MASTER PLAN

Winooski Planning Commission
Winooski City Council

Adopted: March 18, 2019

TABLE OF CONTENTS

ACKNOWLEDGEMENTS V

INTRODUCTION 2

Purpose of the Plan 3
Public Engagement 3
Vision 5
Brand 5
History 10
Demographic Insights 13
Land Use 18
Land Use Goals/Objectives 25
Relationship to Adjacent Municipalities and the Region 27
Implementation Program 29

ECONOMIC VITALITY 31

Introduction 32
Economic Insights & Key Issues 34
Economic Vitality Goals/Objectives 37

MUNICIPAL INFRASTRUCTURE 38

Introduction 39
Infrastructure Insights & Key Issues 40
- Transportation 40
- Parking 44

Wastewater 44
Water 44
Stormwater 45
City Trees 46
Hazard Mitigation 46
Energy 46
Communication Services 48
Municipal Infrastructure Goals/Objectives 51

SAFE, HEALTHY, CONNECTED PEOPLE 53

Introduction 54
Safe, Healthy & Connected People Insights & Key Issues 55
Public Health 55
Healthy Food Access 56
Education 56
Parks 58
Community Connections/Programming 60
Safety 62
Winooski School District 64
Safe, Healthy, Connected People Goals/Objectives 67

HOUSING 69

Introduction 70
Housing Insights & Key Issues 71
Type of Structures 71
Rental Housing 72
Homeownership 73
Housing Demand 74

Balanced Housing Stock 75
Age of Housing Stock 75
Homelessness 76
Housing Goals/Objectives 77

APPENDIX 1 81

Alignment with State Requirements 81

APPENDIX 2 83

Full size maps 83

APPENDIX 3 95

Enhanced Energy Supplement 95

ACKNOWLEDGEMENTS

Preparation of this Master Plan would not have been possible without the time, energy and dedication of the following groups and individuals.

2018 City Council: Mayor Seth Leonard; Deputy Mayor Nicole Mace; Councilor Eric Covey; Councilor Kristine Lott; Councilor Hal Colston

2019 City Council: Mayor Kristine Lott; Deputy Mayor Hal Colston; Councilor James Duncan; Councilor Amy Lafayette; Councilor Michael Myers

Planning Commission: Abby Bleything; Amy Houghton; Harka Khadka; Joseph Perron; Michael O'Brien (Chair); Pallas Snider; Terry Zigmund; City Council liaison Mayor Seth Leonard; and former member Lauren Sampson

As well as members on the Public Works Commission, Housing Commission, Public Safety Commission, and Community Services Commission.

Staff Leadership Team: Jessie Baker, City Manager; Eric Vorwald, Planning & Zoning Manager; Heather Carrington, Community & Economic Development Officer; Angela Aldieri, Finance Director; Julie Hulburd, Human Resources Manager; Ray Coffey, Community Services Director; John Audy, Fire Chief; Rick Hebert, Police Chief; Jon Rauscher, Director of Public Works

As well as Winooski School District Superintendent, Sean McMannon.

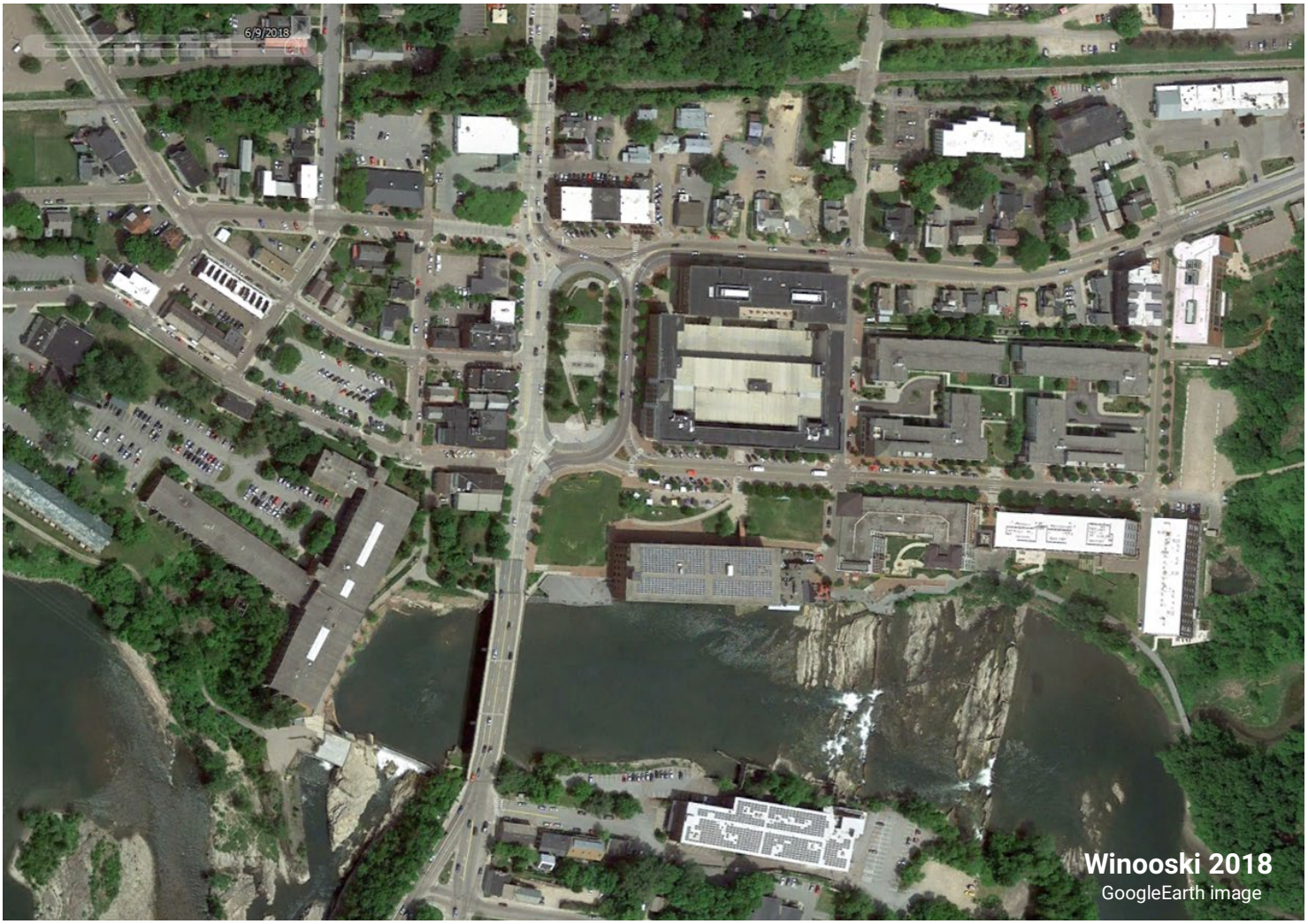
Prepared by the **Chittenden County Regional Planning Commission** for the City of Winooski.

With funding support provided by **Vermont Department of Housing and Community Development** Municipal Planning Grant Program.

The Winooski City Charter establishes that the Mayor is the liaison to the City's Planning Commission. As Seth Leonard ends his four-year tenure as Mayor of the City of Winooski (and two years as Councilor before being elected as Mayor), we want to acknowledge his work to establish the City's strategic vision – the foundation of this Master Plan. Throughout this process, Mayor Leonard was engaged not only in recognizing the history of the City and where we came from but also setting a dynamic vision of where we could go. Thank you, Mayor Leonard, for your many hours of guidance, feedback, and facilitation.

Winooski Pre-1970

Winooski 2004
GoogleEarth image



Winooski 2018
GoogleEarth image

INTRODUCTION

PURPOSE OF THE PLAN

Winooski's Master Plan presents a vision for land use and development in the present and for the future. It provides a framework for enhancing the quality of life, a basis for public and private investment, and it will be the guiding document for civic action. The Plan is intended to support Winooski in responding thoughtfully and appropriately to changing economic, social and environmental conditions in the City and the region.

The City has engaged in numerous planning efforts on specific topics over the last few years (e.g. Visioning, Economic Development Plan, Transportation Master Plan, Parking Plan, Housing Needs Assessment, Gentrification Analysis, Branding Study, etc.). This Master Plan is a high-level overview document that summarizes and references the more specific plans. The Plan is organized by the City's Vision statement.

The Vision statement is a strategic advantage for Winooski. Adopted in 2015, its intents have been readopted by ever successive City Councils since. Additionally, it has formed the foundation of a shared policy and work plan between the City Council and staff Leadership Team since 2017. The City actively aligns policy and programming to this vision to produce more for the residents, businesses, and community.

PUBLIC ENGAGEMENT

About a decade ago, the City rebooted the Planning Commission after not having one for quite a while (previously the Planning Director performed all Planning Commission duties as enabled under 24 V.S.A. § 4321(b)). The Planning Commission is now made up of local residents. The intent was to better reflect the public perspective in developing a community roadmap as described in this Plan and reflected in the bylaws.

This Plan builds upon the previous, more specific, planning studies and the engagement that took place in their development of them. Each of those planning efforts included a significant amount of public engagement including online surveys, focus groups, door to door surveys, and community dinners. In addition to building on those efforts, the Planning Commission received input from each of the four City Commissions in developing this Plan: Public Works Commission, Public Safety Commission, Community Services Commission, and the Housing Commission.

The process also included a flyer located in numerous places throughout the City and posted on Front Porch Forum to alert the community of the effort and explain how residents can get involved. In addition, input and feedback were also sought at the Farmer's Market, Halloween Party and the Mayor's Live at Five show. The final draft was noticed and distributed as required by statute both for the Planning Commission and City Council's hearings, and edits were made accordingly.

WINOOSKI MASTER PLAN REVISIONING

The Winooski Planning Commission will draft, develop, and finalize a revisioning of the City's Master Plan. Upon completion, the Winooski Planning Commission will present the Master Plan to Winooski City Council during the Winter and Spring of 2018/2019.

Join us at any upcoming Winooski Planning Commission Meeting 6:30 PM @ Winooski City Hall (27 West Allen Street) during this process:

	Initial Review	Revision Review
Economic Vitality	**Jul. 12**	**Jul. 26**
Municipal Infrastructure	**Jul. 26**	**Aug. 9**
Safe, Healthy, Connected People	**Aug. 9**	**Aug. 23**
Housing	**Aug. 23**	**Sept. 13**
City Demographics and Background	**Sept. 13**	**Oct. 11**
Implementation Program	**Oct. 11**	**Oct. 25**
Public Input Community Meeting	**Oct. 30**	

Public input is an important part of this process. We welcome all community members to join us in the revisioning of the City's Master Plan!

Submit your feedback at any time during this process by emailing

masterplan@winooskivt.org

For comprehensive project details, visit

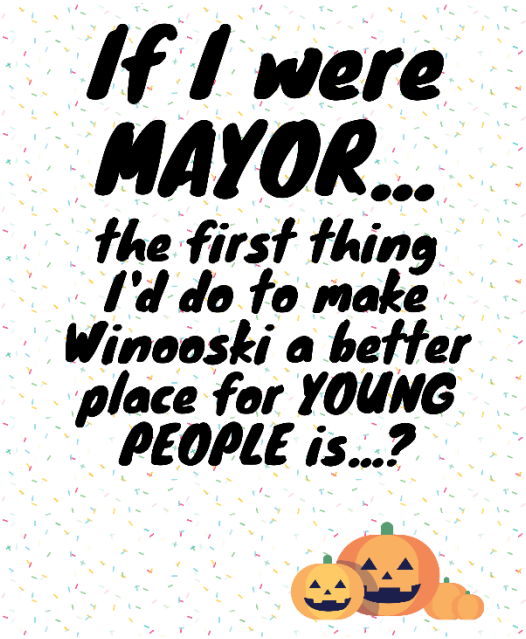
winooskivt.org/masterplan

शहर को भवष्यिको लागि विनीस्की तपाईं को सहभागिता चाहन्छ। हामी तपाईं को सहभागितिको स्वागत गर्दछौं। अन्वादति सामग्रीहरूको लागि, कृपया ८०२ ६५५ ६४१० मा कल गर्नुहोस्।

Winooski wuxuu doonayaa taladaada mustaqbalka magaalada. Waan soo dhaweynaynaa ka Qaybgalkaaga. Waxyaabaha la turjumay fadlan wac 802 655 6410.

مدينه وينسكي (Winooski) محتاجه رأيكم ومقترحاتكم نحو تخطيط مستقبل المدينه وهي ترحب بمشاركتكم . وللحصول على النسخ المترجمة للغات الأخري اتصلوا علي الهاتف الاتي
6410-655-802

WINOOSKI FARMERS MARKET



VISION

Winooski will continue to be a livable, diverse, and affordable community where the role of government will be to foster and guide:

ECONOMIC VITALITY

Maintain and expand our economic development to ensure long-term vibrancy.

MUNICIPAL INFRASTRUCTURE

Invest in the City's municipal infrastructure, including energy resources, facilities and technology; roads and sidewalks; and water, sewer, and storm water lines and facilities. Infrastructure investment will make our City safe and accessible to residents and visitors while recognizing the critical role that we play in the region's system.

SAFE, HEALTHY, CONNECTED PEOPLE

Foster relationships across generations and cultures by providing a safe and healthy environment and providing opportunities to connect and engage with other residents of the City.

HOUSING

Ensure a mix of quality housing that maintains and enhances Winooski's unique sense of place and supports the needs of the entire community.

BRAND

In addition to the vision statements, the City's brand helps describe the past, current and future direction for the City.

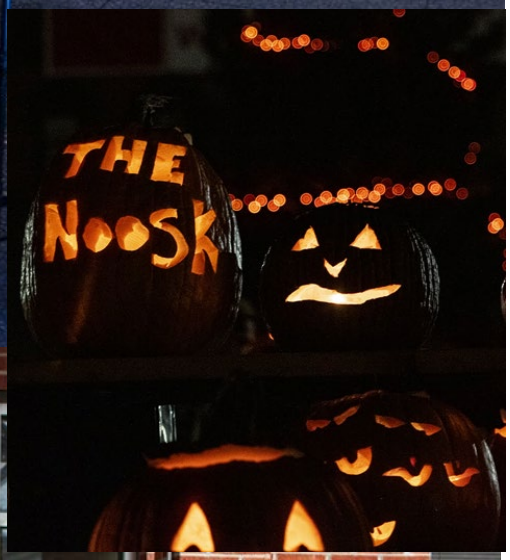
WINOOSKI: VERMONT'S OPPORTUNITY CITY

For almost 100 years, Winooski has welcomed strivers – people looking to build a better life for themselves and their families. We're a small city where neighbors know each other. We're a city where all of our kids learn together, play together, grow together. We're a community where everyone can participate in city government, in neighborhood gatherings and in our lively downtown. We're always striving to improve our city and to welcome our next new neighbors.

WINOOSKI WELCOMES YOU

WINOOSKI WAY KU SOO DHOWEYNEYSAA

विनूसकी तपाईंलाई स्वागत गर्दछ



مدينه وينوسكي ترحب بك

HISTORY

3,000 BCE - 1,000 CE	**Native Americans** intermittently occupied the banks of Winooski Falls.
1700s	**Europeans** began moving to North America, bringing diseases such as smallpox, and Native American populations start to decline in the Winooski River Valley.
1700s	**Ira Allen** builds Blockhouse which serves as fort, general store and office for land speculating Onion River Company.
1789	**Ira Allen** builds a dam across the Winooski River with sawmills at each end.
1830s	**Winooski Mills** built and became the state's leading textile manufacturing center and the city's major employer for over 100 years.
1866	**Frederick Kennedy**, Mill agent, requests Vermont legislature to incorporate the Village of Winooski.
1867	**Winooski Block** is built by Francis LeClair, Peter LaFountain and Edwin Chase on the former site of Ira Allen's home.
1909	**Lewis Hine**, photographer for the National Child Labor Committee, visits and takes photos in the mills.
1922	**After 54 years** as a Village, Winooski becomes a City via a charter change by the state Legislature and a vote by the residents, separating from the Town of Colchester. This Burlington Free Press article describes what life was like in Winooski in 1922.
1927	**Major Flood:** Rising Winooski River destroyed dams and the Main Street bridge and caused major damage to the mills.
1952	**Porter Screen Factory,** once the largest producer of screen doors and windows in the world, ceases manufacturing.
1954	**American Woolen Company** closes mills at Winooski.
1959	**New Winooski High School** opens on Upper Main Street.
1967	**Mayor Dominque Casavant** applies to the Model Cities program to receive federal funding for improvements within the city. Program funding allows the city to improve sewage treatment, upgrade water system, improve parks, build a public pool, a new fire house, and provide affordable housing for the elderly and disadvantaged.
1970	**The Winooski Urban Renewal Agency** established under the Model Cities program, acquires downtown property on east side of Main Street through eminent domain for the demolition of buildings to open area for new development. In 1973, the historic "Fort Pick" neighborhood is destroyed and residents relocated.

1973 **Vermont Furniture Company** factory on Malletts Bay Ave. is destroyed by fire, leaving hundreds without jobs.

1976 **York Electric** builds a plant in the newly designated area of Highland Park.

1973 **Gilbrook reservoir** no longer used as Winooski's primary water supply (reservoir drained in 1983).

1979 **The City researched** the idea of a dome over the City to reduce heating costs. Internal combustion engines would have been banned.

1980 **Refugee Resettlement Program** Begins in Vermont

1980s **Revitalization begins** with restoration of mill buildings. Ray Pecor acquires the Champlain Mill and restores the building for retail and office space. Prompts a temporary downtown renaissance in the early 1980's with other former industrial structures converted to condos and apartments; and development of a small retail center and branch bank.

1999-2004 **A new downtown revitalization effort begins.** The Winooski City Council appoints the Winooski Community Development Corporation (WCDC) as lead in a joint effort with the City. Plans for redevelopment of the downtown area demolished under the Model Cities program begin with a vision for a mix of commercial, residential and public spaces. Financing packages are explored with State and federal agencies. Developers solicited and selected for first phase of the redevelopment with assistance from the State.

2004 **State Downtown Designation received.** Tax Increment Financing (TIF) District is established providing a means to repay debt through the increase in municipal and educational property taxes generated in the district. Financing of new infrastructure received through a loan from the Department of Housing and Urban Development (HUD). Infrastructure construction begins.

Winooski Rotary Fusion by Dan Higgins

2005-2006 **The Riverwalk promenade opens** providing pedestrian access to the river front and to the Casavant Natural area. The traffic circulator is developed in an effort to better manage traffic and provide greater pedestrian access across Main Street.

2006 **City wins National Smart Growth award** for New Downtown.

2012 **Waking Windows begins** bringing cultural activities to the downtown.

2016 **Form Based Code zoning** is approved for the Gateways.

LOOKING AHEAD

2022 **Winooski celebrates** its 100th birthday!

2024 **TIF expires** with the incremental taxes previously used to pay debt going to the City.

DEMOGRAPHIC INSIGHTS

Key trends in Winooski can be summarized as follows:

Winooski has a population of **7,267**[i]. Winooski's population is increasing since its second revitalization period as shown between 2000 and 2010; and this growth is likely to continue going forward.

Winooski is Vermont's most racially and ethnically diverse community; and 15% of residents are foreign born.

48%

Essentially half (48%) of Winooski's population falls between the 20-44 age cohort – a significantly younger population than the County and the State.

60% of Winooski's housing stock is rental and 51% of rentals are subsidized – significantly higher than the County as a whole.

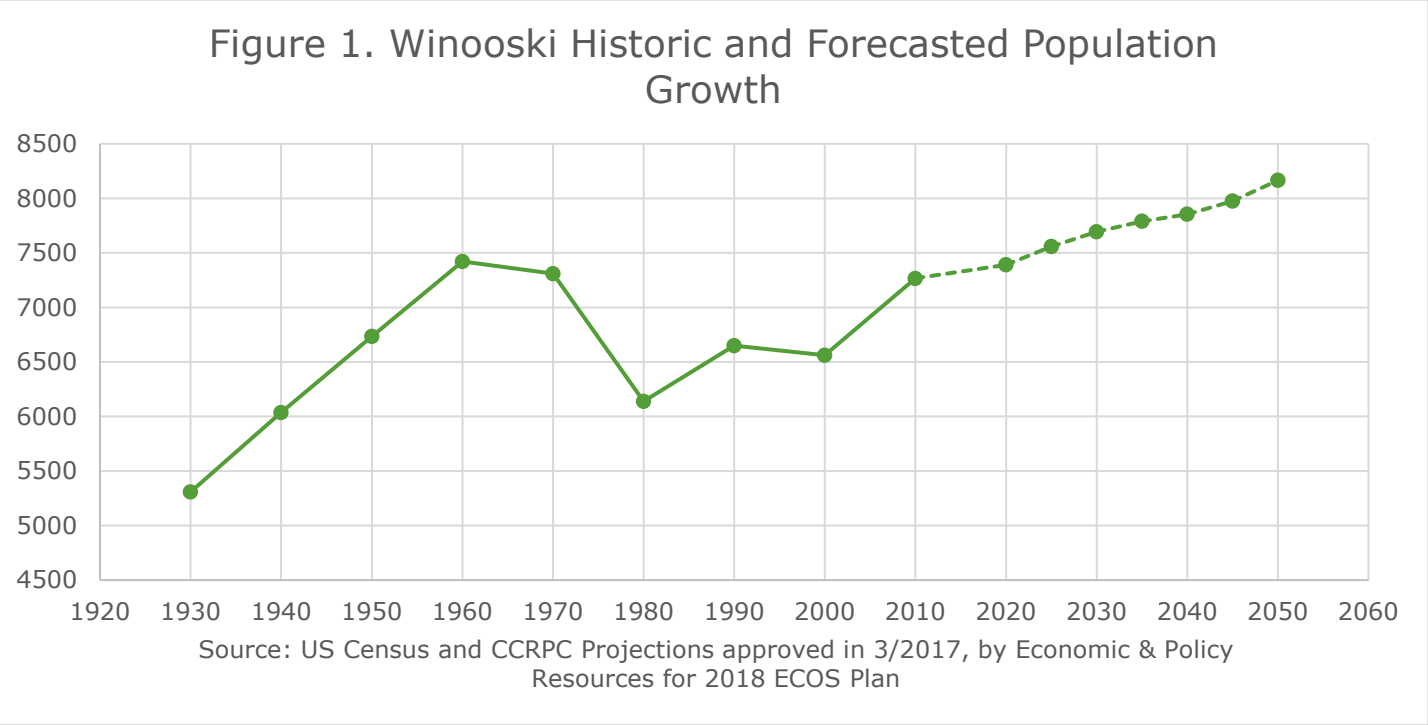
26% of Winooski's households are below the poverty line - on par with Burlington (25%) but significantly higher than the County and the State.

Winooski has a well-educated workforce, with almost 90% of the population over the age of 25 holding a high school diploma or a higher level of education, and over 50% holding a bachelor's degree or higher.

Winooski is one of the most densely populated cities in Northern New England.

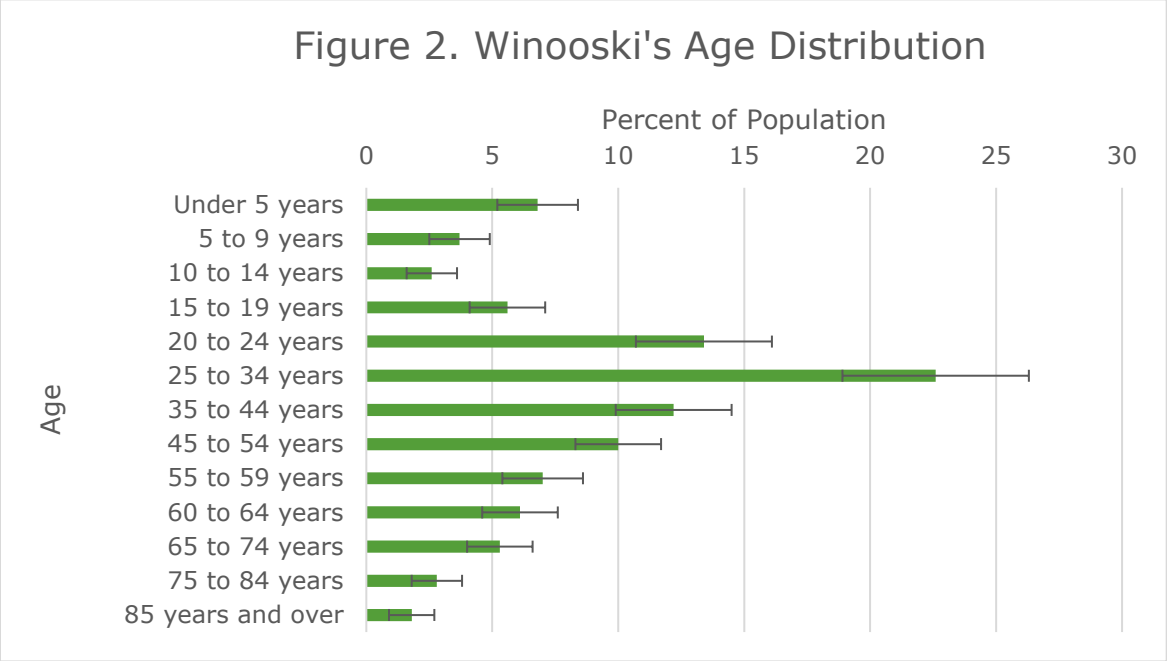
DEMOGRAPHIC INSIGHTS

Winooski's historic population growth follows the growth of the mill industry, the decline thereafter, and the two subsequent revitalization efforts. While there is no accurate population count since 2010, there is an assumption that the City has grown considering the housing development that has occurred. Looking forward it is helpful to study a probable future trend. The forecasted population growth represents 10% growth between 2020 and 2050. This is in line with Chittenden County's historic and projected population growth as well. However, the State's total population has remained relatively unchanged lately and is forecasted to grow at a much slower rate. While there is no certainty in a specific amount of growth, it is likely that Winooski will continue to grow based on it being an attractive place from environmental, economic, and social perspectives.

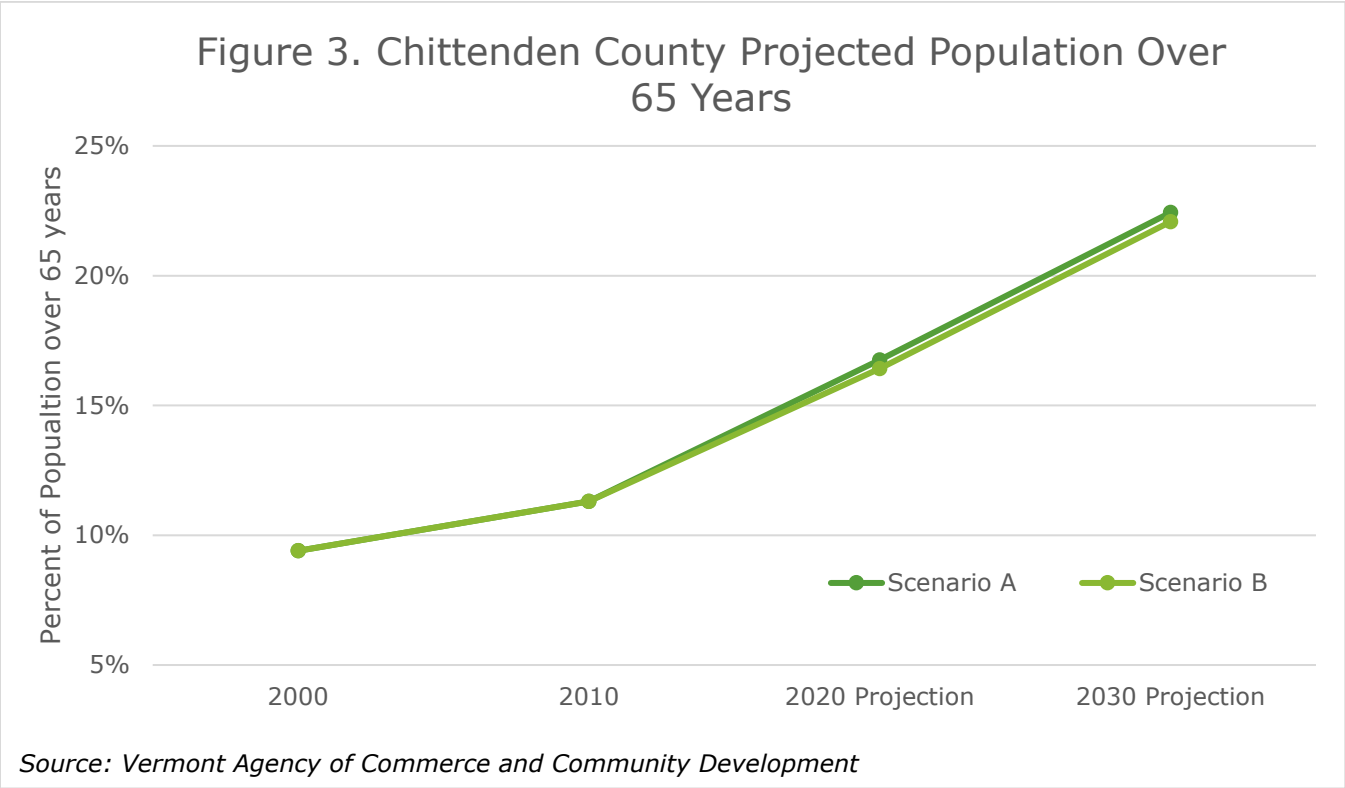


Winooski is Vermont's most racially and ethnically diverse community, including 6.9% of residents identifying as Black or African American, 6.2% as Asian, 3.4% who choose the classification "two or more races", 2.2% who identify themselves as Hispanic or Latino (of any race) and under 1% who identify themselves as American Indian or Alaska Native.[ii]

Winooski has a relatively young population (see Figure 2). Essentially half (48%) of Winooski's population falls into the age cohort between 20-44 years old, compared to 36% in the County and 30% in the State. As of 2016, the city's median age was 32, whereas Chittenden County's median age was 36 and the state's reached 43.[iii]

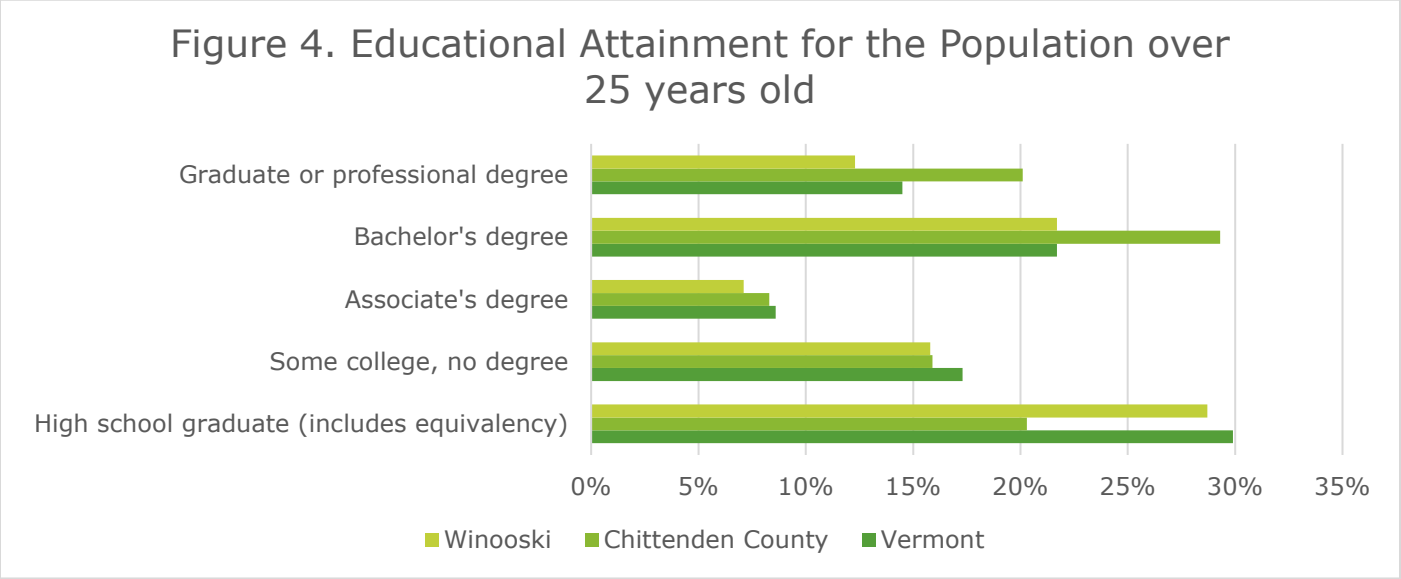


Another important component of age demographics is the growth rate of those over the age of 65. While Winooski's percent of the population over age 65 is relatively lower than the County and State (10%, 13% and 17% respectively), the growth of this demographic is still a factor for consideration in planning for the City's future. This age cohort is projected to be just under a quarter of the population in 2030, more than double the 2010 population (see Figure 3). See the endnote for the difference between Scenario A and Scenario B.[iv]



Source: Vermont Agency of Commerce and Community Development

Winooski has a well-educated workforce, with almost 90% (+/-5.0%) of the population over 25 holding a high school diploma or a higher level of education, and 52.3% (+/-10.2%) holding a bachelor's degree or higher.[v] Regarding educational attainment, Winooski is more on par with the State than Chittenden County (see Figure 4).



Winooski has seen a nearly 5% increase in median household income over the last five years (however it is important to note that inflation over this same time period was about 6.4%[vi], outpacing the income growth). Data from the 2011 American Community Survey estimates reported a median household income of $47,292. This grew to just over $49,596 per recent American Community Survey estimates for 2016. This growth was lower than the rest of Chittenden County, and on par with the rest of the state. Despite this growth, the city's median household income remains below those of Chittenden County and Vermont. Last but not least, Winooski's rate of poverty, while on par with Burlington's (25%) is significantly higher than the County and the State.

Table 1. Household Income and Poverty

Residents in Winooski	Winooski	Margin of Error	Chittenden County	Margin of Error	Vermont	Margin of Error
Median Household Income[1]	$49,596	+/-6,355	$66,414	+/-2,090	$56,104	+/-793
People Whose Income in the Last 12 Months Is Below the Poverty Level[1]	26%	+/-5%	10.9%	+/-0.8%	11.3%	+/-0.4%

1 - 2012-2016 American Community Survey 5-Year Estimates (DP03: Selected Economic Characteristics)

Another factor to consider is the average wage of Winooski jobs, as opposed to Winooski resident income. Only 14%[vii] of Winooski residents work in the City (including those that work at home), so

while this is less relevant to Winooski residents it is a factor in the economy of the City. The average wage of jobs in Winooski is $49,635 (note this is just from covered employment and averages hourly and salaried workers). Average earnings are $62,901 (note this includes wages, salaries, supplements (additional employee benefit) and proprietor income). It's not clear why this is higher in Winooski than in Chittenden County.

