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**TOWN OF MORGAN**  
**2019 PLAN**

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# **MORGAN TOWN PLAN**

## **I. GOALS & OBJECTIVES**

In the Spring and Summer of 1995, the Morgan Planning Commission conducted a public opinion survey. The Planning Commission subsequently developed a second widely-distributed community survey in late 2017. The survey covered a wide range of topics, including preferences for siting differing scales of development, energy use and development, recreation, and cultural activities. Survey results are included throughout the Plan as relevant. The Planning Commission believes that the goals that follow in large part continue to reflect the results of that survey.

Morgan's Town Plan is the town's mission statement, the framework of aspiration and justification upon which the Bylaws or Regulatory section of our effort is based. Not all of the aspirations can or will be enforced by Bylaws, but will provide a guideline for the town.

A. Encourage and provide for the development of more professional home-based businesses.

B. Encourage and provide for the development of more restaurants and tourist/recreational attractions. Widen the shoulders along Route 111 to provide cyclists with safe access to the beach in Morgan Center.

C. Maintain the Town's and the Lake's beautiful and pristine state.

D. Promote development that will strengthen the Town's tax base, while protecting the Town's natural, scenic, and historic resources.

E. Reduce or eliminate the pollution of Lake Seymour and other surface waters by regulating shoreland development, logging operations, boating, surface run-off, and/or ice fishing operations.

F. Minimize taxpayer expense in the event of flood damage to public infrastructure, such as roads and culverts.

G. Prevent the development of junk yards.

H. Continue appropriating funds to neighboring fire departments that service the Town of Morgan.

I. Provide for orderly growth (as exemplified by Rainey-Hope and home-based businesses) to prevent or reduce negative impacts on the Town.

J. Keep the beach in Morgan Center clean, safe and attractive.

K. Protect Morgan's forests, wildlife and other natural resources, to include the

1 development of a land use plan for all Town-owned properties.  
2

3 L. Town officials should continue to maintain an awareness of the needs full- and part-time  
4 residents.  
5

6 *M.* Maintain open farm land for agricultural purposes and support local food  
7 production initiatives.  
8

9 N. Maintain the existing roads and bridges to handle all vehicular traffic as needed.  
10  
11

1 **II. LAND USE PLAN**

2 **Existing Land Use**

3 **1) Forests**

4  
5 There are several large land holdings which are held for forestry purposes. These large land  
6 holdings are located mostly in the eastern portion of town. Forestry is an important economic  
7 activity in Morgan.

8  
9 Morgan’s forested land cover provides two critical benefits:

10 **1. Large, unbroken blocks of forested cover provide habitat for a great number of**  
11 **wildlife species.** This is especially true in Morgan, where nearly all forested cover east of the  
12 lake contains *highest priority interior forest blocks* and *highest priority connectivity blocks*.  
13 These unfragmented blocks of at least 20 acres or more provide interior core forest conditions  
14 that allow for mobility and genetic exchange between wildlife populations. Their importance  
15 goes well beyond the town’s borders, as they facilitate north-south wildlife passage to the  
16 Unified Towns & Gores, Holland, and Charleston, and east movement into Brighton. Nearly  
17 all the highest priority forest cover is enrolled in Vermont’s Land Use Appraisal Program (aka  
18 “Current Use), but 1,373+ acres also have some form of permanent conversation easement.

19  
20 **2. Upland forested areas protect water quality and reduce flood flows.** Forest cover for  
21 example, intercept precipitation and promote infiltration of water into the soil in order to  
22 protect groundwater. By contrast, impervious surfaces, steep slopes, and shallow soils do not  
23 allow water to soak into the soil where it falls, rather they send discharges – and damage –  
24 downhill. Maintaining in these upland areas is therefore of particular importance. The bulk of  
25 Morgan’s priority forest and connectivity blocks are lands with an elevation of 1,700 or more,  
26 with drainages into the Webster Brook, which makes the ecological function of the forested  
27 land cover especially important. Another high elevation in the south-eastern corner of town  
28 drains into water bodies along Route 114. With few exception, the high elevation forest lands  
29 fall into the RL3 (rural lands 3) district, which is intended to maintain an overall minimum  
30 density of 10 acres per unit. Lands immediately east of the Lake, which are generally below  
31 1,700 feet, fall into the RL2 district, which allows for a two-acre density.

32  
33 **2) Recreation**

34  
35 Morgan has become very popular for recreational (seasonal or vacation) homes. Two types of  
36 locations have developed. The first, development on shore front lots, has been in existence for  
37 many years. This development has been mainly on, but not limited to, Seymour Lake. The  
38 second, more recent development, has been that of lots in the higher elevations with scenic  
39 views.

40  
41 While the Town of Morgan does not have an organized recreation program, the recreational  
42 opportunities abound for those who enjoy the outdoors. Seymour Lake offers fishing, boating,  
43 swimming, and water skiing in the summer and ice skating, snowmobiling, cross-country  
44 skiing and ice fishing in the winter. For those who like the outdoors and prefer non-water  
45 related activities there is hiking, bicycling, snowmobiling, snow-shoeing, downhill skiing at

1 nearby ski areas, cross-country skiing, the playground at the former elementary school, and  
2 upland game, deer and moose hunting.

3  
4 For those who enjoy indoor activities, other opportunities are available in the nearby  
5 communities of Derby and Newport City.

6  
7 Morgan Community Survey respondents found land-based and primarily passive recreation  
8 activities to be most popular forms of recreation: Wildlife viewing was selected by 75  
9 respondents, hiking by 71. Swimming and boating were found to be the most popular  
10 activities, with 90 and 85 respondents respectively.

### 11 12 **3) Agriculture**

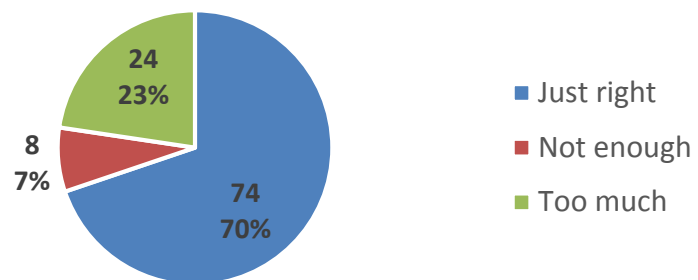
13  
14 There are 6 active dairy farms and several horse stables in Morgan. These farms are scattered  
15 throughout the Town. These dairy farms are very important to the community and the  
16 surrounding area as good agricultural land is becoming increasingly scarce due to the  
17 demand for undeveloped land for new homes and other uses. Working agricultural lands also  
18 help to preserve open space and enhance the scenic beauty of the community.

### 19 20 **4) Residences**

21  
22 Presently, Morgan is experiencing the conversion of summer homes to year-round homes. This  
23 trend is expected to continue and may even increase in the future. Careful consideration should  
24 be given to this type of growth and the effects it may have on the Town and the provision of  
25 town services. In the Morgan Community Survey, only 15% (13 respondents) indicated that  
26 they definitely intended to become full-time residents in the future, but 42% of respondents  
27 (36 respondents) indicated that they were not sure. The remaining 36 respondents indicated  
28 that they did not intend to become full-time residents in the future.

29  
30 Since 2002, the Town of  
31 Morgan has issued 124  
32 permits for residential units,  
33 with a peak of 22 permits  
34 issued in 2003. The majority  
35 of Morgan Community  
36 Survey respondents were  
37 satisfied with the pace of  
38 residential development  
39 (Figure 1), with some  
40 respondents indicating a  
41 desire to protect the town's  
42 "peaceful" and "rural"  
43 qualities. Nearly a quarter felt that the pace was too much, and some respondents voiced  
44 concern over the pace and scale of lake development.

Figure II.1: Satisfaction with the pace of rural residential development



### 45 46 **5) Commerce**

As may be expected in a rural-type community such as Morgan, there are a limited number of commercial activities. Existing commercial uses, many of which are carried on as home occupations, include:

Stores	Horse farms, stables	Day cares
Commercial Accommodations, including a bed & breakfast	Dairy Farms	Contractors
Pottery	Kennels	Machine shop
Antique Shops		Equipment repair shop
Bakery		Small engine repair

Morgan Community Survey respondents were asked to identify areas in town that were inappropriate for commercial and industrial development. Of the 78 open-ended responses, 42 identified the lake and its vicinity, seven identified upland areas and ridgelines, and four identified any areas near existing residential development as being inappropriate.

#### 6) Industry

Morgan is a bedroom community with most of its residents either working out of their homes or in other communities. At present, Morgan has little or no industry.

#### 7) Public & Semi-Public Uses

Semi-public uses are limited to a non-denominational church in Morgan in which services are held year round. Public uses are limited to 1) the parking lot in Morgan Center for users of the beach, 2) the former elementary school, 3) the town office building, 4) the community house, 5) the solid waste transfer station, 6) the church in Morgan Center, which is now used by the Morgan Historical Society.

#### 8) Conservation Lands

The former Morgan Town Plan adopted on May 21, 1990, this plan, and the Morgan Zoning Bylaw, adopted on December 17, 2012, contains wording to limit development in the most rural portions of the Town. These areas are described in Table 204.05 RL3 (rural lands three) of the Morgan Zoning Bylaw as being hilly, swampy, having poor access and/or shallow soils. Most of the areas that are zoned RL3 are located in the area west of Toad Pond and the eastern most portion of the Town. Toad Pond Road is located in the RL2 district.

The largest concentration of permanently conserved lands is located along Route 114, and includes 535+ acres of lands held by the Trust for Public Land, and nearly 630 acres of lands held by Vermont Land Trust. Other conserved lands in town include Hatton Memorial Park (nearly 43 acres), and the Morgan Hatchery (4+ acres) at the southernmost tip of Seymour Lake. The Morgan Town Forest (208+ acres) is owned by the Town, but is not conserved.



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### **9) Flood Hazard Areas**

The Federal Emergency Management Administration (FEMA) map in the Town Office identifies Special Flood Hazard Areas (SFHA). These areas are primarily located around Lake Seymour, and some residential properties are within the SFHA boundary, which means that they may be subjected to occasional inundation. The SFHA are in effect “floodplains”, which are low-lying areas adjacent to a water body that become inundated as floodwaters rise up and spill over.

The existing FEMA map – also called a Flood Insurance Rate Map (FIRM) – has an effective date of 1975 and contains no base flood elevations (i.e. indications of how high the water is expected to rise in a significant flood event). A FEMA-sponsored remapping project is currently underway and may produce more detailed and useful information over the next few years.

The FEMA map would be used, at a minimum, to administer flood hazard regulations, if the Town were to participate in the National Flood Insurance Program (NFIP) in order to allow property owners to obtain flood insurance. To date, the Town of Morgan has not joined the NFIP, and development in the SFHA is not regulated. It is possible that flood insurance would be required on a property found to be in the SFHA, if a federally-backed mortgage were issued on the property.

Lands adjacent to streams and wetlands provide a number of ecological benefits, but they also have the capacity to retain significant amounts of floodwater. The State of Vermont regulates activities in and adjacent to wetlands. These rules apply to the wetlands and associated buffer zones within 100 feet of Class 1 wetlands, and 50 feet of Class II wetlands. Any activity in a Class I or II wetland requires a state permit. The Vermont Significant Wetlands Inventory shows a number of class 2 wetlands throughout town, with a high concentration running along Route 114.

### **10) Land Use Map**

The official wall-sized Morgan Plan maps, which consist of the Base Map, Land Use/Land Cover, Natural Resource Constraints, and Flood Resilience, are on file in the Morgan Town Clerk's office and can be viewed there. Smaller 11x17 maps are appended to this plan.

1 **Proposed Land Use**

2 **1) Forests**

3  
4 Much of the land area in Morgan is remote; having either wetlands or steep slopes with  
5 shallow soils and should have a very low intensity of development. This land is generally  
6 suitable only for forestry purposes, some agricultural uses, and, at a very low density,  
7 recreational homes and year-round dwellings. Year-round dwellings should be permitted  
8 only if the site can support a well and septic system, or any other approved disposal system,  
9 and there is adequate public access to the site. The maximum density for the forestry districts  
10 should be one dwelling unit per ten (10) acres.

11  
12 As previously noted, Morgan’s upland forested cover can minimize flash flooding. Limiting  
13 clearing of upland slopes will help to attenuate flood flows and reduce stormwater runoff. Proper  
14 management of Morgan’s forest cover, particularly in areas with steep slopes and high elevations  
15 (where headwaters are located) is therefore critical. Conservation easements, enrollment in the  
16 Current Use Program, and encouragement of best management forestry practices will protect  
17 existing forested cover.

18  
19 **2) Recreation**

20  
21 As outdoor recreational opportunities abound in Morgan, the Planning Commission does not  
22 see the need at this time to recommend any kind of an organized recreation program. However,  
23 it is necessary to protect and maintain Morgan's wonderful natural resources, i.e. the forests and  
24 the lake, from development. Recreational homes in both forested areas and on lakeshore  
25 properties should be carefully sited to reduce negative visual impacts and on lots large enough  
26 to provide adequate water supply and sewage disposal.

27  
28 **3) Agriculture**

29  
30 By far, the single most important industry and economic base for the community are its farms.  
31 Areas with good agricultural soils should be given prime consideration to encourage the  
32 continued operations of farms in these areas. Therefore, areas with good agricultural soils  
33 should be zoned for agricultural purposes and agriculture should be the principal use in these  
34 districts. A secondary land use on large lots zoned for rural residential use should also be  
35 allowed. These residential uses, as indicated, should be on large lots such that a sufficient  
36 buffer exists between residential and agricultural uses. Related uses should be allowed in this  
37 district as conditional uses so as to assure public review before such uses are instituted.

38  
39 The Planning Commission is very concerned about agricultural runoff and the negative impacts  
40 it can have on water quality. It appears that Morgan's farmers are also concerned about  
41 agricultural runoff as all of the farms in Morgan have agriculturally approved manure storage  
42 systems. In addition, none of the land that is adjacent to the lake is used for agricultural  
43 purposes.

