

Pelham Buildout Analysis Report

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Prepared by the Nashua Regional Planning Commission
for the Town of Pelham



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Introduction

Like much of southern New Hampshire, the Town of Pelham continues to face the pressures of development due to its proximity to the Boston Metropolitan Area and the rapid growth of other communities in the region. After decades of population and housing increases, transportation improvements, and an evolving economy, Pelham officials and board members are constantly confronting the impacts of development and will need to employ effective land use planning with the goal of long-term sustainability in mind.

To that end, Pelham asked the Nashua Regional Planning Commission (NRPC) to conduct a buildout analysis to help visualize the current state of development in town and examine possible future outcomes based on multiple scenarios of growth and policy changes.

What is a buildout?

A buildout is a data-driven tool that allows planners and other decision-makers to estimate future development based on different scenarios. “Buildout” is a theoretical condition that exists when all available and suitable land has been developed for residential and non-residential purposes. By heeding natural constraints and land use and zoning regulations, the buildout can therefore produce an estimate of the type and amount of future growth.

The results of a buildout in this case are presented in terms of new single-family residential buildings, multi-family residential buildings, and square footage of new commercial and industrial buildings. Those numbers can then be translated into various indicators based on per-building rates to help answer questions such as “How many more school children will be added?” or “What percent of the population will live within 1 mile of a park?”.

This buildout includes three scenarios: a base and two alternatives. Comparing the results of these scenarios allows planners to test the effects and consequences of employing certain regulations in town.

What is *NOT* a buildout?

It is vital to note that a buildout is simply a tool. It is NOT a prediction of what will occur nor a representation of official policy goals or part of a master plan for the community. Also, despite the detailed nature of the data, the buildout is NOT a perfect simulation of the development potential on each individual parcel.

Methodology

This buildout was performed using CommunityViz, a software developed by City Explained, Inc. The software is an add-in extension to ArcGIS for Desktop, the industry standard in Geographic Information Systems (GIS) and the product which the Nashua Regional Planning Commission uses in its daily GIS work program.

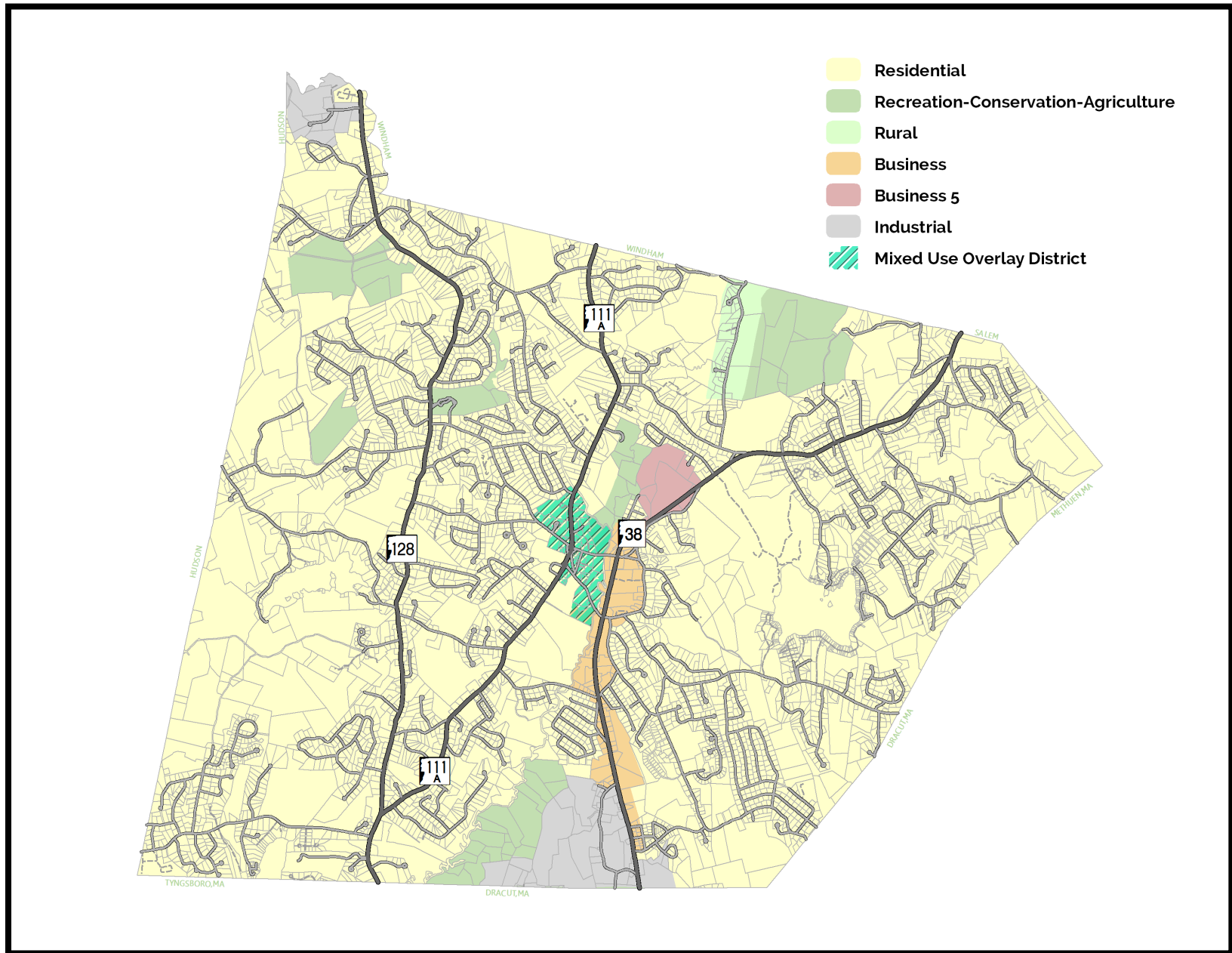
Buildout results are generated both as GIS data to allow for mapping and analysis and as tabular data compatible with Microsoft Excel and other spreadsheet and database packages.

