DISCUSSION DRAFT Chittenden County ECOS Plan – 10/18/2012

10/18/2012 For a healthy, inclusive, and prosperous community

This plan is the combined results of reviewing 60 previous planning documents related to Chittenden County and merging the Regional Plan, Metropolitan Transportation Plan, and Comprehensive Economic Development Strategy in one shared planning process.



ENVIRONMENT | COMMUNITY | OPPORTUNITY | SUSTAINABILITY A SUSTAINABLE FUTURE FOR CHITTENDEN COUNTY

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Thank ECOS Partners, CCRPC & GBIC Boards...

List partners and board members. Thank staff

CCRPC AND GBIC RESOLUTIONS

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= additional writing or data needed

CHAPTER 1 - INTRODUCTION

1.0 Introduction

Environment. Community. Opportunity. Sustainability.

- The ECOS Project is both a process and a plan for managing sustainable growth in Chittenden County.
- The ECOS Project is for anyone and everyone interested in how we live, work and play together in Chittenden County.
- The ECOS Project is a unique opportunity for municipalities, organizations, businesses and residents to work together to preserve and improve our quality of life.

The Chittenden County Regional Planning Commission (CCRPC) is charged by the State of Vermont with preparing a regional plan at least every eight years to protect the County's resources and to guide its development. The CCRPC is also charged with establishing a Metropolitan Transportation Plan every five years to address the long term transportation needs of Chittenden County. The Greater Burlington Industrial Corporation (GBIC) is charged with establishing a Comprehensive Economic Development Strategy (CEDS) every five years to establish economic development priorities for Chittenden County. ADD A FULL PARAGRAPH HERE DESCRIBING THESE THREE PLANS IN MORE DETAIL. The Federal government created the Partnership for Sustainable Communities (a partnership of HUD, EPA, and USDOT) and an opportunity to update all three regional planning documents with one process. This Plan *is* the Chittenden County Regional Plan, Metropolitan Transportation Plan and Comprehensive Economic Development Strategy.

Community and regional planning enable people with different outlooks and awareness to learn about important and sometimes controversial matters, to agree on common objectives, and to collaborate on undertaking coordinated agendas of actions. Public planning should strive to engage people not only because our laws and democratic traditions require it, but also because public engagement makes planning better. Effective public planning promotes:

- Greater understanding of key facts,
- Deeper and more widespread appreciation of divergent views,
- Increased consensus on important goals and objectives, and
- Improved collaboration among stakeholders.

Planning for an entire region is especially challenging. While we all agree that Chittenden County should be a "great place to live, work and play," there are myriad visions of exactly how such a place should look and which actions we should undertake to achieve this goal. The *ECOS Plan* is intended to articulate the current consensus for our County's future.

1.1 ECOS Process Summary

The ECOS Planning process really began in 2008 with the public process to develop land use and transportation scenarios for the MTP. Engagement included multiple workshops and a survey with 835 respondents in 2010.

The ECOS grant allowed CCRPC and GBIC to significantly expand both the depth of analysis and public engagement in developing a unified Regional, Transportation, and Economic Plan for Chittenden County. Beginning in March 2011, 65 partner organizations and many others have gone through a five phase process to develop this Plan. All participants signed a memorandum of understanding agreeing to participate in the process and review the work with their individual organizations that they were representing. See Public Process Report in Appendix x for more detail.

The ECOS Planning process started with principles of transparency, priority setting, and accountability. There has been a focus on building on previous planning work and not starting from scratch. The entire effort can be divided into two parts. The first part reviewed in Chapter 2 looks at the big picture, community goals, understanding what is happening under each of those goals (analysis), how we measure progress on those goals (indicators), and identifying the critical needs. The second part in Chapter 3 looks at the choices we have to address these needs and recommends priority strategies and actions with a focus on implementation.

There is a commitment to annually measuring the community indicators to see if we are achieving our goals and also measuring our collective performance in implementing the actions. This is similar to the Results-based Accountability ModelTM that is used by United Way and many other organizations.

The specific process the ECOS Steering Committee and partners went through to develop this plan is summarized below.

- 1. Goals based on the 60 existing planning documents.
 - a. ECOS Workshop # participants,

- b. Public review from July 14 to September 30, 2011 including sub-committee reviews resulting in 123 comments from 65 groups/individuals.
- c. Vision, Principles, and Goals were approved by the ECOS Steering Committee on October 26, 2011.
- 2. Analysis
 - a. Technical experts were brought in to analyze topic areas including economy, housing, land use and transportation, energy, natural resources, public health, education, climate change
 - b. Public review from November 15 to December 31, 2011 resulting 686 comments from 18 individuals/groups. At the same time the technical experts and sub-committees continued to review and improve the analysis reports.
 - c. Analysis Reports were accepted by the ECOS Steering Committee on January 25, 2012.
- 3. Indicators
 - a. The University of Vermont Center for Rural Studies assisted with creating a possible list of indicators.
 - b. The draft Indicators were released for public review from February 1 to March 16. Over 400 comments were received.
 - c. The Interim Indicator Report was accepted by the ECOS Steering Committee on April 25, 2012.
 - d. CCRPC's Long Range Planning Committee and sub-committees reviewed and recommended revised Indicators between July and September, 2012. These revisions are reflected in Chapter 2 of this ECOS Plan.
- 4. Plan Priorities
 - Public engagement activities managed by Burlington City Arts were conducted from June through August to gather more community input on needs and recommendations. 130 hours of public engagement took place in these efforts with over 600 people participating.
 - b. CCRPC's Long Range Planning Committee and sub-committees and partners developed critical needs and recommended actions between July and October, 2012. The critical needs are listed at the end of Chapter 2. Over-arching strategies and actions are in Chapter 3.
 - c. The Draft ECOS Plan was reviewed by the public between November 1 and December 31, 2012. Direct discussions were also held with each municipality's elected body. A total of XX comments were received from XX individuals/ organizations.
- 5. Plan Implementation
 - a. The ECOS Steering Committee, CCRPC's Long Range Planning Committee and sub-committees and partners developed draft ECOS Criteria for prioritizing ECOS Grant projects between April 25 and July 25, 2012.
 - b. A request for proposed ECOS Grant projects was released on August 1, 2012 with proposals submitted by September 15, 2012.
 - c. The ECOS Grant projects were approved for \$280,000 of funding by the ECOS Steering Committee on October 24, 2012.
 - 8 1.1 ECOS Process Summary | Chapter 1 introduction

- 6. ECOS Plan Adoption
 - The revised Draft ECOS Plan was approved by the ECOS Steering Committee on January 25, 2013 and recommended to CCRPC and GBIC for adoption.
 - Public hearings were held by CCRPC on xxx
 - c. The Chittenden County ECOS Plan was adopted by GBIC on xx and CCRPC on xx.

1.2 Vision

A healthy, inclusive and prosperous community.

1.3 Mission

We will have a collaborative planning process with citizens, public and private organizations to develop a consensus regarding priority actions to achieve the goals below. The intent of this effort is to strengthen and enhance coordination, accountability and implementation of the plans of participating organizations such as state and local governments, planning organizations and other partner organizations - including business, environmental, education, and human services.

1.4 Principles

Principles describe our underlying values and guide the selection of strategies and actions to achieve our goals. These 10 principles will guide the selection of strategies and actions to achieve our goals (adapted from Sustainability Goals & Guiding Principles, ICLEI, October 2010).

- Think—and act—systemically. Sustainable communities take a systems perspective and recognize that people, nature and the economy are all affected by their actions. Local governments in these communities consider the broader implications before embarking on specific projects, and they look for ways to accomplish multiple goals rather than default to short-term, piecemeal efforts.
- 2. **Instill resiliency**. Sustainable communities possess a strong capacity to respond to and bounce back from adversity. Local governments in these communities prepare for and help residents and institutions prepare for disruptions and respond to them swiftly, creatively and effectively.
- 3. **Foster innovation**. Sustainable communities capture opportunities and respond to challenges. Local governments in these communities cultivate a spirit of proactive problem solving to provide access to futures otherwise unobtainable and to enable the risk-taking inherent in innovation.
- 4. **Redefine progress**. Sustainable communities measure progress by improvements in the health and wellbeing of their people, environment and economy. Instead of focusing on GDP (throughput of dollars), local governments in these communities use a broad set of indicators.
- 5. Live within means. Sustainable communities steward natural resources so that future generations have as many opportunities available to them as we do today. They also recognize that resources exist for the benefit of life forms other than humans. Local governments in these communities assess resources, track impacts, and take corrective

action when needed so that they meet the needs of today while maintaining and improving what they leave for future generations.

- 6. **Cultivate collaboration**. Sustainable communities engage all facets of society in working together for the benefit of the whole. Local governments in these communities bring government representatives, community members and organizations together and create a culture of collaboration that encourages innovation, sharing of resources, and jointly shared accountability for results.
- 7. **Ensure equity**. Sustainable communities allocate resources and opportunities fairly so that all people who do the full range of jobs that a community needs can thrive in it. Local governments in these communities actively eliminate barriers to full participation in community life and work to correct past injustices.
- 8. **Embrace diversity**. Sustainable communities feature a tapestry of peoples, cultures and economies underpinned by a richly functioning natural environment. Local governments in these communities celebrate and foster ethnic, cultural, economic and biological diversity and encourage multiple approaches to accomplish a goal.
- 9. **Inspire leadership**. Sustainable communities provide leadership through action and results. Local governments in these communities recognize their opportunity to effect change by backing visionary policies with practices that serve as an example for citizens and businesses to emulate.
- 10. **Continuously improve**. Sustainable communities engage in continuous discovery, rediscovery and invention as they learn more about the impacts of their actions. Local governments in these communities track both performance and outcomes, are alert for unintended consequences, and modify strategies based on observed results.

1.5 Broad Goals

- 1. **Natural Systems** Design and maintain a strategically planned and managed green infrastructure network composed of natural lands, working landscapes, and open spaces that conserve ecosystem values and functions, and provide associated benefits to our community.
- 2. **Social Community** Promote the skills, resources, and assurances needed for all community members to participate in the workforce and in their family, civic and cultural lives, within and among their neighborhoods, and in the larger community.
- Economic Infrastructure Build the region's capacity for shared and sustainable improvements in the economic well being of the community through support of both local and globally competitive initiatives.
- 4. **Built Environment** Make public and private investments in the built environment to minimize environmental impact, maximize financial efficiency, optimize social equity and benefits, and improve public health.

1.6 Chittenden County Overview

Chittenden County is located in northwestern Vermont between Lake Champlain and the highest peaks of the Green Mountains (see Figure 1-1). The County's nearly 350,000 total acres have a rich diversity of landscapes: forests, farms, waterbodies, small cities, suburban areas, and villages.

Founded in 1787, Chittenden County has about 156,000 residents living in 19 municipalities that range in size from 20 to almost 40,000 residents. The County is the heart of the Burlington – South Burlington Metropolitan Statistical Area (the economic engine of Vermont); home to the State's largest higher education institution, health care facility, and private sector employer; and nationally recognized as having an outstanding quality of life.



Figure 1-1 LOCATION OF CHITTENDEN COUNTY, VERMONT

CHAPTER 2 - REGIONAL ANALYSIS

2.0 INTRODUCTION

This Chapter describes the goals that have been developed through ECOS and the indicator data that shows us how we are doing relative to achieving our goals. Key issues/trends/insights are summarized for each of 16 topics. At the end of this Chapter is a summary of the conclusions drawn from the data.

This Chapter and these topics are grouped according to the four Broad Goals (see Section 1.5) as follows and as shown in more detail on the following pages:

- 2.1 Demographics
- 2.2 Natural Systems
 - 2.2.1 Ecological Systems (Habitats, Water Quality, Air Quality)
 - 2.2.2 Scenic and Recreational Resources
 - 2.2.3 Working Lands
- 2.3 Social Community
 - 2.3.1 Education, Knowledge and Skills
 - 2.3.2 Health
 - 2.3.3 Public Safety and Criminal Justice
 - 2.3.4 Social Connectedness
 - 2.3.5 Civic Engagement and Governance
- 2.4 Economic Infrastructure
 - 2.4.1 Economy
 - 2.4.2 Household Financial Security
- 2.5 Built Environment
 - 2.5.1 Land Use
 - 2.5.2 Housing
 - 2.5.3 Transportation
 - 2.5.4 Infrastructure
 - 2.5.5 Energy

2.1 DEMOGRAPHICS

INTRODUCTION: Information about the people in Chittenden County helps us to understand the nature of our community and how we are changing. It can help decision makers anticipate potential pressures on the wider social, economic and physical environments. Factors such as

population growth, age, ethnicity, migration and household makeup are often key determinants of conditions across a whole range of issues affecting quality of life.

 Projected Population change in Chittenden County – Increase of 50,000 expected in next 25 years.

	1960	1970	1980	1990	2000	2010	2020	2035	
Population	74,425	99,131	115,534	131,761	146,571	156,545	174,348	205,445	
Sources date?	: US Census	Bureau. 2011	Woods and Po	oole Forecast	for Chittender	n County 200	5-2035. Арр	roved by CCF	₹PC,

Population Growth Rate Total - The Chittenden County population growth rate has surpassed both VT and New England: 1990-2010



- - Population Growth Rate, Minority Population- The Chittenden County minority population growth rate has surpassed VT, New England, and the US: 1990-2010



> Population Growth Rate, Chittenden County, 1990-2010



Source: US Bureau of the Census



Percent of Residents Born in Vermont in Chittenden County and Vermont, 1960 – 2010

- Age
 - Percent of Residents Age 65+ in Chittenden County, Vermont, and the US, 1960 2010



Source: US Bureau of the Census



Percent of Residents Under Age 18 in Chittenden County, Vermont, and the US 1960 – 2010

> Median Age in Chittenden County, Vermont, and the US 1960 – 2010



Share of non-white K-12 public school enrollment by Supervisory Union district Consider using Percent of students enrolled in school by non-white and Hispanic by town(ACS) or Test score gaps between students eligible for free and reduced lunch and those not eligible by Supervisory Union (DOE and in AHS Community Profile Proposal)

Families and households



Average Household Size in Chittenden County and Vermont, 1960 – 2010







> Percentage of non-white households in each municipality

Source: 2010 Census

*This percentage is high because there are very few households in Buels Gore.



Percentage of households in each municipality where language other than English is spoken

Source: 2006-2010 American Community Survey

- Race/Ethnicity
 - Percent of Residents who are Non-White or Hispanic in Chittenden County, Vermont, and the US, 1960 – 2010



Dissimilarity Index by County. (Source: http://www.dhca.state.vt.us/VCDP/Vermont_AI_Draft_2_10_12.pdf) The distribution of racial or ethnic groups across a geographic area can be analyzed using an index of dissimilarity. This method allows for comparisons between subpopulations, indicating how much one group is spatially separated from another within a community. The index of dissimilarity is rated on a scale from 0 to 100, in which a score of 0 corresponds to perfect integration and a score of 100 represents total segregation.1 The index is typically interpreted as the percentage of the minority population that would have to move in order for a community or neighborhood to achieve full integration. A dissimilarity index of less than 30 indicates a low degree of segregation, while values between 30 and 60 indicate moderate segregation, and values above 60 indicate high segregation. Dissimilarity indices in the following table show that the State, including the City of Burlington, has low to moderate levels of segregation between Whites and minority populations. In addition to a White/Black index of 38.8, the State of Vermont has a White/Asian index of 41.8, which suggests that both groups are moderately segregated throughout the State. Additionally, the State has a White/American Indian Alaska Native (AIAN) index of 27.7, a White/multi-race index of 16.6, and a White/Hispanic index of 18.5. These numbers indicate that these subpopulations are more integrated across the State than Blacks and Asians.

Chittenden County	Minority Population	White Population	Total Population	Dissimilarity Index
Black	34,44	35,078	36,821	42.2
Hispanic	3,087	150,426	156,545	18.1
Asian	4,447	150,426	156,545	30.4

- Disabilities
 - > Disability status of Chittenden County residents (relative to VT and US)

About 14,000 people in Chittenden County were identified as having a disability in 2010. Income of people with disabilities is far below that of people without disabilities, reducing their ability to afford housing and further limiting their housing choices.



PORTIONS OF THE COUNTY IN MAJOR LAND-USE CATEGORIES, 2008 (1,000s of Acres, Rounded to Nearest 100s)

Source: CCRPC, Land Based Classification System, 2008

2.2 NATURAL SYSTEMS

Broad Goal: Design and maintain a strategically planned and managed green infrastructure network composed of natural areas, working lands, wildlife habitat, scenic views and air quality that help to conserve ecosystem values and functions, and provide associated benefits to our community.

INTRODUCTION: A sustainable community preserves natural systems because they offer a richness that nurtures the human spirit as well as protects soil, air and water quality. Healthy landscapes are necessary to sustain the complex myriad of plant and animal species that share our habitat. We are dependent on the surrounding landscapes for many resources such as food, water and fuel; for recreational opportunities and aesthetic values; and for vital natural processes such as water retention and recycling, air cleansing, carbon sequestration, and nutrient cycling. Preservation of our natural systems can help guide new growth into existing developed areas. In addition, a network of healthy natural systems and green infrastructure can make very important contributions to the economic prosperity of the region.

As a result of our topography and historic development patterns the eastern side of Chittenden County contains large intact habitat blocks, while the western side does not; however many important habitats exist throughout the entire County. Therefore, this plan calls for efforts to maintain the natural systems throughout the County. The *Conserving Vermont's Natural Heritage Guide* (Vermont Fish and Wildlife Department and the Agency of Natural Resources, 2004) identifies the following seven mechanisms by which current development patterns degrade Vermont's natural heritage: 1. direct loss of diversity; 2. destruction of habitat; 3. habitat fragmentation; 4. disruption of movement, migration, and behavior; 5. introduction of invasive exotic species; 6. degradation of water quality and aquatic habitat; and 7. loss of public appreciation for the environment. Methods to combat or mitigate these mechanisms are crucial to the sustainability of the County as we continue to grow.

