

Municipal Analysis & Targets - Saint Albans City

The following is an explanation of the municipal energy data compiled by Northwest Regional Planning Commission (NRPC). The intent of the municipal energy data is to provide the municipalities with data required to ensure compliance with the requirements of Act 174 and “Enhanced Energy Planning” (24 V.S.A. 4352). The following tables contain data that estimates current energy use and provides targets for future energy use across all sectors (transportation, heating, and electricity). It also sets targets for renewable energy generation within the municipality.

This data is meant to be a starting point for the municipality to begin planning its energy future and to talk about the changes that may need to occur within the municipality to ensure that local, regional and state energy goals are met. This includes the State of Vermont’s goal to have 90% of all energy demand be met from renewable sources by 2050.

Figure 1 - Data Sources

ACS – American Community Survey
 DOL – Vermont Department of Labor
 DPS – Vermont Department of Public Service
 EIA – Energy Information Administration
 EVT – Efficiency Vermont
 LEAP – Long-Range Energy Alternatives Planning
 VEIC – Vermont Energy Investment Corporation
 VTrans – Vermont Agency of Transportation

Data Sources

Estimates of current energy use consist primarily of data available from the American Community Survey (ACS), the Vermont Agency of Transportation (VTrans), the Vermont Department of Labor (DOL), and the Vermont Department of Public Service (DPS). Targets for future energy use are reliant upon the Long-range Energy Alternatives Planning (LEAP) analysis for the region completed the Vermont Energy Investment Corporation (VEIC). Targets for future energy generation have come from the regional planning commission and DPS. For more information on LEAP, see the Northwest Regional Energy Plan (www.nrpcvt.com). Targets for both future energy use and energy generation have been generally developed using a “top down” method of disaggregating regional data to the municipal level.

It is possible to develop “bottom up” data. For those municipalities interested in that approach, please see the Department of Public Service’s Analysis and Targets Guidance (<http://publicservice.vermont.gov/content/act-174-recommendations-and-determination-standards>).

Please remember that the targets established by LEAP represent only one way to achieve energy goals. There may several other similar pathways that a municipality may choose to take in order to meet the 90x50 goal.

Below is a worksheet by worksheet explanation of the Municipal Template spreadsheet:

1. Municipal Data Summary

The following tables summarize all data that is required to be in a municipal plan if the plan is to meet the “determination” standards established by the Vermont Department of Public Service.

Table 1A: Current Municipal Transportation Energy Use

Transportation Data	Municipal Data
Total # of Passenger Vehicles (ACS 2011-2015)	4,144
Average Miles per Vehicle (Vtrans)	11,356
Total Miles Traveled	47,059,264
Realized MPG (2013 - VTrans 2015 Energy Profile)	18.6
Total Gallons Use per Year	2,530,068
Transportation BTUs (Billion)	305
Average Cost per Gallon of Gasoline (RPC)	2.31
Gasoline Cost per Year	5,844,457

This table uses data from the American Community Survey (ACS) and Vermont Agency of Transportation (VTrans) to calculate current transportation energy use and energy costs in the municipality.

Table 1B: Current Municipal Residential Heating Energy Use

Fuel Source	Municipal Households (ACS 2011-2015)	% of Municipal Households	Municipal Square Footage Heated	Municipal BTU (in Billions)
Natural Gas	1897	66.0%	2,999,408	180
Propane	121	4.2%	176,880	11
Electricity	131	4.6%	174,096	10
Fuel Oil	598	20.8%	942,176	57
Coal	0	0.0%	0	0
Wood	89	3.1%	160,304	10
Solar	0	0.0%	0	0
Other	31	1.1%	53,392	3
No Fuel	9	0.3%	10,800	1
Total	2876	100.0%	4,517,056	271

This table displays data from the ACS that estimates current municipal residential heating energy use.

Table 1C: Current Municipal Commercial Energy Use

	Commercial Establishments in Municipality (VT DOL)	Estimated Thermal Energy BTUs per Commercial Establishment (in Billions) (VDPS)	Estimated Thermal Energy BTUs by Commercial Establishments in Municipality (in Billions)
Municipal Commercial Energy Use	356	0.725	258

The table uses data available from the Vermont Department of Labor (VT DOL) and the Vermont Department of Public Service (DPS) to estimate current municipal commercial establishment energy use in the municipality.

Table 1D: Current Electricity Use

Use Sector	Current Electricity Use
Residential (kWh)	25,853,348
Commercial and Industrial (kWh)	91,340,073
Total (kWh)	117,193,421

This table displays current electricity use within the municipality. This data is available from Efficiency Vermont (EVT).

Table 1E: Residential Thermal Efficiency Targets

	2025	2035	2050
"Residential - Increased Efficiency and Conservation (% of municipal households to be weatherized)"	5%	16%	78%

This table displays targets for thermal efficiency of residential structures. The data is based on a methodology developed by DPS using data available from the regional Long-range Energy Alternatives Planning (LEAP) analysis and ACS. The data in this table represents the percentage of municipal households that will need to be weatherized in the target years. The target is cumulative.

Table 1F: Commercial Thermal Efficiency Target

	2025	2035	2050
"Commercial - Increased Efficiency and Conservation (% of commercial establishments to be weatherized)"	25%	25%	73%

This table shows the same information as Table 1E, but sets a target for commercial thermal efficiency and weatherization. Information from the VT DOL is required to complete this target. The target is cumulative.

**Table 1G: Thermal Fuel Switching
(Residential and Commercial) – Wood Systems**

	2025	2035	2050
New Efficient Wood Heat Systems (in units)	21	50	167

This table provides a target for new wood heating systems for residential and commercial structures in the municipality for each target year. This target was calculated using data from LEAP and ACS. The target is cumulative.

