









# Town of Windham CTAP Buildout Report













BUILDOUT RESULTS



NDICATORS



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A project of CTAP - Community Technical Assistance Program



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This report details the Community Technical Assistance Program (CTAP) Buildout Analysis results for the Town of Windham, New Hampshire. CTAP is a five-year initiative designed to assist communities that will be affected by the rebuilding of I-93. This buildout, one of 26, is designed to allow a community to assess their future needs and help them reduce any negative consequences from the increased development pressure caused by the widening of I-93.

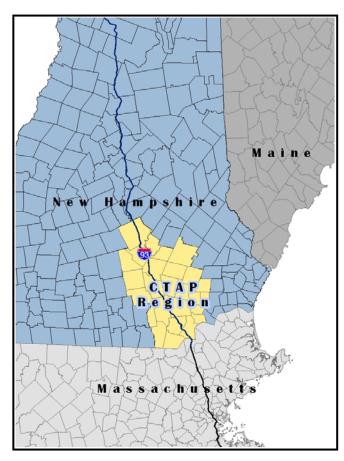
### What is CTAP?

CTAP is a joint effort between the 26 communities in the corridor, state agencies, regional planning commissions, and several non-profit organizations. The purpose of CTAP is to promote beneficial growth patterns and development practices that minimize the negative effects of growth on community services, remaining open space, schools, traffic patterns, environmental quality, and existing residential and commercial development. The CTAP initiative consists of several projects, one of which is a buildout analysis. A standardized buildout analysis will be completed for each of the 26 CTAP communities.

#### What is a Buildout?

A buildout is a tool that allows planners to estimate future development based on different scenarios. This buildout is an analysis of existing adopted municipal policy. The buildout method allows for the potential testing of alternative land use regulation, open space planning and major development scenarios. A buildout consists of one

The Buildout analysis shows the maximum growth that is likely to occur in a community under current land use regulations (zoning).



or more scenarios. This buildout contains three scenarios: base, standard alternative, and community alternative. The process is designed with the capability for conducting future alternative scenario testing.

Comparing various scenarios allows planners to test the effects and consequences of new zoning ordinances. Changing setbacks, densities, and building restrictions can significantly alter a buildout. The analysis of results allows planners to evaluate the effectiveness and viability of changes to the zoning code. Questions that can be answered by a buildout scenario testing include: Where do I want my community to be at buildout? How much open space will there be? What will the traffic patterns look like? What will the quality of our environmental resources be like? Where will people live and what will the development patterns look like? The purpose of CTAP is to promote beneficial answers to all of these



questions. The CTAP program aims to achieve goals that cover four themes: community infrastructure, environment protection, land use, and open space, downtown/village centers and community vitality and the local economy. The CTAP Buildout project is a community empowerment tool to help people make the best long-term planning decisions.

# What a Buildout is not?

A Buildout is not a <u>prediction</u> of what will occur. It is a planning tool to allow community decision makers to understand the impacts of growth under a set of land use rules. In addition, the Community Specified scenarios in this report do not necessarily represent official policy goals or a plan for the community, but are merely a test of one alternative growth scenario.

# Scenario Planning

Scenarios are an analysis about what might be. They are not predictions about what will happen but they are possible futures based on what already exists, on current trends, and on the values and on the preferences of a community. Each community is unique and may have different goals and face

# **Buildout questions:**

- Where do I want my community to be at buildout?
- How much open space will there be?
- What will the traffic patterns look like?
- What will the quality of our environmental resources be like?
- Where will people live and what will the development patterns look like?

different challenges to how it will change over time. The scenarios in this report are based on both standardized methods, repeated for each CTAP Community, and a scenario where the details have been specified by community leaders and stakeholders. The scenarios are built as a way to compare outcomes and learn about the potential effects of government policies over a long span of time. Because the analysis is quantitative, scenarios can be compared directly utilizing charts and maps. The point is to help discover which long-term growth scenarios our preferable and most closely match the goals and values of the community.

# Report Template

The format of this report is a template that will be used to uniformly present the buildout results for each of the 26 communities in the CTAP Region. Maps, charts and a few paragraphs of text will change for each community. This report presents only the results of the buildout scenarios. It does not attempt to be a planning analysis of those results. Each Community Report will contain the same Introduction and Overview sections on the process. Only maps, charts and the Community Scenario section will change for each different community.



