

Thickly Settled Zones

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Mon 12/6/2021 9:02 AM

To: Tim Bragan <tbragan@harvard-ma.gov>

Cc: James Babu <jbabu@harvard-ma.gov>; Tim Kilhart <tkilhart@harvard-ma.gov>; Julie Doucet <jdoucet@harvard-ma.gov>

Tim,

Attached is my attempt at identifying "thickly settled" zones in Harvard. Details on the methodology used are also included.

The zones were identified by visual analysis of the Harvard tax parcels with structures on MassGIS's MassMapper. As such, I could have missed some, so please yell if you think other roads should be analyzed. I will say I was surprised at some areas that did/did not make the cut.

An open issue is whether the stretch of Still River Rd in Still River village qualifies. MGL c.90 s.17C states "...establish a speed limit of 25 miles per hour on any roadway inside a thickly settled or business district in the city or town on any way that is not a state highway." Unclear if this means State numbered, State administered, etc. Further clarification is needed which is above my pay grade.

I will be prepared to discuss my findings at tomorrow night's SB meeting if that is still desired.

Peter

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To: Town of Harvard Select Board
Tim Bragan, Town Administrator, Town of Harvard
James Babu, Acting Police Chief, Town of Harvard
Tim Kilhart, DPW Director, Town of Harvard

From: Peter Dorward

Date: 12/6/2021

Subject: "Thickly Settled" Analysis

At the 10/16/21 Fall Town Meeting, the Town of Harvard adopted MGL c.90 s.17C which established a 25 MPH speed limit in "thickly settled" areas. At the request of the Select Board and Town Administrator, I analyzed GIS data to determine what areas of Harvard met the definition of "thickly settled". The methodology used and results follow.

Definitions

MGL c.90 s.17C states (emphasis added):

Notwithstanding section 17 or any other general or special law to the contrary, the city council, the transportation commissioner of the city of Boston, the board of selectmen, park commissioners, a traffic commission or traffic director of a city or town that accepts this section in the manner provided in section 4 of chapter 4 may, in the interests of public safety and without further authority, establish a speed limit of 25 miles per hour on any roadway inside a thickly settled or business district in the city or town on any way that is not a state highway.

MGL c.90 s.1 defines "Thickly Settled" as (emphasis added):

"Thickly settled or business district", the territory contiguous to any way which is built up with structures devoted to business, or the territory contiguous to any way where the dwelling houses are situated at such distances as will average less than two hundred feet between them for a distance of a quarter of a mile or over.

The definition of "thickly settled" above does not specify the details of how the average distance between dwellings is measured. Guidance was provided by Richard Wilson, State Traffic Regulations Engineer, MassDOT Highway Division, in an email on 11/22/21 which clarified several issues:

- Dwelling spacing is measured along one side of the road, and cannot switch sides.
- Both sides of the road do not need to meet the average spacing limit. If only one side meets the thickly settled definition, the reduced speed limit applies to both directions of the road.
- The calculation is done on a per road basis, and cannot switch roads at an intersection.
- Municipal buildings and business are counted in the average spacing.
- Multiple family residences are counted as one dwelling.
- Separate residences on a single parcel are counted as multiple dwellings if they have frontage on the road.
- Residences on backland and hammerhead lots are not counted.
- The thickly settled zone can extend beyond the first and last house counted until the average spacing exceeds 200'.

In addition to this guidance from MassDOT, the following assumptions were made:

- Non-residence buildings (outbuildings) are not included in the spacing calculation.
- Dwellings located on corners of road intersections can be counted on both roads.
- Dwellings that are contiguous with two roads (other than corners) are counted only on the road from which they access their residence.
- Distances are measured using the centerline of the road to account for curves.
- The start and end of the spacing calculation can be located at any point on the road as long as it includes the center of each dwelling counted (defined by a line perpendicular to the road).
- State numbered roads are included in the analysis but may not be eligible for “thickly settled” zones set by the Town.
- Identification of “Business districts” is not included in the analysis.
- Private roads are not included in the analysis.

Measurement Methodology

Distances and the number of dwellings were obtained using MassGIS’s MassMapper.