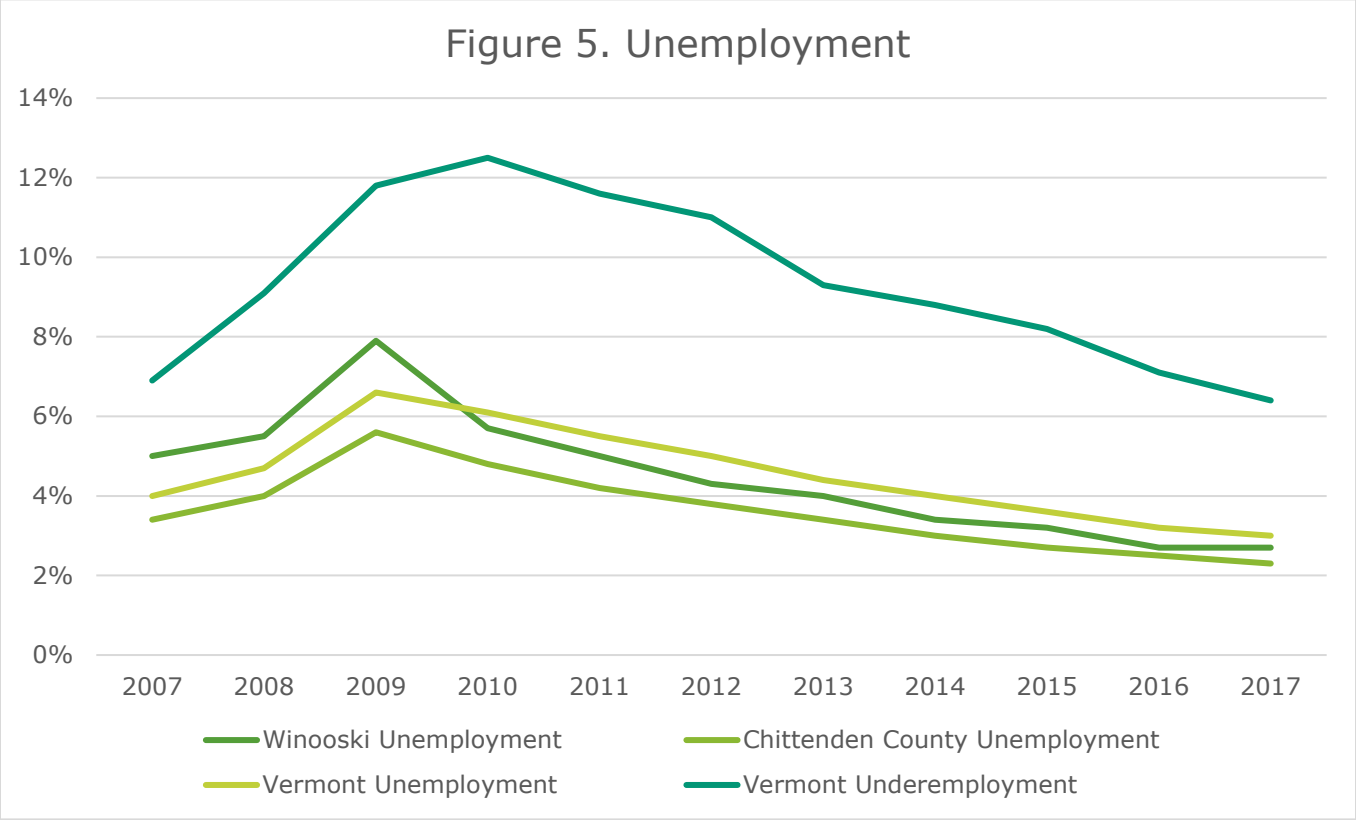
Table 2. Average Wage and Earnings

Jobs in Winooski	Winooski	Chittenden County	Vermont
2016 Average Wage[1]	$49,635	$51,453	$45,054
Average Earnings[2]	$62,901	$59,417	$51,720

1 - Vermont Department of Labor Economic & Labor Market Information: Covered Employment & Wages, 2016

2 – Economic Development Plan, EMSI.

Unemployment rates in Winooski were higher than Chittenden County and the State prior to and during the recession (see Figure 5). Since the recession the rates are higher than Chittenden County but lower than the State. Unemployment reached its highest point during the recession in 2009 and has declined since. In fact, unemployment rates are very low currently, and begin to speak to a labor shortage.[viii] However, underemployment is a useful statistical measure that includes both the traditional measure of unemployment (those who are unemployed and actively looking for work), and additional measures including discouraged workers (who have stopped their active search for employment), and those who work part time but would prefer to work full time. Underemployment is measured only at the state and national levels, where it has tended to be roughly twice the unemployment rate.

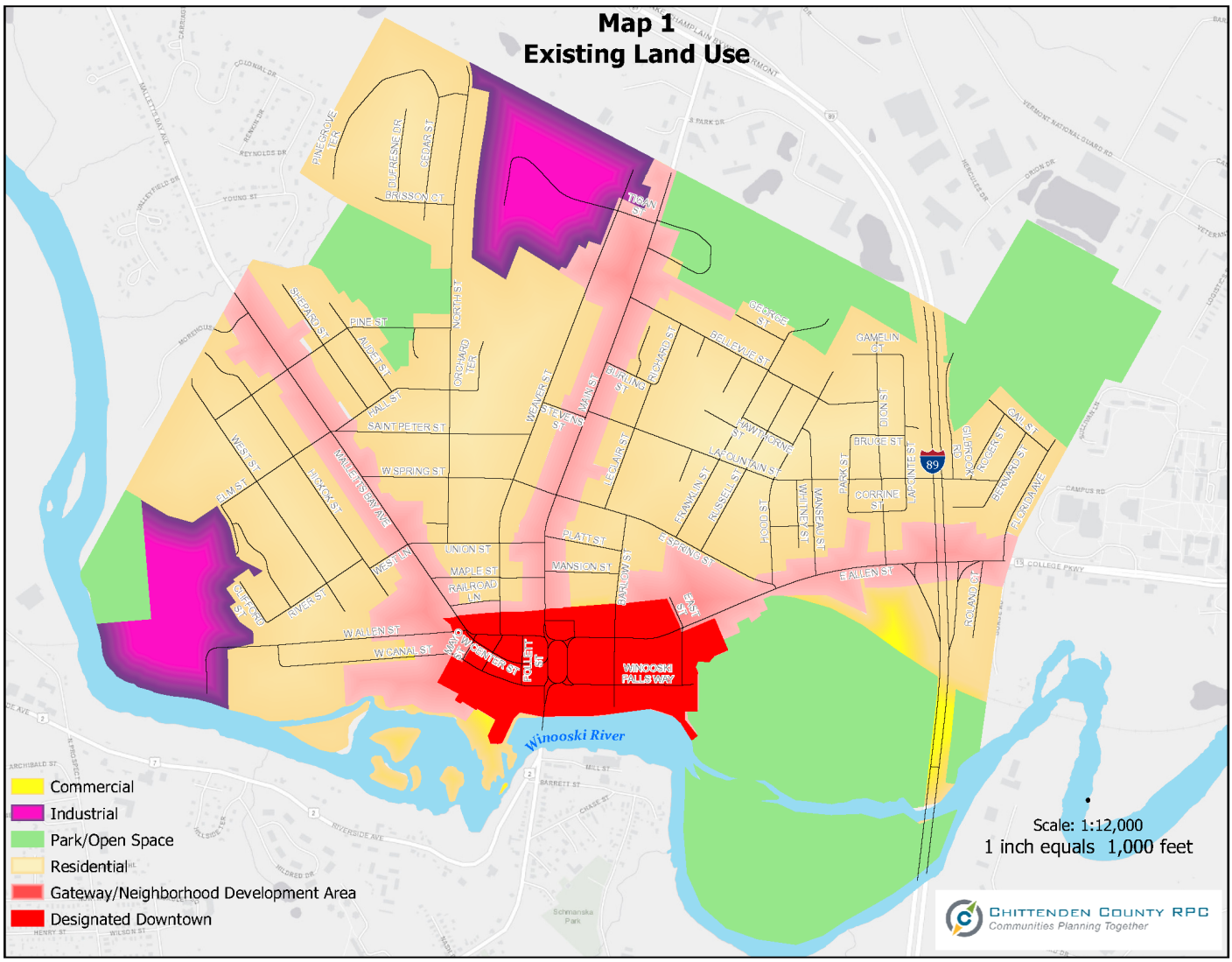


The urban fabric is unique as Winooski is one of the most densely populated municipalities in northern New England (Maine, New Hampshire, and Vermont) at 6,055 people per square mile in 2010[ix]. As a comparison Chittenden County's density is 291 people per square mile.

LAND USE

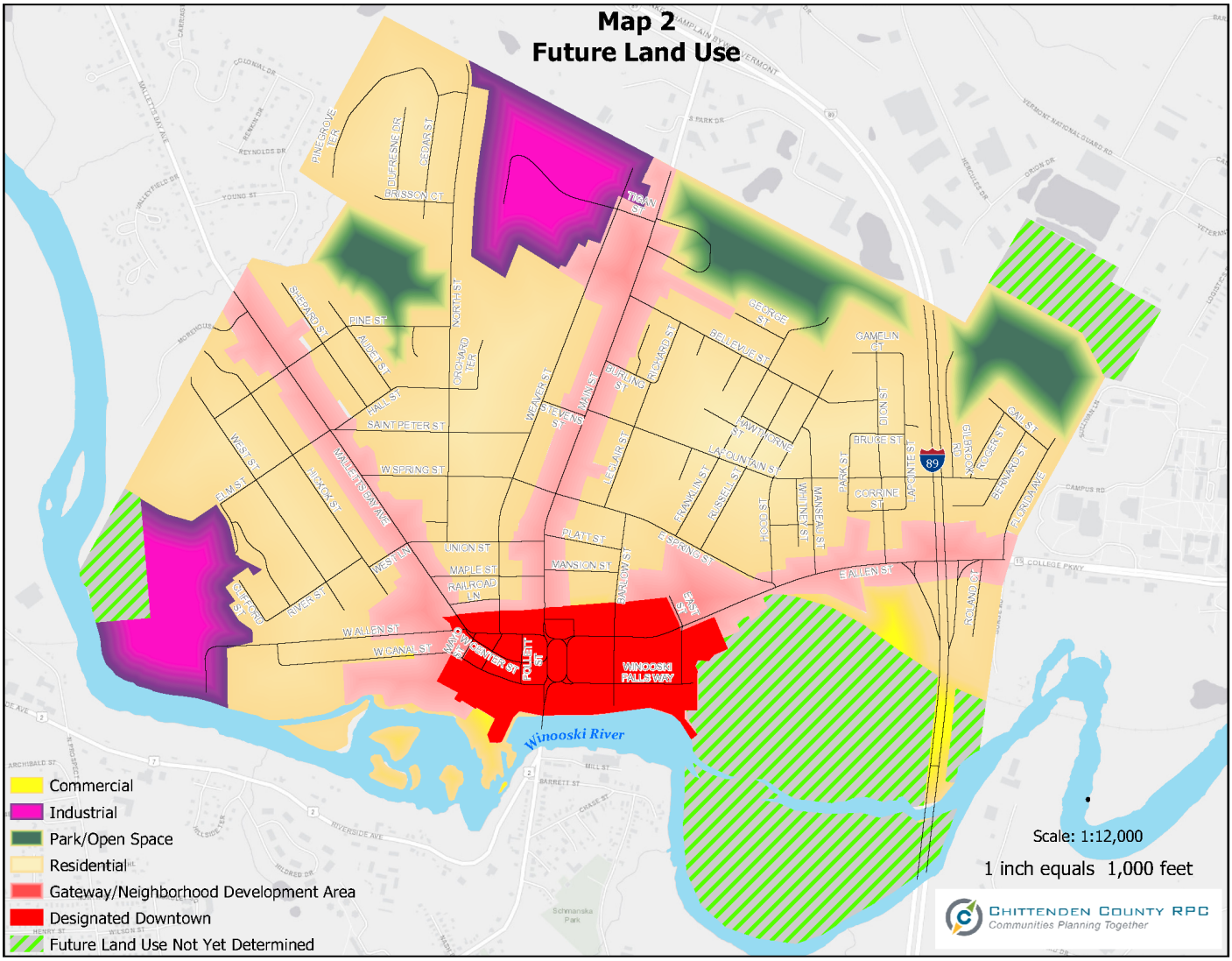
Winooski has undergone substantial physical changes in the last decade, marking its second and more successful revitalization since the close of the mills in the 1950's. This success can be seen in the City's rich ethnic diversity and associated businesses and the high percentage of young professionals in the City – an age cohort looking for an urban environment with strong community bonds.

The following Existing Land Use Map, Map 1, describes the current land uses that exist in areas of the City.



The following Future Land Use Map, Map 2, describes the intended future land uses in the City. For the most part this matches the current land uses as the City intends to infill and increase development within the same land use categories and boundaries that currently exist. However, the three areas 'hatched' on this map are areas where future land uses are not yet determined. These

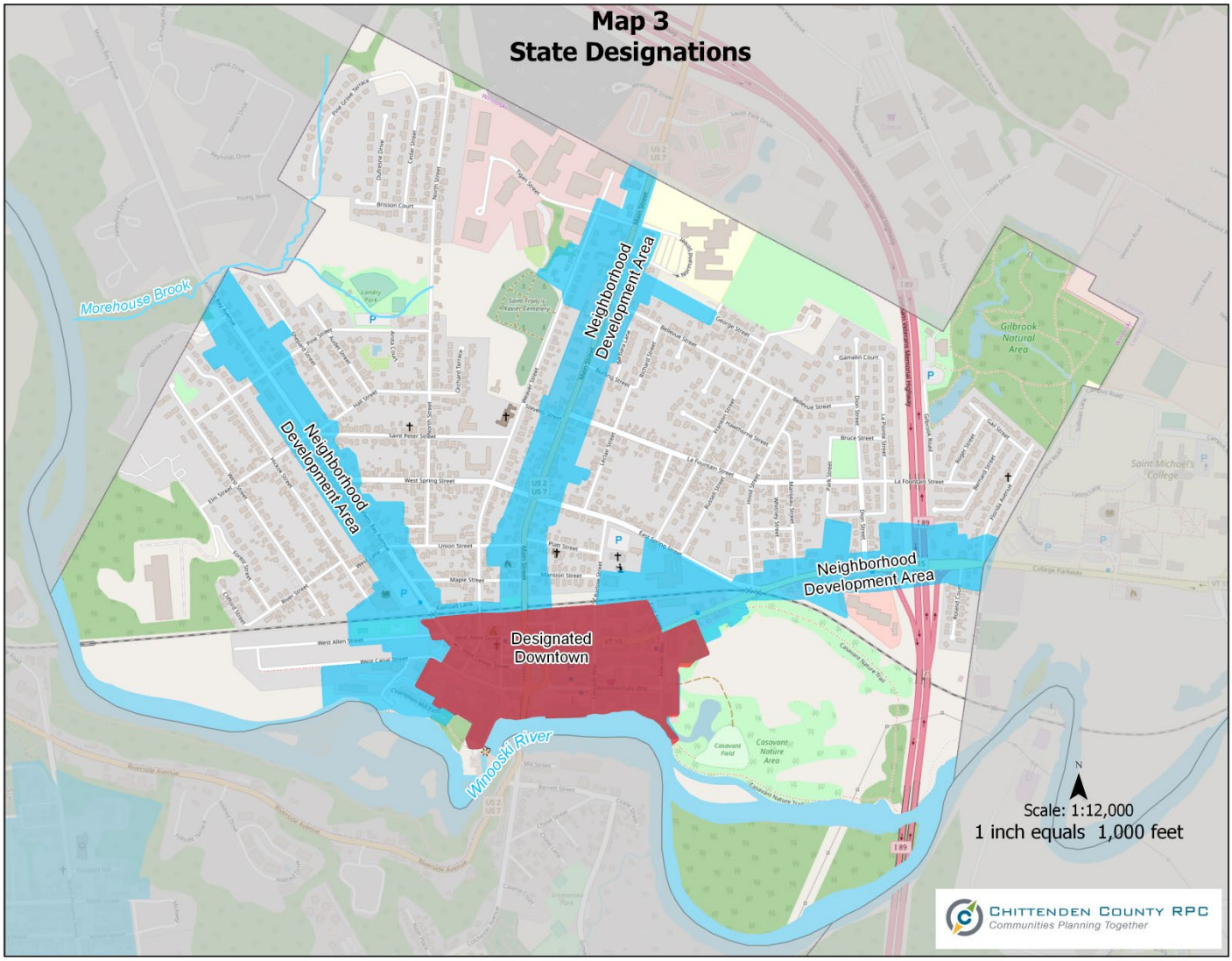
areas are owned by the City, currently used as parks, and zoned as commercial or industrial. These areas are further described below under the Commercial/Industrial section and the Natural Resources section. The City will engage in conversations to determine the future use of these parcels as they implement this plan. Each of the future land uses are described under the map below.



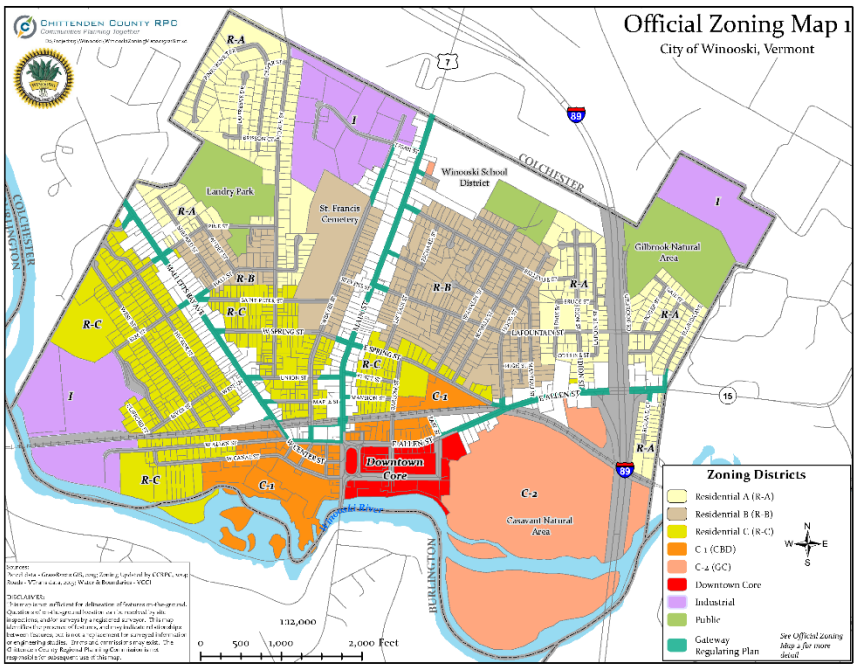
Downtown | The Downtown Core has continued to develop in accordance with the 2001 master plan. The purpose of the district is to provide for orderly physical and economic growth by allowing and encouraging high density, mixed use development. It has become a hub for restaurants, bars, and events such as Waking Windows that serve regional customers. There is a perception that not enough parking exists, and there is a likely need for parking on the west side of downtown. See the municipal infrastructure chapter for more details.

Gateways | The purpose the Gateway Districts is to create a walkable, mixed-use development dependent on three factors: density, diversity of uses, and design. Development and redevelopment of the Gateway Districts are intended to follow the vision established in the charette process and documented in the Winooski Public Design Workshop Vision Plan. The development regulations, adopted in 2016, are established in the Winooski Gateways Form Based Code ("the Code") found in Appendix B of the Unified Land Use and Development Regulations. The Code places greatest emphasis on design, or physical form, because of its importance in defining neighborhood and corridor character. Interviewees for the Economic Development Plan noted that this new code provides greater ease in determining the right location to start a business in Winooski and helps both residents and developers in defining the look and feel of new city development. There are some refinements that will be needed to improve the implementation of the Code. As an example, parking requirements are likely too high and limiting growth potential on developed sites, and are counter to increased bike, pedestrian and transit use.

Public-Private Investments & State Designations | The City of Winooski benefits from two smart growth, economic development programs: Designated Downtown and a Designated Neighborhood Development Area; as well as a Tax Increment Financing District (TIF). See Map 3 for the location of the designations. Benefits of these designation programs include increased competitiveness for state grant programs; a tax program to increase funds for public infrastructure; tax credits to lower the cost of construction; and quicker, predictable and lower costs for state permitting. These programs have been instrumental in the City's successful use of municipal investment to spur on private investment. As an example, an initial municipal infrastructure investment, funded through the TIF model, spurred on and directed private investment to build the vibrant downtown. This model of public investment spurring private investment is expected to continue along Main Street, East Allen, and Mallets Bay Ave during the life of this plan. Those corridors benefit from the Neighborhood Development Area and the City may request that the designation be expanded to the City's boundaries to help alleviate state permitting hurdles, such as agricultural soil mitigation fees.



Residential Neighborhoods | The purpose of the three residential districts is to accommodate safe, livable, and pedestrian friendly residential neighborhoods with inviting streetscapes. The density increases moderately between residential zoning district R-A and R-B, while residential zoning district R-C serves as a transition between R-A and R-B and the commercial districts. Infill development in R-C will be balanced with privacy of surrounding homes, preservation of

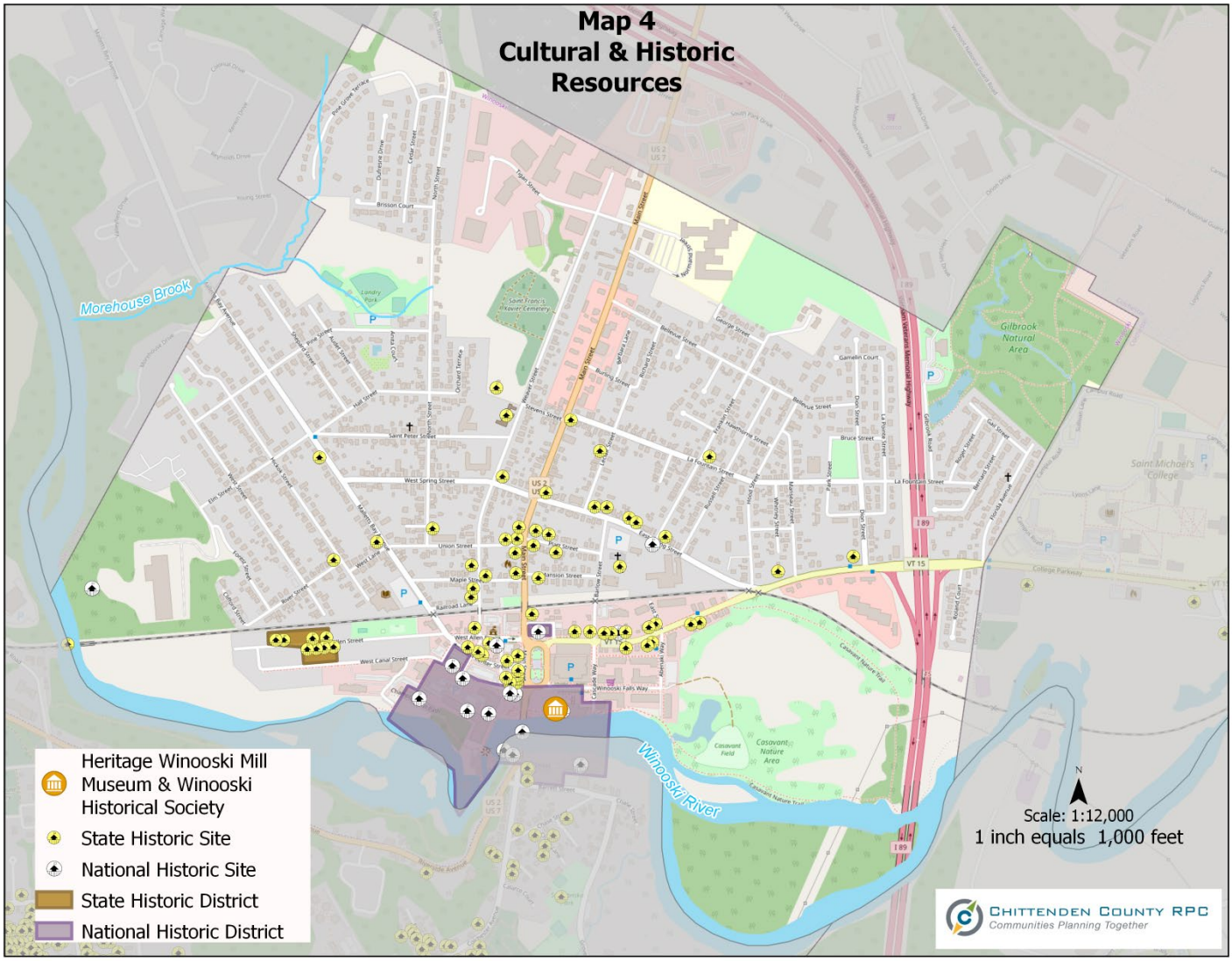


neighborhood character and safe housing conditions. Locations of the residential districts can be seen in the Zoning District map here, in the Map Appendix, and on the online map.

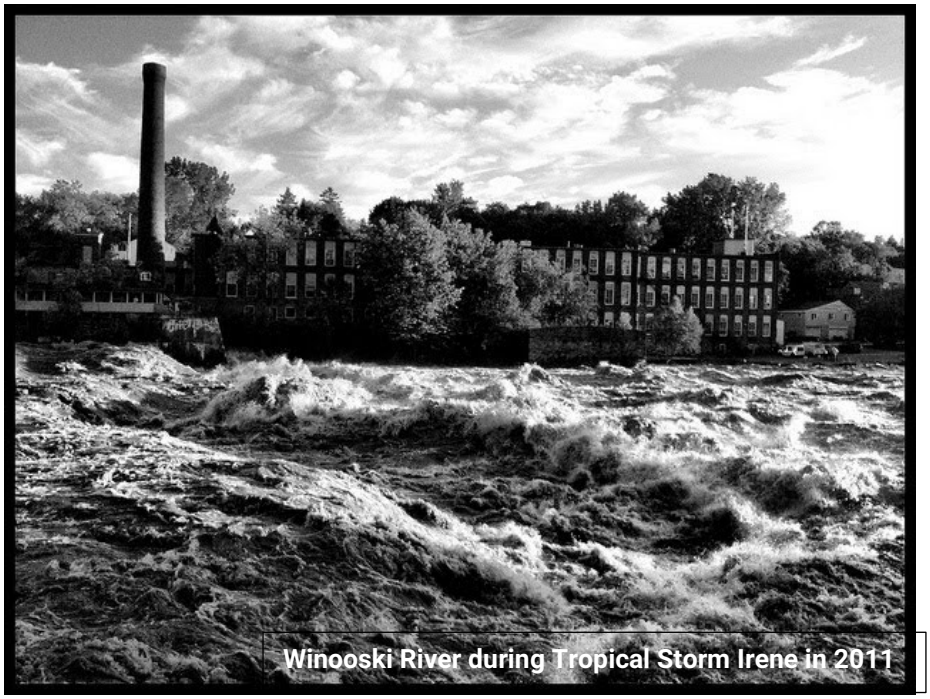
Commercial and Industrial | The purpose of these districts is to encourage, retain and protect commercial and industrial businesses. The commercial land uses are largely in the downtown and the gateway districts. Casavant Natural Area is also currently zoned for commercial, and this should be analyzed for recreational uses. There are three locations in the City zoned for industrial. Two of these industrial zones are largely unused, with one being a stretch of land northeast of Gilbrook Natural Area (adjacent to a Colchester industrial park) and the other being a wooded area to the west the manufacturing operations of Country Home Products, known as Memorial Park. Components of those properties should be analyzed for recreational uses. The third area, the Winooski Highlands Industrial Park, is home to 11 standalone buildings, housing a diverse array of industries including a life science instrument manufacturer, hockey training center, and soap manufacturer. The park has 3-phase power, water, sewer, natural gas, and telecommunications with high speed internet services.

Natural and Cultural assets | Winooski has an abundance of revered natural, recreational and cultural assets. With 22% of its land area in natural/open space and parks the City has a good amount of area for outdoor recreation and enjoyment, wildlife habitat and ecological services (i.e. water quality protection). While there is much more detail about parks and recreation in the Safe, Healthy and Connected People chapter, and more about the economic benefits of these resources in the Economic Vitality chapter, this section addresses the cultural and historic resources, as well as the ecological systems.

Cultural & Historic Resources: Cultural assets include the Mill Museum, the Winooski Historical Society, places of worship, archeological resources, community centers, and 81 historic sites (14 are National Historic Sites and 67 are State Historic Sites) as mapped on Map 4 below. The 81 historic sites are from a 1979 inventory; therefore the information is not up to date as some of these sites have been lost. An update of the inventory would be beneficial. The 2016 zoning re-write attempted to connect Winooski's historic resources protection with the State Historic Preservation Office; unfortunately, that approach has not been effective. Review and improvements to this section of the Unified Land Use Regulations would ensure proper protection of the City's historic sites.



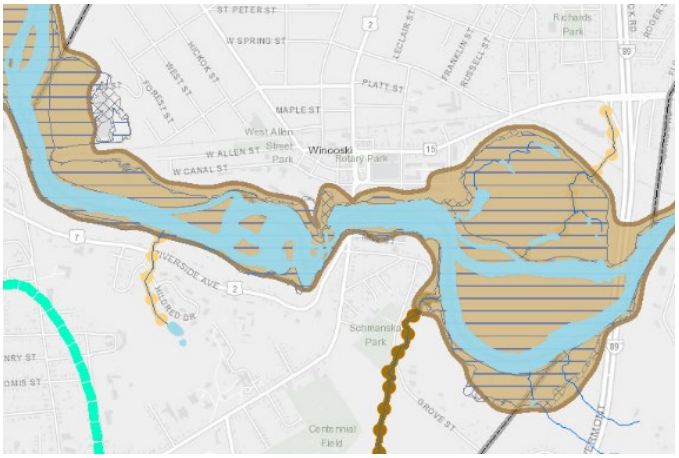
Flood Hazard Area: The purpose of this district is to avoid and minimize the loss of life and property, the disruption of commerce, the impairment of the tax base, and the extraordinary public expenditures and demands on public services that result from flooding. Flooding is a natural and increasingly common challenge, somewhat managed in Winooski by the existing dams. Development in this area is regulated very


Winooski River during Tropical Storm Irene in 2011

specifically under the Inundation Hazard Area Regulations (Appendix A of the Unified Land Use and Development Regulations).

River Corridors: These are areas where a river or stream naturally moves to establish equilibrium, plus adjacent land to provide "wiggle room" for the river's movement. River Corridors are a relatively new term, and protection of these areas is not required by the State, but it is strongly encouraged and incentivized through the Emergency Relief Assistance Fund (ERAF). When disasters happen, towns may receive assistance money from the ERAF. Towns that protect river corridors (and the other four ERAF requirements) will be responsible for a lower share of the match requirement for these funds. Winooski currently has an "interim" eligibility (aka "early adopter") because they protect streams and rivers through setback requirements. However, once the Statewide River Corridor dataset is updated with the local assessment data, municipalities with interim eligibility will have two years to:

1. *Adopt a River Corridor overlay or a River Corridor Protection Area overlay for all streams draining a watershed greater than 2 square miles, and*
2. *Adopt a River Corridor setback of at least 50 feet from the top of bank for all streams draining an area between ½ and 2 square miles, and regulate this setback as a River Corridor.*



While Winooski currently has regulations for the flood hazard area, it does not have regulations to protect the River Corridor. As currently mapped the River Corridor (brown in the image on the right) is more expansive than the flood hazard area (the hatched area in the image on the right). The image is hyperlinked to the CCRPC online river corridor map; click on it to explore this information further. To continue receiving the best match for emergency relief assistance funds the City will need to review this mapped area, work with the state to make sure it is accurate and develop land use regulations to protect these areas.

Wildlife Habitat, Forest Blocks & Natural Resources: Considering Winooski is a growth area, this plan calls for promotion of vegetative landscaping in new development projects and municipal improvement projects to manage storm water, protect water quality and air quality, increase carbon sequestration, establish urban place making and wildlife habitat. Secondarily this plan calls for protection of forest blocks, wildlife connectivity resources and crossings, surface waters, riparian areas and other significant habitats (e.g. wetlands) from development and fragmentation along the undeveloped parts of the Winooski River and the Gilbrook Natural Area. These resources are mapped on the regional ECOS online map viewer[x] under the 'Natural Systems' tab, including 'Water Quality & Safety' and 'Forest Integrity'.

LAND USE

Goals / Objectives

1 Considering the limited land area in Winooski, continue to infill and build upward in accordance with the land use regulations to ensure economic sustainability.

2 Continue development and support for the Downtown Core.

3 Transform the Gateway districts using both public and private sector investment to:

a. Capitalize on public investment in existing infrastructure
b. Stabilize and strengthen mixed-use commercial areas and residential neighborhoods
c. Create a pedestrian-friendly and multi-modal district
d. Promote, create, and expand housing options
e. Ensure a complementary relationship between the Corridors and the surrounding neighborhoods
f. Better utilize existing resources to redevelop under-utilized lots and create an improved pedestrian experience

4 Refine the 2016 Unified Land Use & Development Regulations to improve the implementation of the Form Based Code and this Master Plan, including parking requirements, future land uses, stormwater management, and other refinements.

5 Preserve the scale, character, and value of established neighborhoods by ensuring that new residential development is well integrated with existing development as called for in the Unified Land Use & Development Regulations.

6 When considering residential neighborhood redevelopment allow for neighborhood scale retail and services within residential neighborhoods.

7 Maintain and evolve the commercial and industrial districts as needed to retain and grow existing businesses, and enable start-ups and tech businesses

8 Review zoning to maximize opportunities for the recreational economy.

9 Consider expansion of the Neighborhood Development Area designation to the entire City.

10 Protect, preserve, develop and use Winooski's historic, cultural and architectural resources to stimulate a more meaningful environment for its citizens residents and the region; maintain the architectural and historical integrity of existing buildings or features; and ensure the compatibility of new construction or usage to adjacent properties.

11 Review and improve the historic preservation section of the Unified Land Use Development Regulations to ensure proper protection of these resources.

12 Maintain and improve the City's parks and open spaces for wildlife habitat and crossings, water quality protection, flood attenuation, carbon sequestration, and human enjoyment.