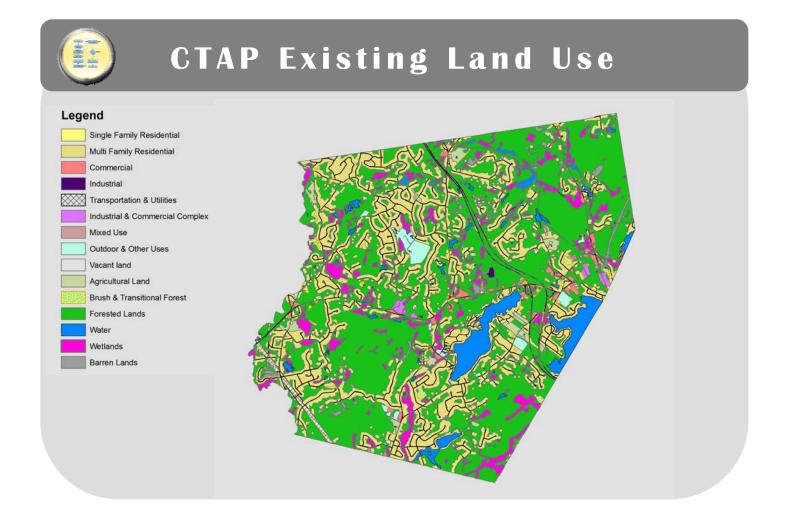


# **Methods**

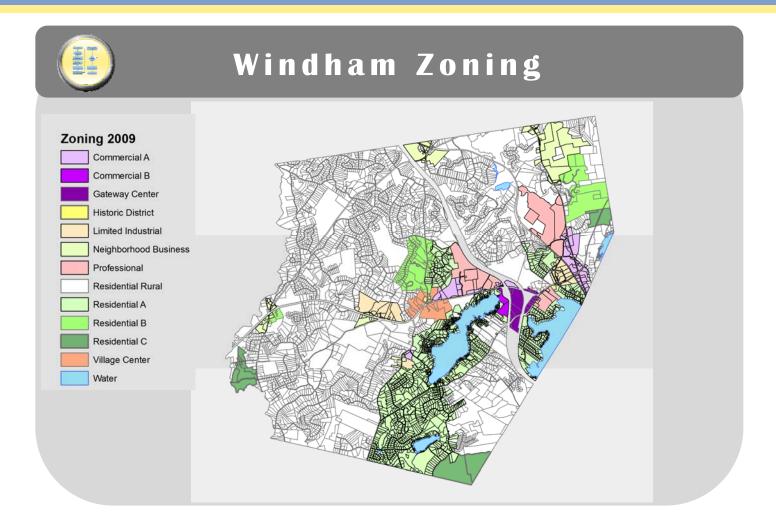
### Tools and Data

Buildouts were conducted using Geographic Information systems (GIS) software. The application used for this project is developed by the mapping software company ESRI. ArcMap and CommunityViz are the core programs used in the analysis. The CommunityViz program is an extension that works with ArcMap and is used specifically to perform buildout analyses. CommunityViz was developed by the Orton Family Foundation in order to provide communities with an affordable tool to perform buildout studies.

The GIS data used in this study originates from several sources. The base shapefiles (road centerlines, conservation lands, wetlands, etc.) were provided by GRANIT, the official New Hampshire GIS data provider. The land use polygons were created through a prior CTAP project, using 2005 aerial images provided by the NH Department of Transportation. The classification applied to the land use polygons is very detailed, using over 50 land uses. The current building points were also determined using the 2005 aerial images.







# **Procedures**

To complete the buildouts a CTAP Buildout Working Group was established. Members of the group consisted of the Four Regional Planning Commissions, who would be performing the analysis: Central New Hampshire Regional Planning Commission, Nashua Regional Planning Commission, Rockingham Planning Commission & Southern New Hampshire Regional Planning Commission. This group was responsible for defining the tools, methods and procedures for performing the buildouts. The group is also responsible for the format of the presentation of results. Staff from each Regional Planning Commission conducted the buildout for communities in their region.

