Williamstown, MA
Build-Out Analysis

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Acknowledgements

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*Left to right: Andrew Groff, Erica Chang, Maggie Peard, Jamie Ruggiero*
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Part I: Background

(1) Introduction

The last build-out analysis for Williamstown, MA was completed in 2000 by students at the University of Massachusetts at Amherst. Both Andrew Groff, the Director of Community Development in Williamstown, and the Planning Board of Williamstown requested an updated analysis to better inform planning decisions. A build-out analysis “estimate[s] the effects the cumulative growth may have upon a town’s land area once all developable land has been consumed and converted to the uses permitted under the current regulatory framework” (Manual of Build-Out Analysis). This tool is especially important because most planning in Massachusetts is done at the town level and “while there are some definite advantages to local autonomy, smaller, more rural towns often lack the necessary resources and/or expertise to adequately plan for, or manage, rapid ex-urban growth” (Manual of Build-Out Analysis). Therefore, an updated build-out analysis, by facilitating big-picture planning that best serves all town residents, will be a great asset for Williamstown.

Build-out analyses inform the Planning Board and other local boards while making (often contentious) development decisions. Build-out analyses can also spur important conversations about town goals and needs. Specifically, they can bring into question the best way to protect the character of a town and how to balance objectives such as economic development and agricultural conservation. Build-out analyses can also be used for many other town studies, such as the Cost of Community Services Study done in 2005 based on the 2000 build-out analysis. In the nearly two decades that have passed since the last analysis was done, not only have new buildings been constructed, but zoning laws, conservation laws, and ArcGIS mapping tools have changed. Therefore an updated analysis is badly needed.

The following build-out analysis report provides relevant background information on Williamstown, detailed descriptions of our build-out analysis methods, and recommendations to the town about how to improve the future build-out of the town. Policy recommendations were based on build-out analysis results and interviews with a wide variety of stakeholders. The data for development constraints used in the build-out analysis were either provided by Andrew Groff or taken from the MassGIS database.
(2) Site Description & Community Profile

Williamstown is a small college-town in the northwest corner of Massachusetts, officially founded in 1765. It is a fairly typical New England town, with a small downtown center, a few residential neighborhoods, and much rural farmland expanding out from the center of town. It is surrounded by North Adams, MA to the east, New Ashford, MA to the south, Berlin and Petersburg, NY to the west, and Pownal, VT to the north. The most significant roads cutting through the town are the east/west Route 2, which is flanked by a commercial strip leading into North Adams, and the north/south Route 7, which is less developed. Williamstown is fairly removed from sizable cities: Albany, NY is 30 miles west, Boston, MA is 110 miles east and New York City, NY is 134 miles south. According to 2010 census data, Williamstown has a population of 7,754, which is down 7.95% from 2000 census data (Mass.gov). The town is fairly racially homogenous: 85% of the population is Caucasian, 5.5% is Hispanic, and 4.7% is Asian (City-data).

Williams College, founded in 1793, has turned Williamstown into a cultural hotspot within Berkshire county. Williamstown’s most significant tourist attraction is The Sterling and Francine Clark Art Institute, which exhibits world-renowned artwork. Williams College is prominently positioned in the center of town and is an equally central source of employment to the town. In 2013, 39% of the town population was employed in educational services and 17% was employed in professional, technical, and scientific services (City-data). Only 3% of the Williamstown population was employed in manufacturing in 2013, far below the state average of 13%. Because Williamstown is an expensive place to live, many people who work in Williamstown cannot afford to be residents; thus, there is a 47% daytime population increase each day. As a result of the high cost of living, there is a stratification of income levels among those living in Williamstown—there are many very wealthy residents and some working-class residents, but few middle class residents. Nearly 20% of residents make under $20,000 a year, while nearly 40% of residents make over $75,000 a year (bestplaces.net). This demographic information helped guide our policy recommendations on the type of development most beneficial to the population.
Williamstown is a rural New England town with a college at its center.

(3) Relevant Context

Zoning determines the type of development permitted in certain areas of the town and also strives to maintain the safety and character of the town. Williamstown is broken up into four residential districts, five non-residential districts, and one mixed-use district. The residential districts range from Rural Residential 1, which protects the rural character of the town in environmentally sensitive areas, to General Residence, which strives to maintain the character of the town for people who prefer to live in more dense areas. The non-residential districts include Limited Business, Limited Industrial, Tourist Business, Village Business, Planned Business, and Business Campus. The one mixed-use district in Williamstown is the Southern Gateway District, “intended to protect the scenic southern entrance to Williamstown from overdevelopment while also ensuring the viability of existing businesses and residences” (Zoning Bylaws). The zoning districts reflect all permissible land uses and will therefore be highly influential in the future commercial development of Williamstown. Through interviews of townspeople with specialized knowledge and experience, we sought to determine whether these districts accurately reflect and allow for the types of commercial development the town needs and wants.

In addition, overlay districts are superimposed over the other districts in order to protect certain aspect of the town. For example, the Floodplain District includes land within the 100-year flood level (issued by the Federal Emergency Management Agency). The Upland Conservation District protects against unsafe development on steep slopes, unsuitable soils, and swampland. The Water Resource District 1 protects areas that provide recharge to town aquifers vital for drinking water, and the Water Resource District 2 protects other important recharge areas. The
Confined Aquifer District places limitations on digging deeper than 50’ and the Wellhead Protection District protects the safety of town drinking water for residences, institutions, and businesses by placing additional restrictions on development. Finally, the Cable Mills Redevelopment District was established to encourage diverse housing that preserves the historic character of the Cable Mills. These overlay districts make up some of the absolute and partial constraints that influence the net usable land available to Williamstown. We determined whether a given district is classified as a partial or absolute constraint through interviews, legislation, Zoning Bylaws, and consultation with our client.

The Master Plan Committee for Williamstown outlined many of the goals that we aim to address in this study. The committee’s main goals for economic development included encouraging diversification and expansion of the local economy to create jobs appropriate for people of different skill sets and to address the income inequality that has begun to plague Williamstown in recent decades. Many of their recommendations centered around expansion of the business district, encouragement of mixed residential/commercial development, and relaxation of some of the zoning rules. The committee also sought to intensify land use in the village center while preserving land in outlying areas for space, environmental sustainability, farming, and other recreational purposes. The Master Plan points to the renovation of Cable Mills and PhoTech Mills as potential mixed-use developments. We kept the goals of the Master Plan in mind when considering recommendations to offer.
Part II: Methods

(A) Absolute Constraints

In this build-out analysis, all absolute constraints were selected based on legislation, either from the Williamstown Zoning Bylaws, state legislation, national legislation, and/or consultation with our client. These areas signify undevelopable land that, no matter the financial capital of an interested party, will not be developed. The following table describes all of the absolute constraints.