**Table 1H: Thermal Fuel Switching
(Residential and Commercial) – Heat Pumps**

	2025	2035	2050
New Heat Pumps (in units)	306	731	1444

This table provides a target for new heat pump systems for residential and commercial structures in the municipality for each target year. This target was calculated using data from LEAP and ACS. The target is cumulative.

Table 1I: Electricity Efficiency Targets

	2025	2035	2050
Increase Efficiency and Conservation (BTUs)	25.2%	48.3%	100.7%

Data in this table displays a target for increased electricity efficiency and conservation during the target years. This target will be met through conversions to high efficiency appliances, electric heat pumps, and electric light-duty vehicles. These targets were developed using regional LEAP analysis. The target is cumulative.

Table 1J: Use of Renewables – Transportation

	2025	2035	2050
Renewable Energy Use - Transportation (BTUs)	16.3%	41.3%	93.2%

This data displays targets for the percentage of transportation energy use coming from renewable sources during each target year. This target will be met through conversions to electric light-duty vehicles and biodiesel heavy-duty vehicles. This data was developed using the LEAP analysis. The target is cumulative.

Table 1K: Use of Renewables – Heating

	2025	2035	2050
Renewable Energy Use - Heating (BTUs)	43.1%	55.6%	83.0%

This data displays targets for the percentage of heating energy use coming from renewable sources during each target year. This target will be met through conversions to electric heat pumps and high efficiency wood heating systems. This data was developed using information from the LEAP analysis. The target is cumulative.

Table 1L: Use of Renewables – Electricity

	2025	2035	2050
Renewable Energy Use - Electricity (MWh)	2,984.8	5,969.5	9,044.7

This data displays targets for MWh of electricity generation coming from renewable sources within the municipality during each target year. This data was developed using information from the regional planning commission and DPS. This data is the same as the data in Table 1Q. The target is cumulative.

Table 1M: Transportation Fuel Switching Targets – Electric Vehicles

	2025	2035	2050
Electric Vehicles	363	2715	6459

This tables displays a target for switching from fossil fuel based vehicles (gasoline and diesel) to electric vehicles. This target is calculated using LEAP and ACS data. The target is cumulative.

Table 1N: Transportation Fuel Switching Targets – Biodiesel

	2025	2035	2050
Biodiesel Vehicles	1649	3303	6416

This tables displays a target for switching from fossil fuel based vehicles to biodiesel-powered vehicles. This target is calculated using LEAP and ACS data. The target is cumulative.

Table 1O: Existing Renewable Generation

Renewable Type	MW	MWh
Solar	0.93	1140.55
Wind	0.00	0.00
Hydro	0.00	0.00
Biomass	0.00	0.00
Other	0.00	0.00
Total Existing Generation	0.93	1140.55

Table 1O shows existing renewable generation in the municipality, in MW and MWh, based on information available from the Vermont Department of Public Service.

Table 1P: Renewable Generation Potential

Renewable Type	MW	MWh
Rooftop Solar	5	5,710
Ground-mounted Solar	33	40,932
Wind	53	163,977
Hydro	0	0
Biomass and Methane	0	0
Other	0	0
Total Renewable Generation Potential	92	210,619

Renewable generation potential is based on mapping completed by the regional planning commission that is based on the Municipal Determination Standards and associated guidance documents developed by DPS. The renewable generation potential is expressed in MW and MWh by the type of renewable resource (solar, wind, hydro, etc.).

Table 1Q: Renewable Generation Targets

	2025	2035	2050
Total Renewable Generation Target (in MWh)	2,984.75	5,969.50	9,044.70

This data displays targets for MWh of electricity generation coming from renewable sources within the municipality during each target year. This data was developed using information from the regional planning commission and DPS. This data is the same as the data in Table 1L.

Table 1R: Sufficient Land?

	Y/N
Solar	Y
Wind	Y

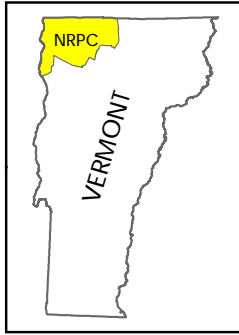
This table shows whether or not there is sufficient land in the municipality to meet the renewable generation targets based on the renewable generation potential in the municipality.

Utility Service Areas

St. Albans City, 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. This may also be used for conceptual planning or initial site identification by those interested in developing renewable energy infrastructure. The maps do NOT take the place of site-specific investigation for a proposed facility and cannot be used as 'siting maps.'