All CTAP buildouts follow the same basic procedures allowing them to be combined upon completion. The existing data used for each municipality is obtained from statewide layers, and clipped for each town. The data created for the buildout follows a strict set of guidelines in order to produce a uniform set for the CTAP region.

CommunityViz software uses the land use and zoning inputs with the constraint layers to create a buildable area GIS layer. First a numeric buildout is calculated using lot size and allowable density information. Next a spatial



buildout is conducted. This process takes into account spatial restrictions (i.e. Setbacks from roads, distance

# Map layers used in the Buildout Analysis.

#### Land use inputs:

- CTAP Land Use based on 2005 Aerial Imagery
- Zoning
- Current Building points based on 2005
   Aerial Imagery
- Community Centers NHDES Spraw Indicators data, NH GRANIT
- Road Centerlines NHDOT, NH GRANIT
- Transit Stops Derived from local dat
- Sewer Service Areas NHDES, NH GRANIT

#### Constraint lavers:

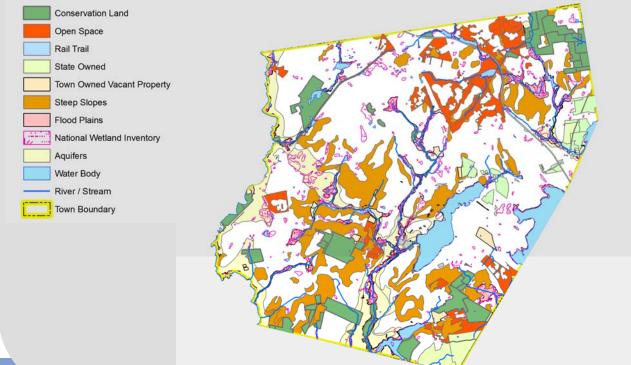
- Wetlands, National Wetland Inventory (NWI) - NH GRANIT
- 100-Year Floodplain FEMA, NH GRANIT
- Conservation Lands Local data & NH GRANIT
- Natural Services Network (NSN) Jordan Institute, NH GRANIT

between buildings). The spatial restrictions for the base buildout are determined using the current zoning ordinances. This produces a layer of new estimated buildings and places them as points

on the map. Standard Alternative and Community Alternative Buildouts using the same process with adjustments to the land use rules (Zoning changes, allowable uses & allowable densities) that are specified in those scenarios.

Once the buildout is complete, a template, containing all assumptions, indicators and charts is applied. All indicators are calculated from the basic buildout results. The standard template ensures that the calculations and charts are the same for all of the region's buildouts.

# Developable Lands & Constraints Conservation Land Open Space



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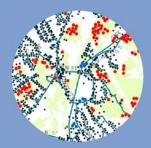


# Buildout Scenarios

This report tests and compares three alternative scenarios for growth. Each scenario produces different land use patterns, different densities and different development totals. The mix of jobs and housing, available open space, traffic, schools, water and air quality and community character are all impacted in differnt ways. By comparing the maps and charts produced by each scenario, a community can analyze how that growth pattern will affect their city or town.

# Base Buildout

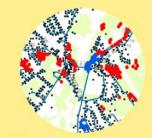
This scenario is a maximum development buildout under current regulations. It will be conducted uniformly for all communities in the region. Developable areas will be identified through CTAP land Use inputs and Zoning overlays. Density, setbacks and lot coverage will be applied from zoning regulations. The standard constraints of wetlands, 100-year floodplain and conservation lands will be applied.



Existing Regulations & constraints

# Standard Alternative Buildout

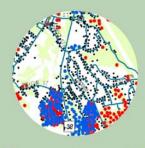
This alternative scenario is also conducted uniformly for all communities in the region. It applyies the Natural Services Network (NSN) layer as an additional development constraint. However, adjustments to allowable densities are made to maintain an equal number of new housing units and non-residential square feet. This growth neutral method is conducted by increasing density in concentric rings based on distance from one or more community centers



Community Center clustering & additional ecological constraints

# Community Scenario Buildout

A third scenario is an opportunity for each community to specify factors or issues unique to the municipality and to test their own alternatives. This is a chance for to test some of the issues identified in the CTAP Community Assessments