<table>
<thead>
<tr>
<th>Absolute Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads (Major roads + 40’, minor roads + 30’)</td>
</tr>
<tr>
<td>Culverts and ditches</td>
</tr>
<tr>
<td>Streams</td>
</tr>
<tr>
<td>Rivers (100’)</td>
</tr>
<tr>
<td>100-year flood zone</td>
</tr>
<tr>
<td>Ponds and wetlands themselves</td>
</tr>
<tr>
<td>Slopes Greater Than 24%</td>
</tr>
<tr>
<td>Developed Land</td>
</tr>
<tr>
<td>Solid Waste Facilities</td>
</tr>
<tr>
<td>Permanently Protected Open Spaces</td>
</tr>
<tr>
<td>Upland Conservation District</td>
</tr>
</tbody>
</table>

Table 1. Absolute Constraint Overview

These absolute constraints make up 65.4% of the total land of Williamstown, accounting for 19,639 acres. Removing this land from a full map of Williamstown gives the Net Usable Land Area (NULA) for the town. After removing these absolute constraints, there are 10,366 developable acres remaining. Examining this land area, in conjunction with the town zoning districts, gives an estimate of what the town would look like after full build-out under the current zoning. Tables 11 and 12 in the Appendix summarize the amount of land each individual constraint removes.

Roads: (Figure 1)

Road centerline data was used in order to account for all town roads. There is wide variability of required setbacks from road centerlines, but 30’ is often the absolute minimum (Williamstown Zoning Bylaws). For this reason, a 30’ setback was selected for most town roads.
A 40’ setback was used for Route 2 and Route 7, as these are the two major roads running through town. The land within these buffer zones was then removed from the NULA in order to subtract the land area dedicated to roadways. These centerline data were obtained from MassDot Road Data.

**Water and Hydrology: (Figure 2)**

Williamstown features many waterways, wetlands, and ponds. The Rivers Protection Act of 1996 created a “Riverfront Area,” an “area of land situated between a river's mean annual high-water line and a parallel line located two hundred feet away” (Massachusetts Rivers Protection Act). However, some development is allowed in the zone between 100 and 200 feet from the river, so only the zone up to 100 feet was treated as an absolute constraint. The less protected zone from 100 to 200 feet from the river was treated as a partial constraint. Ponds, wetlands, streams, culverts, ditches, and hydrolines themselves were all treated as absolute constraints, with minimal buffer zones on the streams, culverts, ditches, and hydrolines to account for the actual size of the structures. For example, culverts were given a buffer of 60 inches because this is the maximum culvert size (MA Forestry Best Management Practices Manual). Although a very determined person could fill in a pond, we have chosen to treat ponds and wetlands themselves as absolute constraints.

Under the Wetlands Protection Act, lands subject to the 100-year flood (as defined by FEMA, the Federal Emergency Management Agency, and NFIP, the National Flood Insurance Program) are protected and have strict restrictions for development. Because of this, Zone A, the 100-year flood zone, was an absolute constraint. Data for rivers and other hydrological features were provided by Mr. Groff. The 100-year flood zone data were provided by MassGIS. Although the data for flood zones were not intended for parcel-level analysis, they were the only data available for the 100-year flood. Some caution is advised when considering these data on a small scale.
Steep Slopes: *(Figure 3)*

The Zoning Bylaws outline the maximum percentage of impervious coverage allowable for different slope grades. 24% slopes and greater have no allowable coverage and were thus treated as an absolute constraint. Although it is unlikely that slopes over 20% will be developed due to high construction costs, slopes with grade less than 24% are technically allowed to be developed under the Bylaws. Thus steep slopes with grades between 20% and 24% were treated as partial constraints.

It is important to note that the slope data, sourced from MassGIS and the USGS Digital Elevation Model, seem to vary significantly from the previous Williamstown Build-Out Analysis. The ArcGIS slope tool may have been updated to only include those areas that are actually slopes and not plateaus, which may have been included in the earlier analysis. We are confident that the slope data and current ArcGIS slope tool used in this analysis present a more accurate model of Williamstown topography than the previous analysis. The previous buildout analysis, which used older tools and defined all slopes greater than 20% as absolute constraints, found that steep slopes removed 55% from the Net Usable Land Area. In this analysis, steep slopes remove about 12.5% of land from the Net Usable Land Area. This means that, where slopes are concerned, there is significantly more Net Usable Land Area than previously estimated.

These constraints represent legislatively undevelopable land. However, many other factors must be considered when thinking about whether land is suitable for development. For example, “A Study of Williamstown over the Next 20 Years” found 61% of the soils in Williamstown unsuitable for development: “Soils at higher elevations are poor, thin, and easily eroded” (Conservation Commission and OSRP). Among other things, sewage disposal becomes problematic at steep sites with poor soil. Slope constraints may in fact be more restrictive than originally predicted based solely on Zoning Bylaws. “Williamstown’s Open Space & Recreation Plan” even claims that “the limitations of the underlying soils have combined with the steep topography to contain the spread of development in Williamstown.” Because of this, reality for building on slopes may be closer to the partial constraint map shown in the Partial Constraint section.
**Developed Land: (Figure 4)**

The possibility of further development in areas that have already been developed varies depending on the zoning district of the site in question. Developed land is considered an absolute constraint in certain zoning districts according to the Williamstown Zoning Bylaws and our findings of available space in each district through GIS mapping. Developed land in Rural Residence 1 is marked as an absolute constraint, as the intention of the zoning district is to maintain “the rural and upland character of sensitive environmental areas” and its numerous special requirements that prevent many kinds of development (Williamstown Zoning Bylaws). Developed land in General Residence, Limited Business, Limited Industrial, Village Business, and Tourist Business is also marked as an absolute constraint because current development is considered dense enough to preclude infill development.

Moreover, in Rural Residence 2 and 3 and Planned Business, developed land is considered an absolute constraint if the land base in question already has a building on it and is less than double the minimum area required by the Williamstown Zoning Bylaws for additional development. In the case of Rural Residence 2 and 3, this includes any developed land with a land base less than 17,400 ft$^2$, and for Planned Business, it is less than 4,600 ft$^2$. Any developed land in these zoning districts with an area greater than these requirements is considered a partial constraint. Zoning layers and buildings layers were provided by Mr. Groff. Parcel data was obtained from MassGIS.

**Solid Waste Facilities: (Figure 5)**

Because land currently being used for solid waste disposal is not available for development, all of these facilities have been removed from the NULA. The areas identified are those regulated by the Massachusetts Department of Environmental Protection’s solid waste regulations. These areas include both landfills and dumping grounds (Mass.gov). These data were pulled from the MassGIS Solid Waste Layer.
Permanently Protected Open Space: (Figure 6)

There is a great deal of open space in Williamstown (compared to other Berkshire towns), but only some of it is legally protected. The town is 83% open space, but only 29%—the smallest percentage among the eight Northern Berkshire towns—of this open space is permanently protected (Open Space and Recreation Plan). The only open space used as an absolute constraint in our analysis is land that is either legally conserved or has binding restrictions as to how it can be used. Restricted land includes area protected under the Agricultural Preservation Restriction (APR) Program and Conservation Restriction (CR) Program. The APR program allows owners of prime agricultural land to receive payment for the difference between the “fair market value” and “agricultural value” of their farmland in exchange for a permanent deed restriction against any development that would harm the agricultural viability of the land (Mass.gov). Therefore APR land cannot be used for development. The CR program splits land ownership between the original owner and a conservation organization and allows the organization to set restrictions on how the land can be used in order to maintain the conservation value (Mass Audubon). CR land is therefore also unable to be used for development. Even though APR and CR lands are voluntary restrictions placed by the owners of the land, the result is a permanent restriction on development of that land (Williamstown Open Space and Recreation Plan).

