

# **RYE, NH**

Buildout Analysis

## *DRAFT Alternative Scenarios*

*August 6th, 2024*



**Christine Bunyon,**  
Project Manager/ GIS Specialist,  
FB Environmental Associates

# Introduction



## As part of the Rye Master Plan Development

A **build-out analysis** is a planning tool that identifies areas having development potential and projects future development of those areas based on a set of conditions (e.g., lot size regulations, environmental constraints) and assumptions (e.g., building footprint dimensions).



This models “**full build-out**” which represents a theoretical time when all available land suitable development has been developed to the maximum conditions allowed.



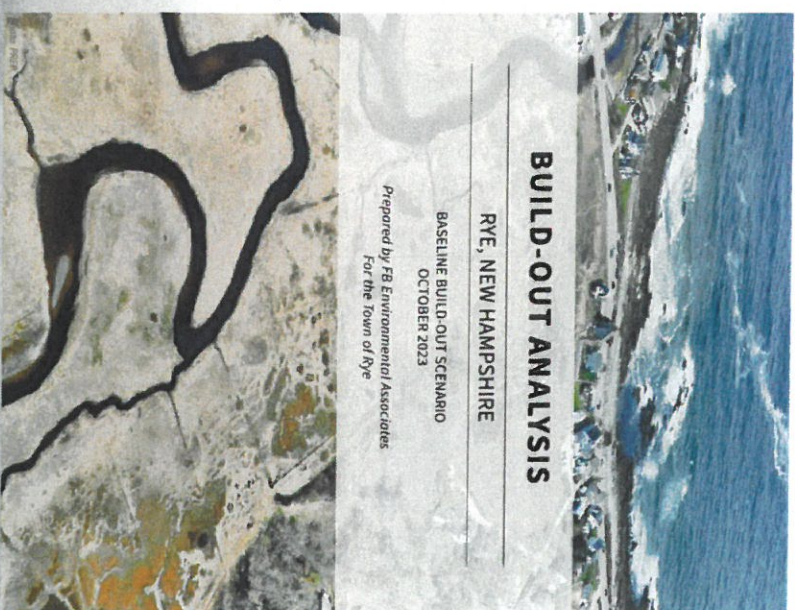
# Introduction



## The Rye Build-out Analysis

- Baseline Analysis - Completed in October of 2023
- The alternative scenarios - 2024

**THE GOAL:** The results of the build-out analysis can be used for planning purposes to help guide future development activities in the community, anticipate future demands on infrastructure, as well as identify areas that might be best-suited for conservation or development.



# Alternative Scenarios



## Objective

To understand how hypothetical changes to the Town of Rye's zoning ordinances or development exclusions may affect projected buildings and buildable area.

Multi-faceted



Use alternative zoning regulations **and** additional natural resource protections.



# Alternative Scenarios – Development Constraints



TABLE 7. Alternative scenario development constraints and zoning changes compared to the baseline analysis.

Development Constraint Description	Baseline Analysis Conditions	Alternative Scenario #1	Alternative Scenario #2
Conserved Land	No development	No development	No development
Road	No development	No development	No development
Hydric Soils	No development	No development	No development
Public Recreation, Public Recreation and Conservation, and Conservation Districts.	No development	No development	No development
Tidal marshes, bays, estuaries, rivers, river tributaries and creeks, natural perennial streams, vernal pools, ponds one acre in size or larger, and specifically Eel Pond, Burke's Pond, Brown's Pond, and East Rye Pond	100-foot setback	200-foot setback	200-foot setback
Wetlands within the Berrys Brook watershed	100-foot setback	200-foot setback	200-foot setback
Wetlands in Bailey's Brook, Seavey Creek, Witches Creek, and Parsons Creek	100-foot setback	200-foot setback	200-foot setback
Other wetlands not non-bordering, isolated wetlands	75-foot setback	150-foot setback	150-foot setback
Isolated, non-bordering wetlands	25-foot setback	50-foot setback	50-foot setback
Areas inundated under both 1 and 4 feet of sea level rise	-	No development	No development
FEMA flood hazard areas for 1% and 0.2% events (100-year and 500-year storms)	-	No development	No development
Isles of Shoals	-	No development	No development
Route 1 District	Existing lot sizes by zone (Table 3)	10 units/acre for all zones in this district	30 units/acre for all zones in this district
Town Center District	Existing lot sizes by zone (Table 3)	4 units/acre for all zones in this district	6 units/acre for all zones in this district