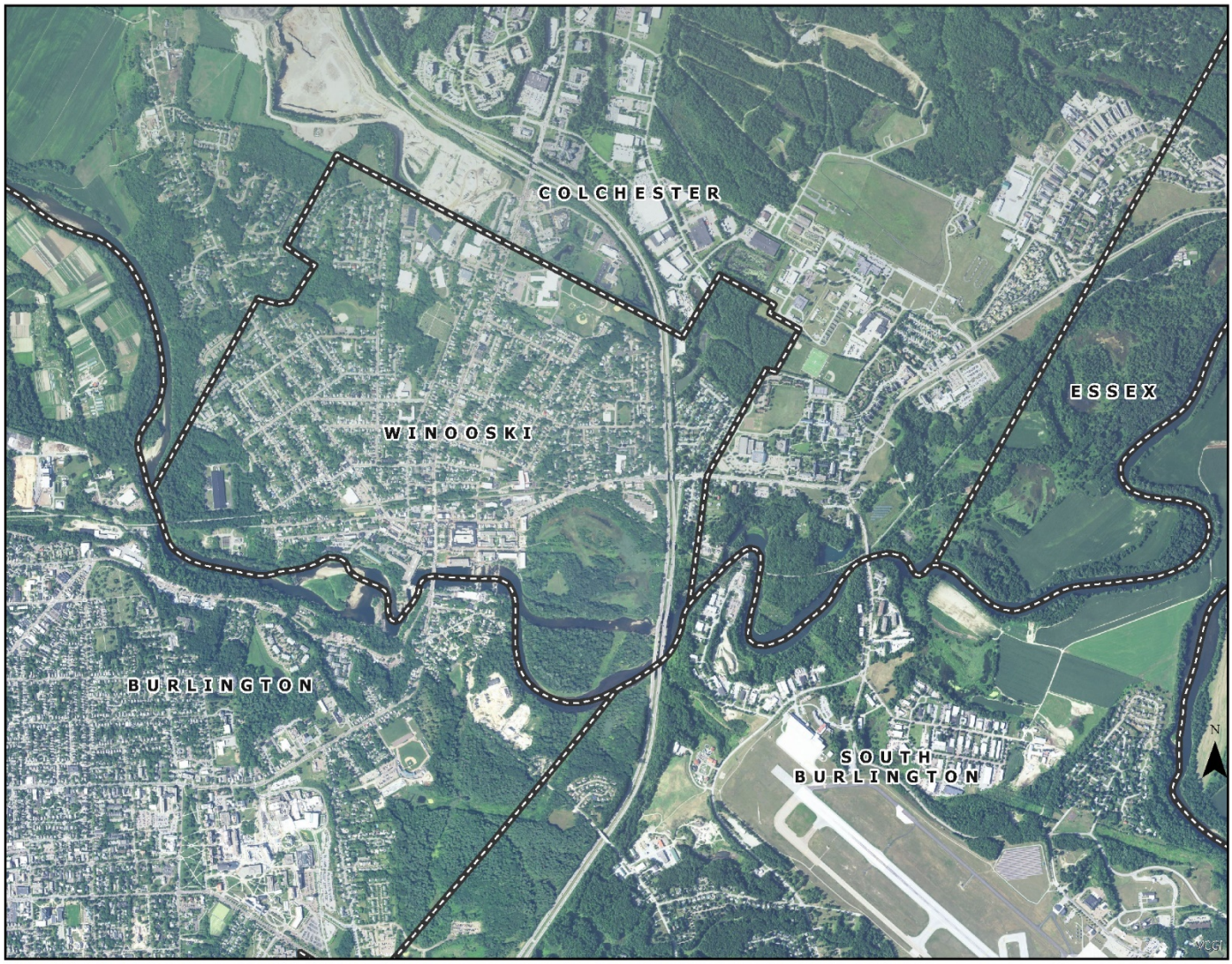
13 Promote vegetative landscaping in new development projects and municipal improvement projects to manage storm water, protect water quality and air quality, increase carbon sequestration and establish urban place making; and protect forest blocks, wildlife connectivity resources and crossings, surface waters, riparian areas and other significant habitats (e.g. wetlands) from development and fragmentation along the undeveloped parts of the Winooski River and the Gilbrook Natural Area.

14 Maintain the flood hazard area to protect from flooding.

15 Review the mapped River Corridor area, work with the state to make sure it is accurate and develop land use regulations to protect these areas in order to continue receiving the best match for emergency relief assistance funds.

16 It is not the intent of this plan to protect agricultural soils from development considering agricultural operations (outside of community gardens) are not feasible on small parcels isolated from more intact open agricultural areas. Further, mitigation of these soils through state development approval processes does not seem appropriate in such an urban environment.

RELATIONSHIP TO ADJACENT MUNICIPALITIES AND THE REGION



This plan is compatible[xi] with approved plans of neighboring municipalities and with the Chittenden County Regional Plan, titled the *ECOS Plan*. Existing land uses along Winooski's common borders with Burlington, Colchester and South Burlington are established and zoning both in Winooski and neighboring communities is compatible. Proposed land uses for these areas are not inconsistent. In large measure, floodplain associated with the Winooski River determines abutting land uses along the Burlington and South Burlington interfaces. Burlington and Winooski have been working together to make improvements to the Main Street bridge and surrounding intersections. Land uses along the borders with Colchester vary:

- Eastern border with Colchester – residential and open space in Winooski, and St. Michael's College in Colchester. Neither Plan calls for a change in land uses.

- Northern border with Colchester – Winooski's existing and future land uses include the school, commercial, industrial and residential; while Colchester's existing and future land uses include commercial, business park, and an existing quarry. A small portion of residentially designated land in Winooski abuts the Commercial / Industrial lands of the pre-existing quarry operation. This is an existing situation that will not be made worse by either plan. The industrial area of Winooski is compatible with the Commercial / Industrial area of Colchester and shares the same types of uses. Proposed improvements to Exit 16 will improve safety of this intersection for pedestrians, which will be a big use to Winooski residents that walk to the grocery store in Colchester.
- Western border with Colchester – Winooski's existing and future land uses are residential as are Colchester's therefore the plans are compatible on this border.

The ECOS Plan designates Winooski as an area planned for growth with two specific planning area designations: Center and Metro. This Plan and the regional plan are compatible.

IMPLEMENTATION PROGRAM

The goals in each chapter of this plan provide a framework for achieving the City's vision. While this Plan covers an eight-year timeframe from 2019 to 2027, its goals will be implemented and supported through annual strategic planning that guides the city's investment of human and capital resources.

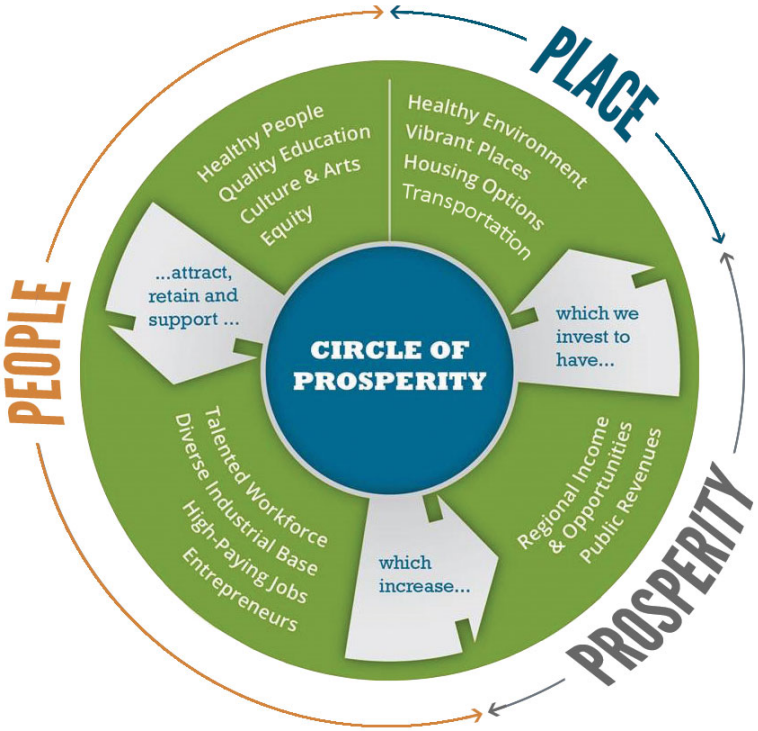
The City will work toward the goals of this Plan through implementation of the following plans that are directed towards more specific outcomes and identify specific actions within: Economic Development Plan, Transportation Master Plan, Parking Plan, Housing Needs Assessment, Housing Targets (in development), Branding Study, Police Strategic Plan, the annual Capital Improvement Plan and the Open Space Plan and Recreation Program Plan once developed. It is important to note, starting in 2020 the Capital Improvement Plan will be developed based on an asset management program to ensure the City is addressing capital needs in a systematic and fiscally responsible manner that will improve reliability and long-term system integrity. In addition, this Plan is implemented through enforcement of the City's Unified Land Use & Development Regulations and amendments as called for in this Plan (e.g. parking requirements, stormwater, future land uses, river corridor).

Monitoring and reporting of the Plan's success will be done through the City's Annual Report which is organized based on the City's vision statement. The City has already had success with development of shared council/staff workplans that align with the Vision Statement. This will continue, and each of the action sections of the above-mentioned specific Plans will be used to inform these annual workplans.

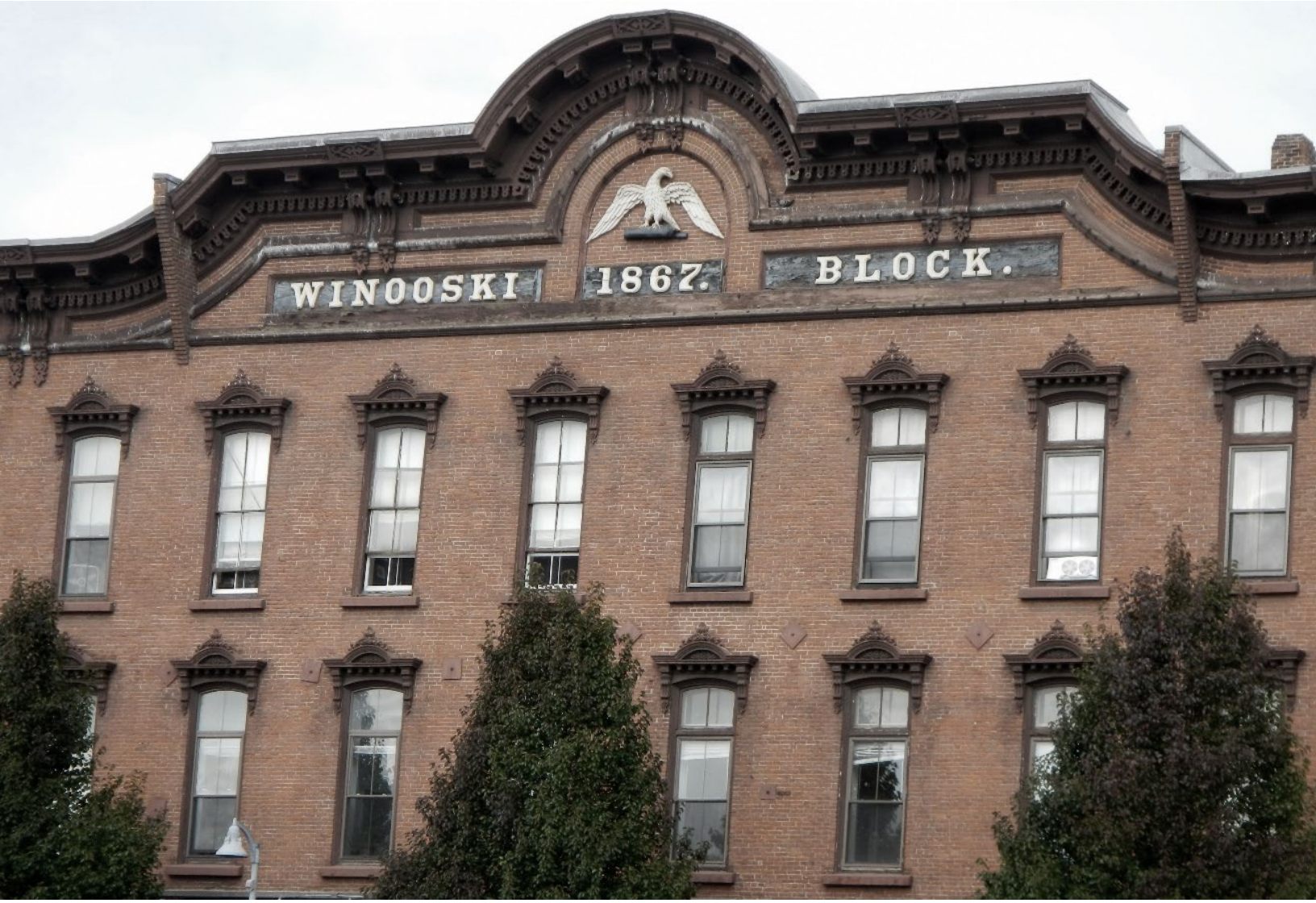
An important component in implementing this Plan will be the expiration of the TIF district in 2024, and the associated tax revenue the City can expect to see. It may be beneficial for the City to engage a Finance or Economic Vitality Commission that would focus on planning for the additional tax revenue following the expiration of the TIF.

While the Chittenden County Regional Planning Commission (CCRPC) reviews the Plan to ensure consistency with the state planning goals and compatibility with the Regional Plan and adjacent municipalities; they will also conduct a mid-term review during the eight-year timeframe to ensure the Plan is being implemented.

Implementing this Plan will require a collective and inter-related approach. It is collective in that no one piece will bring success without the others. For example, success within the Winooski School District can be achieved by staying in the District through graduation, staying within the District requires stable housing, and stable housing can only be found with consistent work and income. Visually, these collective, inter-relationships are described in this circle of prosperity.



In addition, the City cannot achieve success without partnerships with a variety of sectors: public (state, municipal and regional), business, and non-profit. Examples of these partnerships include mutual aid agreements with adjacent municipalities, rescue services provided by St. Michael's, Memorandum of Understanding with the Winooski School District, Winooski Downtown Partnership, and countless other examples with critical local, regional, and state governmental and non-governmental entities.



ECONOMIC VITALITY

INTRODUCTION

Please see the Economic Development Plan City of Winooski by Camoin Associates for more information, and the Downtown Designation (see Map 4) and Tax Increment Financing District.

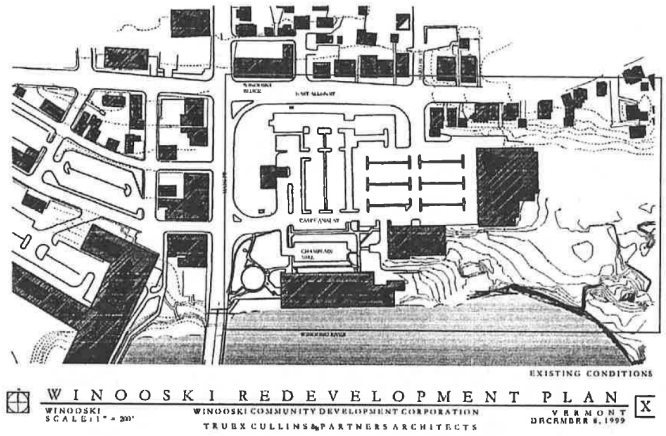
Text largely from Winooski – "The Brooklyn of Burlington". Public Investments Spark Revitalization. VT Agency of Commerce and Community Development. 2018.

With a vibrant grist and woolen mill industry beginning in the late 1700s, Winooski was Vermont's largest center of employment by the early 1920s. At its height, the mills employed 3,000 people. Market forces steadily shifted after World War II. By the early 1950s the last of the area's mills had closed its doors, and the City struggled for decades to reinvent itself.

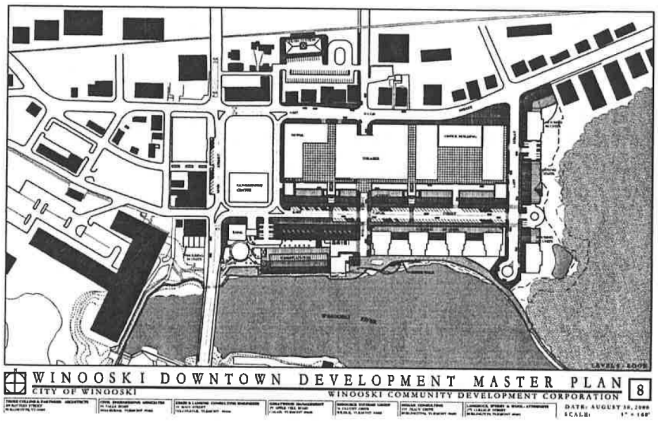
In the 1970s, well-intended urban renewal projects demolished two downtown city blocks for parking. By the 1980s, economic development efforts centered on conversion of the Champlain Mill into a shopping mall but by the early 2000s, the building was largely vacant[xii].

In 2004, the city set forth an ambitious $175 million "Winooski Downtown Redevelopment Project" aimed to infill and revitalize the fragmented downtown area[xiii]. A new downtown in Winooski quickly emerged and brought new housing units to downtown, new businesses in the renovated Champlain Mill building, the Vermont Student Assistance Corporation headquarters, a new campus for the Community College of Vermont and Spinner Place, a 312-bed student dorm.

Site Conditions in 1999[xiv]:



Early Conceptual Plan for the Downtown[xv]:



Winooski now bustles with excitement and activity, with hundreds of new housing units and downtown jobs, a popular farmer's market and thriving night life. "The leaders and residents of Winooski had the courage and foresight to take risks in imagining what Winooski could become," said former Mayor Seth Leonard. "Our hard work is not finished, and continued support from the leaders and residents will be needed as we build on the strong foundation that was established and work towards our bright future." [xvi]

Photo from Downtown Winooski

The revitalization of Downtown could not have happened without State Downtown Designation, financing offered by the Department of Housing and Community Development and TD Bank, funding from the Vermont Agency of Transportation, and the creation of a Tax Increment Financing (TIF) District[xvii].

The City has also worked on improvements in other parts of the City as well. In the Gateways, the vision established by a robust planning process was codified into Form Based Code zoning in 2016. Private investments and improvements have already been made on these corridors. Public infrastructure improvements in the Main Street corridor have been supported by the City by the passage of a bond vote in May 2018 to finance reconstruction with accommodations for vehicle, bicycle and pedestrians. The City's industrial parks are also important to the economic vitality of the City and Region.

Connections to other sections of the Plan: A vital economy is critical to other aspects of this Plan as it provides a tax base for providing City infrastructure and services, jobs for the region and State, and a healthy downtown with activities for residents and visitors. Also Winooski's natural, recreational and cultural assets and programs add to a quality of life that is attractive to residents and visitors. As an example, river access, nature walks, the Gilbrook Nature Area, as well as proximity to Lake Champlain, are all listed as important assets for the benefit of local and regional residents, as well as visitors in the Economic Development Plan.

ECONOMIC INSIGHTS & KEY ISSUES

A vital economy is dependent on many factors. Winooski is an economic leader in the region and the state from a variety of perspectives:

OPPORTUNITIES

- Resident energy and spirit
- Diversity of population
- Diversity of housing
- Momentum from successful community development projects
- Affordability relative to the surrounding region
- Successful community events
- Access to decision-makers at local and state level
- Vibrant weekend nightlife
- Local and regional educational institutions
- Community-minded employers
- Natural resources and recreation trails, access to Winooski River and Lake Champlain
- Reputation for "young and hip"
- Form-based code to guide growth on community's desires
- Historic and cultural resources

- Vibrant Downtown with an active partnership program (Downtown Winooski), state designation with building improvement tax incentives, walkable and multi-modal transportation hub, exemplary restaurants and many community events and activities for residents and visitors (i.e. farmers market, Waking Windows, Winooski Wednesdays, Winooski Halloween etc).

- A 'get to yes' development perspective in the Gateways to revitalize these corridors, improve walking and biking infrastructure, and address the housing shortage; as well as community support for a bond to improve Main St.

- A welcoming community and a diverse population, including New Americans opening small businesses.

- Businesses with social missions that care for the wellbeing of their employees and the community as a whole (e.g. Twincraft's partnerships with CCV, VT Adult Learning and Working Bridges).

- Staff, elected officials and volunteers dedicated to ensuring that its residents and businesses thrive.

Businesses & Jobs - The businesses that collectively make up Winooski's economy are very diverse, including but not limited to: a life science instrument manufacturer, hockey training center, soap manufacturer, tech industries, reading solutions, local credit union, community college, student financial services, economic support service for women, catering, brewery, a variety of ethnic and award winning restaurants, coffee shop, small businesses with unique/locally sourced products, and

music venue. Specific insights into employment in Winooski as identified in the Economic Development Plan include:

- There were an estimated 4,167 jobs in the City of Winooski in 2016. Job growth within the City was 8% between 2011 and 2016, equivalent to an increase of 299 jobs.
- Local educational institutions have a strong presence in the Winooski labor market. Postsecondary Teachers are the most common occupations in the area by a substantial margin driven by the operations of the Community College of Vermont, as well as University of Vermont in Burlington and St. Michael's College in Colchester, and teaching assistants and administrative staff are employed in higher numbers than elsewhere in the state.
- Outside government, and manufacturing industries, Winooski's strongest industry cluster is in Professional, Scientific, and Technical Services, particularly Custom Computer Programming Services which is nearly 12 times more clustered in Winooski compared to the rest of the United States. This could mean that Winooski will continue to attract these industries.

- Small businesses are crucial to the city's economic vitality as 58% of businesses in Winooski have less than 5 employees and 98% of businesses have less than 50 employees.

For more information on the economic outlook for Winooski residents see the demographic section for income and unemployment statistics.

Looking forward, while many things are going well for Winooski, there are some challenges that will need to be addressed for the City to continue to thrive. Moving forward the City will continue to address challenges identified in the Economic Development Plan. For example, the City will continue working on:

- improvements to wayfinding signage to encourage passersby to stay,
- parking improvements to help people locate and pay for parking more easily
- diversifying the housing stock through continuing to allow more housing and monitoring the diversity of the total stock.

See other chapters of this Plan for further detail on these efforts.

CHALLENGES

- Perceptions surrounding parking
- Perception of difficulty in navigating the downtown core
- Perceptions around the school district
- Need for increased capacity at the city
- Need to maintain diverse housing stock
- Need for a diverse commercial mix to serve and employ residents
- Lack of physical space for business expansion (commercial, industrial)
- Limited multi-modal public transportation connections and bike infrastructure
- Limited space to act as a large, flexible, multi-purpose community meeting spot
- Limited recreation assets for families
- Lack of private daycare facility

In addition, a critical component of maintaining economic vitality is to develop relationships with existing businesses to retain them and assist them with growth; followed by recruitment of new businesses. These concepts are reflected in goals 1, 2, 5 and 6 below. Also included in the goals below are infrastructure and quality of life improvements important to a well-rounded environment for economic vitality and growth.

Last but not least, it is not only important to maintain what is going well and address the existing challenges, but to dream about what could be. The opportunity to expand the cultural and artistic offerings with a dedicated district was mentioned several times by interviewees in development of the Economic Development Plan and this Plan supports this concept.

ECONOMIC VITALITY

Goals / Objectives

For a more detailed list of actions, please see:

The Economic Development Plan for the City of Winooski by Camoin Associates

1 Foster business development retention and expansion by building on regional assets, local resources, and existing business environment dynamics through promotion of available resources and financing opportunities, advancing networking opportunities and commitment of local resources.

2 Diversify and enhance services available to existing residents and business community to address the needs identified in the Economic Development Plan and pursue additional planning initiatives as resources allow.

3 Maintain, manage, and reinvigorate the city's built and natural environment through implementation of high priority multi-modal projects, coordination of utility upgrades with private investment on the Gateways (such as utility and streetscape improvements on Main Street), and work to utilize the recreation potential of publicly owned lands.

4 Support initiatives that enhance residents' quality of life, including aspects of housing, health, accessibility and community spirit. See the Housing and Community chapters for more detail.

5 Target economic development resources towards high-priority industries that demonstrate regional and local employment opportunities such as tech-based companies, specialized manufacturing or entertainment and hospitality offerings.

6 Utilize Opportunity Zone designation to attract and support start-ups, tech industry and commercial and real estate investment.

7 Determine the City's budgetary needs based on additional revenue that may be realized by the end of the TIF period in 2025 and identify programs that may be supported by this additional revenue.

8 Establish and implement a wayfinding plan to encourage those driving through to stay and visit the City's restaurants, bars, parks and cultural offerings.

9 Pursue an Arts/Cultural District as described in the Economic Development Plan.

MUNICIPAL INFRASTRUCTURE

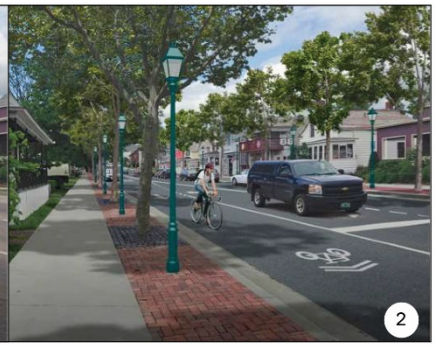
INTRODUCTION

Please see these Plans for a more information:

- *City of Winooski Transportation Master Plan by VHB*
- *Downtown Parking Plan by Desman Design Management*
- *2017 Chittenden County Multi-Jurisdictional All-Hazards Mitigation Plan and the Winooski Annex*
- *Winooski Main Street Revitalization Project by VHB*
- *Green Mountain Transit NextGen Plan*
- *Winooski online map includes municipal infrastructure and utility information*

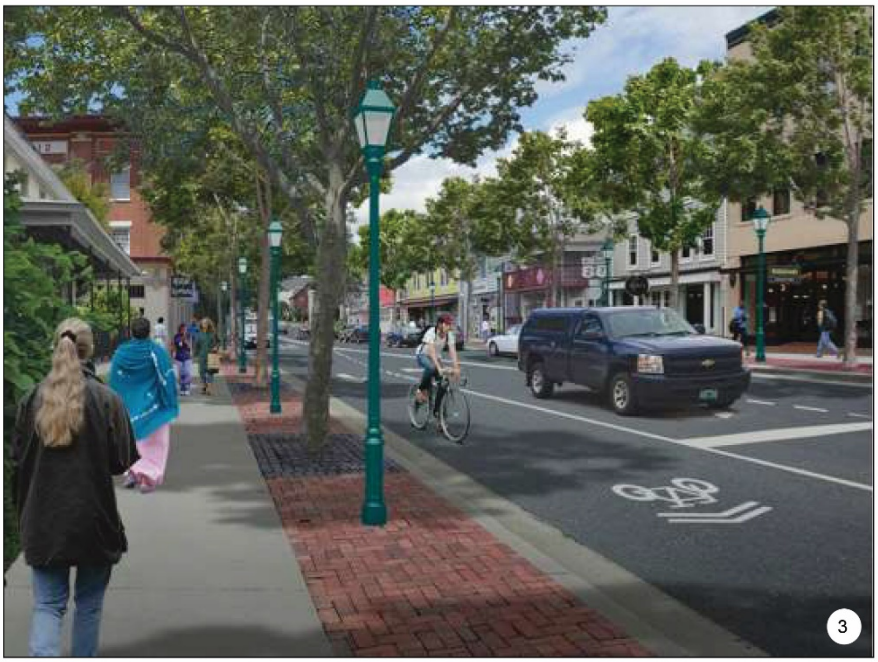
With the greatest urban density in Vermont, Winooski is an excellent model of urban sustainable living. The city has much of what newer cities hope to achieve – walkability, transit access, a thriving downtown and infrastructure to support it. There are challenges that come with that success and the age of the city's infrastructure and built environment. Winooski will continue to be a model through infrastructure and placemaking improvements.

View looking north, just above Spring Street. Wide lanes, narrow sidewalks, poor street trees.



Same view with public infrastructure investments: proper travel lane widths, wide sidewalks, and unifying street trees and lights.

The City's infrastructure is foundational to the success of the other elements of this Plan. Only with adequate water, wastewater treatment, stormwater management and transportation access can businesses thrive and grow, can housing be maintained, improved and supported, and can people be safe and healthy. The vision plan for Main Street developed in preparation for the Form Based Code, and as seen here, encapsulates the importance of the infrastructure as a support network for businesses, housing and healthy behaviors.



Vision Plan: Main Street reclaimed as a comfortable public realm and excellent place for living, working, shopping and dining. The sense of enclosure provided by the buildings and street trees allows the people and businesses that inhabit it to make it their own and will identify this place as uniquely Winooski.

INFRASTRUCTURE INSIGHTS & KEY ISSUES

Transportation

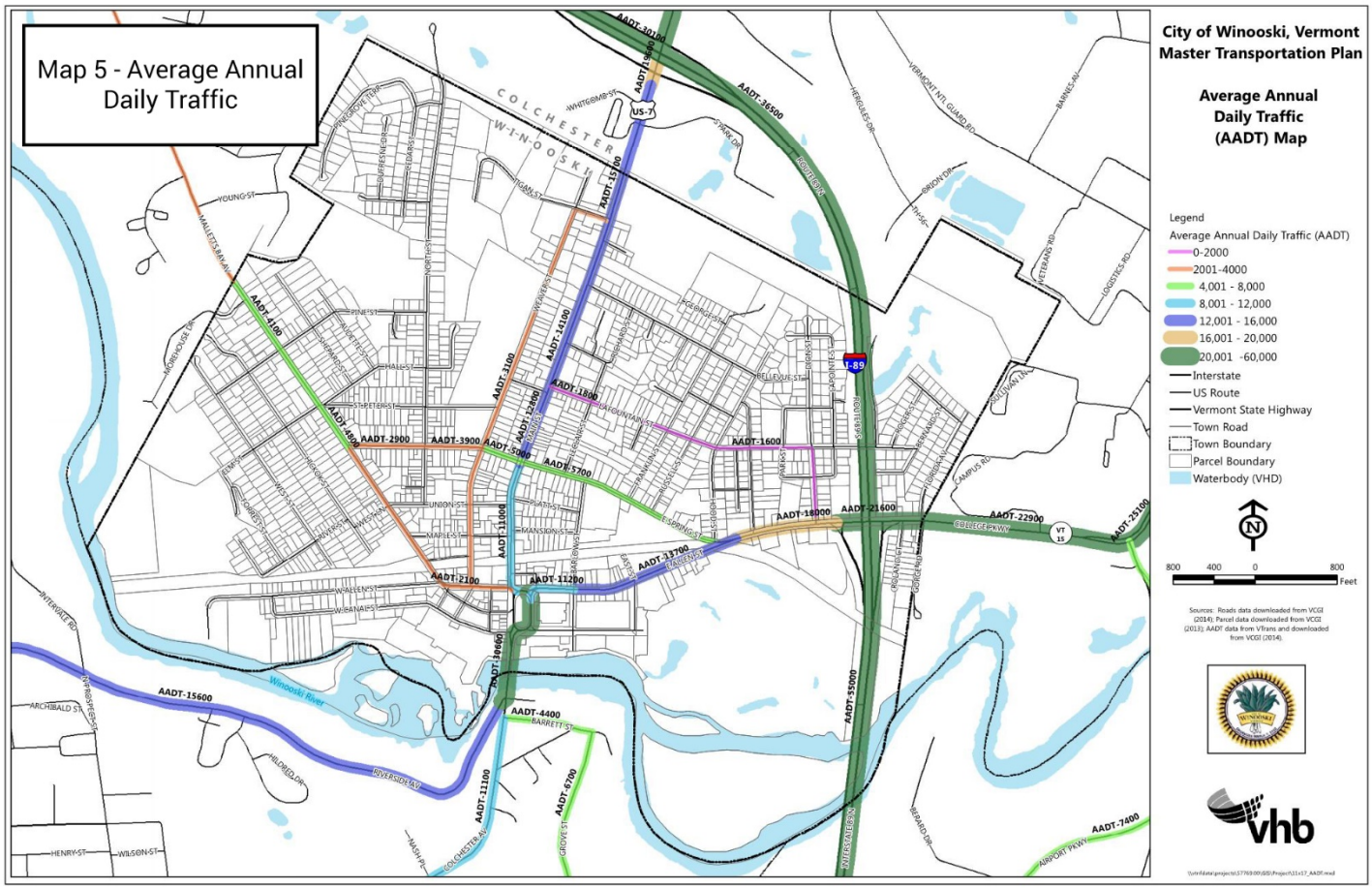
Winooski has a largely urban form, with a downtown core, major Gateways from each direction, and a grid street network serving its diverse neighborhoods. Connecting these neighborhoods is a fairly complete sidewalk network and several streets marked for bicycles. Winooski's density also provides the opportunity to serve both the residents and employees of the City with public transit. Within this context of a dense land use pattern and mature transportation network, Winooski can enhance the existing transportation system, making connections fully multimodal, and ensuring a safe and efficient system overall. Improvements to walking and biking infrastructure will help the City achieve goals of connectivity, relieve pressure on parking and road congestion, and reduce energy use from transportation. For more information on Winooski's transportation system and actions see the Transportation Master Plan. [xviii]

While commute trips are only a subset of the total trips people make on Winooski's transportation network, it is helpful to get a sense of what mode people use to make these trips. Most commuters drive alone to work. While there have been national and county-level trends of lower transit use, likely because of lower gas prices, the data below indicate consistency (considering the margins of error) over time in Winooski. See the transit section below for actual 2015 transit ridership. The margins of error are too high on bike commuters to draw any conclusions. Winooski has seen an increase in those working at home which is consistent with national trends.[xix]

Table 3. Commute Mode of Winooski Residents

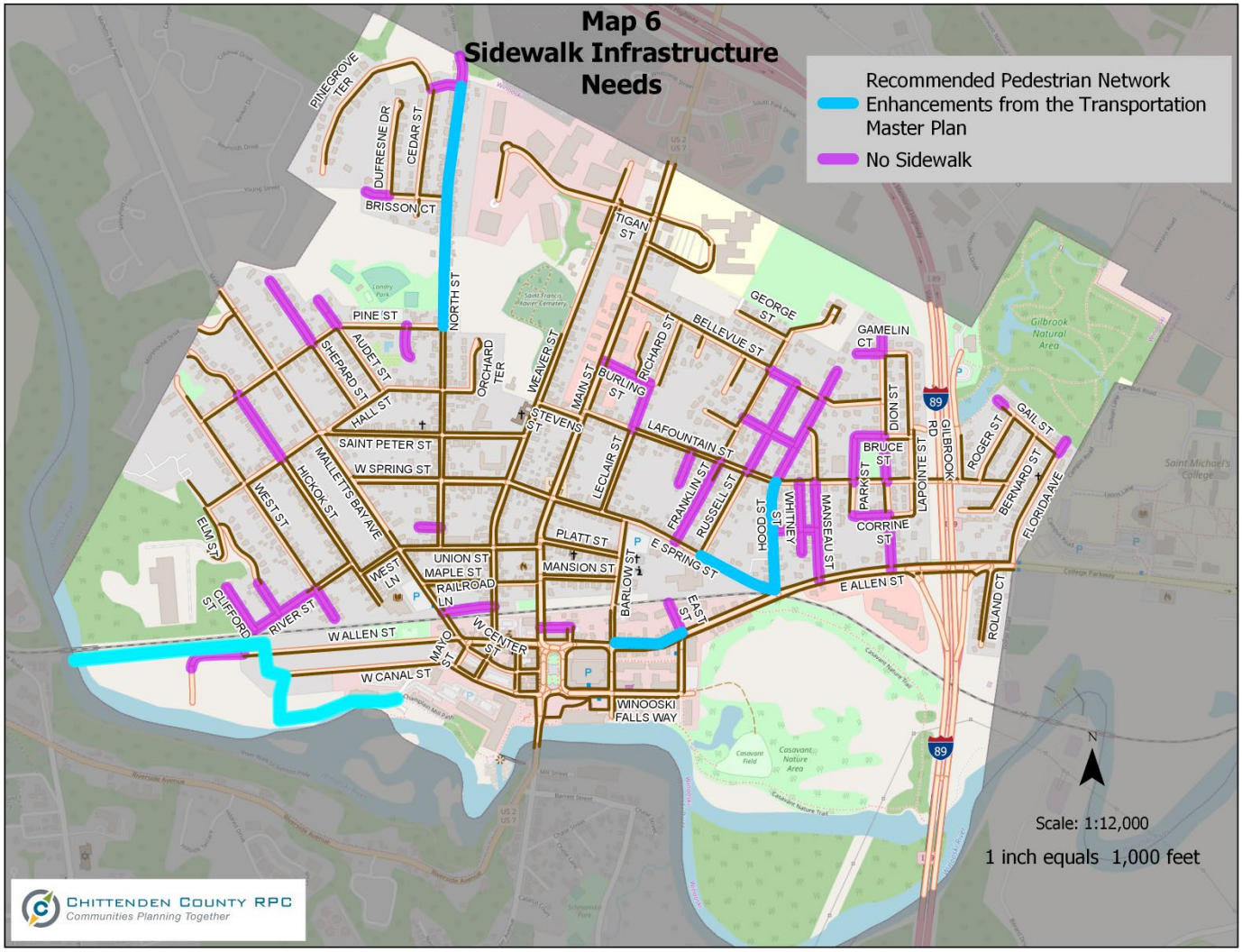
	2011	Margin of Error	2016	Margin of Error
Workers 16 Years and Over	4,085	+/-287	3,835	+/-291
Drove Alone	72.7%	+/-5.8	65.0%	+/-4.9
Carpooled	9.7%	+/-4.2	9.6%	+/-3.2
Public Transit	6.4%	+/-2.2	8.6%	+/-2.7
Walked	5.3%	+/-2.3	6.5%	+/-2.8
Biked	2.4%	+/-1.9	1.5%	+/-1.1
Taxicab, motorcycle, or other means	0.8%	+/-1.1	2.9%	+/-2.1
Worked at home	2.7%	+/-1.5	6.0%	+/-1.9

Source: 2007-2011 & 2012-2016 American Community Survey 5-Year Estimates



This map shows how much traffic moves through Winooski's roadway network, clearly identifying the significance of these roadways to the region. Maintenance of this infrastructure, as well as improvements to it for safe walking and biking and placemaking is a critical component of this Plan.