44  
45 **4) Residences**

1 Residential land use is by far the most predominant land use in Morgan. As such, dwellings  
2 should be permitted in most areas of town. However, the density of development should be  
3 dependent upon the availability of access and the ability of the soil to handle on site water and  
4 sewer systems without creating water quality problems. Denser residential development should  
5 occur in and near village areas. Residential developments in more rural areas should be  
6 clustered to preserve open space.  
7

### 8 **5) Commerce**

9

10 The two settlements of Morgan and Morgan Center should be allowed to continue to function  
11 much as they do today with some moderate growth in the sections of these two villages that  
12 can support growth. The types of land use found in the two village areas are residential homes,  
13 usually of year-round residents; public and semi-public buildings such as the school, town  
14 office and churches; and commercial operations that are needed to serve the people of  
15 Morgan. These include stores and some commercial-recreational type facilities. Generally, the  
16 new residential growth should be allowed to continue as long as it meets minimum  
17 requirements without any special consideration. Other types of growth in the two settlements  
18 should be allowed only as conditional uses. This would allow a decision to be made by the  
19 Zoning Board of Adjustment concerning the desirability of a particular use. Guidelines set forth  
20 for the review of conditional uses would allow the Board to place conditions on a zoning permit  
21 that would reduce or eliminate any negative impacts a particular use might have on the area.  
22

### 23 **6) Industry**

24

25 Light, non-polluting industries can significantly add to a town's tax and employment base, and,  
26 in most cases, could do so without placing an undue burden on the Town's services or natural  
27 re- sources. While there are no uses of this nature in Morgan at the present time, the Town may  
28 want to provide for this type of use to offset Morgan's present nature as a bedroom community.  
29 Limited industrial development may provide the revenue necessary to provide the services  
30 required by a growing population. That area set aside for industrial uses should have good  
31 access to Route 111. The minimum lot size in this district should be sufficient to allow for  
32 industrial structures, parking, and on-site water and sewer systems.  
33

### 34 **7) Public & Semi Public Uses**

35

36 Generally, sufficient land area exists for public purposes. Sites for existing public buildings  
37 are adequate and, at Morgan Center, approximately one thousand (1,000) feet of lakeshore  
38 frontage on Seymour Lake is available for public use.  
39

### 40 **8) Open Spaces to be conserved**

41

42 It would be desirable to obtain additional property to expand the Town Forest at some point in  
43 the future to assure a sizable public holding of undeveloped land within the community.  
44

45 Much of the land area in Morgan is remote with steep slopes and shallow soils. These areas  
46 should have a very low density of development. In addition, this plan discourages the filling

1 of wetlands for development. Therefore, major wetlands in the community should be  
2 recognized and protected from filling and development.  
3

#### 4 **9) Flood Hazard Areas and Flood Resilience**

5 As noted earlier, floodplains (Special Flood Hazard Areas) have been mapped by FEMA and are  
6 found, primarily around Lake Seymour. The Town should consider enacting Flood Hazard  
7 regulations to better control developments proposed in the SFHA areas and thereby avoid  
8 creating situations that may lead to a loss of property and/or life. Enacting flood hazard  
9 regulations would also allow the Town of Morgan to participate in the National Flood Insurance  
10 Program, thereby making flood hazard insurance available to residents of Morgan at more  
11 affordable rates. (Currently the only option is the private market, which is cost-prohibitive.)  
12 Federally-backed lending institutions require flood insurance on any mortgage in the Special  
13 Flood Hazard Area, regardless of whether the Town participates in the National Flood Insurance  
14 Program. This could therefore be very helpful to property owners who are attempting to  
15 refinance or sell flood-prone properties. Property owners outside of the Special Flood Hazard  
16 Area also would be able to purchase flood insurance, and at preferred risk rates.  
17

18 In order to participate, the Town would have to adopt regulations that meet FEMA's minimum  
19 standards (found in CFR44), and the development standards would have to be enforced in the  
20 Special Flood Hazard Areas shown on the FEMA map. Since the town has a fairly limited  
21 SFHA, the impact on property owners would likely be restricted to elevating new structures in  
22 the floodplain and bringing into compliance structures with damages totaling more than 50% of  
23 the value of the structure.  
24

25 Although Morgan does not have a history of flood damage to structures, adopting flood hazard  
26 regulations still may be particularly beneficial for a larger flood resilience effort since the town  
27 does occasionally experience flood and erosion damage to its roads.  
28

29 Land near stream banks are particularly vulnerable to erosion damage by flash flooding, bank  
30 collapse, and stream channel dynamics. The Vermont Department of Environmental  
31 Conservation, Agency of Natural Resources, has identified river corridors, which consist of the  
32 minimum area adjacent to a river that is required to accommodate the dimensions, slope,  
33 planform, and buffer of the naturally stable channel and that is necessary for the natural  
34 maintenance or natural restoration of a dynamic equilibrium condition. In other words, the river  
35 corridor provides "wobble room" for a stream as its channel changes over time. Keeping  
36 development out of the river corridors therefore reduces vulnerability to erosion. The statewide  
37 river corridors map identifies the Pherrins River, Pine Brook, Coche Brook, and Orcutt as river  
38 corridors. Regulatory protection would likely entail restricting new development that further  
39 encroaches into these areas. For other streams in Morgan, a 50-foot natural vegetation buffer is  
40 considered sufficient measure for streambank stabilization.  
41

42 When a community requires public assistance to repair infrastructure, FEMA funds generally  
43 cover 75% of the loss. Prior to 2014, the State's Emergency Relief and Assistance Fund (ERAF)  
44 has provided half of the matching funds (about 12.5%), and the town has assumed the remainder  
45 of the cost. In October 2014, however, new legislation tied the level of ERAF funding to specific  
46 local initiatives to reduce flood-related risks and prepare for emergencies. ERAF will now

1 contribute half of the required match only if the town has taken all the following steps to reduce  
2 flood damage. Otherwise, the level of State funding will be reduced to 30% of the remaining  
3 match, which will usually be about 7.5% of the total cost:

- 4
- 5 1. Adopt the most current Town Road and Bridge Standards (which can be found in the
- 6 *VTrans Orange Book: Handbook for Local Officials*).
- 7 2. Adopt flood regulations that meet the minimum standards for enrollment in the National
- 8 Flood Insurance Program (NFIP)
- 9 3. Maintain a Local Emergency Operations Plan (adopt annually after town meeting and
- 10 submit before May 1)
- 11 4. Adopt a FEMA-approved Local Hazard Mitigation Plan.
- 12

13 Currently, Morgan only meets requirement #1 and #3. All of these measures should be explored as  
14 way to minimize taxpayer expense in the event of future flood-related losses.

15

16 In addition to adopting flood hazard regulations, the town of Morgan should consider adopting a  
17 local hazard mitigation plan that prioritizes hazard issues and details next steps for addressing  
18 them. It is required by FEMA to receive grant funding to reduce or eliminate hazards such as  
19 moving or elevating structures, acquiring repetitive loss structures, or purchasing emergency  
20 generators. A local hazard mitigation plan was developed for Morgan, but it was never adopted  
21 by the town. Since that time, the FEMA approval process has become more rigorous. The State  
22 of Vermont Emergency Management and FEMA regularly make funds available for local hazard  
23 mitigation planning, so technical assistance may be available if the Town is ready to develop and  
24 adopt a plan.

### 25

### 26 **10) Land Use Map**

27 The official wall-sized Morgan Plan maps, which consist of the Base Map, Land Use/Land  
28 Cover, Natural Resource Constraints, and Flood Resilience, are on file in the Morgan Town  
29 Clerk's office and can be viewed there. Smaller 11x17 maps are appended to this plan.

1 **III. TRANSPORTATION**

2 **Present Transportation**

3 **1) Highways & Streets**

4  
5 Morgan, as a rural community, depends almost entirely on its highway system and private  
6 vehicles for transportation purposes. Thus, the highway system is of the utmost importance to the  
7 Town of Morgan. Table III.1 shows the highway mileage in Morgan broken down by  
8 classification and who is responsible for maintenance.  
9

10 Route 114 which passes through the eastern end of Town is  
11 classified as a major collector. This route runs from  
12 Lyndonville via Island Pond and Norton to Canaan.

13  
14 Morgan also has several miles of roads that have been  
15 classified as minor collectors. These include Route 111 (which  
16 connects Routes 5 and 114 thereby connecting Morgan and  
17 Morgan Center with Derby and Island Pond), the route from  
18 Morgan to Holland, and also the routes from Morgan to Charleston.  
19

<b>Table III.1 Highway Mileage</b>	
Road class	Mileage
One	0.000
Two	5.700
Three	19.460
Four	2.980
State	14.169
Total	42.309

20 **2) Parking Facilities**

21  
22 There are two public parking facilities in Morgan. At the Town Clerk's office there is enough  
23 parking for approximately 5 or 6 cars. Then, at the public beach in Morgan Center, the Town has  
24 a parking area for the convenience of those individuals wishing to use the beach. While parking  
25 is not permitted on Route 111 at the beach, parking is permitted along the west side of the  
26 Oxbow Road (town highway #27). However, parking does occur on both sides of this road and  
27 this sometimes creates a problem.  
28

29 **3) Transit Routes**

30  
31 The primary travel routes in Morgan are Routes 111 and 114. These routes, as has been stated  
32 already, connect Morgan with the surrounding towns, other parts of the state, and areas outside  
33 of the state. These routes are of primary importance to those who work outside of Morgan as  
34 well as those who own summer homes in Morgan. Rural Community Transportation operates a  
35 shopping shuttle bus that travels along Rt. 111 between Island Pond and Derby-Newport.  
36

37 **4) Terminals**

38  
39 At the present time, the nearest bus stop is in Newport City where one can catch a public bus.  
40 Rural Community Transportation (RCT) has established and continues to operate a shuttle  
41 service between Newport and Derby.  
42

43 **5) Bicycle Routes & Trails**

1 At the present time there are no local bicycle trails or routes in Morgan. However, there are  
2 regionally designated bicycle routes running through Morgan along Routes 111 and 114  
3 ([www.nvda.net/transportation](http://www.nvda.net/transportation)). Bicycles, combined with the increase in automobile traffic  
4 during the summer months, could cause traffic flow and safety problems for both cyclists and  
5 motorists.  
6

## 7 **6) Scenic Roads**

8  
9 Because of Morgan's rural setting, many if not all of the roads are considered scenic. However,  
10 the following roads need to have special mention as they are particularly scenic: Sunset Drive,  
11 Valley Rd., Champaigny Rd., and Rt. 111 between Morgan four corners and Derby. Also, the  
12 areas of Elon, Beechnut, and Bear Mountains are also scenic.  
13

## 14 **7) Airports**

15  
16 In the area surrounding Morgan there are three small airports. One of these airports is a seaplane  
17 base on Lake Memphremagog.  
18

19 Northeast Kingdom International Airport (EFK), formerly called the Newport State Airport,  
20 located in Coventry, has been in operation since 1943. Major FAA-funded upgrades were  
21 completed in 2017, and the airport now has two paved runways that are 4,000 feet long and  
22 5,300 feet long. Weight bearing capacity is 30,000 pounds for single wheel and 44,000 pounds  
23 for double wheel. Visual and navigational aides are available which allow for non-precision  
24 approaches for aircraft equipped with electronic navigational instruments.  
25

26 The other publicly owned airport in the area is the John H. Boylan State airport in Brighton. This  
27 airport, which is more commonly known as the Island Pond Airport, has a single turf runway that  
28 can be used only during clear weather conditions. This runway is designed for aircraft with  
29 wingspans less than 49 feet.  
30

31 For traditional commercial service one must travel to Burlington, Manchester, NH, Boston,  
32 Portland, ME, or Montreal.  
33

## 34 **8) Railroads**

35  
36 The nearest freight points for rail service are either in Newport or Island Pond. Passenger service  
37 is not available at either of these two points.  
38

## 39 **9) Transportation Map**

40  
41 The official transportation and circulation facilities map is on file in the Morgan Town Clerk's  
42 office and can be viewed there. Information is also available on the Base Map appended to this  
43 plan.  
44

## 45 **Proposed Transportation**

1                   **1) Highways & Streets**  
2

3 In small towns like Morgan, problems with roads perhaps revolve more around maintenance of  
4 existing roads than the need for new or better roads. In particular, the Planning Commission  
5 would like to encourage the Town to use more sand and less salt on the roads during the winter  
6 months. This will, in the long run, improve the water quality in Morgan. The Planning  
7 Commission suggests evaluating the size / condition of bridges and culverts – replace and repair  
8 substandard structures; making the maintenance of existing roads a priority; discouraging the  
9 creation of new town (and private) roads, particularly in remote areas of towns.

10  
11 Research and water quality monitoring has indicated that roads are responsible for 6-10% of  
12 phosphorus loads to Lake Champlain, and other waterways, and roads contribute over 10% of  
13 sediment loads. Excessive sediment and phosphorus can cause algae blooms, increase water  
14 turbidity (cloudiness), and degrade fish and invertebrate habitat.

15  
16 The 2015 legislative session created a new regulatory framework addressing all work on Town  
17 Highways, **The Municipal Roads General Permit**, as part of the Act 64- the Vermont Clean  
18 Water Act. This general permit is intended to achieve significant reductions in stormwater-  
19 related erosion from municipal roads, both paved and unpaved.

20  
21 Municipalities will be required to develop and implement a customized, multi-year plan to  
22 stabilize their road drainage system. The plan will include bringing road drainage systems up to  
23 basic maintenance standards, and additional corrective measure to reduce erosion. The town is  
24 currently working with NVDA to identify erosion-prone road segments connected to water  
25 bodies. This work will identify a series of stormwater improvements needed to meet the  
26 Municipal Roads General Permit Conditions.

27  
28                   **2) Parking Facilities**  
29

30 On some days during the summer months, parking at the beach in Morgan Center is a problem.  
31 While this may be somewhat related to the size of the parking lot at the beach, the real problem  
32 is caused by people who insist on parking beside the road which is presently posted with no  
33 parking signs. Route 111 in Morgan Center is not wide enough to accommodate road side  
34 parking. Road side parking in this area creates a bottleneck which makes it more difficult for  
35 through traffic to pass. While the enlargement of the existing parking lot, or the addition of  
36 another parking lot, may alleviate this problem, increased enforcement is seen as the primary  
37 solution to this problem.  
38

39                   **3) Transit Routes**  
40

41 Residents of the Town of Morgan, as well as non-residents who own land in Morgan, are most  
42 dependent on Routes 111 and 114 as these two routes are Morgan's main connection with the rest  
43 of the world. Therefore, the Morgan Planning Commission would like to stress to the Vermont  
44 Agency of Transportation how important it is that these roads are well maintained and/or  
45 improved when appropriate.  
46



1                   **4) Terminals**

2  
3   The Morgan Planning Commission is very much in favor of the availability of public transit in  
4   the area. The Planning Commission supports Rural Community Transportation’s efforts to  
5   establish the shuttle services that serve the community.  
6

7                   **5) Bicycle Routes & Trails**

8  
9   During the summer months there is a considerable amount of bicycle traffic on Routes 111 and  
10  114. The combined bicycle and automobile traffic creates a situation that is hazardous for all  
11  concerned. The ideal solution to this problem would be the building of bicycle trails that run  
12  parallel to these highways. Such trails would totally separate automobile and bicycle traffic.  
13  However, the Morgan Planning Commission realizes that the addition of bicycle lanes on both  
14  sides of Routes 111 and 114 would be a more practical solution. Therefore, the Planning  
15  Commission would like to encourage the State to consider the addition of bicycle lanes in any  
16  future improvements of Routes 111 and 114. Equally important for bicycle traffic are turn outs  
17  located at scenic spots to give bicyclists the room they need to stop and enjoy the view without  
18  causing hazards by blocking vehicular traffic.  
19

20  In 2011, Vermont’s “Complete Streets” bill was signed into law. The legislation is based on a  
21  concept that state and town streets, roads and highways should safely accommodate all  
22  transportation system users, regardless of age, ability, or what mode of transportation they prefer  
23  – walking, biking, driving, or use of transit. The policy applies when new roads are being  
24  constructed, and when paved roads are being reconstructed, rehabilitated, or otherwise  
25  maintained.  
26

27  Typical elements that make up a complete street range from sidewalks, to bicycle lanes (or wide,  
28  paved shoulders), shared-use paths, and transit stops. In rural areas examples could be the  
29  striping of shoulders on paved roads to accommodate bicyclists and others or the development of  
30  a separate multi use path. While it is not possible to retrofit all roads, the Town should advocate  
31  for measures that will allow for safe non-motorized uses where feasible.  
32

33                   **6) Scenic Roads**

34  
35  Scenic roadways contribute greatly to the beauty of Morgan. Therefore the Planning  
36  Commission would like to see these scenic corridors maintained for all to enjoy. These include:  
37  Sunset Drive, Valley Rd., Champaigny Rd., and Rt. 111 between Morgan four corners and  
38  Derby. Also, the areas of Elon, Beechnut, and Bear Mountains are also scenic.  
39

40                   **7) Airports**

41  
42  The Morgan Planning Commission favors, and encourages, the ongoing improvement and  
43  expansion of the existing airports in the region.  
44

45                   **8) Railroads**

1 While the Morgan Planning Commission realizes that rail service in and near Morgan has little  
2 or no benefit for most of the residents of Morgan, the Planning Commission does realize that  
3 such service may benefit the region. Therefore, the Planning Commission encourages the  
4 continuation of freight service in the area.  
5

6 **9) Transportation Map**  
7

8 The transportation and circulation facilities map is on file in the Morgan Town Clerk's office and  
9 can be viewed there. Information is also available on the Base Map appended to this plan.  
10  
11  
12

