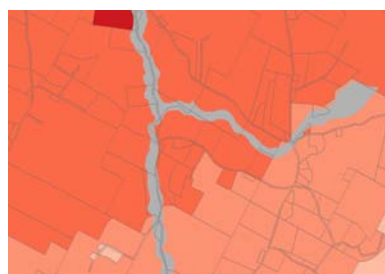




# Central Vermont Regional Plan

# 2008

Adopted September 9, 2008  
Amended September 8, 2015



Central Vermont Regional Planning Commission  
29 Main Street, Suite 4, Montpelier, Vermont 05602-2952  
Phone: 802-229-0389 Fax: 802-223-1977  
Email: [cvrpc@cvregion.com](mailto:cvrpc@cvregion.com) Web: [www.centralvtplanning.org](http://www.centralvtplanning.org)

# Table of Contents

## 1 Introduction

PREAMBLE .....	1-1
OVERVIEW OF THE REGION .....	1-1
PURPOSE OF THE PLAN .....	1-2
IMPLEMENTATION .....	1-4
COMPATIBILITY STATEMENT .....	1-6
STATEMENT OF BASIC POLICIES .....	1-7
ACKNOWLEDGEMENT OF CHANGING CONDITIONS .....	1-8

## 2 Land Use Element

DISCUSSION:TRENDS .....	2-1
PRODUCTIVE RESOURCES.....	2-2
Agricultural Land	
Forest Land	
Mineral Resources	
RESOURCE PRODUCTION .....	2-5
Natural and Fragile Areas	
Critical Wildlife Habitat	
Groundwater Recharge Areas	
Surface Waters	
Floodplain and Fluvial Erosion	
Wetlands	
Scenic Areas	
LAND DEVELOPMENT ISSUES .....	2-10
Residential	
Commercial/Industrial	
Growth Patterns/Growth Centers	
Open Space Subdivision	
Interstate Interchanges	
"Build-out" Modeling	
Stormwater Management	
Brownfields	
Noise	
LAND USE GOALS AND POLICES.....	2-19

### 3 Energy Element

DISCUSSION: TRENDS.....	3-2
Fossil Fuels	
Nuclear	
Hydro-power	
Wood Biomass	
Vegetable Bio-fuels	
Methane Production	
Wind-power	
Solar-power	
Natural Gas	
Demand Side Management	
SUMMARY OF TRENDS .....	3-11
IMPLICATIONS FOR LOCAL/REGIONAL PLANNING .....	3-12
Planning Ordinances	
Transportation	
Building and Structures	
Energy Programs and Resources	
ENERGY GOALS AND POLICES .....	3-17

### 4 Transportation Element

EXECUTIVE SUMMARY .....	4-1
DISCUSSION:TRENDS .....	4-1
Transportation System Performance	
REGIONAL TRANSPORTATION PLAN RECOMMENDATIONS .....	4-4
Vision and Mission for Transportation in the Region	
TRANSPORATION GOALS AND POLICIES.....	4-5

### 5 Utilities, Facilities, & Services Element

DISCUSSION: UTILITIES.....	5-2
Electric Power	
Electric Utilities	
Wastewater Systems	
Public Systems	
Sub-surface Disposal & Private Systems	
Water Supply Systems	
DISCUSSION: FACILITIES & SERVICES.....	5-16
Solid Waste	
Solid Waste Districts	
Landfills	

- Recycling & Transfer Facilities
- Composting
- Re-use
- Business & Household Waste Collection Facilities
- Product Stewardship/Extended Producer Responsibility

Communications

- Radio, Newspaper, Television
- Voice Communication
- Wireless Telecommunication Facilities
- Broadband & Internet Services

Emergency/Health Services

- Fire Protection
- Police Protection
- Ambulance/ Emergency Medical Services
- Medical Facilities
- Emergency Planning & Hazard Mitigation
- Emergency Management

