quality, scenic landscapes and views, wildlife habitat, forested areas,
23 and ridgelines is a high priority. (-Overall Vision; Water Quality; Forests; Natural
24 Areas, Wetlands and Wildlife; Scenic Features, Historic Features, Recreation, Economic
25 Development, Water Supply)
- 26 3. Retaining the quality of life, scenic attributes, diversity of wildlife, and environmental
27 harmony and beauty that are the products of responsible farming and forestry is a
28 priority. (Overall Vision; -Water Quality; Agriculture; Forests)
- 29 4. Any development 100 feet or higher that can be viewed from any point in the National
30 Natural Landmark designation area should be considered a development of substantial
31 regional impact. (Overall Vision)
- 32 5. Retain or increase the number of working family farms while encouraging acceptable
33 agriculture practices. (-Overall Vision, Agriculture)
- 34 6. Maintaining a healthy and vibrant forest and forestry industry in Westmore through long
35 term forest stewardship is important. (Overall Vision, Forests)
- 36 7. Maintaining the diversity of habitat and species that exist in Westmore is a priority. (-
37 Overall Vision; Natural Areas, Wetlands and Wildlife)
- 38 8. Maintain and enhance the important role that public lands play in Westmore. (State
39 Lands)
- 40 9. The important economic and social role recreation plays in Westmore is recognized and
41 should be enhanced. (-Overall Vision; Forests; State Lands; Recreation, Economic
42 Development)
- 43 10. Enhance the historic and cultural features in town. (Historic Features)

- 1 11. Maintaining the high quality of education for Westmore's young people and providing
2 ongoing educational opportunities for all ages is important. (Education)
- 3 12. Maintaining and enhancing a diversity of housing in Westmore is important. (-Housing)
- 4 13. Maintaining and improving the existing road network is important. (Transportation)
- 5 14. Promote a reduction in local dependence upon costly non-renewable energy resources by
6 encouraging conservation and the development of local, residential-scale renewable
7 energy resources. (Energy)
- 8 15. Businesses and services which will enhance the economic potential of our renewable
9 natural resources, recognizing that tourism and recreation resources are important to the
10 economy, are a priority. (-Overall Vision; Forests; Recreation; Economic Development)

11 12 13 **4. HISTORY**

14 Westmore was incorporated with the name of Westford on August 17, 1781 with a Land Grant
15 Charter signed by then Governor Thomas Chittenden. The town was to be six miles squared.
16

17 As with all Land Grant Charters, each proprietor had to fulfill certain conditions to retain land
18 ownership. Each family must clear, plant, and cultivate at least five acres of land, and build a
19 house of at least 18 square feet. A family must be settled on the parcel within three years after it
20 became safe to do so due to the war. All pine timber suitable for naval use was reserved for the
21 government.
22

23 The charter also recognized the overall needs of community development because lots were left
24 for the support of the worship of God (Church lot), minister's lot, school, and seminary.
25

26 On October 26, 1787 the General Assembly of Vermont acted to change the name of the town
27 from Westford to Westmore. This was due to the fact that there was another town named
28 Westford in Vermont.
29

30 On November 15, 1821 the General Assembly changed the county lines so that Westmore, which
31 had been in Essex County, ended up in Orleans County where it is today.
32

33 At the time of the War of 1812, the town was abandoned due to fears they would not be able to
34 protect themselves from possible attack from the north, and yet were too far removed from others
35 and too few in number to be able to be safe. The town was re-settled in the 1830's.
36

37 In 1838 Peter Gilman, with two others, petitioned the legislature for the right to levy a four cent
38 per acre municipal tax to complete the lake road. This was granted by the legislature and is
39 probably the first "municipal" property tax to be assessed in Westmore. It was a "single" issue
40 tax and there is no record that it was continued at this time.
41

42 The seasonal, resort character of Westmore began to develop after the Lake Road was
43 completed.
44

1 The population peak of Westmore appears to have been 480 in 1889. The present population
2 (year round) is 350. .
3

4 At one time Westmore had six one-room schools and a school census of 119 pupils; today's is
5 57. This figure is derived from the American Community Survey (ACS) 5-Year Estimates (2012-
6 2016). The ACS reports that there are 57 residents aged three and older who are enrolled in
7 school. Of this number, 12 are enrolled in college or graduate school.
8

9 5. TOWN PROFILE

10 Physical Attributes

11 The town of Westmore occupies 22,193 acres, five percent of the landmass of Orleans County.
12 Westmore has several lakes and ponds, including Willoughby Lake (1,653 acres) which lies in
13 the dramatic Willoughby Gap. The town is also home to Sentinel Rock State Park (387 acres)
14 and the 215 acres of the Bald Hill Wildlife Management Area, which also contains land in
15 Newark. The southwestern corner of the town contains 2,177 acres of the Willoughby State
16 Forest, which extends into Sutton and includes the 950-acre area composed of the cliffs of Mount
17 Pisgah and Mount Hor. This section is known as the "Willoughby Cliffs Natural Area" which is
18 part of the National Natural Landmark designation.
19