1 ***IV. UTILITIES & FACILITIES***

2 **Present Utilities & Facilities**

3  
4 **1) Educational**

5  
6 For further information regarding educational facilities/opportunities in Morgan, please turn to  
7 the Educational Facilities Plan.  
8

9 **2) Recreational**

10  
11 While the Town of Morgan does not offer any kind of an organized recreation program there is  
12 plenty to do in the area for those who enjoy the outdoors. Many of the recreational opportunities  
13 in Morgan are centered around Lake Seymour. There is a public beach in Morgan Center and one  
14 can enjoy swimming, boating, water skiing and fishing during the summer months. During the  
15 winter months when the lake is frozen over and snow covered one can enjoy skating, cross  
16 country skiing, snowmobiling, and ice fishing. Snowmobile trails passing through Morgan are  
17 linked to a statewide system of trails that are maintained by the Vermont Association of Snow  
18 Travelers (VAST).  
19

20 Surrounding towns also offer recreational opportunities. Jay Peak Ski Area, to the west, has  
21 become a four-season destination for Northern New England and Quebec, offering golf, skiing,  
22 ice skating, and an indoor water park. Burke Mountain Ski Area, to the south, offers both  
23 downhill and cross-country skiing in winter and cycling in the summer. Cultural forms of  
24 entertainment are available in Newport and St. Johnsbury. Many other opportunities exist as well  
25 but are too numerous to list here.  
26

27 **3) Hospitals**

28  
29 Due to Morgan's rural nature, residents of Morgan must travel to surrounding towns for health  
30 care. The nearest hospital, North Country Hospital (NCH), is located in Newport City. The  
31 Island Pond Health Center is also located in Brighton. Other hospitals available to the residents  
32 of Morgan include the Northeastern Vermont Regional Hospital in St. Johnsbury, Dartmouth-  
33 Hitchcock in Lebanon, NH, and Fletcher Allen Health Care in Burlington.  
34

35 Ambulance service is provided in Morgan by the Derby Ambulance Service and the Brighton  
36 Ambulance (Lyndon Rescue) Service. The Town of Morgan makes efforts to support these  
37 services with financial donations.  
38

39 **4) Libraries**

40  
41 The Town of Morgan does not have a library. However, Morgan does support the Dailey  
42 Memorial Library in Derby. The resources of this library are available to the residents of  
43 Morgan. Programs include story hours for children, summer reading programs, and field trips.  
44  
45

1                   **5) Electrical Utilities**

2  
3   The Vermont Electric Cooperative (VEC) owns and maintains 43.8 miles of transmission line in  
4   Morgan. At this time there is one large-scale energy generation facility in Morgan – Seymour  
5   Lake Solar, a 500 kW capacity ground-mounted plant.  
6

7                   **6) Water Supply**

8  
9   Due to the rural nature of Morgan and the fact that development is dispersed throughout the  
10   town, there are no publicly owned water supply systems. In addition, the Town of Morgan does  
11   not anticipate the need to establish such a system.  
12

13                  **7) Sewage Disposal**

14  
15   Due to the rural nature of Morgan and the fact that development is dispersed throughout the  
16   town, there are no publicly owned sewage disposal systems. Therefore, sewage disposal in  
17   Morgan is taken care of by on-site sewage disposal systems. All on-site potable water and  
18   wastewater disposal (septic) systems are regulated by Vermont’s Department of Environmental  
19   Conservation.  
20

21   Morgan has very definite limitations for rural-types of development except at a low density. The  
22   Soil Classification Study, done by the U.S. Department of Agriculture Soil Conservation Service,  
23   indicates that most of the soils in Morgan may have severe limitations for septic tanks. Only in  
24   the northwest point of the community and a small area southeast of Seymour Lake are found  
25   soils that have moderate limitations for septic tanks. There are very few areas in the community,  
26   according to this generalized soils grouping that have slight limitations for septic tanks.  
27

28                  **8) Refuse Disposal**

29  
30   Refuse disposal is handled at a transfer and recycling station that is located just off Route 111  
31   between Morgan Center and Island Pond. As the operating funds for the transfer station come  
32   from property tax receipts, there is little or no cost to the residents at the time they leave off their  
33   refuse. The only exception is for larger items. Refuse left at the Morgan transfer station is then  
34   transported to the landfill in Coventry. Recyclables, on the other hand, are transported to the  
35   aggregation center operated by the NEK Solid Waste Management District. Then, the Town  
36   receives a rebate of a portion of the District's membership fees. The amount of the rebate is based  
37   upon the amount of materials being recycled. Morgan is a member of the Northeast Kingdom  
38   Waste Management District (NEKWMD), and the district maintains the Solid Waste  
39   Implementation Plan for the town.  
40

41                  **9) Storm Drainage**

42  
43   Storm drainage in Morgan consists of ditching along all town roads, and where necessary,  
44   culverts that allow water to pass under the roads. Rip-rap has been installed at the ends of  
45   culverts to prevent wash-outs of the roads.  
46

1                   **10) Other Facilities & Activities**  
2

3   The Town Clerk's Office is a 24 X 36 foot modular building that was built in St. Johnsbury and  
4   erected on the present site in January of 1974. The northern half of this building includes an 8 X  
5   10 foot vault, office space and a rest room. The southern half is used as a conference room. This  
6   building is in excellent condition and serves the needs of the Town very well.  
7

8   Located next to the Town Clerk's office is the Community House. This building, which is used  
9   only during the warmer months, as the water is shut off during the winter, is used primarily for  
10   parties and receptions. As the fees that are charged for the use of this building support this  
11   building there is little or no cost to the Town for its upkeep  
12

13   Fire and police services are provided by a variety of contracted sources as the Town of Morgan  
14   does not, at this time, provide these services. For fire services, Morgan depends on the Derby  
15   Line, Brighton, and East Charleston fire departments. Likewise, Morgan depends upon other  
16   authorities for police service. In this case, the Vermont State Police and the Orleans County  
17   Sheriff's department.  
18

19                   **11) Utilities & Facilities Map**  
20

21   The official utilities and facilities map data is on the base map kept in the Morgan Town Clerk's  
22   office and can be viewed there. An 11"x17" copy of the base map is also attached to this plan. A  
23   copy of the soils map indicating general suitability for septic systems is available in the Morgan  
24   Town Clerk's office. An 11"x17" copy of the soils map is also attached to this plan.  
25

26   **Proposed Utilities & Facilities**

27                   **1) Educational**  
28

29   For further information regarding education in Morgan, please turn to the Educational Facilities  
30   Plan.  
31

32                   **2) Recreational**  
33

34   As the Town of Morgan is not in a position to establish a formal recreation program, the  
35   Planning Commission encourages residents to take advantage of the many recreational  
36   opportunities available in the Northeast Kingdom and Vermont. The Town should promote and  
37   protect recreational opportunities to attract visitors and help local businesses. (Economic  
38   recommendation)  
39

40   As with the Hatton Memorial Park, the Town should develop a recreational plan for its town  
41   forest.  
42  
43

44                   **3) Hospitals**  
45

1 Due to Morgan's small size, Morgan's residents will have to continue to use the hospitals and  
2 clinics located in surrounding areas. Therefore, the Morgan Planning Commission encourages  
3 the governing bodies of these health care facilities to maintain and, when appropriate, increase  
4 the quality of service provided by these facilities. The Planning Commission would also  
5 encourage the town to continue its support of those health care facilities for which support has  
6 been provided in the past.  
7

#### 8 **4) Libraries**

9  
10 The Planning Commission would like to encourage the town to continue its support of the Dailey  
11 Memorial Library in Derby.  
12

#### 13 **5) Electrical Utilities**

14  
15 The Morgan Planning Commission would like to encourage the Vermont Electric Cooperative to  
16 maintain, and when and where necessary, to upgrade the transmission/distribution lines in  
17 Morgan to ensure adequate service to Morgan's households.  
18

#### 19 **6) Water Supply**

20  
21 At this time there is no need for nor is it feasible to build a municipal water supply system.  
22

#### 23 **7) Sewage Disposal**

24  
25 At this time there is no need for nor is it feasible to build a municipal sewage disposal system.  
26 However, due to the soil conditions in Morgan the Planning Commission is concerned about on-  
27 site sewage disposal and therefore recommends that the site be carefully examined and tested  
28 before a septic system is installed. The Planning Commission also recommends that any new  
29 septic systems be installed in compliance with the isolation distances set forth in accordance with  
30 Vermont state regulations.  
31

32 The shores of Seymour Lake are heavily developed with many summer homes, many of which  
33 are located on small lots and all of which have on-site sewage systems. While some of these  
34 summer homes have been converted into year-round homes, this trend has not yet created any  
35 problems. However, as this trend continues, the increased demand placed on the sewage systems  
36 by clothes washers, dish washers, and increased usage of bathrooms could have a severe impact  
37 on the Lake. Therefore, the Morgan Planning Commission is particularly concerned about  
38 maintaining the water quality of the Lake and the impacts that could be caused by on-site  
39 systems that may fail due to age or usage in excess of design capacity. The Planning  
40 Commission supports the Vermont Department of Environmental Conservation's enforcement of  
41 the State's Wastewater System and Potable Water Supply Rules.  
42

#### 43 **8) Refuse Disposal**

44  
45 The Planning Commission recommends that the transfer station be monitored closely to insure it

1 is meeting the needs of the residents. When it becomes necessary, corrective actions should be  
2 taken to avoid problems. The Town should continue its participation in the Northeast Kingdom  
3 Waste Management District. Participation in the district meets the town's Solid Waste  
4 Implementation Plan requirement.  
5

### 6 **9) Storm Drainage**

7  
8 Good drainage is important to prevent property damage from excessive runoff. Therefore, the  
9 Planning Commission would like to encourage the Selectboard and the Road Commissioner to  
10 carefully maintain the culverts, ditches and rip-rap, and where necessary, install new drainage  
11 facilities. The town should review the bridge and culvert inventory data regularly provided by  
12 NVDA and plan for maintenance, repair or replacement of substandard structures.  
13

### 14 **10) Other Facilities & Activities**

15  
16 The Morgan Planning Commission would like the town to consider the establishment of a  
17 volunteer fire department. Having a volunteer fire department would reduce the amount of  
18 money residents pay each year for a home owner's insurance policy. In addition, it seems likely  
19 that the presence of a fire department in Morgan will reduce the response time to a fire.  
20

### 21 **11) Telecommunication Facilities**

22  
23 Towers and related infrastructure require careful consideration. These structures tend to be  
24 located on highly visible locations on mountaintops, ridgelines and in residential areas. The need  
25 for additional facilities is projected to increase in the coming years. The Federal  
26 Telecommunications Act of 1996 placed certain limitations over municipal control of these  
27 structures; however, within those confines, Morgan must act to protect the Town's historic  
28 character, rural nature, and aesthetic beauty.  
29

30 Toward that end, the Zoning Bylaws incorporate appropriate guidelines and regulations  
31 governing at least the following areas: aesthetics, integrity of residential zones, ridgeline  
32 protection, preferred locations (general and specific), and collocation or clustering of tower  
33 facilities.  
34

35 The Town of Morgan is quite concerned about the aesthetic and environmental impacts of tower  
36 facilities. When planning new infrastructure or upgrades to existing systems, special  
37 consideration shall be given to any primary or secondary impacts that would reduce resource  
38 values (including but not limited to aesthetics and streetscape design, agricultural land, timber  
39 resources, natural areas, wildlife habitat, and historic sites). In addition, when a new facility is  
40 planned, there must be clear evidence that the proposed location is necessary based upon service  
41 needs, economic considerations, potential impacts on resource values, and the resulting public  
42 benefits. In all cases, appropriate and suitable techniques shall be used to minimize or prevent  
43 any adverse impacts from the placement of telecommunication facilities and related  
44 infrastructure. The following list includes goals and policies regarding telecommunication  
45 facilities:  
46

- 1 • All such facilities shall be located in appropriate areas, respecting the integrity of  
2 residential areas, aesthetic concerns, and natural resource issues. Through the Zoning  
3 Bylaw, the Town may specify reasonable areas where these facilities may be located.  
4 This is important on a macro scale (general areas in Town) as well as a micro scale  
5 (specific desirable placement or location: for example, below ridgelines, tucked into  
6 groves of trees, and the like).  
7
- 8 • Towers and related infrastructure shall only be as tall as absolutely necessary. Where  
9 towers are located within the tree lines, they should be made to be extendable, so they can  
10 “grow” with the trees, and remain the minimum height needed above the treetops.  
11
- 12 • Structures of a height that require lighting to meet FAA requirements are discouraged.  
13 However, when lights are required, the lights shall be shielded in a manner that  
14 minimizes visibility and aesthetic impacts, and so that light is cast only where needed.  
15
- 16 • Structures shall be designed in order to minimize aesthetic impacts. Equipment sheds can  
17 be hidden in the trees; depending on site-specific circumstances, tower structures may be  
18 monopole or lattice, of appropriate colors and minimal reflectivity, or even disguised as  
19 trees or steeples. Towers and related infrastructure shall be screened from view to the  
20 greatest extent possible.  
21
- 22 • Electric or transmission lines shall be installed so as to minimize aesthetic and ecological  
23 impacts. For example: clear-cut swaths, created for power lines or access roads which go  
24 straight up the mountainside, often create far more adverse impacts than the towers they  
25 serve, and are not acceptable.  
26
- 27 • The Town reserves the right to hire independent consultants to evaluate the application  
28 and facility as well as to monitor the facility over time. The applicant shall pay for the  
29 reasonable costs of these services.  
30
- 31 • All equipment shall be downsized as technology advances and removed when no longer  
32 used or needed. These requirements can minimize aesthetic intrusion, while maximizing  
33 the potential to serve a greater number of users in the same physical area. A bond may be  
34 required to ensure that funds are available to accomplish these purposes.  
35
- 36 • The above notwithstanding, telecommunications providers now have the option to bypass  
37 local permitting by applying for a Certificate of Public Good (CPG) from the Vermont  
38 Public Utility Commission (PUC). The Town is notified of any CPG applications within  
39 its boundaries and given the opportunity to participate in the proceedings. The Planning  
40 Commission will review and participate in the PUC Section 248 process as necessary.  
41

## 42 **12) Proposed Utilities & Facilities Map**

43  
44 There are no proposed Utilities and Facilities to be mapped at this time.  
45



1 ***V. PRESERVATION***

2 **1) Rare & Irreplaceable Natural Areas**

3 Lake Seymour (1,777 acres) is the largest lake in Vermont that lies totally within the boundaries  
4 of the State. It is also known as one of the cleanest lakes in the State and possibly even in the  
5 Country. As such, Lake Seymour is a wonderful and beautiful natural resource that draws a large  
6 number of people to Morgan every summer. Because of the demands placed on Lake Seymour,  
7 the Planning Commission feels that development on the Lake should be very carefully monitored  
8 to prevent the destruction of this beautiful lake.  
9

10 **2) Scenic Features**

11 As one approaches Lake Seymour on Route 111 from the west there is a parcel of land on which  
12 stands a sign indicating the upcoming Lake Seymour. In addition, from this parcel are some  
13 wonderful views of the Lake. Since the adoption of the last town plan in 1997 this parcel of land  
14 has been preserved and has been named the Hatton Memorial Park. It is the feeling of the  
15 Planning Commission that this parcel of land and its views of the Lake must be maintained for  
16 all future generations to enjoy.  
17

18 **3) Historic Features**

19 Historic features in the Town of Morgan include the two churches (one of which is being used by  
20 the historical society) and the community house. The community house in particular has played a  
21 significant role in both town government and the town's social life. The Planning Commission  
22 recommends the continued maintenance and upkeep of these three buildings.  
23

24 ***VI. EDUCATIONAL FACILITIES***

25 **Present Educational Facilities**

26 During their school age years, children and teenagers in Morgan attend three different schools.  
27 For many years, children in grades K through 6 attended the Elizabeth Taylor Hatton School in  
28 Morgan. At the Town Meeting on March 5, 2012 the town voted to close the Elizabeth Taylor  
29 Hatton School and tuition the 33 K-6 students to Derby Elementary School. Seventh and eighth  
30 graders attend the North Country Union Junior High School in Derby. Finally, Morgan's high  
31 school students attend the North County Union High School in Newport City.  
32

33 **1) Elizabeth Taylor Hatton School**

34  
35 The Elizabeth Taylor Hatton School is located in Morgan on town road 12 just a short distance  
36 north of the Town Clerk's office. The original part of this building was built in 1962 or 1963 and  
37 has an addition that was built about five or six years ago.  
38

39 The Elizabeth Taylor Hatton School is used by the Town of Morgan for the Town's annual town  
40 meeting.  
41

42 **2) North County Union Junior High School**  
43

1 The Junior High is located in Derby on the east side of Route 105 just north of the intersection of  
2 Routes 105 and 111. The site on which this building sits is approximately 10-11 acres in area.