This Plan uses a multidisciplinary, holistic 'ecological systems' approach to understanding our natural and built environment, in which we look at the complex relationships between living elements (such as vegetation and soil organisms) and nonliving elements (such as water and air) of a particular area to understand the whole ecosystem. In that same way, we must look beyond our municipal, county and state political boundaries to understand the impacts, both positive and negative, we have on each other. We need to collaborate with each other and adjust our actions in a measured fashion in support of ecosystem health.

In addition, this section looks at the local impacts of a changing climate. Our region's climate is already changing; warmer, wetter conditions are expected to increase this century. These changes will adversely impact forest and aquatic communities, water quantity and quality, public health, agriculture, winter sports businesses, and buildings and infrastructure in flood and fluvial erosion hazard areas. Curbing climate change will require planet-wide actions to reduce greenhouse gas emissions.

2.2.1 ECOLOGICAL SYSTEMS

Goal: Conserve, protect and improve the health of native species habitats, water quality and quantity, and air quality.

Key Issues/Trends/Insights

- Chittenden County continues to see fragmentation and loss of *habitat* and connectivity largely due to mounting development pressures. Increasing land parceling and subsequent habitat conversion, lack of local regulations responsive to wildlife habitat concerns, and construction of transportation infrastructure (including roads and trails) continue to adversely impact habitat integrity. In addition, acid deposition from air pollution, migration of invasive species including destructive insect species, and climate change continues to threaten native forest plant and animal habitat.
- Vermont water bodies continue to face mounting pressures from unsustainable development, farm and forest activities. Cumulative impacts from these land use activities have degraded water quality, aquatic habitat and altered the stability of river corridors and lakeshores. Issues that predominate in the County include disappearing wetlands, increasing impervious surfaces, steady high pollutant loads (mainly from nonpoint sources such as unmanaged stormwater), that result in nutrient enrichment and sedimentation, as well as other impairments. In addition, aquatic nuisance species continue to enter our waterways, contributing to the degradation of both habitat and recreational opportunities. Climate change is expected to bring us more intense storms at a higher frequency, which will only exasperate the problem.
- River corridor resilience is also critical to the health of our ecological systems as well as
 protection of our infrastructure. Channelization of streams and rivers, reduction and
 alteration of natural floodplains, and reduction and elimination of vegetative buffers are
 practices that lead to river corridor instability causing excessive erosion of river channels
 and additional fluvial erosion hazards. Of the river miles assessed in Vermont, 74% have
 become confined to deeper, straighter channels and no longer have access to historic
 floodplains essential to stable streams and sustainable water quality management.
- As of 2005, 22,120 residents of Chittenden County (almost 15% of the population) rely on groundwater sources for their drinking water (Source: USGS Water Use Compilation completed every 5 years). Protection of groundwater resources from failing septic systems and petroleum spills/leaks is critical.
- Local zoning lags behind town plans. There is a disconnect between the vision for natural systems as expressed in Municipal Plans, and the Zoning Regulations that implement those plans. In addition, many zoning regulations have vague review standards and definitions, a situation that complicates enforcement and opens the town to due process legal challenges. However, existing bylaws protect the majority of Fluvial Erosion Hazard areas in the County with stream setbacks and floodplain regulations.
- Outdoor air pollution in significant concentrations can raise aesthetic and nuisance issues such as impairment of scenic visibility, unpleasant smoke, or odors; and can also pose human health problems, especially for more sensitive populations like children, asthma sufferers, and the elderly. While Chittenden County's air quality meets current National Ambient Air Quality Standards (NAAQS), we are close to the standards for ground-level ozone and fine particulate. We are also subject to pollution from the mid-west that we cannot control. If the NAAQS are revised to be more stringent - or air pollutant levels

increase - so that we exceed the NAAQS, additional and costly environmental regulations will apply to our region.

Key Indicators

- Figure 1. Chittenden County Land Cover Losses (Source: USGS 2001 and 2006 National Land Cover Data):
 - o 210,619 acres or 61% of the land are covered by forest.
 - 241 acres or .11% of barren land, deciduous forest, evergreen forest, mixed forest, shrub, grassland, woody wetlands, and emergent herbaceous wetlands were converted to development from 2001 to 2006. –National Land Cover Data. These land cover categories are being used a surrogate for wildlife habitat as there is currently a lack of a better, more accurate data source..
 - 55 acres or .5% of wetlands were developed in Chittenden County from 2001 to 2006. Note: For the Annual Indicator Report wetlands loss can be reported based on figures from the State Wetland's Office.
- Figure 2: Number and Length of Degraded Rivers/Streams: 8 miles or 1% of all stream miles and Shelburne Pond, and Lake Champlain(Mallets Bay, Northeast Arm, Shelburne Bay, and Burlington Bay) are considered impaired (Source: Vermont Dept. of Environmental Conservation, 303d List Part A, August 2012 USGS, Vermont Hydrography Dataset, 2001-2004). See Impaired Waterways Map.

There is also a list developed for planning and monitoring of Vermont's list of Priority Surface Waters outside the scope of the Clean Water Act, Section 303(d) Part A. The 2012 Vermont List of Priority Surface Waters outside CWA Section 303(d) consists of: 8 miles or 1% of all stream miles and Burlington Bay, Muddy Brook and Unnamed Tributary of Winooski River are impaired and do not require development of a total maximum daily load because attainment expected in a reasonable time.

93 miles or 6% of all stream miles and Lake Champlain (Main Section, Northeast Arm), Shelburne Bay, and Potash Brook Part D – Completed TMDLs.

41 miles or 3% of all stream miles and Lake Champlain (Otter Creek Section, Northeast Arm, Main Section), Arrowhead Mountain Lake, Burlington Bay, Lake Iroquois, Mallets Bay, and Shelburne Bay are altered by exotic species.

15 miles or 1% of all stream miles and Arrowhead Mountain Lake, Joiner Brook, Lower Lamoille River, and Lower Winooski below Essex #18 dam are altered by flow regulation (e.g., Dams). (Source: ANR 2012 Vermont List of Priority Surface Waters outside Clean Water Act Section 303d, USGS, Vermont Hydrography Dataset, 2001-2004)

- Phosphorus level concentrations in the Main Lake (partial watershed is in Chittenden County), Malletts Bay, Burlington Bay, and Shelburne Bay have remained relatively steady but consistently above the target in the Main Lake and Mallets Bay. Non point phosphorus loading from streams to the main section of Lake Champlain are recorded at 170 metric tons (2005-2010), far above the target of 51.3 metric tons; in addition nonpoint phosphorus loading from streams to Mallets Bay are recorded at 54.1 metric tons, almost twice the target of 25.4 metric tons (Source: State of the Lake and Ecosystem Indicators Report 2012, Lake Champlain Basin Program).
- Percent of Impervious Surface by Watershed (Source: 2008 Impervious Surface Data, ANR):

- o 8,267 acres or 7% of the Lake Champlain Watershed is impervious.
- o 3,145 acres or 3% of the Lamoille River Watershed is impervious.
- 7,779 acres or 6% of the Winooski River Watershed is impervious.
- Chittenden County's Air Quality close to National Ambient Air Quality Standards (NAAQS) for ground-level ozone and fine particulate:



For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

 See Natural Systems Analysis Report and Lake Champlain Basin Program's State of the Lake Reports

2.2.2 SCENIC, RECREATIONAL, AND HISTORIC RESOURCES

Scenic and Recreational Resources Goal: Conserve, protect and improve valued scenic, recreational, and historic resources and opportunities.

Key Issues/Trends/Insights

- Chittenden County is rooted in its scenic, recreational, and historic resources. These provide residents a place to relax, play, gather, and learn about nature, conservation, and our heritage. They also provide important ecological functions including wildlife habitat, and water and air quality protection. These are supplemented by indoor and outdoor recreation facilities (see recreation maps). An extensive system of shared-use paths, on-road bike lanes, and off-road trails connect the County's recreational facilities and areas (see recreation maps).
- Historic resources include buildings, structures, landscapes, and archeological sites, both on land and under water. There are over 4,400 designated historic sites in Chittenden County and over 80 designated historic districts (see historic resource map).
- The recreational value of our water bodies (swimming, fishing, boating, etc.) is critically dependent on water quality. E-coli and algae blooms lead to beach closures, while invasive species threaten our native fish populations.
- As we work toward encouraging future development in areas planned for growth to maintain VT's historic settlement pattern of villages and urban centers, surrounded by rural countryside, access to valued scenic, recreation and historic resources should also be maintained and improved for all residents and visitors.
- Scenic resources represent an important element of the region's landscape and contribute directly to sense of place, quality of life and economic vitality through tourism and by attracting new residents and businesses. The scenic economy is one part of the region's overall attraction and generates significant local revenues (source?).
- Eight of the County's municipalities (Milton, Colchester, Essex Junction, Winooski, Burlington, South Burlington, Shelburne and Charlottte) are member communities of the Lake Champlain Byway, a State-designated Scenic Byway that extends from Alburg in the Champlain Islands through Chittenden County on U.S. 7 and south into several towns in Addison County. Since 2002 these communities have secured competitive grants from the National Scenic Byway Program to improve the visitor experience by implementing projects such as wayfinding signage, interpretive panels, brochures, kiosks, and other amenities. In particular, the Byway focuses on improving interpretation and information about municipal and non-profit intrinsic resource sites such as parks, town forests, natural areas, trails and smaller museums.
- There is low compatibility between municipal plan recommendations for natural and scenic resources and the implementation of those recommendations through zoning bylaws and subdivision regulation. However, when projects are proposed that might impact or alter vistas and scenery, there is often strident and vocal opposition to change, even if a project is proposed for lands under private ownership. This paradox needs to be reconciled if the region continues to develop new infrastructure for energy generation and transmission, or if

communities seek to effectively balance scenic and natural resource protection with growth and land based economic development.

Key Indicators

- 50, 789 acres or 15% of Chittenden County's land area is protected from development. Source: UVM SAL Conserved Land Database and municipalities.
- 56, 450 acres or 17% of Chittenden County's land area is available for recreation in the form of town & state parks, athletic fields, and natural areas.
- Local Zoning Lags behind Plans (Source: ECOS Natural Resources Analysis Report, Landworks). Municipal Zoning Regulations vary.
 - 16% of towns provide specific standards and guidelines for protecting identified scenic resources.
 - 68% of towns provide general recommendations for protecting scenic resources (e.g., views and landscapes along scenic roads should be protected).
 - 16% of towns reference scenic resources but provide no goals, standards, guidelines, or recommendations.
 - o 57% of scenic resources identified are of roads or views from roads.
 - The majority (74%) of towns reference scenic resources in relation to their value as open space.
 - o 42% of towns recognize that woodlands provide scenic as well as ecological values.
 - About 40% of towns consider historic structures and settlement patterns a scenic resource.
 - o 21% of towns have a scenic overlay/preservation district.

For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

• See Natural Systems Analysis Report

2.2.3 CLIMATE CHANGE

Climate Change Goal: Reduce greenhouse gas emissions contributing to climate change and adapt to become more resilient to a changing climate.

Key Issues/Trends/Insights

- Temperature and precipitation records for the latter half of the 20th century show that Chittenden County's climate has changed: winters became warmer and summers became hotter.ⁱ Lake Champlain freezes over later and less frequently and the growing season lasts longer.ⁱⁱ Annual precipitation has increased, but more falls as rain instead of snow.ⁱⁱⁱ
- Scientists overwhelmingly agree that changes in climate worldwide are a result of human activities, mainly the burning of fossil fuels.^{1V} Climate model forecasts^V for the Northeast US predict that during this century temperatures will continue to increase, as will extreme heat days and heat waves. More precipitation and extreme precipitation events are expected to increase, although short-term summer droughts may also become more frequent.
- These current and predicted changes in climate have broad implications for our region.
 - <u>Environmental Quality</u> Summer air quality will deteriorate, as warmer temperatures promote the formation of smog.^{vi} More intense rainfall will increase storm water runoff and the potential for flooding. Increased rain and runoff will wash pollutants into our waterways, and warmer waters and nutrients will encourage growth of bacteria and blue-green algae.^{vii}
 - <u>Natural Communities</u> Cold-water aquatic species, such as brook trout, will struggle to survive in warmer waters and in competition with better-adapted species.^{viii} Our forests will change: maple, beech and birch trees will gradually be replaced by oak and hickory trees that are better adapted to warmer, wetter conditions.^{ix} Invasive species, like the hemlock wooly adelgid, will further affect change in forest composition.^x
 - <u>Public Health^{xi}</u> Warmer temperatures allow the spread of insect-borne diseases, such as West Nile virus and Lyme disease. Air pollution and higher pollen production will increase problems for people with allergies, chronic respiratory diseases and asthma. High temperatures and heat waves will increase the risk of heat stress for the elderly, very young children and other vulnerable populations.
 - <u>Built Environment</u> Flooding will put homes, businesses and public infrastructure in flood-prone areas at risk.^{xii} Flooding may impact the safety of the water supply; droughts will also threaten water supplies.^{xiii} Although warmer winters will require less fuel for heating, hotter summers will increase electricity demands for cooling.^{xiv}
 - <u>Local Economy</u> Warmer temperatures will hurt maple sugar production. Farmers can expect declining yields for cool-weather crops and depressed milk production from heat-stressed dairy cows.^{xv} Less-colorful foliage seasons will hurt fall tourism.^{xvi} Less predictable snow will jeopardize winter sports and recreation and compromise Vermont's image as a winter sports mecca.^{xvii}
- We can respond to climate change in two different ways. Climate mitigation strategies will
 reduce the region's contribution of greenhouse gases. Although Chittenden County may be
 a small part of global greenhouse gas emissions, it is important that Chittenden County do
 its part to help solve the problem. Climate adaptation strategies help individuals,
 businesses and communities be able to withstand and bounce back from or even take
 advantage of the impacts of climate change.

Key Indicators

Greenhouse Gas Emissions. This key indicator of climate mitigation outcomes can be used to measure the effectiveness of climate mitigation strategies. In 2010, Chittenden County emitted approximately 1,177,000 metric tons of carbon dioxide equivalents (MTCO₂e). This represents about 18% of Vermont's greenhouse gas emissions. Transportation energy use (mostly motor vehicles) accounts for 49% of county emissions; heating fuels account for another 39%. CCRPC expects to be able to update this inventory every five years.



DRAFT 2010 Chittenden County Greenhouse Gas Emissions (MTCO₂e)

Source: Draft 2010 Chittenden County Greenhouse Gas Emissions Inventory Data rounded to three significant figures.

Major Disaster Declarations. This key indicator of climate adaptation outcomes measures the number of federally-declared natural disasters in Chittenden County. Major disaster declarations are made for natural events causing damage so severe that it is beyond the combined capabilities of state and local governments to respond. Although Chittenden County has had relatively few major disasters in the past half century, there is a general trend for more frequent major disasters. Severe natural events are expected to increase with climate change; how we plan, develop, prepare and respond will determine the severity of future damages. This indicator is also relevant to hazard mitigation.



Vegetated Landscapes. Vegetated landscapes are an important supporting indicator for both climate mitigation and climate adaptation. Plants are able to remove carbon from the atmosphere and store it in biomass and soils – a process called carbon sequestration. Maintaining forests, wetlands, agricultural lands and vegetated spaces in developed areas is important for ensuring current and future carbon sequestration. Vegetated landscapes are also important for the natural absorption of stormwater, reducing runoff and the potential for flooding. In 2006, Chittenden County was 95% vegetated, approximately equal to the vegetated area in 2001. This indicator is related to the impervious surface indicator in Ecological Systems. Based on 2001 landcover data, the carbon sequestration rate was about 761,000 MTCO₂e.^{xviii}

- Climate-Related Infectious Diseases. This supporting indicator of climate adaptation outcomes measures the annual number of reported cases of vector-borne diseases expected to increase with climate change, such as Lyme disease, West Nile virus and Eastern Equine Encephalitis (EEE). In 20xx, yy cases of A, B, C were reported for Chittenden County residents. [Update with data from VT Dept of Health.]
 - Vermont Residents Discharged from Vermont, NH, NY and MA Hospitals Emergency Department Visits for Heat Stress: 2003 - 2009 All VT Residents ED visits 120 **Residents of Chittenden County** 100 80 Number of Cases 60 40 20 0 2003 2004 2005 2006 2007 2008 2009 Year of Admission
- > Heat Stress Hospitalizations.

Vermont Residents Discharged from Vermont, NH, NY and MA Hospitals Emergency Department Visits for Heat Stress: Years of Admission 2003 - 2009

	Number of ED Visits *				
Year of Admission	Statewide	Chittenden County			
2003	67	13			
2004	37	7			
2005	106	28			
2006	90	17			
2007	61	11			
2008	78	19			
2009	58	8			

* Number of ED Visits includes those who were treated and released, and those who were admitted. This supporting indicator of climate adaptation outcomes measures the annual number of emergency department visits related to heat stress. Between 2003 and 2009,

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Chittenden County residents averaged 14.7 emergency department visits for heat stress. 19 heat stress hospitalizations occurred in 2008 and 8 occurred in 2009. This indicator can be updated annually from Vermont Dept. of Health data.

For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

• See Chittenden County Climate Change Trends and Impacts and Chittenden County Regional Climate Action Plan [in development]

2.3 SOCIAL COMMUNITY

Broad Goal: All community members have the skills, resources, and assurances needed to participate in the workforce and in family, civic, and cultural life within and among neighborhoods and in the larger community.

INTRODUCTION:

The health of a population is inextricably linked to the design of the community in which it lives, works and recreates. All the people of Chittenden County should have the opportunity to make choices conducive to living a long, healthy life, regardless of their income, education, race, or ethnic background. Approaching community design from a public health perspective marks the reunification of two disciplines long separated by narrowly focused Euclidean planning. The design of a community can buttress certain behaviors while it undermines others, impact social circumstances, access to healthcare, and environmental exposures. The determinants of health must be addressed from a holistic approach; no discipline cuts across these domains as broadly as community design.

2.3.1 EDUCATION, KNOWLEDGE AND SKILLS

Education, Knowledge and Skills Goal: All Chittenden County children and adults have the education, skills, and opportunities necessary to meet their full economic and social potential and well-being.