Inputs

The base unit of analysis in this buildout is the parcel. This offers several advantages over analyzing by neighborhood or zone. First, it estimates the numbers of new lots at buildout for each developable parcel in Town. This allows for a very explicit and numerically accurate identification of where and how much growth will occur. Second, it accounts for the ownership, configuration, and size of each lot so that parcels that may be prohibited from development either now or in future scenarios can be removed from the process with affected any other area. This might include parks, conservation lands, schools, and utility rights-of-way.

Each parcel in Pelham is analyzed for its development potential based on current activity, constrained land, and what is allowable under local development regulations. NRPC maintains a robust GIS database of all parcels in its 13-community region, meaning the parcels were up-to-date as of the time of analysis.

The parcels are then coded with the zone that they fall in, according to Pelham's Zoning Ordinance. This tells the software what and how much can be built on each parcel. **Map 1** shows the current zoning district boundaries in Pelham.



Map 1 – Zoning Districts as of 2021

CommunityViz then asks for the relevant zoning and land use regulations that would affect the amount on type of allowable buildings on each lot. While the software expects this data to differ by zone, Pelham, like many New England towns, employs more of a form-based zoning code where requirements such as minimum lot size and setback distances vary by use rather than the zone. For example, instead of a 1-acre minimum across the Residential Zone, single-family and two-family houses have different requirements even though they may fall in the same zoning district. **Table 1** below shows a summary of dimensional requirements by use, as taken from Pelham's current Zoning Ordinance.

Use	Min. Lot Size	Front Setback	Side Setback	Rear Setback
Single-Family Dwelling	1 ac	30'	15'	15'
Two-Family Dwelling	2 ac	30'	15'	15'
Multi-Family Dwelling	3 ac	40'	30'	30'
Elderly Housing Development	10 ac	100'	100'	100'
Commercial	60,000 sf	40'	30'	30'
Industrial	2 ac	40'	30'	30'

Table 1 – Required Inputs by Building Use

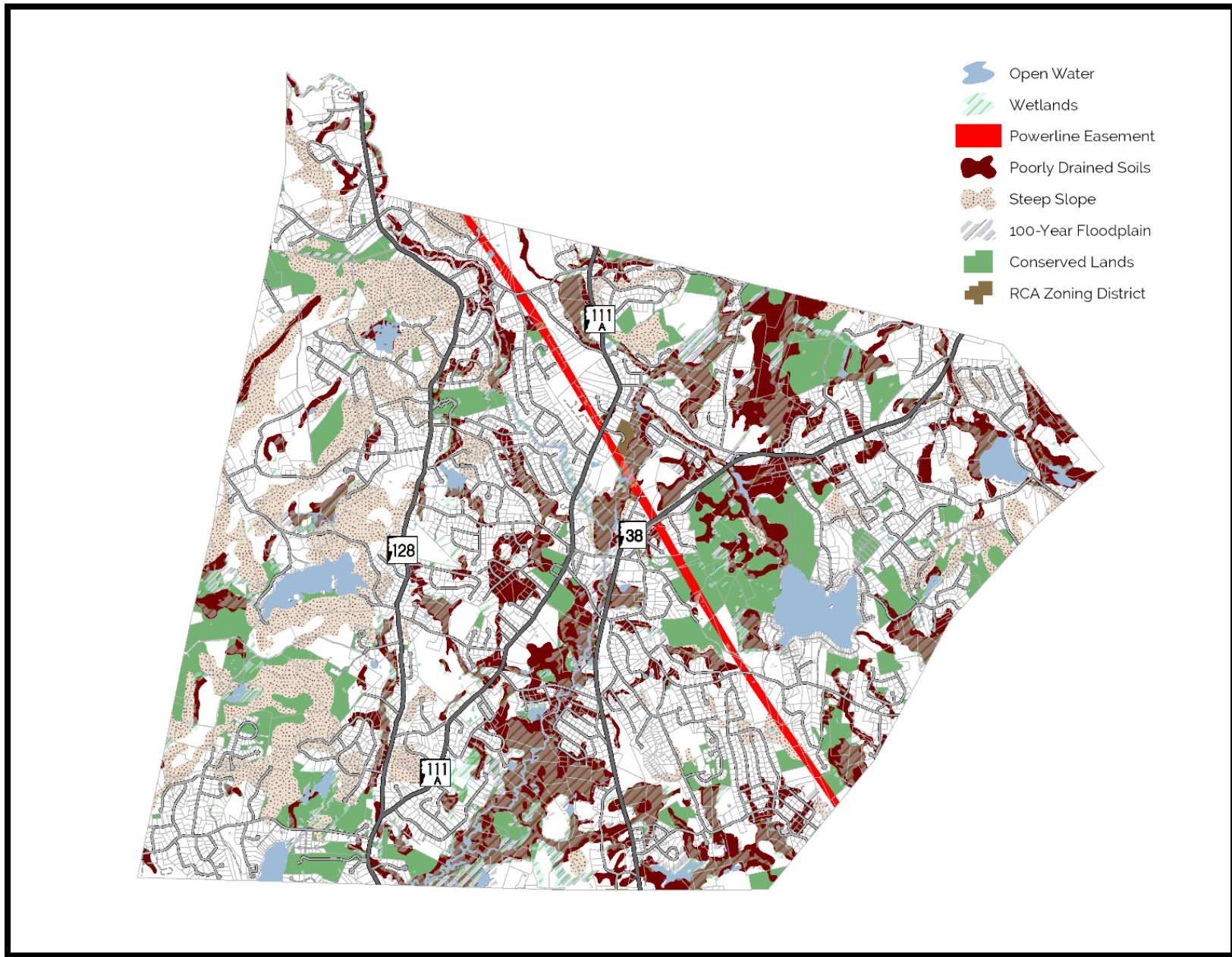
While there are many exceptions and additional specifications to these requirements, none of them are relevant or replicable in CommunityViz and were therefore ignored for the purposes of this buildout. Examples include frontage, additional lot size based on an excess of 10 bedrooms, and state laws concerning cemetery boundary setbacks.

With the guidance of Pelham Planning Department staff, these numbers were then assigned to each zone as CommunityViz requires. For example, all future development on residential parcels in the base scenario was assumed to be single-family in order to simplify the Residential Zone, with the exception of a handful of lots selected by staff deemed likely to see multi-family use.