3  
4 This building is approximately 35 years old and includes a 1989 addition which approximately  
5 doubled the school's floor area. Within the older part of the building are 17 classrooms, the  
6 computer room, a gymnasium with a stage, the living arts room, and the industrial arts room. The  
7 addition includes 4 more classrooms, 2 science labs, the band and chorus rooms, the library, and  
8 the cafeteria.

9  
10 The Junior High was designed for a maximum of 450 students, however as the present  
11 enrollment is only 333 (22 from Morgan), overcrowding is not a problem. At this time, there are  
12 no plans for the enlargement of this building. However, it should be noted that the 1989 addition  
13 was designed to easily accommodate future expansions. In addition, the size of the school's site  
14 allows ample space for future expansions of the building, parking and sports fields at such time  
15 these improvements become necessary.

16  
17 Aside from the normal day to day problems relating to regular building and materials  
18 maintenance there does not seem at this time to be any serious problems. The building is  
19 adequately staffed and text books are updated on a regular basis.

20  
21 Computers play an important role in the education that is provided to the students at NCUJHS  
22 and efforts are made to keep them up to date.

23  
24 The Junior High's building and grounds are used on a regular basis by the Community as well.  
25 Recreation activities, sports, meetings, craft fairs are just a few of the activities that take place on  
26 the school grounds after school hours. The Town of Derby also uses the school for voting and  
27 finally, it should be noted that adult education classes are offered at the Junior High via satellite  
28 from the University of Vermont.

### 30 **3) North Country Union High School**

31  
32 The 35 high school age (grades 9-12) students living in Morgan attend school at the North  
33 Country Union High School in Newport City. This building was erected in 1967 and was  
34 designed for about 1,000 students. With a present enrollment of 1,000 to 1,100 students, the  
35 building is not considered overcrowded, however, the administration is aware of the fact that  
36 enrollment is above design capacity.

37  
38 The course of study at North Country has been designed to meet the needs of both the college  
39 bound student and those who desire to enter a career right out of high school. The college  
40 preparatory course of study includes the usual high school courses in English, social studies,  
41 mathematics, science, foreign languages along with options in art, music, business, and  
42 extracurricular activities. For those seeking to enter a career right out of high school, NCUHS  
43 offers the North Country Career Center. This program prepares students for careers in  
44 automotive technology, building trades, commercial art, office technology, computer aided  
45 design and drafting, culinary arts, graphic arts/photography, the medical field, marketing, and  
46 metal fabrication. The North Country Career Center is also available to adults who are seeking

1 new career skills.

2  
3 In addition to the regular use of the building as a high school, the community also uses the building for  
4 other things as well. Both the Community College of Vermont and North Country offer adult education  
5 classes. A local church holds its weekly worship services at North Country. Finally, local sports teams use  
6 the gymnasium and grounds for their games.  
7

## 8 **Proposed Educational Facilities**

### 9 **1) K – 6 Students**

10  
11 The Town will continue to tuition all Kindergarten through Sixth Grade students to the Derby  
12 Elementary School for the near future. The Town should monitor the ongoing cost of this  
13 arrangement and overall student performance to ensure that this is the best and most affordable  
14 option for students and taxpayers.  
15

### 16 **2) North County Union Junior High School**

17  
18 To ensure that Morgan's junior high age students are getting a good education, the Morgan  
19 Planning Commission urges the School Board and Staff to continue to keep text books,  
20 materials, equipment, and facilities up to date.  
21

### 22 **3) North Country Union High School**

23  
24 To ensure that Morgan's high school age students are getting a good education, the Morgan  
25 Planning Commission urges the School Board and Staff to continue to keep text books,  
26 materials, equipment, and facilities up to date.  
27

## 28 29 ***VII. ADJACENT TOWNS & THE REGION***

30 Morgan abuts four organized municipalities and two of the six unorganized towns. The  
31 organized towns include Derby, Holland, Brighton, and Charleston. The unorganized towns are  
32 Warner's Grant and Warren Gore (part of the UTG). At this time Derby, Holland, and the UTG  
33 (Unified Towns & Gores) are the only municipalities abutting Morgan that have town plans in  
34 effect. Holland's town plan will expire in February 2017, Derby's town plan will expire in March  
35 2019, and Holland's town plan is set to expire in January, 2022. The development plan for the  
36 Unified Towns & Gores will expire in October, 2019.  
37

### 38 **Brighton**

39 For the area of Brighton that abuts Morgan, the Brighton Town Plan (which expired in 2018) is  
40 suggesting 2 acre lots along Route 114 and 25 acre lots in that area of Brighton that abuts  
41 Morgan. This should encourage a continuation of the existing patterns of land use in this area.  
42 This density of development is not incompatible with that which is proposed by this town plan.  
43 A plan amendment is in development. The draft plan is intended to pursue substantial deference.  
44 No changes in development densities are proposed.

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**Charleston**

Charleston adopted its first plan in 2013, primarily out of opposition to utility scale wind development. The plan expired in 2018; however, a new plan is proposed. If adopted, the municipality intends to seek Substantial Deference for its plan in PUC proceedings. The proposed plan continues to assert that utility-scale wind development is incompatible with the rural character of the community. Like Morgan, the plan proposes a local constraint to development at 1,700 feet. The town does not have zoning, and the plan does not propose to adopt zoning. However, because of the long-time, rural nature of the land use along the boundary between Morgan and Charleston, the Planning Commission does not anticipate any major impact as a result of development on either side of this boundary.

**Derby**

Of all of the towns surrounding Morgan, it is likely that Derby will have the greatest impact on Morgan. This impact will be due to Derby's economic growth which could affect the entire Town of Morgan, not just that area along the Derby/Morgan town line. This impact can best be reduced by making sure that development in Morgan is limited to those areas best suited for it.

**Holland**

The Town of Holland does have a town plan and it suggests that most of the land in Holland along the Holland/Morgan boundary be set aside for conservation purposes. Therefore, the Morgan Planning Commission does not anticipate any adverse impacts along this boundary. The town does not have zoning. Although Holland has a current town plan, a plan amendment is in development. If adopted, the town intends to seek Substantial Deference for its plan in PUC proceedings.

**Warner's Grant & Warren Gore**

Development in Warner's Grant and Warren Gore is very limited and most of the lands in these two areas are forested. Residential development is non-existent in Warner's Grant and only four people reside in Warren Gore. While Warren Gore has a number of summer camps, most of these are located around Norton Pond which lies in the northern half of the Gore. With regard to future development, the town plan for the Unified Towns and Gores advocates a continuation of the forested land use that already exists in these two areas. Likewise, this Plan also advocates limited development for those areas in Morgan which abut Warner's Grant and Warren Gore. Therefore, future development on either side of the boundary lines should not have much of an impact on Morgan or Warner's Grant or Warren Gore.

**Regional Context**

Table 3 indicates the percentage change in population for Morgan, the surrounding towns, Orleans County and the Region between the 1990 and 2010 Censuses. These numbers show that Morgan's rate of growth during the 20-year period exceeded the rates of growth for most of the other geographic areas listed. Most of this growth is due to residential and second home development. It seems that Morgan's appeal may be due to Lakes Seymour and Salem, and the Town's proximity to the growing areas of Derby and Newport City. The Morgan Zoning Bylaw

1 currently has an industrial district to allow light industry and broaden the Town’s tax base.

2  
3 Because there has been no industrial development in this district, the Planning Commission does  
4 not anticipate any adverse impacts on the neighboring towns of Charleston, Derby and Holland.  
5 Any adverse impacts can be dealt with by placing conditions on the industrial permits that are  
6 issued.

## 8 **VIII. HOUSING**

9 This section of the Plan looks at housing in Morgan. Data concerning occupancy, persons in  
10 occupied units, numbers of bedrooms and bathrooms, rent paid, and mortgage and monthly costs  
11 will be presented and discussed. This section will also attempt to determine future housing needs  
12 in Morgan. Most of the data used in this section [comes](#) from American Community Survey Five-  
13 Year Estimates. Some of the data presented in this part of the plan will be medians. The median  
14 of a group of data is that point where half of the data fall below that point and half are above that  
15 point. For example, with median value of houses, half of the houses are valued less than the  
16 median and half are valued more than the median.

### 18 **Present Housing Data**

19 According to most recent American Community Survey estimates, there are dwelling units in  
20 Morgan. Of these units, only about one-third (261) are occupied year-round, and the remaining  
21 two-thirds (535) are vacant. All but 19 of the vacant units are held for seasonal, recreational, or  
22 occasional use.

23  
24 Occupied units in Morgan seemed to have ample room for the occupants. The average owner-  
25 occupied unit has 2.07 persons per unit, and the average renter occupied unit has 1.84 persons  
26 per unit. Both are below respective county-wide averages of 2.36 and 2.14.

27  
28 Morgan's housing stock is relatively young. One half of the Town's 732 structures have been  
29 built since 1978. The two decades from 1980-99 saw the greatest amount of building. In  
30 addition, 80.6% of Morgan's housing has been built since 1940. Table VIII.2 has more details.  
31 Note: Morgan Community Survey respondents indicated a median year built of around 1949, but  
32 this discrepancy may reflect the high proportion of seasonal respondents, whose camps and  
33 cottages tend to date to the early part of the 20<sup>th</sup> century. Some of this seasonal stock, however,  
34 has been renovated and remodeled.

Total Units	796
Built 2014 or later	6
Built 2010-2013	5
Built 2000-2009	144
Built 1990-1999	67
Built 1980-1989	109
Built 1970-1979	130
Built 1960-1969	74
Built 1950-1959	97

Built 1940-1949	25
Built 1939 or earlier	139
Median year built	1975

1  
2  
3 **Affordability**

4 The objective of this section is to demonstrate housing affordability in Morgan.  
5 A household’s total housing costs should be 30% or less of the household income in order to be  
6 considered affordable. While the 30% rule generally applies to housing costs for all income  
7 brackets, Vermont statute sets different income limits for owner-occupied housing and for rental  
8 housing. Rental housing is classified as “affordable” if it serves households earning no more than  
9 80% of area median income (AMI), while owner-occupied housing is considered affordable if it  
10 is priced to serve households earning up to 120% of AMI. This change in statutory definition  
11 accounts for the number of higher income individuals who still have difficulty finding suitable  
12 housing.  
13

14 The 120% threshold is often referred to as “workforce” housing. It is typically used to describe  
15 housing for those who are gainfully employed in occupations that are essential to a community,  
16 such as teachers, healthcare workers, first responders, as well as occupations that may pay  
17 relatively lower incomes, such as food services, retail, hospitality and tourism. It does not  
18 typically include age- or income-restricted housing, nor is it likely to be supported through the  
19 use of subsidies.  
20

21 According to the latest American Community Survey estimates, the median household income in  
22 Morgan was \$37,396. This was lower than median income in Orleans County (\$43,959). The  
23 median family income in Morgan for the same period was \$52,750 (in Orleans County, the  
24 figure was \$55,101). Per capita income for that same period was \$33,921, a figure that was  
25 higher than the \$24,204 for Orleans County.  
26  
27

28 According to the Vermont Department of Taxes, in 2017, there were 14 residences properties  
29 fewer than six acres sold with an average sales price of \$291,559, and 15 residential properties  
30 with more than six acres sold with an average price of \$271,684. There were 11 seasonal  
31 residences with less than six acres sold in the same year with an average price of \$234,545, and  
32 four seasonal residences with more than six acres sold with an average price of \$92,500.  
33

34 Of the 230 owner-occupied housing units in Morgan, 33% of owners with a mortgage were  
35 spending more than 30% of their incomes on housing.. (By comparison, 37% of Orleans County  
36 residents with a mortgage were paying more than 30% of their incomes on housing.) Of Morgan  
37 homeowners without a mortgage, 36% were spending more than 30% of their income on  
38 housing. (By comparison, just under 25% of Orleans County residents without a mortgage were  
39 paying more than 30% of their income on housing.  
40

41 Similarly, for 13 rental units 74% of households were spending more than 30% of their gross  
42 household income on housing costs. (By comparison, 52% of Orleans county renters paid more  
43 than 30% of their income on rent.) Affordability is an issue for renters in the community.

1

2 **Projected Housing Needs**

3 By examining recent population growth, it may be possible to estimate future growth in the  
4 community. The population in Morgan increased from 497 persons in 1990 to 749 persons in  
5 2010 (an increase of 252 persons). The average increase per year over the 20 year period was  
6 12.6 persons. In 2016, the total estimated residential population was 531, marking a significant  
7 population decrease of 28%. This counters population projections developed by the State of  
8 Vermont, which indicated a 15% population increase in Morgan by the year 2030.

9  
10 Morgan has a high percentage of vacant homes, which might play a role in providing housing for  
11 the Town's projected population. According to most recent estimates from American Community  
12 Survey, more than 65% of Morgan's housing stock is vacant, primarily for seasonal and  
13 recreational use. However, due to the fact that many of these structures may be situated on  
14 private roads that are not maintained in the winter, accessibility can be a very real problem. In  
15 addition, some of these units may also be located on lots with questionable soils for on-site  
16 sewage disposal and/or sewage disposal systems. In the event that any of Morgan's vacant units  
17 are suitable for year-round occupancy, Morgan's need for new year- round housing units can be  
18 greatly reduced or, in some cases, even eliminated. It is interesting to note that out of 86 part-  
19 time residents who responded to the Morgan Community Survey, 13 indicated that they intended  
20 to become full-time residents in the next 10 years. Another 36 respondents were unsure or  
21 decided about their plans.

22  
23 The reader should note that the Town of Morgan is not and will not be in the business of  
24 providing housing for the residents of Morgan. The purpose of this housing element is only to  
25 help the Town understand the existing housing situation and plan for the Town's future growth.  
26 The most effective strategy for ensuring affordable housing in a town the size of Morgan is to  
27 ensure that accessory dwelling units are treated as a permitted use of an owner occupied  
28 dwelling, and that the zoning districts make reasonable accommodations for multi-unit  
29 dwellings. Both are mandated in statute.

30  
31  
32  
33 ***IX. ECONOMIC DEVELOPMENT***

34 The Town of Morgan is a rural community with an economy based primarily upon agriculture,  
35 forestry, and outdoor recreation.

36  
37 According to the VT Dept. of Labor, as of December 2017, the total labor force for Morgan was  
38 370 persons. Ten persons) persons were unemployed, making the unemployment rate  
39 approximately 3.6%. Due to Federal budget reductions, employment estimates for towns with  
40 populations of under 1,000 were discontinued in 2018. Latest American Community Survey Five  
41 Year Estimate of 2012-2016 show a significantly smaller workforce of 215, with 278 not in the  
42 work force (e.g. retired).

43  
44 In 2018 Morgan had only nine business establishments providing covered employment,  
45 collectively employing between up to 34 persons. The business establishments are very small so

1 much of the employment data is suppressed. However, business establishment in Morgan tend to  
2 employ fewer than 10 people. Seven of the nine businesses are in the private sector –  
3 construction, retail, and the rest in the professional services sector (e.g. real estate, technical  
4 services). Two establishments were in the public sector – the postal service and the town  
5 government.