# Alternative Scenarios – Development Constraints

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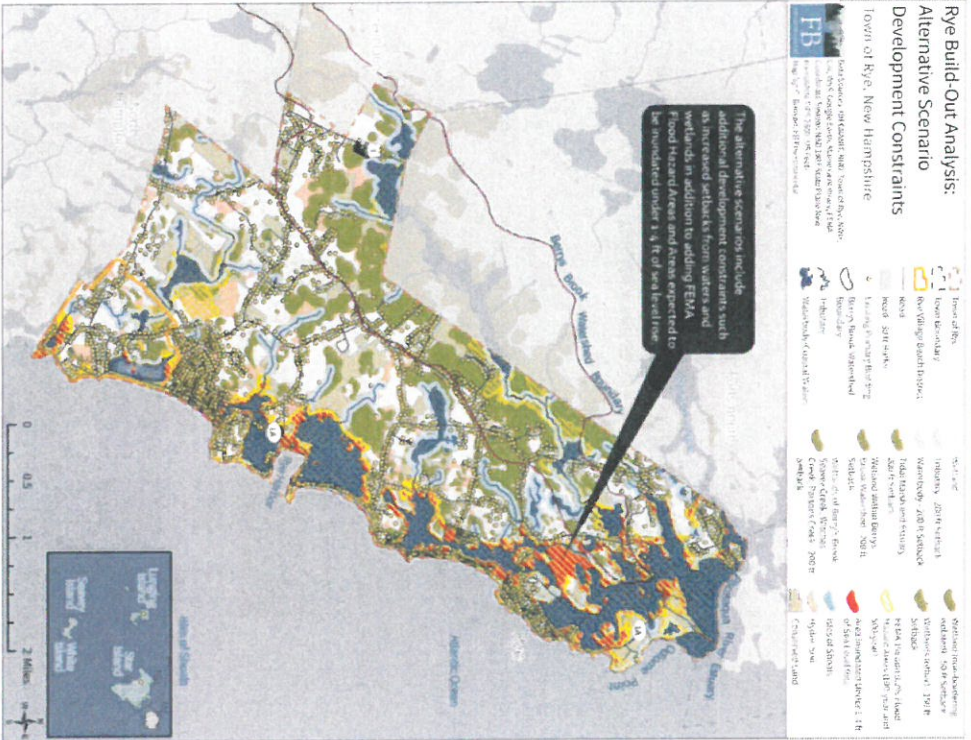
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# Alternative Scenarios - Development Constraints





# Alternative Scenarios – Development Constraints



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# Alternative Scenarios - Districts



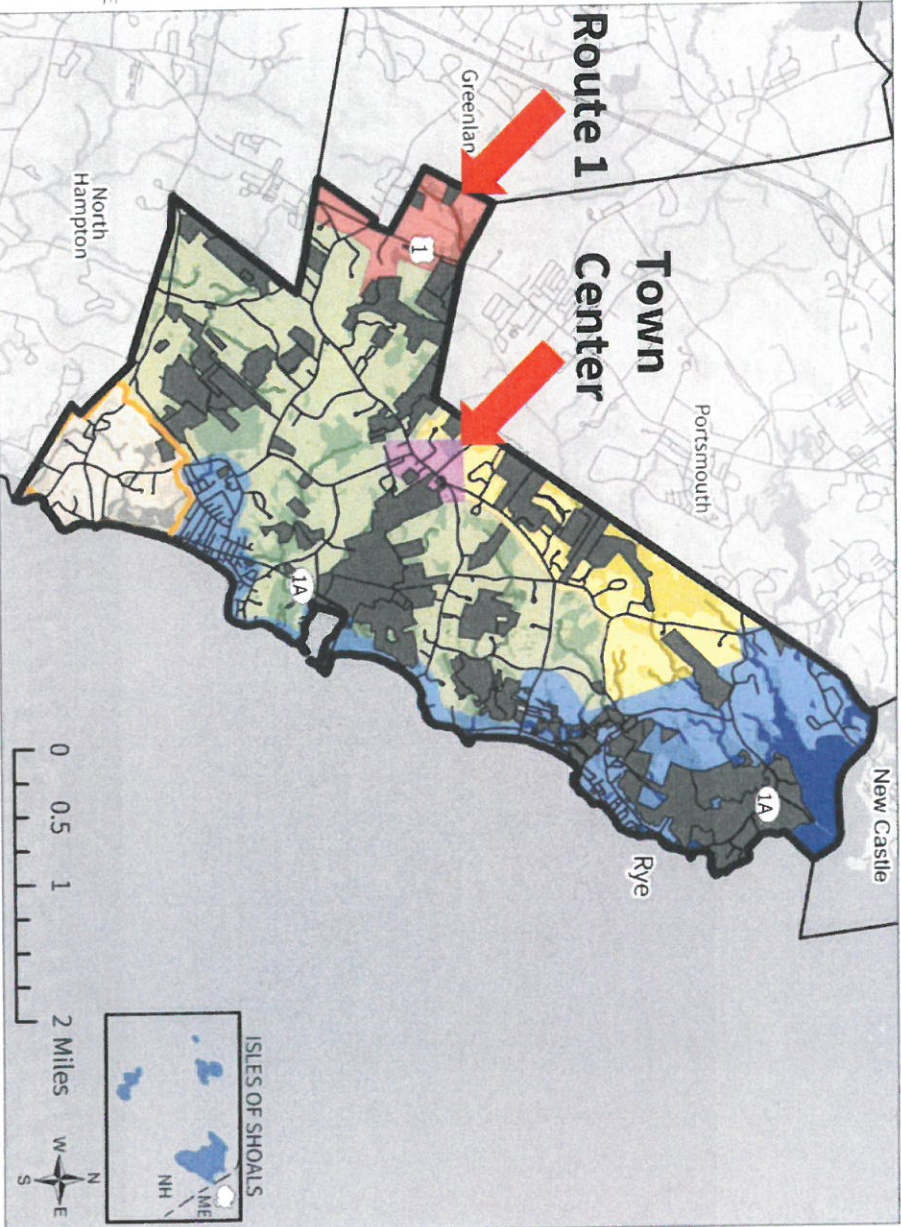
## Rye Districts

Town of Rye,  
New Hampshire

Map created for planning  
purposes for master plan and  
build-out analysis development