Community specified changes

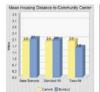
Comparison of Scenarios thro<mark>ugh B</mark>uildout M<mark>aps</mark> and Indicators















# Base Scenario

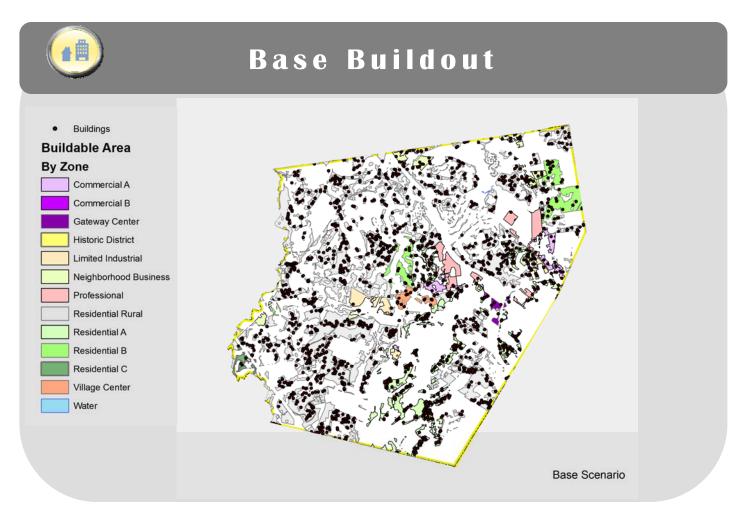
The first scenario, conducted for all communities, is the Base Scenario. This scenario represents what buildout would look like following the current land use regulations. Density, setbacks and lot coverage is applied from the current zoning regulations. The standard development constraints of wetlands, 100-year floodplain and conservation lands are applied.

If current zoning is a blueprint for how the community should grow then this scenario is the culmination of the existing regulations. The indicators in this report are meant to portray a wide range of conditions at buildout. Development

growth means more than additional persons, houses or commercial buildings. It can have impacts on

If current zoning is a blueprint for how the community should grow then the Base Buildout Scenario is the culmination of the existing regulations.

finances, traffic, municipal services, environmental quality and sense of community or place. The land use pattern for how a community grows, where development will take place and in what densities can also have a significant impact.



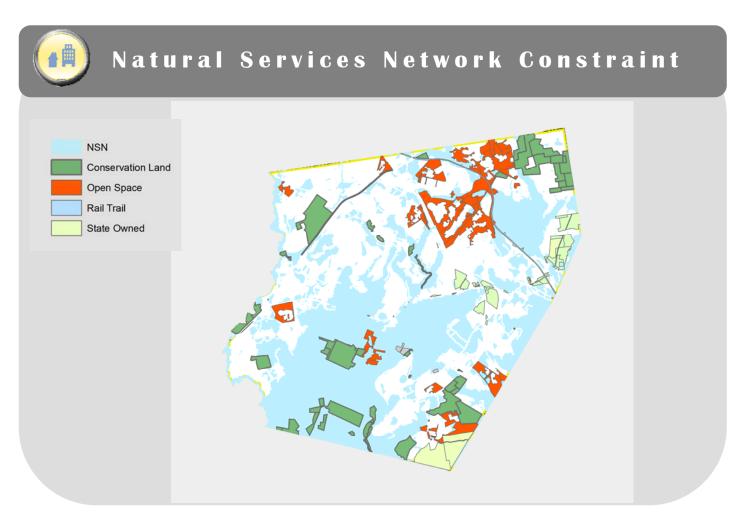


# Standard Alternative

The standard alternative scenario will also be conducted uniformly for all communities in the region. The scenario is different from the Base Scenario in a couple of key ways. First, it applies the Natural Services Network (NSN) layer as an additional development constraint. Second, adjustments to allowable densities will be made to maintain an equal number of new housing units and non-residential square feet. This growth neutral method will be conducted by increasing density in concentric rings based on distance from one or more community centers.

This scenario is focused on creating densely developed downtown areas, sparing important ecological areas identified in the Natural Services network (NSN). The NSN is a co-occurrence analysis and includes four components: water supply lands, flood storage lands, productive soils, and important wildlife habitat.

The Standard Alternative Scenario does not represent a policy proposal for the community. It is a standardized method to analyze an alternative growth scenario that can be applied uniformly to all CTAP communities.