Non-profit land is all land owned by land trusts, which cannot be used for development. In Williamstown, this is the land owned by the Williamstown Rural Land Foundation and the Trustees of Reservation. There is also one plot of land owned by the Williamstown Boy Scouts, a group which no longer exist, so the land has in effect become a land trust as well. Finally state- and town-owned lands are legally protected against development. Restricted, non-profit, state-owned, and town-owned land has all been removed from the NULA. These data layers were provided by Mr. Groff.

Upland Conservation Zones: (Figure 7)

The Upland Conservation district restricts development over 1,300 feet. The main reason for this restriction is that development on the thin soils characteristic of Williamstown hillsides...
would lead to erosion (Williamstown Open Space and Recreation Plan). The Upland Conservation district prohibits the development of single family homes, but aside from that added restriction, it follows the land use regulations of its underlying zoning layer: Rural Residential 1 (Williamstown Zoning Bylaws). It is important to note that certain land uses, such as camp sites of ski areas, are permitted with the approval from the Board of Appeals, but due to the highly restrictive nature of development, this district was removed from the Net Usable Land Area. This map layer came from data provided by Mr. Groff.
Figure 8. All absolute constraints. Net Usable Land Area after subtraction of absolute constraints is shown in white.
(B) Partial Constraints

In this analysis, we compiled a map of all land that has some partial development constraint, whether that be through environmental conservation legislation or Zoning Bylaw restrictions. Some build-out analyses, including the former Williamstown analysis, use percentages to determine the amount of Net Usable Land that is conceivably developable considering the amount of restriction. However, in our analysis we have decided to forego attaching percentages to our partial constraints because this is an inherently subjective decision. Instead, we will present a Net Usable Land Area from solely absolute constraints and one with all absolute and all partial constraints. The reality of development will be somewhere between these two numbers. However, depending on the market and desire to develop, the actual developable land may be closer to the Net Usable Land Area from just absolute constraints. In times of economic downturn, the reality of development may be closer to the developable land with both absolute and partial constraints. In the sections below we will outline what makes up the partial constraints and provide some context for the restrictions on development.

<table>
<thead>
<tr>
<th>Partial Constraints</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Wetlands (100‘)</td>
</tr>
<tr>
<td>● Rivers (100-200' Riverfront Area)</td>
</tr>
<tr>
<td>● Ponds Greater than 10,000 ft² (100’)</td>
</tr>
<tr>
<td>● Steep Slopes (20-24%)</td>
</tr>
<tr>
<td>● Wellhead Protection Zones (Zone I)</td>
</tr>
<tr>
<td>● Confined Aquifer District</td>
</tr>
<tr>
<td>● Developed Land</td>
</tr>
<tr>
<td>● Partially Protected Open Space</td>
</tr>
</tbody>
</table>

Table 2. Partial Constraint Overview

These partial constraints, added to the absolute constraints, make up 90.2% of the total land of Williamstown, accounting for 27,061 acres and leaving 2,944 acres available for development. Removing this land from a full map of Williamstown gives a far more conservative and restrictive estimate for the Net Usable Land Area for the town. The reality of development potential of Williamstown lies somewhere between the absolute and partial constraint maps: between 2,944 and 10,366 available, developable acres.
Water and Hydrology: (Figure 9)

The Wetlands Protection Act (Massachusetts General Laws Chapter 131, Section 40) protects wetlands in order to preserve the services they provide, such as flood control, protection of water supplies, and wildlife habitat. However, there is limited development allowed after a Notice of Intent. Thus wetlands and the buffer zone to 100 feet were considered to be under partial constraint. As noted above, there is limited development allowed in the less-protected Riverfront Area of rivers (from 100 to 200 feet), but development is still permitted. In addition, ponds greater than 10,000 ft$^2$ are partially protected to 100 feet. However, ponds less than 10,000 ft$^2$ are not protected at all. It is important to note that the last flood study conducted for Williamstown was completed in 1983 and it is likely that with an updated flood study the amount of absolutely and partially constrained lands by hydrography would increase.

Steep Slopes (20-24%) (Figure 10)

According to the Williamstown Zoning Bylaws, a 20% slope allows 20% coverage and a 22% slope allows 10% coverage. Any slope under 24% can technically be built upon according to the Zoning Bylaws. However, in reality, steep slopes are hard to build on and require more capital to develop. Slopes greater than 20% offer additional difficulties for development that often times require significant extra financial input and are thus less likely to be developed than shallower slopes (Lehigh Valley Planning Commission; Building Advisor). Areas of higher elevation are also unsuitable for development because “at higher elevations soils are poor, thin, and easily eroded… These conditions present major problems for sewage disposal” (Conservation Commission and OSRP). Thus, this partial constraint may be severely restricted because of unsuitable land, though it is not legislatively restricted apart from maximum impervious coverage.

Wellhead Protection Zones: (Figure 11)
There are three types of wellhead protection zones in Williamstown: Zone I, Zone II, and Interim Wellhead Protection Areas (IWPA). Zone I refers to any area within the protective radius around a public water supply well. This radius is proportional to the log of the rate of pumping from the well with a minimum radius of 100 feet. Zone I was taken as a partial constraint because it is under the most substantial development restrictions. Zone II refers to the area of land that feeds an aquifer under the most intense pumping conditions (180 days of pumping at the approved level with no precipitation). IPWAs refer to public water systems that lack currently approved Zone II designations. These water systems are given proportional radii for sources whose approved pumping levels are under 100,000 gpd and half mile radii for sources whose approved pumping levels are above 100,000 gpd (Mass.gov). Because Zone II and IPWA do not actually restrict development, they have not been removed from the NULA. These data were taken from MassDEP Wellhead Protection data from MassGIS.

Confined Aquifer District: (Figure 12)

The purpose of the Confined Aquifer District is to restrict the amount of impervious cover over aquifers drawn upon for public town water supply (Williamstown Zoning Bylaws). This district follows the regulation of the underlying district, but also restricts any excavation, digging, or boring other than that for municipal uses. This means that development within the Confined Aquifer District is somewhat limited, but certainly not completely restricted. Therefore, it was treated as a partial constraint. Data for this map layer were provided by Mr. Groff.

Developed Land: (Figure 13)

Any developed land with a land base greater than 17,400 ft² in Rural Residence 2 and 3 and any developed land with a land base greater than 4,600 ft² in Planned Business are considered partial constraints. Each dwelling on the aforementioned districts requires land bases of 8,700 ft² and 2,300 ft² respectively (Williamstown Zoning Bylaws), and the development of an additional dwelling on that land base needs at least that much area as well. Therefore,
developed land on a parcel with an area greater than or equal to 17,400 ft$^2$ in Rural Residence 2 and 3 and 4,600 ft$^2$ in Planned Business can support additional development.