INTRODUCTION: This section provides an overview of the state of educational participation and achievement in Chittenden County. Understanding the state of education provides an insight into the knowledge and skills of residents and how they can apply these to improve their quality of life.

Key Issues/Trends/Insights

- Educational achievement is essential for effective participation in society. Increasingly, urban societies are becoming knowledge-based and urban economies require innovative solutions to meet market demands. People's ability to learn new skills during their working lives is important if they are to keep pace with rapidly changing work environments. Access to life-long learning opportunities is also related to people's need for self-fulfillment and selfdetermination.
- Educational attainment has been linked to economic security (add discussion). Not only do
 incomes rise with educational attainment, but also the rate of increase is higher for those
 with higher levels of education. As education helps individuals become economically
 successful, it also helps regional economies. Skilled workers provide a competitive
 advantage to our region.
- If a child can't read by 3rd grade...add discussion
- Students math and science test scores, such as those given to 11th graders in 2010, are low even though they are generally above the state averages. In most cases, less than 50% of students in the schools with the best scores are proficient in math and science. If Chittenden County is to be a high tech community, it must enhance its public school performance in these fields to attract top technology and medical talent from across the country and to generate a local labor supply that meets employer needs. add discussion
- Older children and youth who have access to quality out-of-school and summer opportunities are more likely to develop the skills they need for performing well in school and stay engaged in school
- 42% of Vermonters who have less than a high school education earn an income below the federal poverty level - only 5% of those who have a college degree earn so little.
- The area needs to address labor recruitment and development to offer the attractions needed for such recruitment, including more affordable quality housing and school systems that are at least on par (in key quality measurements, such as test scores, percent of graduates going on to post secondary education, extracurricular activities, advanced placement courses, available technical courses and programs such as those in Science, Technology, Engineering and Mathematics-STEM, etc) with those communities in which technical, professional and managerial personnel live in leading technology centers across the country.
- 30% of employers (largely within the skilled machine trades) report that they have training needs that are not met by local resources. Source: WDGT Chittenden Employer Survey, September 2011

- Drop-out rates reflect... add discussion.
- Two-thirds of people with less than a high school education report having one or more chronic health conditions, compared to one-third of those who have a college degree or more.
- The County's ability to grow its economy in the future will be closely tied to its ability to provide available skilled labor, particularly once the currently unemployed are absorbed back into the ranks of the employed as much as their skills will allow.
- The County's labor force has a relatively low unemployment rate and high labor participation rate, with many skills categories, particularly technical skills, reported as difficult to find or unavailable by area employers.
- Employers report very good to excellent workforce quality, with good work ethic and productivity, and low turnover and absenteeism.

Key Indicators

% of children entering kindergarten school ready according to developmental domains (Source: Statewide Assessment of Kindergarten Readiness across 5 domains (AHS, United Way)

	Year	Approaches to learning	Cognitive. Dev./General Knowledge	Communication	Socio- emotional Development	Health
State of Vermont	2009	66	61	81	67	n/a
Colchester (2007 data; 2009 not available)	2008	81	64	91	67	86
Milton	2009	67	73	81	77	n/a
Chittenden East	2009	75	67	88	77	n/a
Chittenden Central	2009	62	70	84	55	n/a
Chittenden South	2009	75	74	90	83	n/a
Burlington	2009	70	66	82	75	n/a
South Burlington	2009	71	61	82	70	n/a
Winooski	2009	32	50	51	49	n/a
Essex Town	2009	70	61	86	72	n/a

- > % Chittenden County students proficient in reading by end of 3rd grade (at grade level) and math by end of 7th grade (at grade level)
- > % Chittenden County students proficient in math, science and reading in 11th grade (at grade level)
- \blacktriangleright % 9th grade students who do not complete high school in six years; Highest level of education attained for those 25 and over;
- > % of adults with any post-graduate (high school) training or apprenticeships

 \geq

In Chittenden County, educational levels among residents 25 years old and older exceed state and national norms. The estimated percentage of county residents with a four year bachelor's degree, or higher is 42.4% compared to a state average of 32.6% and a national average of 27.5%. The percent with graduate degrees also exceed state and national averages by significant margins. Include percent with HS diplomas. Include percent that has obtained some other kind of training.

For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

- See Education Analysis Report, located in document appendix http://ecosproject.com/analysis
- •

2.3.2 HEALTH

Health Goal: All Chittenden County residents are healthy.

Key Issues/Trends/Insights

- Similar to national statistics, the leading causes of death in Chittenden County are cardiovascular disease (32%), followed by cancer (26%). Tobacco use, diet, physical inactivity, and excessive alcohol consumption are modifiable, behavioral risk factors associated with these diseases.
- Behaviors are the most important contributors to health outcomes. The healthcare system, with its successes and failings, receives a disproportionate amount of attention. While it is undeniable that all Chittenden County residents should have access to affordable healthcare, the healthcare system's impact on population health is nominal compared to behavior, genetics and social circumstances. On the other hand, the healthcare system exerts significant effect after chronic disease is manifest.
- Health begins in our families, in our schools and workplaces, in our playgrounds and parks, and in the air we breathe and the water we drink. The conditions in which we live and work have an enormous impact on our health. Behaviors can be influenced, supported, or undermined by community design. Community design can also impact social circumstances, healthcare, and environmental exposures. Chittenden County residents should have the opportunity to make the choices that allow them to live a long, healthy life, regardless of their income, education or ethnic background
- Community design can influence the overall well being of a community by making healthy lifestyle choices easily available and accessible to all community members. Healthy Community Design links public health themes (such as physical activity, public safety, healthy food access, mental health, air and water quality, and social equity) with traditional planning concepts (such as land use, transportation, community facilities, parks, and open space). The overall health of a community is underpinned by the planning strategies employed in its design. Community design can improve population health by increasing physical activity, reducing injury, increasing access to healthy food, improving air and water quality, minimizing the effects of climate change, decreasing mental health stresses, strengthening the social fabric of a community, reducing exposure to tobacco and alcohol advertising, increasing smoke-free indoor and outdoor policies, and providing fair access to livelihood, education, and resources.
- Interventions at the community, policy, and systems levels are critical to achieving individual level behavior changes that will improve health.
- Tobacco use, poor nutrition, physical inactivity, and excessive alcohol consumption are the leading causes of death in that they are the factors underlying the disease labels traditionally used to present this metric. Community design elements that support eliminating tobacco use, increasing physical activity levels, improving nutrition, and decreasing excessive alcohol consumption are the priorities on which focus must be brought to bear. Research shows that healthy community design is associated with improvements in these health behaviors.
- There are significant differences in prevalence of cancer by age. A higher proportion of adults 65 years and older (15%) have ever had cancer compared to all other age groups. There are no other statistically significant differences by demographic characteristics.
- There are no statistically significant differences in prevalence of overweight or obesity by grade or race/ethnicity. However, compared to males, a significantly lower proportion of females are obese (5% vs. 11%) and a lower proportion are overweight (10% vs. 14%).
- Within Chittenden County, there are several identified populations who experience health disparities (i.e., racial or ethnic minorities, low-income, homeless). These populations suffer disproportionately from poor health outcomes. For example, those living in poverty and with food insecurity are more likely to be obese. The distribution of the data supports the link between poor health outcomes and low socioeconomic status. It is material to note that while county-wide data for a specific indicator may not indicate a problem, that same indicator sorted by economic status or education level, may reveal a significant public health issue, in a particular community.

Key Indicators

- Cardiovascular Disease
- Cancer

Supporting Indicators

	Adults*	Youth**
Overweight Prevalence	37%	12%
Obesity Prevalence	20%	8%
Poor Mental health	8%	18%
Binge Drinking	18%	19%
Smoking Prevalence	12%	10%

Source: * BRFSS 2008-2010; Age-adjusted to the U.S. 2000 population with the exception of All Cancers, ** YRBS 2011

- There are significant differences in smoking prevalence by age. A lower proportion of Vermonters 65 and older (5%) are current smokers compared to all other age groups. A higher proportion of adults 25-34 years old (18%) are current smokers compared to adults 45-64 years old (11%). Though a higher proportion of Vermonters of racial and ethnic minorities (18%) are current smokers compared to white, non-Hispanic Vermonters (11%), this does not reach the level of statistical significance. There is a statistically significant difference in the proportion of Vermonters under 250% of the Federal Poverty Line (22%) compared to those above 250% (8%).
- There are significant difference in the prevalence of cardiovascular disease by gender, age, and Federal Poverty Level. A higher proportion of males (7%) have CVD compared to females (4%). A higher proportion of adults 65 years and older (19%) have CVD compared to all other age groups. A higher proportion of adults living below 250% of the Federal

Poverty Line (8%) have CVD compared to those above 250% (4%). There was no statistically significant difference by race/ethnicity.

For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

 See Public Health Analysis Report, Healthy Vermonters 2020 (<u>http://healthvermont.gov/pubs/hv2020/index.aspx</u>)

2.3.3 PUBLIC SAFETY, CRIMINAL JUSTICE & HAZARD MITIGATION

Public Safety, Criminal Justice Goal: Improve the safety of the public including the loss of life and property from natural and manmade hazards..

Key Issues/Trends/Insights

- Feeling safe and secure in our homes, communities and urban areas is key to overall health in the community. Safety and perceptions of safety feature highly in people's view of their living environment, their sense of well-being and quality of life. As urban areas grow, the need for safe social and physical environments, where people are able to participate fully in their communities, becomes an increasing challenge.
- The cost of emergency response and multiple law enforcement agencies is a challenge to municipalities.
- The lack of volunteers for volunteer fire departments is causing concerns about the ability and timeliness of response and is resulting in the need to hire firefighters.
- As identified by the 2011 Chittenden County Multi-Jurisdictional All Hazards Mitigation Plan, the highest ranked county-wide hazards are severe winter storm, flooding, telecommunications failure, power loss, major transportation incident, fluvial erosion and epidemic. Three of the top hazards are natural hazards, three are technological hazards, and one is a societal hazard.
- Flooding and fluvial erosion can damage or destroy homes, businesses and transportation infrastructure.
- Winter storms, flooding, transportation incidents and epidemics can cause human injury, illnesses and even death.
- Winter storms, telecommunications failure, power loss and transportation incidents can cause serious disruption of public safety services.
- Flooding, fluvial erosion and possibly epidemics may be made worse by projected climate changes. While Incident Command System training has continuously been offered throughout the state, post-Irene analysis has shown that previous ICS training was positively correlated with increased ability to respond to the challenges posed by Irene. This increase was due to the ability to organize a unified command structure within the town and work more efficiently.
- Emergency Management Planning of all types needs to be kept up to date to best be able to respond, recover, and mitigate disasters. These plans include Basic Emergency Operations Plans (BEOP) for each municipality, implementing improvement plans from exercises, and hazard mitigation plans.
- Prison infrastructure, space and siting? This didn't come up previously but is this an issue we need to address?

Key Indicators



- non-violent Source: VCIC (AHS list) need data
- Rate of adult abuse and neglect victims (AHS list) need data
- Fire Safety incidents (data needed from Mike Greeneai(sp?))
- Incarceration rates by race compared to general population (dept of corrections) need data
- % and number of structures in special flood hazard areas in Chittenden County (based on GIS analysis). Source: CCRPC and/or State NFIP. Data: 1.5% of structures or 866 structures out of 58,598 structures are within the Special Flood Hazard Area and Fluvial Erosion Hazard Area in 2012.
- Vaccination rates need data
- American Red Cross # of incidents and persons where shelter was needed need data
- EMS aging calls (Health Dept) need data

For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

See 2011 Chittenden County Multi-Jurisdictional All Hazards Mitigation Plan

2.3.4 SOCIAL CONNECTEDNESS

Social Connectedness Goal: Increase opportunities for people of all backgrounds to engage in the multicultural social fabric and activities of the community.

Key Issues/Trends/Insights

- Social connectedness provides an indication of community strength and resiliency. The concept of community is fundamental to people's overall quality of life and sense of belonging. Informal networks and how people connect with others are important for strong communities and social cohesion. Confident and connected communities suffer less social problems, are adaptable to challenges, and support social and economic development. There are major health, economic and environmental benefits in developing opportunities for and participation in social interactions, recreation and leisure, arts and cultural activities.
- Resident attachment to a community has been correlated to the growth of local economies, despite downward national trends. (Knight Foundation, http://www.soulofthecommunity.org/) Three factors have been identified are the top characteristics that attach people to place:
 - o social offerings, such as entertainment venues and places to meet;
 - o openness to diversity and difference;
 - o aesthetics of physical and green spaces.
- Social connectedness has been identified as a social determinant for individuals' health and well-being. Individuals who experience disenfranchisement and social exclusion suffer greater risk of depression, illness and addiction. (Minnesota Dept of Health)
- While Chittenden County continually ranks high for its quality of life, there are segments of our community who persistently suffer exclusion, or are at risk of suffering disenfranchisement. Underrepresented communities (low-income, people of color, foreign born, seniors, youth) have identified barriers such as lack of reliable transportation, the inability to meet one's basic needs, and institutional racism as the greatest threats to their quality of life and sense of well-being. (ECOS' outreach efforts, 2011-12; Legacy Project outreach, 2010-12; Plan BTV outreach, 2012)
- Group attendance at art events gives community members a shared experience that is both aesthetically rewarding, strengthens connectedness, and contributes to cultivating and supporting a culture of art appreciation.
- Chittenden County's proximity to Montreal, Boston and New York City (by air) creates access to some of the world's greatest arts and cultural resources. However, access and inclusion to public art, free or low cost arts and cultural activities locally is limited.
- Chittenden County can boast of spectacular natural landscapes and a beautiful waterfront, protected by intentional zoning and development.

Key Indicators

- % of residents who say that they mostly have positive interactions in their communities (neighborhood, school/work, larger community) (primary data - Survey residents about quality of life; disaggregated by race, income) need data
- > % of residents who feel positive about the increasing ethnic diversity of our region

(primary data - Survey residents about quality of life; disaggregated by race, income) need data

% of residents who feel that there are enough:
 -opportunities to connect with others;
 -gathering places to connect with others

(primary data - Survey residents about quality of life; disaggregated by race, income) need data

- % of residents engaged in arts and cultural activities (primary data Survey residents about quality of life; disaggregated by race, income) need data
- > % of residents within ¼ mile of parks or publicly accessible natural areas.

For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

• See other research/reports?

2.3.5 CIVIC ENGAGEMENT

Civic Engagement: People from diverse backgrounds feel that they have a say in political and non-political decisions that affect their lives, neighborhoods and communities.

Key Issues/Trends/Insights

- Civic engagement consists of political and nonpolitical activities that help identify and address community concerns. Being able to participate in, express views and influence decisions that affect one's life, neighborhood and community are essential for a true democracy. Effective civil and political systems allow our communities to be governed in a way that promotes justice and fairness and supports people's quality of life.
- Enabling democratic local decision making is one of the key purposes of local government and is also important in promoting the social, economic, environmental and cultural wellbeing of communities. Vermont and Chittenden County have a long held tradition of "local rule." Sometimes this supports to maintain local traditions and pride; and sometimes it is an impediment to collaboration and integrating new ideas.
- The population in our area is becoming increasingly ethnically diverse, with at least 58 languages spoken at home. It is important that we understand how our institutions and processes need to evolve in order to remove barriers that limit people's ability to exercise their civic rights and decision making.
- Members from various local ethnic communities have indicated a disconnect with local government processes. (ECOS' outreach efforts, 2011-12; Legacy Project outreach, 2010-12; Plan BTV outreach, 2012)
- Youth and adults of diverse cultural backgrounds seek to be involved in decisions that affect their lives, neighborhoods and communities so that they too can feel that they can give back and improve the community's well-being.

Key Indicators

> % of eligible voters that vote (Can this be disaggregated by race, gender, age?)

% General Election Voter Turnout						
	2004	2006	2008	2010		
Chittenden County	69%	59.9%	70.2%	52%		
Vermont	70.7%	60.7%	72%	54%		

Source: Vermont Secretary of State. http://vermont-elections.org/elections1/election_info.html

Local elected officials by race, gender (Source: BTV- Wanda Hines, or Primary data collection) need data

- Municipally-appointed commissions and boards by race, gender (Source: BTV-Wanda Hines, or primary data collection) need data
- Do you feel that you have influence in the decisions that affect your life, neighborhood and community? (source: primary data collection through survey) need data

For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

• See other research/reports?

2.4 ECONOMIC INFRASTRUCTURE

Broad Goal: Build the region's capacity for shared and sustainable improvements in the economic well being of the community through support of both local and globally competitive initiatives.

INTRODUCTION: The more prosperous an economy in a region, the better off the residents of that region are in terms of opportunities to gain a higher income, purchase needed items and access quality health care. In general, this leads to greater social connectedness, educational advancement, increased life expectancy, and happiness. Furthermore, if business is prospering, they are better able to continue to provide philanthropic and volunteer support for the community. Over the past several decades the County's share of population, Gross Domestic Product, jobs and income, among other economic indicators, has increased. In reviewing the findings presented in the Economic Base and Competitive Assessment reports, it is apparent that Chittenden County enjoys a competitive advantage relative to the balance of the state.

Despite the advantages the region has enjoyed in many areas, however, there are some disquieting trends that need to be acknowledged. If recent trends continue, there will be additional loss of jobs in high-wage industries and slow growth in lower-wage industries. Job growth has been slow over the past decade and this is likely to continue into the future. However, the Chittenden County region has a highly desirable quality of life by many measures and there will continue to be growth pressures. Our challenge is how to manage and shape these larger external growth pressures to improve our job opportunities and incomes while also improving our quality of life.

This section of the ECOS Plan looks at three goals related to our economy: Economy, Household Financial Security, and Working Lands. Under each of these goals is a quick review of key issues and trends including a short list of selected indicators. In an effort to provide general data there will be more specific data elements and stories that are not included. It does not mean that these specific and smaller issues are not important, only that in this Plan we are focusing on the biggest and most important trends that will affect the long term ability of our residents and our children and grand children to have a range of opportunities for jobs, increase their incomes, and be able to afford not only their basic needs (housing, food, clothing), but also be able to fully enjoy their life in Chittenden County.