- Town of Rye
- Town Boundary
- Rye Village Beach District
- Road
- Waterbody/Coastal Waters
- Tributary
- Wetland
- Conserved Land
- Districts**
- Neighborhoods
- Route 1
- Scenic Coastal
- Semi-Rural
- Town Center
- Village Precinct

Data Sources: NH GRANIT, NHD,  
NWI+, Town of Rye, CAI, RP&D, FBE  
Coordinate System: NAD 1983  
State Plane NH FIPS 2800 (US TO)  
Map by: C. Burryon,  
FB Environmental



# Alternative Scenario #1 Buildable Area



- The expanded development constraints
- **Moderate** density increase in the Town Center and Route 1 Districts

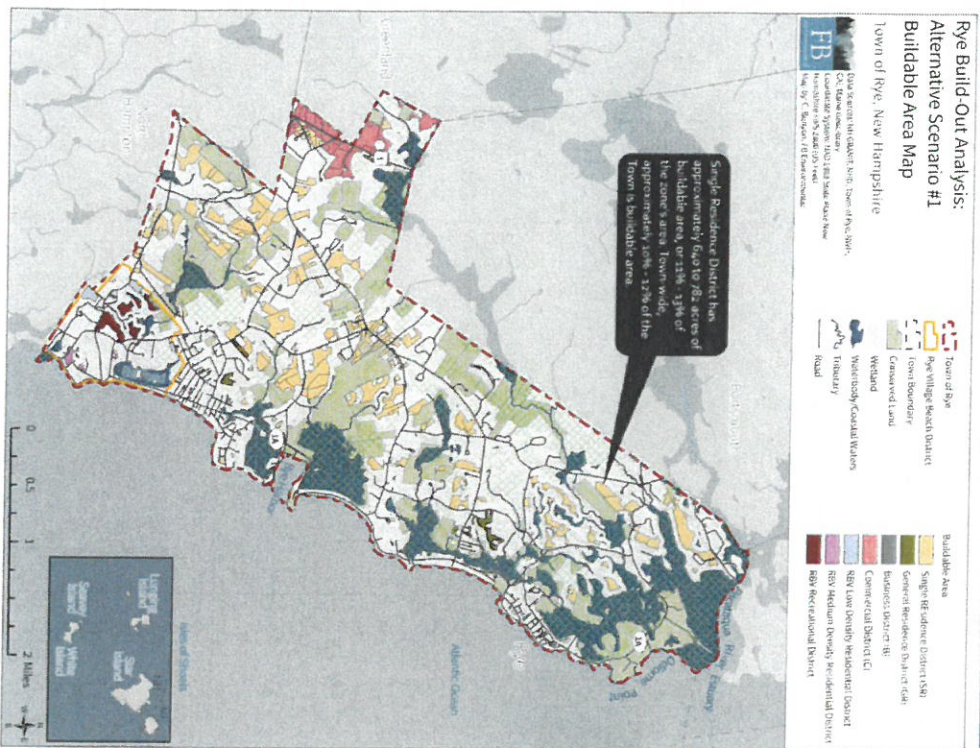


TABLE 8. The amount of buildable land within the first alternative scenario within the Town of Rye, NH, based on the first alternative scenario.

Zone	Total Area (Acres)	Scenario #1 Buildable Area (Acres)	Scenario #1 Percent Buildable Area
<b>Rye</b>			
Single Residence District (SR)	5,929	640 - 782	11% - 13%
General Residence District (GR)	457	32 - 40	7% - 9%
Business District (B)	48	2	3% - 4%
Commercial District (C)	276	115 - 141	42% - 51%
Public Recreation District (PREC)	78	0	0%
Public Recreation and Conservation District (PRAC)	368	0	0%
Conservation District (CON)	701	0	0%
<b>Rye Beach Village District</b>			
RBV Low Density Residential District	282	17 - 21	6% - 7%
RBV Medium Density Residential District	184	8 - 9	4% - 5%
RBV Recreational District	84	32 - 40	39% - 47%
<b>Total</b>	<b>8,406</b>	<b>846 - 1,035</b>	<b>10% - 12%</b>