20 Population

21 Westmore has the smallest population of any town in Orleans County with 350 persons (2010
22 Census). This represents practically a 14% change from the 2000 census population of 306, in
23 comparison to a 3.6% increase in the Orleans County population and a 2.8% statewide increase
24 over the same period.
25

26
27
28 Westmore's 350 persons represent just a little over 1% of the county's population, and the
29 town's population density is lowest in Orleans County at 8.8 persons per square mile. (The vast
30 majority of Orleans County has fewer than 30 persons per square mile and the statewide average
31 is 67.9).
32

33 Age Distribution

34 Westmore's population is getting older, following the national trend of the aging of "baby-
35 boomers". The table below shows a comparison of the breakdown of the 1990, 2000 and 2010
36 populations into age groups, and also illustrates the percent change from 1990 to 2010 in each
37 age group.
38
39
40

TABLE 1 Percent Changes in Age Groups 1990 - 2010

Ages	Under age 5	5-19	20-44	45-64	65 and over
1990	10	78	108	53	56
2000	13	46	85	111	51
2010	12	43	75	139	81
Change	+20%	-45%	-31%	+162%	45%

Source: U.S. Census 1990-2010.

The above shows a 162 % increase in the 45-64 age group, a 45% increase in 65 and older. While there is a modest increase in the 0 -4 age group, there is a significant decline in the other groups, aged 5-44. This skewed age distribution may have an effect upon the type of public services and housing opportunities which will be in demand over the coming years.

In 2010 Westmore had a population of 350. Of that population 12 were under 5 years old, 257 were between 5 and 65, and 81 were over 65 years old. The median age was 53.1(up from 45.9 years in the 2000 Census) , compared to the current statewide median of 40.4 years.

Westmore’s changes in age group distribution reflect long-term trends in the county and state. In August 2013, the State of Vermont released a new set of population projections to 2030. Unlike earlier projections, these projections use TWO scenarios. “Scenario A” assumed an in-migration rate similar to what occurred from 1990 to 2000, when the economy was more robust. “Scenario B” assumes an in-migration rate in line with what occurred from 2000 to 2010, a decade plagued by lingering recession and economic turmoil. Scenario A projected a fairly robust population increase in Westmore of 12% by the year 2030, while Scenario B shows very modest gains of only 3.4% over the same period. In either scenario, population gains will likely be among age groups 60 and older. County-wide age projections show significant gains in those age groups, as well as a decrease in younger groups.¹

Household Types

According to the Census, the 2010 population of Westmore lived in 165 households, which can be broken down into the following categories:

Total households	165
Family households	105
with own children under 18 years	29
Husband-wife family	89
with own children under 18 years	17
Single householder, no spouse present, with own children under 18 year	12
Nonfamily households	60
Householder living alone	51

The total number of households in town increased by 11.8. % between 1990 and 2000, from 119 to 133 and by 24.1% between 2000 and 2010, to a total of 165. In 1990, there were 11

¹ Vermont Agency of Commerce and Community Development: Vermont Population Projects 2010-2030, August 2013.

1 households with children under 18 which were headed by a single parent; in 2010 there were 12.

2
3 **Income**

4 According to the American Community Survey (ACS) 5-Year Estimates 2012-2016 the median
5 household income in Westmore is \$41,071, which is 7% lower than the county-wide median
6 household income of \$43,959.

7
8 **Where People Work**

9 According to ACS 5-Year Estimates 2012-2016 (U. S.), 315 residents in Westmore are over the
10 age of 16. Of this population, 170 are in the labor force and are employed. Like many NEK
11 towns, Westmore is highly auto-dependent. There are 155 workers who drive to work, with an
12 average commute of 34.6 minutes. There are only 7 who work at home; the rest either walk to
13 work or use other means.

14
15 **Regional Employment**

16 According the Vermont Department of Labor, the average wage for all covered employment
17 (private and government employment covered by Vermont unemployment insurance) in
18 Westmore was \$34,643, 2.5% below that of \$35,504 for the county and 31.4% below that of the
19 state's \$45,054. The primary form of covered employment is in the services providing domain –
20 1 in the retail sector, 1 in professional and technical services, and 2 in hospitality and food
21 services. Employee counts are largely suppressed, but there are 33 covered employees in
22 Westmore, 10 of which are in the government sector.