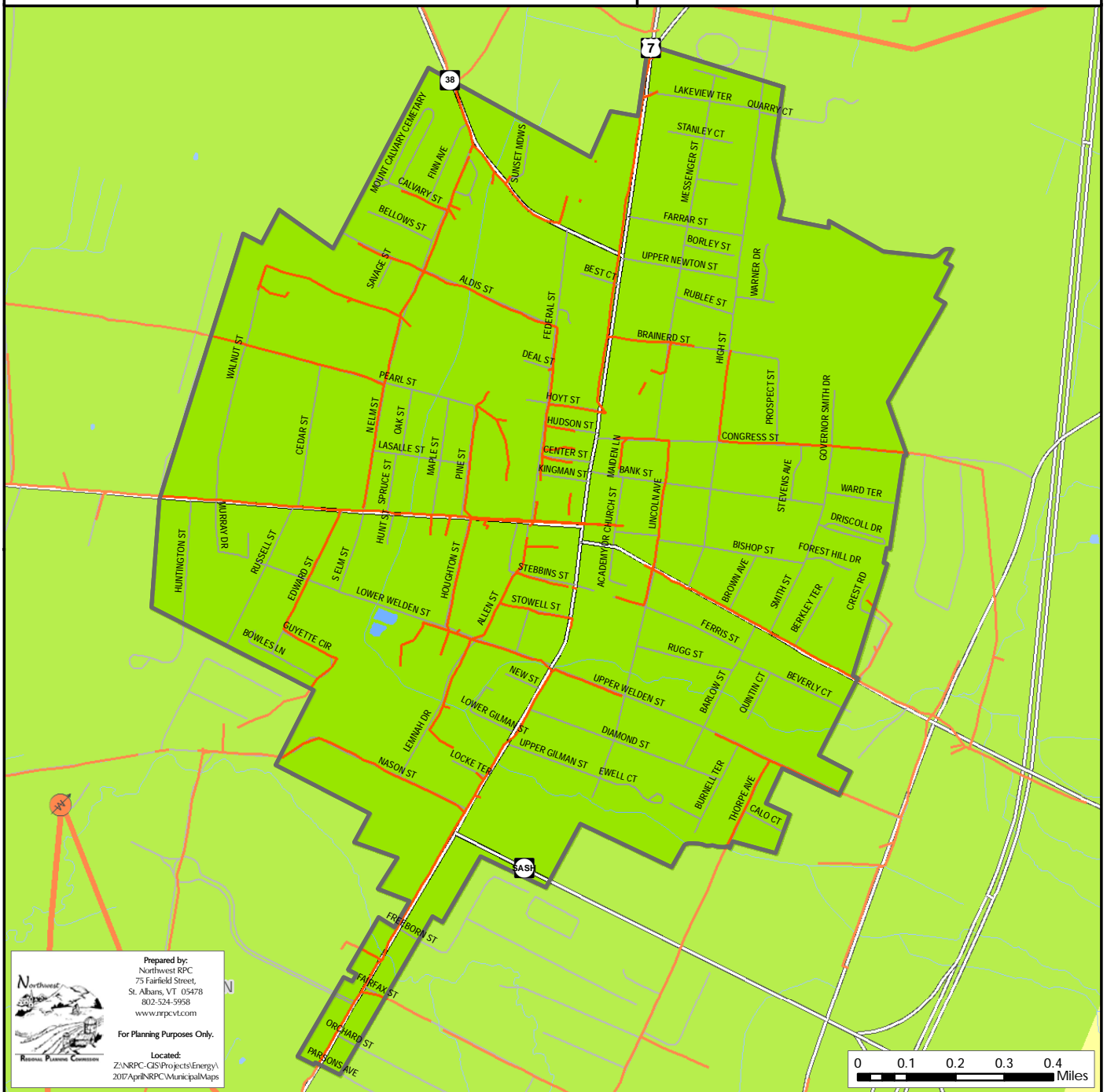
Legend

Utility Service Area Features

- Green Mountain Power
- Swanton Village Electric
- Vermont Electric Co-op
- Enosburg Falls Electric
- Substation
- 3 Phase Power Line
- Transmission Line

Sources: VCGI

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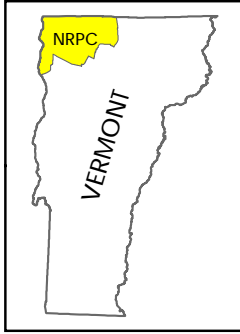
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Transmission & 3 Phase Power Infrastructure





St. Albans City, Vermont
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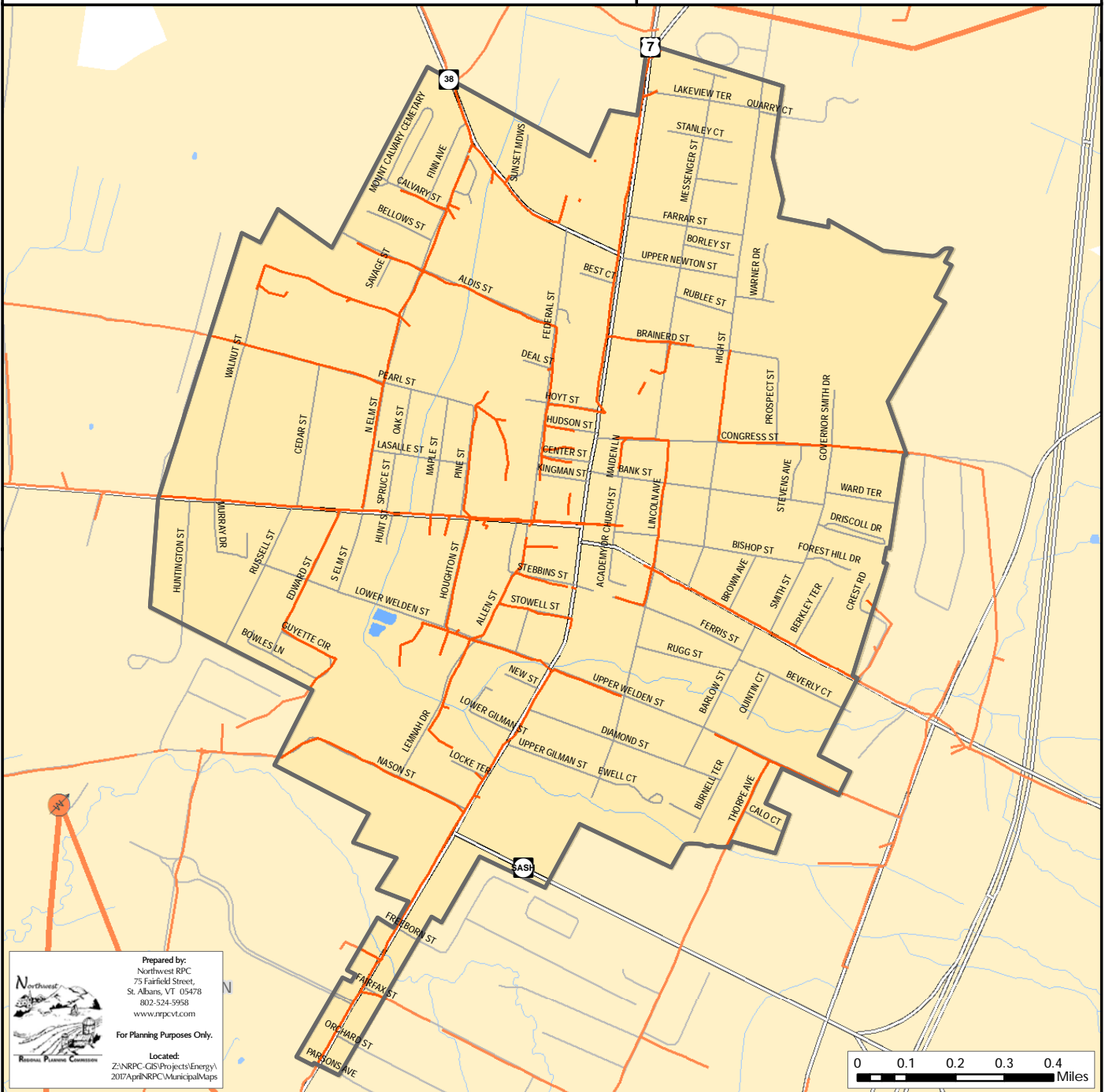