# Alternative Scenario #1 Projected Buildings



- Greater densities lead to more projected buildings

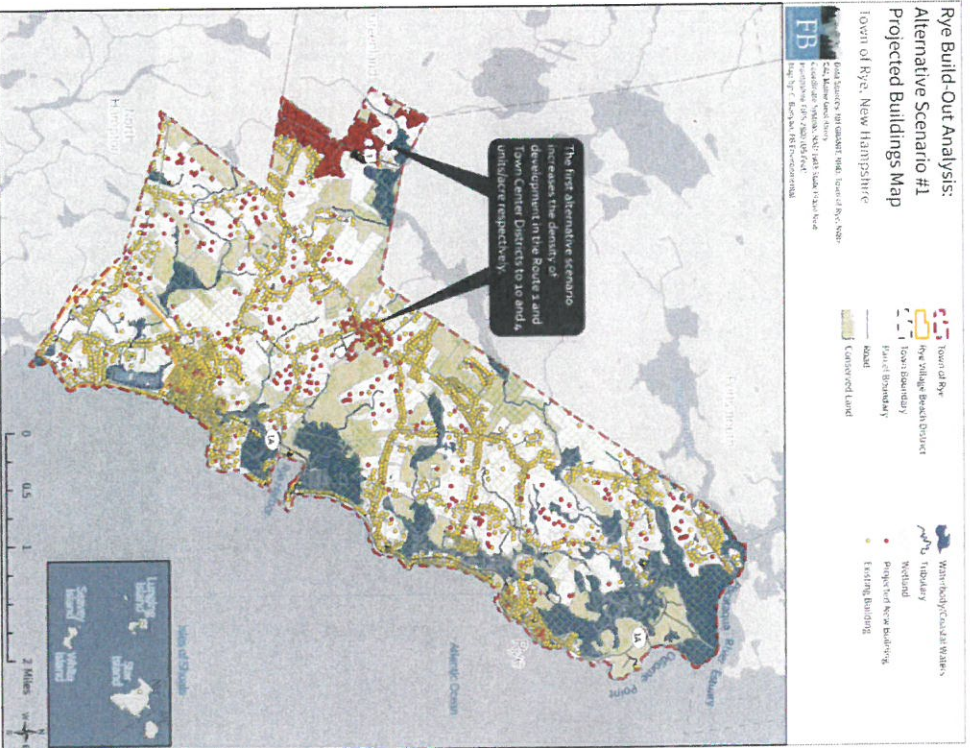
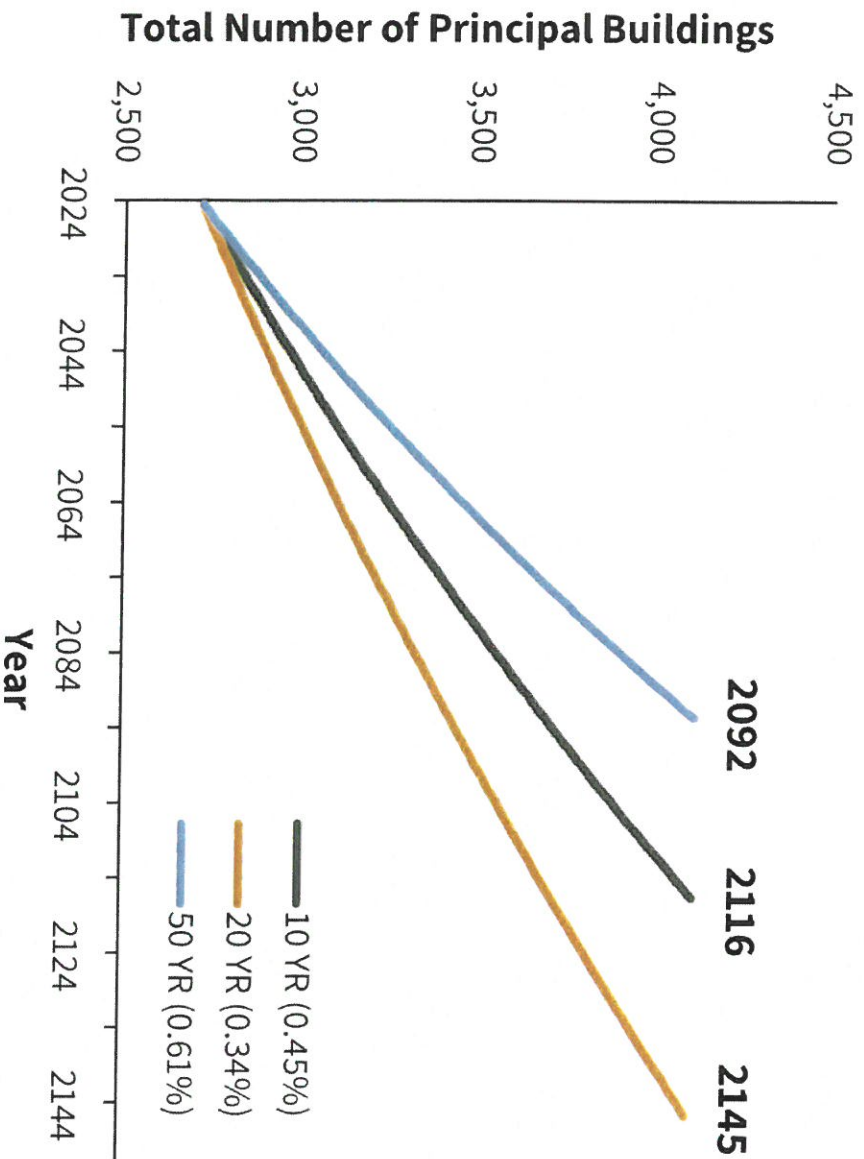


TABLE 9. Projected increase in buildings by zone in Rye under the first alternative scenario build-out analysis.