Biking & Walking - Over 50% of respondents to the Transportation Plan survey identified bike lanes and paths as a top issue or need the City should address in the next 5-10 years, followed by sidewalks/crosswalk improvements. The Transportation Master Plan includes detailed information on current conditions of both bike and pedestrian facilities. Bicycle infrastructure on major roads and corridors is lacking, and improvements should be made in conjunction with traffic calming and streetscape improvement projects on both Main Street and East Allen Street. To help identify the improvements needed for walkability, the following map includes pink street segments that have no sidewalks on either side of the street, and the blue segments are prioritized sidewalk improvements from the Transportation Master Plan. The goal for this plan is to address the priorities identified in the Transportation Master Plan and include a sidewalk on at least one side of every street.



Transit - Winooski is currently serviced by two Green Mountain Transit (GMT) bus routes: the #2 and #9; and has 30 transit stops. April and June 2015 GMT data indicates approximately 585 passengers board or get off GMT buses in Winooski on an average day. Of these daily riders, approximately three out of every four passengers utilize one of the six bus stops shown here[xx].

Stop Location	Weekday Ridership		
	Ons	Offs	Combined
Champlain Mill (mill side)	94	264	358
Champlain Mill (Spinner Place side)	231	43	274
Abenaki Way @ CCV	33	69	102
Abenaki Way @ Opposite CCV	31	13	44
Tigan St. @ Weaver St.	28	28	56
Main St @ Normand St	16	71	87

GMT has conducted an evaluation of their current system and identified improvements to the system. The analysis and approved 'cost neutral scenario' improvements are included in the NextGen Transit Plan; and GMT anticipates beginning to implement these changes in the Summer of 2019. The tables below describe the current service levels for each route and the changes proposed in the Plan (note under the Route 2 proposed

changes that this route will be combined with Route 6). While the NextGen Plan is a relatively short-term plan, the Chittenden County Regional Plan included a long-term transportation scenario in its *2018 ECOS Plan*/Metropolitan Transportation Plan which includes a longer-term plan for Route 2 to run at 15-minute headways.

Table 4. Route 2 - Current and Proposed Service Levels under the NextGen Plan

	EXISTING		PROPOSED
	Route 2 - Essex Junction	Route 6 - Shelburne Road	Combined: 2 Essex-Shelburne via Downtown
Span of Service			
Weekday	5:45 AM-12AM	6 AM-11:20 PM	5:30 AM-11 PM
Saturday	6 AM-12 AM	6:15 AM-8:20 PM	6:30 AM-10 PM
Sunday	8 AM-9:15 PM	No Service	8 AM-7 PM
Headways (mins)			
Weekday			
AM Peak	15	30	20
Midday	30	30	20
PM Peak	15	30	20
Evening	30-80	60-75	30-60
Saturday	30-75	60	30
Sunday	75	No Service	60

Table 5. Route 9 - Current and Proposed Service Levels under the NextGen Plan

	EXISTING	PROPOSED
	Route 9 - Winooski	Route 9 - Winooski
Span of Service		
Weekday	6:45 AM-7 PM 11:25 PM-11:52 PM	6 AM-11 PM
Saturday	6:15 AM-7 PM	7 AM-9 PM
Sunday	No Service	No Service
Headways (mins)		
Weekday		
AM Peak	30	30
Midday	60	60
PM Peak	30	30
Evening	1 round trip	60
Saturday	60	60
Sunday	No Service	No Service

Transportation generally (access, reliability, cost, etc.) is a challenge for some residents, and despite being in Vermont's biggest urbanized area, it is still difficult to get to jobs, medical appointments, school, and social outings.

Parking

A sign of Winooski's success in revitalizing its downtown is the pressure on parking; while parking management is a challenge, every thriving city struggles with it. A downtown parking study conducted by Desman Design Management[xxi] in 2017 found that current parking supply is adequate to meet needs, and future parking utilization would likely reach 75% in the downtown. Challenges include: fixed obligations on the garage spaces, a lack of parking on the west side of the circle (especially under future conditions), a perception of no parking availability and unclear signage. The City has made great strides in improving the parking management system over the last few years and intends to continue by implementing the following recommendations from the parking study: improved space management in the parking garage, enhanced wayfinding for on-street and off-street parking, explore potential shared-use off-street parking, and common technology with surrounding communities. The City will also work toward additional public parking opportunities where possible.

Wastewater

The City's wastewater treatment facilities include sewer collection pipes, and an extended air wastewater treatment facility. Separation of the sewer collection system from stormwater collection was done in 1974, allowing for effective treatment of sanitary waste before discharge into the Winooski River even during large rain events. The original wastewater treatment facility was constructed in 1970; several substantial upgrades were completed from 1979 through 1998. Currently the collection and treatment system serves nearly 8,600 residences and businesses, and runs at 45% of its flow and load design capacity. Wastewater treatment facilities are one of many contributors to phosphorus pollution in Lake Champlain, and therefore the allowable amount of phosphorus leaving a wastewater treatment plant will be lowered from 0.8 mg/l to 0.2 mg/l in 2020 in accordance with federal and state Clean Water Act requirements. Winooski's treatment plant currently outputs 0.54 mg/l of phosphorus (monthly rolling average), and a capital project will likely be needed to meet the lower 0.2 mg/l output.

Water

Winooski provides safe, clean household water to residents of the City as part of the Champlain Water District (CWD). In 2015 CWD was honored for Excellence in Water Treatment and also in 2014

for having good tasting municipal tap water. CWD is able to maintain this level of quality because the water comes from a clean, deep water source in Shelburne Bay, and because the water is consistently tested to ensure it remains clean and healthy for use by the community.

Stormwater

Stormwater is water that comes from the environment via precipitation. It's important to our overall ecosystem because that water picks up pollutants that will end up in our local streams and eventually the lake if not properly managed. This is a challenge for an urban area like Winooski that has a large amount of paved area, which prevents water from being absorbed into the ground. Also, when strong storms hit, stormwater can flow too quickly, causing erosion. Using Low Impact Development techniques and Green Infrastructure best management practices in the design of new development and construction of major infrastructure improvement projects can help absorb and/or slow stormwater before it causes erosion or pollutes water bodies. Examples include, but are not limited to, rain gardens, rain barrels, pervious pavement, stormwater ponds, infiltration strips and street trees/vegetation.

Keep trees in place

Capture & Re-use Rainwater

Winooski falls within the Winooski watershed, and the state plans for water quality maintenance and improvement through the Winooski Tactical Basin Plan. Winooski's water quality efforts fall in line with this plan, as well as permit requirements. Winooski is subject to an Environmental Protection Agency permit that includes several water quality pollution reduction requirements, including the implementation of the Morehouse Brook Flow Restoration Plan, and reduction of phosphorus from roads. There are 13 outfalls that drain Winooski's stormwater either directly or indirectly into the Winooski River. Of these, 2 outfalls need to be improved to meet municipal road permit requirements. Also under this permit the City works with many other towns in Chittenden County to inform residents about how individuals can impact stormwater; more on this effort can be found

at http://rethinkrunoff.org**.** The website also includes an overview and water quality data collected in Morehouse Brook: http://rethinkrunoff.org/morehouse-brook/.

City Trees

City trees provide ample benefits for the environment and residents from stormwater management, carbon sequestration, wildlife habitat, air filtration, and shading and cooling. A threat, relatively new to the state, is the Emerald Ash Borer. The Public Works Department is planning to update the 2013 tree inventory to help manage the health of the city's trees generally, and to determine if anything should be done proactively to limit the emerald ash borer threat. Approximately 800 trees were inventoried in 2013 (though this was not a complete inventory) and less than 6% of them are Ash trees. They are also planning to develop a tree ordinance to help manage various aspects such as tree planting, removal and maintenance.

Hazard Mitigation

Winooski's All Hazard Mitigation Plan is an Annex to the Chittenden County Plan. The Plan identifies specific natural, technological and societal hazards that impact the City; prioritizes hazards for mitigation planning; and recommends goals and strategies to reduce losses from those hazards. This Plan is incorporated by reference, and specific actions can be found within it (see Section 5.5). An example action is the installation of heat trace line service at vulnerable properties to prevent pipe freezing at homes susceptible in extreme cold.

Energy

To meet state energy goals and limit impact on a changing climate, planning is needed for a major shift away from fossil fuels in the transportation and heating sector to renewable sources of energy, efficiency in all sectors, and an increase in state renewable energy generators. Chittenden County Regional Planning Commission has provided the analysis, targets and maps needed for enhanced energy planning in Winooski. This can be found in the *Winooski Enhanced Energy Planning – Supplement to 2019 Winooski Master Plan* located in Appendix 3 of this document. The state energy goals are ambitious:

- Reducing greenhouse gases by 50% from 1990 levels by 2028, and by 75% from 1990 levels by 2050,
- Weatherizing 25% of homes by 2020,
- Obtaining 90% of energy from renewable sources by 2050, and
- Reduce total energy consumption per capita by 15% by 2025, and by more than one third by 2050

The following changes are needed between 2015 and 2050 to meet the goals described above:

- Reduce total energy use per capita by 39%, but with electricity becoming a larger proportion of total energy use.
- Site 9,762 MWh of additional renewable energy generation to meet the city's low target of generating a total output of 25,633 MWh. Currently, Winooski has 15,872 MWh of renewable energy generation (from the Winooski One dam (it is split between Burlington and Winooski geographically) and rooftop generation).

In addition, the following is a potential pathway to meet these goals, given current technologies.

- Increasing electric vehicles to 89% of light duty vehicles registered in Winooski, and associated electric vehicle charging stations
- Fueling 96% of heavy-duty vehicles with biodiesel
- Weatherizing 100% of homes and 36% of commercial and industrial establishments
- Switching 61% of homes to heat pumps

Some of these pathways are not entirely plausible in the near future based on forces beyond Winooski's control, such as the presence of VT Gas. In addition, Winooski's dense, walkable land use pattern is a much more energy efficient approach to development than suburban sprawl. Looking forward Winooski should continue to be a vibrant city center first and foremost. Therefore, the City balances these needs by calling for solar rooftops on buildings that meet the height allowance in the zoning districts; rather than solar on land or low rooftops that may get shaded with future growth.

In addition, the City will work to educate residents on weatherization programs and continue to be a leader on the transportation sector. For example, Winooski has four electric vehicles in the city fleet thereby reducing greenhouse gas emissions and modeling climate smart behavior in city business; fast charging for electric vehicles in the city's parking garage and at city hall; hosts a Carshare VT car and Greenride Bikeshare. However, more work is needed to improve bike infrastructure, and pedestrian connections.

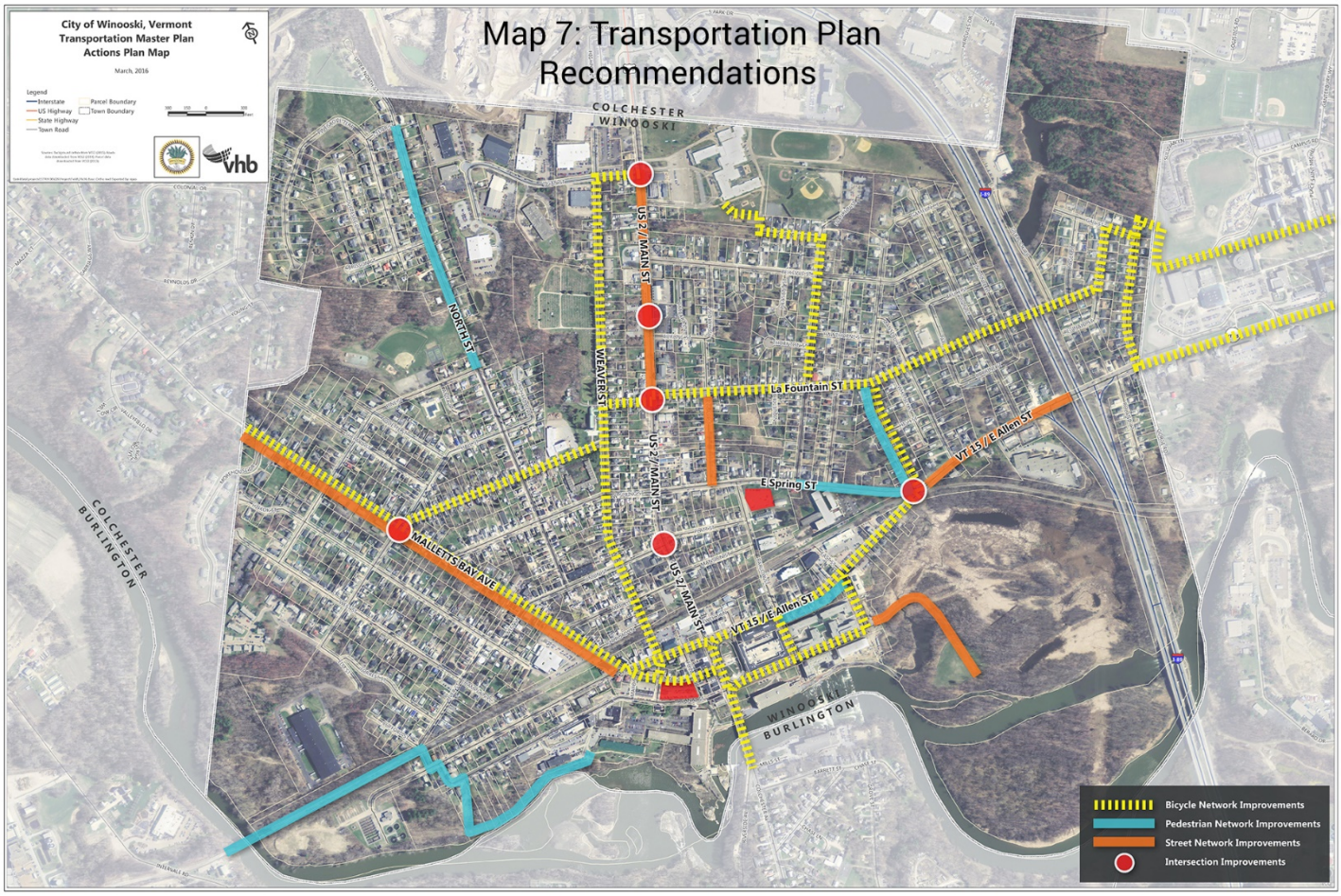
Climate change: Our region's climate is already changing; warmer, wetter conditions are expected to increase this century (Chittenden County Climate Change Trends and Impacts). These changes will be far reaching and have impacts on forests, trees and aquatic communities, water quantity and quality, public health, the economy and our built environment. More intense storms at a higher frequency are expected; and improvements to our infrastructure needs to take these changes into consideration. Preparing locally on a variety of fronts (including but not limited to electric vehicle charging, properly sizing stormwater treatment, emerald ash borer preparation, and promote 'Be Tick Smart' education) is imperative so that the City can be resilient in light of these changes.

Communication Services

Winooski residents are provided with telephone/internet/cable by Xfinity and Consolidated Communications. The Economic Development Plan pointed out that both Xfinity and Consolidated Communications provide download speeds of 10 Mbps for ~$50/month, while Burlington Telecom provides download speeds of 150 Mbps for ~$55/month. In considering ways to improve broadband access in the City, it may make sense to investigate options to connect to Burlington Telecom.

Looking forward, there are excellent opportunities to enhance the existing transportation system, making connections fully multimodal, and ensuring a safe and efficient system overall. This includes pedestrian and bicycle facility improvements identified in the Transportation Master Plan and increased bus service in partnership with GMT.

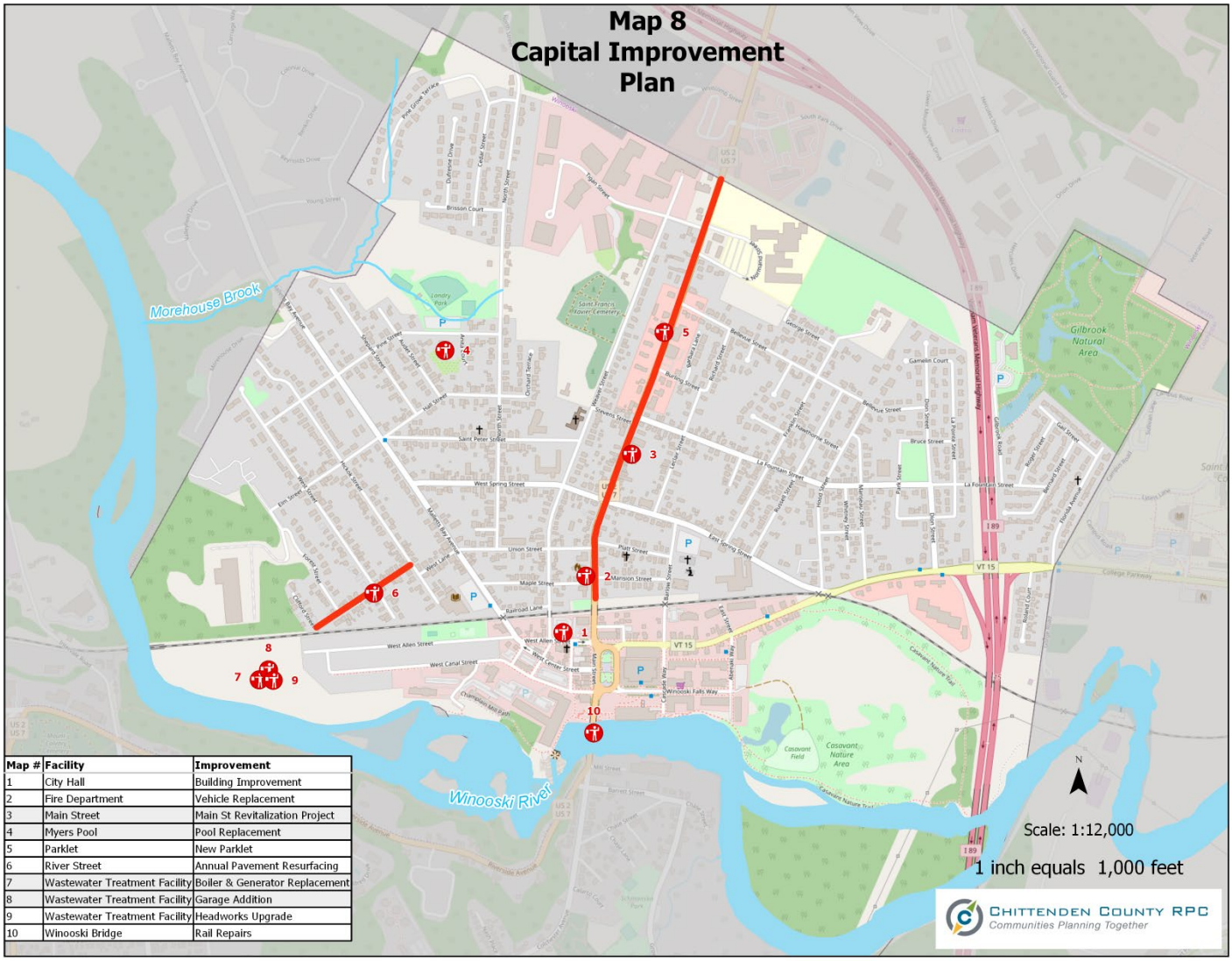
The Transportation Master Plan includes recommendations physically identified on Map 7 below. See the Transportation Master Plan for more details.



While there appear to be enough parking spaces, there are still challenges in finding the parking and other challenges with the system that need to be addressed. Wayfinding for the entire City is also needed and could help the parking perception problem.

Winooski, along with many other partners, is working to improve the water quality of the river and Lake Champlain.

There are efficiencies to be gained in the overall management and operations of the existing infrastructure. The City will continue to utilize technology to help better plan for operations and maintenance, as well as capital improvement projects. The following Map 8 includes the capital projects in the 2019 Capital Improvement Plan.



Map #	Facility	Improvement
1	City Hall	Building Improvement
2	Fire Department	Vehicle Replacement
3	Main Street	Main St Revitalization Project
4	Myers Pool	Pool Replacement
5	Parklet	New Parklet
6	River Street	Annual Pavement Resurfacing
7	Wastewater Treatment Facility	Boiler & Generator Replacement
8	Wastewater Treatment Facility	Garage Addition
9	Wastewater Treatment Facility	Headworks Upgrade
10	Winooski Bridge	Rail Repairs

Last, but not least, addressing the wants and needs of the community in a way that the residents and businesses can afford is critical. Winooski is dedicated to pursuing a variety of funding mechanisms to pursue the goals identified in this plan. The city will continue to pursue grants, and explore mechanisms such as development impact fees and a stormwater utility. In addition, the city will prepare for the additional revenue that may be realized by the end of the Tax Increment Financing period in 2024 and identify programs that may be supported by this additional revenue.

MUNICIPAL INFRASTRUCTURE

Goals / Objectives

The goals and actions in the following plans are hereby incorporated by reference into the Master Plan. Please see these Plans for a more detailed list of goals and actions:

- Winooski Transportation Master Plan by VHB
- Downtown Parking Plan by Desman Design Management
- All-Hazards Mitigation Plan
- Winooski Main Street Revitalization Project by VHB
- Enhanced Energy Supplement

1 Utilize technology/data collection to better manage city infrastructure. Preserve and maintain the existing city infrastructure system, and utilize technology/data collection to inform this work.

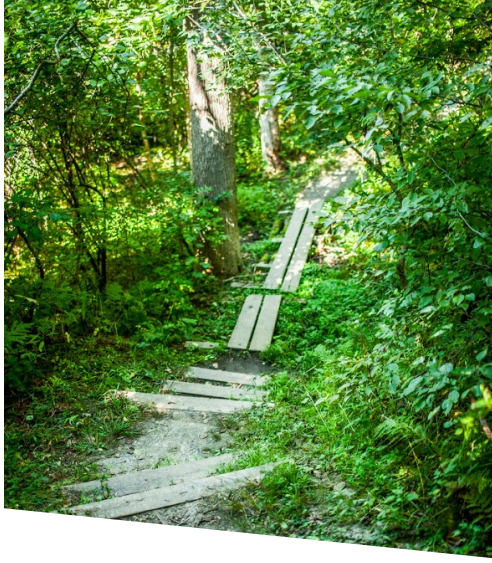
2 Increase opportunities for stormwater treatment through low impact development (e.g. reduce impervious surfaces and stormwater disconnection) and green stormwater infrastructure (e.g. planter boxes, rain gardens and green roofs) practices.

3 Provide reliable and safe services, clean water, treated wastewater and stormwater management

4 Improve and maintain streets and sidewalks for safety and convenience for all users at all times of the year. Every street in the City will have at least one sidewalk starting with the priority segments identified in the Transportation Master Plan.

5 Pursue and support alternative energy generation, efficiency and weatherization programs, and electrification of the transportation fleet with the community and in line with the State's Comprehensive Energy Plan goals.

6 Maintain a healthy and diverse urban forest.



7 Maintain safe, connected, and accessible natural areas as an asset for wildlife, flood resiliency, recreation and community connection to the environment.

8 Enhance pedestrian, bicycle, and vehicular connectivity within Winooski and to adjacent towns, starting with priorities identified in the Transportation Master Plan. Improve transit access, frequency and reliability.

9 Work to implement high priority programs of the parking plan and the transportation master plan related to parking and parking management to mitigate parking demand by promoting alternative modes of transportation and initiatives to better manage public parking assets.

10 Coordinate utility improvements in conjunction with municipal infrastructure improvement projects to add green spaces and underground utilities when possible.

11 Support access to the best telecommunication services for the benefit of tech businesses and residents.

12 Identify, preserve and retain the City's historic buildings and resources.

SAFE, HEALTHY, CONNECTED PEOPLE

INTRODUCTION

For more details see:

Winooski Police Department Community Policing Strategic Plan FY2019 – FY2021

Winooski School District Continuous Improvement Plan

Winooski School District & City of Winooski MOU

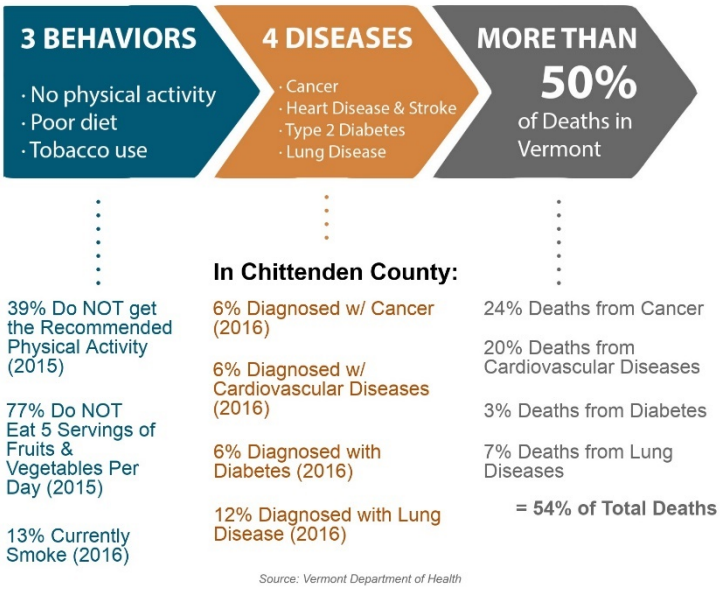
Winooski's people are its greatest asset. In Winooski's successful revitalization of late the influx of residents and visitors is a benefit; these residents and visitors bring fresh ideas and resources and create great opportunity for the city. Winooski strives to protect the health of its people and natural environment; nurture safe and healthy services and places; and foster community connections.

The health and overall well-being of people significantly determines a city's resiliency. The concept of community is fundamental to people's overall quality of life and sense of belonging. Strong communities have fewer social problems, are more adaptable in the face of change and when they do experience difficulty, they have internal resources to draw upon. There is no greater resource to invest in than a community's people.

The other chapters of this Plan support the goals of this chapter by calling for businesses to serve the community; to maintain a solid tax base to help provide services; develop and maintain infrastructure to create a healthy built environment; and adequate housing for all residents.

Public Health

The *health* of a population is inextricably linked to the design of the community in which it lives, works and recreates. The design of a community can support positive health behaviors, food access, impact social circumstances and access to healthcare.



A change in only three behaviors can have a major influence on health. Many efforts are underway to keep Vermonters healthy to prevent chronic disease and lower health care costs. These include the Vermont Department of Health's 3-4-50 campaign as shown here with statistics from Chittenden County, although not available Winooski data would not be statistically different.

Winooski is an active participant in addressing the 3 behaviors identified above. The Parks and Recreation Department hosts numerous exercise classes, and the city is working toward improving bike and pedestrian facilities to increase access and opportunities for physical activity. The city hosts community gardens, and meal programs, as does the Winooski School District (see below for more detail) to provide residents with food for a healthy diet. The Winooski Partnership for Prevention works on substance abuse prevention through education, policy and data sharing. As an example, they work to assist the community in reducing the amount of youth-targeted alcohol and tobacco messages and thus reduce youth consumption of these substances. There may be a role for the City, either through zoning regulations or liquor licensing, to help limit alcohol and tobacco advertising to youth.

Also, while alcohol consumption is the most prevalent form of substance abuse in Chittenden County, there has been an increasing effort and concern regarding opiate abuse over the last five years or so. The Chittenden County Opioid Alliance, which the Winooski School District and Police Department are a part of, has a mission to strengthen a coordinated system of individual and family-centered prevention, treatment, and recovery supports to improve public health and safety in order to minimize the negative impact of opioids in our community. While there have been treatment improvements, much more work needs to be done on prevention and this includes mental health. The University of

Vermont Medical Center's 2019 Community Health Needs Assessment for Chittenden County finds that emergency room visits for behavioral health has increased from 2015 to 2017; and Winooski accounts for the highest rate of emergency room visits for mental health patients in 2017.

Healthy Food Access

Winooski benefits from a seasonal farmer's market, community gardens, meal programs for children and seniors, and a few small specialty retail markets; however, there is limited access to affordable and nutritious food and no general grocery store within the City limits. The grocery store in Colchester is not easily accessible by walking due to the highway interchange; the Exit 16 improvement project will include improved pedestrian facilities once constructed though this project is currently under appeal. The City and the Winooski School District (WSD) both include and support programs to provide healthy food:

The City provided over 9,900 Meals on Wheels deliveries via the Winooski Senior Center (annually from FY17 Annual Report); and also provides youth meals at the Library and Winooski Wednesdays. The other Community Services Programs subsidize the cost of these meals as the City isn't fully reimbursed (meals cost $3.77, reimbursement is $3.23). The City also runs a community garden program with locations at Landry Park, the Senior Center and the O'Brien Community Center. The WSD provides free breakfast and lunch to all students during the school year and throughout the summer through the Universal Meals Program WSD. In addition, all students who are enrolled in after school activities can receive a free supper. Also, the Vermont Foodbank brings fresh and delicious vegetables to WSD twice a month for school families. There is also a local food bank at the United Methodist Church.

> The cost of the City's youth meal program is an example of a more global challenge the City has with providing programs and services - other Community Services Programs subsidize the cost of the youth meals as the City isn't fully reimbursed (meals cost $3.77, reimbursement is $3.23). Exploration of the efficiency of services, and creative thinking around program development and diverse revenue streams can help. As an example, the Community Services Department is currently conducting a survey to understand use of their programs.

Education

Educational achievement is essential to maintain residents' economic prosperity and wellbeing. The need for education starts as early as 0 to 5 years old to ensure readiness for school; and extends to life-long learning opportunities that can provide residents' need for self-fulfillment and self-determination.

Students who attend Winooski School District (WSD) benefit from an education rich in cultural competency and diversity in thought that is unprecedented in Vermont. Over 20 languages are spoken in the Winooski School District. The major languages are English, Nepali, Somali, Arabic, Swahili, French, & Burmese. The WSD section of this plan highlights the wealth of programing and progressive curriculums available in the school district. While there is a high rate of turnover in the student population, this is largely a result of high mobility of low-income populations. Students who remain in Winooski School District consistently (e.g. grades 6-12) achieve standards at a high rate.

Outside of the Winooski School District, the City is well served by educational institutions: St. Francis, Center Point, Community College of Vermont, and associated services like Vermont Student Assistance Corporation (VSAC). In addition, St. Michaels and University of Vermont are just outside of the City. These education facilities as well as City-run facilities like the O'Brien Community Center are shown on Map 10 in the Community Connections section.

Child care is a major issue in the City and region due to the importance of preparing young children for school and enabling parents to work. There is a shortage of child care, and when parents can find care it is quite expensive. Winooski has 490 children under the age of 5[xxii] and only 94 day-care slots (10 infant, 9 toddler, and 75 pre-school) to serve those children. Not surprisingly there is very little vacancy in the programs. Only 3 vacancies[xxiii] were reported in April 2018 by Child Care Resource. There is also a UVM day care center in Winooski which helps, however it isn't included in the above numbers because it is only available to UVM employees rather than Winooski residents as a whole.

Table 6. Average Cost for Weekly Child-Care Tuition in Chittenden County, 2017[xxiv]

Type of Program	Children younger than 2 years of age	Children 2 years of age	Children ages 3-5 years
Child Care Center	$247	$244	$241
Family Child Care Home	$191	$186	$187
Private Preschool	N/A	N/A	$238

The City of Winooski is helping to address this shortage through the Thrive After School Program. The program has improved its quality rating for the past two years and is now a three-star rated child care program. The program currently serves 48 students after school and is intending to expand to include between 20 and 50 new slots for infants, toddlers and pre-school children.