6  
7 The town has a high percentage second homeownership. The majority of seasonal units are  
8 located around the lakes in the town. Recreation is important to second homeowners and  
9 continues to be an important part of Morgan’s local economy.

10

11



1 **X. ENERGY**

2 We the residents of the Town of Morgan and members of the Town Planning Committee have  
3 worked hard to express our vision of an energy plan for the town. The process has been a  
4 struggle for many of us because of our experiences dealing with the State of Vermont in two  
5 important conflicts. In both conflicts we have tried to interact with representatives of state  
6 government in a respectful and legal way, and have had strong support by town residents. One  
7 conflict has been over the request of the town to be allowed to control the level of the dam on  
8 Lake Seymour in order to prevent flooding of lake shore property during spring floods. The  
9 other conflict was over the application of a local energy investor to put up high profile solar  
10 panels in an existing important agricultural field within view of many property owners on Lake  
11 Seymour.

12  
13 Lake Seymour is one of the most important physical and historical features of the Town of  
14 Morgan. It is important to property values in the town, and to a sense of who we are as a town.  
15 In both of our conflicts with the state the town has been treated very disrespectfully. We have  
16 not been allowed to regulate the lake level even though there is a clearly stated legal decision  
17 that the town should be allowed to do so. And in the case of the solar project, the state did not  
18 allow for proper procedures to be followed during the site visit and did not ever address our legal  
19 objections.

20  
21 The residual feelings of resentment and animosity that town residents and planning committee  
22 members feel towards the state became very apparent as we worked to put together the Energy  
23 Section of the new Town Plan. As we seek to move forward as a town to do our part to  
24 contribute to a wise statewide energy plan we want to acknowledge our reservations about the  
25 good will of the state. Some residents are so concerned about a lack of local control that they  
26 have sold their beloved properties on Lake Seymour. Several members of the group that put this  
27 town plan together struggled repeatedly as we drafted the Energy Section. We feel it is  
28 important to state that we have come to this final plan with the hope that our efforts are worthy  
29 of better treatment from the State of Vermont than we have received in the past.

30 **Introduction**

31 Energy generation and transmission systems that are linked to the electrical grid are preempted  
32 from local land use regulation. They are instead regulated by the Public Utility Commission  
33 (PUC) under 30 V.S.A. Section 248 (i.e. Section 248 review). These include net-metered  
34 distributed energy installations, as well more commercial, utility-scale generation, and  
35 transmission and distribution facilities.

1 Until recently, the PUC was only obligated to give “due  
2 consideration” to municipal and regional plans prior to  
3 issuing a Certificate of Public Good. In 2016, however,  
4 the Vermont legislature passed Act 174, which  
5 established a new set of energy planning standards for  
6 municipalities seeking more input on the siting of  
7 electric generation siting. Plans that meet these  
8 standards receive “substantial deference” – in the  
9 Section 248 process. Unlike “due consideration,”  
10 “substantial deference” is defined in statute:

11 *“...that a land conservation measure or specific policy*  
12 *shall be applied in accordance with its terms unless*  
13 *there is a clear and convincing demonstration that*  
14 *other factors affecting the general good of the State*  
15 *outweigh the application of the measure of policy.”*

16  
17 Under Act 174, the requirements for regional and  
18 municipal plans are based on statewide energy policies and goals in the Vermont Comprehensive  
19 Energy Plan. Those goals and policies are summarized in the box on the right.

**Energy Goals and Policies from the  
Vermont Comprehensive Energy  
Plan (2016)**

- Meet 90% of all energy needs from renewable resources by 2050
- Reduce greenhouse gas emissions to 50% below 1990 levels by 2028 and 75% by 2050
- Improve the energy efficiency of 25% of homes by 2025
- Meet the Vermont Renewable Energy Standard through renewable generation and energy transformation

20  
21 The new energy planning standards require that local plans address four broad categories:

- **Analysis and Targets:** an assessment of current energy use and targets for future consumption;
- **Pathways:** actions and strategies to achieve future targets – this section provides an overview of pathways to achieve targets. More specific strategies are contained in the Implementation Chapter of this Plan’
- **Renewable energy generation:** Existing generation, targets for generation by the year 2050, and generation potential; and
- **Mapping:** renewable energy resource maps and siting guidelines for renewable energy generation facilities.

31  
32 **Analysis and Targets: Current and Future Energy Use**

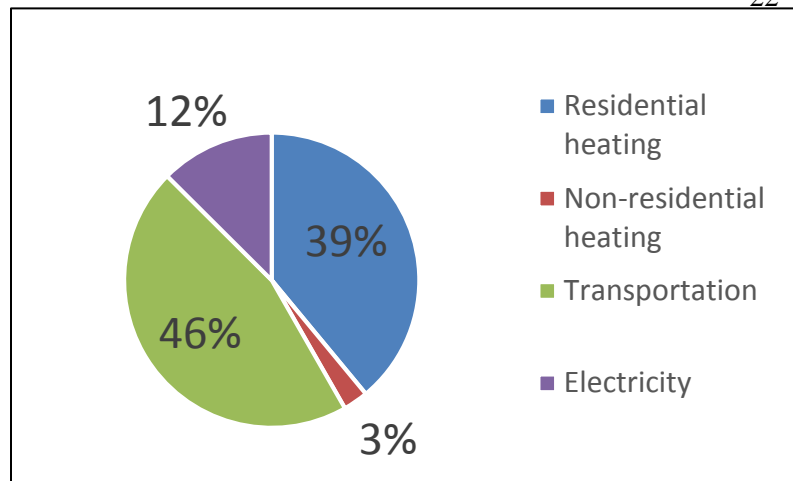
33 *Note: the following estimates are targets and were developed with the assistance of NVDA. They*  
34 *follow the same data methodologies used for the 2018 amendment to the Regional Plan for the*  
35 *Northeast Kingdom. Unless otherwise noted, data and figures in this chapter are from*  
36 *Northeastern Vermont Development Association. Addenda A and B to the Regional Plan*  
37 *document the methodologies used to develop usage estimates and targets. ([www.nvda.net](http://www.nvda.net))*

38  
39 Energy for the heating, lighting, and hot water needs are available from a variety of sources.

1 Heating oil and LP Gas is available from several local  
2 distributors and dealers. Electricity is provided in Morgan by  
3 the Vermont Electric Cooperative. Finally, gasoline is  
4 available in Morgan and some of the surrounding  
5 communities.

6  
7 Morgan has a small village center and a densely settled lake  
8 community surrounded by extensive rural settlement and  
9 open space. According to latest American Community  
10 Survey 5-Year Estimates, 94% of the community’s housing  
11 stock consists of detached single-family homes. With little  
12 commercial and industrial development, nearly all of its  
13 residents travel out of town for work, shopping, and other  
14 necessities. This pattern of development is linked with  
15 considerable energy use to meet transportation, heating, and  
16 electricity needs. According to NVDA estimates, the town of  
17 Morgan uses nearly 87,000 million British Thermal Units  
18 (MM BTUs), the majority of which are spent on  
19 transportation. (Figure X.1)

20  
21 *Figure X.1: Energy Use in Morgan*



22  
23  
24  
25  
26 accounting for more than \$750,000 in fuel costs. Nearly all of this energy is non-renewable.  
27 Ethanol currently accounts for all renewable transportation energy usage in Morgan – about 6%  
28 of total BTUs.

29  
30  
31  
32  
33  
34  
35  
36  
37  
38  
39  
40 There are three kinds of electric vehicles (EVs) available: all-electric, plug-in hybrid electric, and  
41 hybrid electric. The first two require a plug-in, and the latter simply recharges from the  
42 combustion motor and from braking). As of January 2017, there were no plug-in all-electric  
43 vehicles (EVs) registered in Morgan. There are limited opportunities to charge electric vehicles  
44 as well. The nearest public charging stations are in Derby Line and in Barton. Both are level 2  
45 (240 volt), which can produce about 10 to 20 miles of range per hour of charge, depending on the  
46 weather. Nevertheless, EVs have the greatest potential to reduce Vermont’s statewide

### What is a BTU?

Fuels come in a variety of measurements – by cord, by gallon, by kilowatt – so this plan converts units of measurement into **British Thermal Units (BTUs)** in order to compare their energy output consistently. According to the US Energy Information Administration a BTU is the measurement of the quantity of heat required to raise the temperature of one pound of liquid water by 1° F at the temperature that water has its greatest density (approximately 39 °F.) One BTU is a miniscule amount, so BTUs are often measured in the millions (MM BTUs).

### Current Transportation Energy Use

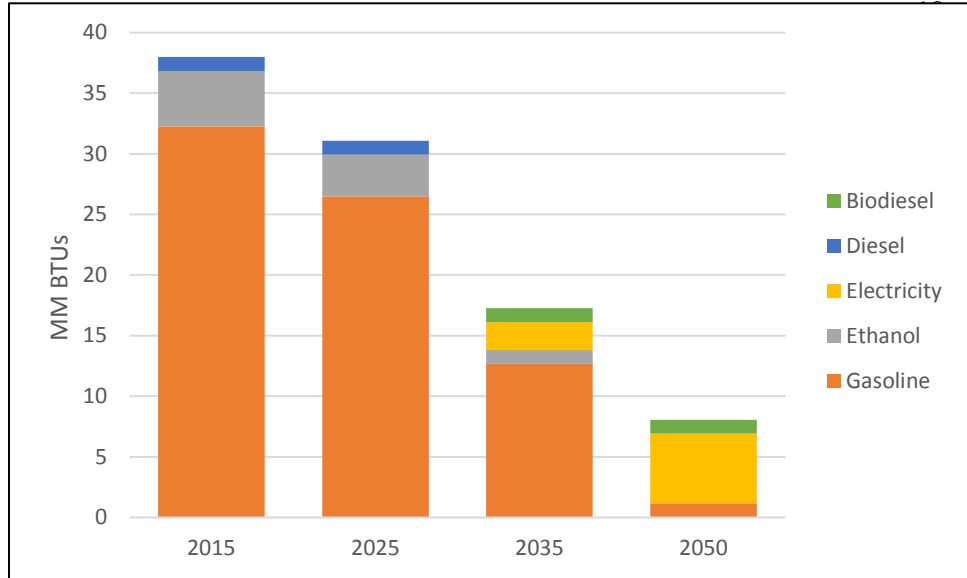
Energy use in transportation is most greatly influenced by the development patterns of the region. According to NVDA estimates, long commutes and incidental trips require NEK residents to drive an average of 14,000 miles per year. That means collectively, Morgan residents drive roughly 7.4 million miles annually,

1 greenhouse gas emissions. “Refueling,” which is as simple as plugging into an electric outlet,  
 2 costs the equivalent of about \$1.00 per gallon.  
 3

4 **Future Transportation Energy Use and Pathways to 2050**

5 Figure X.2 shows one possible pathway for Morgan to meet the “90 by 2050” challenge. These  
 6 figures for Morgan are derived from statewide LEAP projections. (LEAP stands for Long-Range  
 7 Energy Alternative Planning Systems, a widely software tool for energy policy analysis.)  
 8

9 *Figure X.2: Morgan Light Duty Vehicle Use by Fuel*



According to the LEAP scenario, Morgan’s transportation use total transportation use will have fallen to **just over one-third of current levels by the year 2050**. Electricity, use accounts for the largest share of fuels by then, accounting for 6 MM BTUs. Biofuels will

26 account for 1 MM BTUs. Gasoline use will drop by 96% over that same period. Electrification  
 27 will account for much of the overall reduction: EVs currently have a fuel efficiency many times  
 28 greater than that of combustion engines. Latest figures from the EPA show that EVs in the  
 29 northeastern US get the equivalent of 102 miles per gallon.<sup>1</sup> This estimate also accounts for  
 30 technological gains by 2050, gradually increasing range from 3 miles per kWh to 4 miles per  
 31 kWh.  
 32

33 *Table X.1: Future Light Duty Vehicle (LDV) Use by Fuel Type*

	2025	2035	2050
# of LDVs in Morgan*	594	658	752
# of LDVs powered by electricity	70	225	483
# of LDVs using biofuel blends	478	329	58

34 \*figures are derived from American Community Survey estimates

35  
 36 According to LEAP estimates, more than half of all light-duty vehicles in Morgan are expected  
 37 to be powered by electricity by the year 2050. Despite the lack of infrastructure and rough rural  
 38 terrain of the region, industry forecasts predict that more than half of all new car sales will be

<sup>1</sup> <https://blog.ucsusa.org/dave-reichmuth/new-data-show-electric-vehicles-continue-to-get-cleaner>

1 EVs by the year 2040<sup>2</sup>. Although EVs are expected to play a major role in reducing  
 2 transportation energy use; however, Morgan will still have to reduce its overall reliance on light  
 3 duty vehicles in order to meet 2050 LEAP projections. This is a tall order for any rural  
 4 community where development patterns directly impact energy use, especially in regards to  
 5 individual behaviors. With limited transit infrastructure, the region is dominated by single-  
 6 occupancy light-duty vehicles. Residents typically commute to disparate labor market areas,  
 7 reducing opportunities for carpooling. VTrans offers grant assistance to municipalities who wish  
 8 to establish park and rides on municipal, state, or leased property on or near state highways.  
 9 While mixed-use, higher density neighborhoods encourage more pedestrian use, these land use  
 10 principles will be hard to achieve in a small community like Morgan, which has no off-site water  
 11 or sewer. Nevertheless clustering development, wherever possible, should be encouraged in the  
 12 town’s zoning bylaws. Alternative transportation accommodations, such as bike and pedestrian  
 13 lanes, can help to reduce reliance on vehicles. Additionally, improved telecommunications  
 14 infrastructure in this region has the potential to reduce annual VMTs by allowing more workers  
 15 to telecommute. Given that the vast majority of Morgan residents are employed outside of the  
 16 community, ride sharing is another opportunity to reduce transportation consumption.

17  
 18 **Existing Thermal Use**

19 Collectively, total energy use for heating all occupied units in Morgan accounts for about 31,033  
 20 MM BTUs annually at an annual cost of close to \$411,000.

21 *Table X.2: Morgan Residential Heating by Fuel Type*

Fuel Type: Space Heating	House holds	Total avg. Use (Annual)		% Use: (All HHs)	Percent of Use: Owner	Percent of Use: Renter	% of Cost (All HHs)
<b>Tank/LP/etc. Gas</b>	71	63,918	gallons	24.9%	26.1%	18.2%	<b>39.5%</b>
<b>Electricity</b>	2	48,413	KwH	0.7%	0.8%	0.0%	<b>1.8%</b>
<b>Fuel Oil</b>	119	70,165	gallons	41.8%	39.8%	52.3%	<b>38.1%</b>
<b>Wood</b>	91	374	cords	31.9%	32.4%	29.5%	<b>20.6%</b>
<b>Coal/Coke</b>	0	-	tons	0.0%	0.0%	0.0%	<b>0.0%</b>
<b>Other</b>	2	-		<b>0.7%</b>	<b>0.8%</b>	<b>0.0%</b>	<b>0.0%</b>

22  
 23 Wood is the second most popular source of heating for owner-occupied residences. Renters, who  
 24 generally have less control over their heating fuel sources, are more likely to rely on fuel oil.  
 25

26 Although this calculation uses best available data, it clearly has some limitations. First, like most  
 27 Northeast Kingdom residents, Morgan residents are likely to use multiple heating sources.  
 28 Second, this estimate does not account for the large share of seasonal housing units in Morgan,  
 29 for which no published heating datasets are available. Department of Public Service guidelines  
 30 suggest that it is reasonable to assume that seasonal units account for a mere fraction of the

<sup>2</sup> Bloomberg New Energy Financial: Electric Vehicle Outlook 2018 <https://about.bnef.com/electric-vehicle-outlook/>  
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1 average owner-occupied housing unit – about 5%. There are 503 seasonal units in Morgan.  
 2 Assuming 5% of the average owner-occupied housing unit (about 110 MM BTUs), they could  
 3 collectively account for another 2,767 MM BTUs annually. Long-range housing trends may  
 4 indicate a conversion of seasonal homes to year-round. A continuation of this trend could affect  
 5 future energy projections.