The last set of inputs involves development constraints. These are GIS layers of areas that represent undevelopable land, either due to natural features or regulatory exclusion. When calculating the amount and location of new buildings, the buildout software will avoid these areas entirely. For Pelham's buildout, these layers included:

- Surface water
- Wetlands
- Large powerline easements
- Soils classified as having poor to very poor drainage
- Slopes equaling or in excess of 20%
- 100-year floodplain
- Conserved lands
- All land in the Recreation-Conservation-Agriculture (RCA) Zoning District

Map 2 shows these layers individually, while **Map 3** combines them into one layer of constrained land for ease of use.



Map 2 - Individual Development Constraints



Map 3 - Constrained Land Simplified

Assumptions

When calculating where to place new buildings on available land, CommunityViz software not only takes into account the regulations of what can be built on each parcel, but also the amount of space that any current buildings are taking up. Thus, an average size (in square feet) for single-family, commercial, and industrial buildings was derived for current Pelham assessing data and applied to each point in the GIS data representing an existing unit. NRPC maintains a GIS layer of buildings footprints, which were converted into points and given attributes representing these floor areas.

These numbers are carried over to any new buildings as well so that, for example, a 1-acre lot that currently has a house on it will not see any further development because the existing structure takes up space and the 1-acre minimum for a new house is no longer met.

Additionally, while some buildouts are time-constrained, using yearly development rates to estimate growth after a certain number of years, Pelham chose to run a full buildout with no time horizon. No assumptions can be made from the results of this analysis as to the location or timeframe of any theoretical new building or group of buildings.

Other assumptions used during the buildout process include

- In the mixed-use zone, mixed-use buildings are assigned 50% residential and 50% commercial uses
- Each parcel is given a 90% efficiency rate, meaning 10% of otherwise developable space is dedicated to new roads and open space normally associated with subdividing lots
- Patterns of development are random with no prediction for the shape of new roads or the layout of new lots
- No developable land is set aside as open space and conserved land or for other purposes such as municipal facilities or special large-scale commercial use

Base Scenario

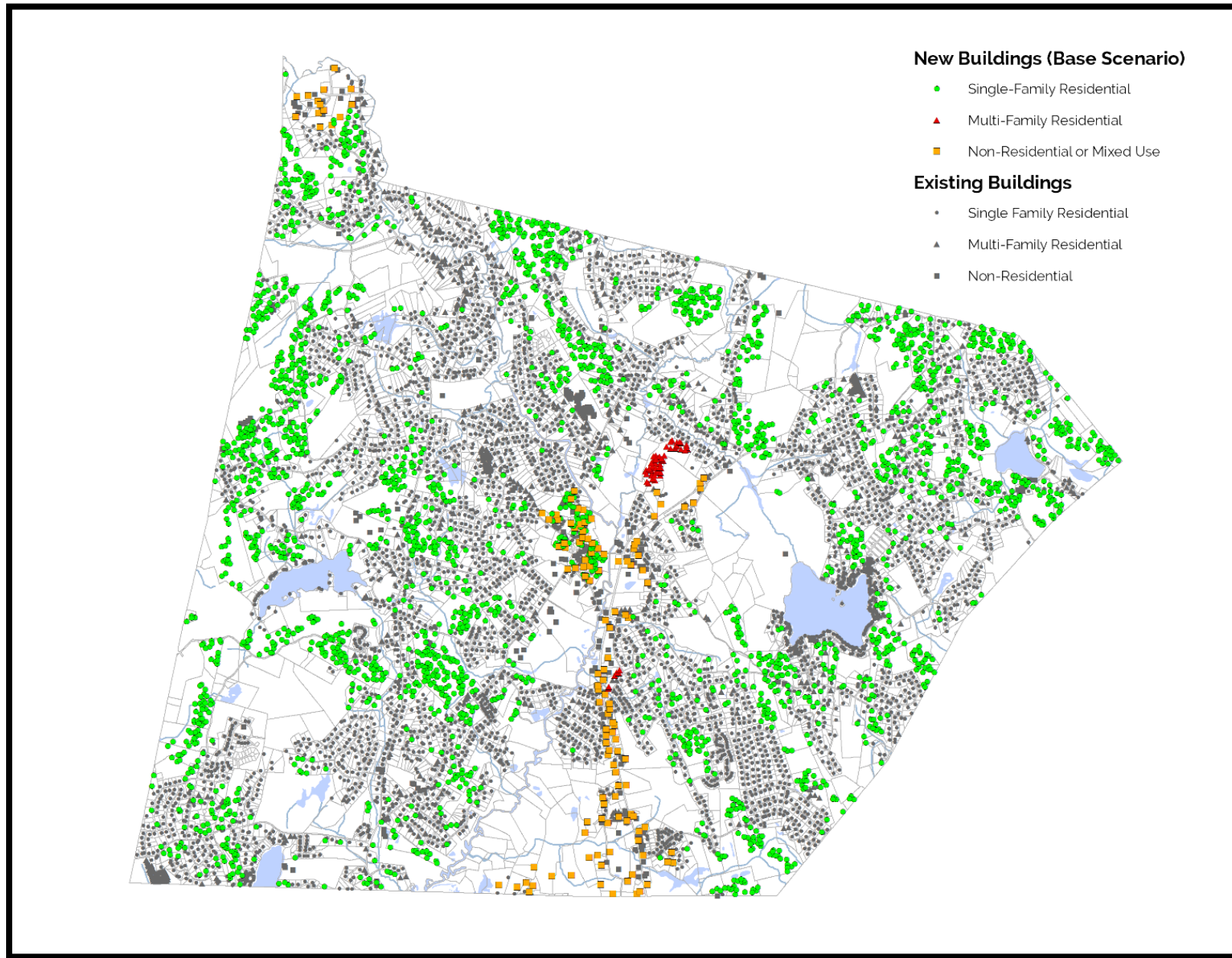
The base scenario buildout analysis represents what development patterns would look like under current land use regulations when all available land is used up. This scenario is an important tool not only on its own, but also in setting a baseline to which alternate scenarios can be compared.