<https://maps.massgis.digital.mass.gov/MassMapper/MassMapper.html> (The Harvard Assessor’s AxisGIS could alternatively be used, but appears not to include recent construction). Dwellings were confirmed using 2019 aerial Imagery from MassMapper and site inspections where required.

- The average spacing between dwellings was calculated as

$$\text{average dwelling spacing} = (\text{distance on road}) / (\# \text{ of dwellings} - 1)$$

Note that the denominator is (# of dwellings - 1) to correctly determine the average spacing. For example, the average spacing of 3 dwellings spaced 100’ apart is $200' / 2 = 100'$, not $200' / 3 = 67'$.

- The zone was considered “thickly settled” if both of the following conditions were met:

$$\begin{aligned} \text{average dwelling spacing} &\leq 200' \\ (\text{number of dwellings} - 1) * 200' &\geq 1320' \end{aligned}$$

The latter requirement allows a group of closely spaced dwellings to qualify even if their end to end spacing is less than ¼ mile. (This is consistent with the last point in the guidance from MassDOT).

Thickly Settled Zones

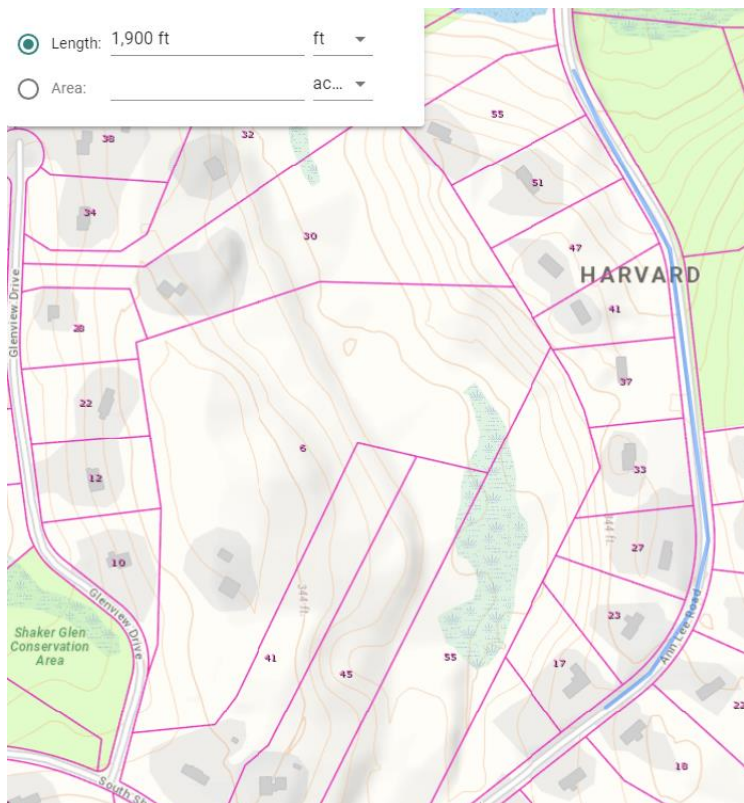
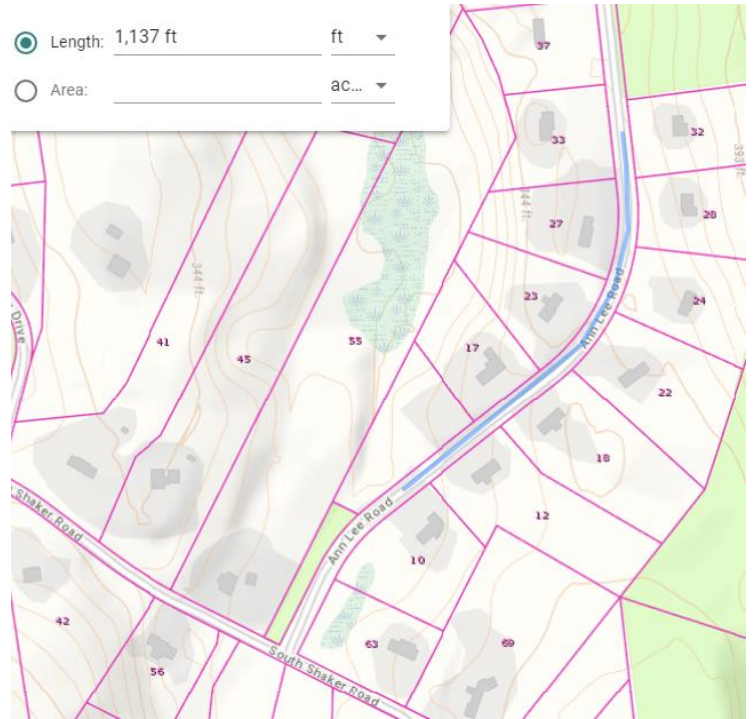
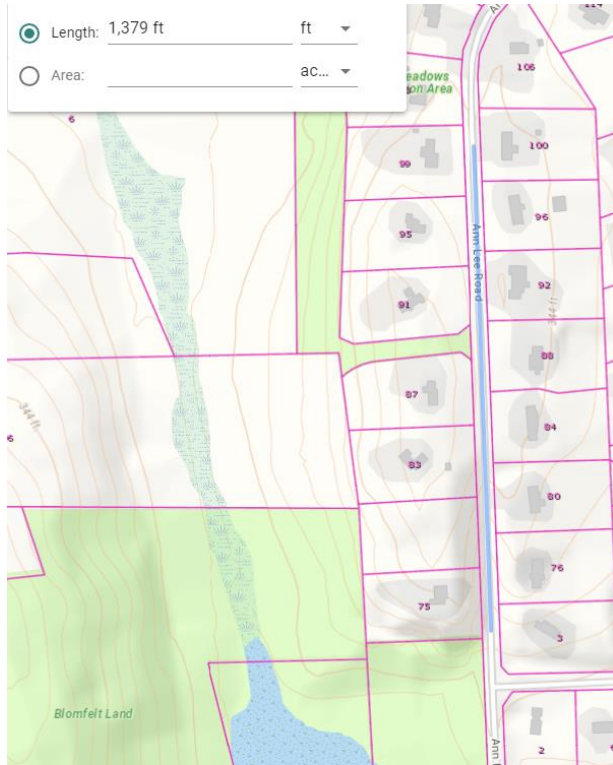
The analysis identified the following “thickly settled” zones. Some roads that do not quite meet the requirements are also included for completeness. A zero in the last column “Allowed Zone Length” signifies that both of the above criteria for “thickly settled” were not met.