The key to the Standard Alternative Scenario is to adjust allowable development densities so that an approximately equal amount of growth occurs as the Base Buildout despite the fact that more land has been set aside as un-buildable. This scenario is applying a standardized, uniform growth alternative to all communities in the CTAP region. It is not

limiting the amount of commercial and residential growth that might occur in the community, but it is managing it differently.

# Standard Alternative Scenario:

- NSN added as additional development constraint.
- Greater density around community centers.
- Same amount of growth as base scenario

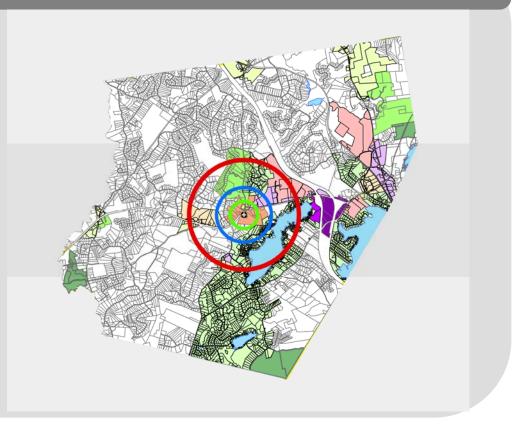


# Standard Alternative Density Changes

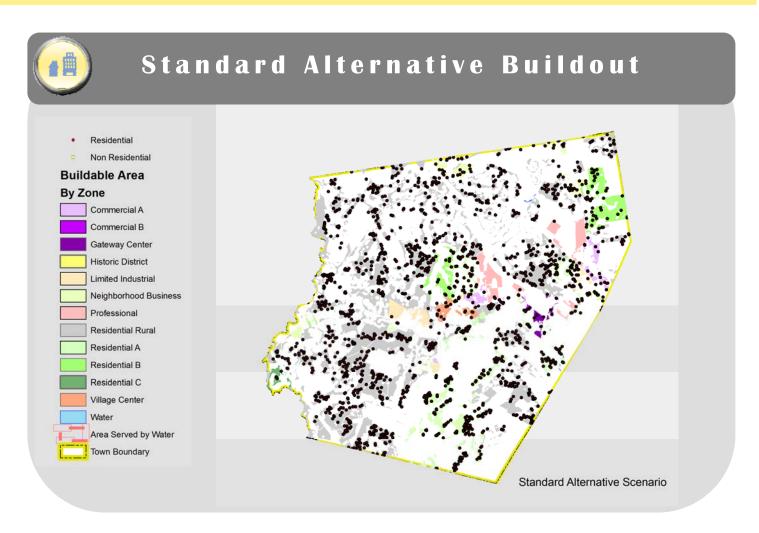
# Standard Density changes near Community Centers

- 1/4 Mile 5 times existing zoning density
- ½ Mile 3 times existing zoning density
- 1 Mile 2 times existing zoning density









### Method Adjustments Made in Base and Standard Alternative Buildouts

Base Scenario: The Town of Windham uses High Intensity Soil Surveys (HISS) to determine lot sizing within its zoning ordinance. Since there is no town-wide HISS mapping, the Windham planning board determined the best way to create a zoning density for the purpose of the buildout was to sample the existing densities in town by zone. Therefore, the RPC looked at the amount of existing units in each zone, this number was divided into the total amount of developed acreage to determine an existing average density by zone. Since there were so few samples in the Professional Business, Gateway and Village District zones, the planning board asked that these zones not be included in the buildout. There was a feeling by the Planning board that the existing development in those zones was skewed by various community uses and a lack of recent development that this zoning density method would be an unfair representation of the intent of the zoning ordinance in these zones.

Standard Alternative Scenario: Due to the amount of existing development and the amount sprawl that has already occurred in the town of Windham, this scenario did not work as intended. The Windham Planning board was uncomfortable with the results of this scenario and asked that it not be considered as part of this buildout process.