**Partially Protected Open Space: (Figure 14)**

Land included in the category of partially protected open space, for the sake of this report, is all land within the state’s Chapter 61 program. Chapter 61 allows property owners “to reduce property taxes in exchange for providing important public benefits like clean water, wildlife habitat, rural character, wood products, food, and outdoor recreation” (Chapter 61 Programs). This program keeps land under-developed in order to prioritize other land uses. Chapter 61 includes forestry lands that are at least 10 acres of active forest management area. Chapter 61A includes agricultural lands of at least 5 acres, and Chapter 61B include open space and recreational land of at least 5 acres. Land within these Chapter 61 programs has been deemed partial constraints because even though land in the program is restricted to certain land use, it is possible to withdraw land from the program. Landowners who choose to convert enrolled land to non-chapter uses must pay either a rollback tax or a conveyance tax for the land being converted. These taxes are good incentives to keep land in the program, but certainly not insurmountable for a landowner committed to developing. Chapter 61, 61A, and 61B have all been removed from the Net Usable Land Area for the more restrictive map. Data for this map layer were provided by Mr. Groff.
Figure 15. All absolute and partial constraints. Net Usable Land Area after absolute and partial constraints are subtracted is shown in white.
Figure 16. Net Usable Land Area after all absolute constraints are removed
Figure 17. Net Usable Land Area after all absolute and partial constraints are removed
Part III: Analysis and Recommendations

(1) Analysis

To determine the area of each zoning district considered net usable land, we overlaid the zoning districts map onto the two Net Usable Land Area maps (one drawn with absolute constraints and one with both absolute and partial constraints). Table 3 summarizes how much developable land lies in each type of zone and what percentage of total zone area this represents. Figures 18 and 19 present this information in map form, and Figures 20 and 21 present the same information in pie charts.

<table>
<thead>
<tr>
<th>Zoning District</th>
<th>Absolute NULA (Acres)</th>
<th>Absolute NULA (Percentage)</th>
<th>Absolute &amp; Partial NULA (Acres)</th>
<th>Absolute &amp; Partial NULA (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Residence</td>
<td>1782.524</td>
<td>17.246</td>
<td>1227.058</td>
<td>41.678</td>
</tr>
<tr>
<td>Rural Residence 1</td>
<td>464.603</td>
<td>4.495</td>
<td>257.070</td>
<td>8.732</td>
</tr>
<tr>
<td>Rural Residence 2</td>
<td>7886.000</td>
<td>76.296</td>
<td>1418.935</td>
<td>48.196</td>
</tr>
<tr>
<td>Rural Residence 3</td>
<td>162.199</td>
<td>1.569</td>
<td>33.292</td>
<td>1.131</td>
</tr>
<tr>
<td>Village Business</td>
<td>3.880</td>
<td>0.038</td>
<td>3.387</td>
<td>0.115</td>
</tr>
<tr>
<td>Planned Business</td>
<td>3.880</td>
<td>0.038</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Limited Business</td>
<td>9.713</td>
<td>0.094</td>
<td>4.376</td>
<td>0.149</td>
</tr>
<tr>
<td>Limited Industrial</td>
<td>23.209</td>
<td>0.225</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>10336</td>
<td>100</td>
<td>2944</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 3. Amount of available land for development for each zoning district
Figure 18. NULA zoning (absolute constraints only)
Figure 19. NULA zoning (absolute and partial constraints)
Figure 20. Percentage of NULA of each zoning district when considering only absolute constraints

Figure 21. Percentage of NULA of each zoning district when considering both absolute and partial constraints

Fig 21. Percentage of NULA of each zoning district when considering both absolute and partial constraints
In both scenarios, considering just absolute constraints and both absolute and partial constraints, the net usable land area is comprised mostly of Rural Residence 2 followed by General Residence, then Rural Residence 1. However, the two NULA maps differ in precise zonal makeup. Partial constraints eliminate vast swaths of Rural Residence 2 land for development, so there are nearly equivalent percentages of developable land in Rural Residence 2 and General Residence when considering both absolute and partial constraints. Partial constraints also entirely remove Limited Industrial and Planned Business from the net usable land area. In both scenarios there is little to no available land that is zoned for commercial or industrial. This may be contributing to the lack of economic growth that is currently affecting Williamstown. It is important to note that much of the NULA of General Residence near the center of town is actually Williams College land. Although the College may develop the campus out more, it is not developable in the way that other residential areas are.

Table 4 includes housing projections based on the NULA and minimum lot sizes as given in the Zoning Bylaws. The number of projected dwellings for General Residence and Rural Residence 2 in particular are very large. This is slightly misleading. Although there are enough square feet to technically contain that many dwellings, it is unlikely that all parcels would be the minimum lot size. This number also doesn’t account for the additional roads that would be needed to reach areas that currently lack such infrastructure. Thus, this number is an overprediction of the actual number of dwellings that could occupy the developable land, but gives an idea of the scale of developable land within each zone. The number of buildings in Village Business is designated as “undefined” because there is no minimum lot size or maximum coverage requirements in that district.

<table>
<thead>
<tr>
<th>Minimum</th>
<th>Maximum</th>
<th>Minimum</th>
<th>Number of</th>
<th>Number of</th>
</tr>
</thead>
</table>

Williamstown Build-Out Analysis
### Table 4. Housing projections for each zone based on zoning bylaws

<table>
<thead>
<tr>
<th>Zone</th>
<th>Lot Size</th>
<th>Percent Building Coverage</th>
<th>Percentage Open Space</th>
<th>Buildings (Absolute Constraints)</th>
<th>Buildings (Partial &amp; Absolute Constraints)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Residence</td>
<td>10,000 ft²</td>
<td>20</td>
<td>--</td>
<td>7765</td>
<td>5345</td>
</tr>
<tr>
<td>Rural Residence 1</td>
<td>5 acres</td>
<td>--</td>
<td>85</td>
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<tr>
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<tr>
<td>Limited Industrial</td>
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<td>30</td>
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(2) Recommendations

Based on demographic trends, features of the usable land in Williamstown, interviews, and town plans and reports, we have developed policy proposals to influence the future buildout of the town. Our review of demographic trends revealed a decrease in the number of residents, and interviews helped us relate this trend to a lack of low-income housing. Our build-out analysis revealed a lack of commercial and light industrial and an excess of rural residential land available for development. Interviews with various stakeholders and review of previous surveys revealed that the town strongly values open space, both agricultural and natural. Following these findings, our proposals work toward three main goals: stem population decline, increase economic growth, and preserve forests and agricultural lands. The Williamstown Master Plan shares these goals, stating, “The attractive village center and the natural beauty of the surrounding mountains and rural landscape are defining attributes of Williamstown. Preserving open space and farmland, preventing unplanned growth, and enhancing the village center are as important to the quality of life for residents as they are to the economic vitality of the town as a tourism and outdoor recreation destination.”

There is a common misconception that economic development and population growth stand in direct contradiction to preserving open land. However, the New Urbanist school of
thought shows that these principles can actually go hand-in-hand. New Urbanism “represents the interests of a broad coalition of environmentalists concerned with farmland preservation, habitat enhancement, and air quality as well as inner-city advocates concerned with urban reconstruction and social equity” (Charter of New Urbanism). It encourages planning that leads to walkability, connectivity, mixed-income housing, and diversity of land use in dense town centers in order to allow for preservation of natural resources in other areas of the town. In other words, New Urbanism prevents sprawl. Applying New Urbanist principles to Williamstown would allow the town to maintain its rustic quality while featuring a more livable, accessible, and vibrant town center. Therefore, our goals to stem population growth, increase economic growth, and preserve forests and agricultural lands can be achieved through New Urbanist planning tools. We have specific proposals for each goal and some other suggestions that may fall outside of the Zoning Board’s jurisdiction. The Evaluation Matrices summarize each proposal and anticipated impacts.