Crime & Safety

Educational Facilities & Services

Child Care

Outdoor Recreation

Cultural Resources

Historical & Archeological Resources

UTILITIES FACILITIES, & SERVICES, GOALS AND POLICIES ..... 5- 48

## 6 Housing Element

DISCUSSION: TRENDS..... 6-1

Population & Households

Number & Type of Housing Units

Housing Affordability

Housing Growth

Location of Housing/ Density

Homelessness & Transitional Housing

Fair Housing Laws & Municipal Responsibility

MEETING CURRENT & FUTURE NEEDS..... 6-14

Advocacy & Housing Committees

Regional Housing Distribution Plan

Housing Resources

HOUSING GOALS, POLICIES & ACTIONS..... 6-20

## 7 Economic Element

DISCUSSION: GENERAL ECONOMIC PROFILE.....	7-1
ECONOMIC DEVELOPMENT.....	7-4
Self Sufficiency	
Education	
Transportation and Communication	
Quality of Life as an Economic Consideration	
CHALLENGES .....	7-8
The Demographic Challenge	
SUMMARY .....	7-8
ECONOMIC GOALS AND POLICIES .....	7-11

## A Appendices

A-1 REGIONAL HOUSING DISTRIBUTION PLAN METHODOLOGY	
A-2 24 V.S.A. § 4382. THE PLAN FOR THE MUNICIPALITY	
A-3 “ECONOMIC AND DEMOGRAPHIC FORECAST, CENTRAL VERMONT PLANNING REGION, 2000-2020” - POPULATION BY TOWN	
A-4 “ECONOMIC AND DEMOGRAPHIC FORECAST, CENTRAL VERMONT PLANNING REGION, 2000-2020” - HOUSING UNITS BY TOWN	
A-5 “ECONOMIC AND DEMOGRAPHIC FORECAST, CENTRAL VERMONT PLANNING REGION, 2000-2020” - HOUSEHOLD SIZE BY TOWN	

## M Maps

TOPOGRAPHY	
PRIMARY AGRICULTURAL SOILS	
NATURAL RESOURCES 1	
NATURAL RESOURCES 2	
ENERGY & COMMUNICATION	
TRANSPORTATION	
WATER SUPPLY & WASTEWATER SYSTEMS	
EMERGENCY MANAGEMENT	
EDUCATIONAL FACILITIES	
PUBLIC RECREATIONAL RESOURCES	
POPULATION CHANGE	
REGIONAL HOUSING DISTRIBUTION PLAN	
ZONING BY TOWN	

Strategy 9b. Encourage landscaping with native species over the use of non-native species, particularly in non-urban environments. Work with UVM Extension Master Gardeners on educating homeowners on the use of native trees and plants.

**Goal 5:**

To preserve the aesthetic quality of the Region

**Policies:**

1. Municipalities and developers are encouraged, through design and siting of structures, to make a concerted effort to preserve access to and enjoyment of scenic views for the public.
2. Unless effectively screened, or clearly in the best interest of the general public, ridge line development or conspicuous development on locally prominent landscape features is discouraged.
3. The scale and siting of new structures should be in keeping with the surrounding landscape and architecture; however, towers should utilize stealth technology.
4. Outdoor lighting should be limited to minimum levels necessary to ensure safety and security of persons and property.
5. Light sources shall be shielded and not directly visible from public roads or adjacent residences.
6. Landscaping with native species is generally preferred over the use of nonnative species, particularly in non-urban environments. The use of non-native trees and plants for landscaping can lead to unintended introductions of species which out-compete native vegetation.
7. Where possible, parking lots and storage areas should be well landscaped and/or

otherwise screened from view on public roads.

8. CVRPC encourages the State and municipalities to maintain existing roadside views by means of vegetation clearing, where appropriate.
9. CVRPC will attempt to inventory and map the Region's scenic resources, with assistance from municipalities.
10. The location of telecommunication towers is a significant aesthetic issue within the Region. Policies intended to minimize negative impact are presented in the wireless telecommunication facilities policies of this Plan.
11. CVRPC will track indicators that show impacts on aesthetic quality and natural beauty in Central Vermont.
12. New development should make all reasonable attempts to minimize noise pollution and shall not exceed accepted standards in residential areas.

**Goal 6:**

To ensure that new development in the vicinity of the Region 's interstate interchanges is appropriate to the setting and considers the impact of such development on adjacent village and urban centers.

**Policies:**

1. CVRPC encourages interchange modeling and identification of preferred development scenarios.
2. CVRPC will encourage and assist municipalities in planning for land use in and around interchange areas.
3. CVRPC will continue to support the Town of Berlin 's efforts to plan for and imple-

standards are resulting in increased efficiency and reduced particulate emission.