23
24 The three dominant categories of covered employment in Orleans County during 2016 were:
25 services (annual average of 6,350 covered employees), goods producing (2,341 employees), and
26 government (2,044 employees, working at the federal, state, or local level).² The services
27 category included leisure and hospitality (1,473 employees); education and health services
28 (1,814 employees), and retail trade (1,519 employees). Goods producing included manufacturing
29 (1,413 employees), construction (653 employees), and the natural resources and mining
30 supersector, which includes agriculture and forestry (275 employees). In this supersector, 192
31 were employed in animal production, 27 in logging, and another 20 in agriculture and forestry
32 support. These figures, however, do not account for the many people in these fields who are self-
33 employed and are not covered by unemployment insurance.

34
35 Employment activity in Westmore is covered in greater detail in Section 18 Economic
36 Development.

37
38 **6. WATER QUALITY**

39
40 Protecting water quality is a high priority in the Town of Westmore. Activities such as logging
41 on steep slopes or down to the water's edge, building houses close to the water, run-off from
42 gravel roads, and cutting vegetation along the shore all affect the quality of water.

43
44 Due to the steep topography which increases the likelihood of run-off, the lakes and ponds in

² Vermont Department of Labor, Economic & Labor Market Information, Covered Employment 2016,
<http://www.vtlmi.info>, accessed February 2018.

1 Westmore are especially vulnerable. Long Pond has a small watershed and drains directly into
2 Willoughby Lake. Therefore, precautions in this area of town are especially important.

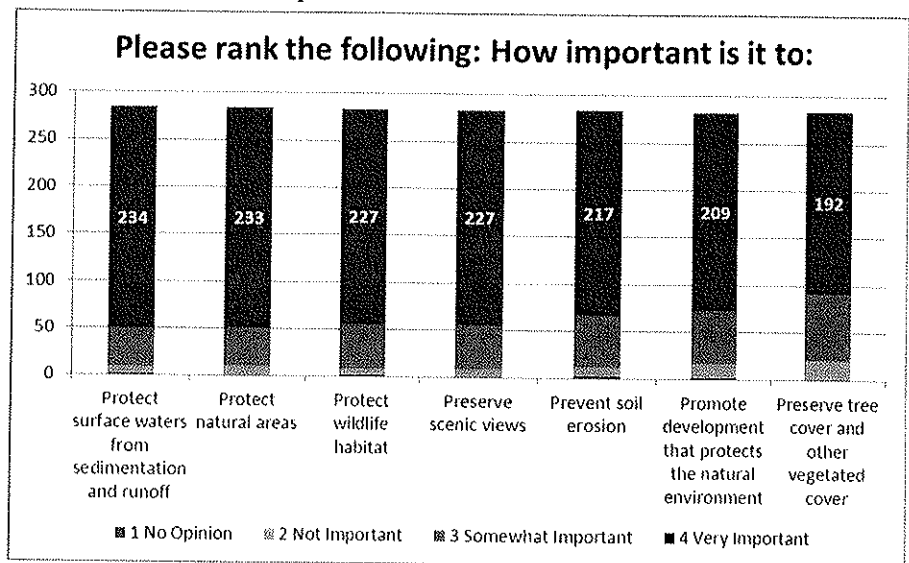
3
4 Westmore's forest cover provides stability to Westmore's lakes, ponds, and streams. Westmore's
5 forest cover – which is largely located on higher and steep terrains -- intercepts precipitation,
6 which then gets percolated into subsurface water systems. Loss of the tree cover, however, can
7 mean a loss of ability to intercept precipitation and slow down surface runoff. The result can be
8 non-point source contamination and flash flooding.

9 10 **Non-Point Run-Off**

11 Non-point pollution comes from a variety of sources such as erosion due to house construction,
12 deforestation, failing septic systems, grass clippings from lawns, manure spread on fields, gravel
13 washing off the roads, improper or excessive application of lawn fertilizers, herbicides and
14 pesticides, etc. By definition non-point pollution tends to be dispersed and diluted. However, all
15 these activities combined contribute to downgrade the water quality. Nutrient inputs such as
16 phosphorous, nitrogen and organic matter lead to eutrophication (the increase in the amount of
17 nutrients available for water plants such as algae) which increases the growth of these plants thus
18 leading to a decrease in the amount of oxygen available for fish and other life in the water.
19 Increased nutrients reduce water transparency resulting in increased water temperature.
20 Undesirable chemical products like pesticides and heavy metals threaten human health and the
21 survival of the aquatic ecosystem.

22
23 In 1990-93 the governments of Vermont and Quebec set up a task force to look into water

24 quality issues in the Lake
25 Memphremagog watershed. The
26 Quebec/Vermont Working Group
27 on Managing Lake
28 Memphremagog and Its
29 Environment Report states the
30 nutrient content of run-off from
31 various land uses. It found water
32 coming from agricultural land
33 contained four times more
34 phosphorus than water running
35 off undisturbed forest land. Run-
36 off from urban/built-up land
37 contained twelve times more
38 phosphorus than run-off from
39 forested land.³



40 **Tactical Basin Planning**

41 The Vermont Clean Water Act of 2015 was enacted to authorize and prioritize proactive
42 measures to limit phosphorous concentrations in Lake Champlain and Lake Memphremagog and
43 improve water quality across the state. This legislation, as well as other clean water efforts, have
44 strengthened cooperation among municipalities, regional planning commissions, and the

³ Quebec/Vermont Working Group on Managing Lake Memphremagog and Its Environment, Final Report, page 24, 1993.