Parks

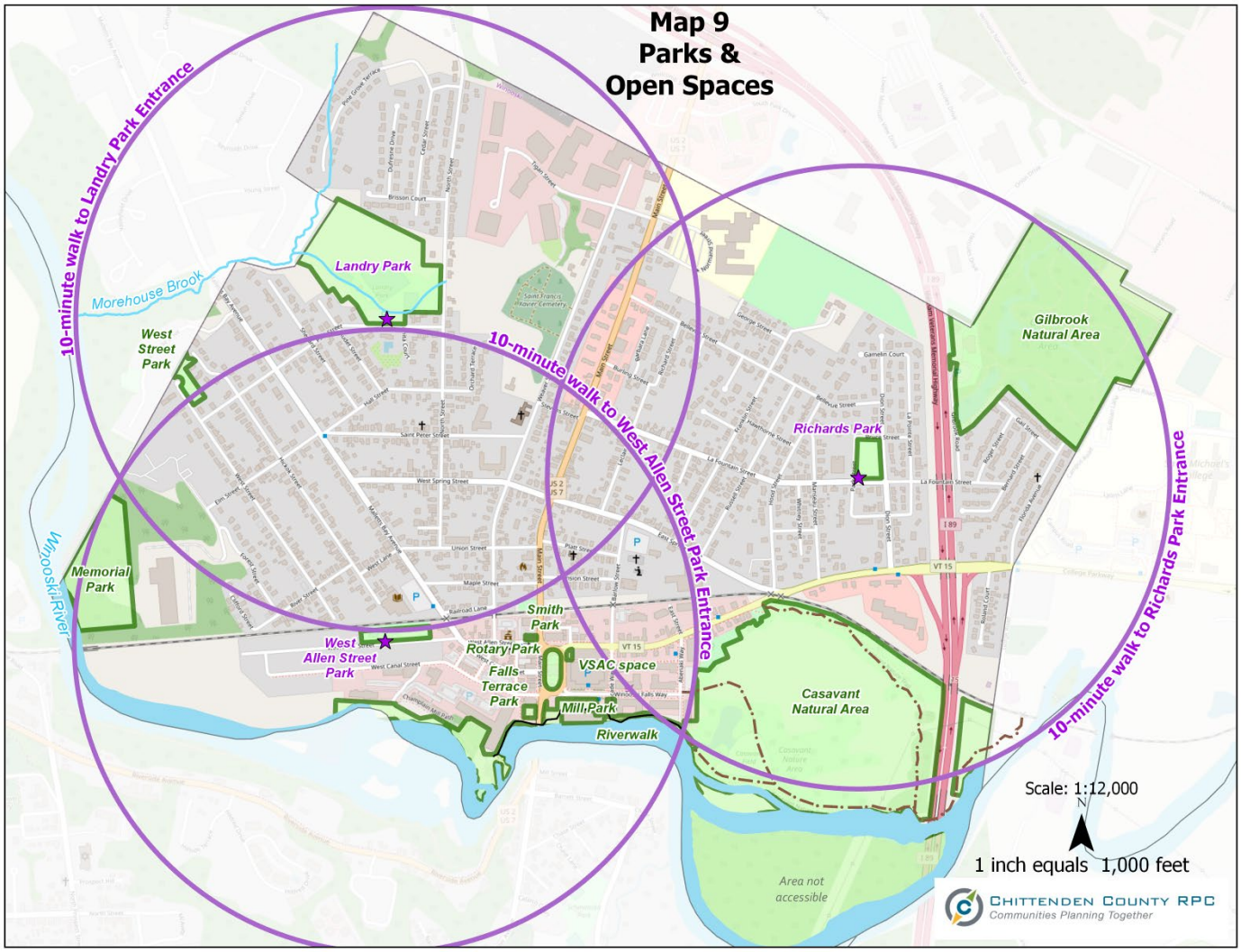
Key to a vibrant, engaged community is access to *arts, culture, and recreational* opportunities. Both structured and unstructured recreational activities, especially outdoors, provide opportunity for physical activity, social development, and appreciation of the natural environment. In addition to enriching residents lives personally, arts and cultural experiences -- in the form of public events, performances, exhibitions and classes – provide community connections as residents learn and have fun together.

Winooski benefits from 22% of the land area in parks and natural areas (213 acres out of a total of 968 acres). The benefits of these resources are multi-faceted and include but are not limited to the following: provide wildlife habitat and connections (as an example the Casavant Natural Area which includes land adjacent to and an island within the Winooski River is a significant habitat area), hold carbon to protect against climate change, slow and filter rainwater so that it is cleaner when it enters the Winooski River, provide shade for resting and cooling, and can contain archeological resources (as an example there are artifacts of Winooski's earliest residents in Memorial Park). These areas include:

Parks and Open Spaces –natural areas (Casavant, Memorial Park and Gilbrook), recreational facilities (Landry Park, West Allen Park, Richards Park, Casavant Meadow) and sitting parks (falls terrace park, Riverwalk, public space in front of the Champlain Mill, VSAC space, and rotary park).

Connected Places in Between –green spaces, natural resources (Winooski River and Moorehouse Brook, habitat, wildlife, etc.), and urban tree canopy.

All Winooski residents are within 10 minutes of a park or natural area 'as the crow flies' as shown in Map 9, however it can be challenging to access some of these parks due to barriers such as dead-end streets, the interstate, fences, etc. In addition, the western side of the City is isolated from available public spaces. While Memorial Park is on the west side there is limited access, many residents don't know it is there and it can feel unsafe. Map 9 shows the locations of the City's parks and the main entrances.



The Community Services Department intends to undertake a Parks and Open Space Master Plan of current and future facilities (including wayfinding, locations for dog owners, programs, etc.), with specific attention to activating the public space in front of Champlain Mill and Casavant. Other future improvements include replacement of the Myers Pool at Landry Park, which voters passed a bond vote for.

LOOKING TOWARD NORTH EAST

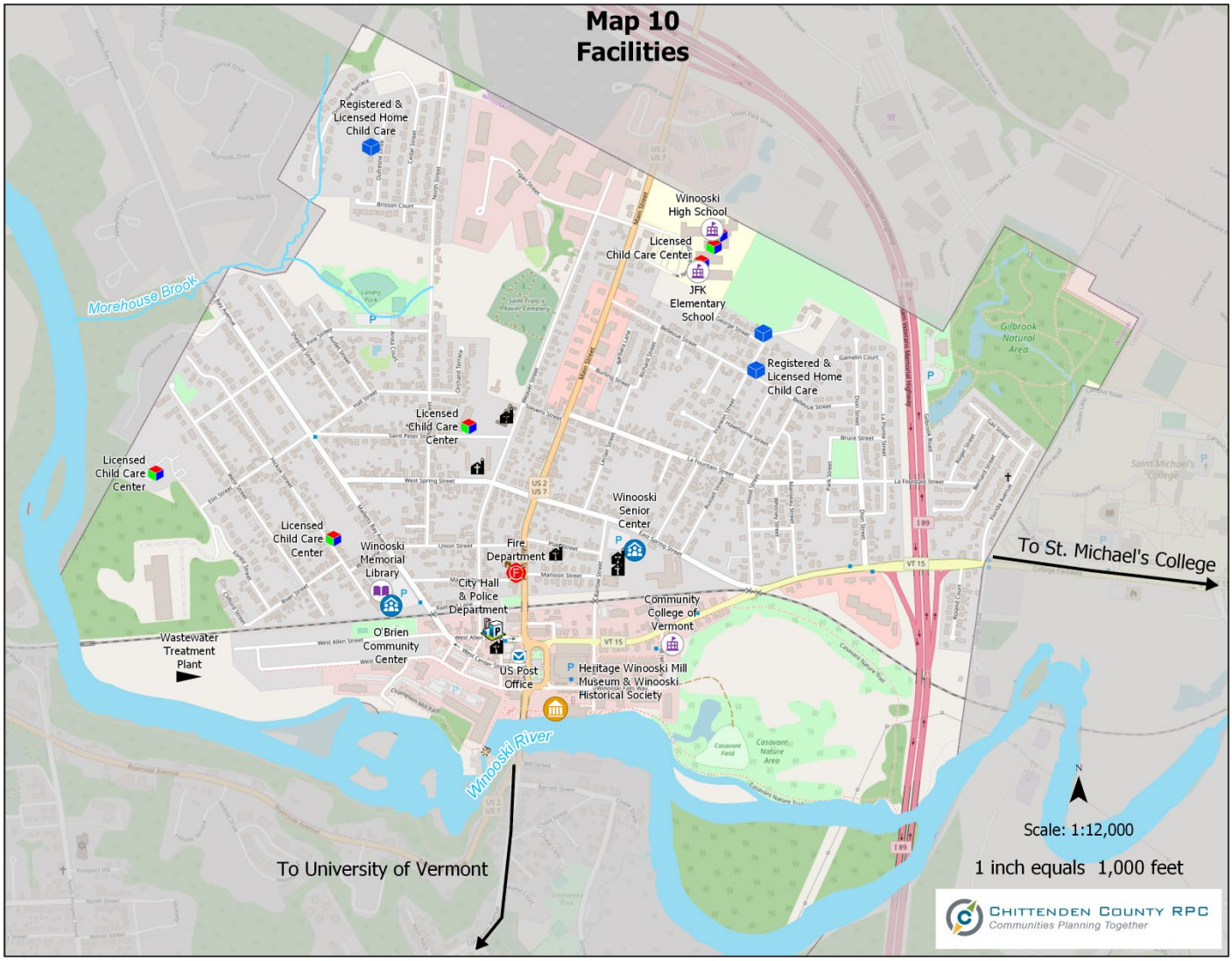
MYERS MEMORIAL POOL RENOVATION

March 2018

Community Connections/Programming

The culture of Winooski is steeped in caring for each other and creating opportunities for community connections. This can be seen through many programs run by organizations throughout the City – monthly community dinners, Winooski Wednesdays, Winooski Halloween, Waking Windows, farmer's market, etc. For city events, these happen as the result of an extremely dedicated staff and volunteer base. In FY17-18, 156 volunteers served almost 6,000 hours at an estimated value of just over $100,000 to assist the city and its residents. It is important to provide the physical spaces where residents can interact: parks, O'Brien Community Center, senior center, community associations such as the Somali Bantu Community Association of VT, markets, etc. These are the places where residents can be social, communicate and care for each other.

Recreation programs in Winooski provide opportunities for residents of all ages and backgrounds to learn and connect with each other in the community. These programs are also extremely important to community identity and cohesion, to quality of life, and to the local economy. Recognizing this, the City is embarking on a planning process to set a short-term recreation program and event schedule for the next year or two as well as establish a process for staff to explore new program opportunities that respond to market demand, current industry trends, and community engagement input over time. The program is successful already with over 2,000 residents participating in FY17 and will likely grow through this recreation master planning process.



Another important organization that brings the community together is the Winooski Memorial Library. It enriches lives, builds community, and fosters success by bringing people, information, and ideas together. The library served 14,092 visitors in FY17.

Last, but certainly not least, being the most diverse community in Vermont, Winooski strives to increase gender and racial diversity on Staff and Boards to more accurately match the gender and racial make-up of Winooski residents. As an example, the Winooski Police Department encourages and looks to diversify their workforce every time there are open positions. They've also started a new American mentoring program over the past year for those interested in law enforcement. While, some positions are difficult to fill due to a lack of interest or a lack of qualifications the City encourages participation from all residents. It takes an extraordinary amount of volunteer effort to make this great City what it is.

Safety

Last but not least, *municipal safety services* are critical to the city's quality of life. Increases in the resident and visitor populations have been great to the City but come with increased demand on police, fire protection and code enforcement (as well as other services like rescue that are not directly provided by the City). Determining the needs of these departments to adequately respond to the increased demand, and planning for these needs will help create a strong and resilient city. These departments take their role of serving the community to heart – they not only ensure the safety of the residents but care for their wellbeing.

Outside of the day to day operations, there are also regional conversations and services that Winooski participates in such as the DEA Task Force, Domestic Violence Investigator to the Chittenden County State's Attorney Office and the Chittenden County Public Safety Authority. As well as regional opportunities to help address the increased demands on the departments. As an example, Winooski, partners with the Howard Center and South Burlington, Colchester, Williston, Essex, and Shelburne on the Community Outreach Program. In the participating towns, outreach specialists work in partnership with local law enforcement to respond to individuals with unmet social service needs, often due to mental health or substance use issues. The Winooski Police Department is also instituting, for the first time in Vermont, Integrating Communications Assessment and Tactics (ICAT) – a de-escalation training as a joint project with Burlington and South Burlington.

To continue to serve the community effectively, the following needs have been identified by the Public Safety Commission for each of the three departments:

Police have a need for: 1. Adequate staffing to maximize the opportunities for proactive policing, allow time for professional development, and maintain a high level of readiness to respond to emergency situations; 2. Adequate facilities and workspace for the wellbeing of officers and

In FY17 these departments:

- *Served 140 Community Justice Center clients with 700 hours of volunteer time*
- *Responded to 387 fire calls*
- *Inspected 644 residential and commercial units*

residents who need to interact with the police in times of crisis; and 3. Continued support for community justice and offender reintegration.

Fire services has a need for: 1. Building human capital to ensure adequate coverage by potentially joining with another district and hiring City Staff for other full time positions, such as code enforcement, that are also willing to serve as fire fighters; 2. Develop a robust combination of training opportunities and pay incentives to help with recruitment and retention of fire fighters; 3. For capital needs maintain and expand mutual aid agreements, and develop a capital replacement program.

Code enforcement has a need for expansion of cross trained staff that can be both code officers and fire fighters. Above all, all of the services will foster an environment of respect and professionalism within the departments and toward the public.

WINOOSKI SCHOOLS
We are the future.

Winooski School District (WSD) is a PreK through 12 learning system that is housed in one educational campus. As reported in the June 2018 school newsletter 884 students attended JFK Elementary and Winooski Middle/High School (WMHS). The District's Ends Statement reads: "All students will graduate from WSD college and career ready at a cost supported by a majority of the Winooski community. WSD students will lead healthy, productive and successful lives and engage with their local and global community."

WSD's teachers and staff value and celebrate being the most richly diverse school district in the state. High school reading teacher Kari Maughan, with help from students and colleagues, quilted the school's "All Are Welcome" flag. WMHS Co-Principal Wheeler describes it as "more than a slogan, this is a fundamental value of our schools and motivates us day in and day out[xxv]."

The dedication and innovation of the WSD staff to increase student achievement, address the needs of a diverse student population, and allow students to thrive in an engaging environment with high expectations, can be seen in this small sampling of their excellent work and programming:

Student-Centered, Personalized and Project-Based Learning: This approach prepares all of our students for a future of blending skills, content and behaviors. Elementary students learn to design and manage collaborative projects so when they hit middle and high school they will be ready to tackle student-centered learning opportunities offered through Expeditionary Learning (EL), the iLab, in individual courses, internships and apprenticeships and, ultimately, earn a diploma that ensures they are ready for the world.

Winooski High School (WHS) Proficiency-Based Graduation Requirements: By 2020 all students will be required to demonstrate proficiency in our six Graduate Expectations (GXs) in order to earn a WHS

diploma: Critical Thinking, Communication, Well-Being, Persistence, Creativity and Culture & Community.

System of Supports: WSD believes in meeting students where they are and helping them to grow academically, socially, and emotionally. WSD has highly-trained teams that help students to grow their literacy, math and social-emotional skills.

School-Based Health Center (SBHC) – Doctors from UVM-Medical Center and Community Health Center of Burlington (CHCB) are at the school two mornings per week to see students for acute illnesses. The SBHC reduces absenteeism, tardiness and early dismissals while keeping students healthy enough to stay in school and continue learning. 390 students enrolled in the pilot year (2017-18 school year).

Winter Transportation Bus Pilot: As requested by Parents & Youth for Change (PYC), the School Board funded 4 bus runs each morning between mid-January and the end of March providing over 700 student rides to school a week. WSD plans to expand this transportation project from December through March during the 2018-19 school year. Photo credit to Dan Higgins.

Julian Portilla, a parent of children in WSD:

> "Our experience at WSD has been quite positive. I have three kids ages 5, 9 and 11 so two in elementary school and one in middle school. The class sizes tend to be small (8-15) so our kids get a great deal of attention from the teachers…. It's been very inspiring to see the ways in which the school has managed to integrate people from all over the world and all over the socio-economic spectrum into the classroom. My children go to school with first generation Americans whose parents come from Africa and Asia and because of that, get exposure to all kinds of cultural variety, several languages and know details about specific parts of the world that I would have never known about otherwise.
>
> …The teachers and administration all seem to be on the same page and share the same values of putting the kids at the center of every discussion and at the center of all the decision-making.

> We've had a great experience in Winooski, our children are very happy at the schools and feel supported and happy with their experiences there…”

For more information see: the WSD’s Continuous Improvement Plan; and the School Newsletters.

SAFE, HEALTHY, CONNECTED PEOPLE

Goals / Objectives

For more information, see:

- Police Department Strategic Plan
- Winooski School District Continuous Improvement Plan
- Winooski School District & City of Winooski MOU

1 Maintain and establish safe and inviting walkable connections throughout the City and to neighboring communities with sidewalks, crosswalks, greenways and streetscape amenities (wayfinding, street trees, sitting areas, lighting).

2 Maintain a vibrant, healthy urban forest in all parts of the City.

3 Maintain and improve the City's parks, natural areas and facilities for exercise and recreation opportunities for all ages and to achieve a goal of having all Winooski residents within an easily accessible 10 minute walk of a high quality park or natural area through development of a Parks and Open Space Master Plan of current and future facilities (including wayfinding, locations for dog owners, programs, etc.).

4 Implement the recommendations from the branding study to improve tourism opportunities in the City.

5 All students will graduate from the Winooski School District (WSD) college and career ready at a cost supported by a majority of the Winooski community. WSD students will lead healthy, productive and successful lives and engage with their local and global community.

6 Winooski residents will have access to affordable, adequate food resources that allows them to make healthy, culturally-responsive eating choices.

7 Winooski will partner with local healthcare providers to support improved access to healthcare services, while also supporting health promotion and education initiatives that promote improved well-being for Winooski residents (i.e. "complete streets", smoke free zones), and support for local health resources.

8 Winooski residents (and their loved ones) who are struggling with mental health issues, substance use or abuse will have access to the comprehensive supports necessary to address their use, and will be able to access those services with dignity. Our community will also focus on substance use prevention efforts.

9 Continue to retain and manage the O'Brien Community Center as a hub for various human and social service resources, while seeking to increase on site programming and make improvements and developments that maximize use of the 32 Malletts Bay Ave property.

10 Focus on enhancing the Library facility to enable increased programming, public gathering space, expanded circulation materials (including non-literary resources), and opportunities to learn. Improve promotion and way-finding to encourage more Winooski residents and visitors to use the Public Library.

11 Conduct routine assessments of the community's programming interests and needs (including public feedback, analysis of changing demographics, and trends in recreation), and use the results to develop a responsive and diverse slate of year-round program offerings including expansion of programs through public and private partnerships, and focus on increased water safety and aquatics programming (through or restoration of Myers Pool or partnerships with other agencies).

12 Ensure that Winooski residents have access to high-quality, affordable childcare options for infant, toddler, pre-school aged and school-aged children.

13 Winooski Seniors (55+) will have access (including transportation services) to programs, resources, and places to gather that empower them for personal independence, healthy aging, social connection, and life-long learning.

14 Improve transportation services for all to enable independence, social connection, and access to necessary services.

15 Improve the City's website and continue to grow an online presence to tell the story of the City and provide the residents with convenient access to the resources they need.

16 Establish opportunities for City officials (elected, appointed and staff) to spend time developing and cultivating relationships with a diverse set of our community.

17 Continue volunteer recruitment and management efforts, with hopes of maximizing the City's strong human capital.

18 Continue to find ways to make Winooski's Municipal Government open, accessible, representative, and participatory (such as opportunities to serve on Commissions).

19 Ensure adequate staffing, training and equipment needed for community policing, fire protection and code enforcement to meet the growing needs of the city.

20 Continue current mutual aid and partnership agreements for other safety services like rescue; and explore making Winooski Dispatch a regional partner.

21 Foster the development of neighborhood identities.

22 Increase gender and racial diversity on Staff and Boards to more accurately match the gender and racial make-up of Winooski residents.

OPENING SEPT. 2019
CASAVANT OVERLOOK
39 Apartments – 1 + 2 BR Starting at $850
SUMMIT PROPERTIES
DAGESSE COMPANY
vhfa
LEASING:
802-497-1740
SUMMITPMG.com

HOUSING

INTRODUCTION

For more information see:

2016 Winooski Housing Needs Assessment

Winooski Housing Commission Documents

Winooski is a popular location for finding a home due to many reasons including its vibrant downtown, community connectiveness, walkability, transit access, and diverse population. Winooski is poised to continue to grow its housing stock – the market is strong (both locally and regionally), the form based code follows an agreed upon vision for the future of the Gateways, and the 'get to yes' permitting system is purposely intended to bring that vision to fruition without a burdensome and timely process typical in Vermont. Also, the Downtown will continue to be built out; and the residential neighborhoods will be largely maintained while allowing for small scale increases in homes (i.e. accessory dwelling units and cottages).

A key point of pride for Winooski is its affordability for all; and there is a strong desire to maintain the income diversity that currently exists among its residents as it grows and revitalizes. The Housing Commission has been monitoring this and has established housing targets per income level to ensure an equitable balance into the future and is considering the introduction of policies and ordinances to require housing remains affordable in accordance with those targets.

Through revitalization of the Gateways and associated infrastructure improvements; stormwater, utilities, walking and biking infrastructure, trees and placemaking elements will be addressed ensuring a more active and vibrant streetscape.

The city has also improved the software systems used to gather rental property data, and this will help with overall improvements to the safety and quality of the rental housing stock.

A note about "affordability":

The term "affordable" is used in a variety of contexts and can be very confusing. Generally, housing is affordable to a person if the housing costs are 30% or less of their income. All residents want their housing costs to be this low, if not lower. A more specific use of the term affordable, comes into play when housing costs are subsidized. The level of affordability in this more specific sense varies depending on the type of financing program used to subsidize the housing or the policy requirements. Typically, these programs offer housing for those making under 60% of the area median income; 60% to 80%; 80 to 100%, or 100% to 120%.

HOUSING INSIGHTS & KEY ISSUES

Winooski has a diverse population and demand for housing unit types. The city has the highest rate of renter households and more affordable housing per capita than any other community in the state. Additionally, Winooski is a desired homeownership destination as evidenced by the limited time houses are on the market and the continued demand for these houses. During the Housing Needs Assessment focus groups, realtor Dan Cypress remarked that, “Homes are gone in days. The average price point … makes living in Winooski affordable, unlike Burlington...”.

The demographics of the city are changing along with the housing options: millennials are moving to the downtown, the number of New Americans is increasing which brings ethnic diversity, professionals from neighboring institutions, and many others are looking to move to Winooski. Overall it is likely that the City is growing in population, and that growth is projected to continue. In addition, the 2018 Economic Development Plan found:

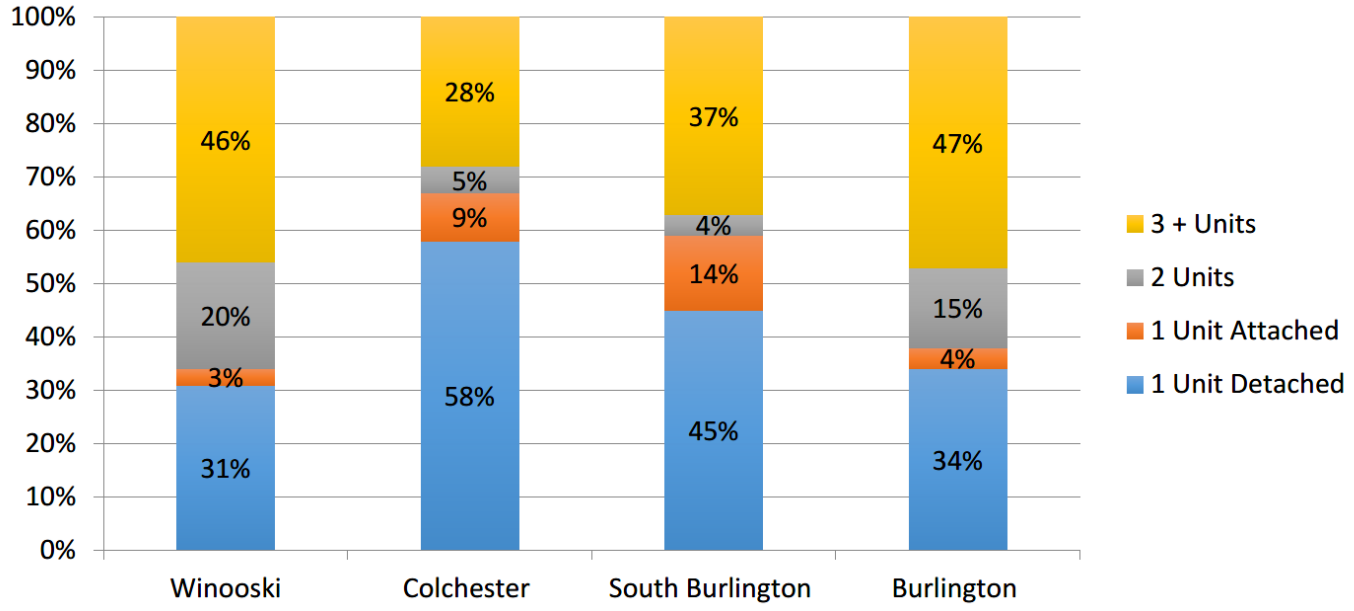
- Qualitative interviews demonstrated that there is pent-up demand for single-family homes in the city. To attract families to the area, corresponding housing options will need to be developed.
- Based on information collected as part of the stakeholder interviews and public forums, those individuals and families that are looking to move to Winooski are generally in the early part of their career and are therefore not extremely wealthy, but are making average or above average wages, and are looking for quality housing that offers modern amenities and feel that Winooski would be ideal.
- Future housing demand will be driven by in-migration. Winooski’s relative affordability, compared to the rest of Chittenden County, makes it a desirable location for individuals looking for a unique urban experience with close access to major interstates and vibrant night life.

Specific insights into Winooski’s housing stock include:

Type of Structures

Winooski has the smallest percentage of one-unit attached[xxvi] and detached housing structures and the greatest percentage of two-unit housing structures. The percentage of three- or more- unit structures is similar to Burlington and higher than South Burlington or Colchester. In comparison to surrounding communities Winooski’s density is most similar to Burlington.[xxvii]

Figure 6. All Housing Structure by Units[xxviii]



Rental Housing

Winooski has a greater percentage of rental housing than other communities in Chittenden County.

Table 7. Total Housing Units by Occupancy Type, 2016[xxix]

	WINOOSKI	CHITTENDEN COUNTY	VERMONT
# OF HOUSING UNITS	3,269	65,169	265,508
% RENTAL OCCUPIED	59%	37%	30%
% OWNER OCCUPIED	41%	63%	70%

Income restricted units for households earning less than 80% of the area median income (AMI) make up a much larger share in Winooski than surrounding communities or Chittenden County as a whole; and Winooski's market rate rental units represent a smaller share. The City of Winooski is currently far outperforming the region for affordable housing.

Table 8. Rental Homes Affordable (meaning housing costs equal or are less than 30% of income) by Income Bracket, 2017[xxx]

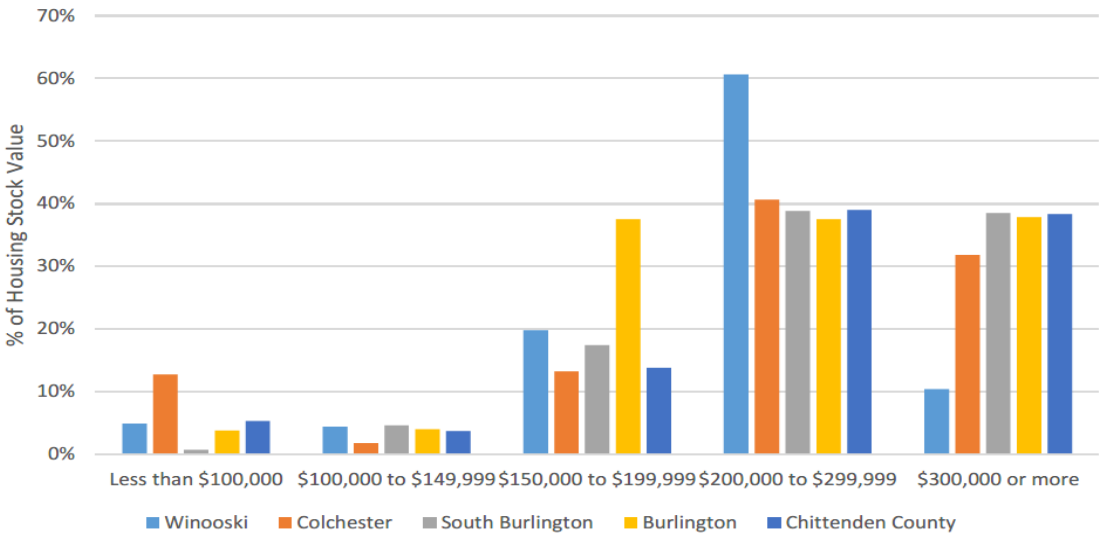
HOUSEHOLD INCOME	CURRENT NUMBER*	CURRENT PERCENTAGE OF RENTAL HOUSING
LOW INCOME UNDER 80% AMI (UNDER $51,302)	687	54%
MODERATE INCOME 80-120% AMI ($51,302-$76,952)	454	36%
UPPER MIDDLE TO HIGH INCOME OVER 120% AMI (OVER $76,952)	142	10%

*Based on 2017 landlord registry reporting. Approximately 70% of the landlords responded, and most of the high-end rents were not reported. However, the rents of the non-reporters are fairly well known and the data above is not far off from the true total. Either way there is a higher reliability and confidence level in this data than Census data (the rental registry data at 70% reporting has a 1.5% margin of error at 95% confidence).

Homeownership

Regarding homeownership, the Housing Needs Assessment found that demand for homes in Winooski is strong as evidenced by fewer days on the market, more affordable purchase prices in comparison to neighboring municipalities and a trend over time that shows increases in home sales.[xxxi] The median price for a home in Winooski was $200,000 while the county median was $250,000 (source Multiple Listing Service, 2011-2015). The data in Figure 7 shows the percentage of homes that fall within the different price range categories (source: ACS, 2014 5-year estimate).

Figure 7. Percent of Homes that fall within Different Price Range Categories



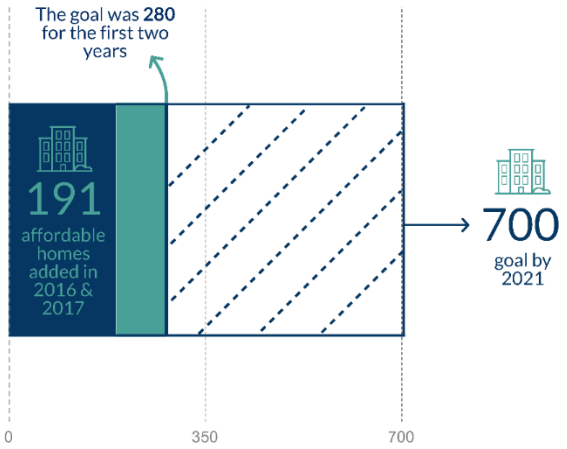
Housing Demand

Regarding new construction, Winooski has seen approximately 30 new units constructed per year on average over the last 3 years.[xxxii] This new construction is helping to address a major housing shortage in the region. In 2015 the vacancy rate for the Winooski and Burlington area rose to 3.5% for the first time since 2007, remained at that rate in 2016 and then dropped down again in 2017 to 2.4%.[xxxiii] A healthy vacancy rate is presumed to be in the 3 to 5% for the region, however the high end of that is likely necessary to reach a good balance. New construction continues to fill up very quickly. This construction is likely the result of market demands, downtown master planning and the Form Based Code on the gateway districts which has successfully spurred new housing development.

From a Chitteden County perspective the Building Homes Together campaign finds strong demand for new housing construction and new afforable homes. The goals and results within the first two years of this five-year campaign are included here in these infographics.:

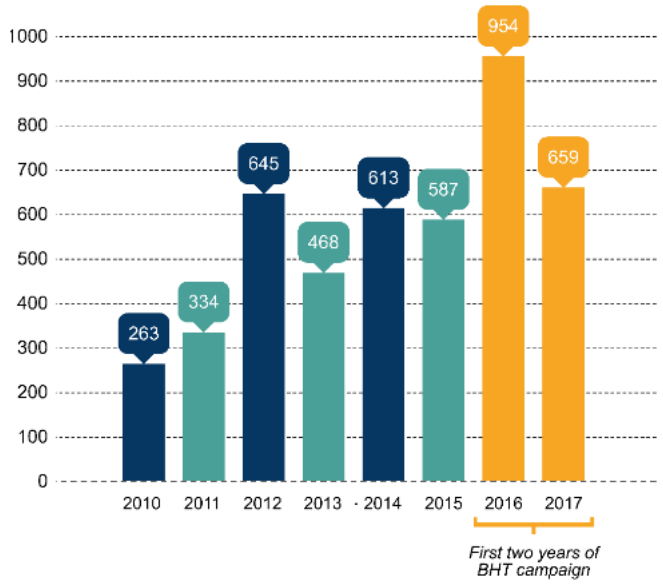
Affordable Housing Goal Update

Goal: ***140 new affordable homes/year on average for a total of 700 over the five-year campaign.*** *(Over the first two years, 191 affordable homes were added, falling short of the 280 goal.)*



Total New Home Construction

Goal: ***Average of 700 new homes/year for five years.*** *(Over the first two years, 1,613 new homes were built.)*

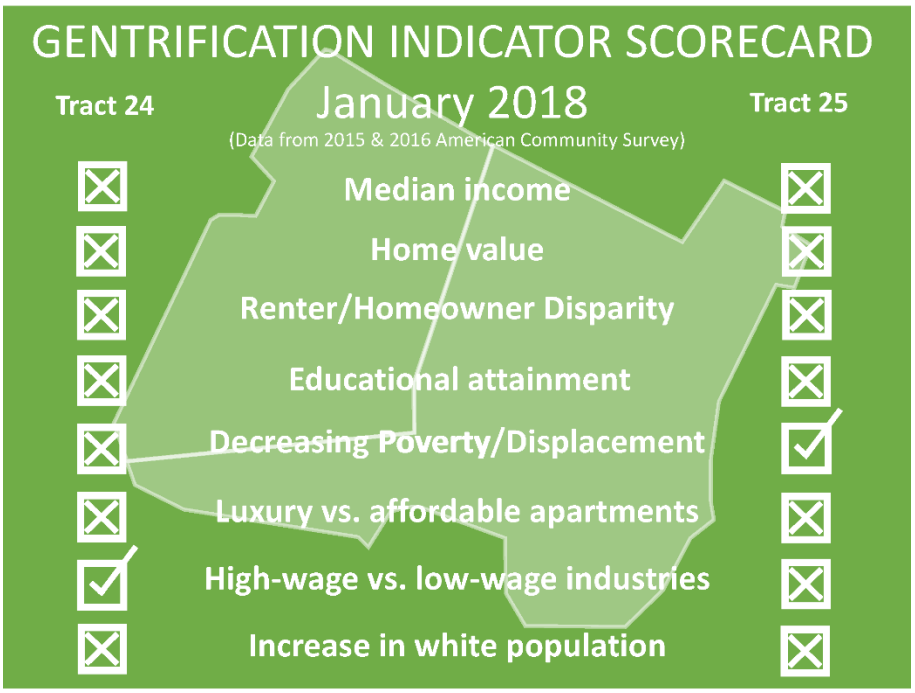


UVM Housing

Though not included in the total numbers, the University of Vermont demolished two dormitories (391 beds) and replaced them with a new dormitory (695 beds), creating a net gain of 304 beds for 2017. This is an important component of the overall housing picture.

Balanced Housing Stock

Because of those growth pressures, and the desire to maintain income diversity within the City, the City has been monitoring whether the City is becoming gentrified or not. The Brookings Institution Definition of gentrification is “the process by which higher income households displace significant numbers of lower income residents of a neighborhood, thus changing the essential character and flavor of the neighborhood”. The City produced the first report in August 2017 (data analyzed from 2010 to 2015 OR 2000 to 2010) and the second scorecard in January 2018 (data analyzed from 2015 to 2016). Based on a number of factors shown in the scorecard, both reports found that overall the City is not gentrifying. In the January 2018 scorecard the findings include a decrease in poverty (as a potential indicator of displacement) in Tract 25, and a rising number of residents working in high-wage jobs versus low-wage jobs in Tract 24. On their own these data points don’t show a risk of gentrification. However, the City will continue to monitor this data at one year intervals, particularly to understand if new developments on the Gateways are causing any gentrification concerns. An X means that the gentrification criteria is not met, and a ✓ means that it is met.