6  
 7 Age of housing stock also affects thermal energy use. According to ACS 5-year estimates, just  
 8 under 16% of Morgan’s owner-occupied housing stock predates 1940. However, more than 60%  
 9 of renter-occupied housing predates 1940. This is significant because pre-1940 structures are  
 10 likely to be “leaky” and poorly insulated, which can nearly double the average thermal use to  
 11 80,000 BTUs per square foot. (Department of Public Service). NVDA therefore assumed 80,000  
 12 BTUs per square foot for pre-1940 housing stock, 45,000 BTUs for all other.

13  
 14 Non-residential thermal estimates were developed using data from the Department of Public  
 15 Service and the Vermont Department of Labor’s economic and Labor Market Information.  
 16 (Table X.3) The Census does not have estimates on heating sources, but the DPS is able to  
 17 estimate average heating loads on types of business. Additionally, this estimate excludes  
 18 commercial operations likely to be home-based, such as daycares, in order to avoid double-  
 19 counting.

20 *Table X.3: Non-residential heating use in Morgan*

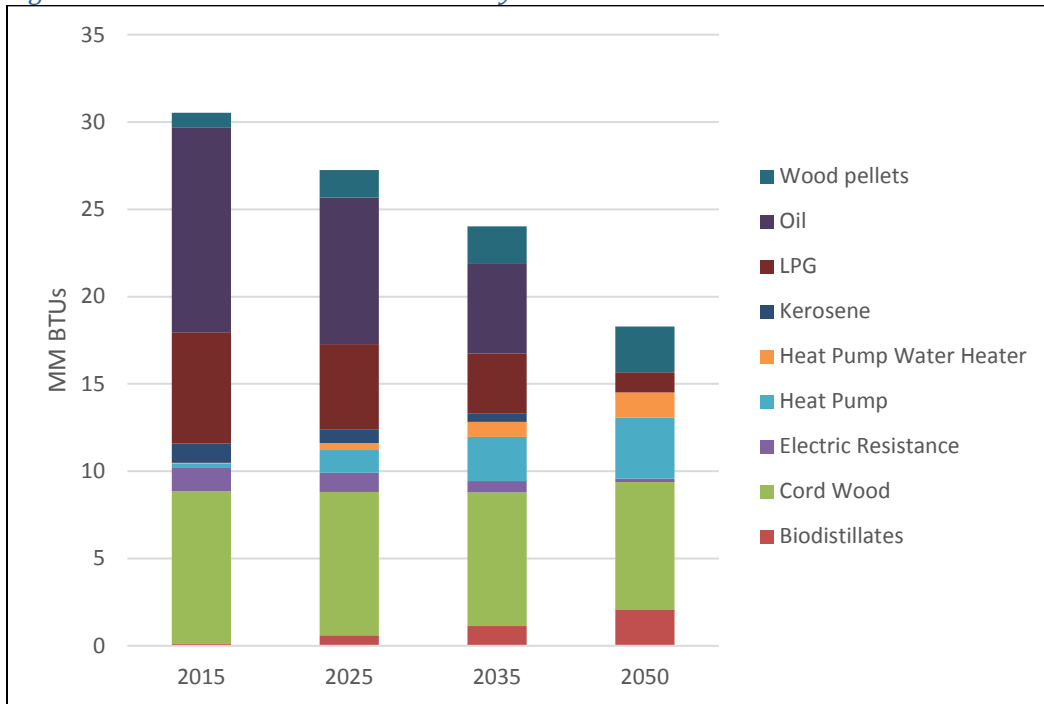
NAICS Code	Estimated Avg. Consumption (MMBTU)	# of Structures in Town	Total MM BTUs
44-45. Retail trade	295	1	295
52. Finance and insurance	761	1	761
53. Real estate and rental and leasing	432	1	432
54. Professional and technical services	109	1	109
56. Administrative and waste services	302	2	604
81. Other services, except public administration	174	1	174
<b>TOTAL</b>		7	2375

21  
 22 Public administration functions – the Morgan town clerk’s office and the community center --  
 23 add about 83 MM BTUs annually. The community center averages about 30 gallons (3 MM  
 24 BTUs) of propane a year, but extended use in the winter could increase heating fuel consumption  
 25 to as much as 600 gallons (55 MM BTUs) a year. The town clerk’s office uses about 580 gallons  
 26 of fuel oil (80 MMBTUs) annually.

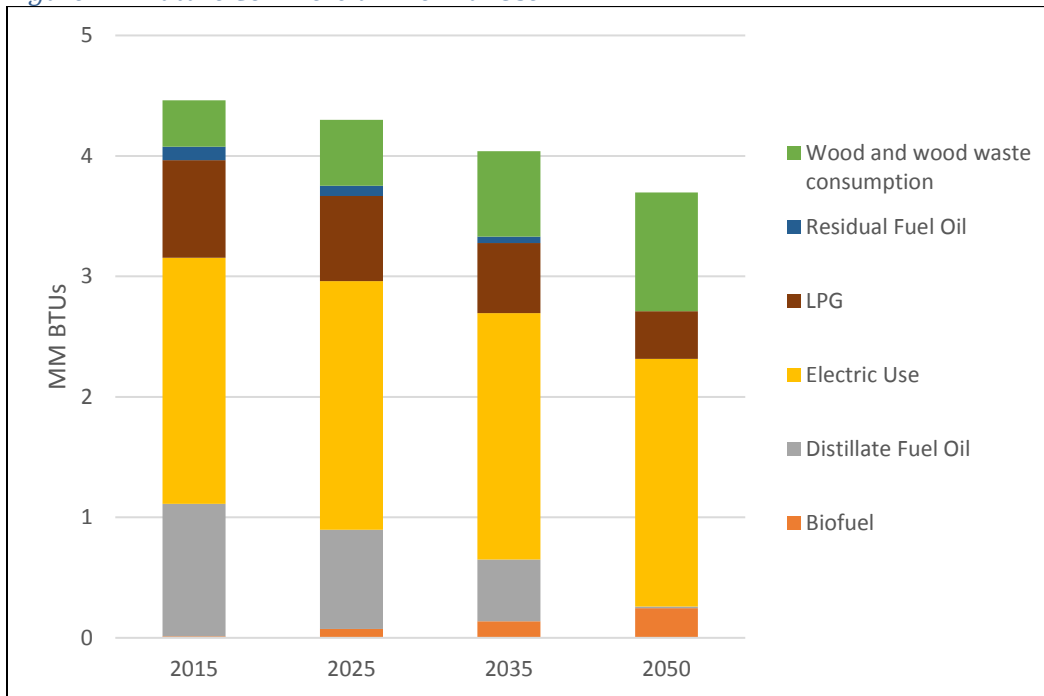
27  
 28 **Future Thermal Use and Pathways to 2050**

29 Figures X.3 and X.4 illustrate potential pathways for Morgan to achieve the 2050 statewide  
 30 energy goals. According to these LEAP scenarios, residential thermal use decreases to just 60%  
 31 of existing levels, or 18 MM BTUs by 2050. By contrast, Morgan’s non-residential/commercial  
 32 thermal use (which is already very small) decreases by just under 15% from current levels.

1 *Figure X.3: Future Residential Thermal by Fuel Source*



2  
3 *Figure X.4: Future Commercial Thermal Use*



4  
5 Achieving Morgan’s 2050 thermal energy codes is predicated on two overarching strategies:

6 **1. Reduce overall heat energy consumption through aggressive weatherization and**  
7 **efficiency upgrades.**

8 The Planning Commission strongly advocates the conservation of energy and energy efficiency.  
9 This plan recommends the use of energy saving products such as insulation, efficient appliances,



1 and, when necessary the use of winter weatherization products such as weather stripping,  
 2 window plastic, and water heater wraps. New construction and the replacement of old appliances,  
 3 doors, and/or windows should always be done with energy efficient products. In addition, energy  
 4 efficient behavior (shutting lights off when leaving the room, turning the thermostat down at  
 5 night, etc.) should be taught and used, at home and in the workplace.  
 6

7 Both the Town Clerk’s Office and the Community Center received thermal energy efficiency  
 8 audits in 2011. The audit reports recommended efficiency improvements and provided estimated  
 9 costs and payback periods for those improvements. The Planning Commission recommends that  
 10 the necessary improvements be made to these buildings to make them more energy efficient,  
 11 thereby reducing costs and saving taxpayer dollars.  
 12

13 The US. Energy Information Administration estimates that new homes generally consume 21%  
 14 less energy for space heating than homes built before 2000. Nevertheless, there are several siting  
 15 techniques for development that are likely to result in additional conservation of energy.  
 16 Building on south facing slopes will generally make a house less expensive to heat. Earth  
 17 sheltered homes may also be less expensive to heat. Shade trees can also be planted to reduce  
 18 cooling costs on warm days, just as evergreen trees can be planted to lessen the effect of winter’s  
 19 freezing winds.  
 20

21 *Table X.4 Weatherization Targets for Morgan*

	2025	2035	2050
Estimated number of households	302	320	339
# of households to be weatherized	77	135	144
Estimated number of commercial establishments	8	9	10
# of commercial establishments to be weatherized	1	1	2

22  
 23 **2. Switch from fossil-fuel heat to clean renewable sources.**

24 Fuel oil use will be virtually eliminated by 2050, although some LP gas use may remain.  
 25 Although cord wood will continue to be a popular choice in the region, wood pellets, which are  
 26 cleaner burning and more efficient than cord wood, are gaining popularity among residents.  
 27 Their prices have remained relatively stable, although there have been some shortages in recent  
 28 heating seasons. Geothermal, or “ground source heat pump systems”, extract natural low-  
 29 temperature thermal energy from the ground during colder months for heating, and transfer  
 30 thermal energy from the building to the ground in warm months for cooling. A geothermal  
 31 system in Vermont can save roughly \$1,000 to \$2,000 annually in heating costs and have a  
 32 “simple payback time” of between 10-20 years. This technology operates much like a  
 33 refrigerator, utilizing a heat pump, heat exchanger, and refrigerant. While geothermal systems do  
 34 require electricity to operate the pumps, the systems generally deliver between 3 to 5 times more  
 35 heat than the electrical energy they consume (depending on the type of system). NVDA maps  
 36 show an area in Morgan with geothermal potential.  
 37

38 Geothermal pumps require excavation and duct work, pricing the technology out of reach for  
 39 many residents. In recent years, however, manufacturers have developed a similar air-sourced  
 40 heat pumps that operate more consistently over Vermont’s vast temperature ranges. Also called  
 41 “cold climate heat pumps” or “mini splits”, these units can be two to three times more efficient



1 than propane and fuel oils. Unlike geothermal units, they do not require excavation or duct work  
 2 and can be much less expensive to install. Cold climate heat pumps have the capacity to heat  
 3 about only 50% to 70% of a building, depending on the size and layout of the structure. Some of  
 4 Morgan’s with multiple heating zones may be difficult to heat with heat pumps alone, but the  
 5 pumps may be effective for boosting colder underserved zones. They also may be useful in  
 6 outdoor workspaces. Despite recent improvements in effectiveness on cold days, a backup  
 7 heating source is usually required for sub-zero temperatures. Nevertheless, the superior  
 8 efficiency in heat pump technology, compared to combustion-based heating sources, accounts  
 9 for the overall decrease in the reliance on wood heat systems by the year 2050.

10  
 11 *Table X.5: Thermal Fuel Switching Targets for Morgan*

	<b>2025</b>	<b>2035</b>	<b>2050</b>
New Efficient Wood Heat Systems in Residences	202	167	121
New Efficient Wood Heat Systems in Commercial Establishments	2	3	4
New Heat Pumps in Residences	60	128	162
New Heat Pumps in Commercial Establishments	1	2	2

12 **Existing Electricity Use**

13 Reports from Efficiency Vermont show that electricity use has declined in Morgan residences  
 14 from an average of 3,936 kWh in 2015 to 3,813kWh in 2017.

15  
 16 *Table X.6: Morgan Electricity Use by Year and Sector (in kWh)*

	<b>2015</b>	<b>2016</b>	<b>2017</b>
Commercial & Industrial, kWh	464,171	480,330	474,509
Residential, kWh	2,712,213	2,703,396	2,611,879
Total kWh	<b>3,176,384</b>	<b>3,183,726</b>	<b>3,086,388</b>
Count of Residential Premises	689	687	685
Average Residential Usage, kWh	3,936	3,935	3,813

17  
 18 The same dataset indicates that Morgan residences and commercial and industrial customers  
 19 have achieved savings representing a total of 187,936 kWh since 2015. The vast majority of the  
 20 savings have been accomplished through switching to more efficient (LED) light bulbs and by  
 21 replacing hardwired lighting fixtures. Other efficiency measures include switching to higher  
 22 efficiency appliances (such as EnergyStar).

23  
 24 **Future Electricity Use and Potential Pathways**

25 While electricity use trends in Morgan are on the decline, it is important to remember that total  
 26 electricity use is actually expected to increase by 2050 due to fuel switching in thermal and  
 27 transportation uses. (LEAP projections for the town indicate a 250% increase for electricity for  
 28 thermal and transportation uses.) This increase seems counterintuitive to energy use reduction  
 29 goals, but because electricity is more efficient than the fuels it will replace, total energy  
 30 consumption declines even as electricity use rises. Nevertheless, meeting efficiency goals  
 31 through ongoing replacement of equipment, bulbs, hardwiring, etc., will be critical for meeting  
 32 the 2050 energy use goals.

1 *Table X.7: Morgan Residences with Upgraded Electrical Equipment by Year*

	2025	2035	2050
Estimated number residential customers	453	480	509
Number of residential customers to upgrade electrical equipment	120	189	277

2 **Existing Energy Generation and Distribution**

3 Morgan is served by the Vermont Electric Coop (VEC), which has become increasingly involved  
 4 with the issues and policies associated with renewable energy production, particularly  
 5 distributed, small-scale power generation. VEC is a member-owned electric distribution facility  
 6 and its customer base is primarily residential. The utility maintains a diverse power supply using  
 7 a variety of fuel mixes and combinations of short- and long-term contracts to minimize costs and  
 8 maintain price stability. According to VEC’s 2016 Power Supply Report, only about 3% of its  
 9 power currently comes from gas or oil.

10  
 11 The Town of Morgan currently generates about 684.6 MWh of solar energy through three sites.  
 12 One is a roof-mounted installation with a 2.3 kW capacity. The other two are ground-mounted  
 13 PV trackers along Route 111 (capacity of 55.9 kw) and on Valley Road (500 kW). These sites  
 14 are indicated on the Solar Resources Map.

15  
 16 **Future Energy Generation and Distribution**

17 If the Town of Morgan were to generate enough energy to meet the regional new generation  
 18 goals of 2050, it would have to produce about 215 MW of renewable energy. This number is  
 19 based purely on the town’s share of the regional population. Existing generation in Morgan does  
 20 not count toward this target, but the region already has a low net generation target, mainly  
 21 because of the industrial wind production in Sheffield and Lowell. The region’s net generation  
 22 target for new solar ranges from 246 MW to 377 MW. There is no regional net generation target  
 23 for wind.