1 Department of Environmental Conservation in maintaining and implementing *Tactical Basin*
 2 *Plans*. The plans are guidance documents for the Agency of Natural Resources because they
 3 identify and prioritize the necessary actions to protect or restore specific bodies of water across
 4 each of the 15 planning basins in Vermont.

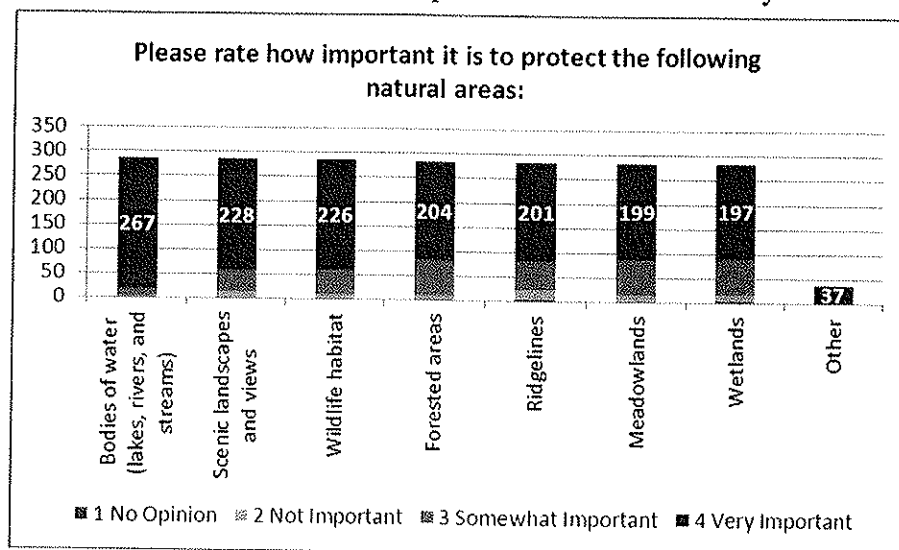
5
 6 Most of Westmore is located in Basin 17, which encompasses 589 square miles of Lake
 7 Memphremagog drainage and the Tomifobia and Coaticook River watersheds. Basin Plan 17
 8 attributes nearly half of phosphorus runoff – which can contribute to occasional cyanobacteria or
 9 blue-green algae blooms – to agricultural lands (46%), followed by developed lands (21%), river
 10 instability (20%), and forest lands and wetlands (12%). Collectively, the Plan attributes 52.6
 11 metric tons of phosphorus per year into the basin. In September 2017, the US. Environmental
 12 Protection Agency set new phosphorus limits (also known as Total Maximum Daily Load –
 13 TMDL) for Lake Memphremagog. The new TMDL target is 40.6 metric tons/year, representing
 14 a 23% reduction in phosphorus pollution. To achieve this target, the Tactical Basin Plan
 15 identifies specific reduction measures in each municipality. Watershed sampling on Willoughby
 16 and on Long Pond show statistically significant increasing phosphorus trends, and Willoughby is
 17 rated as “fair” for shoreland disturbance due to higher levels of development along its shoreline.
 18 The watershed projects for Westmore identified below can address both the concerning trends on
 19 Willoughby and Long Pond, and to help meet Lake Memphremagog phosphorus loading
 20 reduction targets set in the TMDL:
 21

Project description	Project Type	Status
Culvert replacements on 5A: Dorin Brook, Myers Brook, Wells Brook, and Schoolhouse Brook	Road Project	Final Design
Road Erosion Inventory and Capital Budget*	Inventory	Ongoing
LakeWise Master Plan for Willoughby Lake	Lake Shoreland Identification	Ongoing
Willoughby Lake North Beach tree plantings	Lake Shoreland	Final Design

22 *More information on the road erosion inventory is in the Transportation Section of this plan.

23 **High Elevation Forest Cover**

24 Non-point runoff due to deforestation of an acre or more in high elevation areas is a key concern
 25 to Westmore, where the unique topography places the developed core of the community in a
 26 “bowl” surrounded by
 27 ridgelines and a network
 28 of rivers and streams that
 29 drain into Westmore’s
 30 lakes and ponds. Impacts
 31 from the storms of 2011
 32 in neighboring
 33 communities only
 34 reinforce this concern.
 35 Subsequent microbursts
 36 and storms from
 37 deforested ridgelines are
 38 likely to produce flooding
 39 and damage to



1 downstream properties and siltage in Westmore's most cherished bodies of water, including
2 Willoughby Lake.