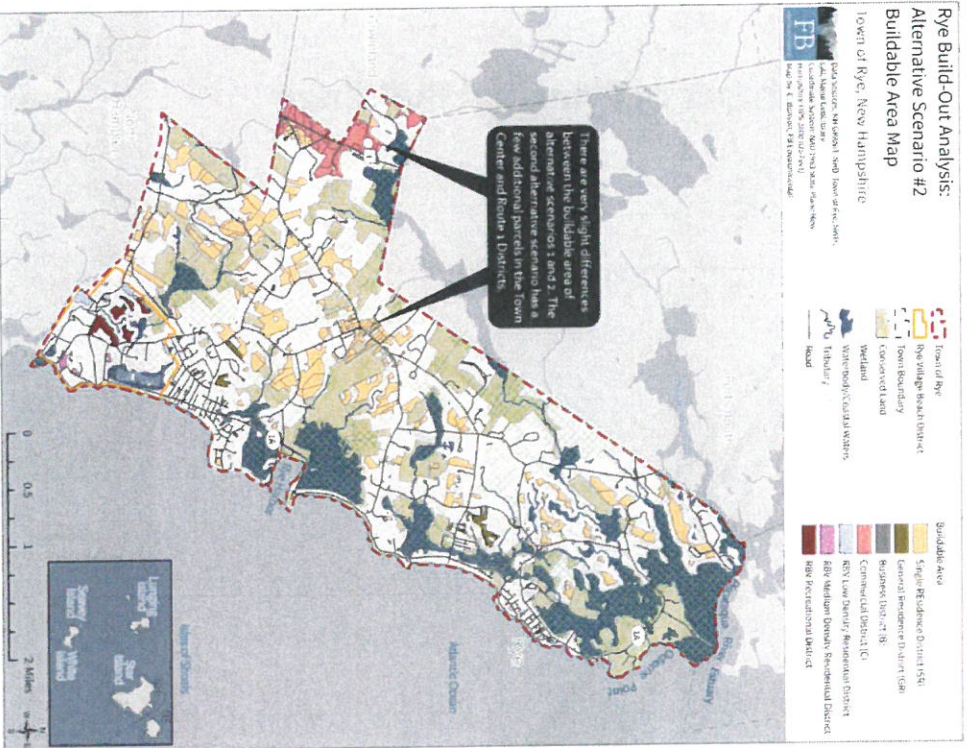
Zone	No. Existing Buildings	Scenario #1 No. Projected New Buildings	Scenario #1 Total No. Buildings	Percent Increase
<b>Rye</b>				
Single Residence District (SR)	1,466	363 - 443	1,829 - 1,909	25% - 30%
General Residence District (GR)	836	41 - 50	877 - 886	5% - 6%
Business District (B)	74	3	77	4%
Commercial District (C)	144	707 - 865	851 - 1,009	491% - 600%
Public Recreation District (PREC)	13	0	13	0%
Public Recreation and Conservation District (PRAC)	1	0	1	0%
Conservation District (CON)	4	0	4	0%
<b>Rye Beach Village District</b>				
RBV Low Density Residential District	63	6 - 8	69 - 71	10% - 12%
RBV Medium Density Residential District	117	6 - 8	123 - 125	5% - 7%
RBV Recreational District	4	1	5	23% - 28%
<b>Total</b>	<b>2,722</b>	<b>1,127 - 1,377</b>	<b>3,849 - 4,099</b>	<b>41% - 51%</b>

# Alternative Scenario #1 Timescope Analysis



“How long will it take to reach the full build-out number of buildings?”

# Alternative Scenario #2 Buildable Area

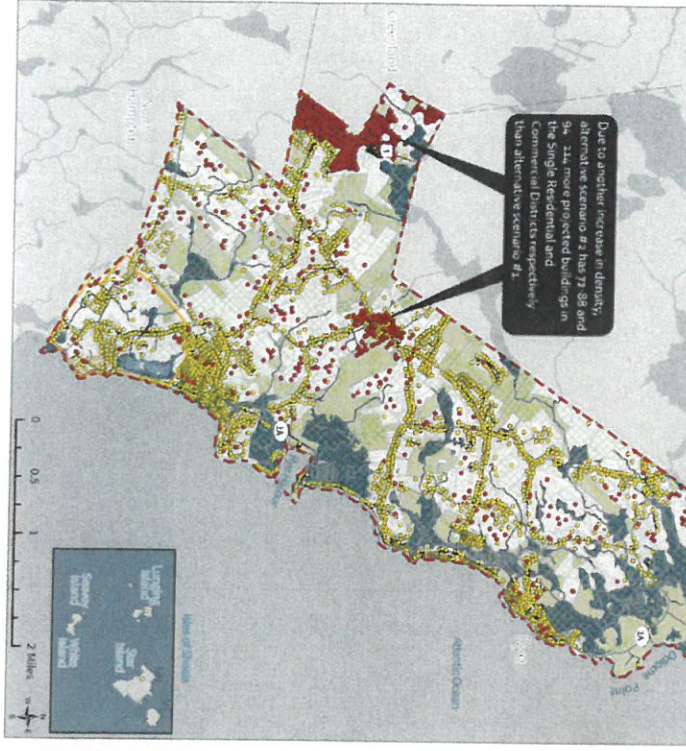
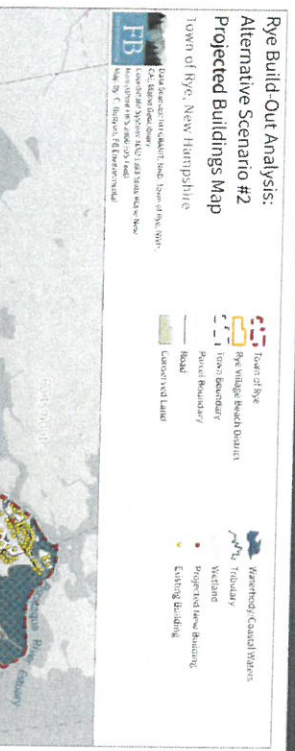


- The expanded development constraints
- **Greater** density of development in the Town Center and Route 1 Districts

TABLE 10. The amount of buildable land within the second alternative scenario within the Town of Rye, NH.