24  
 25 **Siting Guidelines for all Energy Generation**

- 26  
 27 1. The Planning Commission recommends the development of renewable energy resources.  
 28 These would include the use of wood, solar, and wind energy. The Planning Commission  
 29 supports the development of renewable energy technologies in accordance with the mapping  
 30 and siting standards in this plan, as well as ordinances in the Town’s Zoning Bylaw.  
 31 Incentives (e.g., waivers, density bonuses) should be provided under local regulations for  
 32 energy efficient development, and for the incorporation of appropriately-scaled net-metered  
 33 renewable energy facilities in new development.  
 34  
 35 2. The Town of Morgan is in favor of energy projects that shall contribute substantially to the  
 36 financial well-being of the town, and which can be implemented without:  
 37
  - causing adverse impacts on agricultural or silvicultural resources;
 38   - without disrupting the established rural way of life;
 39   - curtailing any of the professionally authenticated natural trails, water ways, or flight
 40   - paths of the wildlife; and
 41   - jeopardizing the natural beauty of our lake and its watershed, for it is the natural

1 beauty of the lake and its landscape, its inspiring views, its uncluttered, leisurely pace,  
2 and its wildlife that encourage people to build summer places on Seymour Lake, the  
3 largest natural lake within Vermont's borders, and pay the taxes that currently return  
4 more than a million dollars a year beyond town expenses to the state treasury.  
5

- 6 3. Energy development shall not result in undue adverse impacts to surface waters, ground  
7 water and mapped source protection areas, core forest areas, inventoried wildlife habitat and  
8 travel corridors, and mapped scenic resources.  
9
- 10 4. Facilities are to be sited to outside of, or to the edge of scenic views or viewsheds so that  
11 they are not a prominent focal point. Facilities, accessory structures and access roads are to  
12 be located along existing tree lines, or on otherwise disturbed forestland, as necessary to  
13 avoid the fragmentation of, and to minimize and mitigate adverse impacts to productive  
14 timber stands and critical forest habitat.  
15
- 16 5. Energy facility development must benefit the Town of Morgan and its adjacent communities  
17 (residents and businesses). The benefit must be in direct relation and proportion to the  
18 documented impacts of the proposed development on community facilities, services,  
19 economy and resources.  
20
- 21 6. Morgan, like the northern sector of the Northeast Kingdom, is located in an area with grid  
22 congestion. In this area – which known as the Sheffield Highgate Export Interface (SHEI) –  
23 existing energy generation exceeds load. In essence, the region generates far more power  
24 than it consumes, causing generation to exceed the capacity of the export line. The  
25 continued addition of new sources of generation, like solar, forces existing resources, like  
26 Kingdom Community Wind and Sheffield Wind, to curtail their output due to the lack of  
27 capacity to export power. Adding more renewables to an already full grid at this point can  
28 simply mean replacing other renewables. While modest transmission upgrades may help to  
29 alleviate some congestion in the short-term, the situation will require robust, long-term  
30 solutions that are complex and possibly costly.<sup>3</sup>  
31

32 The region has recently experienced a sharp increase in the number of renewable energy  
33 applications which will worsen already congested transmission in the SHEI. While the town  
34 of Morgan encourages appropriately scaled renewable energy development, it has a  
35 commitment to ensure that such development is sustainable and feasible and does not  
36 merely substitute one renewable resource with another. The Town of Morgan supports  
37 energy development that will not exacerbate curtailment at issue within the SHEI. It is  
38 unlikely that any single solution will solve congestion within the SHEI and, as such, it is  
39 anticipated that incremental progress will be achieved as partial solutions are implemented.  
40 In the meantime, the Town will support projects that are consistent with the land use and  
41 conservation measures in this plan. Additionally, we will expect project developers to work  
42 with utilities and other stakeholders to explore innovative strategies that shift generation  
43 away from the hours when generation exceeds load within the SHEI area or otherwise  
44 avoids exacerbating congestion on the grid. An example of such a project would pair a  
45 battery with a solar facility to control when the project's power is exported to the grid.

---

<sup>3</sup> Frank Etori, SHEI Overview, VSPC, July 12, 2017 v. 2

- 1  
2 7. The height, setbacks, and access of renewable energy projects must be carefully considered  
3 with the goal to minimize impact to the viewshed and neighboring landowners.  
4  
5 8. Siting should involve the Agency of Natural Resources at the start of the project to avoid  
6 problems with wetlands and protected and threatened species. Siting must avoid hazard area  
7 such as floodplains and steep slopes, conservation areas where there will be an adverse  
8 impact on surface waters, primary agricultural land as mapped by the USDA Natural  
9 Resource Conservation Service for the state and significant wildlife habitat areas. Impacts to  
10 forestland should be minimized by using existing roads and locating along existing tree lines  
11 to avoid forest fragmentation.  
12  
13 9. The following forms of energy development will be considered for support by the Town of  
14 Morgan, in order of priority:  
15     • In-place upgrades of existing facilities, including existing transmission lines,  
16     distribution lines and substations as needed to serve the town and region. To the  
17     extent physically and functionally feasible, existing utility systems, including  
18     transmission lines, distribution lines and substations, shall be upgraded or expanded  
19     on site or within existing utility corridors before new facilities or corridors are  
20     considered;  
21     • Individual and group net-metered renewable energy projects, community-based  
22     projects, and other small- scale distributed renewable energy systems serving  
23     individual users, in appropriate, context-sensitive locations; and  
24     • New community-scale energy facilities, including new transmission and distribution  
25     lines, substations, hydro dams, wind and solar farms, co-generation facilities and  
26     biomass plants that are designed to meet the expected needs of the Town of Morgan  
27     and its adjacent communities.  
28  
29 10. New facilities shall be sited in a manner that avoids or, to the greatest extent physically  
30 feasible, minimizes the need for new and extended access roads and utility corridors.  
31 Facility access should be provided from existing access roads where physically feasible, and  
32 access roads and utility corridors should be shared, to minimize site disturbance, resource  
33 fragmentation, the creation of additional edge habitat, and the introduction and spread of  
34 invasive exotic species.  
35  
36 9. Generation facility permits or certificates for systems with a capacity of 100 kW or more  
37 must include provisions for system abandonment, decommissioning, and site restoration  
38 including, required sureties for facility removal and site restoration.  
39  
40 10. When evaluating the impacts of a proposed facility under the siting guidelines set forth in  
41 this Town Plan, the cumulative impact of existing adjacent facilities and approved pending  
42 adjacent facilities shall be considered. It is explicitly understood that a proposed facility  
43 which by itself may not have an adverse impact, may be deemed to have an adverse impact  
44 when considered in light of the cumulative impacts of all adjacent facilities. For example,  
45 two or more mid-scale solar facilities sited side by side may be considered a large-scale

1 facility and will be required to be sited accordingly, even though the facilities remain in  
2 separate ownership.

### 4 ***Energy Mapping and Siting Guidelines***

5 There are numerous places in Morgan where solar power and non-utility scale wind power may  
6 be feasible. The following map analyses, closely follow the Northeast Kingdom’s Regional  
7 Energy Plan and meet Act 174 standards for renewable resource mapping.

#### 9 **Known and Possible Constraints**

10 Morgan’s energy maps were generated using GIS (geographic information systems) data layers  
11 developed by the Vermont Center for Geographic Information. “Known constraints” were  
12 removed entirely from available resource areas:

- 13 • Vernal pools
- 14 • River corridors (areas prone to fluvial erosion)
- 15 • Floodways (where floodwaters run the deepest and fastest)
- 16 • State significant natural communities
- 17 • Rare, threatened, and endangers species
- 18 • Natural wilderness areas
- 19 • Class 1 and 2 wetlands

21 **“Possible constraints,”** areas that would likely require some form of mitigation if they were to  
22 be developed, were then identified to as potential complications for development generation  
23 facilities:

- 24 • Soils of agricultural importance (e.g. prime agricultural soils, soils of statewide  
25 importance)
- 26 • Special flood hazard areas (outside of floodways and river corridors)
- 27 • Protected and conserved lands
- 28 • Deer wintering areas
- 29 • Hydric soils (soils that are either permanently or seasonally saturated with water.  
30 Although these soils may function as wetlands, they are not necessarily mapped as Class  
31 1 or Class 2 wetlands)
- 32 • Conservation design highest priority forest blocks (contiguous habitat areas that are  
33 unfragmented by roads, development, or agriculture)

34  
35 Resource areas that do not overlap with any known or possible constraints are considered  
36 **“Prime”** resource areas. Areas that overlap with possible constraints are consider **“Secondary”**  
37 resource areas.

#### 39 **Local Constraints**

40 Act 174 authorizes municipalities to identify local resource areas where renewable energy  
41 development is inappropriate – and development is already restricted.

42  
43 All new energy facilities are specifically prohibited in lands above 1,700 feet elevation, in  
44 conformance with longstanding town policies to limit all high elevation and ridgeline

1 development due to its undue adverse scenic and environmental impacts.

2  
3 **Designated Scenic Areas:** The documented historic, rural and scenic character of the following  
4 areas in the Town of Morgan shall be preserved under any form of new energy development.  
5 New energy facilities sited within or as viewed from these areas shall not create a significant  
6 physical, visual, audible, or historically incongruous or incompatible intrusion into these areas.  
7 New facilities with a capacity greater than 15 kW, substations and transmission lines, are  
8 specifically prohibited within or as viewed from these areas unless associated impacts can be  
9 avoided, for example through facility siting, screening or line burial. These areas include:

- 10
- 11 • Significant views within the Seymour Watershed area (Routes 111, 114, and 105); and
- 12
- 13 • Views from locally designated scenic roads, as listed or as subsequently designated by
- 14 the Morgan Selectboard.
- 15
- 16

### 17 **Solar Siting Guidelines**

18 For purposes of this plan, solar facilities are grouped into three categories of scale:

19

20 **Small-Scale:** Facilities with a capacity of up to 15 kW capacity. (This would include residential  
21 roof-mounted panels, which are typically about 4 kW.

22

23 **Mid-Scale:** Facilities greater than a 15 kW capacity and no more than 150 kW capacity, or more  
24 than two acres of developed area, including fencing, whichever is greater; and

25

26 **Large-Scale (aka “utility scale”):** Facilities with a capacity of more than 150 kW or more than  
27 two acres of developed site area, whichever is greater.

28

29 The Town strongly supports the development of small- and mid-scale solar facilities where  
30 sufficient solar resources are present and environmental and local constraints permit. Community  
31 Solar Projects, which offer opportunity to people who otherwise lack access to the benefits of  
32 solar energy production, are of particular interest to the town of Morgan. This plan defines  
33 Community Solar as group net-metered solar installations ranging from 15 kW to 150 kW, where  
34 shares in a facility are sold to the property owner, neighbors, community members, and local  
35 organizations in proportion to their annual energy use.

36

37 **Unsuitable (prohibited) areas** for solar development include the following locations:

- 38 • Known environmental constraints (see page 23)
- 39 • Very steep slopes, with natural (pre- development) grades in excess of 25%;
- 40 • Surface waters, wetlands and associated setback and buffer areas, as specified for all
- 41 development under town bylaws;
- 42 • Any location that would significantly diminish the economic viability or potential
- 43 economic viability of the town’s working landscape, including productive forest land and
- 44 agricultural soils as mapped by the US Natural Resource Conservation Service;
- 45 • Ridgelines or other landscape features where the facility would be prominently visible
- 46 against the skyline from public vantage points, such as roads;

- A site that causes adverse impacts to historic or cultural resources.

**Roof-Mounted Small-Scale Solar:**

Roof-mounted small-scale solar installations are considered preferred sites and shall not be restricted anywhere in town, provided they are not on historic structures. Solar panels and other roof- or wall-mounted structures shall not be placed on primary building facades, including street-facing walls or roofs, unless there is no other suitable location on the site or structure.

Roof- or building-mounted systems on an historic structure shall not physically damage the structure, alter its character-defining features, including existing roof lines or dormers, nor obstruct significant architectural features such as overlaying windows or architectural detailing. Attachment points must be minimized and allow for future system removal.

Ground installations are generally preferred to roof-mounted installations on historic structures. Ground installations, to the extent functionally-feasible, shall be installed in locations that minimize their visibility, such as a side or rear yard, and be screened from view of public rights-of-way and adjoining properties.

**Mid- and Large-Scale Mounted Solar**

New solar facilities with a capacity greater than 15 kW must comply with Morgan’s solar screening ordinance, as well as the following siting criteria:

- New solar facilities are to be located on nonagricultural land or along field edges to avoid fragmentation of, and to minimize and mitigate adverse impacts to agricultural land and open fields.
- New solar facilities shall be sited where sufficient screening will mitigate the visual impact of the facility on the following scenic attributes: viewsheds where fields form an important foreground; prominent ridgelines that can be seen from many public vantage points and thus form a natural backdrop for many landscapes; historic buildings and gateways to the village area; and scenes that include important contrasting elements, such as the Lake.

The town supports large-scale solar facilities (greater than 150 kW capacity) on preferred sites, as identified below and on the Town of Morgan’s Solar Resources Map.

**Preferred Sites:**

- Roof-mounted systems
- Parking lot canopies
- Brownfields
- Disturbed areas, such as gravel pits and closed landfills
- Community solar projects
- On-farm generation where more than 50% of the power generated is used by the farm
- Preferred sites identified in the Morgan Solar Resources Map

1 **Solar Generation Capacity**

2 A very conservative estimate of potential solar generation indicates that Morgan can site new  
3 solar facilities in accordance with these guidelines **and still significantly exceed new net**  
4 **generation goals for 2050**. The potential of rooftop solar –a preferred site – should not be  
5 overlooked. While not every rooftop is viable, a conservative estimate of one out of every ten  
6 residential and seasonal structures could produce .33 MW or 402 MWh by 2050. Morgan’s two  
7 mapped preferred sites – both of which are located on town land and close to power lines –  
8 contain roughly 12 acres of land available for production. Collectively the two sites alone could  
9 generate 1.5 MW or 1,839 MWh. The balance of roughly 300 acres of prime solar lands – not  
10 counting lands within one mile of the Lake – could provide nearly 5 MW of additional solar or  
11 more than 6,100 MWh. This calculation of the balance of prime solar land assumes a  
12 conservative estimate of 1 MW for every 60 acres to account for the fact that not every prime  
13 acre of solar land will actually be available due to high connection costs, lack of interest from the  
14 property owner, or other unforeseen factors.

15  
16 **Wind Siting Guidelines**

17 For purposes of this plan, wind turbines are grouped into three categories of scale:

18  
19 **Small-Scale:** Facilities with a hub height of less than 100 feet (including the blade, measured  
20 vertically from the ground to the rotor blade tip at its highest point) and a capacity of up to 10  
21 kw.

22  
23 **Mid-Scale:** Facilities greater than a hub height no greater than 125 feet, and capacity of up to  
24 100 kW.

25  
26 **Large-Scale (aka “utility scale”):** Facilities with a hub height of more than 125 feet and a  
27 capacity of more than 100 kW.

28  
29 The Town of Morgan has determined that only small- and mid-scale wind power generation is  
30 appropriate in the town. There are no locations where large-scale turbines would not be obtrusive  
31 and disruptive to Morgan’s rural character and recreation-based economy. Mid-scale turbines are  
32 appropriate only for placement at commercial or industrial uses for the purpose of supplementing  
33 on-site energy consumption. All wind development must meet the state’s noise and  
34 environmental standards. No turbines in the designated scenic area shall extend in total height  
35 more than 30 feet above the existing tree canopy or other obstructions within 300 feet of the  
36 tower, whichever is greater.