3
4 Many of the same problems and corrective measure apply to other surface waters in Westmore as
5 well. The town has a real opportunity to develop these lands in a way to prevent problems in the
6 future and maintain the water quality in town. If the town of Westmore is serious about
7 maintaining and improving water quality, the question of non-point pollution must be addressed.
8

9 When asked to rank the protection of Westmore's natural resources, survey respondents
10 identified protection of Westmore's bodies of water as being most important (267 responses).
11 Protecting surface waters from sedimentation and runoff was also ranked as most important.
12

13 **Lakes and Ponds**

14 Lake front development has traditionally had second homes that add taxes to the community
15 while not requiring a lot of public services. Even though this trend has begun to change
16 somewhat the Planning Commission generally supports the development of lakeshore property,
17 keeping in mind that increased impervious coverage decreases the ability of the land to absorb
18 run-off.
19

20 Traditionally camps were built close to the water's edge to afford the best view from the living
21 room and front porch. The camps were used only two or three weeks a year and the number of
22 people staying at a camp were usually few. The dishes were done by hand, laundry done in the
23 sink and taking a bath meant jumping in the lake. The toilet consisted of an outhouse set back
24 from the water's edge.
25

26 Life around some of Westmore's bodies of water is different today. People use their camps for
27 much longer periods and some have been converted to year-round homes. Many camps now
28 have showers, dishwashers, washing machines, and flush toilets. Where does all this "gray
29 water" go? When these camps were built, they had such infrequent use that people were not very
30 concerned about their impact on water quality. But today things have changed - perhaps
31 significantly. Since most of these camps are built on wet soils and close to the lake, when dish
32 water is drained out of the sink it ends up in the lake. Granted, the gray water may initially drain
33 into a sand filter or "dry well" but this treatment is superficial at best. The "black water" may go
34 to a sealed holding tank. If properly managed and cleaned out this system could be very
35 effective. Ensuring that this happens is an administrative nightmare.
36

37 The question is "so what if this gray and black water enters the lake?" The answer has several
38 parts. As the use of the lake has increased, so has the amount of gray water and other pollution.
39 A lake can naturally treat a certain amount of pollution but, if the amount surpasses the lake's
40 natural ability to treat the waste, it starts to accumulate in the sediments and water column.
41 Willoughby Lake is a cold water lake, which means it has a much harder time breaking down
42 soap and other pollution. Once a particular concentration of pollution is reached, large algae
43 blooms will occur and the overall water quality will diminish rapidly. This is already occurring
44 on the back side of Willoughby. And since it takes a long time to build up, it will also take a
45 long time to correct the problem once it has occurred. Run-off contributes to increased
46 phosphorus levels which allows the establishment of Eurasian Milfoil, a problem already

1 experienced in Willoughby Lake. When the water quality goes down, so may tourism and
2 associated revenues.

3
4 Large amounts of algae, a small plant which needs phosphorus to grow, in the water decreases
5 the oxygen available for fish, warms the temperature and is an indicator of possible other
6 pollution. Contaminating the lake with untreated septage is not only distasteful it may add
7 dangerous virus and pathogens to the water -- a real public health concern.

8
9 There are ways to prevent the degradation of water quality. It is clear that if strict measures are
10 not adopted and enforced the bodies of water may end up polluted and containing a significant
11 algae bloom, Eurasian Milfoil, or other nuisance aquatic growth.

12
13 Preventative measures include ensuring that no black water and very little gray water enter the
14 lakes, use of biodegradable soaps, establishing and/or maintaining vegetative buffer strips along
15 the shore to help prevent run-off and erosion, setting the camps back from the water's edge to
16 allow a greater filtering distance before any pollution that does occur enters the lake, and
17 requiring that all year round or enlarged camps have properly designed and installed septic
18 systems.

19 20 **Buffer Strips**

21 Buffer strips are areas of natural, undisturbed vegetation along the shoreline of lakes, ponds, and
22 streams. They provide many functions including providing wildlife habitat, a visual screen from
23 the water, and reducing the run-off and nutrients that enter the water. This works by slowing
24 down run-off, allowing time for water to soak into the ground and the nutrients to be absorbed
25 into the soil and plants.