Our economy is typically looked at in terms of farm and non-farm employment. Therefore, this section includes an Economy section that looks at our non-farm employment and jobs and the opportunities for employment outside of agriculture. The Working Lands section focuses on agriculture as an industry and land use. The Household Financial Security section looks at the result of having a job (or not): income and pressures on income that impact our families' ability to enjoy their lives.

2.4.1 ECONOMY

Goal: Retain and support existing employers and job growth, growing target sector employers and entrepreneurs, and work to attract a greater diversity of employers and employees.

Key Issues/Trends/Insights

- Chittenden County's employment base is largely within five private industry sectors: Healthcare and social assistance; retail trade; manufacturing; accommodation and food service; and professional, scientific and technical services.
- Chittenden County is a mix of urban, suburban and rural areas, with an essential rural character that is important to many residents. Similarly, the economy includes the largest for-profit employer in the state (the major IBM complex); the largest retail area in Vermont with four communities ranking in the top five in the state based on 2011 retail sales tax reports (Williston #1; South Burlington #2; Burlington #4; and Colchester #5 (source: Vermont Department of Taxation); and significant agricultural, recreational and open space areas. This mix of uses results in a character cherished by its residents and appealing to prospective residents. The challenge is to plan and manage future growth, including economic development, so that it sustains and enhances this community character.
- Employment in the private sector declined between 2000 and 2010. Total non-farm employment in Chittenden County decreased from 95,354 to 93,231 between 2000 and 2010 a loss of 2,123 jobs, or -2.2 percent. This was offset in part by an increase in public sector employment, but it was not sufficient to offset private sector losses (private sector: 4,386 + public sector: 2,263 = net -2,123).
- Chittenden County is currently modestly-supplied with buildings and land for business expansion. In the future, additional "shovel-ready" sites with good access, full utilities and proper zoning will be necessary if the County is to be competitive in attracting larger projects or retaining local businesses seeking to expand.
- Educational levels among residents 25 years old and older exceed state and national norms. (See Section 2.5 Education for more detail.)
- The County is blessed with a highly desirable quality of life, with the notable exception of affordability of housing, which was both rated the lowest quality of life factor in the Employers Survey as well as being the most commonly observed weakness of the area in interviews of employers.
- Based upon the results of the Employers Survey, recreational opportunities, safety from crime, and cultural opportunities all scored Very Good or higher, while the quality of the K 12 educational system scored just below Very Good. The types and varieties of recreational and cultural opportunities in Chittenden County are too numerous to list here. The County's labor force has a relatively low unemployment rate and high labor participation rate, with many skills categories, particularly technical skills, reported as difficult to find or unavailable by area employers. While some of these needs are for skills that are unique to specific companies, several employers surveyed reported similar training needs for skilled manufacturing occupations particularly in the machine trades. Interviewed manufacturers

emphasized the strong need for local training programs in machining and other skilled occupations to support their growth and sustainability.

Key Indicators

Recent Chittenden County job growth has been stronger than the U.S., New England and Vermont.



Total number of businesses in Chittenden County: Since peaking in 2008 the County's business count has dropped by 101



The unemployment rate in the greater Burlington area (NECTA*) has declined faster than the New England and US rates over the past two years.



Professional and technical services and Manufacturing jobs pay significantly higher salaries than our other major employment sectors.



For Actions

See Chapter 3, pages x,x,x for implementation actions. •

For Additional Information/Resources

See Economic Base and Competitive Assessment Analysis Reports, located in document • appendix http://ecosproject.com/analysis

2.4.2 HOUSEHOLD FINANCIAL SECURITY

Household Financial Security Goal: Improve the financial security of households.

INTRODUCTION: Levels of income and wealth are key determinants of individual or family wellbeing. Economic standard of living involves a complex combination of factors such as income, living costs, and household size and composition.

Key Issues/Trends/Insights

- In 2008, 21% of Chittenden County residents were living at less than 200% of the federal poverty level, many receive state and federal assistance to meet basic needs
- Lower income Vermonters report higher rates of depression and chronic conditions, such as obesity, asthma, heart disease, stroke and diabetes.
- The County's ability to grow its economy in the future will be closely tied to its ability to
 provide available labor, particularly once the currently unemployed are absorbed back into
 the ranks of the employed as much as their skills will allow. A broad-based strategy of skills
 upgrading, new methods of recruiting, and alternative working arrangements will be
 necessary.
- More focus in needed on education and workforce development to train employees for the opportunities in the technologies needed for manufacturing, professional services and health care. See more under the "Education" topic.
- Household financial security influences a family's ability to access enough food to fully meet basic needs at all times. Lack of financial resources can cause food insecurity. 15,401 Chittenden County residents participate in 3SquaresVT (formerly known as Food Stamps).
 6.6% increase in 3SquaresVT participation since 2010. 1 in 7 children in Chittenden County are food insecure. 26% of grade school and high school students are eligible for free or reduced-price meals (Hunger Free VT – www.hungerfreevt.org).

Key Indicators

Chittenden County household income is higher than both VT and the US. However, median household income in the County has declined for two consecutive years, approximately back to 2006 levels.



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> Household income varies significantly by race

Race of Household Head	Median Income	Margin of Error
White	\$60,297	+/- \$1,376
African-American	\$40,865	+/- \$5,687
Asian	\$54,417	+/- \$10,580
Two or more races	\$52,358	+/- \$12,820

Source: U.S. Census Bureau, American Community Survey 2005-9

> Percentage of Families whose Income in the Last 12 Months is Below Poverty Level

	ACS 2007 3-year Estimates	ACS 2010 3-year Estimates
Chittenden		
County	6.10%	6.70%
Vermont	6.90%	7.60%
US (2010)		15.1%

Source: U.S. Census Bureau, American Community Survey 2005-9

Average Combined Housing + Transportation Costs is 53% of County median income (derived from the H+T Affordability Index, Center for Neighborhood Technology). 45% is considered the threshold of affordability.

For Actions

• See Chapter 3, pages x,x,x for implementation actions.

For Additional Information/Resources

• See Housing Analysis Report

2.4.3 WORKING LANDS & LAND BASED INDUSTRIES

Working Lands Goal: Support the growth and vitality of working farms and managed forests; and sustainably manage sand and gravel extraction operations.

Key Issues/Trends/Insights

- Working lands and resource extraction industries are critical components of a self-reliant and diverse economy, making a region less vulnerable to market crises. Local food and fuel production is preferred since the transportation to import these products consumes tremendous amounts of energy and generates pollution. In addition, when food is imported from far-away places, nutrient value is reduced during the transport time.
- Working lands and resource extraction industries are economically viable within the constraints of our natural landscape. Sustainably managed farmland and forest land means less developed land, fewer impervious surfaces, and thus a greater presence of the natural ecosystem's features and functions. Conversely, high quality food and productive forests are dependent upon clean water and clean, nutrient-rich soils. It is imperative that we maintain high quality water and soils for healthy and viable food and forest product industries.
- A major challenge to forest and farm businesses is the value of the land in these industries versus the value of the land for development. Often when these industries are no longer economically viable, the land is sold and developed, resulting in forest fragmentation and increased parceling of land. The number of parcels has gone up, while their size has gone down, diminishing their economic viability and the ecological services they provide. This situation has far-reaching potential consequences for the future of Vermont's local economies, including tourism.
- Markets for forest products and ecosystem services are necessary to ensure that landowners can afford to hold and manage their forest land (Vermont Forest Resource Plan, page 57). Unfortunately, the Vermont forest products industry is in slow and unheralded decline which has resulted in dramatic reductions in wood processing and manufacturing (Action Plan of the Vermont Working Landscape Partnership, page 14)). In the face of increasing gas prices and international trade, the value of local markets and processing cannot be overstated. Markets for forest products are often influenced on regional scales beyond the county level, though support of opportunities to develop and take advantage of markets must occur at the local scale.
- In recent decades, farm enterprises in the County have been employing new forms of business ownership, engaging in non-farm employment, limiting the size of farm operations to control the growth of farm production expenses, producing different types of farm products, producing more farm-related products, and engaging in more direct sales to consumers. These trends present a new set of challenges for farmers and communities, including access to markets and access to affordable land. Difficulties acquiring the proper equipment, or accessing to a certified processing facility are also a common problem for some new farmers. We will need to adjust our regulations and programs to ensure that we are not unnecessarily prohibiting agricultural enterprises from diversifying as well as continue efforts to ensure that agricultural enterprises remain economically viable.

Extraction industries are associated with different land management issues than farms and forests; these are included here for lack of a better location at this time. The only earth resources in Chittenden County that currently are commercially viable are sand (over two billion cubic yards available) and gravel (430 million cubic yards available). These nonrenewable resources are used to produce building materials (such as concrete and railroad ballast), to use as landscaping materials, and to maintain roads.

Key Indicators

- Use Value Appraisal Enrollment: UVA—a State program allowing land to be taxed based on its income producing potential from agriculture or forestry. The Annual Reporting should include reason for withdrawal, if possible.
 - o In 2010, 66,411 acres and 789 parcels of UVA Forest Land enrollment.
 - o In 2010, 16,895 acres and 311 parcels of UVA Agricultural Land enrollment.
 - From 2001 to 2006, 514 acres or 1% of agricultural land was converted to development - USGS National Land Cover Data.
 - o 140 acres or .07% of forest were converted to development from 2001 to 2006.
- > The number of farms has increased, while the acreage of farmland has decreased.

NUMBER OF FARMS OF DIFFERENT SIZES IN CHITTENDEN COUNTY, 1987 - 2007

Farm Size	1987	1997	2007	1987 to 2007 Change	
(Acres)				Number	Percent
1,000 or More	7	10	11	4	57.14%
500 to 999	44	23	25	-19	-43.18%
180 to 499	140	123	203	63	45.00%
50 to 179	134	137	178	44	32.84%
10 to 49	99	123	143	44	44.44%
Under 10	28	40	81	53	189.29%
Total	452	456	641	189	41.81%

SOURCE: U.S. Census of Agriculture, 1987, 1997 and 2007.

ACRES DEVOTED TO DIFFERENT USES ON CHITTENDEN COUNTY FARMS, 1987 - 2007

Use*	1987	1997	2007	1987 to 2007 Change	
				Acres	Percent
Cropland	53,177	42,188	31,161	-22,016	-41.40%

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Woodland	31,925	28,853	34,744	2,819	8.83%
Other (including pasture)	12,967	12,314	17,477	4,510	34.78%
Total	98,069	83,355	83,382	-14,687	-14.98%

SOURCE: U.S. Census of Agriculture, 1987, 1997 and 2007

* Cropland-includes land planted for Christmas tree production and short rotation woody crops. Woodland includes natural or planted woodlots or timber tracts and cutover and deforested land with young growth that has or will have value for wood products and land in tapped maple trees.

- The average property taxes per acre for farms in Chittenden County increased 82 percent (adjusted for inflation) from 1987 to 2007, from \$18.60 to \$33.86.
- The net farm income per acre for farms in Chittenden County increased from \$102.49 in 2002 (adjusted for inflation) to \$110.17 in 2007 (compared with Vermont's increase from \$93.93 to \$129.20). However the income trends vary depending on the product: there were decreases in the value of "dairy, cattle and calves" and "all other farm products" and increases (in some cases dramatic) in the value of other types of farm products (farm income from products made on the farm such as cheese or for services provided on the farm such as farm equipment repair).
- .19 net acres of agricultural and natural resource land lost annually to development per new Resident (requested by Partnership for Sustainable Communities) (Source: National Land Cover Data, 2006, U.S. Census Population 2001-2006)

For Actions

• See Chapter 3, pages x,x,x for implementation actions

For Additional Information/Resources

 See Natural Systems Analysis Report; Farm to Plate Annual Reporting; Informing Land Use Planning and Forestland Conservation Through Subdivision and Parcelization Trend Information – Vermont Natural Resources Council, September 2010; The Action Plan of the VT Working Landscape Partnership.

2.5 BUILT ENVIRONMENT

Broad Goal: Make public and private investments in the built environment to minimize environmental impact, maximize financial efficiency, optimize social equity and benefits, and improve public health.

INTRODUCTION: The built environment comprises the physical buildings of the County combined with supporting infrastructure necessary for travel, waste, water, and energy for living, working, and playing. Strategic investments to Chittenden County's built environment and development centers is necessary for promoting a high quality of life that is hinged on economic development, affordability, and environmental stewardship. Significant regional planning for sidewalks, housing, transit choice, and cultural and recreational resources can make more homes and businesses in our centers the key to allowing growth to happen more sustainably.

Other vital infrastructure updates are also needed to support livability in these centers. Sewer capacity and water supply investments are necessary to accommodate new residents and employers. Renewable energy sources for buildings and alternatives to driving need to be planned to reduce the consumption of fossil fuels and decrease carbon emissions.

This section focuses on the promotion of higher density, mixed use development in Center, Metro, Suburban, Enterprise, and Village Planning Areas. These actions would result in reduced energy for transportation and land use by promoting increased car pooling, pedestrian/bicycle travel, availability of transit, reduction in vehicle miles traveled, and the need for smaller homes that maximize efficiency. Consolidating households and employers in these Planning Areas also makes for providing other infrastructure more efficient. A description of the Planning Areas can be found in Chapter 3 on page xx.

2.5.1 LAND USE

Land Use Pattern Goal: Encourage future growth in the Center, Metro, Enterprise, Suburban, and Village Planning Areas to maintain Vermont's historic settlement pattern and respect working and natural landscapes.

Key Issues/Trends/Insights

- Over the past 60 years development trends, zoning regulations, and consumer preference have shifted growth away from the metropolitan areas around Burlington, to more suburban and rural locales. This shift has resulted in scattered development at low densities that consume large amounts of land, high infrastructure costs, and little opportunity for social interactions.
- Recent studies and surveys indicate that households are choosing to live in areas with shorter commute times, nearby shops and services, and more transit options. This growing demand indicates that the small lot and attached accessible housing stock may be in short supply.
- Forest and agricultural land fragmentation and increased parceling have meant that the number of parcels in rural areas has increased while their size has decreased, diminishing their economic viability, scenic, and the ecological services they provide.
- Future land-based opportunities for farming and forest-based products, recreation and tourism may become more limited as suitable open land becomes less available. This possibility has far reaching consequences for the future of Vermont's local and tourism economies.
- There are over 4,400 designated historic sites in Chittenden County (over 2,500 in Burlington alone) and over 80 designated historic districts (see Map X in Appendix).
- A sustainable society operates without contributing new contaminates to the environment, but also cleans up old contaminants and turns those lands into productive use. Contamination impairs the environment, poses risks to human health, and discourages productive use or reuse of the property. Total # Chittenden County sites with completed corrective action.

Key Indicators

> Percent of New Structures in Areas Planned for Growth: 1950 – 2010



Source: 1951-2005, UVM Year Built Data, 2005-2010, VT e911 board esites, 2035 Target, CCRPC

The best available data at the time of this report related to e911 structures. Going forward, CCRPC seeks to regularly track dwelling units, employees, and non-residential square footage to better represent the development that is occurring in the County.

Development Density by Planning Area data

For Actions

• See Chapter 3, pages x,x,x for implementation actions

For Additional Information/Resources

• See Historic Development and Future Land Use Transportation Analysis Report

2.5.2 HOUSING

Housing Goal: Increase the opportunities for safe, decent, energy efficient, affordable, accessible and fair housing for all types of households in diverse neighborhoods.

Key Issues/Trends/Insights

- Adequate and affordable housing is central to a sustainable community. A healthy
 community is made up of households with a variety of incomes and affordable housing is
 needed to satisfy residents' wide range of needs. Lack of affordable housing contributes to
 many social stresses, including homelessness.
- The financial burden of paying a mortgage, homeowner's insurance, property taxes, utility expenses and other housing fees is unaffordable when these costs consume more than 30% of the household's income. Further, paying more than half of income on housing expenses creates a severe strain on a household's budget. These households are at much higher risk of foreclosure, eviction, homelessness, and frequent moving—all of which harm residents and the community. Approximately 4,000 owner households and 6,000 renter households living in Chittenden County pay more than half of their incomes for housing expenses. Cost burdens are highest for the lowest income residents, especially those living on fixed incomes or public assistance and those working at low-wage jobs.
- Approximately 500 people in Chittenden County were homeless during the January 2011 one-night count, clearly demonstrating gaps in the access to the types of housing options and services that could have kept these people housed.
- Some Chittenden County residents do not have equal access to housing opportunities. Members of the county's growing population of non-White residents, residents with disabilities, and single-parent families are more likely to experience poverty and less likely to become homeowners than other types of households. Insufficient housing options for all residents, regardless of their race, disability status, or membership in other protected classes, help prevent those residents from reaching their potential as contributing community members.
- Nearly 60% of the county's housing stock was built before 1980—when lead-based paint was widely used, when most home insulating/heating/energy technology was inefficient, and when building and accessibility codes did not yet accommodate all types of residents. (Note: Lead was banned from paint in 1978.)
- More than 11% of Chittenden County residents commute 25 or more miles to work—with
 potential adverse effects on both the health of the driver and the environment. In addition,
 with the exception of some neighborhoods in Burlington and Winooski and a few other
 Census blocks in the county, the vast majority of the county's working residents pay more
 than 45% of their income for the combined cost of housing and transportation.
- The county's population is expected to continue growing, albeit at a slower pace than in the past decade. Between 2010 and 2015, demand for additional owner homes is likely to be lower than prior levels of home building in the county. However, demand for renter homes is predicted to increase. Tools to ensure adequate housing supply for renters include

renovation and conversion of existing buildings as well as new construction. Looking further out roughly 4,000 additional housing units (rental and ownership combined) will be needed from 2010 to 2020.

Key Indicators

% households spending over 30% of income on housing expenses (owners and renters).



Table 2: # of new housing units by tenure (rental and ownership) and by Municipality. Start with a baseline of 2010 housing units (for each rental and ownership) and include a column of the increased number of units added in 2011 (for each rental and ownership). Source: American Community Survey annually (5 year averages).