Legend

-  Substation
-  3 Phase Power Line
-  Transmission Line
-  1/2 Mile Buffer (3 Phase Power Line & Transmission Line)

Sources: VCGI

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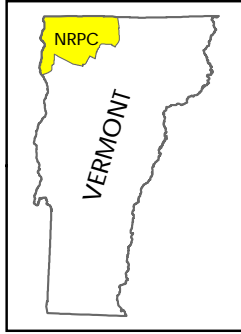
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Existing Generation Facilities

St. Albans City, Vermont
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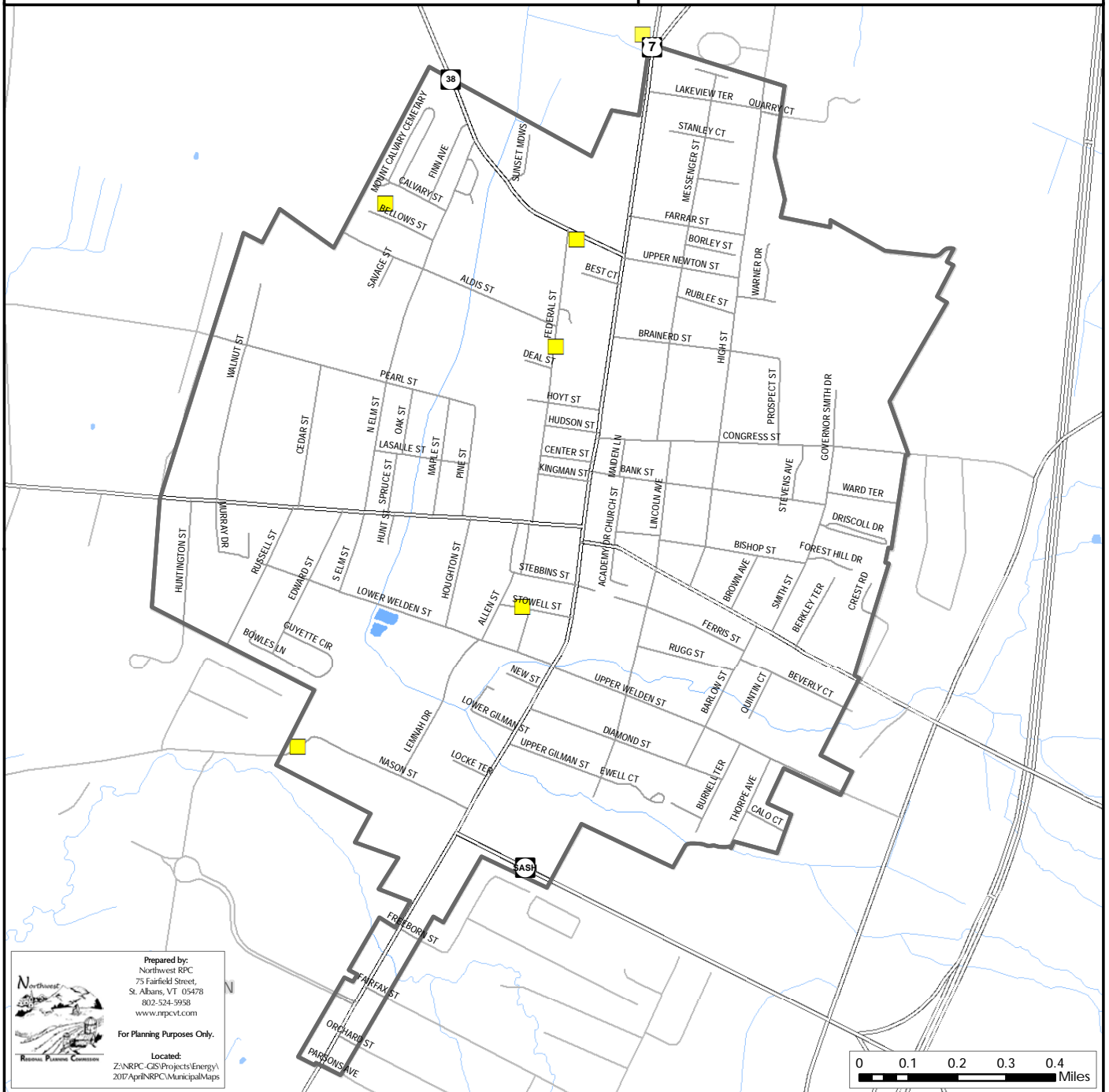
Legend

- ★ Biomass Facility
- Hydro Facility
- Solar Facility
- ▲ Wind Facility

Note: Only generators 15kW are shown on the map. A full list of all generators is available.