Results

At full buildout using all current regulations, constraints, and assumptions, CommunityViz produced the following estimates:

- 2,801 new buildings
 - 2,670 residential
 - 131 commercial and industrial
- 2,834 new dwelling units
- 12.3 million square feet of new commercial and industrial space

Map 4 shows the results of the base scenario, with new and existing buildings mapped together for comparison.



Map 4 – Base Scenario Results

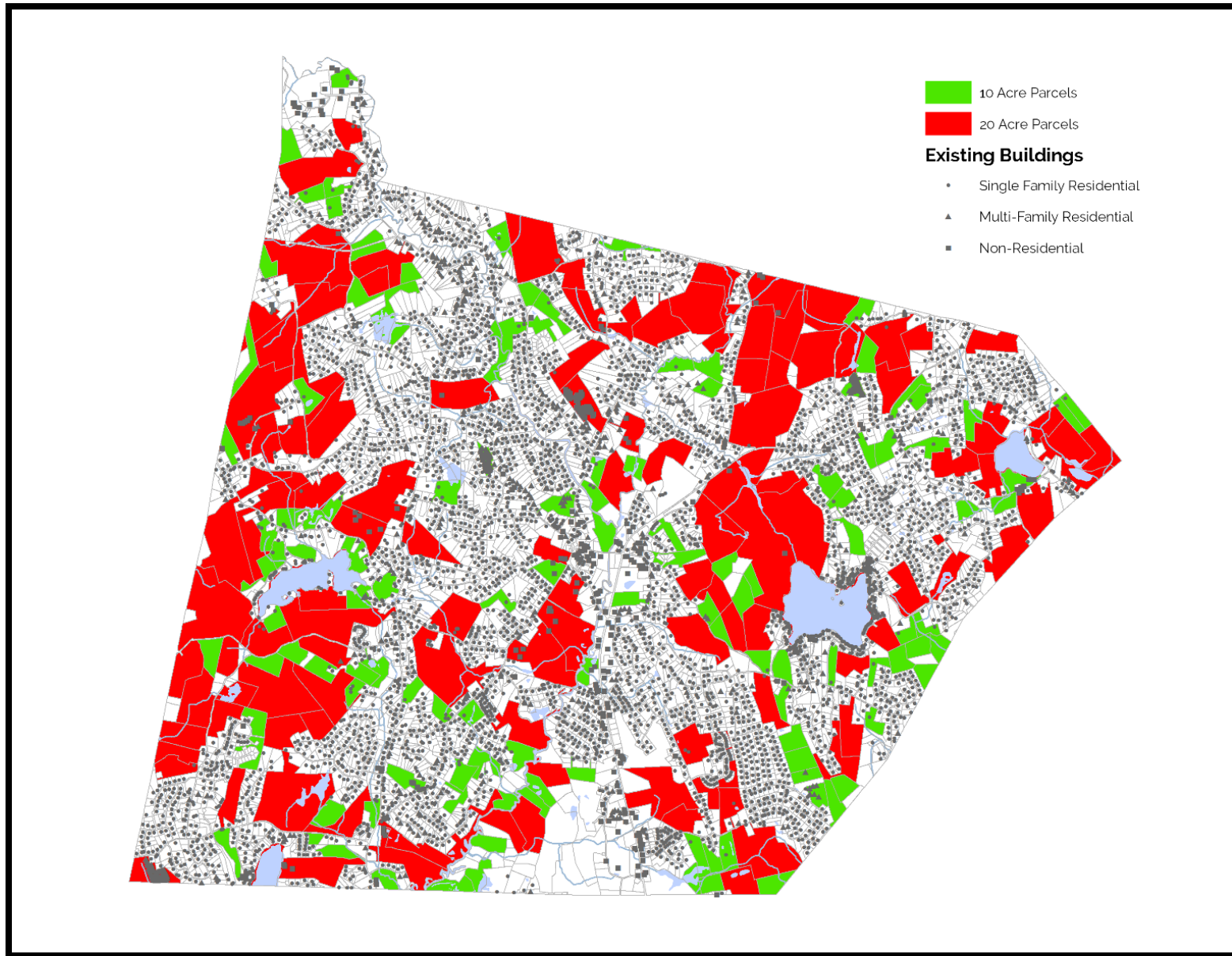
Alternative Scenarios

Under the terms of this project, NRPC agreed to produce two alternative scenarios for Pelham in order to compare results to each other and to the base scenario. In determining what those scenarios should look like, discussion amongst staff and the Pelham Planning Board centered around the concept of senior housing.

Understanding that senior housing development and general single-family development lead to very different outcomes in terms of services needed within a community and impacts on infrastructure, the Town agreed to move forward with both scenarios focused on this issue.

The first scenario calls for every parcel of 10 acres or greater to be dedicated to senior housing if in an appropriately zoned area while the second scenario raises the minimum lot size to 20 acres, allowing for an intermediate picture. In both scenarios, a density of 4 housing units per acre was assumed, per consultation with the Town. **Map 5** shows the lots eligible for senior housing developments under these conditions.

Like the base scenario, this is not a realistic approach or prediction. However, the results generated by these extremes can quickly show the differences in impacts.