20	00	2010		%	%
				change owners	change renters
Owners	Renters	Owners	Renters		-
37,291	19,161	40,310	21,517	8%	12%
317	51	422	65	33%	27%
6	0	7	5	17%	500%
6,590	9,295	6,553	9,566	-1%	3%
1,085	202	1,189	230	10%	14%
4,354	1,790	4,509	1,805	4%	1%
5,418	1,595	5,955	1,932	10%	21%
1,302	294	1,468	269	13%	-9%
617	75	668	85	8%	13%
1,551	200	1,677	204	8%	2%
2,897	436	3,237	652	12%	50%
1,209	295	1,298	288	7%	-2%
226	38	222	53	-2%	39%
2,107	525	2,225	655	6%	25%
4,351	1,981	5,186	2,801	19%	41%
974	81	1,031	102	6%	26%
657	68	682	75	4%	10%
2,475	446	2,837	677	15%	52%
1,156	1,788	1,144	2,053	-1%	15%
	20 Owners 37,291 317 6 317 6 3,17 4,354 1,085 4,354 1,302 5,418 1,302 1,302 1,209 2,407 4,351 2,26 3,2107 4,351 2,26 3,2107 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,209 1,	2000 Averse Renters 37,291 19,161 317 51 317 51 6 0 1,085 202 4,354 202 1,085 202 1,085 202 1,302 203 1,302 203 1,302 203 1,302 303 1,209 303 1,209 303 1,209 303 1,209 303 1,209 303 1,209 303 1,209 436 1,209 303 1,209 436 1,209 525 1,201 525 1,202 436 1,203 45	2000 20 Owners Renters Owners 37,291 19,161 40,310 317 51 422 6 0 7 6,590 9,295 6,553 1,085 202 1,189 4,354 1,790 4,509 5,418 1,595 5,955 1,302 294 1,468 1,302 294 1,677 2,897 436 3,237 1,209 295 1,298 2,261 38 222 38 222 38 222 974 81 1,031 657 68 682 2,475 446 2,837 1,156 1,788 682	2000 2010 Owners Renters Owners Renters 37,291 19,161 40,310 21,517 317 51 422 65 6 0 7 5 6,590 9,295 6,553 9,566 1,085 202 1,189 230 4,354 1,790 4,509 1,805 5,418 1,595 5,955 1,932 1,302 294 1,468 269 1,302 294 1,468 269 1,302 294 1,468 269 1,209 295 1,298 288 1,209 295 1,298 288 226 38 222 53 1,209 295 1,298 2801 2,107 525 2,225 655 4,351 1,981 5,186 2,801 974 81 1,031 102 657 68 682 75 2,475 446 2,837 677	2000 2010 % change owners Owners Renters Owners Renters 37,291 19,161 40,310 21,517 8% 317 51 422 65 33% 6 0 7 5 17% 6,590 9,295 6,553 9,566 1% 1,085 202 1,189 230 10% 4,354 1,790 4,509 1,805 4% 1,302 294 1,468 269 13% 1,511 200 1,677 204 8% 1,521 200 1,677 204 8% 1,521 200 1,677 204 8% 2,897 436 3,237 652 12% 1,209 295 1,298 288 7% 2,107 525 2,225 655 6% 4,351 1,981 5,186 2,801 19% 974 81 1,031 102 6% 657 68 682

Source: Census 2010, Summary File 1.

Metro and non-metro vacancy rate for renters and owners. A healthy vacancy rate needs to be based on local circumstances, and long-term local averages (setting a national standard is not effective). The target for Chittenden County may be somewhere between 3% and 5%; however this needs to be verified. In Burlington and Winooski the average rental housing vacancy rate has been well below this, at 1.5% from 2004 to 2011 (Source: VHFA Allen and Brook report). For the suburban areas the average rental housing vacancy rate from 2004 to 2011 is 2.6% - still lower

than a healthy rate but not as low as Burlington and Winooski (Source: VHFA Allen and Brook report).

- Months of inventory for Condos and Single Family Homes. A healthy housing market is one in which housing units for ownership are on the market for no more than 6 months. The average for condos from 2004 to 2010 has been 4.4 months; and the average for single-family homes from 1998 to 2010 has been 5.1 months. However, in 2008 (at the beginning of the recession) the single-family housing units were on the market for 9.6 months. More recently, this has been trending back in the right direction.
- Homeless at point in time, 3 year average. Average from 2008 to 2011 is 497. Source: Chittenden County Continuum of Care (Burlington CEDO).
- Increased inventory of affordable rental housing. Source: Vermont Directory of Affordable Rental Housing (<u>www.housingdata.org/doarh</u>). Data needs to be added.

For Actions

• See Chapter 3, pages x,x,x for implementation actions

For Additional Information/Resources

• See Housing Analysis Report Analysis Report

2.5.3 TRANSPORTATION

Transportation Goal: Provide accessible, safe, efficient, interconnected, secure, equitable and sustainable mobility choices for our region's businesses, residents and visitors.

Key Issues/Trends/Insights

- Congestion is worsening with potential negative consequences on economic development, the environment and human health.
- The 2008-2009 Scenario Planning Process undertaken by the Chittenden County Metropolitan Planning Organization resulted in a clear surveyed preference for future growth to be concentrated into higher density, mixed use centers – this preference is also demonstrated in the policy direction outlined in municipal plans and ordinances throughout the county. Directing transportation investments to serve mobility and accessibility in compact settlements will result in a more cost effective and efficient transportation system.
- Continued low-density development in rural areas will increase Vehicle Miles Traveled (VMT) and likely increase potentially harmful air pollutants and greenhouse gases.
- Higher fuel prices will lead to an increase in the percentage of household income needed to meet transportation expenses; rural residents are disproportionately impacted by household transportation costs.
- Some population segments youth, the elderly, minorities, refugees, the poor lack access to viable public and private transportation options. The lack of safe, reliable, and complete connections within the transportation system and between transport modes reduces access to employment, social, economic, and recreation opportunities; and limits access to basic needs by means other than a personal vehicle.
- More robust investment in transportation options transit, walking/biking, carsharing and ridesharing – could reduce congestion, vehicle miles traveled, use of single occupancy vehicles, social exclusion, and could improve public health, and enhance the economic wellbeing of our residents, businesses and visitors.
- While access to public transit is widely available in the region's more urbanized areas, there
 are days and times when service is not available; some suburban and most rural
 populations lack access to transit.
- Roadway condition of over half of the arterial highway mileage in Chittenden County is rated poor or worse. Compounding our poor roadway conditions and inadequate investment, transportation funding in general is overly reliant on the state and federal gas taxes which are decreasing in value as inflation lowers purchasing power and revenues decline due to improving vehicle fuel efficiency and fewer VMT.
- Transportation costs exceed our capacity to maintain, operate, and improve our current system. Nor do we have adequate funds needed to grow transit, walking/biking, and Transportation Demand Management (TDM) programs. The prospect of less funding in a time of increasing transportation investment need is a worrisome trend and needs to be addressed.
- The MTP must be fiscally constrained to the funding anticipated for investment in the planning horizon through 2035. The following chart outlines the funds anticipated to be available for the next 25 years. The chart highlights the fact that we will not be able to afford everything that may be needed and that investments will need to be selected which promote future sustainability.

	COSTS in Millions (2010\$)
Estimate of future funds	\$1,177
Cost to maintain/preserve the transportation system	\$754
Committed projects (TIP and Circ Alternatives)	\$113
Total available to address new transportation needs	\$310
Estimated cost of anticipated new projects (the sum of all items on the MTP Project List - Transportation Need)	\$849
Funding deficit (Transportation Need minus Total Available)	-\$540

Estimated Transportation Funding for Chittenden County: 2010 - 2035

- Some population segments youth, the elderly, minorities, refugees, the poor lack access to viable public and private transportation options.
- While our rate of driving alone to work increased by 36% between 1980 and 2000 (to 76% of all work trips), in more recent years this trend has shown improvement to 71% in 2010. We've also seen a nearly 60% increase in transit ridership the past decade. Vehicle Miles of Travel (VMT) per person is also on the decline, down 8% between 2000 and 2010. It is imperative that we maintain these positive recent trends in order to reduce congestion, decrease greenhouse gas emissions, and more efficiently utilize all of our transportation resources.
- The 2008-2009 Scenario Planning Process undertaken by the Chittenden County Metropolitan Planning Organization resulted in a clear surveyed preference for future growth to be concentrated into higher density, mixed use centers – this preference is also demonstrated in the policy direction outlined in municipal plans and ordinances throughout the county. Directing transportation investments to serve mobility and accessibility in compact settlements will result in a more cost effective and efficient transportation system.

Key Indicators

Percent of workers commuting by non-Single Occupant Vehicle (SOV) mode (walk, bike, transit, carpool, telecommute). Recent data suggests the reversal of a negative trend going back at least 30 years and probably longer. See chart on next page.



VMT Per Capita. Less driving per person can have positive environmental, transportation, economic, health and social impacts. Our most recent data may portend a positive trend. See chart on next page.



For Actions

• See Chapter 3, pages x,x,x for implementation actions

For Additional Information/Resources

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• See Historic Development and Future Land Use Transportation Analysis Report and MTP Supplemental Documents, located in document appendix

2.5.4 INFRASTRUCTURE & FACILITIES

Goal: Ensure adequate infrastructure and facilities (i.e. water supply, wastewater treatment, stormwater treatment, broadband coverage and solid waste recovery and recycling) to support areas planned for growth while conserving resources.

Key Issues/Trends/Insights

- The majority of the residents in the County get their drinking water from Lake Champlain, via two utilities: the Champlain Water District (CWD) and the City of Burlington's DPW Water Division. Combined, these utilities have 27.5 MGD (million gallons per day) capacity, with 7.8 MGD reserve capacity. This reserve capacity equates to 39,000 new homes (as a comparison there are 65,722 housing units in Chittenden County in 2010). In addition, Richmond, Hinesburg, Underhill and Jericho have smaller public water supply utilities some of which are facing capacity and water quality challenges (Hinesburg for example).
- Currently, there are 12 municipal wastewater treatment plants in the County; together they have a treatment capacity of 21 million gallons per day (MGD) (Source: State of Vermont Wastewater Management Division). As of 2010, CCRPC estimated an aggregate reserve capacity of 9MGD (this does not account for unconnected committed capacity and capacity limitations of individual facilities.). The estimated future demand for wastewater capacity in 2035 is 7 MGD. While these figures indicate that there is sufficient sewage treatment capacity to absorb anticipated growth in housing and employment county-wide this does not account for location specific limitations. Colchester, Essex Junction, Huntington, Hinesburg, Westford, and Williston were among the municipalities in need of more wastewater capacity.
- We can manage stormwater more efficiently, and subsequently protect the water quality of our surface waters more effectively, if we build at higher-densities in the areas planned for growth. In addition, managing stormwater on site, with practices such as Low Impact Development (LID), is effective and efficient. Storm water management is regulated at a variety of levels including EPA's National Pollutant Discharge Elimination System (NPDES) permits; VT DEC's discharge permits; and some municipalities have additional stormwater regulations and programs. Nine municipalities and three public entities are subject to MS4 permitting (a NPDES program) in Chittenden County: Burlington, Colchester, Essex, Essex Junction, Milton, Shelburne, South Burlington, Williston, Winooski, Burlington International Airport, UVM and VTrans. Amendments to the MS4 program are pending and may result in additional unfunded mandates to these municipalities. Developments over 1 acre of disturbance are subject to the VT DEC's discharge permits.
- Broadband technology is widely available throughout Chittenden County: as of December 2011, approximately 99% of Chittenden County residents and 99.5% of non-residential structures (analysis included commercial, industrial, municipal structures) have access to Broadband. The federal definition of broadband is 768 kbps download/200 kbps upload speeds. It will be important to ensure that we are on par with other urban areas in the realm of number of service providers, service tiers, and affordability as the technology is constantly improving and we must keep up. Specifically, the defined broadband speeds are quite slow and we'll need to do better than that.
- A sustainable society minimizes the amount of waste it generates; reuses materials; and recycles. Tons of refuse disposed in Chittenden County has been declining over the last 5 years, while the amount of recycled materials has increased. While those trends are positive, there is room for improvement. It is estimated that 27% of the municipal solid

waste sent to the landfill is comprised of recyclable materials and 32% is comprised of organic materials that could be composted (Source: CSWD Estimate of the Components of Solid Waste Disposed for FY 2011). A State law passed in 2012 (House Bill 485) will help to keep us moving in the right direction as the law establishes universal recycling of solid waste and sets deadlines for when certain materials must be recycled, and therefore would be banned from trash disposal (for example, food waste must be recycled (composted) starting in 2016).

Key Indicators

- Current Wastewater Capacity v. Capacity Needed for Growth Projections in Areas Planned for Growth Source: Waste Water Utilities (CCRPC will update) and Municipal Growth Projections. Chittenden County has the capacity to treat an additional 7 million gallons per day of wastewater. In 2035, it is estimated that the anticipated demand will be 7 MGD which is adequate capacity to accommodate 80% of the future development within the various sewer service areas. However, capacity varies for each treatment plant and some facilities may have a narrow margin of additional capacity.
- 16.9% of impervious area is under storm water management through operational stormwater permits countywide. Source: ANR VTDEC Stormwater Permit database, ANR's 2008 NDVI Impervious Surface Layer.
- 49% of the impervious area in Chittenden County is covered by the Municipal Separate Storm Sewer System Permit (MS4). Source: MS4 Boundary, ANR's 2008 Impervious Surface Layer.
- Pounds of Waste Disposed/Capita/Day for MSW (Municipal Solid Waste) and C&D (Construction Debris).



Source: Chittenden Solid Waste District, Waste Diversion Report: Calendar Years 2001-2011

For Actions

• See Collective Impact Strategy X,Y,Z for implementation steps

For Additional Information/Resources

 See the Ecological Systems topic for water quality; Broadband Action Plan; <u>http://www.ccrpcvt.org/stormwater/</u>; <u>www.smartwaterways.org</u>; Protecting Water Resources with Higher-Density Development. EPA, Publication # 231-R-16-001;and CSWD's Annual Reports

2.5.5 ENERGY

Energy Goal: Reduce Chittenden County's consumption of energy¹ and reliance on foreign, non-renewable, energy. Improve the cost-effectiveness, efficiency and reliability of the energy production, transmission, and distribution system.

Key Issues/Trends/Insights

- Chittenden County citizens, businesses, and industries spent about \$617 million on energy in 2009 (25% of Vermont's total). Much of this money leaves the County and state immediately. This outflow of energy dollars acts as a drain on the local economy.
- The price of energy is forecasted to continue increasing in the future,² which will result in an additional burden on the County's residents and businesses, unless energy consumption can be reduced.
- Chittenden County has a long history of electrical and natural gas energy efficiency programs, dating back to 1990, which have provided significant energy savings and economic benefits to the state and County. These programs along with improvements in federal standards have led to a reduction in per household and per employee energy consumption of electricity and natural gas. Reduction in energy consumption directly results in a reduction in energy bills.
- While efficiency programs targeting electricity and natural gas have been largely successful, there is an urgent need to fund and develop similar programs for non-regulated thermal fuels and for the transporation sector.
- Fossil fuel combustion increases the atmospheric concentration of carbon dioxide and other greenhouse gases, which are the causes of global climate change. Climate change will have profound impacts on the environment, public health, infrastructure, and economy of Chittenden County.
- Vermont, and the County, relies heavily on fuel oil for building heat and on gasoline and diesel for transportation. Gasoline consumption has increased as more residents drive to and from work, run errands, and consume for goods.
- Vermont's rural nature offers challenges for the transmission and distribution of energy. It is important to maintain and develop an energy production, transmission, and distribution infrastructure in Chittenden County that is efficient, reliable, cost-effective, and environmentally responsible.
- The cost of electricity is related to the distance it travels. When electricity is transmitted over long distances, a significant³ amount of electricity is lost. Improving line efficiency or encouraging distributed generation (such as locally sited small scale renewable projects) reduce losses.
- Every three years, Vermont Systems Planning Committee (VSPC) launches a process to update and identify constrained areas and reliability needs for the electric transmission grid⁴. Chittenden County has areas identified as needing improvement⁵.
- Electric efficiency programs have always worked to reduce electrical demand especially during peak periods but the development of the Smart Grid will provide a powerful tool to address this

Energy in this section is defined as energy used in buildings and the transportation sector unless specified otherwise

EIA Annual Energy Outlook 2011, release date April 2011

Vermont estimates that 10% is total system loss

⁴ http://www.velco.com/LongRange/Pages/2012Long-RangeTransmissionPlan.aspx

⁵ Through Section 248, regional planning agencies are notified of Public Service Board hearing regarding construction of electric transmission facilities, gas pipeline and electricity generation facilities

issue. Smart Grid coupled with education, behavior change, and load control technologies can help reduce peak demand and defer substation upgrades which can result in substantial cost saving.

- Chittenden County has many non-fossil fuel based, renewable energy production sites owned by utilities, private parties, and municipalities. Reliable, cost effective, and environmentally sustainable energy availability is critical to support the economy and natural resources of Chittenden County.
- The more widespread adoption of electric vehicles should reduce the total energy consumption in the County, due to better efficiency (an EV gets the equivalent of 100 miles/gallon). To prepare for widespread adoption of electric vehicles, charging infrastructure should be developed. In addition, policies and pricing structures to encourage off peak charging need to be considered to mitigate grid constraints.
- Chittenden County is home to an international airport and a National Guard base, therefore the transportation fuel consumption in the County not only includes gasoline, diesel, and compressed natural gas, but also a large consumption of jet fuel.



Key Indicators

- Total energy consumption per person (per household for the residential sector) and by sector (transportation, residential, commercial, and industrial). Reduction in consumption will lead to a reduction in energy bills, relative to what they would be without that reduction in consumption.
- Efficiency savings as a percent of the total energy consumed, by fuel type. Total energy consumed includes all sectors and all fuel types.
- Proportion of renewable energy produced in Chittenden County as a percentage of the total energy consumed (electricity, thermal, and transportation) in the County. Number and capacity⁶ of sites located in Chittenden County that generate energy with photovoltaics, hydropower, solar thermal/hot water, biomass, wind.