26
27 The size of the buffer strip is determined by its intended function and the topography of the
28 shoreline. Any sized buffer strip, even a few feet, is better than no buffer at all. Certain wildlife
29 species such as black bear need large strips (perhaps as large as 1 mile), other species such as
30 most birds need only 25 to 50 feet. The size of the buffer strip required to effectively eliminate
31 nutrients from run-off is debated. Most sources suggest 50 - 350 feet. The Vermont guidelines
32 for acceptable logging practices (AMPs) suggest a minimum of 50 feet on areas with slopes less
33 than ten percent and an additional 20 feet for each additional 10 percent slope.⁴ In 2000,
34 Westmore amended its zoning bylaw to require natural vegetation buffers for lots on Willoughby
35 Lake, Bald Hill Pond, Long Pond, Job's Pond, and all other ponds, lakes, rivers, and year-round
36 streams. In 2014, Vermont's Shoreland Protection Act established a permitting and regulatory
37 process for lands within 250 feet of the mean water level of lakes and ponds greater than 10
38 acres. In Westmore, this regulatory jurisdiction includes Bald Hill Pond, Brown Pond, Jobs
39 Pond, Long Pond, and Willoughby Lake. The new State buffer management standards supersede
40 the local zoning standards, but Westmore's zoning regulations may continue to specify what
41 types – and what intensities – of development are appropriate for the shorelands.

42 43 **Undeveloped Lakeshore**

⁴ Vermont Department of Forest, Parks and Recreation, Acceptable Management Practices for Maintaining Water Quality on Logging Jobs in Vermont (http://fpr.vermont.gov/forest/vermonts_forests/amps) , Accessed February 2018

1 In 1992 the Northeastern Vermont Development Association completed a resource inventory of
 2 the undeveloped lakeshore in northern Vermont. The study identified undeveloped tracts of
 3 lakeshore on lakes over 10 acres. An “undeveloped tract” was defined as having a minimum of
 4 1000 feet of shore frontage with a depth of 250 horizontal feet with no human structures or 2-
 5 wheel drive roads.

6
 7 Six lakes and ponds are in the Town of Westmore. They have 97,649 feet of shoreline of which
 8 46.6% (45,552 feet) is undeveloped. Westmore ranks second in Orleans County (after Newport
 9 City) for the amount of shoreline and third for having the most undeveloped lake shoreline (after
 10 Derby and Morgan). See the attached map for location of the undeveloped portions.

11
 12 Undeveloped shoreline contains many valuable attributes including critical wildlife habitat, it
 13 helps maintain high water quality and enhances recreation opportunities.

Lake/Pond Name	Total Shore Length (ft)	Undeveloped Length (ft)	Percent Undeveloped	Public Ownership
Willoughby	57,795	19,853	34%	Partial
Long	12,250	5,912	48%	Access Only
Bald Hill	10,232	7,143	70%	Partial
Jobs	7,111	4,468	63%	Access Only
Brown	6,742	4,657	69%	Access Only
Mud	3,519	3,519	100%	No

14
 15 **Ice Fishing**
 16

17 As more people use the lakes in the wintertime for ice fishing, skiing and snowmobiling, there is
 18 growing concern over the impact on water quality due to human waste, trash, and oil/gas
 19 pollution.
 20
 21

22 **ISSUES/CONCERNS**

- 23 1. In order to decrease the amount of siltation caused by building construction, logging, and
 24 farming, erosion control standards were included in the 2000 revision to the Westmore
 25 Zoning Bylaw and should continue to be enforced.
- 26 2. The lakes and ponds should be treated in two categories: one to remain essentially
 27 unchanged (Bald Hill, Brown, Mud, Jobs and Long Ponds) and the other to address
 28 concerns caused by development around the shore (Willoughby Lake).
- 29 3. In order to protect the water quality, wilderness character, wildlife habitat, and rare plant
 30 species, undisturbed buffer strips should be maintained or/or established around the
 31 undeveloped ponds and streams. The Lake Association and Planning Commission should
 32 work together to encourage reestablishment of native vegetation along the lakes and
 33 ponds.
- 34 4. In order to alleviate unnecessary burdens on the camp owners, protect the water quality,
 35 and streamline the permit process, revisions to the zoning by-law were adopted in 2000.
 36 Revisions include:

- a. requiring a properly engineered and installed septic system, as enforced through state regulations, before a camp can be significantly enlarged or used for year-round occupancy
 - b. restricting additions or expansion of existing structures from getting closer to the water's edge than where they already are
 - c. enacting appropriate setbacks from the water for all new structures
 - d. creating vegetative buffer strips along the lakes and streams
5. Logging and agricultural practices in Vermont are addressed in the Acceptable Management Practices guidelines defined by the Commissioner of Forests and Parks and the Commissioner of Agriculture. Presently local municipalities are not authorized to enact any stricter regulations on logging or agricultural practices. However, they can adopt regulations that reflect the same standards that are contained within the AMP guidelines. Due to increasing concerns about the effect of logging and agriculture on water quality, the AMPs should be carefully reviewed and considered.
 6. The people who own camps around a lake have a vested interest in maintaining the high level of water quality in the lake. The Town works to ensure the proper installation and monitoring of septic tanks, buffer strips and the like.
 7. When natural land cover is removed (i.e. clear-cuts and logging), or roads are built with improper drainage, there is an increased threat of flash floods which might destroy property, increase erosion, and reduce the amount of water being "recharged" into the ground water.