Thickly Settled Zones in Harvard, MA

Street Name	State Route #	Location	Side of Road	# of Houses	1st - Last House Distance (ft)	Average Distance between Houses (ft)	Allowed Zone Length (ft)
Ann Lee Road		#3 Babbit to #100	E	8	1379	197	1400
		#10 to #32	E	7	1137	190	0
		#17 to #55	W	10	1900	211	0
Ayer Road	110/111	#327 to #361	W	9	1542	193	1600
Blanchard Road		#3 to #33	W	9	1566	196	1600
Bolton Road		#50 to #86	W	11	1830	183	2000
East Bare Hill Road		#1 St. Johns to #90	W	11	1769	177	2000
Fairbanks St		#1 to #25	E	9	1271	159	1600
		#14 to #28	W	7	817	136	0
Littleton Road		#5 Orchard Hill to #132	S	8	1376	197	1400
Myrick		#19 to #85	N/E	17	3310	207	0
		#22 to #86	S/W	15	3207	229	0
Park Lane		#35 to #63	N	8	1483	212	0
Still River Depot Road		#206 Still River Rd to #30	N	9	1290	161	1600
Still River Road	110	#200 to #240	W	13	1972	164	2400
Shaker Road		#74 to #98	E	8	1377	197	1400
West Bare Hill Road		#115 to #159	S	10	2150	239	0
Woodside Road		#30 to #76	N	14	2363	182	2600

Maps showing the details of the measurements are attached. All maps and measurements were obtained using MassGIS’s MassMapper.