Zone	Total Area (Acres)	Scenario #2 Buildable Area (Acres)	Scenario #2 Percent Buildable Area
<b>Rye</b>			
Single Residence District (SR)	5,929	644 - 787	11% - 13%
General Residence District (GR)	457	32 - 40	7% - 9%
Business District (B)	48	2	3% - 4%
Commercial District (C)	276	118 - 144	43% - 52%
Public Recreation District (PREC)	78	0	0%
Public Recreation and Conservation District (PRAC)	368	0	0%
Conservation District (CON)	701	0	0%
<b>Rye Beach Village District</b>			
RBV Low Density Residential District	282	17 - 21	6% - 7%
RBV Medium Density Residential District	184	8 - 9	4% - 5%
RBV Recreational District	84	32 - 40	39% - 47%
<b>Total</b>	<b>8,406</b>	<b>853 - 1,042</b>	<b>10% - 12%</b>

# Alternative Scenario #2 Projected Buildings

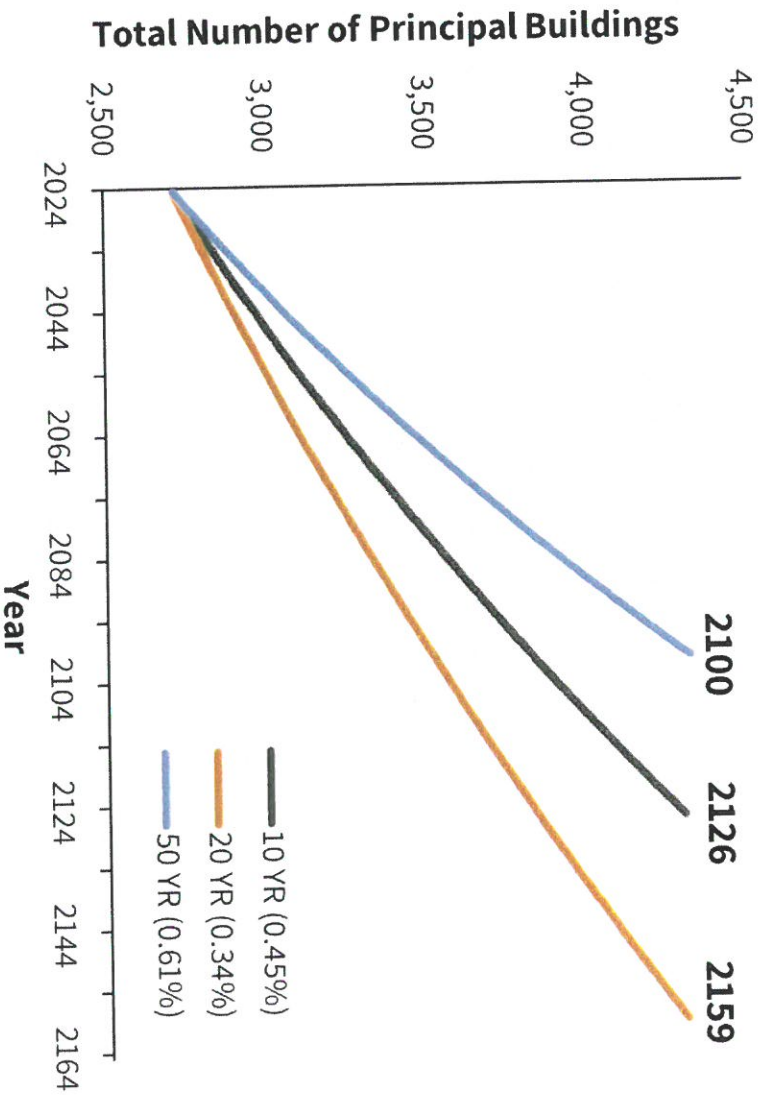


	Baseline Scenario	Alternative Scenario #1	Alternative Scenario #2
Route 1	~1-1.5 units/ac	10 units/ac	30 units/ac
Town Center	~1-1.5 units/ac	4 units/ac	6 units/ac

TABLE 11. Projected increase in buildings by zone in Rye under the second alternative scenario build-out analysis.

Zone	No. Existing Buildings	Scenario #2 No. Projected New buildings	Scenario #2 Total No. Buildings	Percent Increase
<b>Rye</b>				
Single Residence District (SR)	1,466	435 - 531	1,901 - 1,997	30% - 36%
General Residence District (GR)	836	41 - 50	877 - 886	5% - 6%
Business District (B)	74	3	77	4%
Commercial District (C)	144	801 - 979	945 - 1,123	55.6% - 680%
Public Recreation District (PREC)	13	0	13	0%
Public Recreation and Conservation District (PRAC)	1	0	1	0%
Conservation District (CON)	4	0	4	0%
<b>Rye Beach Village District</b>				
RBV Low Density Residential District	63	6 - 8	69 - 71	11% - 14%
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RBV Recreational District	4	1	5	23% - 28%
<b>Total</b>	<b>2,722</b>	<b>1,292 - 1,580</b>	<b>4,014 - 4,302</b>	<b>47% - 58%</b>

# Alternative Scenario #2 Timescope Analysis



Full build-out projects for the Town of Rye for the second alternative scenario

“How long will it take to reach the full build-out number of buildings?”