Age of Housing Stock

Regarding quality of housing stock, year built can be a helpful indicator. Older homes tend to be costlier to maintain and have more structural and environmental concerns. It is important to note that these numbers do not take renovations and retrofits into account. Educating residents on available programs and financing incentives for renovations, weatherizing and appliance upgrades can help increase the quality of housing while reducing the overall energy use in the city and reduce the costs of heating and cooling for residents. As the city continues use of the new software program for the rental registry there will be more accurate data regarding housing that meets health and life safety standards.

Housing by Year Built				
Year Built	City of Winooski		Chittenden County	Vermont
	Count	Pct. of Total	Pct. of Total	Pct. of Total
2010 or Later	-	0%	1%	1%
2000-2009	506	14%	12%	11%
1990-1999	93	3%	13%	11%
1980-1989	251	7%	17%	16%
1970-1979	356	10%	15%	16%
1960-1969	289	8%	10%	9%
1950-1959	329	9%	8%	6%
1940-1949	193	5%	3%	3%
1939 or Earlier	1,502	43%	20%	27%
Total Housing Units	3,519	100%	100%	100%
Median Year Structure Built	1952		1975	1973

Note that units built since 2010 are significantly undercounted because 2014 ACS data is based on a sample taken between 2009 and 2014.
Source: ACS 2014 5-year estimate

Homelessness

While there is no reliable data for the number of people experiencing homelessness in Winooski, there have been homeless encampments in the City. The number of people experiencing homelessness in Chittenden County during the Point in Time count showed an overall increase from 291 in 2017 to 359 in 2018. However, other indicators demonstrate progress. For the fourth year in a row, there have reductions in family, chronic and unsheltered homelessness[xxxiv]. The Chittenden County Homeless Alliance is a coalition with a vision of safe, decent, affordable, stable homes for every person and family in Chittenden County.

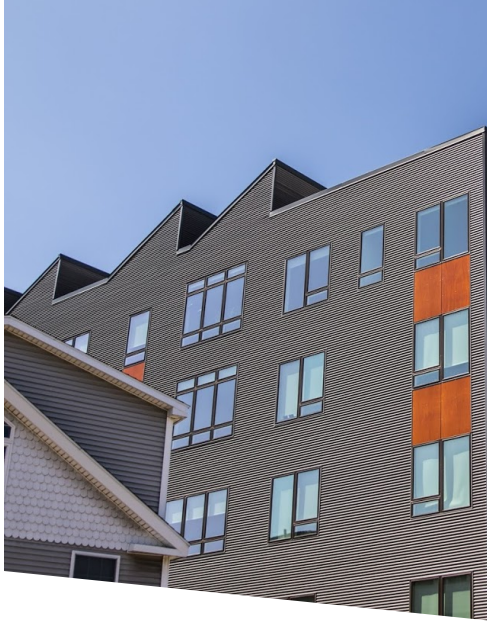
HOUSING

Goals / Objectives

For more information, see:

- 2016 Winooski Housing Needs Assessment
- Winooski Housing Commission documents

1. Encourage the development of affordable housing options for a broad range of income levels.
2. Foster a mix of housing types to serve the needs of different family compositions, household types and multi-generational needs.
3. Promote quality housing that is safe, healthy and durable.
4. Preserve and sustain the scale, character and settlement patterns of our neighborhoods.
5. Protect current residents from displacement.



6 Support sustainable growth, density and creation of additional housing units.

7 Improve energy efficiency of new and existing buildings.

8 Encourage low impact development practices to infiltrate stormwater and to reduce the volume of stormwater runoff from new and existing development.

9 Ensure housing areas include healthy, diverse trees.

10 Work with the Chittenden County Homeless Alliance to advance their vision of safe, decent, affordable, stable homes for every person and family in Chittenden County.

[i] 2010 US Census. Yearly ACS data since then has high margins of error, and doesn't show much difference.
[ii] This data is from the 2010 US Census but the comparison to other communities is from the work of Curtiss Reed Jr., Executive Director of the Vermont Partnership for Fairness and Diversity and as reported by Kevin O'Conner for VT Digger on January 17, 2016. https://vtdigger.org/2016/01/17/is-vermont-the-whitest-state-in-the-union/
[iii] 2012-2016 American Community Survey 5-Year Estimates. Margins of Error included.
[iv] VT ACCD 2010-2030 Population Projections – Definition of Scenario A & B: "The migration rate for the 2010 to 2020 and 2020 to 2030 decades could be similar to the migration rate for the 2000 to 2010 period or the 1990 to 2000 period. These different migration assumptions are the basis for the two sets of projections presented in this report – Scenario A and Scenario B. In Vermont, there is a relationship between the national economy and the direction and magnitude of migration. During the 1990s (Scenario A), the national economy was generally healthier than during the 2000s (Scenario B) and Vermont saw greater rates of net in-migration. As a result, Scenario A using 1990s migration rates generally, show higher populations than Scenario B using the migration rates of the 2000s."
[v] S1501: EDUCATIONAL ATTAINMENT 2012-2016 American Community Survey 5-Year Estimates.
[vi] Percent increase in Consumer Price Index between 2011 and 2016.
[vii] 2015 OnTheMap, U.S. Census Bureau and 2012-2016 American Community Survey 5-Year Estimates, Table S0801.
[viii] Vermont Department of Labor, Economic & Labor Market Information, Labor Force and Unemployment; and US Bureau of Labor Statistics, Local Area Unemployment Statistics. 2007 to 2017.
[ix] Calculated using 1.2 sq.miles (area without water) and a 2010 population of 7,267.
[x] The map viewer is located here: http://map.ccrpcvt.org/ChittendenCountyVT/.
[xi] "Compatible" pursuant to section 4382 of Title 24, Chapter 117 of the Vermont Statutes.
[xii] Winooski – "The Brooklyn of Burlington". Public Investments Spark Revitalization. VT Agency of Commerce and Community Development. 2018.
http://accd.vermont.gov/sites/accdnew/files/documents/CD/CPR/DHCD-HTC-CaseStudy-Winooski.pdf
[xiii] Winooski – "The Brooklyn of Burlington". Public Investments Spark Revitalization. VT Agency of Commerce and Community Development. 2018.
http://accd.vermont.gov/sites/accdnew/files/documents/CD/CPR/DHCD-HTC-CaseStudy-Winooski.pdf
xiv History from Winooski Falls Riverfront Downtown Project Application from the City of Winooski and Hallkeen Winooski, LLC. Dated February 6, 2006.
xv History from Winooski Falls Riverfront Downtown Project Application from the City of Winooski and Hallkeen Winooski, LLC. Dated February 6, 2006.
[xvi] Winooski – "The Brooklyn of Burlington". Public Investments Spark Revitalization. VT Agency of Commerce and Community Development. 2018.
http://accd.vermont.gov/sites/accdnew/files/documents/CD/CPR/DHCD-HTC-CaseStudy-Winooski.pdf
[xvii] Winooski – "The Brooklyn of Burlington". Public Investments Spark Revitalization. VT Agency of Commerce and Community Development. 2018.
http://accd.vermont.gov/sites/accdnew/files/documents/CD/CPR/DHCD-HTC-CaseStudy-Winooski.pdf
[xviii] City of Winooski Transportation Master Plan. March, 2017. Prepared for the City of Winooski and the Chittenden County Regional Planning Commission by VHB.
[xix] Telecommuting Statistics. Global Workplace Analytics:
https://globalworkplaceanalytics.com/telecommuting-statistics.
[xx] City of Winooski Transportation Master Plan. March, 2017. Prepared for the City of Winooski and the Chittenden County Regional Planning Commission by VHB.
[xxi] Downtown Parking Plan City of Winooski. July, 2017. Prepared for the City of Winooski by Desman Design Management.
xxii 2012-2016 American Community Survey 5-Year Estimates: Age and Sex.

[xxiii] Bright Futures Child Care Information System. VT Department for Children and Families. Searched on 8/16/2018. https://tinyurl.com/y7g585ow
[xxiv] Child Care Resource. Chittenden County Child Care Statistics: https://www.childcareresource.org/for-everyone/chittenden-county-child-care-statistics/
[xxv] Middle/High School Highlights: *We're in this Together*. By Leon Wheeler, Principal. Winooski School District. June Newsletter 2018, pg. 7. http://www.wsdschools.org/WP/wp-content/uploads/2018/06/WSD-June-FY18.pdf
[xxvi] The American Community Survey defines 1-Unit, Attached as "This is a 1-unit structure that has one or more walls extending from ground to roof separating it from adjoining structures. In row houses (sometimes called townhouses), double houses, or houses attached to nonresidential structures, each house is a separate, attached structure if the dividing or common wall goes from ground to roof."
[xxvii] Winooski Housing Needs Assessment. July 24, 2016. Result of a service learning project in partnership with the University of Vermont's Masters of Public Administration program: Course PA395: Housing, Community Development, and Public Policy. Project oversight by Maura Collins.
[xxviii] U.S. Census Bureau: American Community Survey, 2014 5-year estimates, Table DP04
[xxix] U.S. Census Bureau: American Community Survey 5-year estimates (Table B25003, Table B25004)
[xxx] From June 4, 2018 Memo to City Council from Jessie Baker and Heather Carrington, regarding FY18 Policy Priorities and Strategy Update: HOUSING
[xxxi] Winooski Housing Needs Assessment. July 24, 2016. Result of a service learning project in partnership with the University of Vermont's Masters of Public Administration program: Course PA395: Housing, Community Development, and Public Policy. Project oversight by Maura Collins.
[xxxii] From June 4, 2018 Memo to City Council from Jessie Baker and Heather Carrington, regarding FY18 Policy Priorities and Strategy Update: HOUSING
[xxxiii] Allen, Brooks and Minor Report, June 2018. A comprehensive semi-annual analysis of the real estate market.
[xxxiv] *Homeless Count in Chittenden County Shows Mixed Results*. Press Release by the Chittenden County Homeless Alliance. May 11, 2018. http://www.cchavt.org/wp-content/uploads/2018/05/2018-PIT-Count-Press-Release-Results.pdf

APPENDIX 1

ALIGNMENT WITH STATE REQUIREMENTS

The following matrix explains how the *2019 Winooski Master Plan* is consistent with the required elements in 24 V.S.A. §4382, and the goals established in 24 V.S.A. §4302.

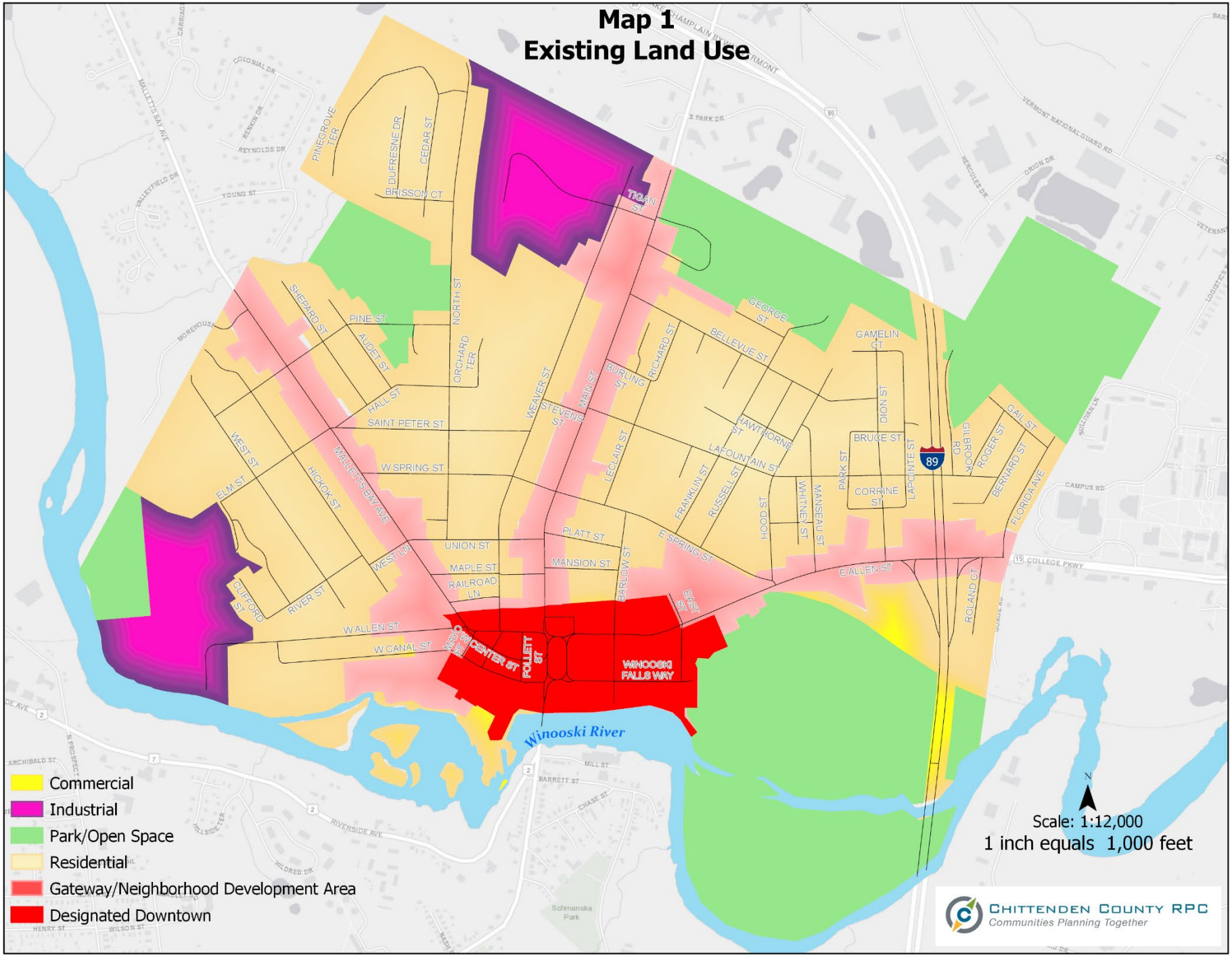
	Introduction/Overview	Economic Vitality	Municipal Infrastructure	Housing	Safe, Healthy, Connected People	Addendum/Supplements/ Other Plans
Required Elements (4382)						
Statement of Objectives, Policies, Programs	X	X	X	X	X	X
Land Use Plan (and present and prospective map)	X					
Transportation Plan (and map)			X			X
Utility and Facility Plan (and map)			X		X	
Rare Natural Resources/Historic Resources	X					
Educational Facilities Plan (and map)					X	
Implementation Program	X	X	X	X	X	X
Development Trends	X	X	X	X		
Energy Plan			X			X
Housing Element				X		X
Economic Development Element		X				X
Flood Resiliency Plan	X		X			
Current Analysis and Data (4382(c))	X	X	X	X	X	X

	Introduction/Overview	Economic Vitality	Municipal Infrastructure	Housing	Safe, Healthy, Connected People	Addendum/Supplements/ Other Plans
State Planning Goals (4302)						
Development Pattern	X					
Economy		X				
Education					X	
Transportation			X			
Natural and Historic Resources	X					
Quality of Resources	X					
Energy			X			
Recreation					X	
Agriculture and Forest Industries	X					
Use of Resources – while the compatibility section discusses the quarry in Colchester, this goal is not relevant to Winooski as there are no locations in the City for extraction resources.	X					
Housing				X		
Public Facilities			X			
Child Care					X	
Flood Resiliency	X			X		