# **Community Alternatives**

A third scenario was provided for each community to specify factors or issues unique to the municipality and to test their own alternatives. This scenario is known as the **community alternative**. The Town of

The Community Alternative scenario is only a test of an alternative growth pattern. It is a planning tool conducted to see what changes might occur. It does not necessarily represent a policy plan for the community

Windham had two community scenarios. This is a chance for certain properties to be removed or added to the developable areas list or for particular regulation changes to be implemented. In order to

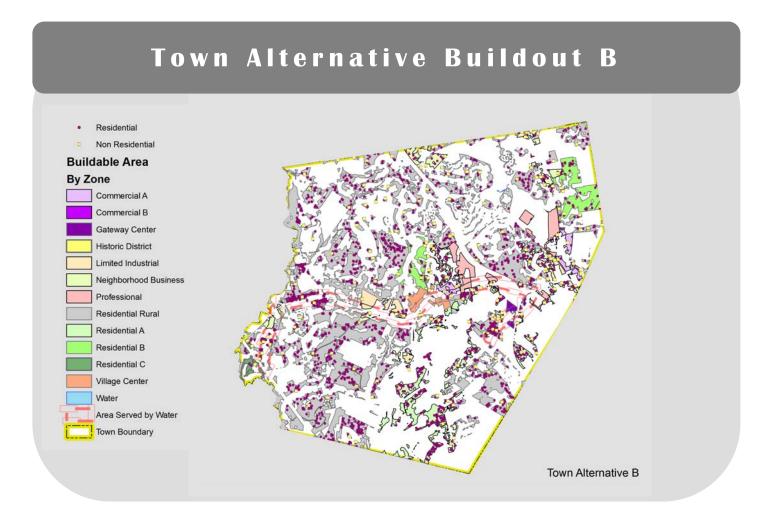
get the community's input for their scenario, meetings were conducted with local officials and volunteers. This was an opportunity for the community leaders to test what would occur if their Town or City were to grow in a different way. This is a chance to apply goals specified in Master Plan or other planning document, or to test the affects of purchasing large tracts of land for conservation.

The Community Alternative scenario is only a test of an alternative growth pattern. It is a planning tool conducted to see what changes might occur. It does not necessarily represent a policy plan for the community. Unlike the Standard Alternative Scenario, the Community Scenario does not require growth to be the equal to the Base Buildout. Significantly lower or greater amounts of development are possible.

# Town Alternative Buildout A







The Community Scenarios: There are two community scenarios for the Town of Windham. The basic premise behind these planning exercises is to test the amount of development that might happen from a hypothetical situation where a water line was developed along Rt. 111, Rt. 111A and Rt. 128.

Community Scenario A: This scenario projects that a 500' buffer off of the hypothetical water line becomes a new zoning overlay that allows 25% greater density than the existing zoning. This yielded very minimal changes, and did not yield results that would be financially feasible for the construction of the line. The planners at the RPC and the Planning Board felt this wasn't a realistic projection and instead proceeded with Community Scenario B.

Community Scenario B: This scenario is the same concept of Community Scenario A, except instead of only a 25% increase in allowed density this scenario allowed for zoning density of 2 units/acre. This scenario is more realistic, but certainly needs to be explored with more refined data to have more relevance if such a water line were to become a true possibility in the towns' planning process.



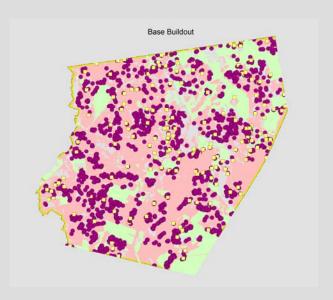


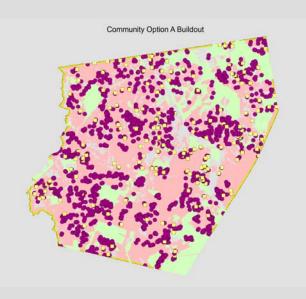
# Buildout Scenario Comparison

# **Building Use Designation**

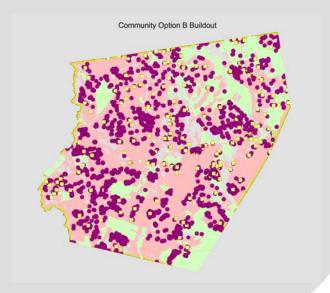
- Non-Residential
- Single Family Residential
- Open Space Priority Parcels
  - Constraints

Base Buildout





# Community Alternative A



Community Alternative B





# **Indicators**

Indicators are impact or performance measures that help people choose alternatives that best match their objectives or desired outcomes. An indicator is a calculated value that represents the impacts or outcomes of a scenario. An indicator might be used to evaluate costs, revenues, average household size, or total daily auto trips. The buildout indicators in this report are meant to provide a macro, overall picture of how a community could look at buildout.