Map 5 - 10- and 20-Acre Parcels in Residential Zones

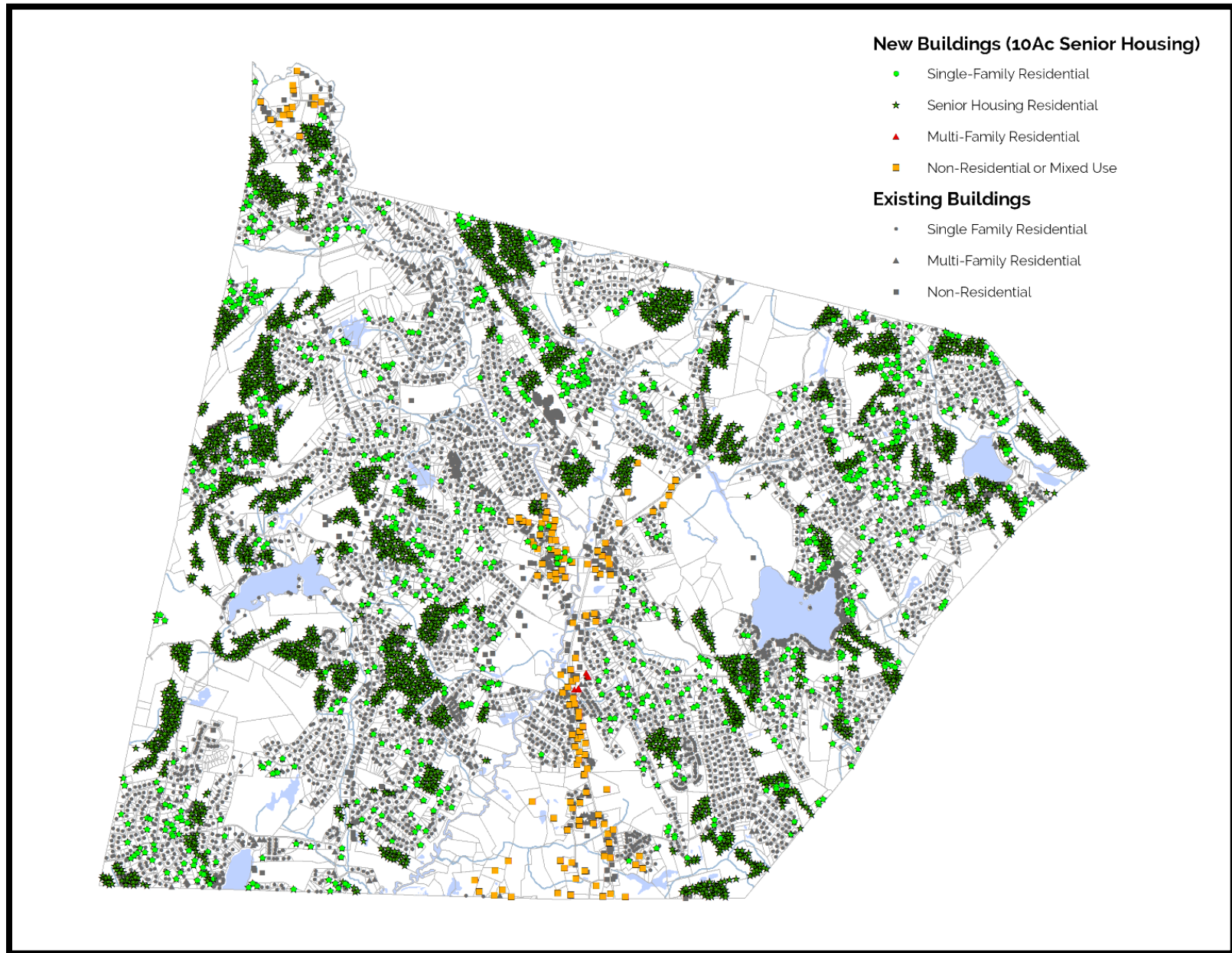
Results

Alternative Scenario 1 – 10-Acre Senior Housing

CommunityViz produced the following estimates for a full buildout under Scenario 1, with only senior housing being built on all eligible 10-acre parcels:

- 4,357 new buildings
 - 4,227 residential (all types)
 - 130 commercial and industrial
- 4,242 new dwelling units
 - 3,373 senior housing residential
 - 863 single-family residential
 - 6 multi-family residential
- 12.3 million square feet of new commercial and industrial space

Map 6 shows the results of the Alternative Scenario 1, with new and existing buildings mapped together for comparison.