37  
38 **Biomass**

39 With 17,489 acres of forest cover and 13,830 acres of woody biomass, the town should be able to  
40 support woody biomass for local heat generation. Although the town has no industrial or  
41 institutional uses woody biomass heating, there are a number of industrial and institutional uses  
42 in Derby and Newport. Forestland intended for commercial biomass production must be  
43 sustainably managed, and acceptable management practices must be followed to preserve critical  
44 forest habitat and long-term forest health, and water quality. The Town of Morgan has special  
45 concerns for maintaining high elevation forested cover, where vegetation cover may reduce flood



1 flows and reduce sediment load.  
2 There are no farms in Morgan where methane digesters are viable. However, the Town does  
3 encourage the development of biofuel crops to support farms and businesses in the region.  
4 Research has found that oilseed crops, when grown in rotation with other crops, can help to  
5 support sustainable, diversified, and profitable agricultural enterprises. The Town encourages  
6 further innovation and research into this area as a long-range economic opportunity.  
7

### 8 **Hydro**

9 There are no active hydroelectric sites in the Town of Morgan; however, a site at the outlet of the  
10 lake, just below the dam, which would be ideal for a hydro-energy project. Unfortunately, a  
11 capacity study has not been completed for this site, nor is it likely that new hydro sites will be  
12 permitted due to high standards of environmental regulation. A previous attempt to establish in  
13 micro-hydro generation in Orleans County was unsuccessful for this reason. Nevertheless the  
14 town supports efforts to development and environmentally responsible and economically viable  
15 hydro facility at this site.  
16  
17

1 **XI. IMPLEMENTATION**

2 Many of the sections of this plan contain a subsection that presents proposed projects which  
3 the Planning Commission suggests are carried out during the eight year period this plan is  
4 effective. This section of the Plan is a summary of these proposed goals and strategies.  
5

6 **Proposed Land Use Goals**

7 **1. Forests**

8 Areas in Morgan which are remote, having wetlands, steep slopes and/or shallow soils should  
9 have a very low density of development.  
10

11 **2: Recreation**

12  
13 Due to present demand and given the recreational opportunities available, a formal municipal  
14 recreation program seems unnecessary. However, the Town needs to protect the natural  
15 resources that provide the recreational opportunities. A recreational plan for the town forest is  
16 recommended.  
17

18 **3. Agriculture**

19  
20 Areas with good (prime) agricultural soils should be given priority consideration with regard  
21 to conservation to encourage the continued operations of farms in these areas.  
22

23 **4. Residences**

24  
25 Residential land uses should be allowed in most areas of town. The density of development  
26 should be dependent upon the availability of access via existing roads and the ability of the  
27 soil to handle on site water and sewer systems.  
28

29 **5. Commerce**

30  
31 Commercial uses should be encouraged in the villages of Morgan and Morgan Center. The  
32 Planning Commission will consider telecommunications towers and renewable energy  
33 facilities in other zones and participate in the Public Utilities Commission process as  
34 applicable. To do this the Morgan Zoning Bylaw were amended to include the appropriate  
35 regulations for telecommunications and renewable energy facilities. The town is supportive of  
36 home-based businesses. (*Economic recommendations*)  
37

38 **6. Industry**

39  
40 Non-polluting, light industrial uses are encouraged in the Town's Industrial/Residential  
41 District to strengthen the Town's tax base and provide employment opportunities for Morgan  
42 residents. Value-added agricultural production initiatives are encouraged. (*Economic*  
43 *recommendations*)  
44

1           **7. Public & Semi Public Uses**  
2

3 It would be desirable to obtain additional property to expand the Town Forest at some point  
4 in the future. As previously suggested, a recreational plan is recommended for the Town forest  
5 as the Town's residents are encouraged to make use of the Town forest for recreational  
6 purposes.  
7

8           **8. Conservation of Open Spaces**  
9

10 Major wetlands in the community should be recognized and protected from filling and  
11 development. The Morgan Planning Commission would like to encourage farmers in Morgan to  
12 maintain buffer strips between bodies of water and agricultural uses.  
13

14           **9. Floodplains and Flood Resilience**

15 Minimize taxpayer expense in the event of flood damage to public infrastructure, such as roads  
16 and culverts.  
17

18           **Strategies for Land Use Goals:**

- 19       • Review local zoning regulations to ensure minimal fragmentation of forested cover and  
20       agricultural lands. Evaluate site plan review standards for placement of building  
21       envelope, location of private roads. Consider subdivision regulations that meet statutory  
22       standards.
- 23       • Review local zoning regulations to ensure accommodation of home-based industries and  
24       resource-based enterprises that support farming and forestry. Ensure that standards give  
25       careful consideration to impervious surface coverage, building envelope placement,  
26       impacts to roads, and impacts to neighboring properties.
- 27       • Seek Certification of Substantial Deference from the Regional Planning Commission in  
28       order to have a stronger say in siting renewable energy developments subject to Section  
29       248.
- 30       • Consider a Land Evaluation Site Analysis: A study can identify lands for priority  
31       consideration for conversation protection. Talk with landowners about conservation  
32       easements.
- 33       • Promote enrollment in the Use Value Appraisal (Current Use) Program. Encourage  
34       individuals to have and follow a management plan.
- 35       • Develop a recreation plan for the Town Forest.
- 36       • Consider expansion of the Town Forest.
- 37       • Continue to evaluate the possibility of adopting flood hazard regulations that, at a  
38       minimum, ensure eligibility for flood insurance through the National Flood Insurance  
39       Program.
- 40       • Review and evaluate statewide river corridor information. Consider adopting regulations  
41       that will protect erosion prone areas for additional development and encroachment.
- 42       • Maintain and regularly update the Local Emergency Operations Plan.
- 43       • Develop a Local Hazard Mitigation Plan.  
44

1 **Proposed Transportation**

2 **1. Highways & Streets**

3  
4 The Planning Commission would like to encourage the Town to use more sand and less salt on  
5 the roads during the winter months. The Planning Commission supports the maintenance of  
6 existing roads and related infrastructure rather over creating new roads.  
7

8 **2. Parking Facilities**

9  
10 Alleviate the problem of road side parking at the beach in Morgan Center.  
11

12 **3. Transit Routes**

13  
14 The Planning Commission would like to emphasize to the Vermont Agency of Transportation  
15 how important it is that Routes 111 and 114 are well maintained and/or improved when  
16 appropriate.  
17

18 **4. Terminals**

19  
20 The Planning Commission encourages the establishment and/or continuation of regular public  
21 transit (i.e. van or bus routes). The Commission also supports the development of park & ride  
22 facilities for carpooling.  
23

24 **5. Bicycle Routes & Trails**

25  
26 The Planning Commission would like to encourage the State to consider the addition of bicycle  
27 lanes or widening of road shoulders in any future improvements of Routes 111 and 114.  
28

29 **6. Scenic Roads**

30  
31 The Planning Commission would like to see scenic corridors maintained for all to enjoy. These  
32 include Sunset Drive, Valley Rd., Champaigny Rd., and Rt. 111 between Morgan four corners  
33 and Derby. Also, the areas of Elon, Beechnut, and Bear Mountains add to the scenic beauty of  
34 the town. These roads were selected because of the broad, scenic vistas and the complimentary  
35 landscapes.  
36

37 **7. Airports**

38  
39 The Morgan Planning Commission supports the expansion and upgrading of the Newport Airport  
40 as outlined in the Airport Master Plan for the Newport State Airport.  
41

42 **8. Railroads**

43  
44 The Morgan Planning Commission encourages the continuation of rail freight service in the area.  
45

1           **Strategies for Transportation Goals:**

- 2           • Continue to meet the VTrans Road and Bridge standards. Participate in regional road  
3 foreman trainings and Transportation Advisory Committee meetings to stay abreast of  
4 flood resilience measures for the Town’s roads and bridges. Increase enforcement to stop  
5 roadside parking along the highway at the beach.  
6           • Explore the possibility of either enlarging the existing parking lot at the beach in Morgan  
7 Center or adding another parking lot. Work with NVDA and VTrans to establish a park  
8 and ride in Town.  
9

10 **Proposed Utilities & Facilities**

11           **1. Recreational**

12  
13 At this time the Planning Commission would recommend that the residents of Morgan develop  
14 their own recreational opportunities by taking advantage of the many indoor and outdoor  
15 activities available in Morgan and the surrounding area. The Town provides recreational  
16 opportunities at the Hatton Memorial Park and the Town Forest.  
17

18           **2. Hospitals**

19  
20 The Morgan Planning Commission encourages the governing bodies of those health care  
21 facilities in the surrounding communities to maintain and, when appropriate, improve the quality  
22 of service and expand services provided by these facilities. The Planning Commission would  
23 also encourage the town to continue its support of those health care facilities for which support  
24 has been provided in the past.  
25

26           **3. Libraries**

27  
28 The Planning Commission encourages the town to continue its support of the Dailey Memorial  
29 Library in Derby.  
30

31           **4. Electrical Utilities**

32  
33 The Morgan Planning Commission would like to encourage Vermont Electric Cooperative to  
34 maintain, and when and where necessary, to upgrade the power lines in Morgan to insure  
35 adequate service to Morgan's households.  
36

37           **5. Water Supply**

38  
39 At this time there is no need for, nor is it feasible to build a municipal water supply system.  
40

41           **6. Sewage Disposal**

42  
43 At this time there is no need for, nor is it feasible to build a municipal sewage disposal system.  
44 However, due to Morgan's soil conditions, the Planning Commission recommends that any  
45 proposed sewage disposal site be carefully examined and tested before a septic system is

1 installed. The Planning Commission also recommends that septic systems be installed or  
2 upgraded in compliance with the isolation distances set forth in the Vermont Department of  
3 Environmental Conservation regulations.  
4

### 5 **7. Refuse Disposal**

6

7 The Planning Commission recommends that the new transfer station be monitored closely to  
8 insure it is meeting the needs of the residents. When it becomes necessary corrective actions  
9 should be taken to avoid problems. The Town should continue its participation in the Northeast  
10 Kingdom Waste Management District.  
11

### 12 **8. Storm Drainage**

13

14 The Planning Commission would like to encourage the Selectboard and the Road Commissioner  
15 to carefully maintain bridges, culverts, and ditches, and where necessary, upgrade/install new  
16 drainage facilities.  
17

### 18 **9. Other Facilities & Activities**

19

20 The Morgan Planning Commission strongly recommends that the town establish a volunteer fire  
21 department. Such an action will reduce the cost of property insurance and may reduce the  
22 response time to a fire.  
23

### 24 **10. Telecommunication Facilities**

25

26 All such facilities shall be located in appropriate areas, respecting the integrity of residential  
27 areas, aesthetic concerns, and natural resource issues. Through the Zoning Bylaws, the Town  
28 may specify reasonable areas where these facilities may be located. This is important on a macro  
29 scale (general areas in Town) as well as a micro scale (specific desirable placement or location:  
30 for example, below ridgelines, tucked into groves of trees, and the like).  
31

32 Towers and related infrastructure shall only be as tall as absolutely necessary. Where towers are  
33 located within the tree lines, they should be made to be extendable, so they can “grow” with the  
34 trees, and remain the minimum height needed above the treetops.  
35

36 Unless required by the FAA, towers shall not be illuminated. Where required, lights shall be  
37 shielded in order to minimize aesthetic impacts, and so that light is cast only where needed.  
38

39 Structures shall be designed in order to minimize aesthetic impacts. Equipment sheds can be  
40 hidden in the trees; depending on site-specific circumstances, tower structures may be monopole  
41 or lattice, of appropriate colors and minimal reflectivity, or even disguised as trees or steeples.  
42 Towers and related infrastructure shall be screened from view to the greatest extent possible.  
43

44 Electric or transmission lines shall be installed so as to minimize aesthetic and ecological  
45 impacts. For example: clear-cut swaths, created for power lines or access roads which go straight  
46 up the mountainside, often create far more adverse impacts than the towers they serve, and are

1 not acceptable.

2

3 The Town reserves the right to hire independent consultants to evaluate the application and  
4 facility as well as to monitor the facility over time. The applicant shall pay for the reasonable  
5 costs of these services.

6

7 All equipment shall be downsized as technology advances and removed when no longer used or  
8 needed. These requirements can minimize aesthetic intrusion, while maximizing the potential to  
9 serve a greater number of users in the same physical area. A bond may be required to ensure that  
10 funds are available to accomplish these purposes.

11

12 However, since telecommunications providers now have the option to bypass local permitting by  
13 applying for a Certificate of Public Good (CPG) from the Vermont Public Utility Commission  
14 (PUC). The Town is notified of any CPG applications within its boundaries and given the  
15 opportunity to participate in the proceedings. The Planning Commission shall review and  
16 participate in the PUC process as necessary.

17

18 **Strategies for Utilities and Facilities Goals:**

- 19 • Continue to participate in PUC proceedings.
- 20 • Consider pursuing a Municipal Planning Grant to fund a feasibility study of a volunteer  
21 fire department and ambulance service hub.

22

23 **Preservation Plan**

24 **1. Rare & Irreplaceable Natural Areas**

25

26 Because of the demands placed on Lake Seymour, the Planning Commission feels that  
27 development on the Lake should be very carefully monitored to prevent the destruction of this  
28 beautiful lake. The Planning Commission should consider working with the Seymour Lake  
29 Association to protect this resource.

30

31 **2. Scenic Features**

32

33 The Planning Commission would like to see the Town's scenic features maintained for all to  
34 enjoy. The Planning Commission should consider conducting a survey of Town residents and  
35 landowners to identify scenic resources worthy of protection. Scenic roads have been identified  
36 and are included in the Transportation recommendations.

37

38 **3. Historic Features**

39

40 The Planning Commission recommends the continued maintenance and upkeep of Morgan's  
41 historic buildings, the two churches and the community house.

42

43 **Educational Facilities**

44 **1. Derby Elementary School**

1 The Town should continue to tuition K – 6th Grade students to the Derby Elementary School.  
2 Overall student academic progress and school costs should be monitored to ensure that this  
3 option is best for Morgan’s students and taxpayers.  
4

## 5 **2. North County Union Junior High School**

6

7 To ensure that Morgan's junior high age students are getting a good education, the Morgan  
8 Planning Commission urges the School Board and Staff to continue to keep text books,  
9 materials, equipment, and facilities in up to date and in good condition.  
10

## 11 **3. North Country Union High School**

12

13 Upgrade science and computer labs to what is presently considered to be state of the art and  
14 consider vocational training for blue collar workers.  
15

## 16 **Economic Development Goals:**

17

- 18 • Encourage the continuation of agriculture, forestry, and outdoor recreation in the  
19 community. These uses have helped to shape the landscape that exists today.
- 20 • Encourage and provide for the development of more professional home-based businesses.

### 21 **Strategies for Economic Development Goals**

- 22 • Encourage and provide for the development of more restaurants, and tourist/recreational  
23 attractions.
- 24 • Widen the shoulders along Route 111 to provide cyclists with safe access to the beach in  
25 Morgan Center.

## 26 **Energy Facilities**

27

28 Both the Town Clerk’s Office and the Community Center received thermal energy efficiency  
29 audits in 2011. The audit reports recommended efficiency improvements and provided estimated  
30 costs and payback periods for those improvements. The Planning Commission recommends that  
31 the necessary improvements should be made to these buildings to make them more energy  
32 efficient, thereby reducing costs and saving taxpayer dollars.  
33

34 The Planning Commission recommends the development of renewable energy resources. These  
35 would include the use of wood, solar, and wind energy. The Planning Commission supports the  
36 development of small- to mid-scale renewable energy technologies for residents, farms, and  
37 businesses.  
38

39 The town supports the development of renewable energy resources in general, provided that it  
40 meets the specific siting guidelines which are contained in the Energy section of this plan.  
41

### 42 **Strategies for Energy Goals**

- 43 • Carry out recommendations from 2011 audits of public buildings.
- 44 • Encourage carpooling by providing a link to GoVermont from the Town of Morgan’s



- 1 web site.
- 2 • Explore the possibility of establishing a park and ride.
- 3 • Advocate for improved telecommunications in Morgan so that more residents can work
- 4 from home.
- 5 • Continue to evaluate zoning bylaws to ensure that they do not hinder home-based
- 6 employment that complements the character of the community.
- 7 • Consider forming an Energy Committee, or encourage interested individuals to meet with
- 8 other energy committees in the region.
- 9 • Promote and attend energy fairs in the region.
- 10 • Provide information about efficiency and weatherization resources from the Town's web
- 11 site, and distribute information at public events, such as Town Meeting.
- 12 • Consider pursuing Village Center Designation for the village core. This non-regulatory
- 13 designation makes available tax-credits for fix-up of commercial structures. The program
- 14 also provides funding for establishing public EV charging infrastructure.
- 15 • Draft screening provisions for the Zoning Bylaw.
- 16
- 17
- 18
- 19