**Goal 1: Stem Population Decline**

Williamstown has undergone serious population decline in the past few decades. The 2010 census data report a 7.95% reduction in population since 2000. Perhaps part of the reason for this sharp decrease in population is the limited availability of affordable and low-income housing. In 2015, Williamstown offered approximately half of the amount of subsidized units required by the state of Massachusetts, severely restricting the ability for low-income people to find housing (Strategies for Economic Growth in Williamstown, Massachusetts). Furthermore, only 26% of houses in Williamstown cost less than $200,000, with the median price of homes in September 2015 valued at $504,500 (Strategies for Economic Growth in Williamstown, Massachusetts). This contrasts sharply with surrounding towns such as Adams and North Adams, where houses routinely cost “less than one-half of what they [do] in Williamstown” (Strategies for Economic Growth in Williamstown, Massachusetts). The vast majority of houses (and rental units) in these neighboring towns are more affordable, with 71% of homes receiving a valuation of less than $200,000. These data suggest that even moderate income earners will be unable to find affordable housing in Williamstown, and that it is more desirable for those working in Williamstown to live in these surrounding communities.
The survey for the Master Plan indicated that there is an unmet need for affordable, moderately-priced, and multi-family housing in Williamstown. The Williamstown Master Plan explains that “There has been little recent housing growth in Williamstown. Surveys show a potential need for some 350 units of housing that are affordable or about 190 to 225 [units] over the next 10 years. At least 100 housing units should be created over the next decade through zoning bylaw changes to encourage infill housing in the town center, rehabilitation of substandard dwellings, mixed-use redevelopment…”

The Housing Needs Assessment conducted in 2013 for Williamstown highlights the need for more affordable and low-income housing. From 2000 to 2010, there was a significant decrease in units with inexpensive rent and a huge increase in those with expensive rents. There was a -67% change in units with rent from $0-499/month, a -33.5% change in $500-749/month units, +116.7% change in $750-999/month units, and +256.1% change in $1000 or more/month units (Ryan 14). Although there are some affordable offerings for seniors and disabled persons, such as Proprietor’s Field and Highland Woods, there is a large demand for family rental affordable units and units for low-income people (Ryan 26). Even projects like Cable Mills that include some affordable units are not affordable to the low-income population. Williamstown Housing Authority is part of the Section 8 program in which the authority covers the difference in rent between 30% of the applicant’s income and the total rent for units with a set “fair market price.” However, all units in Williamstown that are eligible for the Section 8 program have waitlists (Tammy Andrews & Laura King). There is a clear unmet demand for more affordable units in town. As a result, Williamstown is losing the young, low-, and moderate-income population. Although some proposed projects may introduce more affordable and low-income housing to Williamstown (e.g. the PhoTech Mill [330 Cole Ave] Residential Development), there is such significant demand that more projects must be undertaken. Our following proposals address the lack of affordable housing and the resulting population loss.

The first proposal (1a) is to introduce high-density housing in the developable areas of General Residence zones that are within walking distance of the town center (Spring Street, Williams College, etc.). This could be achieved through upzoning, or “changing the zoning to allow for higher-value (for example, from industrial to residential) or more dense use” (World
Bank). Most relevant to this proposal is allowing for denser use of the land. Allowing more dwellings in the space would likely bring down the cost of each unit. Ideally, these would be rent-stabilized units to increase specifically designated affordable housing and low-income housing. The zoning of these plots would likely need to be modified to allow for reduced setbacks and increased maximum building coverages. The current maximum building coverage for General Residence is 20%; with potentially ¼ acre plots, the allowable coverage may need to increase to allow for reasonably sized homes.

Higher-density housing within walking distance of the town center would have many positive effects on the town. However, proposals promoting dense development are often looked down upon in small, rural towns such as Williamstown, because some fear that densification will ruin local character. This is a misconception. Concentrated development within a small, confined area reduces sprawl, preventing disruption of the town’s bucolic charm and allowing for protection of natural resources in larger parcels on the outskirts of town (Leslie Reed Evans). Densification around the town center would also improve walkability, reducing greenhouse gas emissions from vehicle use. A more concentrated residential area would bring members of the community together, making Williamstown more appealing to those seeking a socially connected residential area. Densification would promote a more vibrant, populated residential center, helping local businesses and energizing the local economy. Successful economic development in rural towns is achieved through balance between development and preservation (Leslie Reed Evans). While many residents of Williamstown might say they are not hoping for more development, this proposal for confined densification could help sustain a minimum standard of economic prosperity required to maintain the town. Densification of the town center and reduction of rural sprawl could be achieved through location-specific upzoning of General Residence.
Proposal 1a: Upzone developable General Residence within walking distance of town center

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<td>Economic Growth</td>
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<tr>
<td>Community</td>
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Table 5. Evaluation Matrix for Proposal 1a

The second proposal (1b) is to allow multi-family units in the currently developable General Residence zones within walking distance of the town center. Currently, converting a single-family to a multi-family parcel in General Residence requires a special permit from the Board of Appeals. We suggest that the areas that are developable and within walking distance of the town center have this impediment removed to encourage development of more multi-family units. This would create denser housing in the heart of town, one of the visions stated in the Master Plan. Multi-family housing would also offer a less expensive alternative to current housing. Just as for Proposal 1a, multi-family houses would hopefully create a more concentrated population in the town center—helping business and fostering a sense of community—and would reduce sprawl from extending into ecologically valuable areas.

Proposal 1b: Allow multi-family units in developable General Residence within walking distance of town center

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Table 6. Evaluation Matrix for Proposal 1b

The third proposal (1c) is to introduce high-density, affordable housing in the General Residence section on Route 7, just south of the Vermont border. According to our analyses, this
area is mostly open for development in both NULA scenarios (see figures 18, 19, and 22) and would be a key location to introduce more affordable and low-income housing. Tammy Andrews and Laura King from the Williamstown Housing Authority highlighted the lack of units for low-income housing. Through the Section 8 program, the Williamstown Housing Authority has 80 vouchers to cover the difference between 30% of the income of eligible renters and the rental cost of a unit. However, for a voucher to be used, the unit must qualify as fair market rate, which is a set rental cost. Very few units in Williamstown qualify as fair market rate and thus the Williamstown Housing Authority vouchers go largely unused, pushing low-income renters to North Adams, Adams, or other towns. As all low-income units are full and have waitlists, there is a clear need for more low-income units in Williamstown. According to Andrews and King, contributing to the lack of qualifying low-income units is the fact that many units are marketed for Williams College faculty, students, and others associated with the College. Thus, we suggest that the Town serve those not associated with the college by promoting affordable housing development in the Route 7 General Residence area, which is separated from the campus. Although spatially removed from the center of town, this area is across the street from a commercial area and is connected to town via Route 7. Properties in the Route 7 General Residence area should be rent-controlled to ensure that low-income and/or affordable housing is offered.
Figure 22. NULA map produced with absolute and partial constraints. The Route 7 General Residence area is circled in red.