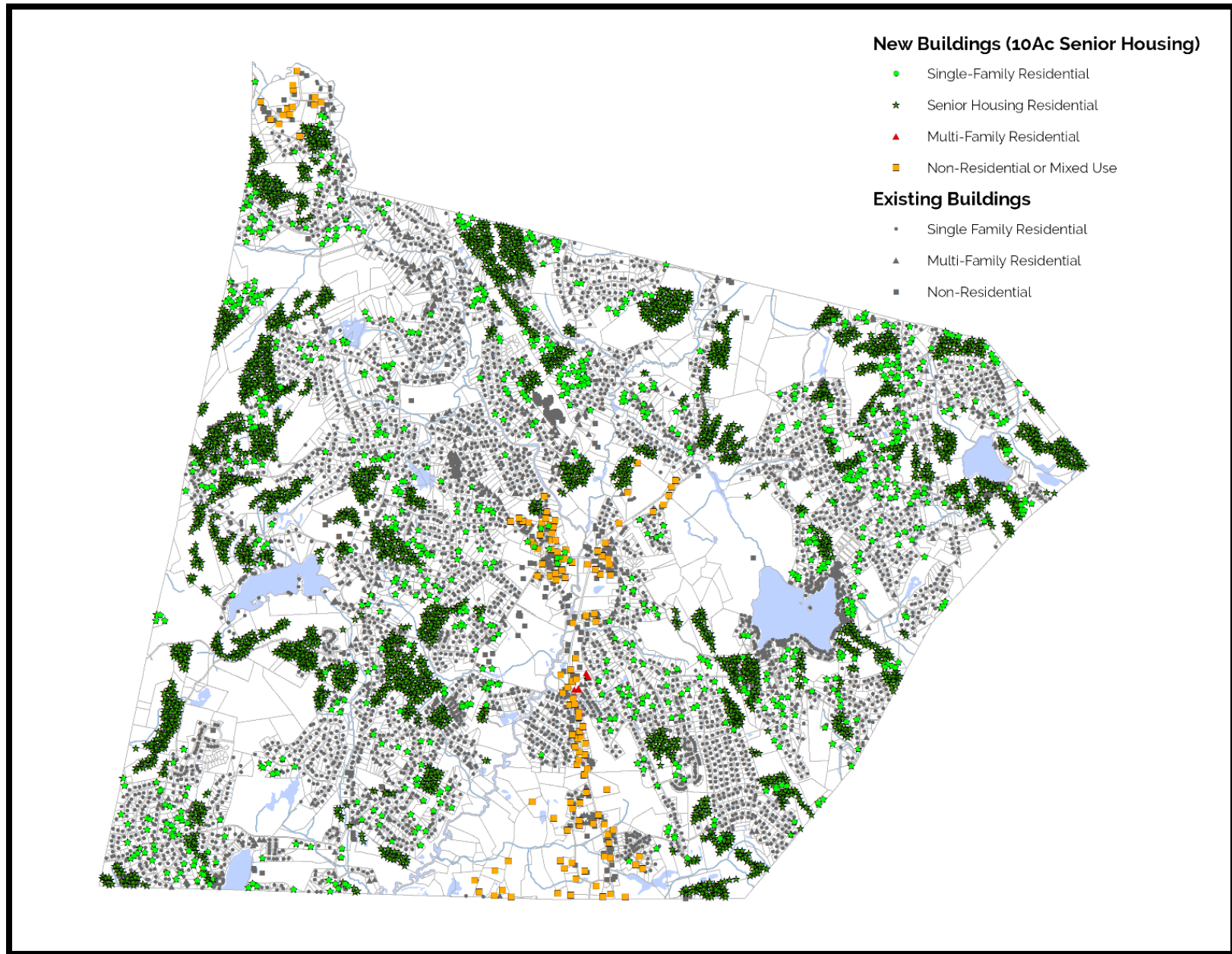
Map 6 – Scenario 1 Results

Alternative Scenario 2 – 20-Acre Senior Housing

CommunityViz produced the following estimates for a full buildout under Scenario 1, with only senior housing being built on all eligible 20-acre parcels:

- 3,853 new buildings
 - 3,722 residential (all types)
 - 131 commercial and industrial
- 3,737 new dwelling units
 - 2,460 senior housing residential
 - 1,271 single-family residential
 - 6 multi-family residential
- 12.3 million square feet of new commercial and industrial space

Map 7 shows the results of the Alternative Scenario 2, with new and existing buildings mapped together for comparison.



Map 7 – Scenario 2 Results

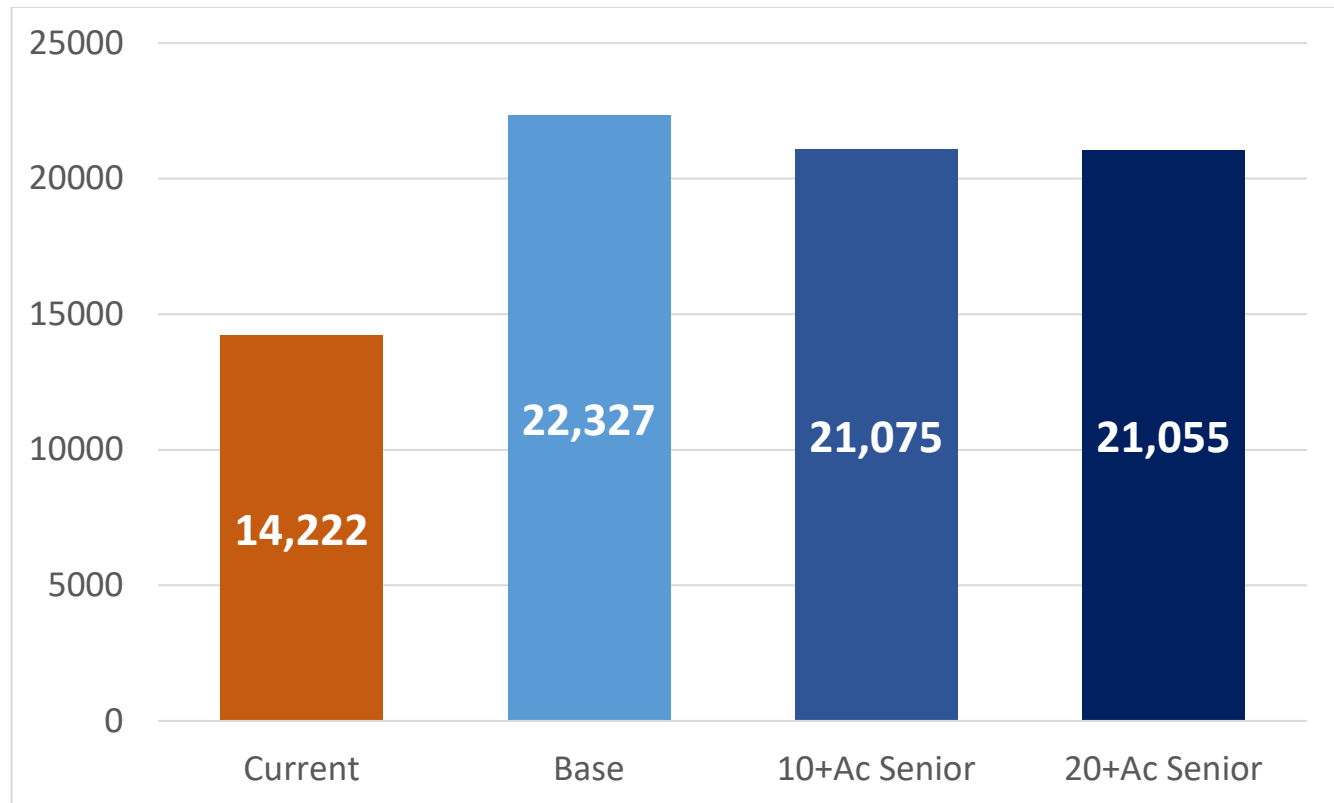
Indicators

The comparative effects the potential results of local development under various scenarios can be better understood through quantitative measures referred to in this project as impact indicators. Impact indicators are a series of data points based on real-world rates and can project future changes to the town's people and infrastructure.

The following charts compare these impacts between the base and two alternative scenarios. Indicators were chosen in consultation with the Pelham Planning Board and Planning Department staff with attention mostly given to those on which the age of the population would have the most impact. Where available, local or regional rates were used to extrapolate these future impacts based on added buildings of each type. Otherwise, national averages from the United States Census Bureau apply. The source and value of all assumptions are indicated below each chart.