Vermont also has two large scale wood-fired generators (Ryegate and Burlington) which produce about 244 GWh, or 4% to 6% of Vermont's electrical energy, one of which is capable of using natural gas as an alternative fuel. Between them, they use nearly one million tons of wood chips annually. Vermont also leads the nation in small-scale applications of biomass energy. The State of Vermont operates wood chip heating systems at the State Capitol complex and the Waterbury office complex. Such systems have also been installed in at least twenty-six educational settings, including U-32 High School and the Green Acres Housing project in Barre.<sup>8</sup>

### **Vegetable Biofuels**

Biofuels are renewable, agriculturally derived liquid fuels that can be used to run vehicles and heat buildings. They include biodiesel, ethanol, and even straight vegetable oils. A variety of plants with high oil or cellulose content can be employed to produce these products. Some, including corn, sunflower, canola, soy and hemp, could be grown and processed in Vermont. Doing so could help keep money circulating in the community, creating jobs and sustaining local agriculture, while helping to avoid the external costs associated with fossil fuels. However, it may also take farmland out of food production.

Biodiesel, in particular, appears to be catching on in Vermont (and elsewhere), as it can be used in many existing vehicles and furnaces with minimal equipment modification. Furthermore, it is blended with petroleum fuels. As of January 2007, biodiesel fuel was available at about two dozen locations throughout Vermont.

### **Methane Production**

The decaying organic materials of landfills, manure pits, and waste water treatment systems produce significant amounts of methane; a greenhouse gas 20 times more potent than carbon dioxide and a potential energy source. It has been estimated that methane from U.S landfills alone accounts for as much as 2% of global greenhouse gas build-up. Capture technologies have experienced tremendous growth in recent years rendering methane a valuable energy source.

Nationally, 415 Landfill Gas to Energy (LFTGE) projects are in operation, according to the EPA. However, Vermont currently has only two such systems, and a cow manure methane generating system, on line. A third landfill system proposed for the Moretown Landfill, has received CVRPC's tentative endorsement. This project would

<sup>8</sup> Vermont. Department of Public Service. Utility Facts.



survey respondents say they would support the technology, even if turbines were visible from their homes.

Currently, Vermont produces only 6MW of power (enough for about 2000 homes) by way of commercial wind power at an 11 turbine "farm" in Searsburg. However, over a dozen proposals which could supply as much as 500MW have been approved or proposed throughout the State. While none of these sites are in the Central Vermont Region, this does not suggest that we do not possess viable sites.

Finally, it should be noted that advances in small scale wind turbine technology figure to make them an increasingly viable option for private individuals or groups of individuals. State law restricts the regulation through zoning of turbines with blades less than 20-feet in diameter. Furthermore, any small scale turbine that returns energy to the power grid is exempt from local bylaws and is instead reviewed by the Public Service Board under Act 248.

### **Solar-power**

Solar energy has tremendous potential for providing clean, reliable and safe energy, even in Vermont's climate. The application of both active (systems which collect, store and distribute solar energy within a building) and passive (systems which utilize a building's structure to trap sunlight and store it as heat) solar technologies have demonstrated their cost effectiveness in Vermont.

Solar-tempered buildings are buildings that have their long axis oriented within 30 degrees of true south and have an unobstructed net south facing window area equal to at least 7% of the total floor area. Solar-tempering coupled with proper insulating can offset heat costs in a building by 40%. Although solar-tempering at initial construction generally requires no additional investment, experts suggest that a majority of new buildings in Vermont do not incorporate such design principles.

Contemporary solar technologies have proven their value in Vermont, particularly in rural areas. As the technologies improve and costs decrease, solar thermal collectors and photovoltaics (technologies which can convert sunlight to electricity) will become more competitive in the marketplace even in less remote areas. As the power source of solar technologies is inexhaustible, and solar energy neither contributes pollutants to the atmosphere nor to our reliance on foreign energy suppliers, strategies should be developed to encourage its use.

### **Natural Gas**

At present, there are no natural gas transmission lines in Central Vermont. How-

changes will grow. Sustained economic health and avoidance of continued environmental degradation will require a dramatic shift to renewable energy resources and improved energy efficiency. This shift will require not only strong market pressure, but also creative policy initiatives.

Besides the predicted increase in energy consumption, Vermont must plan ahead for expected energy source loss, as Vermont Yankee's license expires in 2012 and our contract with Hydro-Quebec ends in 2015. It is important that Vermont, and especially Central Vermont, begins to look for energy options before these events occur.