Sources: VCGI

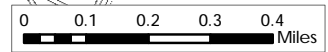
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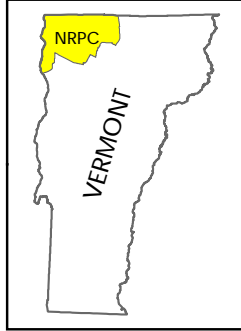


Natural Gas Lines

St. Albans City, Vermont
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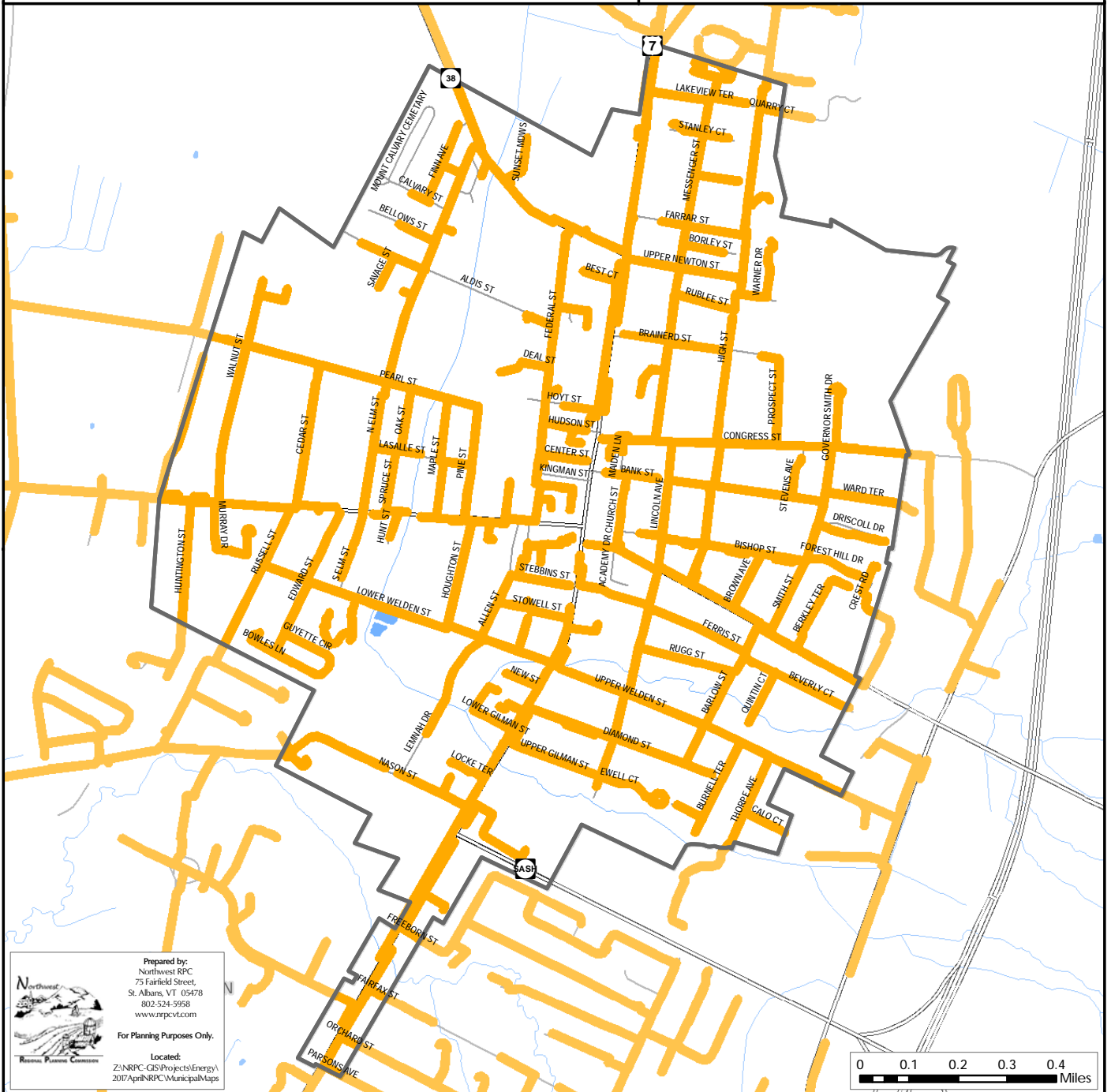


Legend

— Natural Gas Line

Sources: VCGI

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Hydro

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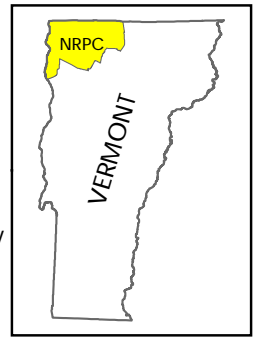


Legend

- Substation
- 3 Phase Power Line
- Transmission Line
- Designated Outstanding Resource Water
- Known Constraint - Designated National Wild & Scenic River
- Possible Constraint - Stressed or Impaired Water
- Possible Constraint - RINAs