Comparing indicators by the different buildout scenarios provides an assessment of the effects different development patterns may have. There are 40 indicators arranged in seven categories: Buildout, Demographics & Employment, Environmental & Open Space, Land Use Characteristics, Municipal Demands, Water & Energy Use & Transportation. The following pages explain what each indicator means and chart the differences by scenario.

Category	Indicator	Units	Current	Base Buildout	Percent Change	Standard Alternative Scenario	Percent Change	Town Scenario A	Percent Change	Town Scenario B	Percent Change
	Developed Residential Acres	Acres	5,855	11,143	90%	11,201	91%	11,107	90%	11,160	91%
Buildout	Developed Non-Residential Acres	Acres	221	1,029	367%	970	340%	1,064	382%	1,011	358%
Dulldout	Residential Dwelling Units	d.u.'s	4,990	6,504	30%	6,525	31%	6,522	31%	6,673	34%
	Commercial Floor Area	sq. ft	1,365,458	4,286,930	214%	4,251,580	211%	4,255,770	212%	4,250,202	211%
	Population	Persons	13,273	17,301	30%	17,357	31%	17,349	31%	17,750	34%
Demographics &	School Kids Population	School Kids	2,509			3,280	31%	3,279		3,355	34%
Employment	Labor Force Population	Workers	5,427	7,074		7,097	31%	7,094	31%	7,258	34%
Linployment	Commercial Jobs	Jobs	1,659	5,209	214%	5,166	211%	5,171	212%	5,164	211%
	Jobs to Housing Ratio	Jobs/d.u.	0.33	0.80	141%	0.79	138%	0.79	138%	0.77	1.33
Environmental & Open	Open Space Supply	Acres	3,570	3,570	0%	3,570	0%	3,570	0%	3,570	0%
Space	Impervious Surfaces	Percent	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total Density	Persons/mi²	476.77	621.43	30%	623.44	31%	623.15	31%	637.58	34%
	Residential Housing Density	d.u./Acre	0.85	0.58	-32%	0.58	-32%	0.59	-31%	0.60	-30%
	Development Footprint	Acres/d.u.	0.46	0.69	51%	0.69	50%	0.69	50%	0.67	47%
	Recreation Density	Ft²/person	0.02	0.01	-23%	0.01	-24%	0.01	-23%	0.01	-25%
Land Use Characteristics	Housing Proximity to Recreation	Miles	0.56	0.55	-0.5%	0.53	-4.1%	0.55	-0.5%	0.55	-0.7%
	Housing Proximity to Community Centers	Miles	0.03	0.04	26.9%	0.05	42.9%	0.04	26.3%	0.04	32.0%
	Housing Proximity to Amenities	Miles	0.66	0.66	-0.1%	0.64	-3.1%	0.66	-0.3%	0.65	-1.3%
	Housing Proximity to Transit	Miles	2.17	2.16		2.10	-3.1%	2.16	-0.6%	2.15	-0.9%
	Employment Proximity to Transit	Miles	1.38	1.72	24.3%	1.67	20.8%	1.73	24.7%	1.73	24.7%
	Fire & Ambulance Service	Calls/Years	1,062	1,384	30%	1,389	31%	1,388	31%	1,420	34%
Municipal Demands	Police Service	Calls/Years	16,990	22,145	30%	22,216	31%	22,206	31%	22,720	34%
	Solid Waste Demand	Annual Tons	5,177	6,747	30%	6,769	31%	6,766	31%	6,923	34%
	Total Energy Use	mbtu/hh/yr	116.70	365.47	213%	362.47	211%	362.82	211%	362.37	210%
Water & Energy Use	Residential Energy Use	mbtu/hh/yr	0.50	0.66	30%	0.66	31%	0.66	31%	0.67	34%
vvater & Energy Ose	Commercial Energy Use	mbtu/hh/yr	116.20	364.82	214%	361.81	211%	362.17	212%	361.69	211%
	Residential Water Use	mgals	1.95	2.54	30%	2.55	31%	2.55	31%	2.61	34%
	Vehicles	Vehicles	9182	11967	30%	12006	31%	12000	31%	12278	34%
Transportation	Vehicle Trips per Day	Trips/Day	29691	38699	30%	38824	31%	38806	31%	39704	34%
	Annual CO Auto Emissions	Grams/Yr	9262.71	12073.08	30%	12112.06	31%	12106.49	31%	12386.79	34%
Transportation	Annual CO2 Auto Emissions	Tons/Yr	224167.04	292180.85	30%	293124.24	31%	292989.47	31%	299772.88	34%
	Annual NOx Auto Emissions	Grams/Yr	147744.76	192571.52	30%	193193.29	31%	193104.47	31%	197575.30	34%
	Annual Hydrocarbon Auto Emissions	Grams/Yr	73332.63	95582.24	30%	95890.86	31%	95846.77	0-%	98065.85	0-%