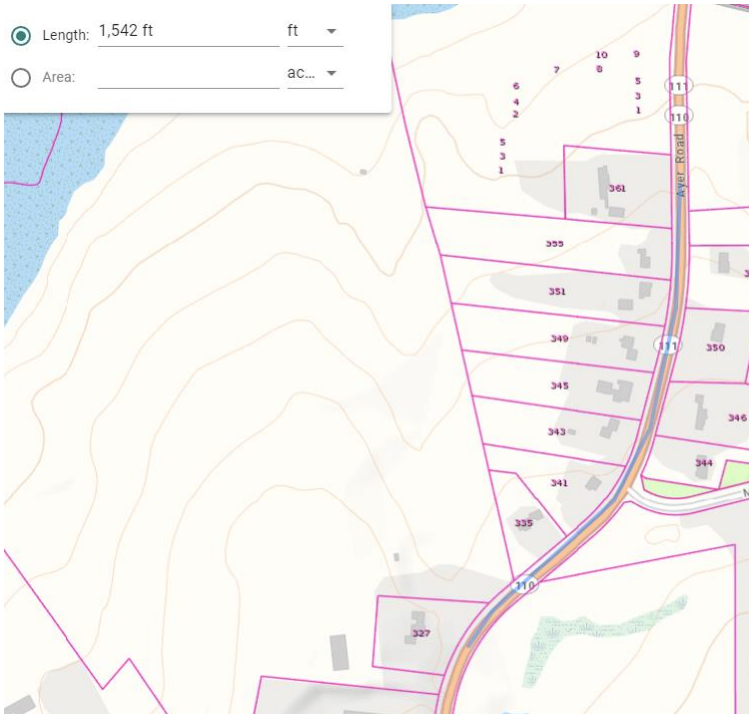
Ann Lee Road



Ayer Road

Length: 1,542 ft ft

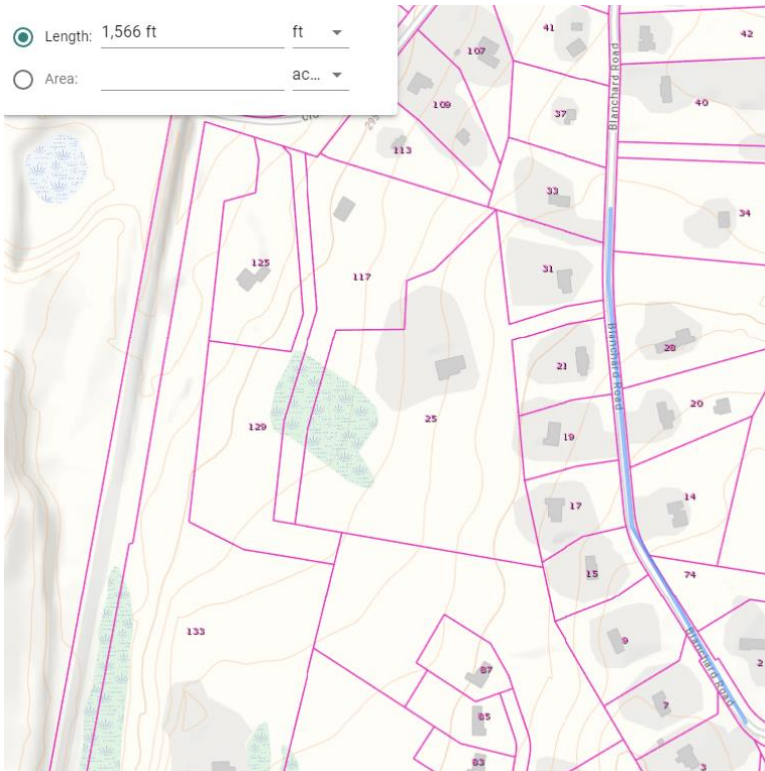
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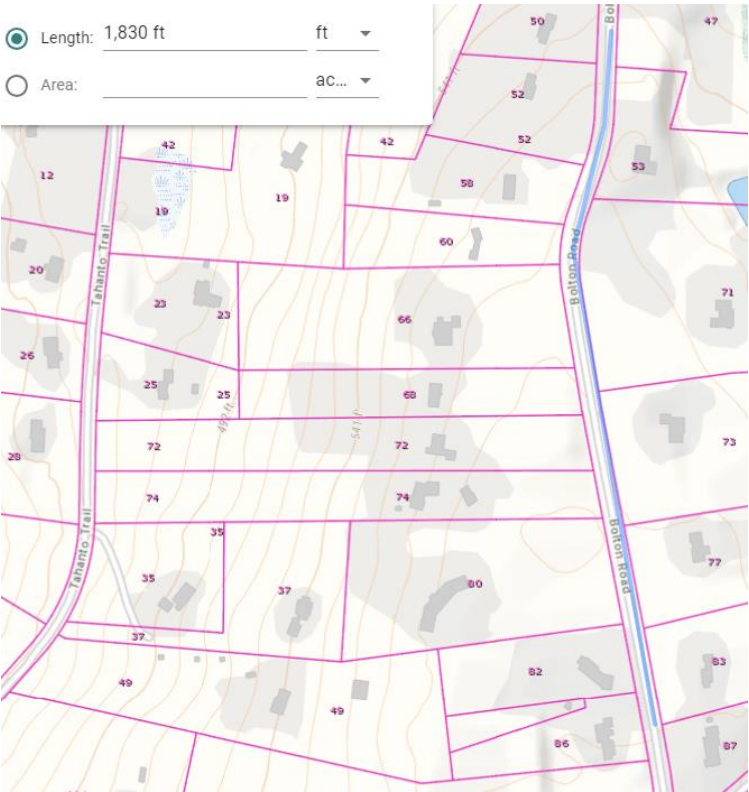
Blanchard Road