⁶ Capacity will be used to calculate the approximate power generated by these renewable systems

Number and capacity of renewable energy production sites in the County⁷:

Oct. 12, 2011	# of sites	Capacity (kW)	Capacity (Thousand Btu)	Tons of wood consumed
Solar Photovoltaic	297	6101		
Solar Thermal	42		2975	
Combined systems	12	86	588	
Wind	28	491		
Hydro	6			
Wood Thermal ¹	9			3900
Wood Electric ²	1	50000		665760

 1 Thermal capacity not recorded, only tons of wood consumed as a proxy for system size is available 2 McNeil Power Plant

Number of constraint substations in the County requiring upgrades in the near future. During 2012-2014, Efficiency Vermont is going to develop special programs to target electric utility customers to reduce their demand in order to defer substation upgrades.

For Actions

• See Chapter 3, pages x,x,x for implementation actions

For Additional Information/Resources

See Energy Analysis Report

Source: http://www.vtenergyatlas.com/

2.6 The Positives of Now and Concerns for the Future

Accolades

As we look to the future, Vermont, Chittenden County, and Burlington have gained a national reputation for our high quality of life. These can be summarized by looking at some of the accolades that we have received over the past few years. For more detail, please see the Lake Champlain Regional Chamber of Commerce webpage at

http://www.vermont.org/About_Burlington/accolades.aspx.

- 2012 Vermont is second most peaceful place to live
- 2012 Forbes: Burlington is One of America's Best Downtowns
- 2012 & 2011 Healthiest County in the US, Univ. of Wisconsin Population Health Institute County Health Rankings
- 2011- Burlington ranked #1 place for guys by Men's Health
- 2011- Vermont ranked #1 healthiest state by the United Health Foundation
- 2011- Top 10 Cities for Outdoor Recreation Outside Magazine
- 2011- Top 10 for "Volunteering in America"
- 2011- HUD's HOME Program "Door Knocker Award" for exceptional contribution to affordable housing
- 2011- #1 "Top Ten Small Cities" State of Well-Being
- 2011- Top 10 Real Estates Markets to Watch in 2011 Inman News
- 2010 Kiplinger's (Magazine) Best Cities 2010: Burlington, Vt.
- 2010 New England's Most Enjoyed Secret Vitality Cape Cod Magazine
- 2010 Burlington, Vermont rated #2 in the best college towns survey by MSN Local Edition.
- 2010 Burlington, Vermont receives Home Depot Foundation Award of "Excellence for Sustainable Community Development"
- 2010 #1 Bass Fishing Capital Outdoor Life
- 2010 Prettiest Town in America Forbes.com
- 2010 Arbor Day Foundation: Tree City USA
- 2010 One of Best Cities for New Jobs This Spring Forbes.com
- 2010 Top 100 Places to Live in America RelocateAmerica.com
- 2010 First Wave City Carbon War Room
- 2009 Burlington, Vermont named the number 1 healthiest place by women
- 2009 Children's Health Magazine has named Burlington the #1 place to raise a family.
- 2008 #2 in "Greenest Small City in America" contest by Organic Gardening magazine.
- 2008 Church Street Marketplace named one of 10 Greatest Places in America by the American Planning Association.
- 2008 BusinessWeek magazine named Burlington Vermont one of the best places to raise your kids.

These accolades reflect many of the positive things we see in our community and our neighbors. They highlight many of the reasons why so many of us love this community and want to keep seeing it improve for ourselves, our children, and our grandchildren.

Concerns

While we celebrate the positive aspects of our community, we also owe it to our children and their children to look to the future and work on addressing problems and aspire to do better. There are

2.6 The Positives of Now and Concerns for the Future | Chapter 2 - Regional Analysis

many questions that we heard from our community reflecting real concerns for the future. These questions include:

- Will my children and their children:
 - Be able to find good paying jobs here?
 - Be able to afford a home here?
 - o Enjoy a cleaner up Lake Champlain, streams, and rivers?
 - Breathe cleaner air?
 - o See and use our rural landscape, farms, and mountains?
 - Have more transportation options?
 - Have to drive twice as far and long to get to their jobs?
 - Want to live in this community?
 - Be part of an equitable community?
 - Retain our small town neighborliness?
 - o Be healthier?
 - Be better educated and successful?

These questions reflect many of the concerns that were identified by topic area sub-committees in developing Chapter 2. These concerns require improvement to realize our goals. These are not prioritized, but rather follow the outline of the topics as discussed in Chapter 2 above. We should all understand that these concerns are based on today's assessment of trends rooted in our current values and will change over time; either as we improve in certain areas or as our values shift over the generations. The current concerns are grouped by broad goal area below.

Natural Systems

- 1. Habitat Loss We are experiencing a loss of habitat quality and quantity due to roads, invasives and development patterns.
- 2. Unstable Rivers River corridors are unstable due to alterations and encroachments leaving us susceptible to costly damage from flood events
- 3. Non-point Source Water Pollution While we have addressed point sources of pollution, non-point sources are still contributing pollutants to our water bodies. Disparities in educational results, health, incarceration, and income exist for people of color and low income populations.
- 4. Climate Change Climate change is a global phenomenon with local impacts. Our region's climate is already changing; warmer, wetter conditions are expected to increase this century. These changes will adversely impact forest and aquatic communities, water quantity and quality, public health, agriculture, winter sports businesses, and buildings and infrastructure in flood and fluvial erosion hazard areas.
- Greenhouse Gas (GHG) Emissions Chittenden County emits 1,220,000 metric tons of greenhouse gases (measured as carbon dioxide equivalents). Fossil fuel consumption for transportation and heating accounts for almost 90% of our emitted greenhouse gases.
6. Climate Health Impacts - We can expect hotter summers that increase the frequency and severity of heat-stress illness and vector-borne diseases (such as Lyme disease, West Nile virus and Eastern Equine Encephalitis).

Social Community

- 7. Tobacco Use and Substance abuse Rates of tobacco use have decreased from 20% in 1999 to 13% in 2008. Despite this significant decrease, exposure to second-hand smoke is high among youth and adults. Rates of substance abuse are increasing; meanwhile access to mental health services is inadequate.
- 8. Obesity The prevalence of obesity is uniformly high across economic groups and has increased dramatically over the last 20 years.
- 9. Emergency Preparedeness Improvements need to be made in the areas of emergency planning, training, and operations centers.
- 10. Kindergarten Readiness To improve kindergarten readiness..., look at what Building Bright Futures is doing. Act 62 review? To improve 3rd grade reading, assist schools by involving United Way agencies and the business community with a focus on the achievement gap for low income students.
- 11. Workforce Development As people change jobs and careers more often and the needs of the workplace change, more workforce development programs are needed.
- 12. Inclusion There is a concern that members of underrepresented communities are not well connected and involved with governmental decisions. This includes the concern about their knowledge of the different government processes.
- 13. Aging There is a general concern that we focus on and address the aging of our community and what that means for us in the future.

Economic Infrastructure

- 14. Job Opportunities We need to keep encouraging our existing and new employers to grow for our children to have employment opportunities here and not have to leave to find work.
- 15. Manufacturing Diversity Our manufacturing sector lacks diversity leaving us susceptible to changes.
- 16. Industrial Sites There is a lack of industrial sites to accommodate future economic growth.
- 17. STEM We have a strong innovation economy, but increasing the labor force skills in science, technology, engineering and technology (STEM) remains a high need.
- 18. Housing Cost Decreasing the cost of housing would help in attracting workers to our region.
- 19. Working Lands Loss- Sustaining our working lands is a challenge because there is greater monetary value in developing land than maintaining it as a farm or productive forest; in addition some local products are undervalued (i.e. milk, saw timber).

Built Environment

- 20. Sprawl Over the last 60 years development trends, zoning regulations, and consumer preference have shifted growth away from metropolitan areas around Burlington to more
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suburban and rural locales resulting in large amounts of land consumed and high infrastructure costs. This trend seems to have reversed since 2005 and we need to stay on this new course.

- 21. Lack of Rental Housing An increase of 1,000 rental housing units is needed in the county by 2015 to maintain a conservative vacancy rate of 1.4%. We will not reach that number based on currently approved developments. In addition, a healthier vacancy rate may be much higher to increase housing choices and lower rents, while maintaining a vibrant economy. This would result in a need much greater than 1,000 rental units by 2015.
- 22. Affordable Homes An increase of 1,000 homeownership units in the county priced under \$300,000 is needed by 2015 to increase housing choices and lower costs. This need is could be met through existing permitted developments, however many are not being built due to challenges with condominium financing. For the same reason as mentioned above, the 1,000 units is based on a conservative vacancy rate figure.
- 23. Maintenance of Existing Housing Stock There is a need to adequately maintain existing housing stock to preserve it as a viable option for the future.
- 24. Supportive Housing There is a need to increase the number of units of permanent supportive housing throughout the county in addition to Burlington. Supportive housing is a combination of housing and services intended as a cost-effective way to help people live more stable, productive lives. Supportive housing is widely believed to work well for those who face the most complex challenges—individuals and families who have very low incomes and/or disabilities, and/or may suffer from substance abuse, addiction or alcoholism, mental illness, HIV/AIDS, or other serious challenges to a successful life
- 25. Mode Share While our rate of driving alone to work increased by 36% between 1980 and 2000 (to 76% of all work trips), in more recent years this trend has shown improvement to 71% in 2010. We've also seen a nearly 60% increase in transit ridership the past decade. Vehicle Miles of Travel (VMT) per person is also on the decline, down 8% between 2000 and 2010. It is imperative that we maintain these positive recent trends in order to reduce congestion, decrease greenhouse gas emissions, and more efficiently utilize all of our transportation resources.
- 26. Road System & Funding Roadway condition is rated poor or worse for over half of the arterial highway mileage in Chittenden County. The costs associated with maintaining and improving this infrastructure exceeds our fiscal capacity to fully address it. Nor do we have adequate funds needed to grow transit, walking/biking, and Transportation Demand Management (TDM) programs. Compounding our poor roadway conditions and inadequate investment, transportation funding in general is overly reliant on the state and federal gas taxes which are decreasing in value as inflation lowers purchasing power and revenues decline due to improving vehicle fuel efficiency and fewer VMT. The prospect of less funding in a time of increasing transportation investment need is a worrisome trend and needs to be addressed.
- 27. Energy Conservation Vermont and Chittenden County lead the nation with respect to initiatives that support efficiency and renewable energy, however, more efficiency programs are needed for non-regulated thermal fuels and energy for transportation to keep costs down and to reduce GHG emissions.

- 28. Renewables Siting With the rise of renewable energy sources municipalities are struggling with being left out of the conversation and are making specific recommendations within their Town Plans regarding how they want the Public Service Board to review petitions in their Towns.
- 29. Water and Wastewater– In order for municipalities to implement their plans for future growth in their urban or village improved water and wastewater services (both on-site, community systems, and sewer) are often necessary, including financial assistance. Colchester, Essex Junction, Huntington, Hinesburg, Westford, and Williston were among the municipalities raising this concern.
- 30. Stormwater Investments Municipalities are committed to making improvements in storm water quality, but are concerned about the costs and how to pay for them.

We are at a time of choice. Do we allow things to keep going the way they are? Do we take steps to achieve the best future possible?

See Chapter 3 for strategies and actions to address these concerns.

CHAPTER 3 – ECOS Plan Priorities & Implementation

3.0 Introduction

Vermont is expected to add about 60,000 people by 2030 (US Census Bureau http://www.census.gov/population/www/projections/projectionsagesex.html). This is a very small part of the population growth in the entire US, but will be significant for Vermont. If the past is any indicator, Chittenden County will feel the pressure from a majority of that growth. Woodes and Poole estimates that we will see about 50,000 new residents by 2035. How we prepare for this growth will have tremendous implications for our future.

The ECOS Project has attempted to be very broad and inclusive in both the process of developing this plan and in comprehensively addressing the major issues within the Chittenden County community. We have developed a vision, principles and goals in Chapter 1. We have analyzed our community in relation to these goals and identified areas of concern in Chapter 2. Having identified areas of concern we now need to focus on the strategies and actions that will have positive impact. This is the focus of Chapter 3.

The process leading up to this plan identified public preferences for future growth. The vision; principles, and goals highlight these preferences, tying the public process to a guide for future decisions. Because of broad public participation, the planning process provides local leaders with a basis for action. Each goal could be implemented in a variety of ways to address local needs and challenges and to enhance the region as a whole. The Plan becomes reality as the public, private and non-profit organizations apply the principles in the incremental choices they make over time leading us to collective solutions.

This Chapter summarizes the scenario planning effort that establishes the basis for implementation and the recommended high priority strategies and actions for achieving the future that we all want.

3.1 Scenario Planning Review – Choices for the Future

From 2008 to 2010, CCRPC (CCMPO at the time) conducted a scenario planning process to analyze land use patterns that either follow trend development, or deviate from it by concentrating development in our centers and villages, or deviate from it to increase density in the Burlington area. These land use scenarios coupled with various transportation alternatives helped stakeholders focus their discussions on various options for increasing sustainability. This effort incorporated substantial public input (over 900 people participated) to increase understanding of the community's broad range of concerns and aspirations for the future, in terms of both land use and transportation, and to include this feedback in a more integrated regional land use/transportation plan. Please see the Chittenden County Historic Development and Future Land Use/Transportation Analysis report (ecosproject.com/analysis) for more information.

Land Use Scenarios

This effort resulted in a recommended Land Use Plan built upon the plans adopted by the municipalities in the region and consistent with the State's legislated goal to "plan the development so as to maintain the historic settlement pattern of compact village and urban centers separated by rural countryside" (24 VSA 4302(c)(1)).

The recommended future Land Use Plan seeks to have 80% of our future growth happen in the 15% of the county that has existing infrastructure and services. This percentage reflects our historic distribution of development prior to 1970. From 1970 to 2005, the percentage of development in our urban center and villages decreased to about 65%. From 2005 to 2010, that trend reversed and we again achieved 80% of new development in our urban center and villages.

What are the implications of achieving this development pattern?

If we concentrate future homes and jobs in our currently existing and planned communities which make up 15% of Chittenden County, we will:

- Only use 25 square miles of land (4.7% of the total County) within and adjacent to currently developed urban center and villages.
- Have more jobs and housing located in our urban and village centers,
- Save time spent sitting in afternoon traffic,
- Reduce greenhouse gas emissions by at least 50 tons,
- Triple transit ridership

If we continue on the path that we were on from 1970 to 2005, we will:

- Use 99 additional square miles (18.5% of the total County) of our rural landscape for housing and jobs,
- Increase the pressure on neighboring counties to absorb demand for homes thereby increasing driving
- Spend more time in traffic congestion,
- Increase greenhouse gas emissions,
- Not have as many transit riders

Transportation Scenarios

This Land Use Plan scenario was then used to evaluate alternative transportation scenarios. The details of these scenarios and their results can be found in the Chittenden County Historic Development and Future Land Use/Transportation Analysis report (<u>ecosproject.com/analysis</u>). The components of the three transportation scenarios are repeated here for reference, including rough cost estimates.

Scenario Name	Scenario Elements
1. Basic Transportation/	This is the existing transportation system plus permitted projects –
Constrained Funding	those identified in the MPO'S Transportation Improvement Program
	(TIP) that have also completed permitting. Not included are major
Approx. \$114 million	road projects such as the CIRC or Champlain Parkway (Southern

3.1 Scenario Planning Review – Choices for the Future | Chapter 3 – ECOS Plan Priorities & Implementation

	Connector), both of which have not completed the permitting process.
 Energy conservation/Social equity Approx. \$550-767 million 	 All of #1 above, plus Transit intensive – full implementation of CCTA's 2010 Transit Development Plan (TDP) - More services to more places more frequently CCMPO Bike/pedestrian Plan build out – More sidewalks, shared use paths and on-road bike lanes Transportation Demand Management – Employer incentive programs to encourage transportation alternatives (similar to CATMA but more widespread around the county), implementation of extensive park and ride facilities per 2011 CCMPO Park & Ride Plan Intelligent Transportation Systems (ITS) improvements to reduce delays on key highways and provide better experiences for transit users. Passenger and commuter rail - Connecting North, East and South Expanded Carshare – to less urban locations
	• A ten-fold increase in the per-mile operating costs for automobiles reflecting an assumption of a significant increase in fuel and energy costs.
3. Enhanced Road Capacity Approx. \$500-693 million	 All of #1 above plus Full Circumferential Highway Champlain Parkway Three lanes on I-89 from the proposed Circ Interchange in Williston East of Exit 12 to the proposed Circ Interchange in Colchester north of Exit 16 (Colchester US RT 7). New I-89 exits at VT 116 (Hinesburg Rd) and W. Milton Rd Colchester Exit 16 upgrades (double-crossover diamond) Intelligent Transportation Systems (ITS) improvements to reduce delays on key highways and provide better experiences for transit users. Williston Grid Streets Local connectors from official town maps Other potential capacity increases on arterial highways in identified congested areas

What are the results from the analysis of scenarios compared to the Basic Transportation alternative?

If we invest in additional road capacity we will:

- have the highest amount of travel on our roads
- gain a small reduction in greenhouse gas emissions
- not increase our transit usage
- decrease PM traffic congestion by 25-30%
- spend about \$400 million

If we invest in the energy conservation/social equity scenario investments we will:

- reduce travel on our roads by 15-20%
- greenhouse gas emissions by 20%
- increase daily transit usage by 1,000%
- decrease PM traffic congestion by 30-35%
- spend about \$450 million

These future scenarios are starkly different from one another, vastly different than past historical transportation investment strategies, and unlikely to proceed in the manner outlined in the Scenario exercise. The results from this exercise, however, lay the groundwork for our transportation implementation strategies and actions that are identified in the Metropolitan Transportation Plan (MTP) components of this document (see section XXX) which combine those elements of the scenarios outlined above into a more balanced and sustainable future transportation program. The program is rooted in both the ECOS goals and the reality of existing transportation funding streams. The transportation projects are prioritized based on funding category taking into consideration the ECOS Criteria (see section xxx).