Because the external costs (i.e. the hidden social and environmental costs) of energy are not reflected in the current market, renewable technologies are forced to compete at a disadvantage. In effect, energy consumption is subsidized by the public (i.e. health insurance costs and environmental degradation). These circumstances must be altered in order to facilitate the emergence of a renewable energy economy.

## IMPLICATIONS FOR LOCAL/REGIONAL PLANNING

### **Planning ordinances**

Through the planning process, Vermont's municipalities are able to influence patterns of land development, guide capital investments, and impact the use of natural resources. A planning effort sensitive to energy issues will promote settlement patterns that minimize transportation requirements, encourage land use that conserves energy, and develop a policy which encourages the efficient use of energy resources.

The Vermont Planning and Development Act (V.S.A. 24, Chapter 117) enables Vermont's municipalities to adopt regulatory bylaws for implementing their town plan. Zoning bylaws and subdivision regulations are the most commonly used bylaws in Central Vermont. Each affords the opportunity to promote energy efficient development at the local level.

Zoning bylaws control the type and density of development. Encouraging high density and diverse uses in and around existing built-up areas will lead to more compact settlement patterns, thereby minimizing travel requirements. At the same time, zoning bylaws must be flexible enough to recognize and allow for the emergence of technological advancements which encourage decreased energy consumption, such as increased use of solar and wind-power and telecommunications technology.

mental impact than larger more remote ones.

9. Towns and school districts should include energy efficiency and conservation in their plans and daily operations.
10. Supports efforts to create a fund to provide low interest capital to home owners, landlords, institutions, and businesses to assist in making cost effective investments in energy efficiency and renewable energy.
11. CVRPC encourages Regional lending institutions to adopt energy efficiency standards for new construction as well as for existing housing coming on the market.
12. CVRPC supports efforts to expand the Home Weatherization Program for low income Vermonters.
13. Municipalities are encouraged to review the Town Energy and Climate Guide (Vermont Energy and Climate Action Network, 2006) for ideas and suggestions on energy conservation and development.

**Goal 2:**

The use of non-renewable energy resources should be decreased, while the use of renewable energy resources, particularly those of local origin, should be increased.

**Policies:**

1. The Commission supports implementation of Least Cost Integrated Planning (as called for by Vermont's Twenty Year Electric Plan, PSB Final Order in Docket 5270, and the Vermont Comprehensive Energy Plan) and recommends that thorough consideration of the benefits of utilizing local energy resources be applied to all future LCIP analyses.
2. CVRPC will promote the development and use of renewable sources of energy, particularly those of local origin, through public education efforts and participation in Act 250 and Section 248 hearings.
3. CVRPC encourages State and federal funding targeting research and development of renewable energy and energy efficiency technologies.
4. CVRPC encourages efforts to determine the potential for sustainable large scale biomass/biofuel production in Vermont and Central Vermont in particular, and encourages concurrent efforts to evaluate the ecological impacts associated with long term, large scale biomass production and harvest.

sider the economic, social, and environmental benefits (i.e. costs avoided) in addition to potential environmental/aesthetic impacts. CVRPC will help to identify those locations where wind turbines might be feasible and appropriate, as well as those sites where turbines would be considered inappropriate. For the life of this Plan, the Washington County portion of the Worcester Range and Camel's Hump are considered inappropriate locations for industrial turbines due to their inaccessibility, wilderness values, and aesthetic features. Conversely, the presence/proximity of existing development should be considered as a positive in evaluating potential wind sites.

15. CVRPC encourages the development of small scale wind, solar, or hydro power by individuals, or groups of individuals, to offset fossil fuel consumption and promote self-sufficiency. For this reason, it encourages municipalities to make provisions for the same in local plans and bylaws.

**Goal 3:**

Emissions of greenhouse gases, acid rain precursors, and other environmental toxins must be decreased.