# Comparison - Buildable Area



Zone	Total Area (Acres)	Baseline Analysis		Alternative Scenario #1		Alternative Scenario #2	
		Buildable Area (Acres)	Percent Buildable Area (percent)	Buildable Area (Acres)	Percent Buildable Area (percent)	Buildable Area (Acres)	Percent Buildable Area (percent)
Single Residence District (SR)	5929	761 - 930	13% - 16%	640 - 782	11% - 13%	644 - 787	11% - 13%
General Residence District (GR)	457	45 - 55	10% - 12%	32 - 40	7% - 9%	32 - 40	7% - 9%
Business District (B)	48	2 - 3	5% - 6%	2	3% - 4%	2	3% - 4%
Commercial District (C)	276	94 - 115	34% - 42%	115 - 141	42% - 51%	118 - 144	43% - 52%
Public Recreation District (PREC)	78	0	0%	0	0%	0	0%
Public Recreation and Conservation District (PRAC)	368	0	0%	0	0%	0	0%
Conservation District (CON)	701	0	0%	0	0%	0	0%
Rye Beach Village (RBV) District - Low	282	17 - 21	6% - 7%	17 - 21	6% - 7%	17 - 21	6% - 7%
RBV District - Medium	184	11 - 13	6% - 7%	8-9	4% - 5%	8-9	4% - 5%
RBV District - Recreational	84	38 - 47	46% - 56%	32 - 40	39% - 47%	32 - 40	39% - 47%
<b>Total</b>	<b>8406</b>	<b>968 - 1184</b>	<b>12% - 14%</b>	<b>846 - 1,035</b>	<b>10% - 12%</b>	<b>853 - 1,042</b>	<b>10% - 12%</b>

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# Comparison - Projected Buildings



Zone	Baseline Analysis				Alternative Scenario #1				Alternative Scenario #2			
	No. Existing Buildings	No. Projected Buildings	Total No. Buildings	Percent Increase	No. Projected Buildings	Total No. Buildings	Percent Increase	No. Projected Buildings	Total No. Buildings	Percent Increase		
Single Residence District (SR)	1,466	285 - 349	1,751 - 1,815	19% - 24%	363 - 443	1,829 - 1,909	25% - 30%	435 - 531	1,901 - 1,997	30% - 36%		
General Residence District (GR)	836	52 - 64	888 - 900	6% - 8%	41 - 50	877 - 886	5% - 6%	41 - 50	877 - 886	5% - 6%		
Business District (B)	74	4	77 - 78	5%	3	77	4%	3	77	4%		
Commercial District (C)	144	56 - 68	200 - 212	39% - 47%	707 - 865	851 - 1,009	491% - 600%	801 - 979	945 - 1,123	556% - 680%		
Public Recreation District (PREC)	13	0	13	0%	0	13	0%	0	13	0%		
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Conservation District (CON)	4	0	4	0%	0	4	0%	0	4	0%		
Rye Beach Village (RBV) District - Low	63	6 - 8	69 - 71	10% - 12%	6 - 8	69 - 71	11% - 14%	6 - 8	69 - 71	11% - 14%		
RBV District - Medium	117	9 - 11	126 - 128	8% - 9%	6 - 8	123 - 125	5% - 7%	6 - 8	123 - 125	5% - 7%		
RBV District - Recreational	4	2	6	50%	1	5	23% - 28%	1	5	23% - 28%		
<b>Total</b>	<b>2,722</b>	<b>414 - 506</b>	<b>3,136 - 3,228</b>	<b>15% - 19%</b>	<b>1,127 - 1,377</b>	<b>3,849 - 4,099</b>	<b>41% - 51%</b>	<b>1,292 - 1,580</b>	<b>4,014 - 4,302</b>	<b>47% - 58%</b>		

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RBV District - Medium	117	9 - 11	126 - 128	8% - 9%	6 - 8	123 - 125	5% - 7%	6 - 8	123 - 125	5% - 7%		
RBV District - Recreational	4	2	6	50%	1	5	23% - 28%	1	5	23% - 28%		
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# *In Conclusion*

*Due to extensive environmental development constraints (particularly wetlands), conserved land, and existing buildings, the Town of Rye has moderately low buildable area for future development compared to other New Hampshire communities.*