Length: 1,566 ft ft

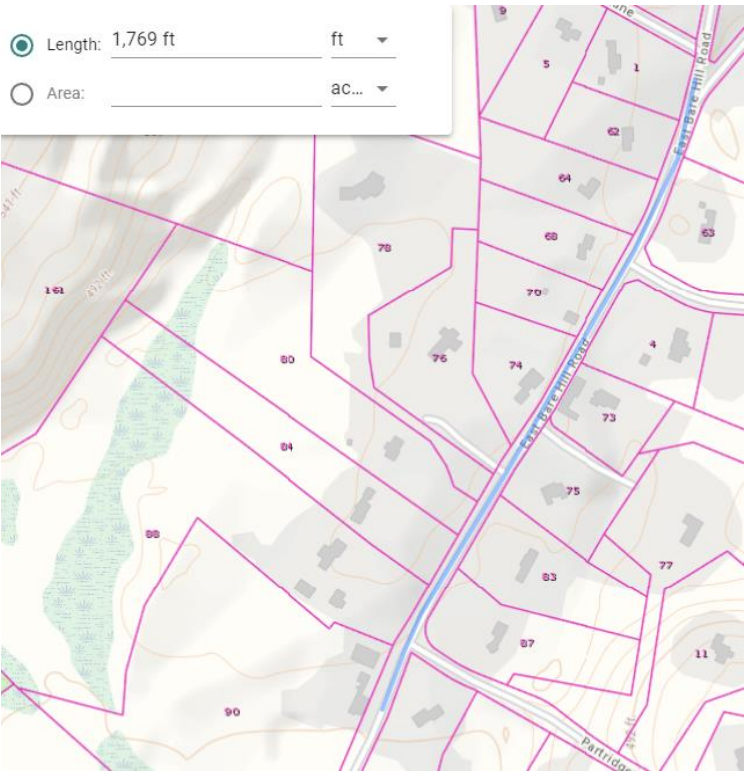
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