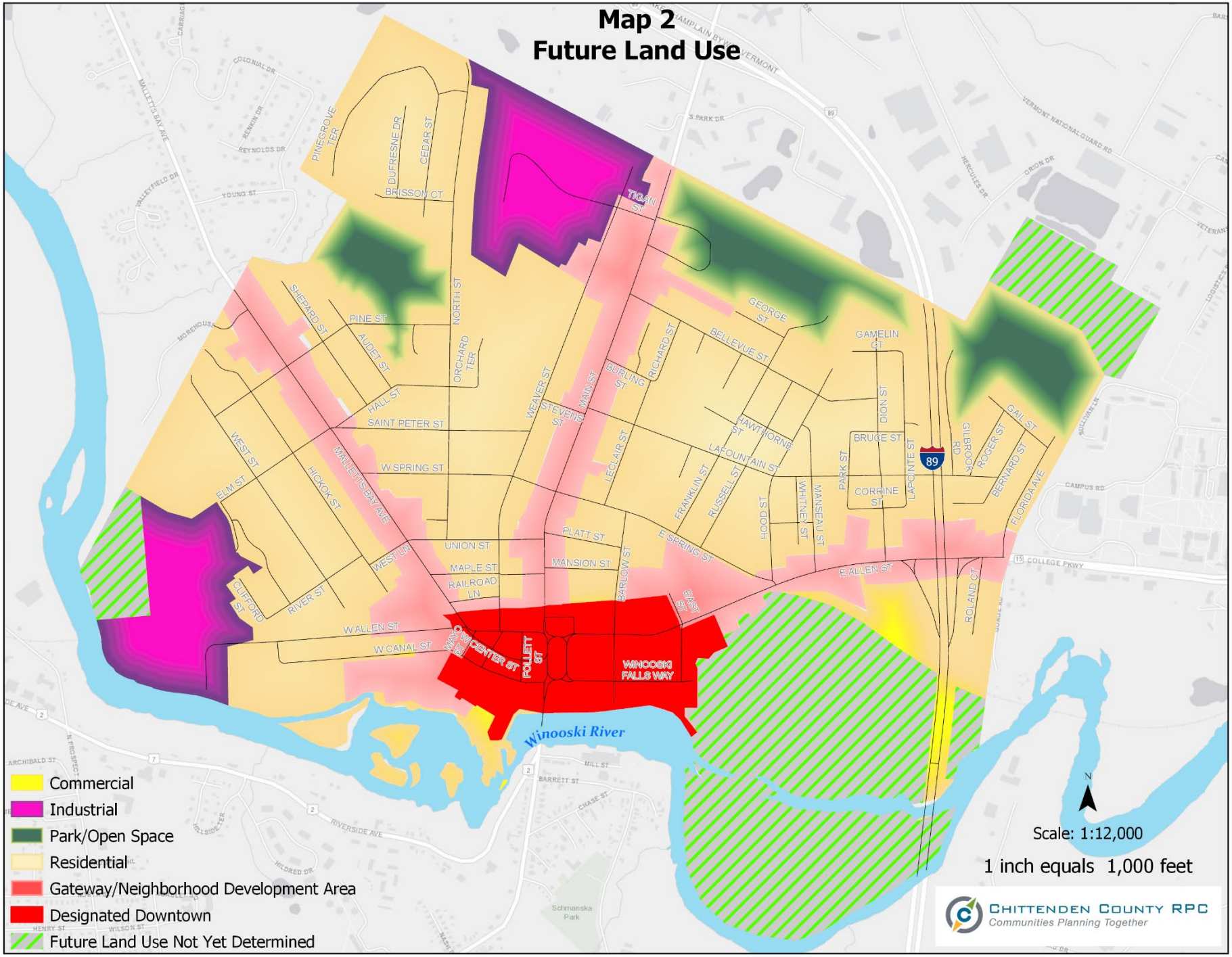
APPENDIX 2

FULL SIZE MAPS

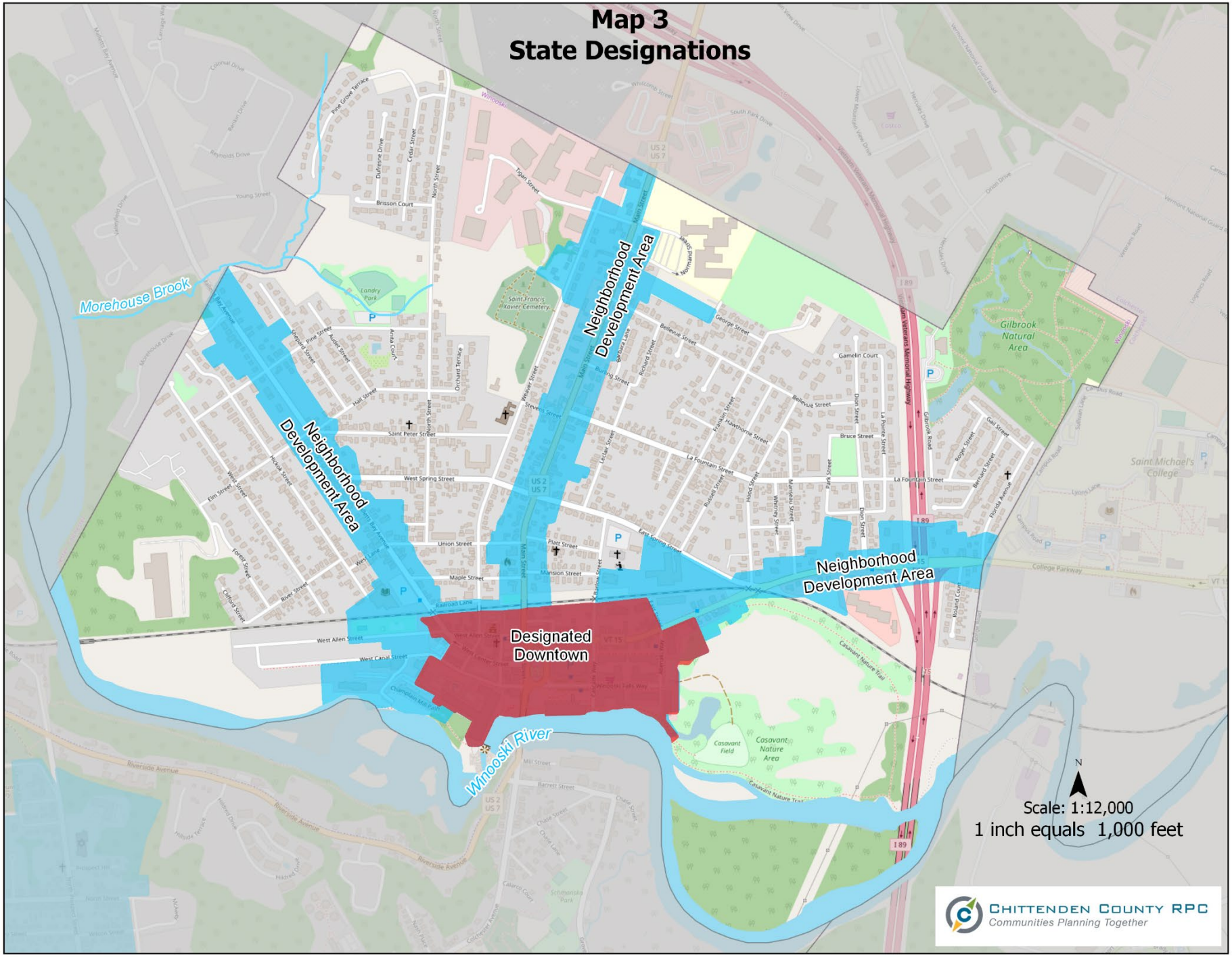
Map 1
Existing Land Use



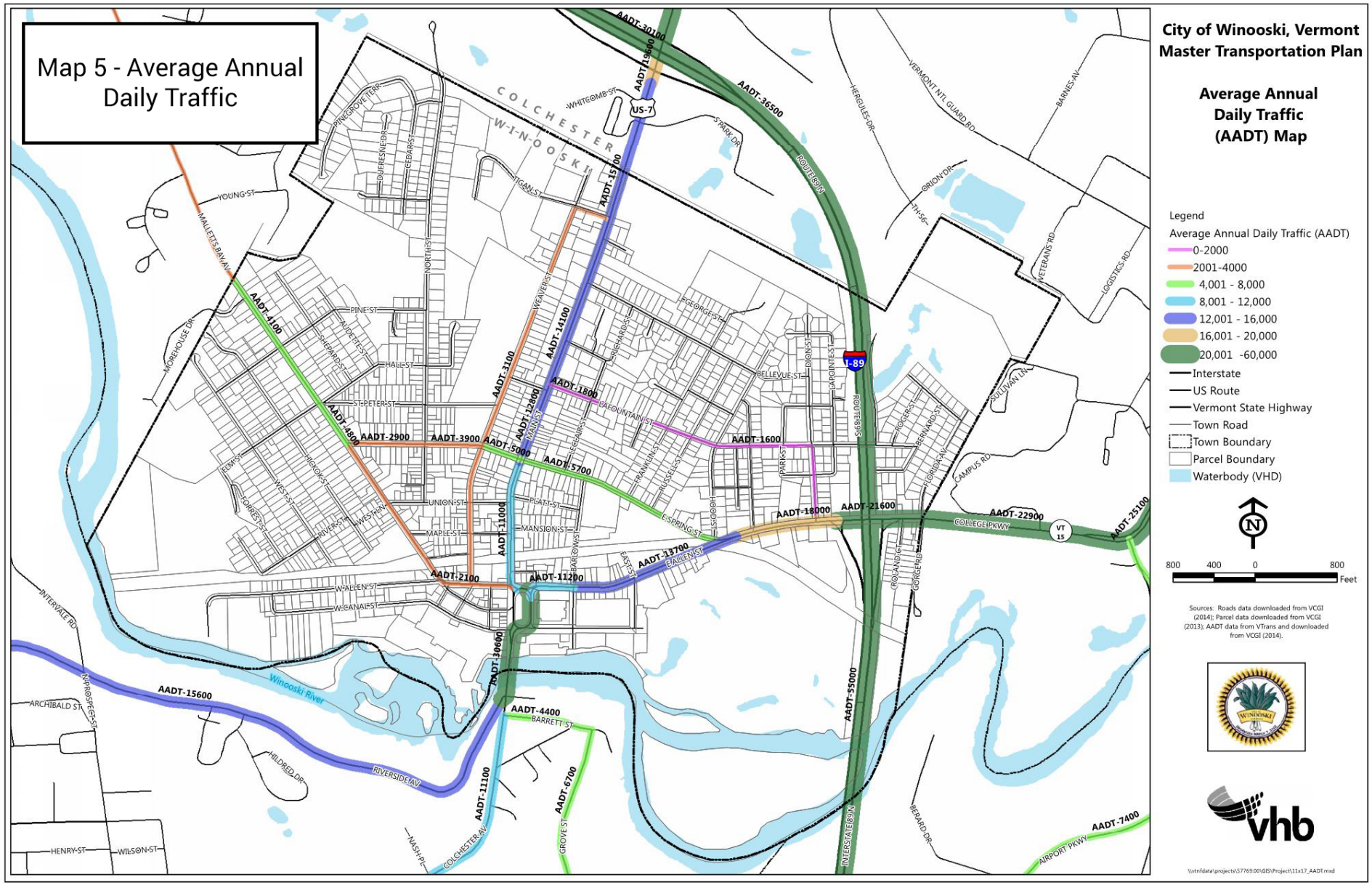
Map 2
Future Land Use

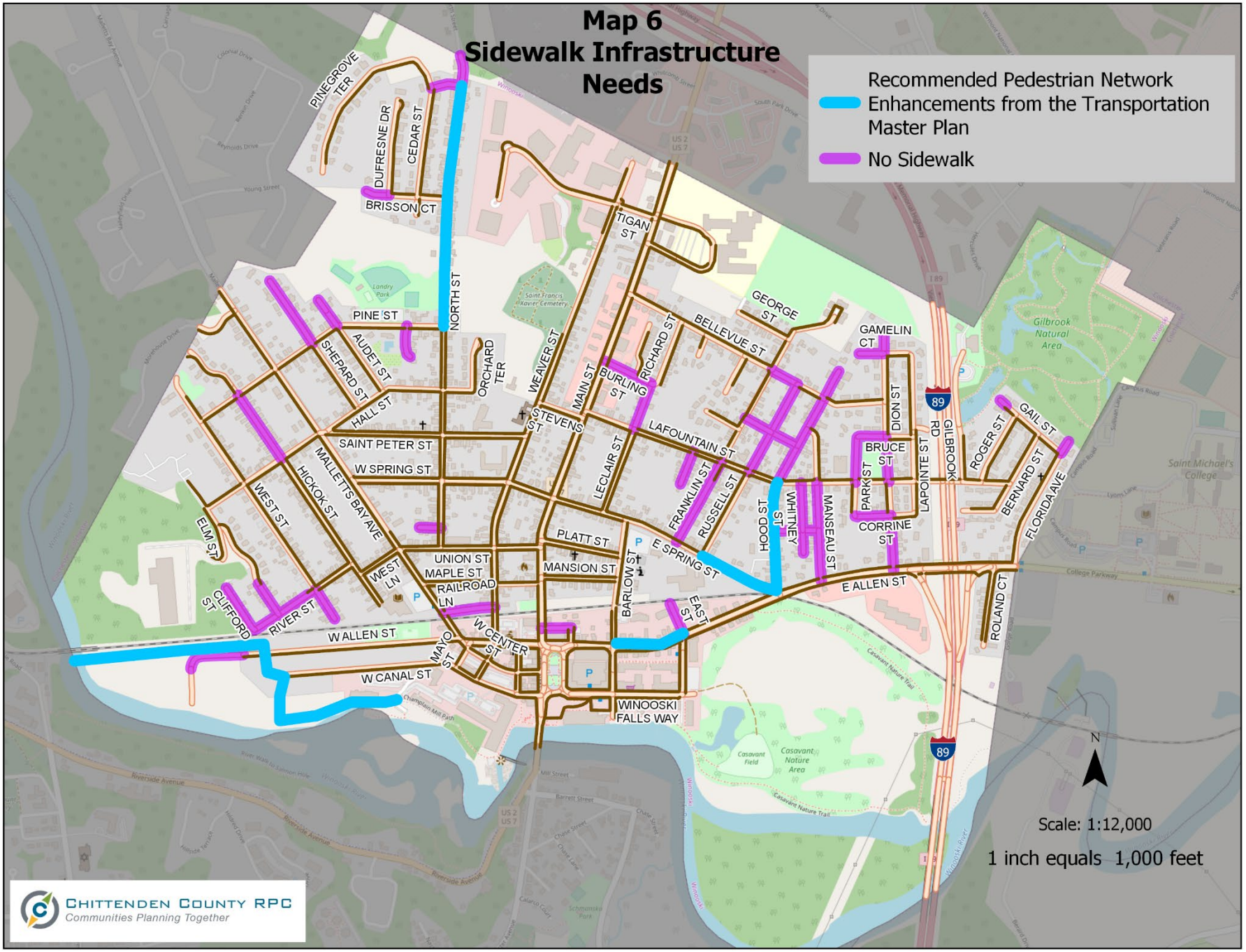


Map 3
State Designations

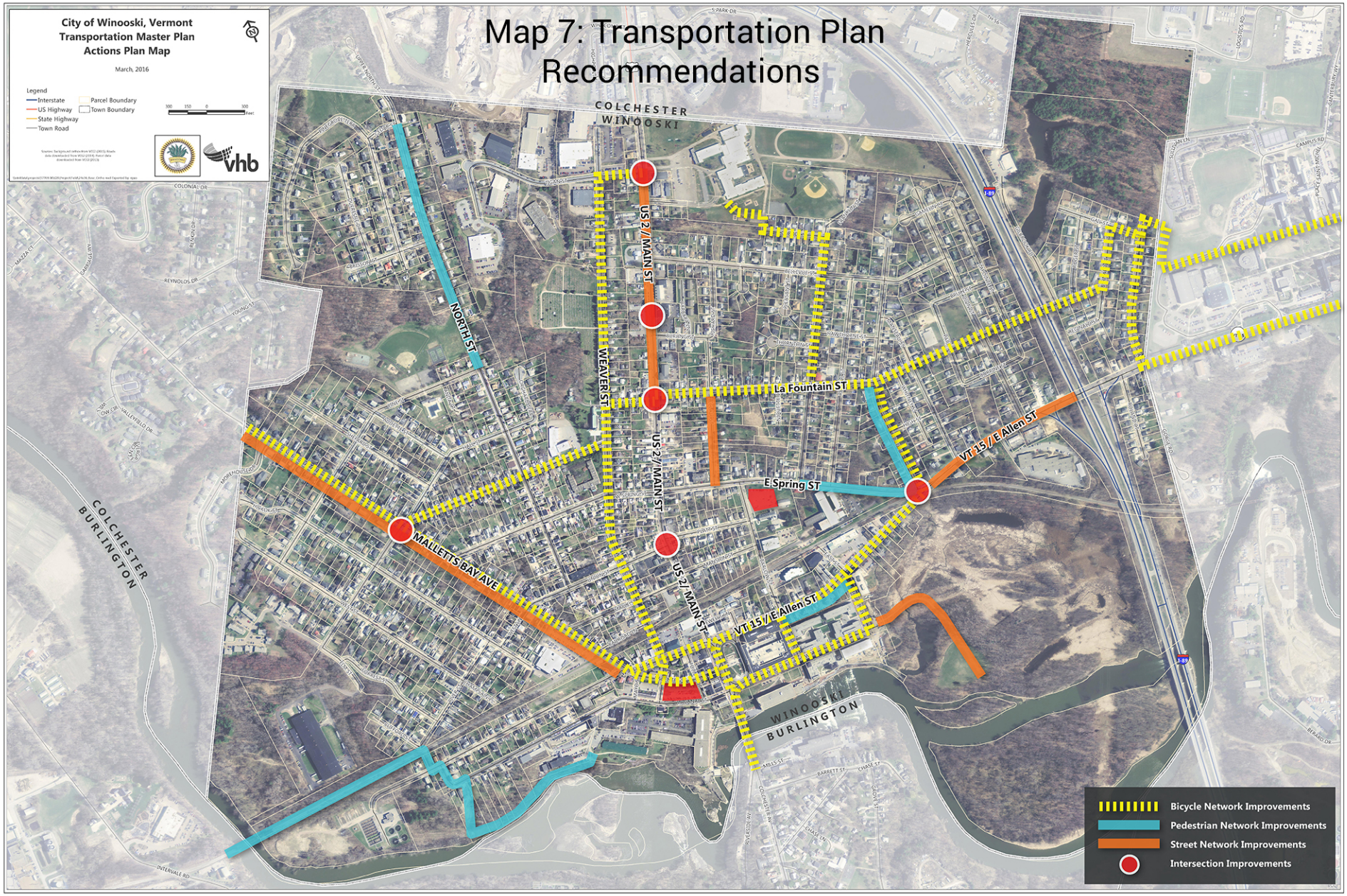


Map 4
Cultural & Historic Resources

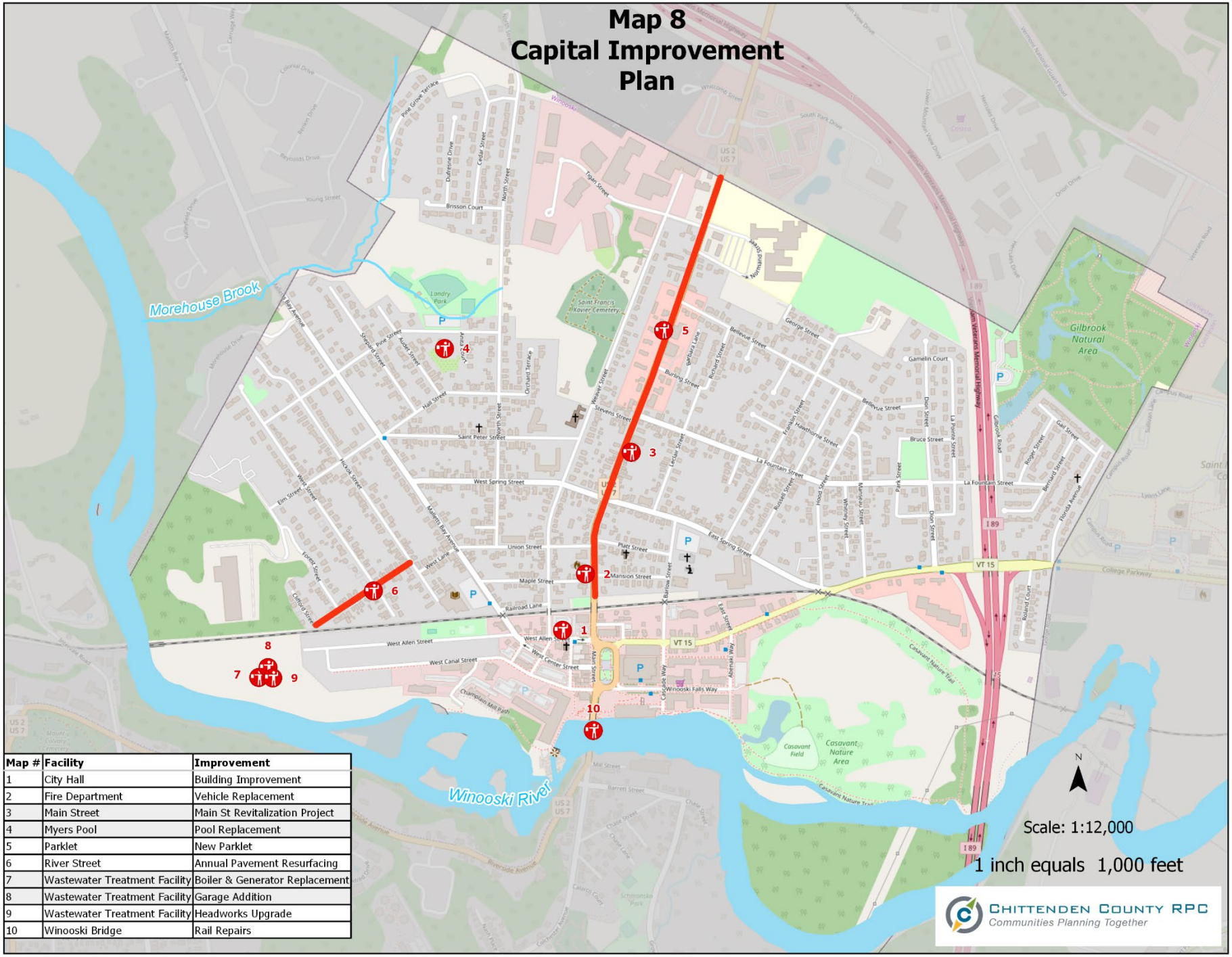

Map 5 - Average Annual Daily Traffic
City of Winooski, Vermont
Master Transportation Plan
Average Annual Daily Traffic (AADT) Map
Legend
Average Annual Daily Traffic (AADT)
0-2000
2001-4000
4,001 - 8,000
8,001 - 12,000
12,001 - 16,000
16,001 - 20,000
20,001 -60,000
Interstate
US Route
Vermont State Highway
Town Road
Town Boundary
Parcel Boundary
Waterbody (VHD)
800 400 0 800
Feet
Sources: Roads data downloaded from VCGI (2014); Parcel data downloaded from VCGI (2013); AADT data from VTrans and downloaded from VCGI (2014).
COLCHESTER
WINOOSKI
Winooski River
AADT-30100
AADT-19600
AADT-36500
AADT-15700
AADT-14100
AADT-3100
AADT-12800
AADT-1800
AADT-4100
AADT-4800
AADT-2900
AADT-3900
AADT-5000
AADT-5700
AADT-1600
AADT-18000
AADT-21600
AADT-22900
AADT-25100
AADT-13700
AADT-11000
AADT-2100
AADT-11200
AADT-30600
AADT-15600
AADT-4400
AADT-11100
AADT-6700
AADT-55000
AADT-7400
US-7
I-89
VT 15
ROUTE 89 N
ROUTE 89 S
INTERSTATE 89 N
COLLEGE PKWY
RIVERSIDE AV
COLCHESTER AV
AIRPORT PKWY
BARRETT ST
MALLETTS BAY AV
MOREHOUSE DR
INTERVALE RD
ARCHIBALD ST
HENRY ST
WILSON ST
HILDRED DR
NASH PL
GROVE ST
BERARD DR
ROLAND CT
GORGE RD
FLORIDA AV
CAMPUS RD
SULLIVAN LN
LOGISTICS RD
VETERANS RD
BARNES AV
VERMONT NTL GUARD RD
HERCULES DR
ORION DR
TH-56
S PARK DR
WHITCOMB ST
YOUNG ST
PINEGROVE TERR
DUFRESNE DR
CEDAR ST
NORTH ST
TIGAN ST
WEAVER ST
PINE ST
HALL ST
ST PETER ST
AUDETTE ST
SHEPARD ST
ELM ST
HICKOK ST
WEST ST
FORREST ST
RIVER ST
WEST LN
UNION ST
MAPLE ST
PLATT ST
MANSION ST
MAIN ST
LAFOUNTAIN ST
RICHARD ST
GEORGE ST
BELLEVUE ST
DION ST
LAPOINTE ST
ROGER ST
BERNARD ST
PARK ST
FRANKLIN ST
RUSSELL ST
HOOD ST
E SPRING ST
BARLOW ST
EAST ST
E ALLEN ST
W ALLEN ST
W CANAL ST
N PROSPECT ST
ROUTE 89 N
ROUTE 89 S
S PARK DR
VERMONT NTL GUARD RD
BARNES AV
HERCULES DR
ORION DR
TH-56
VETERANS RD
LOGISTICS RD
SULLIVAN LN
CAMPUS RD
FLORIDA AV
BERNARD ST
ROGER ST
DION ST
LAPOINTE ST
BELLEVUE ST
GEORGE ST
RICHARD ST
WEAVER ST
TIGAN ST
NORTH ST
DUFRESNE DR
CEDAR ST
PINEGROVE TERR
YOUNG ST
MALLETTS BAY AV
MOREHOUSE DR
INTERVALE RD
ARCHIBALD ST
HENRY ST
WILSON ST
HILDRED DR
NASH PL
GROVE ST
BERARD DR
ROLAND CT
GORGE RD
BARRETT ST
WHITCOMB ST
S PARK DR
VT 15
VHB
\\vtnfdata\projects\S7769.00\GIS\Project\11x17_AADT.mxd


Map 6
Sidewalk Infrastructure Needs
Recommended Pedestrian Network Enhancements from the Transportation Master Plan
No Sidewalk
PINEGROVE TER
DUFRESNE DR
CEDAR ST
BRISSON CT
NORTH ST
PINE ST
AUDET ST
SHEPARD ST
HALL ST
ORCHARD TER
WEAVER ST
STEVENS ST
MAIN ST
BURLING ST
RICHARD ST
TIGAN ST
GEORGE ST
BELLEVUE ST
GAMELIN CT
DION ST
BRUCE ST
PARK ST
LAPOINTE ST
GILBROOK RD
ROGER ST
GAIL ST
BERNARD ST
FLORIDA AVE
LAFOUNTAIN ST
LECLAIR ST
FRANKLIN ST
RUSSELL ST
HOOD ST
WHITNEY ST
MANSEAU ST
CORRINE ST
SAINT PETER ST
W SPRING ST
MALLETTS BAY AVE
HICKOK ST
WEST ST
ELM ST
PLATT ST
E SPRING ST
UNION ST
MAPLE ST
MANSION ST
BARLOW ST
WEST LN
RAILROAD LN
E ALLEN ST
ROLAND CT
EAST ST
CLIFFORD ST
RIVER ST
W ALLEN ST
W CENTER ST
MAYO ST
W CANAL ST
WINOOSKI FALLS WAY
Gilbrook Natural Area
Saint Michael's College
Casavant Nature Area
Casavant Field
Landry Park
Saint Francis Xavier Cemetery
89
N
Scale: 1:12,000
1 inch equals 1,000 feet
CHITTENDEN COUNTY RPC
Communities Planning Together

Map 7: Transportation Plan Recommendations



Map 8
Capital Improvement Plan

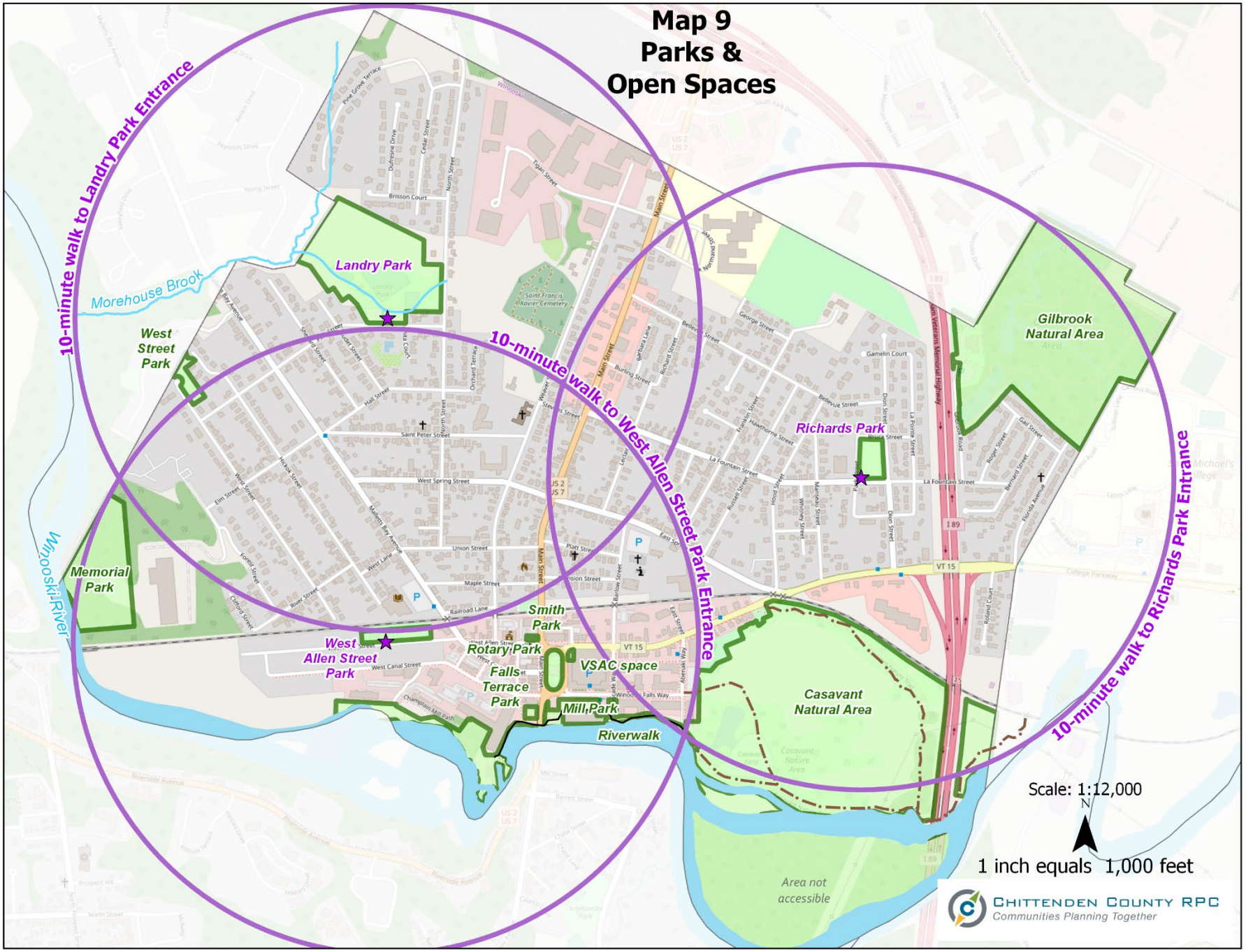


Map #	Facility	Improvement
1	City Hall	Building Improvement
2	Fire Department	Vehicle Replacement
3	Main Street	Main St Revitalization Project
4	Myers Pool	Pool Replacement
5	Parklet	New Parklet
6	River Street	Annual Pavement Resurfacing
7	Wastewater Treatment Facility	Boiler & Generator Replacement
8	Wastewater Treatment Facility	Garage Addition
9	Wastewater Treatment Facility	Headworks Upgrade
10	Winooski Bridge	Rail Repairs

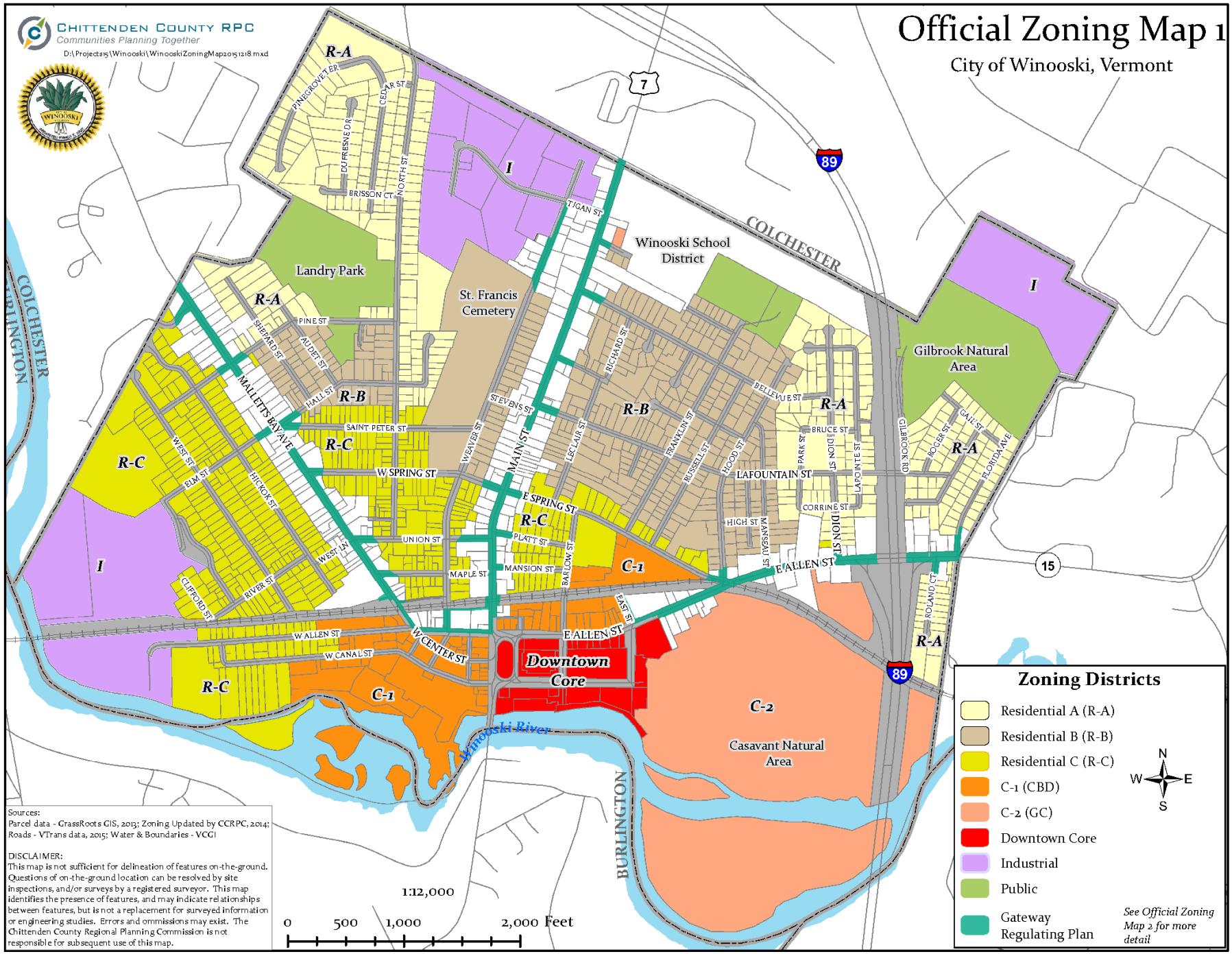
Scale: 1:12,000

1 inch equals 1,000 feet

CHITTENDEN COUNTY RPC
Communities Planning Together


Map 9
Parks &
Open Spaces
10-minute walk to Landry Park Entrance
10-minute walk to West Allen Street Park Entrance
10-minute walk to Richards Park Entrance
Landry Park
Morehouse Brook
West Street Park
Memorial Park
Winooski River
Richards Park
Gilbrook Natural Area
Smith Park
Rotary Park
VSAC space
West Allen Street Park
Falls Terrace Park
Mill Park
Riverwalk
Casavant Natural Area
Area not accessible
Scale: 1:12,000
N
1 inch equals 1,000 feet
Chittenden County RPC
Communities Planning Together

Map 10
Facilities


Chittenden County RPC
Communities Planning Together
D:\Projects15\Winooski\WinooskiZoningMap20151218.mxd
Official Zoning Map 1
City of Winooski, Vermont
R-A
I
R-B
R-C
C-1
C-2
Landry Park
St. Francis Cemetery
Winooski School District
Gilbrook Natural Area
Casavant Natural Area
Downtown Core
Winooski River
COLCHESTER
BURLINGTON
PINEGROVE TER
CEDAR ST
DUFRESNE DR
BRISSON CT
NORTH ST
TIGAN ST
PINE ST
SHEHAD ST
AUDET ST
HALL ST
MALLETT'S BAY AVE
SAINT PETER ST
W SPRING ST
WEST ST
ELM ST
HICKOK ST
WEST LN
UNION ST
CLIFFORD ST
RIVER ST
W ALLEN ST
W CANAL ST
W CENTER ST
MAPLE ST
WEAVER ST
STEVENS ST
MAIN ST
E SPRING ST
PLATT ST
MANSION ST
BARLOW ST
E ALLEN ST
EAST ST
RICHARD ST
LECLAIR ST
FRANKLIN ST
RUSSELL ST
HOOD ST
BELLEVUE ST
BRUCE ST
PARK ST
DION ST
LAPOINTE ST
LAFOUNTAIN ST
CORRINE ST
HIGH ST
MANSFIELD ST
GILBROOK RD
GAIL ST
ROGER ST
FLORIDA AVE
ROLAND CT
7
89
15
1:12,000
0
500
1,000
2,000 Feet
N
W
E
S
Zoning Districts
Residential A (R-A)
Residential B (R-B)
Residential C (R-C)
C-1 (CBD)
C-2 (GC)
Downtown Core
Industrial
Public
Gateway Regulating Plan
See Official Zoning Map 2 for more detail
Sources:
Parcel data - GrassRoots GIS, 2013; Zoning Updated by CCRPC, 2014; Roads - VTrans data, 2015; Water & Boundaries - VCGI
DISCLAIMER:
This map is not sufficient for delineation of features on-the-ground. Questions of on-the-ground location can be resolved by site inspections, and/or surveys by a registered surveyor. This map identifies the presence of features, and may indicate relationships between features, but is not a replacement for surveyed information or engineering studies. Errors and ommissions may exist. The Chittenden County Regional Planning Commission is not responsible for subsequent use of this map.

APPENDIX 3

ENHANCED ENERGY SUPPLEMENT

The City of Winooski will strive to meet the energy goals identified by the State of the Vermont and codified in Act 174, including:

- Reducing greenhouse gases by 50% from 1990 levels by 2028, and by 75% from 1990 levels by 2050,
- Weatherizing 25% of homes by 2020,
- Obtaining 90% of energy from renewable sources by 2050, and
- Reduce total energy consumption per capita by 15% by 2025 and by more than 1/3 by 2050.

The City of Winooski is already a leader in moving towards the State's energy goals based on its dense, walkable and transit accessible land use pattern; four electric vehicles in the city fleet thereby reducing greenhouse gas emissions and modeling climate smart behavior in city business; fast charging for electric vehicles in the city's parking garage and at city hall; and locations for both VT CarShare and Greenride Bikeshare.

The state energy goals are ambitious and achieving them will require the involvement and cooperation of residents, businesses, nonprofits, and governmental organizations across Vermont and in the city of Winooski. This plan explores ways that the city of Winooski can model and encourage residents and businesses to meet these goals. The plan's goals and policies aim to ensure that the city is doing its part to decrease contributions to climate change through a transition away from fossil fuels in the transportation and heating sectors, using less energy overall, and encouraging more renewable energy generation.

The following changes are needed between 2015 and 2050 to meet the goals described above:

- *Reduce total energy use per capita by 39%, but with electricity becoming a larger proportion of total energy use.*
- *Site 9,762 MWh of additional annual renewable energy generation to meet the city's low target of generating a total output of 25,633MWh. Currently, Winooski has 15,872 MWh of annual renewable energy generation.*

In addition, the following is a potential pathway to meet these goals, given current technologies.

- *Increasing electric vehicles to 89% of light duty vehicles registered in Winooski*
- *Fueling 96% of heavy-duty vehicles with biodiesel*
- *Weatherizing 100% of homes and 36% of commercial and industrial establishments*
- *Switching 61% of homes to heat pumps for space heating*

Current Energy Use and Generation

The data below are from various sources and represent actual current consumption and generation, rather than estimates from the Long-Range Energy Alternatives (LEAP) model. Estimates from the

LEAP model are shown in a subsequent section.

Transportation Energy

As described in Table 1, most light duty vehicles are powered by gasoline in the city. As of January 2017, the city is home to 29 vehicles registrations for all electric and plug-in hybrid vehicles. Additionally, the city of Winooski has to 2 electric vehicle charging stations: one in the Winooski Falls parking garage and one at city hall.

Table 1. Transportation Energy

Vehicle Type	Number of Cars
Fossil Fuel Burning Light Duty Vehicles, 2015	4,155
All Electric and Plug-in Hybrid Light Duty Vehicles, Jan 2017	29
Sources: DMV, Drive Electric Vermont	

Heating Energy

Table 2 describes how homes are heated in Winooski. Winooski is part of the Vermont Gas service territory and a majority of homes purchase natural gas from this utility. Other heating sources include oil, propane, and wood. A small portion of homes are heated with electricity. It is unclear from these data whether the electricity is powering ultra-efficient modern cold climate heat pumps or traditional electric resistance systems. To advance the state's energy goals, the city encourages residents to use less fuel regardless of the type through weatherization or switch to electric powered cold climate heat pumps.

Table 2. Home Heating

Fuel Type	Number of Homes	Margin of Error
Fuel oil, Kerosene	173	+/-63
Propane	200	+/-78
Natural Gas	2,020	+/-181
Electricity	576	+/-114
Wood	Margin of error is too high to report data	
Sources: American Community Survey 2012-2016 5-Year Estimate		

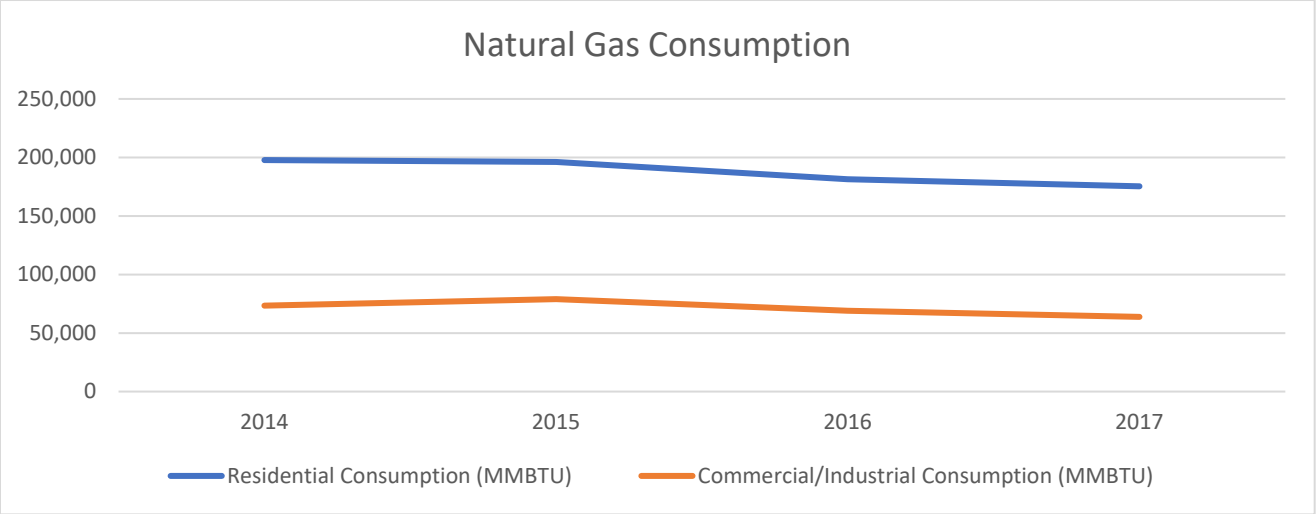
Table 3 or Figure 1 provides actual of natural gas consumption. Between 2014-2017, natural gas consumption has decreased by 13% in the residential sector and by 15% in the commercial/industrial sector. It is difficult to say the reasons for the decrease. However, it is likely due to weatherization and other measures such as installing cold climate heat pumps. This is a positive trend for the city and should continue in an accelerated manner to achieve state energy goals.

Table 3. Natural Gas Consumption (MMBTU)

Sector	2014	2015	2016	2017
Residential Consumption	197,764	196,252	181,482	175,343
Commercial/Industrial Consumption	73,461	78,959	69,027	63,801
Total	271,225	275,211	250,509	239,144

Source: Vermont Gas

Figure 1. Natural Gas Consumption



Electricity

Winooski residents are provided with electric power by Green Mountain Power Corporation. The data shown in Table 4 and Figure 2 illustrate a decrease in electricity usage between 2015-2017. Additionally, there has been an increase in residential premises, but the average residential usage has decreased. This is likely due to the installation of energy efficient appliances and overall awareness of the importance of using less energy. Table 5 further illustrates this positive trend, showing that the city saved a total of 2,759,343 KWh of electricity over this three-year period, saving rate payers in Winooski a total of $433,044 As seen in Table 7, a total of 156 energy efficient projects were completed during this time.

Table 4. Electrical Energy Use (KWh)

Sector	2015	2016	2017
Commercial & Industrial	26,513,327	26,047,235 7	23,842,751
Residential	17,204,952.1	16,909,546	16,304,641
Total	43,718,279	42,956,781	40,147,392
Count of Residential Premises	3,173	3,175	3,218
Average Residential Usage	5,422	5,326	5,067
Source: Efficiency Vermont, November 2018			

Figure 2. Annual Electric Usage

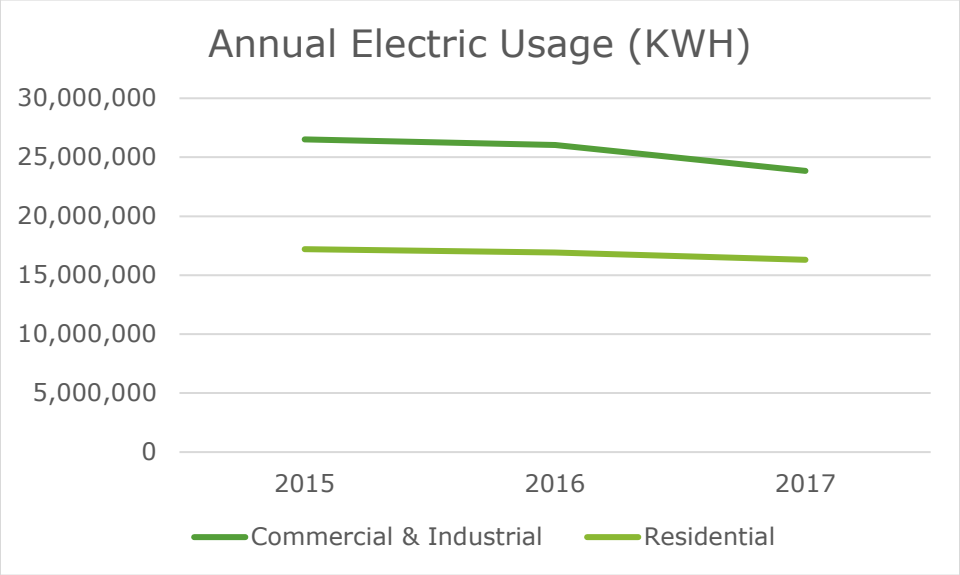


Table 5. Annual Savings (KWh)

	2015	2016	2017	Total
Electric Savings (KWh)	**642,511**	**1,151,887**	**964,945**	**2,759,343**
Residential	413,405	542,652	446,760	**1,402,817**
Commercial & Industrial	229,107	609,235	518,185	**1,356,526**
Source: Efficiency Vermont, May 2018				

Table 6. Annual Saving ($)

	2015	2016	2017	Total
Total Customer Cost Savings	**$97,576**	**$177,668**	**$157,800**	**$433,044**
Residential	$67,547	$99,774	$90,207	**$257,528**
Commercial & Industrial	$30,029	$77,894	$67,593	**$175,516**
Source: Efficiency Vermont, November 2018				

Table 7. Residential Energy Efficiency Projects

	2015	2016	2017	Total
Home Performance with ENERGYSTAR® Leads/Energy Audits*	7	7	0	**14**
Total Residential Projects (includes Home Performance with ENERGY STAR® projects)*	48	52	56	**156**

Source: Efficiency Vermont, November 2018

**Home Performance with ENERGY STAR® is a comprehensive whole-house approach to diagnosing and addressing thermal and health & safety issues in the home to ensure a more energy efficient, comfortable, safe, and healthy home. Total Residential Projects includes both ENERGY STAR® projects and other project, such as replacing an appliance or improving the thermal shell of a building. Project Leads indicate that a customer had a home energy audit completed with an ENERGY STAR® contractor, but did not pursue the project with a certified contractor and/or register it with ENERGY STAR®. If a project from that audit was completed but not registered with ENERGY STAR®, it is counted under Total Residential Projects.*

Renewable Energy Generation

The city of Winooski hosts numerous solar energy sites which generate .7 MW of power annually. Winooski is also home to the Winooski One Hydro Dam. The Winooski One Hydro dam is owned by the Burlington Electric Department. Because Winooski One spans both Burlington and Winooski, each city is attributed half of the energy the dam generates.

Table 8. Existing Renewable Energy Generation

	Sites	Power (MW)	Energy (MWh)
Solar	70	2	1,735
Hydro	1*	4	14,137
Total	71	6	15,872

*Winooski One Hydro Dam is split between Burlington and Winooski

Source: Community Energy Dashboard, October 23, 2018, Burlington Electric Department,2016

Projected Energy Use

Projected future energy use targets are drawn from the Long-range Energy Alternatives Planning (LEAP) analysis for Chittenden County, completed by the Vermont Energy Investment Corporation (VEIC). LEAP is an accounting framework that shows one possible path for Chittenden County and its municipalities to meet the State's energy goals required for enhanced energy plans. LEAP aggregates existing energy use data and forecasts the demand for energy and sources of energy over time, based on a set of anticipated economic and policy changes. For example, demographic projections are one component of projecting future energy use. LEAP is well suited for examining how energy systems might evolve over time to meet certain goals (in this case, Vermont's goal to gain 90% of energy from renewable sources by 2050). The targets below show the direction and magnitude of change needed meet local, regional and state energy goals.

It is also important to remember that the targets established by LEAP represent only one way to achieve each municipality's energy goals. Other strategies may allow the municipality to meet its

goals (for example, switching some wood heating systems to heat pump systems). For more information on the LEAP model, including its underlying assumptions, please see the 2018 Chittenden County ECOS Plan Supplement 6 – Energy Analysis, Targets, & Methodology, available here: http://www.ecosproject.com/2018-ecos-plan/

Transportation Energy Target

The transportation energy targets for Winooski, as seen in Table 9, represent an ambitious electrification of the transportation sector to increase the amount of renewable energy used to power passenger vehicles. To meet the energy goals, transportation energy from light duty vehicles will need to decrease 72% by 2050. This will primarily be achieved by converting to more efficient electric vehicles from fossil fuel vehicles. The LEAP model shows that to achieve this reduction, 89% of passenger vehicles must be electric. Electrifying the light duty sector will also lead to a dramatic increase in electricity use in the transportation sector and a significant decrease in gasoline consumption. The LEAP model estimates that the heavy-duty sector will transition to biodiesel as its primary fuel source. Biodiesel energy use is projected to increase to about 96% for heavy duty fleet vehicles by 2050.

Table 9. Projected Transportation Energy Use, 2025-2050

	2025	2035	2050
Total Light Duty Transportation Energy Use (MMBtu)	244,401	154,812	67,473
Electricity Used for Light Duty Transportation (MMBtu)	3,259	22,465	47,414
Light Duty Electric Vehicles (% of Vehicle Fleet)	6%	41%	89%
Biofuel Blended* Energy Used for Light Duty Transportation (MMBtu)	241,142	132,347	20,060
Biofuel Blend*Light Duty Vehicles (% of Vehicle Fleet)	94%	59%	11%
Heavy-Duty Transportation Energy Use from Biodiesel (Percent of Total)	33%	58%	96%
Heavy-Duty Transportation Energy Use from Fossil Fuels (Percent of Total)	67%	42%	4%
*This measures biofuels blended with fossil fuels. A common example is gasoline with ethanol mixed in. Sources: VTrans, LEAP Model			

In addition, to switching to electric vehicles, Winooski can reduce the energy used in the transportation sector through Transportation Demand Management (TDM) strategies. TDM strategies are low-cost programs that focus on decreasing travel and use of Single Occupancy Vehicles (SOVs) and increasing the use of other modes. The City already has transit, carshare and bikeshare access which are low cost alternatives to vehicle

ownership. Improvements could be made to increase the frequency of transit service, and bike lanes to better enable residents to use these modes more regularly. The Transportation Master Plan includes more details on specific roadway, bike and pedestrian improvements. The addition of electric bikes to the bikeshare fleet may also increase accessibility to this mode choice. Low cost pilot projects could also be helpful in locating separated bike lanes, as well as open street programs to educate and inspire residents to bike more (such as Burlington's Open Streets program). TDM is viewed as having great potential for saving energy as automobiles are identified as the predominant mode of transportation for Winooski residents (see the commute to work data in the Master Plan).

Thermal Energy Targets, Commercial Sector

The thermal targets for Winooski in 2050 estimate a 16% reduction in total commercial and industrial thermal energy use (see Table 10) This will primarily be achieved through weatherization and the use of more efficient heating technologies such as cold climate heat pumps and biomass. These targets also estimate that renewable sources of heat will become more common. By 2050, 40% of businesses are projected to be using heat pumps and 11% of businesses will be using wood heating.