**Proposal 1c:** High-density, affordable housing on Route 7 General Residence near VT border

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*Table 7. Evaluation Matrix for Proposal 1c*

**Other Suggestions**

Apart from these three proposals to stem population decline, generally increasing the flexibility of residential areas could go a long way toward making the town more accommodating to potential residents. In particular, more freedom for “granny-flats” and mobile homes could make living in Williamstown more accessible (Bill Barkin). Properties within
General Residence Districts and Rural Residence Districts either prohibit or require a special permit from the Board of Appeals to build a detached second dwelling unit. Creating an easier path to having an additional small dwelling unit on a property by lifting these restrictions could help attract more residents. “Granny-flats,” which may be more appropriately coined “millennial-flats,” are increasingly being used by young adults who come home to live with their parents for a few years. Therefore, easing restrictions could help attract younger residents to the town. It is important to consider the effect of these zoning changes on the aesthetic character of the town, but there are many areas in which the character of the town could be preserved even with the additions of “granny-flats” or mobile homes.

Another way to increase the diversity of housing options would be to allow for townhouses near the town center. In particular, Water Street or Mecham Street could be good locations for townhouses given their proximity to downtown and their potential for development. Allowing townhouses would require special approval or changes to the bylaws in order to overcome the side setback requirements in residential zones but could help concentrate population growth within the town center.

**Goal 2: Economic Growth**

Our build-out analysis found very little commercial- and industrial-zoned land available for development. When partial as well as absolute constraints are considered, all opportunities for development in the Limited Industrial and Planned Business zones disappear. This lack of future business and light industrial growth will likely hinder the future economic vitality of the town. Economic growth is closely linked to not only zoning, but also population. The declining population, shown in our review of recent Williamstown demographic data, signals a lack of employment in the town and limits the success of existing local businesses. The goals of population maintenance and economic growth have a symbiotic relationship: a more stable population would help sustain economic growth and economic growth would help maintain a stable population. The Williamstown Master Plan points to the sharp income disparity in the community created by the concentration of relatively high-paying employment options at Williams College and low-paying service jobs and argues that “this disparity can be addressed by
creating more diverse employment opportunities.” The plan corroborates the conclusions of our mapping analysis: “Williamstown has few undeveloped sites properly zoned and physically suitable to attract new business.” It then argues that “mixed housing/commercial uses should be encouraged in these districts” and “zoning impediments like special-permit reviews should be eased.” We agree with these goals and have made a specific recommendation that would bring these goals into reality.

Before diving into the recommendation, it will be helpful to consider a case-study of a commercial area in Williamstown. We took a close look at Water Street to get a better sense of how businesses and mixed-use spaces are operating in the current economic climate. The economy is currently struggling in Williamstown, and its business districts reflect this. Water Street is zoned as Village Business which is “intended to accommodate a broad mixture of uses in a compact pedestrian-oriented environment” (Zoning Bylaws). The majority of buildings here are used for commercial and office spaces, and we identified five buildings as mixed-use. However, several of the lots and buildings appear to be vacant, suggesting that Water Street has potential to be further built out. Furthermore, the street lacks significant foot traffic and appears to be empty and underused. Commercial properties on Water Street are not appreciating at the same rate as their residential counterparts because they are not making much of a profit, and demand for businesses is low due to the decreasing population (Bill Barkin). Because of empty and worn-down buildings and a lack of pedestrians, Water Street a lacks the vibrancy that should be associated with the Village Business District.

The “Strategies for Economic Growth of Williamstown, Massachusetts” report offers various recommendations on how to deal with these economic hardships and lack of vibrancy in this area. Many town members and members of the business community surveyed in forums held by the Economic Development Committee believed that Water Street (and Spring Street) should be developed further and that the infrastructure of some of the current buildings should be improved to give the district a more prosperous aesthetic. Also, the Economic Development Committee suggested that each town board review “regulatory programs that affect business development” to ensure that they “do not pose an undue burden on economic development” (Strategies for Economic Growth in Williamstown, Massachusetts). It is crucial that steps are
taken to ensure commercial areas like Water Street begin to prosper economically for the continued economic development of the town. Once certain conditions, such as easing of zoning and permit restrictions for businesses and an increase in affordable housing to bring in more residents/consumers, are met, Village Business has the potential to thrive economically and expand.

Fig 23. Current land use on Water Street. Five of the commercial/office space properties and single family homes are on the same lot.
While the Water Street case study does not reflect a high demand for more commercial space, it is important to have more developable land that is zoned for high density commercial and residential development should demand for commercial goods and housing begin to increase. Our recommendation is to loosen some of the regulations of the Planned Business zoning district along the section of Rt. 2 just east of Cole Avenue. The area under consideration is currently zoned Planned Business, but this zoning district has many regulations in place that impede the development of mixed commercial and residential use. For instance, Planned Business districts have a relatively large required minimum lot area of 20,000 ft$^2$ and only allow for a maximum of thirty percent of the site to be covered by buildings (Zoning Bylaws). Furthermore, dwelling units above the first story of a building that is used for nonresidential purposes in this zoning district require a special permit from the Board of Appeals (Zoning Bylaws). These policies limit the possibility of higher density development that would allow for more mixed commercial and residential units. Less restrictive regulations in this district could foster a pedestrian-oriented environment by reducing the large required lot size and allowing for more maximum building coverage percentage on each lot. The likelihood of foot traffic in this area could also be increased by allowing apartments above businesses by right as well as allowing residential uses on the first floors of these buildings. Additionally, having more densely developed mixed-use properties in the area could spur economic growth and prevent population decline in the town by providing employment. This recommendation is echoed in the

Williamstown Build-Out Analysis
2015 study done by the Economic Development Committee, which calls for the town to adopt zoning policies that support “sustainable high-density mixed-use and residential development within commercial districts” (Strategies for Economic Growth in Williamstown, Massachusetts). The evaluation matrix of this proposal is shown in the following table and photographs of underused properties in the area can also be found below.

<table>
<thead>
<tr>
<th>Proposal 2a: Loosen Planned Business bylaws to allow for denser development</th>
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<tbody>
<tr>
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<tr>
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<tr>
<td>Economic Growth</td>
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<tr>
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*Table 8. Evaluation Matrix for Proposal 2a*

*Figures 26, 27, 28. Currently underused properties with good commercial potential on Rt. 2, east of Cole Ave.*
Other Suggestions:

With little space left for industrial development, it is important for Williamstown to maximize the use of this land while still protecting natural resources. We suggest allowing an industrial developer to advance into the current setbacks and build more than the current allowable maximum building coverage through a special permit by the Conservation Commission and/or Zoning Board. Although production industry likely shouldn’t be approved for such a special permit, projects like the Community Solar Project would benefit from such allowances (also, maximum impervious coverage does not make sense for a solar project). The current dimensional schedule in the Zoning Bylaws results in very small parcels of industrial-zoned land to develop. Figure 29 illustrates the developable land if the 150’ front setback were applied around each chunk of Limited Industrial. Although the side and rear setbacks are less than 150’, each chunk may be broken into numerous parcels and therefore would contain even less developable land. Thus, it is crucial to consider allowing some special cases to build into the setbacks and greater than the maximum building coverage.