**Policies:**

1. In considering public benefits of any construction, expansion or upgrading of existing public generation or transmission utilities and/or facilities, consideration shall be given to the external costs (economic, social and ecological) of any decision, and those external costs shall be reflected in the decision as the Public Service Board has recently recommended.
2. CVRPC supports proposals to deliver natural gas to the Region where such proposals are technically feasible, and economically, socially, and ecologically appropriate in the gradual transition to clean resources.
3. CVRPC encourages that the development of existing transportation systems incorporate design and location principles so as to:
  - complement the recommendations set forth in the Land Use and Transportation Elements of this Plan and in the Region's municipal plans;
  - encourage the concentration of social and civic services, employment and housing opportunities, and retail centers within or adjacent to planned or existing community centers; and
  - support the expansion of telecommuting, teleconferencing, and public transit.
4. CVRPC urges that land use planning and implementation programs promote planning for efficient non-motorized alternatives to the automobile by:

3. Work with the region's small water supply systems to build administrative capacity, coordinate with each other and develop capital improvement plans and budgets.
  - A. Encourage participation in VT DEC's Asset Management trainings.
  - B. Incorporate outreach and education regarding water and wastewater infrastructure planning into Municipal Transportation Capital Improvement Planning task in the Transportation Planning Initiative.
4. Inter-municipal water supply agreements are encouraged. The sharing of water resources can be a cost effective method of insuring that water supply adequately supports the municipal plan.
5. CVRPC encourages municipalities that have not already done so, to identify and protect backup or alternative sources of water.
  - A. Assist such efforts at the request of local officials.
  - B. Raise awareness of groundwater mapping resources available from the VT Agency of Natural Resources and U.S. Geological Survey.
6. Water service area expansions should be designed to encourage development in areas where growth is appropriate including Regional Centers, Town Centers, Hamlets, Resort Centers, Rural Commercial and Industrial areas and growth centers as identified by town plans.
7. Capacity expansion and water quality improvements to existing water supply systems are encouraged where such problems are impediments to concentrated growth.
8. CVRPC urges communities when designing and constructing public water systems and, to require the site engineer to provide "as-built" plans so as to ensure exact knowledge of the placement of underground collection lines. when the need for repair or replacement arises.

**ELECTRIC POWER GOAL: Improvement, and expansion of electric power generation methods and infrastructure so as to provide adequate service, conserve energy, maximize benefits of public investment, minimize impacts on aesthetic, ecological and recreational resources, and protect public health.**

**Policies:**

1. CVRPC supports the concepts of "demand side management" and "least cost integrated planning" as mechanisms to reduce electrical power consumption, and its attendant costs (both financial and environmental) through conservation and energy efficiency
2. CVRPC encourages the development and use of renewable energy sources to meet the region's electrical power needs, while minimizing impacts on aesthetic, ecological and recreational resources (see *Energy* element of this Plan).
3. CVRPC encourages diversity in the region's future power supply so as to establish

flexibility and avoid reliance on any single source.

4. CVRPC encourages utilities and the Public Service Board to give greater consideration to making service territories more flexible by allowing for inter-utility connections and deregulation where there will be beneficial impact to the consumer and the environment. Such flexibility will help promote the Region's goals regarding settlement patterns, and save money as well.

5. Proposals to introduce extra high voltage and ultra high voltage transmission lines (capacity greater than 345 KV, AC or DC) to Central Vermont should be carefully scrutinized pending satisfactory resolution to the health and safety issues concerning their operation.

6. The Commission encourages adherence to environmentally and ecologically sound utility line maintenance practices.

Plans and designs for utility infrastructure and corridors should incorporate climate projections and be reviewed for long-term reliability, safety and economic, social and aesthetic impacts.

7. The corridor concept is generally supported by this Plan. As such, the location of new transmission lines should share existing power line routes as illustrated on the Central Vermont utilities map. However, it is recognized that existing routes may not always be optimal for additional or expanded transmission lines. It is also recognized that the construction of distribution lines within, or adjacent to, public highway rights-of-way may, in some instances, have more negative aesthetic impacts than would a parallel route away from the road.

8. Utility infrastructure and corridors shall be sited so as to minimize aesthetic impacts, particularly in areas of local and regional scenic importance.

- A. Wherever practicable, utility lines will be installed underground or behind structures in downtowns and village centers
- B. The use of wood support structures, appropriate conductor colors for the background, and landscape compatibility techniques are encouraged.
- C. Municipalities, in their plans, should consider the visual impacts of the siting of utility poles. Traffic safety and water quality issues may also be pertinent in certain locations.

9. Resource areas, as identified by this Plan, shall be avoided wherever possible, in the location or routing of new substation or transmission facilities.

10. Substation facilities should be located in industrial areas or in those planned for industrial use whenever practical. In any case, such facilities should be sited as unobtrusively as possible.