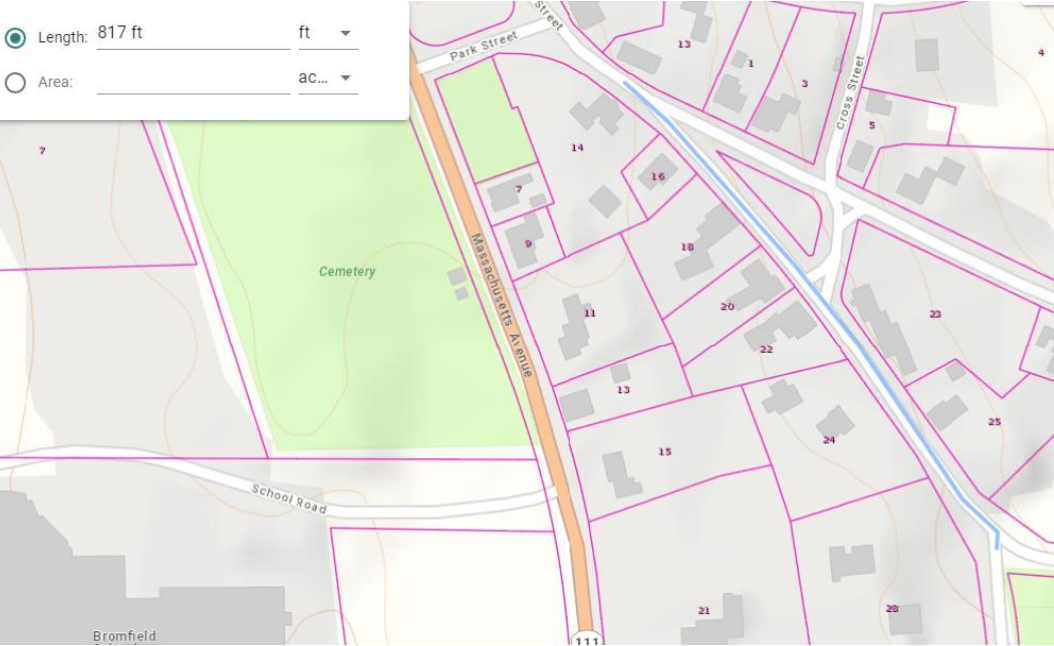
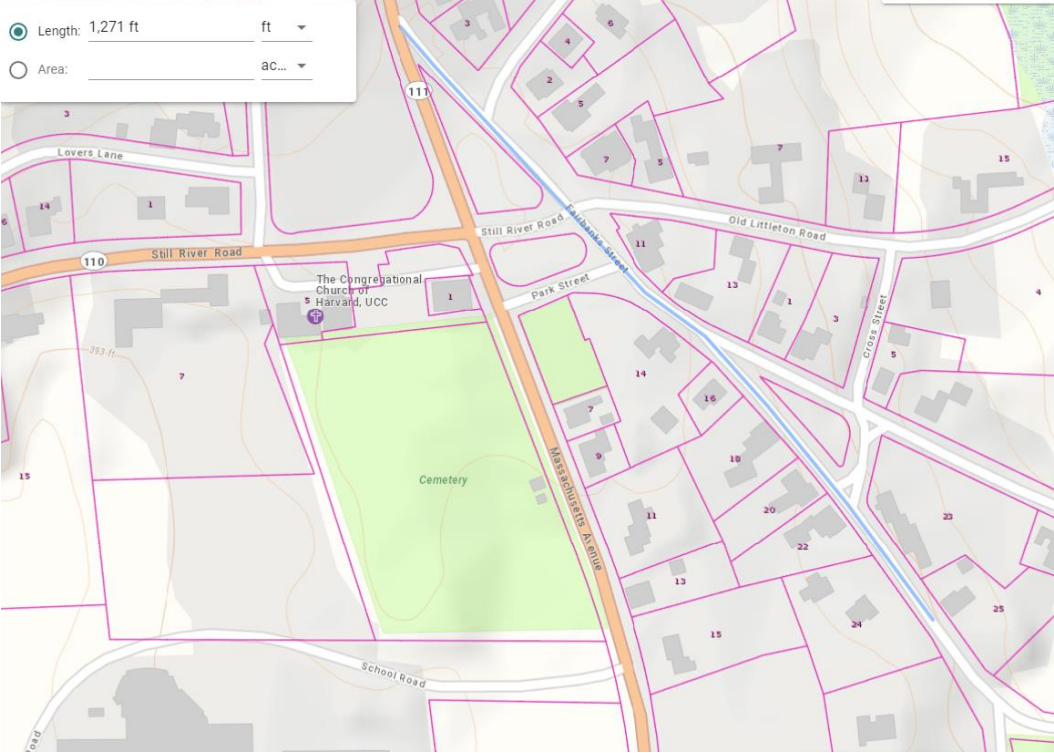
Bolton Road