Goal 3: Preserve Forests and Agricultural Land

Forests and agricultural land are integral parts of Williamstown. As Henry Art explains, “the future of the town [lies in] culture, education, tourism, and maintaining an environment that people want to come and interact with.” The Williamstown Cost of Community Services Study conducted in 2005 found that for every one dollar that open land generates, it costs the town $0.248. This is a much larger net gain than for either residential (1:1.115) or even commercial/industrial (1:0.424). A survey from the Master Plan showed Williamstown residents placed great value on preserving open spaces. In a comparison of importance of open space versus cultural resource issues, the survey found that the top priorities for residents (of the options listed in the survey) were protecting natural resources, preserving vistas, and preserving open space for recreation. Least important to residents was enhancing business districts as residential sites and enhancing business districts as commercial sites. The preference for open space is also reflected in the survey response trend that the most common recreational activity
for residents is walking/running, which is often done on town-maintained trails (Open Space and Recreation Plan).

Protecting and preserving forests and agricultural lands is a stated goal of Williamstown in the Master Plan. One of the land use goals is to “preserve land in outlying areas for open space, recreation, and farming” and to “limit consumption of land while increasing residential units by launching a concerted effort to protect endangered privately-owned agricultural lands” (Williamstown Master Plan).

Our first proposal (3a) is a revision of zoning laws to include either an Agricultural Overlay District or Natural Resource Protection Zoning. Though these two options differ in their implementations, either would be a great step toward ensuring that valuable agricultural soils are protected. Other Massachusetts towns have already implemented such plans and could be turned to for examples.

**Agricultural Overlay Districts**

Agricultural Overlay Districts are consistent with the goals already laid out by Williamstown. The Master Plan Committee recommended “establishing an overlay district to encourage farming in conjunction with light industrial uses and a comprehensive forestry management program.” The Open Space and Recreation Plan reiterates this need: “Although much of Williamstown’s high-quality farmland has been preserved through the Commonwealth’s Agricultural Preservation Restriction program, preservation of the remaining farmland will give greater security to the town’s remaining farm businesses.” This overlay district will have the double benefit of protecting the business of agriculture as well as the rustic quality that so many of the town residents value.

Amherst, MA, a leading town in agricultural preservation, implemented a Farmland Conservation Overlay District in 1989. To decide which parcels should be included in the district, Amherst considered the amount of prime agricultural soil, the proximity to major blocks of farmland, the size of the parcel, and the degree of development risk (Agricultural Preservation Case Study). The established district outlines more specific bylaws for agricultural areas that restrict development harmful to soils while allowing development, such as seasonal restaurants
or farm stands, that “support[s] the primary farming operation and bring in additional income” (Agricultural Preservation Case Study). A successful example is the Barkowski Meadow property that abuts the North Amherst Community Farm, which is APR-protected. Twenty-three of the thirty-five acres of the property are permanently protected. On the land that is not protected, seventeen building lots were created and fourteen houses were built. This is a great example of how smart development can allow for the coexistence of residential or commercial development and farmland preservation.

Applied to Williamstown, an Agricultural Overlay District could help protect the forests and farmlands that residents so value and help farms stay in business. Farms in Williamstown could benefit from agrotourism if they were allowed to expand this sector of their operations. An Agricultural Overlay District could then allow more commercial activity on farm lands, such as farm stands, seasonal restaurants, wedding venues, hayrides, or corn mazes. With this allowance, farms could take advantage of value-added uses that would help them stay in business. An important first step would be to identify optimal locations for the overlay district by examining soil maps and aerial photographs and doing site visits.

Natural Resource Protection Zoning

An alternative to an agricultural overlay district would be Natural Resource Protection Zoning (NRPZ), which Massachusetts towns Shutesbury, Brewster, Wendell, New Salem, Leyden, and Petersham have all chosen to use. Defined in a document written by Jeffrey Lacy, “NRPZ is a low-density approach where 65-90% of the land must be permanently preserved; it complements the work of land trusts, freeing them to focus funds on lands where no amount of development is appropriate. NRPZ is the cornerstone of conservation-friendly zoning” (Lacy). It is a tool that could help ensure infill in certain growth areas if actually coupled with preservation in more ecologically valuable parts of town.

Specifically, NRPZ differs from more typical zoning when it comes to subdivisions. The NRPZ determines the number of potential houses by calculations of area instead of road frontage. It subtracts out all physical and legal constraints from the area, uses a density divider to control the appropriate density of development, uses a preservation multiplier (usually between
0.65 and 0.90) to determine how much land should be left untouched, and uses conservation analysis to decide where on the land the development should go to minimize ecological damage (Lacy). Under this careful subdivision scheme, development is permitted while also taking natural resources into account. Subdivisions under regular zoning and Natural Resource Protection Zoning can be compared below:

Figure 28. Standard zoning subdivision vs. NRPZ subdivision

This kind of protective zoning can also have far less restrictive setback and minimum lot sizes, which allows for much more flexible residential options. Although implementing an Agricultural Overlay District or Natural Resource Protection Zoning would be a significant change for Williamstown, this type of proactive zoning may be the best way to ensure that historical character and agricultural potential are preserved.

| Proposal 3a: Agricultural overlay district or Natural Resource Protection Zoning |
|----------------------------------|------------------|
| Interest                        | Impact           |
| Environment                     | +                |
| Quality of Life                 | +                |
| Economic Growth                 | +/-              |
| Community                       | +                |

Table 9. Evaluation Matrix for Proposal 3a
Our second proposal (3b) is simply to protect more open space, such as forests and wetlands. While 83% of Williamstown is open space, only 29% of that land is permanently protected—the smallest percentage of permanently protected land out of eight Northern Berkshire towns surveyed (Open Space and Recreation Plan). Protecting open land has many environmental benefits, such as maintaining soil stability and drainage patterns and preventing erosion. It also protects rare species and natural resources. Williamstown is the home to thirty-six state-listed rare plant species, which would certainly have better chance of surviving with more permanently protected open space (Open Space and Recreation Plan). Because resources are fragile and we cannot accurately predict our future needs, it is better to err on the side of conserving more than we know we absolutely need (Leslie Reed Evans).

Although protecting open space is often viewed as anti-development, it can have very positive economic effects if paired with development within the center of town. For one, open space can increase the property values of surrounding lots (Bill Barkin). Additionally, Scott Lewis, Leslie Reed Evans, and Henry Art point to how open space helps attract tourists to the town. By encouraging compact development within the center of town and protection of open space on the outskirts of town, Williamstown planners can prevent unnecessary sprawl (Leslie Reed Evans). Another important goal is to try to create larger parcels of protected open space. This could be achieved by working to connect small parcels of protected land. Larger parcels are more effective at protecting natural resources because they tend to be less disrupted by human activity, which is increasingly important with the rise of climate change (Leslie Reed Evans). Large parcels can also have tourism benefits: The Berkshire Natural Resource Council is working to create a high road that would connect many Berkshire towns with trails and open space that people could hike along. This kind of countywide connectivity of open space could help draw people to Williamstown.
Proposal 3b: Generally protect ecologically-valuable open land

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Table 10. Evaluation Matrix for Proposal 3b