Note that in many buildouts, an emphasis is placed on the comparison of commercial data between scenarios, such as number of jobs, commercial and industrial space, and tax and utility impacts. As the alternative scenarios in this project addressed residential differences only, the new amount of commercial square footage added within the town remained constant throughout each scenario and thus impacts are identical.

Total Population

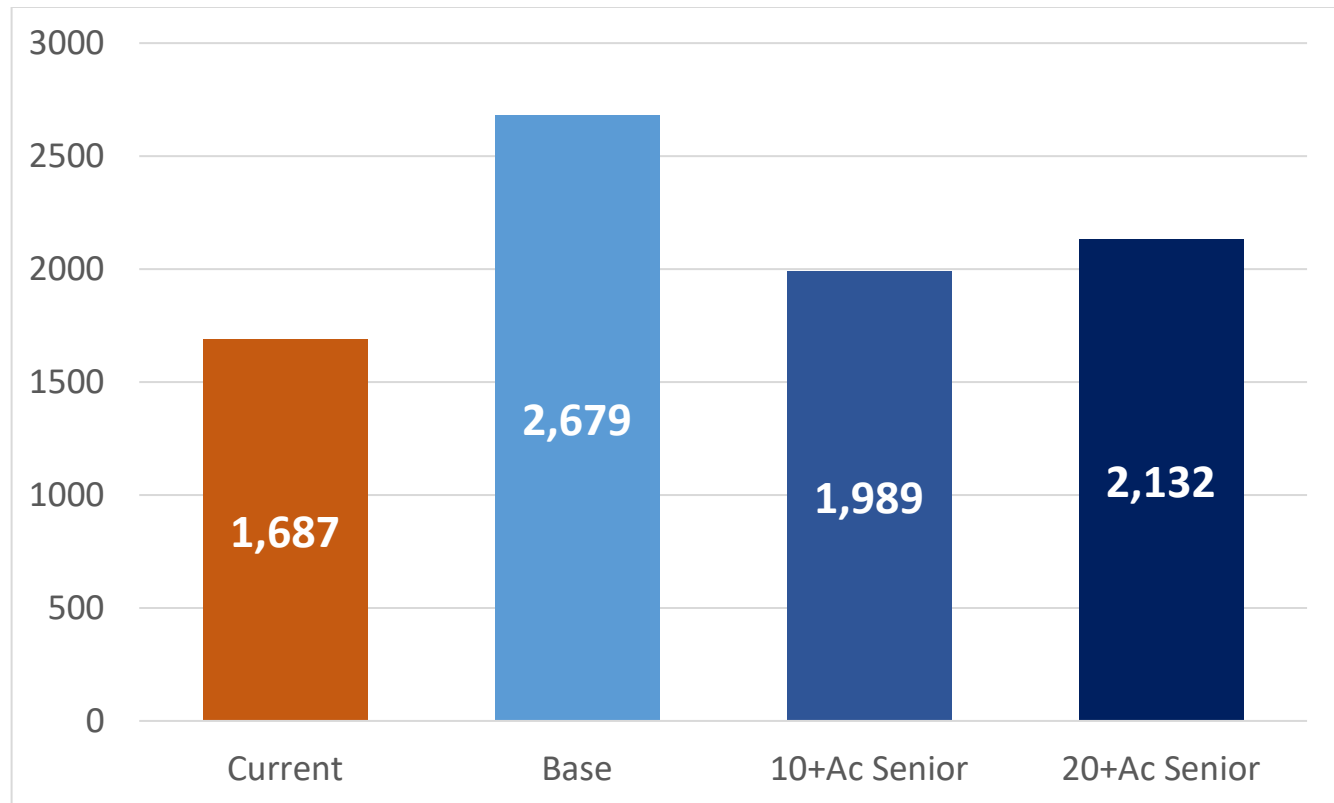


Based on average household sizes from data.census.gov and the Bureau of Labor Statistics. 2.86 people per general housing unit and 1.30 people per senior housing unit

Although many more buildings are built under the two alternative scenarios due to the increased density rules governing senior housing, that type of development brings with it a much smaller average household size. Therefore, both senior housing analysis scenarios see a slight drop in population when compared to the base scenario.

There is very little difference between the 10- and 20-acre senior housing scenarios, indicating that Pelham's density regulations bring a balanced approach to the resulting population.