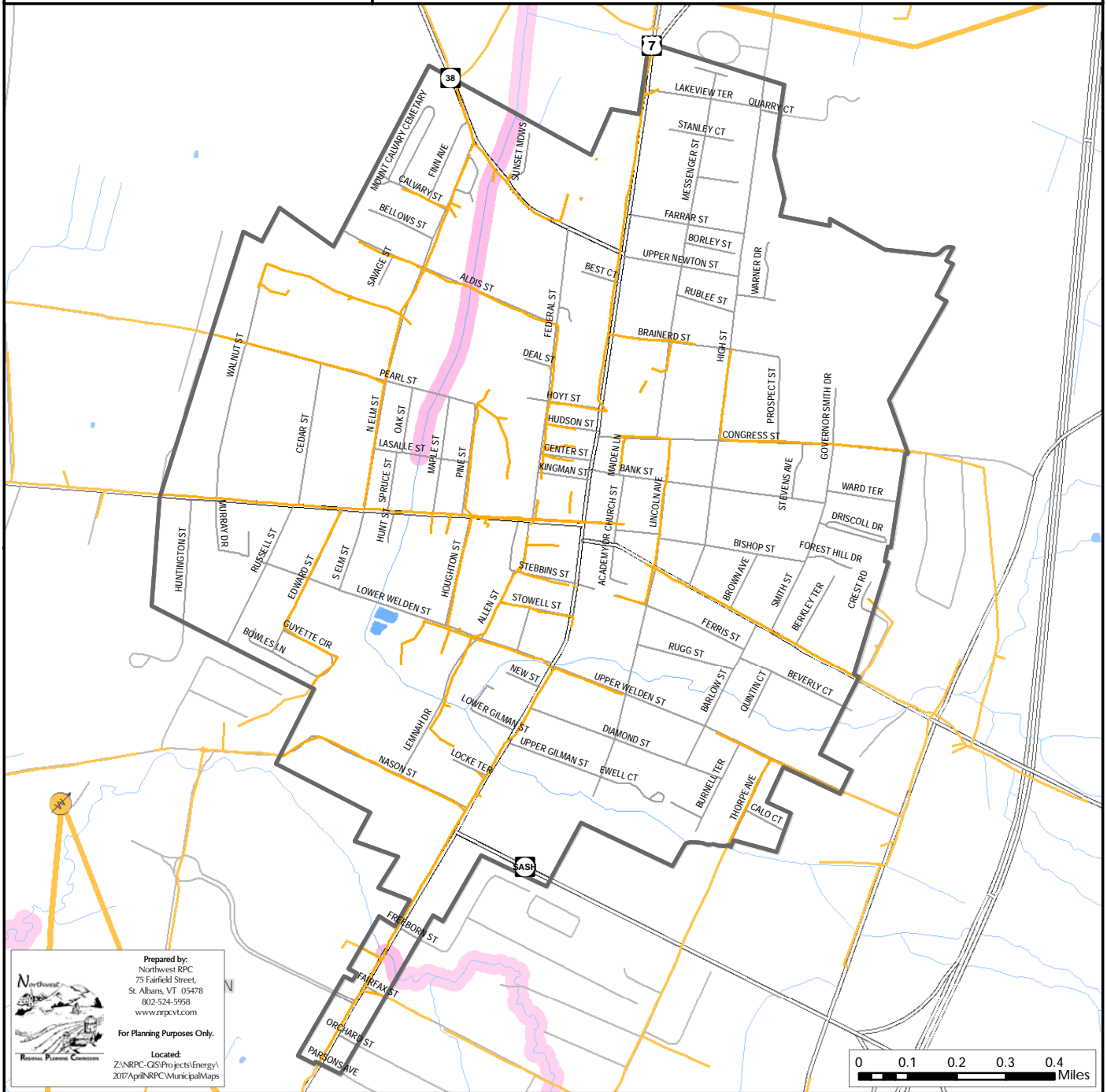
Potential Hydroelectric Facility

- < 50 kW Capacity
- > 50 kW Capacity
- High Hazard with < 50 kW Capacity
- High Hazard with > 50 kW Capacity
- Operating Hydroelectric Facility**
- Dam not on National Wild and Scenic River
- Dam on National Wild and Scenic River



Sources: VCGI

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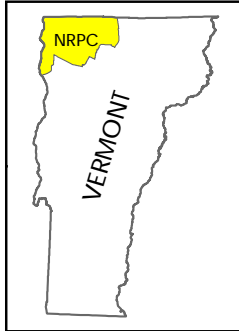
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Solar

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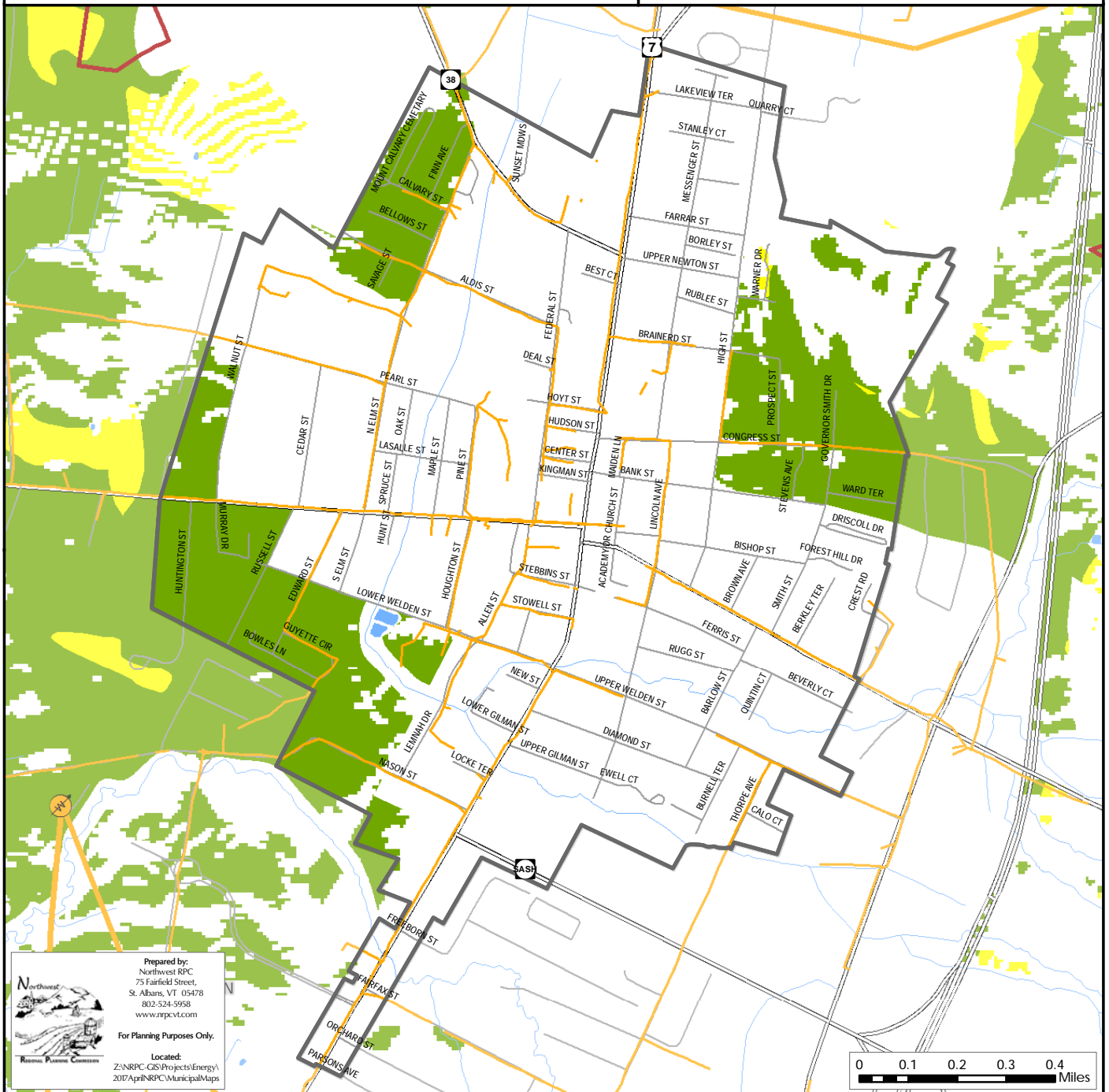
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Legend