Other Suggestions

Hopkins Forest

The Williams College-owned forest—Hopkins Memorial Forest—is filled with old-growth trees and is home to numerous research studies. One area in particular, the Beinecke Stand, is comprised of old-growth beech and sugar maple trees (Conservation Commission and OSRP). Because this is a unique resource to Williamstown, the Beinecke Stand should be protected. Although it may be difficult to protect all of Hopkins Forest because it is in private hands (though it is unofficially protected by the College), preventing development in the Beinecke Stand would preserve a unique, valuable resource. The Master Plan states “We want to preserve our ‘working’ landscapes (e.g., forests, agricultural landscapes, etc.) so they continue to contribute to the economic vitality and rural character of the town. We also need to balance the protection of sensitive environments with the use of natural resources within these working landscapes. We should safeguard the biodiversity and natural and historic heritage with which Williamstown is endowed.” Protecting Hopkins Forest falls directly into this outlined vision statement for the town. Hank Art suggests the College sell carbon sequestration or conservation restrictions for Hopkins Forest to produce revenue from the forest. Williams College has recently dedicated more than $50 million to combatting climate change, so protecting Hopkins Forest legally is a sensible addition to that process.
**Floodplains**

With increased storm events and flooding due to climate change, we advise a new flood study be conducted for Williamstown to update the 100-year flood zone as well as the 500-year flood zone. We agree that the 100-year flood zone should not allow any development, but we argue that the 500-year flood zone should also have restrictions for building, outlined in the Zoning Bylaws. For example, in 2011, Tropical Storm Irene flooded the 100-year floodplain and led to the closing of the Spruces Mobile Home Park which was developed on the floodplain (Conservation Commission and OSRP). At that time, half of the 100-year floodplain had been developed. Scientists now expect 500-year floods to occur more often as climate change progresses. The National Oceanic and Atmospheric Administration (NOAA) declared the recent flood in Louisiana as “the eighth flood considered to be a once-in-every-500-years event to have taken place in the U.S. in a little over twelve months” (Knight). Massachusetts and the Northeast have been buffeted with precedent-setting flooding in the last decade (CBSNews). Therefore, it is imperative that Williamstown prepares for a new climate reality and plans accordingly when it comes to floodplain protection. The Zoning Board should limit floodplain use to development that can survive inundation, such as parks and trails.

**Wetlands**

Wetlands are some of the most valuable habitats in Williamstown. They provide innumerable ecosystem benefits, such as flood control, wildlife habitat, protection of water supplies (Wetlands Protection Act). They are also intimately connected to flowing water supplies and groundwater regeneration. Although Williamstown has limits on wetland development, it would be in the Town’s best interest to restrict development on wetlands entirely. Failing that, the Town should restrict development on wetlands that have been found to provide necessary habitat or to be most closely connected to rivers and streams. To protect the invaluable benefits that wetlands provide, we suggest more restrictive limitations on wetland development than those currently legislated.
(3) Assumptions

Beyond aforementioned assumptions and limitations, a few others are important to note. First, GIS and our analysis using GIS is limited. Data may not be entirely up to date (though we found the most recent data possible for analyses). Certain data, such as the 100-year flood data, are not meant to be used on a parcel level and error is likely when used on that scale.

Next, conducting an analysis of already developed land by dwellings in GIS has its limitations. The tool is not perfect in removing plots that have buildings. Also, we made the assumption that twice the minimum lot area for each dwelling is enough space to develop a second dwelling unit. However, even a large lot with a preexisting building is not as developable as entirely undeveloped land because the parcel would need to be split. The other half of the parcel would also need to be accessible by road, which is not always the case considering the placement of the first dwelling.

Finally, because the zoning status of the Waubeeka golf course has yet to be officially deemed commercial, we were unable to fully consider the possibilities for development (or lack thereof) within that land area. If the area is officially changed to commercial zoning, this would open another area of consideration for further development proposals.
Part IV: Appendices

(1) Appendix A: Maps

Figure 1

Williamstown Build-Out Analysis
Figure 2
Figure 3
Figure 4

Williamstown Build-Out Analysis
Figure 5

Williamstown Build-Out Analysis
Figure 6

Permanently Protected Open Space

Legend
- Restricted Land
- Non Profit Land
- State Owned Land
- Town Owned Land
- Town Boundary

0 0.5 1 2 3 4 Miles
Figure 7

Legend

- Upland Conservation
- Town Boundary

Williamstown Build-Out Analysis
Figure 9

Hydrology Partial Constraints

Legend
- 200' River Buffer
- 100' Ponds Over 10,000 ft^2 Buffer
- Ponds
- 100' Wetlands Buffer
- Wetlands
- Rivers
- Town Boundary

Figure 9

Williamstown Build-Out Analysis
Figure 10

Partial Constraint Slopes 20-24%

Legend
- Slopes 20-24%
- Town Boundary

0 0.475 0.95 1.9 2.65 3.6 Miles

Williamstown Build-Out Analysis
Wellhead Protection Zones

Legend
- Zone I
- Town Boundary

Figure 11
Figure 12

Williamstown Build-Out Analysis
Figure 13

Partial Developed Land

Legend
- Town Boundary
- Rural Residence 3
- Rural Residence 2
- Planned Business

0 0.5 1 2 3 4 Miles

Williamstown Build-Out Analysis

58
Figure 14

Partially Protected Open Space

Legend
- Chapter 61
- Chapter 61A
- Chapter 61B
- Town Boundary

0 0.5 1 2 3 4 Miles
Figure 29

Legend

- Limited Industrial
- Limited Industrial with 150' Setback
(2) Appendix B: Land Area Removed by Constraint

<table>
<thead>
<tr>
<th>Type of Constraint</th>
<th>Amount Land Removed (Acres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slopes &gt;24%</td>
<td>4055.448</td>
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<tr>
<td>Upland Conservation</td>
<td>11553.435</td>
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<tr>
<td>Partially Protected Open Space</td>
<td>10734.256</td>
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<tr>
<td>Hydrology</td>
<td>1655.670</td>
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<td>Roads</td>
<td>999.369</td>
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<tr>
<td>Developed Land</td>
<td>9476.983</td>
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<tr>
<td>Buildings</td>
<td>218.057</td>
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<tr>
<td>Solid Waste</td>
<td>51.161</td>
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<tr>
<td>Total Absolute (with overlap)</td>
<td>38,744.379</td>
</tr>
<tr>
<td>Total Absolute (without overlap)</td>
<td>19,639</td>
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</tbody>
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*Table 11. Land Area Removed by Absolute Constraints*

<table>
<thead>
<tr>
<th>Type of Constraint</th>
<th>Amount Land Removed (Acres)</th>
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<tbody>
<tr>
<td>Slopes 20-24%</td>
<td>2441.186</td>
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<tr>
<td>Hydrology</td>
<td>2534.731</td>
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<tr>
<td>Wellhead Protection Zones</td>
<td>142.770</td>
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<tr>
<td>Confined Aquifer District</td>
<td>1500.247</td>
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<tr>
<td>Developed Land</td>
<td>7786.899</td>
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<tr>
<td>Partially Protected Open Spaces</td>
<td>9463.797</td>
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<tr>
<td>Total Absolute &amp; Partial (with overlap)</td>
<td>23,869.630</td>
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<tr>
<td>Total Absolute &amp; Partial (without overlap)</td>
<td>27,061</td>
</tr>
</tbody>
</table>

*Table 12. Land Area Removed by Partial Constraints*
References


“Bill Barkin Tax Revenue Interview.” Personal interview. 29 Nov. 2016.


"Henry Art Open/Agricultural Lands Interview." Personal interview. 28 Nov. 2016.


“Leslie Reed Evans Open Space Interview.” Personal interview. 21 Nov. 2016.


“Scott Lewis Outdoor Recreation Interview.” Personal interview. 28 Nov. 2016.


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