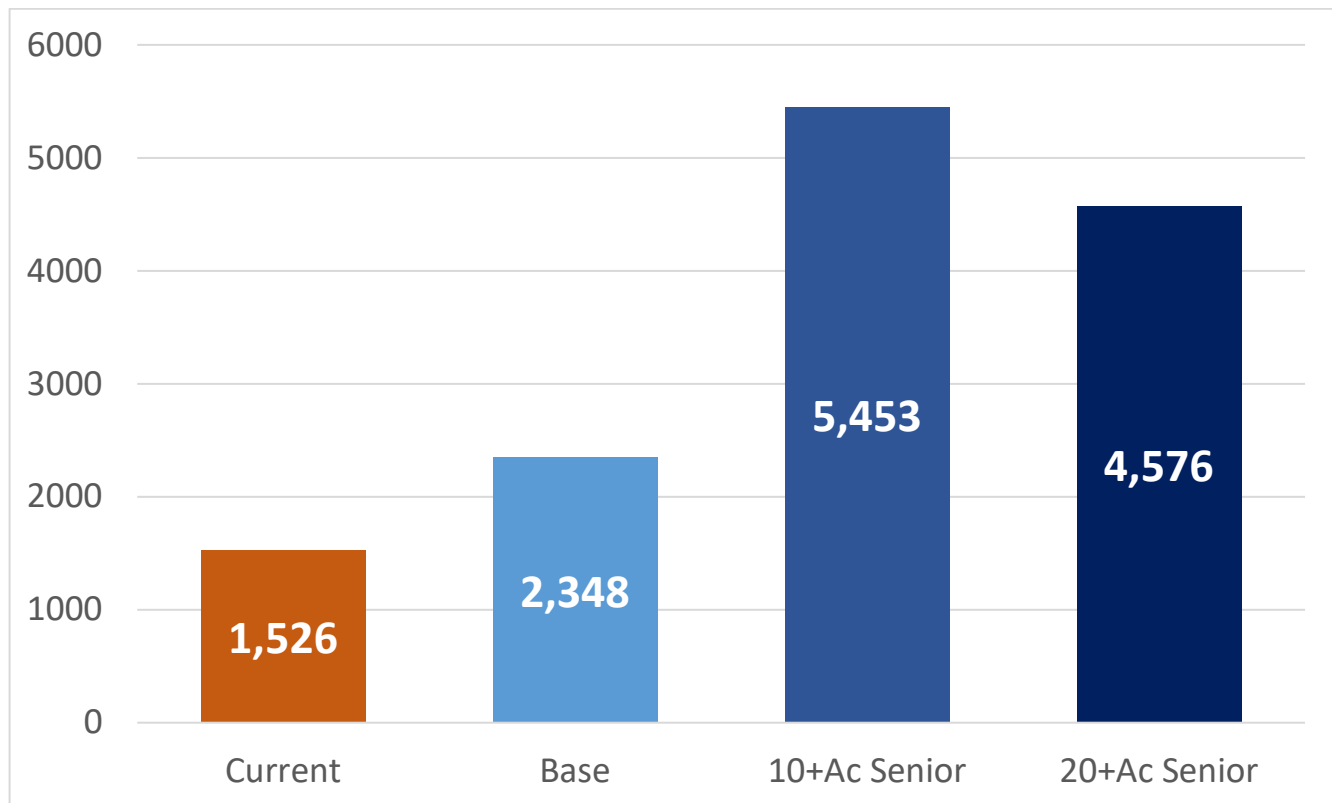
School Enrollment



Based on current enrollment provided by Town of Pelham and school-age child per household rates calculated by NRPC. 0.35 per general housing unit and 0 per senior housing unit

While the base scenario, dominated by single-family development, would lead to roughly 1,000 new students in the district according to current rates, numbers are expectedly tempered in the alternative scenarios centered around senior-focused households.

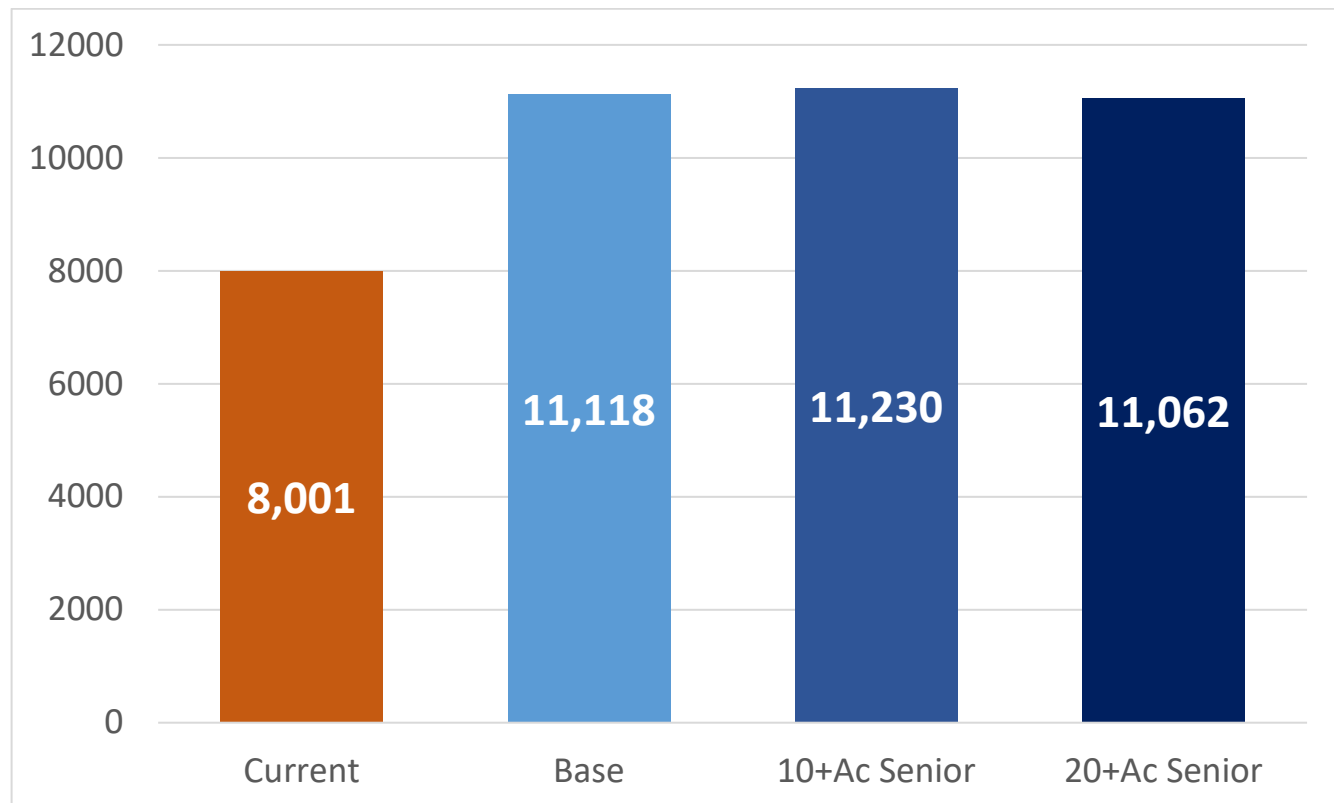
Yearly Incident Responses - Fire Department



Current number represents yearly average from 2017-2020. Rates calculated by NRPC using data provided by Town of Pelham Fire Department. 0.29 per general housing unit and 1.09 per senior housing unit

With the demand for emergency response to senior housing units at nearly 5 times the rate of traditional homes, an influx of older population would likely lead to a dramatic increase in yearly incidents and the need for additional fire and EMT personnel.

Residents in Labor Force



Based on Census data and rates derived from Census data. Labor force participation rate assumed to be 84% for general housing and 52% for senior housing

Much like the population numbers, each of the three scenarios leads to similar outcomes (about a 35% increase over today's numbers) in terms of potential workers living in Pelham.