Table 10. Projected Commercial and Industrial Thermal Energy Use, 2025-2050

	2025	2035	2050
Total Commercial and Industrial Thermal Energy Use (MMBtu)	89,706	85,445	75,577
Percent of Commercial and Industrial Establishments Weatherized by Target Year	18%	20%	35%
Energy Saved by Weatherization by Target Year (MMBtu)	4,822	6,686	16,113
Commercial and Industrial Establishments Using Heat Pumps (%)	20%	32%	36%
Commercial and Industrial Thermal Energy Use by Heat Pumps (MMBtu)	7,274	14,379	21,485
Commercial and Industrial Establishments Using Wood Heating (%)	9%	10%	10%
Commercial and Industrial Thermal Energy Use Attributable to Wood Heating (MMBtu)	10,854	14,950	21,888
Sources: LEAP Model, Department of Public Service, Department of Labor			

Thermal Energy Targets, Residential Sector

Thermal energy use in Winooski homes is projected to decrease by 41% from 2025 to 2050 (see Table 11). Residential buildings will use less energy for space heating due to an increase in the percent of buildings that are weatherized and greater efficiency in heating technology. To achieve the projected energy savings, at least 75% of homes in Winooski need to be weatherized by 2050. Additionally, the number of homes relying on heat pumps needs to increase to 55%.

Heat pumps are powered by electricity and are a more efficient way to heat a building compared to delivered fuels. Wood heating also plays an importation role in reducing thermal energy use and increasing the amount of renewable fuel sources for the thermal sector. The LEAP model estimates that at least 13% of homes need to rely on wood heat for space heating.

Table 11. Projected Residential Thermal Energy Use, 2025-2050

	2025	2035	2050
Total Residential Thermal Energy Use (MMBtu)	274,444	232,697	161,109
Percent of Residences Weatherized by Target Year	14%	36%	100%
Energy Saved by Weatherization by Target Year (MMBtu)	12,811	34,992	109,525
Percent of Residences Using Heat Pumps	18%	37%	61%
Residential Thermal Energy Use from Heat Pumps (MMBtu)	17,788	36,596	53,654
Residences Using Wood Heating (%)	14%	14%	14%
Residential Thermal Energy Use from Wood Heating (MMBtu)	50,398	50,447	44,323
Sources: LEAP Model, Department of Public Service			

Electricity Targets

Total electricity use is targeted to increase by 67% from 2025 to 2050 (see Table 12). This will likely be driven by conversions to electric heat pumps and electric vehicles. These consumer changes will cause electricity use to grow. At the same time, total energy use will decrease, and electricity will become a larger proportion of the state's total energy use. Total energy use will be reduced because technologies will be increasingly efficient and because using electricity for transportation and heating is more efficient than using other energy sources, such as fossil fuels.

Table 12. Projected Electricity Use (2025-2050)

	2025	2035	2050
Without Industrial (MWh)	33,989	43,321	56,142
Industrial Only (MWh)	11,029	14,261	19,142
Total (MWh)	45,018	57,582	75,284
Total Electric Energy Saved (MWh)	5,200	10,498	19,634
Residences that have increased their Electric Efficiency	30%	58%	98%
Commercial and Industrial Establishments that have Increased Their Electric Efficiency	30%	58%	98%
Source: LEAP Model *Please note that industrial electricity use is recognized as the most difficult element to project in the LEAP model, because of regional discrepancies in data from the commercial and industrial sector. Therefore, projected electricity use and total energy use are reported two ways: with industrial electricity use included and excluded.			

Total Energy Use Targets

One goal of enhanced energy planning is for energy use per capita to be reduced by more than 1/3 between 2015 and 2050. Though electricity is anticipated to increase, overall total energy will decrease because electricity is 3 to 4 times more efficient than fossil fuel energy. Table 13 provides an overview of increases in population while total energy use decreases.

Table 13. Projected Total Energy Use per Capita

	2015	2025	2035	2050
Total Energy Use (MMBtu)	813,942	762,151	669,423	561,029
Population	7,193	7,558	7,789	8,164
Total Energy Use Per Capita (MMBtu)	113	101	86	69
Reduction in Total Energy Use Per Capita since 2015	--	-11%	-24%	-39%
Source: LEAP				

Estimated Renewable Energy Generation Potential

The State's Comprehensive Energy Plan sets a target to generate 90% of energy from renewable sources. The 2018 Chittenden County ECOS Plan estimates the regional and municipal role in advancing the state goal. The ECOS Plan sets a regional renewable energy target of a total of 756,250 MWh (Megawatt hours) of energy to meet the low target or 1,265,134 MWh to meet the high target. This means an additional 255,054 MWh to meet the low target or 763,938 MWh to meet the high target, regionally. The ECOS Plan allocates the total amount of renewable energy to each municipality based on each municipality's share of the region's population and electricity consumption and nets out existing renewable energy generation. As seen in Table 14, Winooski's generation target for 2050 is an **additional** 9,761 MWh on the low end and 27,010 MWh on the high end. Given Winooski's urban landscape and lack of available open land for land-based generation creative thinking and planning is needed to move the city towards the low target. Winooski can plan for meeting this target through a variety of renewable energy technologies. Table 15 describes the generation potential of roof-top solar. Winooski could generate 4,963 MWh of solar energy on a portion of rooftops that have the technical capabilities to accommodate solar panels. Rooftop solar could meet 51% of the low target, so additional conceptual planning is needed to generate additional electricity. The City of Winooski will consider identifying potential city-owned or industrially zoned areas for land-based solar generation and will explore innovative ways to generate renewable energy. These could include district wood heating, wastewater treatment facility methane recovery, or food waste digestion.

Table 14. Additional Renewable Energy Generation Target

	2025		2035		2050	
	Low	High	Low	High	Low	High
New Generation (MWh)	3,254	9,003	6,507	18,006	9,761	27,010
Total	19,126	24,875	22,379	33,878	25,633	42,882
Sources: LEAP Model and CCRPC Modeling *These targets are in addition to what the municipality is already generating and are technology neutral*						

Table 15. Projected Renewable Electricity Generation Potential

	Power (MW)	Energy (MWh)
Rooftop Solar*	4	4,963
Source: CCRPC and the Department of Public Service * Rooftop solar potential is calculated by assuming that 25% of residential rooftops, 25% small commercial rooftops, and 50% of large commercial rooftops can hold solar systems. Ground-mounted solar potential reports how much land could be developed with solar based on its aspect and elevation and does not remove space taken up by impervious surfaces like roofs. Therefore, rooftop solar potential cannot be added to ground-mounted solar potential, as this would lead to generation potential being double counted.		

Siting
Municipalities can have input over the siting of renewable generation in two ways: by defining preferred sites, where they wish to strongly encourage renewable energy development, and by defining constraints, where they wish to place restrictions on development, including renewable energy.

Preferred Sites
Vermont's Net Metering Rules (Rule 5.100, effective 7/1/2017) defines sites for renewable energy development (any renewable technology that is not hydro). Net metering on a preferred site can be larger (up to 500kW) if sited on a preferred site. Being on a preferred site also confers financial benefits in the net metering rates. A preferred site according to the net metering rules includes pre-existing structure, parking lot canopies, previously developed land, brownfields, landfills, gravel pits, on a parcel that is adjacent to a customer taking 50% or more of the output, or city-designated sites. City designated preferred sites can be identified in an adopted municipal plan.

Constraints
The following resources have been defined by the State as known and possible constraints to development. As such, these constraints will be monitored and protected during the Public Utility Commission process (and in many cases, during Act 250 review) by relevant state agencies, but not the City of Winooski unless they are regulated in the City's Unified Land Use & Development Regulations. These state-defined constraints are mapped on the Regional ECOS online map viewer under 'Natural Systems', 'Development Constraints' and 'Forest Integrity'. The map viewer is located here: http://map.ccrpcvt.org/ChittendenCountyVT/ .

State Defined Known Constraints are areas in which the State finds development, including renewable energy generation, is not appropriate. These are:

- *FEMA Floodways*
- *DEC River Corridors*
- *National Wilderness Areas*
- *State-significant Natural Communities*
- *Rare, Threatened, and Endangered Species*
- *Vernal Pools (confirmed and unconfirmed)*
- *Class 1 and 2 wetlands (VSWI and advisory layers)*

State Defined Possible Constraints are areas in which the State finds effects of development, including renewable energy generation, may need to be mitigated. These are:

- *Agricultural Soils* and Hydric Soils*
- *Act 250 Agricultural Soil Mitigation Areas*
- *FEMA Special Flood Hazard Areas*
- *Vermont Conservation Design Highest Priority Forest Blocks (Forest Blocks –*
- *Connectivity, Forest Blocks – Interior, Forest Blocks - Physical Land Division)*
- *Highest Priority Wildlife Crossings*
- *Protected Lands (State fee lands and private conservation lands)*
- *Deer Wintering Areas*

***** While the State will review agricultural soils it is not the intent of the City of Winooski to protect primary agricultural soils from development considering agricultural operations (outside of

community gardens) are not feasible on small parcels isolated from more intact open agricultural areas. Further, mitigation of these soils through state development approval processes does not seem appropriate in such an urban environment.

Enhanced Energy Planning Actions

The following actions will be evaluated by the City as they implement the 2019 Master Plan:

ENERGY AWARENESS

1. *Consider switching the heating fuel source of municipal buildings to wood, biogas, or electricity.*
2. *Conduct energy audits on all municipal buildings and make any necessary retrofits to reduce energy consumption.*
3. *Continue to evaluate electric vehicles or energy efficient models to replace the City's current fossil-fuel fleet to the extent possible.*
4. *Promote ridesharing, transit, carshare and bikeshare by employees of Winooski's government, industrial parks, and businesses through regional and state programs such as Go! Vermont and the Chittenden Area Transportation Management Association.*
5. *Establish an energy committee to educate and promote awareness of energy efficiency programs for businesses and citizens. Convene educational events in cooperation with Vermont Gas, Green Mountain Power, Efficiency VT, and energy vendors to educate the public about energy audits, fuel assistance, cold climate heat pump technology, and advanced wood heating. Promote energy efficiency programs and renewable energy technology through leaflets and the city website.*
6. *Consider joining the Vermont Climate Pledge Coalition.*

ENERGY STANDARDS

7. *Continue to apply the standards of current building codes and the Vermont Energy Code in development review and building permit process. Consider adopting the Vermont Stretch Energy Code into the zoning regulations, or electric vehicle ready standards.*
8. *Consider distribution of guidelines on energy-conscious use of landscaping to enhance passive energy utilization and conservation.*

RENEWABLE ENERGY GENERATION

9. *Consider including anaerobic digestion with methane capture as part of the Winooski wastewater treatment facility.*
10. *Identify municipally owned or industrial zoned areas that could host a solar array.*
11. *Encourage renewable energy generation facilities in areas that have reached their full development potential and educate potential developers on development constraints that may be applied by the State of Vermont.*
12. *Locate energy generation proximate to existing distribution and transmission infrastructure with adequate capacity and near areas with high electric load (See Green Mountain Power's Solar Map)*
13. *Locate solar generation (including but not limited to net metering) on previously impacted areas (such as, parking lots, previously developed sites, brownfields or on or near existing structures) that meet the height allowance in zoning to prevent future growth from shading these areas.*

TRANSPORTATION

14. *Continue to support the use of public transit, car-sharing and bike-sharing such as Green Mountain Transit (GMT), Special Services Transportation Authority (SSTA), Carshare*

Vermont, and Greenride Bikeshare as alternatives to the private automobile. The city shall continue to fund GMT and promote its use as a means of conserving energy and reducing traffic and air pollution in Winooski and the Greater Burlington region.

15. *Improve pedestrian and bicycle facilities throughout the City and to connecting municipalities as described in the Master Plan and Transportation Master Plan.*

Existing Renewable Energy Sites & Preferred Sites

Winooski, Vermont
Act 174
The Energy Development Improvement Act of 2016

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. They may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used as "siting maps."

N

0 0.175 0.35 0.7 Miles

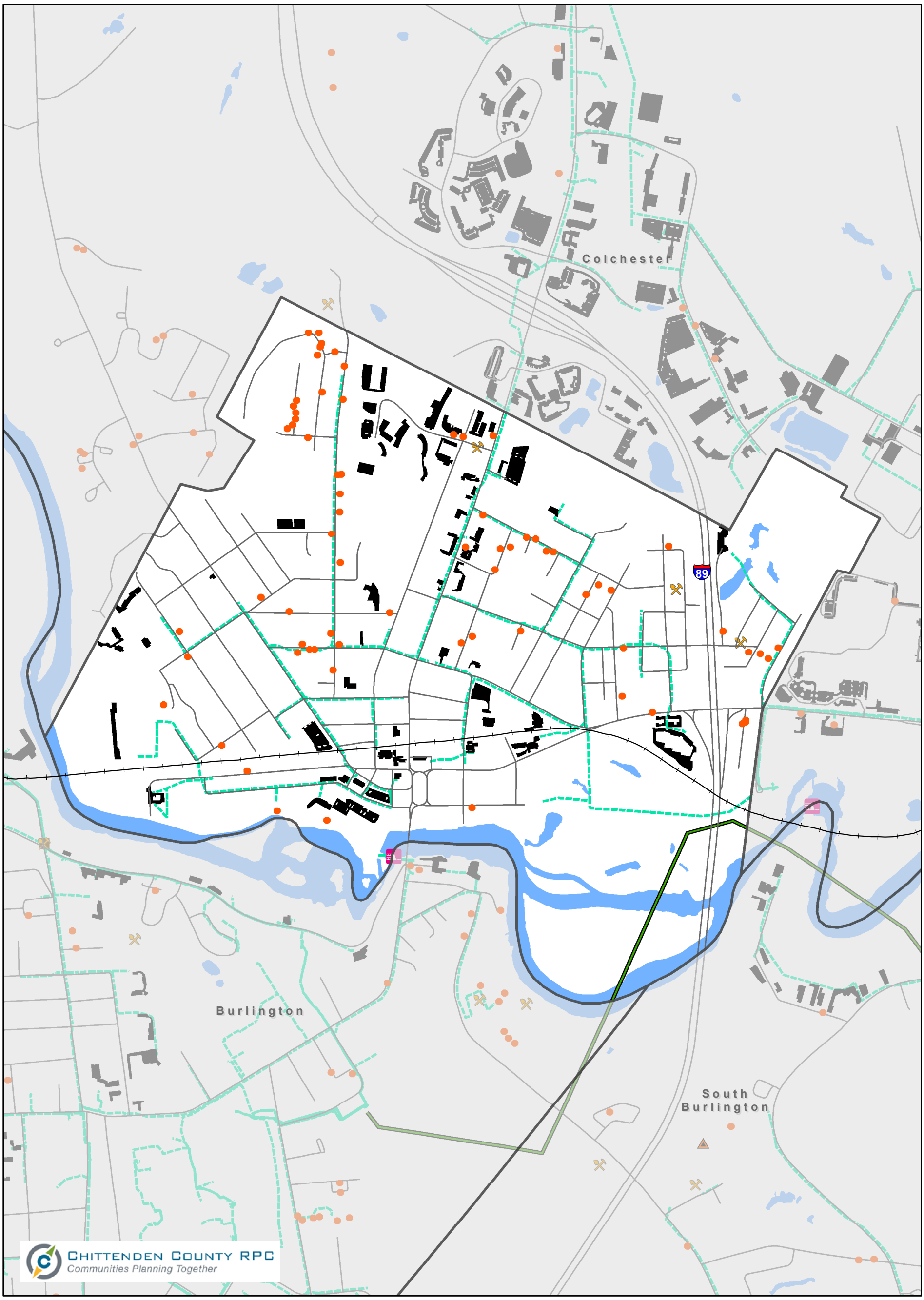
Existing Site Type Preferred Sites

- Hydropower
- Solar Site
- Closed Landfill
- Sand or Gravel Pit
- Brownfield
- Parking Lots
- 3 Phase Power Lines
- Transmission lines

Sources:
Closed Landfill-ANR
Sand or Gravel Pit--ANR
Parking Lots-CCRPC
3-Phase Power-VCGI, BED
Existing Sites-EAN, 11.2018
Major Roads and Railroad - VTrans
Town Boundary and Water Body - VCGI
Map produced with ArcGIS,
State Plane Coordinate System NAD83.
Disclaimer:
The accuracy of information presented is determined by its sources. Errors and omissions may exist. The Chittenden County Regional Planning Commission is not responsible for these. Questions of on-the-ground location can be resolved by site inspections and/or surveys by registered surveyor. This map is not sufficient for delineation of features on-the-ground. This map identifies the presence of features, and may indicate relationships between features, but is not a replacement for surveyed information or engineering studies.

Document Path: D:\Projects18\Winooski\ExistingEnergyGen_PreferredSites_20181220.mxd

Date: 12/20/2018



Potential Solar Energy Resource Areas

Winooski, Vermont
Act 174
The Energy Development Improvement Act of 2016

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. They may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used as "siting maps"

N

0 0.125 0.25 0.5 Miles

Prime Solar: Areas with high solar potential and no state/local known & possible constraints

Base Solar: Areas with high solar potential and a presence of state/local possible constraints

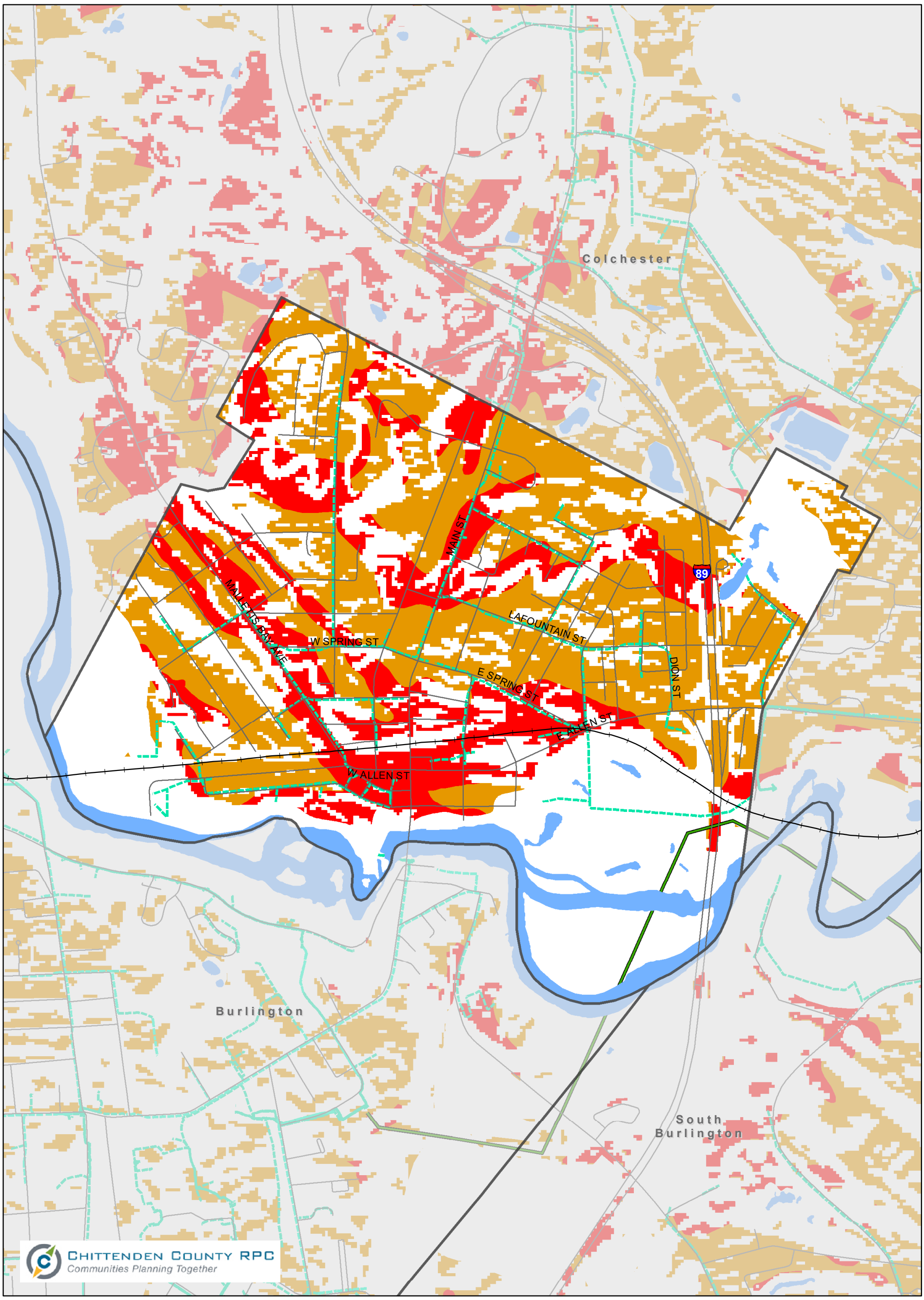
3 Phase Power Lines

Transmission Lines

Sources:
Solar Energy Resource Areas;VCGI,2017
Disclaimer:
The accuracy of information presented is determined by its sources. Errors and omissions may exist. The Chittenden County Regional Planning Commission is not responsible for these. Questions of on-the-ground location can be resolved by site inspections and/or surveys by registered surveyor. This map is not sufficient for delineation of features on-the-ground. This map identifies the presence of features, and may indicate relationships between features, but is not a replacement for surveyed information or engineering studies.

Date: 2/12/2018

Document Path: D:\Projects17\Act174\Maps\Towns\Solar\SolarTownPortraitTemplate.mxd



Potential Wind Energy Resource Areas

Winooski, Vermont
Act 174
The Energy Development Improvement Act of 2016

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. They may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used as "siting maps"

N

0 0.125 0.25 0.5 Miles

Prime Wind: Areas with high wind potential and no state/local known +possible constraints

Base Wind: Areas with high wind potential and a presence of state/local possible constraints

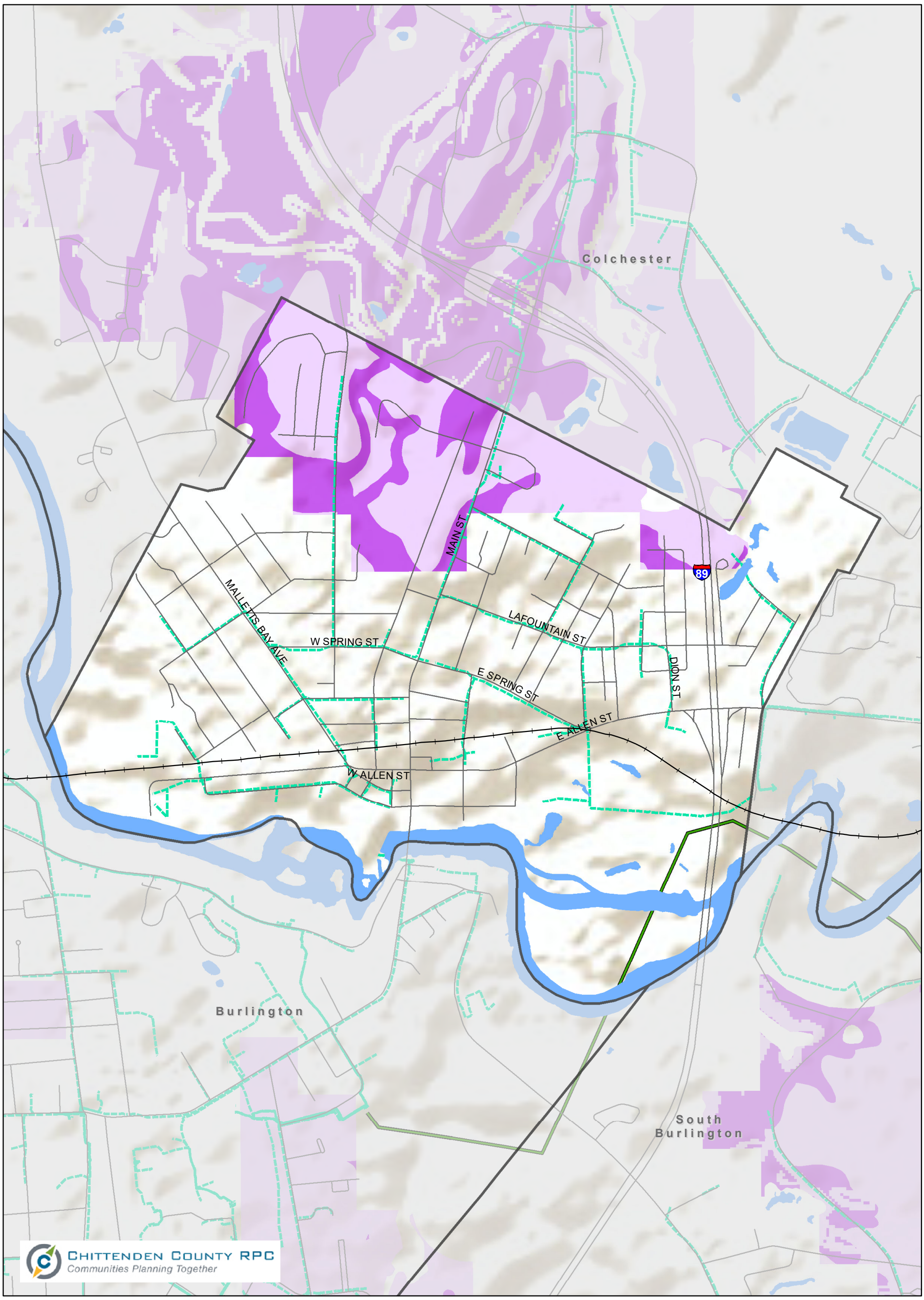
3 Phase Power Lines

Transmission Lines

Sources:
Wind Energy Resource Areas;VCGI,2017
Disclaimer:
The accuracy of information presented is determined by its sources. Errors and omissions may exist. The Chittenden County Regional Planning Commission is not responsible for these. Questions of on-the-ground location can be resolved by site inspections and/or surveys by registered surveyor. This map is not sufficient for delineation of features on-the-ground. This map identifies the presence of features, and may indicate relationships between features, but is not a replacement for surveyed information or engineering studies.

Document Path: D:\Projects17\Act174\Maps\Towns\Wind\WindTownPortraitTemplate.mxd

Date: 2/12/2018



Woody Biomass Resource Locations

Chittenden County, Vermont
Act 174
The Energy Development Improvement Act of 2016

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. The may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used of as "siting maps"

0 1.75 3.5 7 MilesB

Document Path: D:\Projects17\Act174\Maps\County\Act174EnergyMap_CC_Biomass.mxd

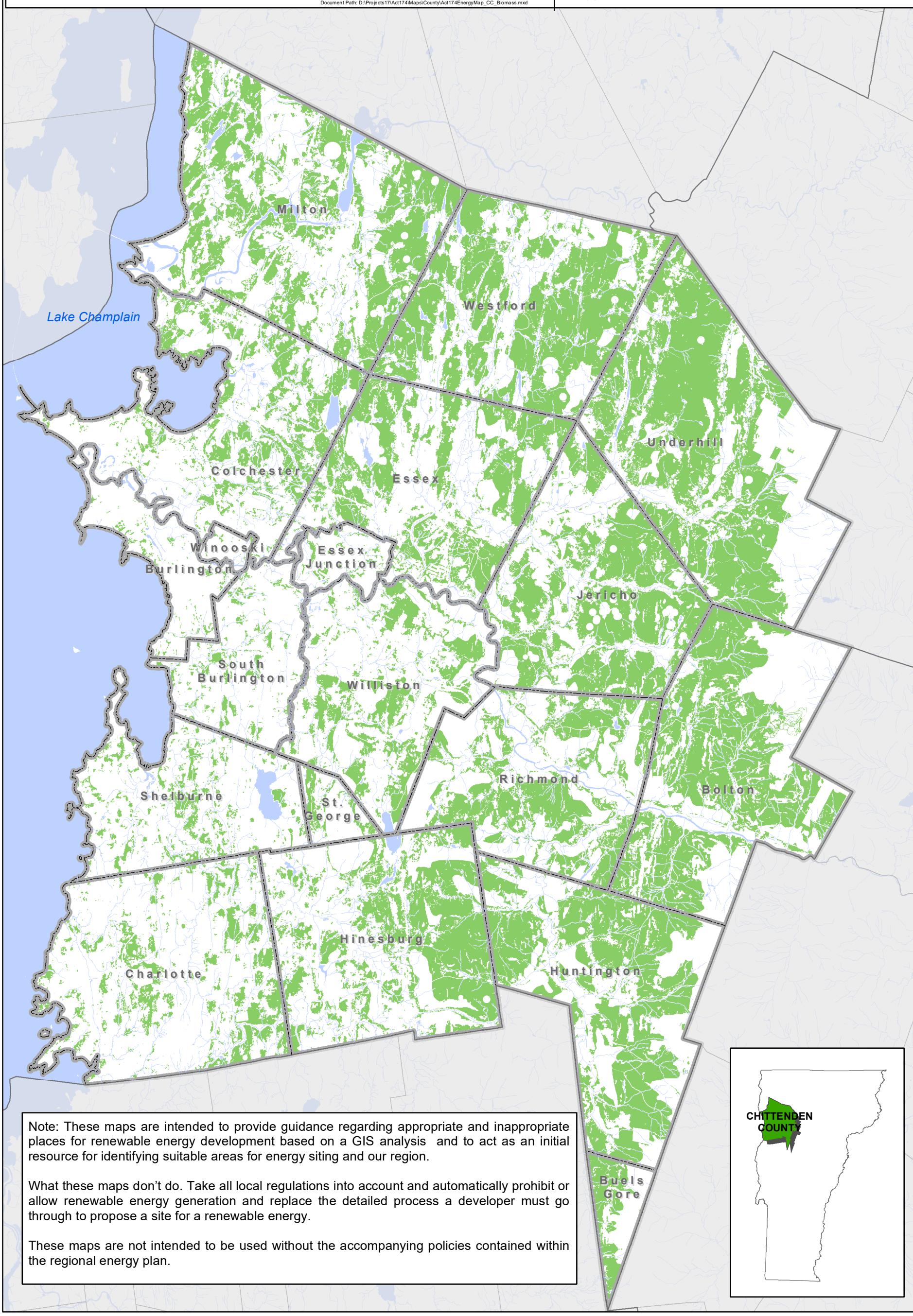
Legend

Woody Biomass Resource Areas

N

Date: 4/29/2017

DRAFT



Note: These maps are intended to provide guidance regarding appropriate and inappropriate places for renewable energy development based on a GIS analysis and to act as an initial resource for identifying suitable areas for energy siting and our region.

What these maps don't do. Take all local regulations into account and automatically prohibit or allow renewable energy generation and replace the detailed process a developer must go through to propose a site for a renewable energy.

These maps are not intended to be used without the accompanying policies contained within the regional energy plan.

Hydro- Electric Energy Resource Locations

Chittenden County, Vermont
Act 174
The Energy Development Improvement Act of 2016

This map and the corresponding data is intended to be used to inform energy planning efforts by municipalities and regions. The may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. They should NOT take the place of site-specific investigation for a proposed facility and should not be used of as "siting maps"

0 1.75 3.5 7 Miles

Document Path: D:\Projects17\Act174\Maps\County\Act174EnergyMap_CC_HydroGen.mxd

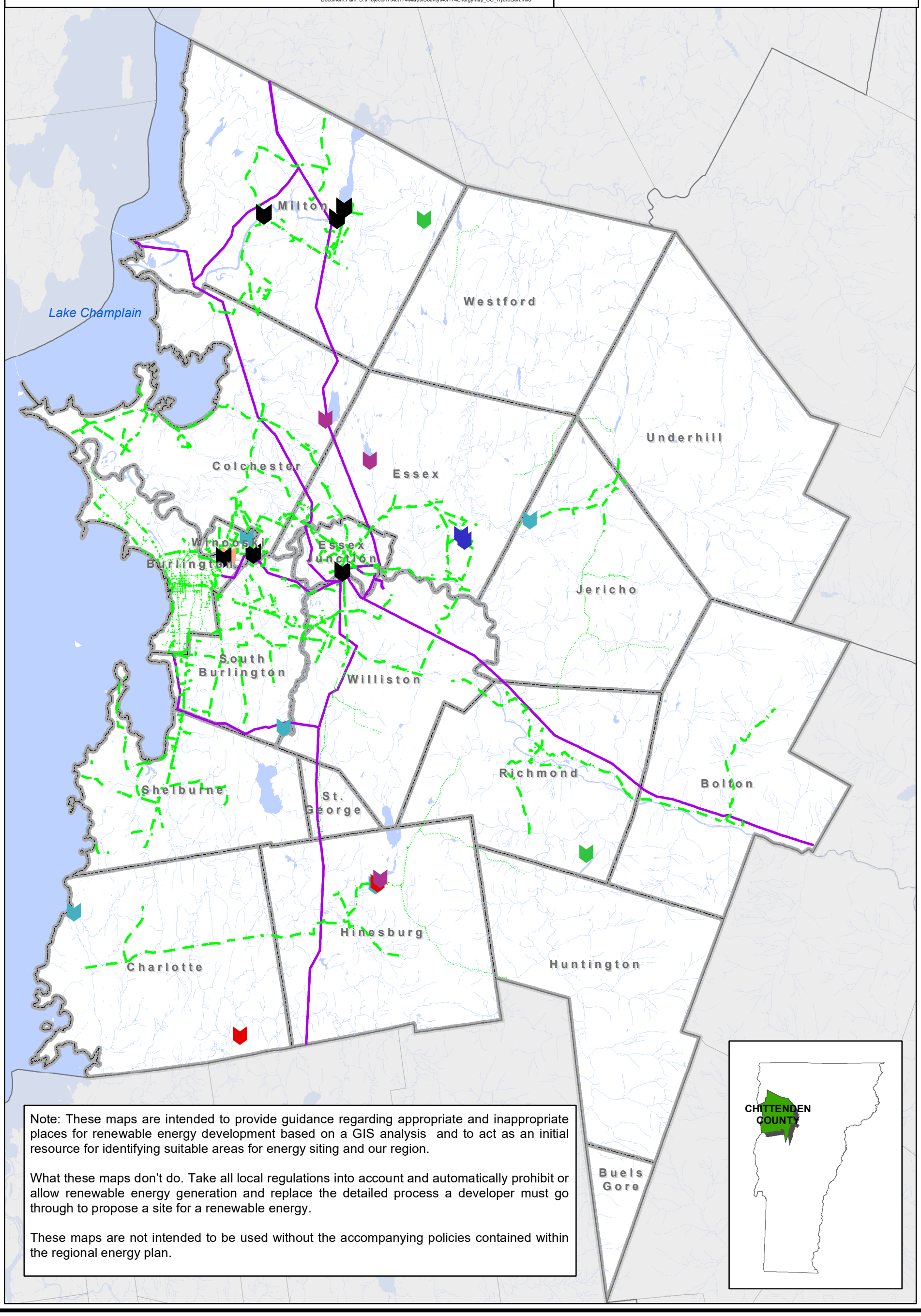
Legend

- Current Operating Hydroelectric Dams
- Unknown Capacity
- > 50kW Capacity
- < 10kW Capacity
- Low Hazard with >50 kW
- Low Hazard with <10KW
- Significant Hazard with <10KW
- 3 Phase Power Lines
- Transmission lines
- OH_Primary
- UG_Primary

N

Date: 4/26/2017

DRAFT



Note: These maps are intended to provide guidance regarding appropriate and inappropriate places for renewable energy development based on a GIS analysis and to act as an initial resource for identifying suitable areas for energy siting and our region.

What these maps don't do. Take all local regulations into account and automatically prohibit or allow renewable energy generation and replace the detailed process a developer must go through to propose a site for a renewable energy.

These maps are not intended to be used without the accompanying policies contained within the regional energy plan.