In the next section, we look at the recommended strategies and actions to achieve our goals.

3.2 High Priority Strategies, Actions & Partners

Given the projected growth in our region and the challenges we already know we face, there are no easy answers. The challenges are multi-faceted and often inter-related. For this reason, we are breaking from discussing issues by topic and focusing on cross-cutting solutions.

Making our ECOS goals reality will require a comprehensive approach. These improvements will take time and require new or adjusted priorities, but these are necessary steps toward becoming the region we want to leave to future generations.

Rather than create the typical planning document with a bland listing of strategies, we need to go further to accomplish the outcomes identified. Developing a structured process that includes a common agenda, shared data collection and continuous communication will reinforce the role of all participants and allow us to achieve collective impact. Collective impact is the commitment of a group of important actors from different sectors to a common agenda for solving a specific

problem. These sectors include the public (state, municipal and regional), business, and non-profit. If we do this well, we can achieve improved outcomes without the need for additional public expenditures. To focus our efforts on the identified critical needs of the community (see end of Chapter 2) we have identified seven (7) broad strategies

We need to work together to achieve collective impact

that are high priority, cross-cutting, broad strategies. It is important to note that these seven strategies are designed to focus our collective expertise on issues that need improvement. This list encapsulates those issues where more collective effort is necessary. It is not meant to be exhaustive or to undermine any steps currently underway to effect positive change. Under each strategy is a list of general actions noting which concerns the action addresses. The ECOS Project

3.2 High Priority Strategies, Actions & Partners | Chapter 3 – ECOS Plan Priorities & Implementation List in Appendix X (under development) includes specific projects and actions proposed for implementation. These implementation projects and actions are each directly related to the general actions outlined below. The ECOS Project List includes details regarding the Lead Partner, other partners, expected start date, and estimated costs, and funding sources.

The specific strategies listed below are proposed to address the critical needs of the community. Many of them have been previously proposed or are being acted upon. However, they may need additional commitment or additional partners to achieve the desired outcomes. Together, they will serve as a strategic plan for CCRPC, GBIC, and ECOS partners for the next 5 years. CCRPC will adopt the actions to which they are a party into their annual Unified Planning Work Program and report progress each year.

When establishing action steps that focus on specific communities we must acknowledge the uniqueness of each community and resist a blanket application of strategies and actions.

At this point in the ECOS Plan process, the draft strategies and actions need review. Proposed actions need to have the details determined with regards to all steps, partners and resources. A template form for that purpose is included at the end of this section. NOTE: make sure language is consistent throughout.

3.2.1 CONCENTRATE 80% OF NEW DEVELOPMENT IN THE 15% OF OUR COUNTY THAT IS OUR URBAN AREA AND VILLAGE CENTERS INTEGRATING DIVERSE EMPLOYMENT, HOUSING AND TRANSPORTATION OPTIONS, ENERGY EFFICIENCY, AND RECREATIONAL AMENITIES.

Increasing the development density in the Center, Metro, Suburban, Village, and Enterprise Planning Areas will help the County to achieve many of the goals for our region. The Urban Area and Village Centers are defined as the Planning Areas that aren't Rural - see Section 3.5 for more detail. CCRPC is committed to annually monitoring the quantity and location of development to measure our progress on concentrating 80% of new growth in the Center, Metro, Suburban, Village and Enterprise Planning Areas. CCRPC achieves this through annual updates of its housing, employment, and commercial/industrial square footage databases and also by the State of Vermont's e911 locational database. The databases identify when a structure was built, number of dwelling units, employees, and square footage at a specific location. The major source of information for updating these databases will be gathered from CCRPC's member municipalities.

Overall, Chittenden County is moving in the right direction of developing and implementing policies that encourage more growth in these areas. As of 2012, Chittenden County contains 10 Villages, 2 Downtowns, 2 Growth Centers, 2 New Town Centers, and 1 New Neighborhood that are part of the State Designation Program that promotes smart growth principles. In addition, a recent public opinion survey (citation) indicates that people do want to live in more walkable compact areas.

Add discussion of increasing economic opportunity...

^{3.2} High Priority Strategies, Actions & Partners|Chapter 3 – ECOS Plan Priorities & 79 Implementation

Focusing growth in the appropriate planning areas is also a cost effective approach to increasing the supply of affordable housing and reducing energy consumption. Much of the recent housing in the Center Planning Areas has been built as multi-family units that are suited for a mix of income types. Multi-family housing also has characteristics that make it more energy efficient including smaller sizes per unit and less exterior exposure. Energy efficiency measures applied to all housing types have the benefit of providing all types of households with cost savings, which makes them less vulnerable to fluctuations in energy prices. Additionally, to achieve higher, mixed use densities it is essential that these areas are well served by wastewater treatment, stormwater treatment, solid waste disposal and recycling, and broadband technology.

Additionally, higher density in these areas improves mobility, accessibility, affordability, and health. We need higher density development areas to support continued use of transit, car sharing, walking, and bicycling. This type of development will help the County to continue to decrease vehicle miles traveled (VMT) per capita, increase non-single occupancy vehicle (SOV) modes, and decrease greenhouse gas emissions. Shifting our mode from SOV to non-SOV will not decrease emissions alone. A major switch from fossil fueled vehicles to electric plug-ins is critical to meeting both state and regional climate action strategies.

The demand for more walkable neighborhoods and the policies that create them are beginning to change the built environment of Chittenden County. Decisions for how we create denser mixed use communities are primarily made at the local municipal level of government. Therefore, municipalities are encouraged to apply ECOS strategies in their development decision making process. The more specific implementation of the ECOS strategies will vary throughout the County as municipalities consider their own unique needs and relationship to the region as a whole.

Actions

- Invest in Urban and Village Centers Establish wastewater and water infrastructure in areas currently developed and/or planned for growth. Target reuse, rehabilitation, redevelopment, infill, and brownfield investments to the non-rural Planning Areas. Retrofit existing buildings to reduce energy use and greenhouse gas emissions. Retrofit existing buildings to reduce energy use and greenhouse gas emissions. Increasing investment in denser, mixed use growth areas will improve economic opportunities, housing options, transportation options and improve community health. (Addresses Concerns: #, #...) Resource websites:
- 2. Industrial/Manufacturing Site Locations With only a few years supply of existing buildings or permitted sites left for high wage industrial or manufacturing businesses in the region, additional sites need to be identified and moved through the permitting process to be ready for our employers' needs for expansion or companies desiring to relocate to Chittenden County. Add discussion of sectors? The best opportunities for these sites are on undeveloped land retained by major employers. Examine undeveloped properties for environmentally responsible infill development opportunities considering water, waste water and transportation infrastructure. Take sites through permitting. Engage in efforts to educate businesses and developers on development practices that achieve a higher level of

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density, and less land consumptive industrial parks to make better use of the limited amount of land area we have. (Addresses Concerns: #, #...) Resource websites:

- 3. Zoning Bylaws Improve zoning bylaws (and municipal plans, if needed). Bylaws should be revised to improve the mix of uses, support for transit, healthy options (for example walkability), energy efficiency, renewable energy and the affordability of housing. A particular emphasis is needed on providing for affordable rental housing. Strengthen and direct development toward areas planned for growth through infill development, brownfield redevelopment and rehabilitation of existing buildings through municipal bylaw revisions and state Downtown Program incentives. Use Health Impact Assessment (HIA) at the regional, municipal, agency, and organizational level to assure that planning decisions maintain or improve the public health. Co-locate medical and mental health facilities in areas with easy access via active transportation and public transit. Encourage the participation of town health officers in community planning efforts. (Addresses Concerns: #, #...) Resource websites:
- 4. Affordable Housing Development Implement incentives that encourage more housing construction including affordable housing. This could include increasing density in areas planned for growth, revising infrastructure requirements with a goal of reducing costs for developers, and possibly advocating for more Tax Increment Financing (TIF) districts to help fund infrastructure improvements. Review ordinances impacting the maintenance of existing buildings to ensure they're encouraging maintaining housing without adding undue cost. Engage in efforts to educate the municipal officials, public, and developers on better development practices that achieve a higher level of density without compromising our community character so that this type of development is more appealing for residents. (Addresses Concerns: #, #...) Resource websites:
- 5. Reduce Energy Consumption/Costs Chittenden county resident and businesses can currently best control their energy costs by adjusting their consumption by actively monitoring and managing their energy use and implementing efficiency measures (e.g. choosing more energy efficient devices, better insulating buildings) or through behavioral adjustments (e.g. closing the blinds rather than turning on the air conditioning, biking instead of driving) including operation and maintenance plans at larger facilities. Energy costs can also be controlled by choosing fuels that are less expensive. In some cases, renewable energy (such as photovoltaics) may currently be more costly per unit of energy than fossil fuel-based energy, but over the long term utility electricity or fossil fuel price increases will likely outpace the fixed cost of renewables. Even the fixed cost of renewable systems is expected to drop as sustainable energy sources become more prevalent and gain from economies of scale. Advocacy work and demands to key players regarding fuel prices may also be an effective longer term tool. (Addresses Concerns: #, #...) Resource websites:
- 6. State/Local Permitting Coordination & Improvement Support changes to the local and state permitting process to make the two more coordinated and streamlined. Participate in ACCD's process to improve the State's designation processes to encourage development in
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appropriately planned places and discourage development outside of those areas. Regulatory and/or fiscal incentives will be developed. This could include expedited processes for projects in areas designated for growth and where a community has a robust plan, regulations and staff; for example improve the process and reduce redundancies (consider delegation in appropriate situations) for certain local and state reviews and Act 250. If this recommendation would result in a more efficient and timely process in designated growth areas, it may be appropriate to develop more stringent standards and thresholds for development review in rural areas. Collaborate with other stakeholders to ensure local and state regulations, bylaws and plans encourage transparency, predictability and timely review of sustainable and environmentally sound development applications. (Addresses Concerns: #, #...) Resource websites:

7. Metropolitan Transportation Plan Investments – Adequately fund the maintenance and preservation of our existing transportation assets including roads, bridges, rail, transit, walking/biking facilities, and transportation demand management (TDM) programs and facilities (see Strategy 3.3.x). New transportation system investment should focus on the highest priority transportation projects as detailed in the Metropolitan Transportation Plan (MTP) Project List (see section xxx) and as depicted on the Metropolitan Transportation Plan Map (see section xxx). The MTP Project List invests in the expansion of projects which improve the existing system's efficiency, improve human health, reduce the amount of fossil fuel energy consumed and reduce greenhouse gases emitted by the transportation sector. Specific focal areas for targeted implementation impact include expanding roadway network Intelligent Transportation Systems (ITS) to improve safety and reduce congestion; expanding the Go! Chittenden County Transportation Demand Management (TDM) program (including park and ride facility development) to reduce single occupancy vehicle trips; increasing investment in CCTA transit services to increase user accessibility; expanding walking and biking infrastructure to support active transportation and to provide interconnection with the region's transit system; developing a regional network of electric vehicle charging stations to accommodate the growth in low emissions, low energy costs electric vehicles. (Addresses Concerns: #, #...) Resource websites: http://www.rmi.org/project_get_ready; cctdm,

3.2.2 IMPROVE THE SAFETY, WATER QUALITY AND HABITAT OF OUR RIVERS, STREAMS AND LAKES.

- River Hazard Protection Chittenden County has recently updated flood inundation maps and most of the County's streams and reaches have been assessed for fluvial erosion hazards. A concerted effort is needed to fully identify and develop adaptation strategies for municipalities, VTrans, and property owners.
 - a. Identify problem locations Conduct on the ground inventories of flow and sediment attenuation locations and problematic infrastructure (undersized culverts, eroding
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roadways, etc) and map this information. Include "vulnerable infrastructure" - infrastructure subject to repeat damage and replacement.

- Revise bridge/culvert designs Revise public works specifications and zoning regulations with culvert and bridge design specifications that allow for wildlife passage and movement of floodwater and debris during high intensity events. Implementation of culvert and bridge designs that accommodate river processes – the processes that produce stable structure in river channels referred to as fluvial geomorphology.
- c. Adopt River Protection Bylaws Build upon Fluvial Erosion Hazard (FEH) work currently underway. Existing bylaws protect the majority of FEH areas with stream setbacks and floodplain regulations. Improve bylaws to protect the 4?% of FEH hazard zones not currently protected. Continued protection of river corridors is likely to include non-regulated protection measures such as stream re-buffering and culvert and bridge replacements. (Addresses Concerns: #, #...) Resource websites:
- 2. Non-point Source Pollution While we have addressed point sources of pollution, non-point sources are still contributing pollutants to our water bodies.
 - a. Assemble hot spot data Work off of existing data collected and further identify the hot spots that are contributing to water quality pollution such as flow, sediment, pathogen and nutrient. Where needed, conduct on the ground inventories of water quality and biological assessments (in-stream), wetlands, sub-watersheds, river corridors (buffered or not) and geomorphology. Map the existing and new data on one regional map. Revise Plans and Byalws Incorporate this data into municipal plans and establish specific statements that protect these resources and standards for how to protect these resources within zoning regulations. Allow for low impact development techniques, and shared stormwater control programs to maximize land development in areas planned for growth (Similar comments to parallel action above.)
 - a. Implement Non-regulatory approaches Identify and implement non-regulatory approaches to nutrient, pathogen and sediment pollution management. Under proposed MS4 permit requirements, municipalities will be developing flow restoration plans to achieve the total maximum daily load requirements for individual streams, rivers, and Lake Champlain. These plans may require additional public investment in storm water facilities or investments or actions by individual property owners. (Addresses Concerns: #, #...) Resource websites:

3.2.3 INCREASE INVESTMENT IN, FARMS, FORESTS, OTHER VALUED ECOLOGICAL LANDS, AND LOCAL FOOD, WHILE DECREASING SUBDIVISION OF WORKING LANDS.

1. Habitat Preservation Protect forests, wetlands and agricultural lands from development, and promote vegetative landscaping in urban areas in order to maintain natural habitats,

natural stormwater management and carbon sequestration. This will keep people and infrastructure out of harm's way and allow for natural flood attenuation areas.

- a. Inventory Conduct on the ground surveys and inventories of important (quality) habitats, connectivity corridors, scenic resources and locations of invasives and map this information. Incorporate this data into municipal and regional plan text and maps and establish specific policies that address and protect these resources.
- b. Bylaws Develop clear definitions of the resources to be protected and establish standards to describe how to protect these resources within zoning and subdivision regulations.
- c. Education Educate engineers, developers, real estate professionals, planners and the public regarding resources and methods for restoration and protection. (Addresses Concerns: #, #...) Resource websites:
- 2. Working Lands Implementation Implement recommendations of the Farm to Plate Strategic Plan to double purchasing of locally produced food. This includes programs such as: farmers markets, CSAs, infill farming, farm to school, farmland conservation, incubator farms, etc. Develop market and processing infrastructure. Maintain access and scale of working lands to ensure viability after subdivision in the rural landscape (including but not limited to protection of landings of previously logged forested parcels, and zoning techniques such as fixed area ratio zoning and conservation zoning); while promoting urban agriculture in areas planned for growth. Also support action items of the VT Working Landscape Partnership. Support commercial recreational use as an aspect of working lands. (Addresses Concerns: #, #...) Resource websites: Needs an a, b, & c

3.2.4 ENSURE OPPORTUNITY FOR EVERY PERSON IN OUR COMMUNITY TO ACHIEVE OPTIMAL HEALTH AND PERSONAL SAFETY

- Basic needs Provide the basic needs of all people through access to food and access to shelter. (Addresses Concerns: #, #...) Resource websites:
- Youth Tobacco and Alcohol free Reduce youth access and exposure to tobacco and alcohol by restricting retail promotion of tobacco and alcohol products and designating tobacco and alcohol free outdoor public spaces and events. Should this include substance abuse and adults? (Addresses Concerns: #, #...) Resource websites:
- 3. Emergency Preparedness Develop and train on emergency and disaster preparedness plans. Plans should address a variety of issues that may be required in an extreme weather or flooding event or other natural disaster: Incident command system training, Emergency operations plans, Emergency shelters, Alternative routes, Evacuation plans, Business continuity plans, and Business recovery plans. Monitor, provide appropriate advisories and education, and develop emergency plans for climate-related illnesses and diseases. This
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includes: Heat-stress, Vector-borne diseases (Lyme disease, West Nile Virus, Eastern Equine Encephalitis), and air-quality and respiratory diseases. (Addresses Concerns: #, #...). Resource websites:

- 4. Caregiving Assurance that older adults and people with disabilities are well cared for as needed by: supporting family members who provide care for them; and, ensuring that older adults and people with disabilities who need formal care in their daily living have access (including transportation) to the appropriate services as needed. (Addresses Concerns: #, #...) Resource websites:
- Nutrition Assurance that people are able to maintain adequate nutrition. Create policies and environmental supports to increase access to healthy, safe, local foods. (Addresses Concerns: #, #...) Resource websites: Hunger Free VT, (http://healthvermont.gov/wic/foodfeeding/breastfeeding/friendly-employer-project.aspx).

3.2.5 EQUIP OUR RESIDENTS WITH THE SKILLS THAT THEY NEED TO SUCCEED.

To increase incomes for our children, their children, and those currently under employed, more effort is needed to equip current and future workers with the skills they need to thrive in the world of work.

- Early childhood education Ensuring that our young children are nurtured by knowledgeable and capable caregivers by: increasing the capacity, knowledge and skills of parents to nurture their young children; providing families access to high quality early care and education settings; and, supporting the ability of early care and education providers to develop the skills and knowledge needed to care for children. Specifics programs?... (Addresses Concerns: #, #...) Resource websites:
- K-12 Education Helping children, youth and young adults achieve maximum benefits in formal educational settings by ensuring that they have the opportunity to receive a good education that fits their needs. Reduce disparities for low income students in academic achievement by focusing on increasing reading proficiency?. Include flexible pathways, dual enrollment? Specifics programs?... (Addresses Concerns: #, #...) Resource websites:
- Workforce/STEM training Increase workforce development capacity by providing support to training programs for youth and adults so they have the well being and assistance they need to work and training them for the job and life skills they need to work. Focus on science, technology, engineering and math education (STEM) and career training. Add some discussion of Vo-tech programs. Discuss current programs. (Addresses Concerns: #, #...) Resource websites:

4. Post-Secondary Education – Actions to improve?

3.2.6 DEVELOP FINANCING AND GOVERNANCE SYSTEMS TO MAKE THE MOST EFFICIENT USE OF TAXPAYER DOLLARS, REDUCE COSTS, AND IMPROVE ENGAGEMENT AND TRANSPARENCY.