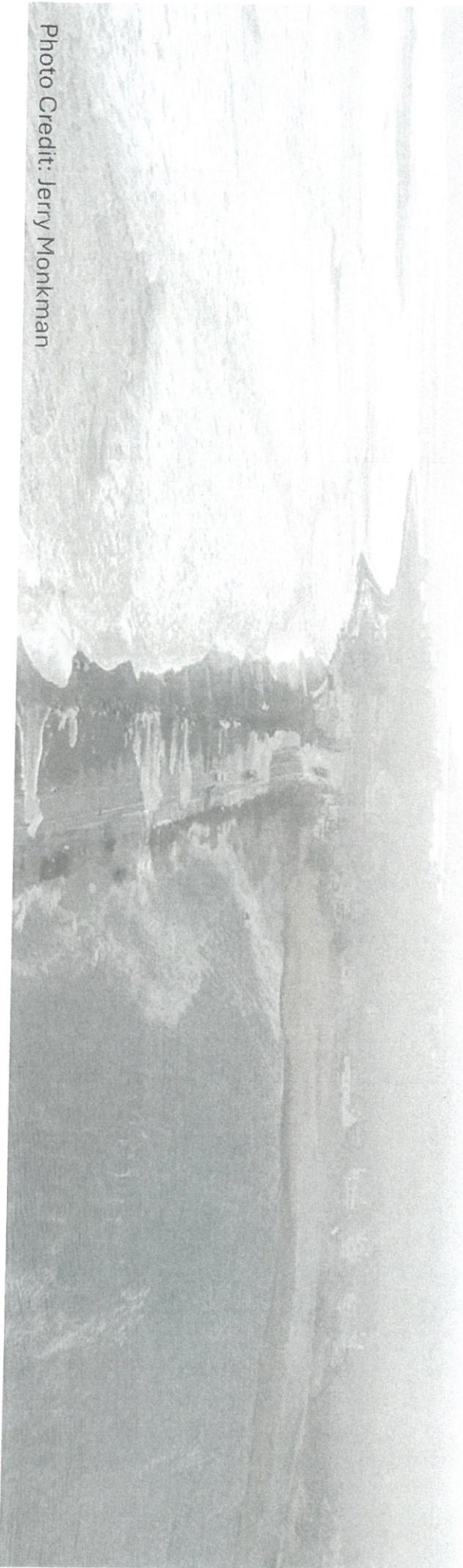


Photo Credit: Jerry Monkman

# Recommendations



## General Recommendations for Master Planning process

- Continue to consider projected development hotspots and buildable areas
- ❓ Which areas of Rye could meet affordable housing needs?
- ❓ Which areas projected to growth are at increased risk from effects of climate change?



Photo Credit: Jerry Monkman

# Recommendations



## General Recommendations for Master Planning process

- Reflect on development constraint and density alterations
- Continue to consider natural resource protection
- Learn how town services would be impacted

❓ Can sewer and drinking water resources support expansions to service area while protecting natural resources and water quality?

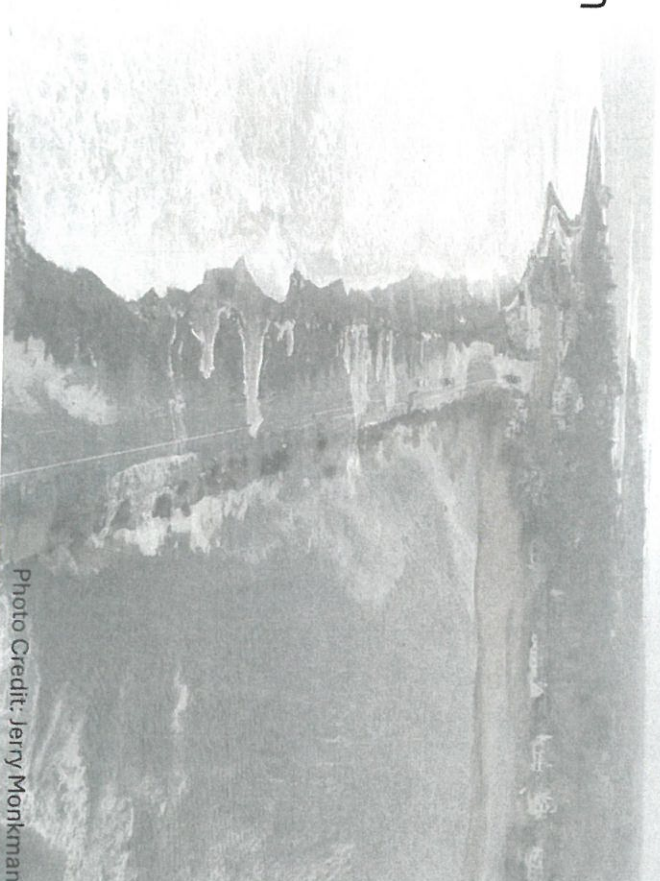


Photo Credit: Jerry Monkman

# Next Steps

1. Gather feedback → 2-week review period
2. Incorporate edits and finalize the report.







Thank you!

# RYE, NH

Buildout Analysis

*DRAFT Alternative Scenarios*

*August 6th, 2024*



Christine Bunyon,  
Project Manager / GIS Specialist,  
FB Environmental Associates

# Methods



## Population growth rate –US census

TABLE 1. US Census Bureau population for Rye from 1970-2020. Data from [www.census.gov](http://www.census.gov).

Town	Population					
	1970	1980	1990	2000	2010	2020
Town of Rye	4,083	4,508	4,612	5,182	5,298	5,543
New Hampshire (for reference)	737,681	920,610	1,109,252	1,235,786	1,316,470	1,377,529

TABLE 2. Compound annual growth rates for Rye over 10- year, 20-year, and 50-year spans.

Town	Compound Annual Growth Rate		
	50 Year (1970-2020)	20 Year (2000-2020)	10 Year (2010-2020)
Town of Rye	0.61%	0.34%	0.45%
New Hampshire (for reference)	1.26%	0.54%	0.45%