- Substation
- 3 Phase Power Line
- Transmission Line
- 1/2 Mile Buffer (3 Phase Power Line & Transmission Line)
- Prime Solar/No Known Constraints
- Base Solar/Possible Constraints

Sources: VCGI
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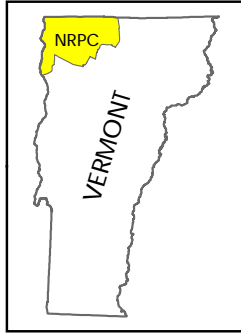
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Wind

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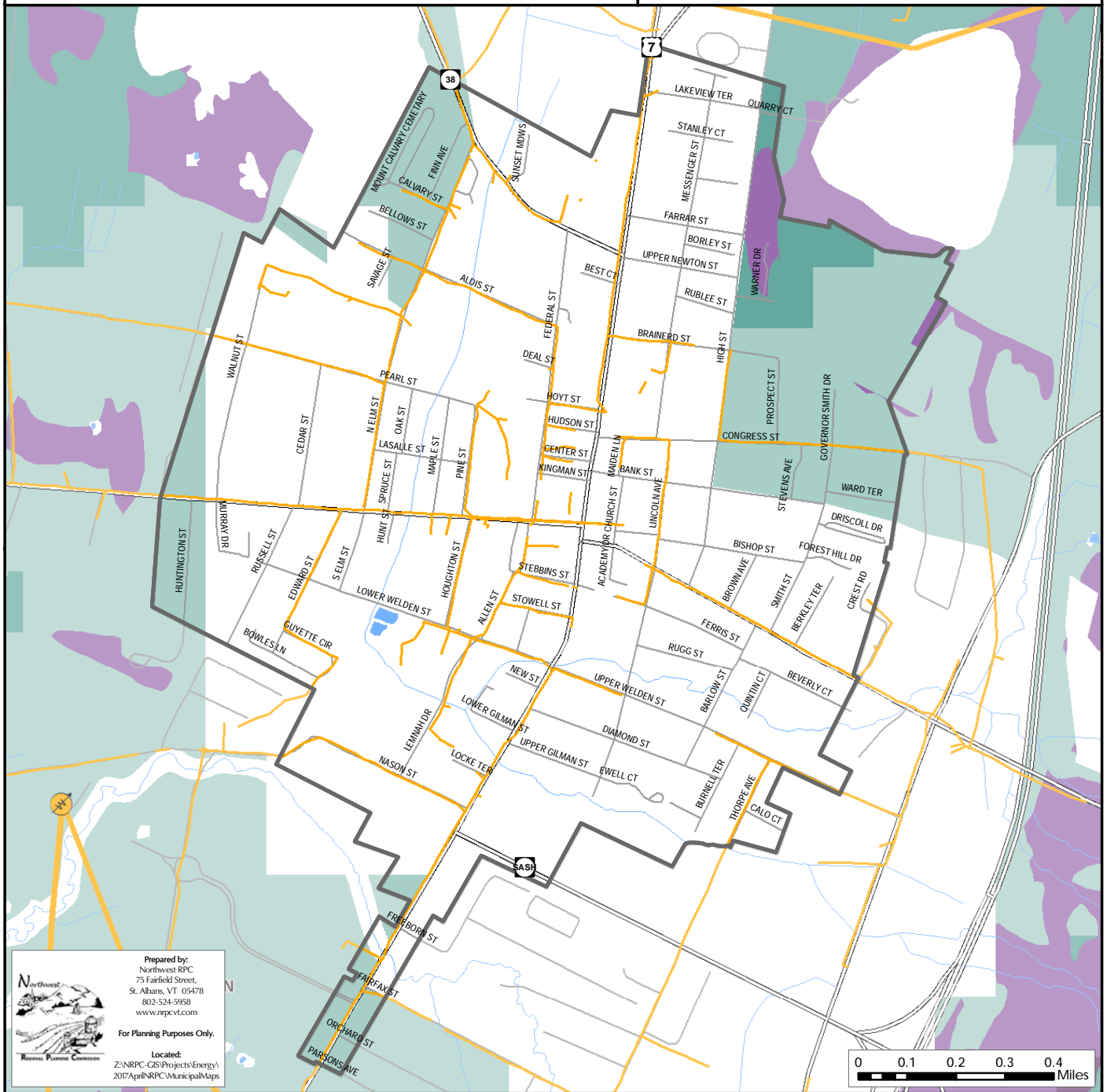
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Legend

- Substation
- 3 Phase Power Line
- Transmission Line
- Prime Wind
Areas of high wind potential and no known constraints.
Darker areas have higher wind speeds.
- Base Wind
Areas of high wind potential and a presence of possible constraints.
Darker areas have higher wind speeds.