- Municipal Finance Tools Support improving financing tools available to municipalities. This would include tax increment financing (TIF). Also support downtown tax credits. Other tools? (Addresses Concerns: #, #...) Resource websites:
- Affordable housing financing and implementation

 Increase resources for housing, which includes but is not limited to: local Housing Trust Funds, state housing trust fund, state Housing Tax Credits, and strongly advocating for increased federal resources. (Addresses Concerns: #, #...) Resource websites:
- 3. State Financing
 - Transportation financing Encourage municipalities to implement local transportation funding programs such as Tax Increment Financing Districts, Local Option Sales Taxes, Impact Fees, Special Assessment Districts. Monitor and participate in state and federal transportation financing reform efforts such as the 2012 Vermont Legislature's Act 153, Section 40 Transportation Funding study. (Addresses Concerns: #, #...) Resource websites:
 - b. Clean water financing ANR is leading an effort requested by the legislature (Act 138) to make recommendations on how to remediate or improve the water quality of the state's surface waters, how to implement remediation or improvement of water quality, and how to fund the remediation or improvement of water quality. (Addresses Concerns: #, #...) Resource websites:
- 4. State Tax policy improvements Is there an action to be added here? (Addresses Concerns: #, #...) Resource websites:
- Multi-jurisdictional services There are a number of services that are provided on a regional or sub-regional basis. These include: Supervisory Unions, Chittenden Solid Waste District, Champlain Water District, Winooski Park District, Chittenden County Regional Planning Commission, Chittenden County Transportation Authority, Chittenden County Sherriff, Chittenden Unit for Special Investigations, and 911 dispatch. Are there more efficient and effective governance structures to deliver improved services and raise the necessary revenue? (Addresses Concerns: #, #...) Resource websites:

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3.2.7 BE INTENTIONAL IN ENSURING THAT THE PROJECTS AND ACTIONS ABOVE ARE INCLUSIVE AND THAT THE DESIGN AND DEVELOPMENT OF PROGRAMS IS REPRESENTATIVE OF DIVERSE VOICES IN OUR COMMUNITY.

- Community engagement –Improve civic engagement for low income and people of color, particularly new Americans. Build community strength by increasing the opportunities for residents to come together, interact, and network. As our society becomes increasingly dependent on social networking via cyberspace, we need to intentionally create spaces and opportunities for face-to-face relationship building. Activities to bring diverse people together can revolve around a myriad of themes: arts and cultural events, recreational and leisure activities, civic engagement initiatives, educational workshops, family events, or any other activity that brings people together with a common interest. (Addresses Concerns: #, #...) Resource websites:
- 2. Civic Engagement Acknowledge and support the many volunteers that run our local governments and boards. Appoint members of underrepresented communities to committees, boards, and commissions. Have documents translated or translation services available. Training programs? Improve municipal and regional government organization websites to comply with ADA standards and offer translation services? Provide leadership development trainings for underrepresented communities to increase knowledge about and encourage service on boards and commissions. Increase boards' and commissions' knowledge and understanding about diverse population and importance of inclusion and representation. Investment in naturalization process: Civics classes, connected with civic opportunities. Support voter registration drives targeting underrepresented groups. (Addresses Concerns: #, #...) Resource websites:

3.3 Plan Accountability and Monitoring

ANNUAL INDICATORS AND PROGRESS REPORT

In order to increase accountability for ECOS Plan implementation and population level results, we are proposing the following plan monitoring system. The system is intended to be tools through which the ECOS partners demonstrate results and continue to focus on collective impact.

It is likely that a memorandum of understanding will have to be developed and agreed to by the ECOS partners that commit to leading the collective impact strategies and to following through in monitoring our indicators and implementation of program level actions.

The population level indicators will be monitored on an annual basis in an Annual Indicator Report. This report will be guided by an ECOS Accountability Partnership made up of appointees of the CCRPC, GBIC/LCRCC, VHFA, VTrans, ANR, ACCD, Department of Public Service, UVM, United Way, Champlain Housing Trust, VNRC, Health Department - Burlington District Office, and CVOEO??? This committee will be charged with reviewing the data and determining those results in which we are making positive progress and those in which more focused work is needed. 2-3 meetings are expected each year. An Indicator Technical Committee made up of staff from the above organizations will provide technical support and make recommendations to the ECOS Indicator Partnership. It is expected that this group will meet quarterly or as much as needed to produce the Annual Indicator and Progress Report each year. The first year will take more time to finalize the indicators.

Program level performance measures will be determined with the adoption of this Plan and included for each high priority strategy in the form at the end of the previous section. ECOS Partners must commit to reporting their progress to the ECOS Accountability Partnership so that individual program results can be monitored and reported as part of the Annual Indicator and Progress Report. Changes in ECOS Plan strategies and actions may be made as deemed necessary.

It is intended that the Annual Indicator and Progress Report be reviewed with each of the partners' boards to achieve maximum exposure and results from our collective actions.

CHAPTER 4 – USING THE ECOS PLAN

4.1 ECOS Regional Plan Policies

While the previous section highlighted our top needs in Chittenden County and strategies to address those needs, we recognize the need to remain steadfast on the full range of goals identified through the ECOS project.

4.1.1 ECOS PLAN POLICIES

For the purposes of complying with VT Statute (24 VSA 4348a); the ECOS Plan's goals in Chapter 2 serve as the policy statements of the ECOS Plan. The analysis reports and other work referred to in the ECOS Plan by sub-committees and other public participation processes serve to describe the various analyses and review work that was done to develop the Plan's goals, needs, strategies and actions.

The following ECOS Plan maps are on the following pages:

- 1. Map x Future Land Use Plan
- 2. Map x Metropolitan Transportation Plan
- 3. Map x Utility and Facilities Plan
- 4. Map x Economic Infrastructure
- 5. Map x Natural Systems

The above referenced Plan components will be used to guide CCRPC's Planning Advisory Committee (PAC) in determining whether the Municipal Plan's are compatible with this Regional Plan (upon request by the Municipality).

Municipalities may also find it useful to consult the ECOS Criteria included in Appendix X. The ECOS Criteria were established to prioritize transportation projects (for the MTP), other implementation projects (for the CEDS), and ECOS implementation grants in order to ensure that limited financial resources will go to the projects that will have a high rate of return and move many ECOS goals in the right direction. The points identified in the criteria tables were used to score and rank each of these projects. The prioritized MTP and ECOS projects list can be found in the Appendices X and Y respectively.

Map x Future Land Use Plan

Planning Areas

The ECOS Plan uses the Planning Areas concept to identify places that share similar existing features and future planning goals. The basis for the future planning goals is municipal zoning and they were supported by the scenario exercise described above. The Planning Areas aim to describe the appropriate type of future growth expected in each Planning Area. The Planning Areas also aim to illustrate a regional picture of future land use policies in the County necessary to promote a regional conversation about land use in Chittenden County municipalities. The six

Planning Areas are depicted on the Built Environment Map. They are Center, Metro, Suburban, Village, Rural, and Enterprise.

Center Planning Areas are intended to be regional centers or traditional downtowns that serve the County and beyond and contain mix of jobs, housing, and community facilities. Center Planning Areas also contain the County's highest density and largest-scale developments. Center Planning Areas may contain a state designated New Town Center or Growth Center. Development in downtown centers primarily happens through infill development of underutilized vacant land and adaptive reuse of older structures. Whereas, development in municipal Growth Centers occurs in targeted areas that will accommodate future anticipated growth. These land uses are locally planned and managed to coexist successfully with neighborhoods and natural areas. Places within Center Planning Areas typically are served by wastewater facilities, other infrastructure, and offer a variety of transportation options, including non-motorized modes.

Metro Planning Areas are areas where local zoning authorizes places to accommodate jobs and housing in a compact development pattern that supports transit service and encourages pedestrian activity and are within the sewer service area. Commercial land uses found in the Metro Planning Area are intended to serve the nearby residential area. Densities within Metro Planning Areas are typically higher than those found in the Suburban, Rural, Village, and Enterprise Planning Areas.

Suburban Planning Areas are areas near a Center Planning Area, Metro Planning Area, Village Planning Area, or Enterprise Planning Area where local zoning authorizes future development to occur at compatible scales, densities, and uses with existing development. Future development should efficiently use limited land resources and infrastructure and to minimize adverse impacts on natural resources. Many parts of the Suburban Planning Area already have been developed, often in suburban styles of development. Future development and redevelopment in this Planning Area should use land resources and infrastructure investments efficiently, while minimizing adverse impacts on natural resources and protecting strategic open space.

Enterprise Planning Areas are areas where local zoning authorizes a future concentration of employment uses that attract workers from the County and multicounty region. Development in these Planning Areas should have adequate wastewater capacity and access to transit.

Village Planning Areas are Areas where local zoning authorizes a variety of future residential and nonresidential development at densities and scales in keeping with the character of a Vermont village. Village Planning Areas are compact areas of mixed-use activities that maintain the character of a Vermont village. This type of Planning Area is intended to serve its local surroundings as a place where people can live, work, shop and recreate.

Rural Planning Areas are areas where regional and town plans promote the preservation of Vermont's traditional working landscape and natural area features. The Rural Planning Area also provides for low density development that is compatible with the needs of working lands and natural areas so that these places may continue to highlight the rural character and self-sustaining natural area systems.

Map x Metropolitan Transportation Plan

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Map x Utility and Facilities Plan

Map x Economic Infrastructure

Map x Natural Systems

4.1.2 ACT 250, SECTION 248 & SUBSTANTIAL REGIONAL IMPACT

In accordance with 24 VSA § 4345a(17) a regional planning commission shall, as part of its regional plan, define a substantial regional impact, as the term may be used with respect to its region. This definition shall be given due consideration, where relevant, in state regulatory proceedings. Those proceedings are:

- Act 250 Certain proposed developments are required to obtain a permit from one of Vermont's nine District Environmental Commissions in order to establish that the proposed development will satisfy 10 criteria defined by Act 250 (10 VSA §6086). One of these 10 criteria is that the proposed development be "in conformance with any duly adopted local or regional plan or capital program."
- Section 248 Certain proposed utility facilities are required to obtain a permit from Vermont's Public Service Board to establish that the proposed facility will satisfy criteria defined by Section 248 (30 VSA §248). One of the Section 248 criteria is that the proposed facility will "not unduly interfere with the orderly development of the region with due consideration having been given to the recommendations of the municipal and regional planning commissions."
- In addition, the Secretary of the Agency of Natural Resources may not issue a new Solid Waste Management Facility Certification (10 VSA §6605(c)) unless the facility is "in conformance with any municipal or regional plan adopted in accordance with 24 VSA Chapter 117."

In accordance with 24 VSA §4348 (h), in the above three proceedings, in which the provisions of a regional plan or a municipal plan are relevant to the determination of any issue in those proceedings, the provisions of the regional plan shall be given effect to the extent that they are not in conflict with the provisions of a duly adopted municipal plan. To the extent that such a conflict exists, the regional plan shall be given effect it if is demonstrated that the project under consideration in the proceedings would have a "substantial regional impact." That is, the issue of whether a proposed development has a "substantial regional impact" is important only when there is a conflict between the regional plan and municipal plan.

It is highly unlikely that provisions of the *Chittenden County 2013 ECOS Plan* (i.e. the Regional Plan) and the plans of CCRPC's member municipalities will be in conflict with one another because

- The Land Use Panel of the Natural Resources Board that oversees the Act 250 process currently interprets "**conflict**" between a municipal plan and a regional plan in very narrow terms: "A conflict exists when one plan allows the project but the other does not."
- To determine whether a municipal plan or a regional plan provides guidance as to whether a proposed development is in conformance with the plan, the Land Use Panel considers **two**

questions: (1) Is the language in the plan **mandatory or merely a guidance** and (2) Are the plan's provisions **specific or ambiguous**?

- To determine in Act-250 cases whether a plan provision is mandatory or merely a guidance, the Vermont Supreme Court established a general rule that plan provisions using "shall" are more likely to be interpreted as mandates or prohibitions, whereas provisions using "should" are less likely to be so interpreted. CCRPC deliberately chose to make the 2013 ECOS Plan a strategic plan that is intended to provide general advisory guidance and intentionally chose not to use "shall" in the Plan's policy statements.
- State statutes establish that regional plans and municipal plans are to be compatible with one another.
- A regional plan must be adopted by not less than a 60 percent vote of the commissioners representing municipalities and initially may be vetoed by a majority of the municipalities.
- Confirmation of a municipality's planning process by CCRPC requires that the municipality's plan be compatible with the regional plan.

The following is the required definition of "substantial regional impact," in the 2006 Regional Plan, as amended in 2008, as this term is to be used with respect to Chittenden County.

"A proposed development has a substantial regional impact if a policy of this *Regional Plan* that is relevant to the determination of an issue in an Act 250 or Section 248 proceeding makes recommendations that are more specific about one or more characteristics, features, standards, or conditions relating to the proposed development than the recommendations of the municipal plan."

It is recommended that this definition be amended in this Plan, to better reflect the basis of this Plan – the Planning Areas. The proposed SRI definition is:

A proposed development has a substantial regional impact if it is not consistent with the Future Land Use Plan of this Regional Plan.

This revised definition puts the emphasis on the Planning Areas – and stipulates that if a development proposal is not consistent with the Planning Areas then the Regional Plan will take effect in the State proceedings (as described above) if there is a conflict between the regional plan and the municipal plan. The Planning Areas form the basis for the appropriate areas for growth in the next 20 years as shown in the Future Land Use Plan. The Planning Areas are consistent with current municipal plans and zoning, so only developments that are NOT consistent with municipal zoning and the planning area definitions would likely prompt the SRI definition. Further, developments that push beyond these defined areas are more likely to have a significant impact on our region, than developments within the defined areas for growth. If there is good reason to change the planning areas as the municipality is revising their municipal plan, zoning and action by CCRPC.

The CCRPC has a role in development review, outside of the very limited circumstances in which the substantial regional impact definition will come into play, RPCs "shall appear before district environmental commissions to aid them in making a determination as to the conformance of developments and subdivisions with the criteria of 10 VSA § 6086" (24 VSA § 4345a(13)). Both Act

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250 and Section 248 require the permit applicant for a project that is proposed to be located in Chittenden County to submit a copy of the application to CCRPC. CCRPC is a party in any such application for an Act 250 permit and may apply to be a party in any such application for a Section 248 permit. CCRPC has established an interim policy (Guidelines and Standards for Reviewing Act 250 and Section 248 Applications) for its participation in the permit review procedures of Act 250 and Section 248. Currently under this interim policy:

- CCRPC's Executive Committee considers whether an applicant's proposal is in conformance with the Regional Plan, with specific attention given to the Planning Areas of this Plan (for the same reasons described above for the SRI definition), and the criteria dealing with traffic and other criteria within CCRPC's expertise.
- Staff initially reviews each Act 250 application (with specific attention given to those applications going to a hearing as the FY13 CCRPC contract with the Agency of Commerce and Community Development requires that the CCRPC review and comment on Act 250 and Section 248 applications if a hearing is held).
- CCRPC staff will discuss potential Act 250 and Section 248 projects with Planning and Zoning staff and members of the Planning Advisory Committee to identify emerging development proposals to assess their conformance with the Regional Plan. The intent is that this proactive, collaborative approach attempts to work out any concerns about Act 250 and Section 248 applications prior to their submission.

The Planning Advisory Committee may recommend to the CCRPC more specific thresholds and procedures for participation in Act 250 and Section 248 proceedings in order to better achieve the goals of this *Chittenden County 2013 ECOS Plan*. These thresholds will be established through formal amendments to the Guidelines and Standards for Reviewing Act 250 and Section 248 Applications.

4.1.3 STATEMENT OF COMPATIBILITY AND CONSISTENCY

Pursuant to 24 VSA 4302 (f), 4345a (5), 4348a (a), and 4348a (a)(8), CCRPC has

- Reviewed the approved plans of its member municipalities and of its adjoining regional planning commissions and concluded that this *ECOS Plan* is compatible with those plans (that is, this *ECOS Plan*, as implemented, will not significantly reduce the desired effect of the implementation of the other plans) and
- Reviewed the goals of 24 VSA 4302 and concluded that this ECOS Plan is consistent with those goals (that is, implementation of this ECOS Plan will result in substantial progress toward attainment of the goals established in 24 VSA 4302).

4.2 Comprehensive Economic Development Strategy (CEDS)

4.2.1 CEDS PRIORITIES

Add discussion

4.2.2 CEDS PROJECTS

Projects that might want to apply for federal funds are included in the ECOS Project List below. This Project List is considered the CEDS Project list for the purposes of satisfying Economic Development Administration requirements. Revise...

Add list

4.3 Metropolitan Transportation Plan (MTP)

Add discussion

Add list

APPENDIX - DIGITAL ONLY?

Public Engagement Report (if needed)

Chittenden County History

Crosswalk – showing how/where RP, MTP, CEDS requirements are met

ECOS Project List (also serving as GBIC's Comprehensive Economic Development Strategy (CEDS) Project List)

CCRPC's Metropolitan Transportation Plan (MTP) Projects and Supplemental MTP Documents

ECOS Criteria

Financial Report for MTP investments

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MAP 3-3 IMPAIRED WATERS

Chittenden County, Vermont

DRAFT 2012 CHITTENDEN COUNTY REGIONAL PLAN

April, 1 2010









MAP 7-5 Existing Major Transportation Infrastructure

Chittenden County, Vermont

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