# **Appendices**

			<b>Buildout Results</b>		Town S	cenarios			
	Existing	Residential	Non-Residential		Town	Town	Total Units After	Total Units After	Total Units After
Zone	Units	Units	Units	Total Units	Scenario A	Scenario B	Base Buildout	Scenario A	Scenario B
Business									
Commercial A	47	10	10	20	22	22	67	69	69
Business									
Commercial B	3	2	1	3	3	3	6	6	6
Gateway	24	N/A <sup>1</sup>	N/A¹	N/A <sup>1</sup>	N/A¹	N/A <sup>1</sup>	24	24	24
Historic	10	0	0	0	0	0	10	10	10
Industrial Zone	28	6	6	12	14	14	40	42	42
Neighborhood									
Business	47	32	11	43	44	44	90	91	91
Professional		1		1					
Business	16	N/A <sup>1</sup>		N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	16	16	16
Residence A	1358	317	31	348	350	349	1706	1708	1707
Residence B	379	47	10	57	57	57	436	436	436
Residence C	91	4	3	7	7	7	98	98	98
Rural	3079	1098	89	1187	1221	1367	4266	4300	4446
Village Center	15	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	N/A <sup>1</sup>	15	15	15
<b>Grand Total</b>	5097	1516	161	1677	1716	1863	6774	6815	6960

Effective Zoning***												
Zone	Avg Sqft Non-Res	Average Acres/Unit	Total Unit	Nonres Units	Res units	Pct Res	Frontage	Front Yard	Side yard	Rear yard	Max Cover	Min Floor Area
Rural	15400	2.5	3307	22	3018	91.3%	175	50	30	30	20	1000
Res A	3600	1.1	1741	7	1642	94.3%	175	50	30	30	20	1000
Res B		4.1	100	0	70	70.0%	175	50	30	30	20	750
Res C		5.8	10	0	6	60.0%	175	50	30	30	20	600
Neighborhood Business	6000	1.9	66	24	36	54.5%	175	50	30	30	30	0
Gateway Commercial	10000	1.7	20	8	6	30.0%	50	0	0	0	70	0
Bus Comm A	12800	12.6	61	42	2	3.3%	175	75	20	30	30	0
Bus Comm B	17000	0.2	4	1	2	50.0%	175	75	20	30	30	0
Lim Indust	19400	5.7	35	20	5	14.3%	175	50	20	30	30	0
Village Center	5875	4.1	22	8	12	54.5%	50	0	0	0	100	0
Professional Bus, Tech	13000	n/a	26	19	0	0.0%	175	50	20	30	30	0
HD		n/a	9	7	0	0.0%						
Total			5401	158	4799							

<sup>\*\*\*</sup>Note this is not a true reflection of the Town of Windham's zoning ordinance. The Town of Windham uses High Intensity Soil Surveys to determine lot sizing, since HISS maps are not available at a townwidescale, the RPC needed to create a working 'zoning' for the buildout project.

The RPC looked at what the effective zoning was currently. This table reflects the amount of acrage consumed at the current time divided by the number of building units. The Planning board felt that the Professional Business and Historic zones did not have enough development to make this method valid and asked that those zones not be included in the buildout process.