RECOMMENDED ACTIONS

1. Erosion control standards should continue to be enforced.
2. Comply with the current zoning by-law to address the stated concerns about the protection of water quality.
3. Refer to the standards set forth in the Acceptable Management Practices for Maintaining Water Quality on Logging Jobs and Required Agricultural Practice Regulations.
4. Work closely with the lake associations to encourage the maintenance of water quality in the lakes.
5. The Lake Association and Planning Commission should work together to encourage native vegetation along the lakes and ponds.
6. Assemble and have available information on existing laws regarding use of the lakes in the winter.
7. Inform the Water Resources Board about the growing concern over the use of the lakes in the winter.
8. Development that would significantly contribute to runoff should be prohibited.
9. Commercial and residential development with a density greater than one single-family dwelling per 10 acres should be prohibited in high elevation areas.

7. FLOOD RESILIENCE

Existing Conditions

The majority of Westmore is located in the Barton River watershed, which drains north into the Lake Memphremagog basin, an area that includes more than 3,400 lakes and ponds in Vermont and Quebec, the largest of which is Willoughby Lake. The Barton River watershed, which includes the Willoughby River subwatershed, flows north into the southernmost end of Lake Memphremagog's South Bay. The Barton River is 22 miles long and its watershed drains 174 square miles. The principal tributary of the Barton River, the Willoughby River, originates at Willoughby Lake. The northern portion of Westmore that borders Charleston is located in the Clyde River watershed, which also drains into Lake Memphremagog in Newport City.

The remaining southern portion of Westmore, bordered by Sutton and Newark, drain into the Passumpsic River basin. This area contains tributaries of the West Branch of the Passumpsic, which drain southeast into Newark, East Haven, Burke, and on to Lyndon.

Westmore has a limited history of flooding, and no properties have been identified as repetitive loss structures under FEMA. After Tropical Storm Irene, the town did receive public assistance for road damage along Hinton Hill, Long Pond, and LaCross Roads. These roads contain segments with steep slopes and will be subject to stormwater management conditions under the Municipal Roads General Permit, which is discussed in greater depth in the Transportation Section. Westmore has many areas with steep slopes in upper watershed areas where minimal alteration of vegetative cover through logging or changing drainage patterns through building roads or other large-scale development and deforestation may significantly increase the likelihood of flash floods. Although flash floods may not seem like a large problem, their potential should be recognized and monitored.

Floodplains

Floodplains are low-lying areas adjacent to a river channel that become inundated as floodwaters rise up and spill out over a river bank. They provide an important ecological function by storing and conveying floodwaters, reducing downstream flood velocities, and mitigating riverbank erosion. Floodplains also help to protect water quality by filtering nutrients and impurities from runoff, processing organic wastes, and moderating temperature fluctuations.⁵

Westmore's floodplains are depicted on a FEMA flood hazard boundary map that was created in 1976. This map depicts the Special Flood Hazard areas, which are floodplains that would likely become inundated during a significant flood known as a "base flood." The base flood is often referred to as the "100-year flood." Westmore's map is not accompanied by any insurance studies or base flood elevations, which would indicate how high the water would rise in a 100-year flood event. Areas subject to inundation include Westmore's lakes and ponds, including Willoughby, as well as segments on Willoughby Lake Road and Route 5A.

Unfortunately, the term "100-year flood" is misleading, because it creates the false impression that a flood of that magnitude will only occur once a century. What the term really means is that the base flood has a 1% chance of flooding in ANY given year. With a one percent annual

⁵ Floodplain Management Requirements A Study Guide and Desk Reference for Local Officials, FEMA 2005

1 chance, a structure in the Special Flood Hazard Area has more than a one-in-four chance of
2 being affected by a flood during a thirty-year mortgage. By comparison the same structure has
3 less than a one-in-ten chance of being affected by fire over the same mortgage.⁶
4 Westmore’s FIRM is a paper map. Its age and lack of detail make interpretation difficult.
5

6 **River Corridors**

7 About two-thirds of Vermont’s flood-related losses occur outside of mapped floodplains, and
8 this reveals the fundamental limitations of the FEMA FIRMs: A mapped floodplain makes the
9 dangerous assumption that the river channel is static, that the river bends will never shift up or
10 down valley, that the river channel will never move laterally, or that river beds will never scour
11 down or build up.
12

13 In reality, river channels are constantly undergoing some physical adjustment process. This
14 might be gradual, resulting in gradual stream bank erosion or sediment deposit – or it might be
15 sudden and dramatic, resulting a stream bank collapse. The losses experienced during the May
16 2011 storms and Tropical Storm Irene were most often related to the latter. In fact, this type of
17 flood-related damage occurs frequently in Vermont, due in part to the state’s mountainous
18 terrain.
19