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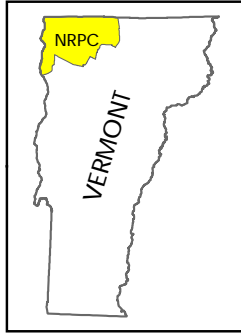
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Woody Biomass

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Legend

- Biomass System
- Cow Power
- Substation
- 3 Phase Power Line
- Transmission Line
- Prime Woody Biomass/No Known Constraints
- Base Woody Biomass/Possible Constraints

Sources: VCGI

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All Generators in Municipality

Category	Sub - Category	Organization Type	Address	City	CPG Number	Capacity kW
Solar	Ground-mounted PV: Tracker	Institution	29 Bellows Road	St. Albans	3065.00	142.50
Solar	Roof-Mounted PV	Residential	8 Hodges St	St. Albans	3530.00	4.60
Solar	Roof-Mounted PV	Institution	71 South Main Street	St. Albans	1036.00	12.00
Solar	Roof-Mounted PV	Residential	153 Federal St	St. Albans	2194.00	25.70
Solar	Roof-Mounted PV	Residential	34 Beverly Ct	St. Albans	2751.00	5.60
Solar	Roof-Mounted PV	Residential	147 High St	St. Albans	3590.00	4.30
Solar	Roof-Mounted PV	Residential	95 High St	St. Albans	6102.00	6.40
Solar	Roof-Mounted PV	Residential	68 Smith St	St. Albans	3816.00	5.00
Solar	Roof-Mounted PV	Residential	10 Upper Welden Street	St. Albans	3488.00	4.80
Solar	Roof-Mounted PV	Residential	8 Beverly Ct	St. Albans	2640.00	3.70
Solar	Roof-Mounted PV	Residential	73 Ferris Street	St. Albans	4227.00	6.00
Solar	Roof-Mounted PV	Residential	60 Walnut St	St. Albans	2721.00	4.30
Solar	Roof-Mounted PV	Residential	112 Lincoln Av	St. Albans	2682.00	3.70
Solar	Roof-Mounted PV	Residential	12 Nason St	St. Albans	3765.00	4.00
Solar	Roof-Mounted PV	Residential	27 Beverly Court	St. Albans	2904.00	5.70
Solar	Roof-Mounted PV	Residential	25 Stowell St	St. Albans	1795.00	36.10
Solar	Roof-Mounted PV	Residential	76 Bank Street	St. Albans	0.00	10.00
Solar	Roof-Mounted PV	Residential	21 Barlow Street	St. Albans	0.00	6.00
Solar	Roof-Mounted PV	Residential	9 Thorpe Ave	St. Albans	0.00	7.60
Solar	Roof-Mounted PV	Residential	59 Cedar Street	St. Albans	6977.00	3.80
Solar	Roof-Mounted PV	Residential	77 Nason Street	St. Albans	6537.00	22.52
Solar	Roof-Mounted PV	Residential	23 Cedar Street	St. Albans	7315.00	4.00
Solar	Roof-Mounted PV	Residential	12 Thorpe Avenue	St. Albans	0.00	4.20
Solar	Roof-Mounted PV	Residential	57 Walnut Street	St. Albans	0.00	3.00
Solar	Roof-Mounted PV	Residential	10 Thorpe Ave	St. Albans	0.00	5.00
Solar	Roof-Mounted PV	Residential	128 S Main St	St. Albans	7493.00	3.60
Solar	Roof-Mounted PV	Residential	48 Maple Street	St. Albans	0.00	3.60

All Generators in Municipality

Category	Sub - Category	Organization Type	Address	City	CPG Number	Capacity kW
Solar	Roof-Mounted PV	Residential	7 Lakeview Terr	St. Albans	0.00	3.60
Solar	Roof-Mounted PV	Residential	45 Huntington Street	St. Albans	0.00	7.60
Solar	Roof-Mounted PV	Residential	120 Lincoln Avenue	St. Albans	0.00	3.80
Solar	Roof-Mounted PV	Residential	9 Ewell Court	St. Albans	0.00	4.20
Solar	Roof-Mounted PV	Business	20 Lower Newton Street	St. Albans	0.00	500.00
Solar	Roof-Mounted PV	Residential	28 Beverly Court	St. Albans	0.00	5.00
Solar	Roof-Mounted PV	Residential	17 Murray Drive	St. Albans	0.00	5.50
Solar	Roof-Mounted PV	Residential	11 Brown Avenue	St. Albans	0.00	5.20
Solar	Roof-Mounted PV	Residential	29 Beverly Court	St. Albans	0.00	3.80
Solar	Roof-Mounted PV	Residential	20 Lakeview Terrace	St. Albans	0.00	6.00
Solar	Roof-Mounted PV	Residential	70 Bank Street	St. Albans	0.00	11.40
Solar	Roof-Mounted PV	Residential	100 Congress St	St. Albans	6609.00	5.00
Solar	Roof-Mounted PV	Residential	113 Bank Street	St. Albans	0.00	3.00
Solar	Roof-Mounted PV	Residential	74 Upper Welden St	St. Albans	0.00	6.00
Solar	Roof-Mounted PV	Residential	19 Guyette Circle	St. Albans	0.00	5.00
Solar	Roof-Mounted PV	Residential	26 Finn Avenue	St. Albans	0.00	5.00
Solar	Roof-Mounted PV	Residential	20 Thorpe Avenue	St. Albans	0.00	5.00