20 Land near stream banks are particularly vulnerable to erosion damage by flash flooding, bank
21 collapse, and stream channel dynamics. The Vermont Department of Environmental
22 Conservation, Agency of Natural Resources, has identified river corridors, which consist of the
23 minimum area adjacent to a river that is required to accommodate the dimensions, slope,
24 planform, and buffer of the naturally stable channel and that is necessary for the natural
25 maintenance or natural restoration of a dynamic equilibrium condition. In other words, the river
26 corridor provides “wobble room” for a stream as its channel changes over time. Keeping
27 development out of the river corridors therefore reduces vulnerability to erosion. The statewide
28 river corridors map identifies the Willoughby River and Mill Brook as river corridors. For all
29 other streams in Westmore, a 50-foot natural vegetation buffer is considered sufficient measure
30 for streambank stabilization.
31

32 **Uplands and Wetlands**

33 As previously noted, Westmore’s mountainous terrain can contribute to flash flooding. Limiting
34 clearing of upland slopes will help to attenuate flood flows and reduce stormwater runoff. Proper
35 management of Westmore’s forest cover, particularly in areas with steep slopes and high
36 elevations (where headwaters are located) is therefore critical. Conservation easements,
37 enrollment in the Current Use Program, and encouragement of best management forestry
38 practices will protect existing forested cover.
39

40 Wetlands also have the capacity to retain significant amounts of water. The State of Vermont
41 regulates activities in and adjacent to wetlands. These rules apply to the wetlands and associated
42 buffer zones within 100 feet of Class I wetlands, and 50 feet of Class II wetlands. Any activity in
43 a Class I or II wetland requires a state permit. Westmore contains 308 acres of Class 2 wetlands
44 throughout the town, and there is a large wetland complex to the north of Willoughby Lake
45 which also provides habitat for rare, threatened, or endangered species.

⁶ www.floodready.Vermont.gov

1
2 **Emergency Relief and Assistance Fund**

3 The Town has received nearly \$34,000 in public assistance for two federally-declared disasters –
4 to repair roads in the aftermath of Tropical Storm Irene and to remove debris following a severe
5 ice storm in 2013. When a community requires public assistance to repair infrastructure, FEMA
6 funds generally cover 75% of the loss. Prior to 2014, the State’s Emergency Relief and
7 Assistance Fund (ERAF) has provided half of the matching funds (about 12.5%), and the town
8 has assumed the remainder of the cost. In October 2014, however, new legislation tied the level
9 of ERAF funding to specific local initiatives to reduce flood-related risks and prepare for
10 emergencies. ERAF will now contribute half of the required match only if the town has taken all
11 the following steps to reduce flood damage. Otherwise, the level of State funding will be reduced
12 to 30% of the remaining match, which will usually be about 7.5% of the total cost:
13

- 14 1. Adopt the most current Town Road and Bridge Standards (which can be found in the
15 *VTrans Orange Book: Handbook for Local Officials*).
- 16 2. Adopt flood regulations that meet the minimum standards for enrollment in the National
17 Flood Insurance Program (NFIP)
- 18 3. Maintain a Local Emergency Operations Plan (adopt annually after town meeting and
19 submit before May 1)
- 20 4. Adopt a FEMA-approved Local Hazard Mitigation Plan.

21
22 Currently, Westmore only meets requirement #1.

23
24 **National Flood Insurance Program (NFIP)**

25 The primary benefit of joining the NFIP (other than meeting the ERAF requirement) is enabling
26 Westmore residents to obtain flood insurance at more affordable rates. Federally-backed lending
27 institutions require flood insurance on any mortgage in the Special Flood Hazard Area,
28 regardless of whether the Town participates in the National Flood Insurance Program. This could
29 therefore be very helpful to property owners who are attempting to refinance or sell flood-prone
30 properties. Property owners outside of the Special Flood Hazard Area also would be able to
31 purchase flood insurance, and at preferred risk rates.
32

33 In order to participate, the Town would have to adopt regulations that meet FEMA’s minimum
34 standards (found in CFR44), and the development standards would have to be enforced in the
35 Special Flood Hazard Areas shown on the FEMA map. In fact, the town’s zoning bylaws already
36 regulate development in these areas. Unfortunately, the town of Westmore did not apply for
37 participation in the NFIP. Because the flood hazard regulations were adopted several years ago,
38 it is unlikely that they would be approved for inclusion in the NFIP. If the town wishes to join
39 the NFIP, the planning commission will have to amend the flood hazard regulations. The existing
40 regulations are close to meeting minimum FEMA standards, so the changes would probably not
41 be substantive.
42

43 The legislative changes to ERAF funding propose to address the limitations of the National
44 Flood Insurance Program by providing an incentive: Under ERAF, the Town may receive an
45 increased state match for federally declared losses, if the town adopts flood regulations that
46 exceeds the minimum standards of the NFIP. These above-and-beyond standards include