East Bare Hill Road

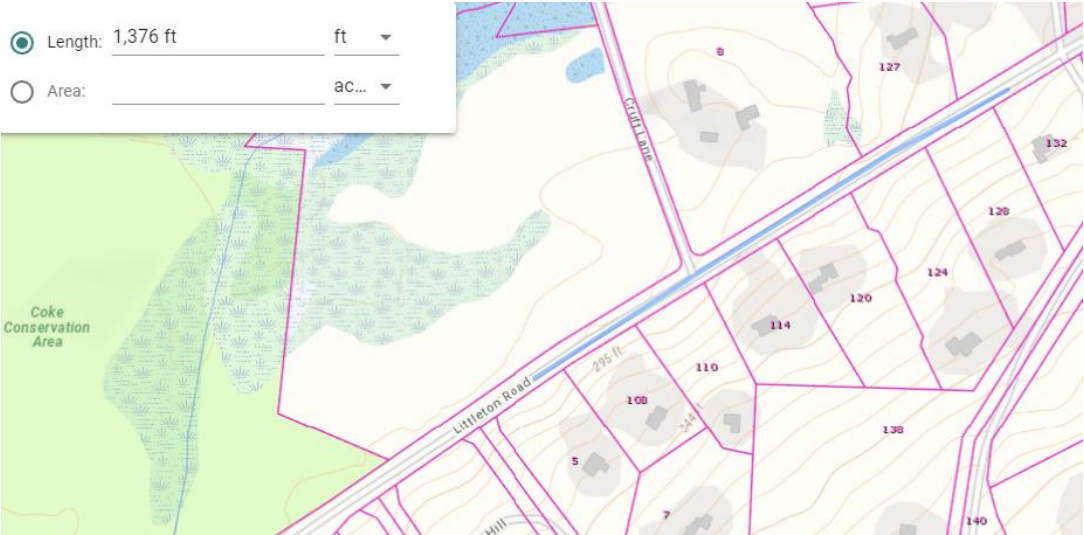


Fairbanks Street



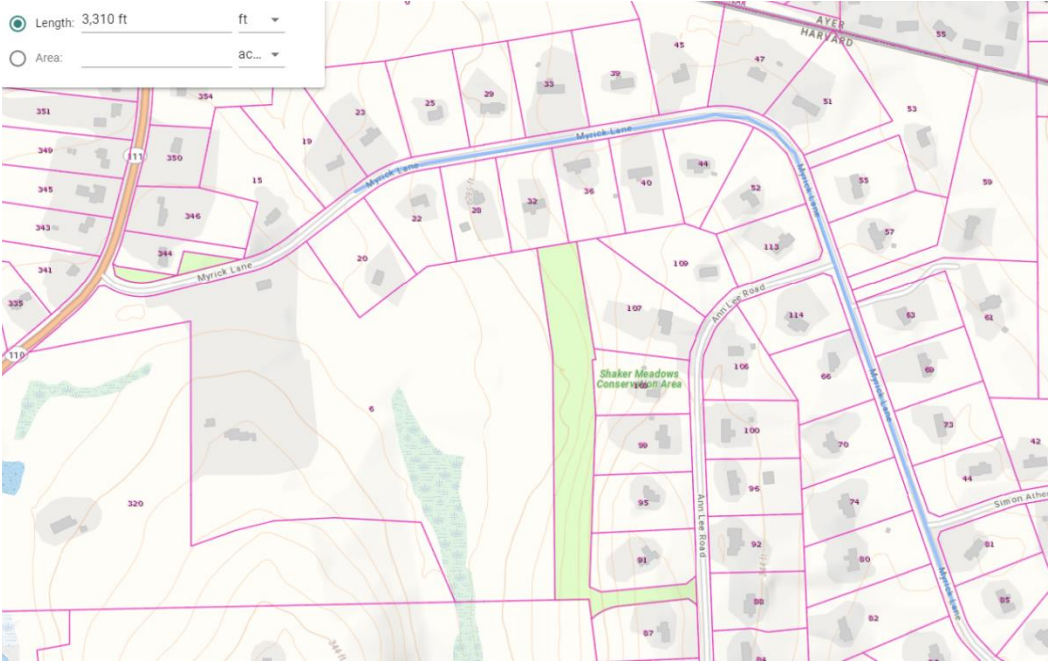
Littleton Road

Length: 1,376 ft ft ▾
 Area: ac... ▾

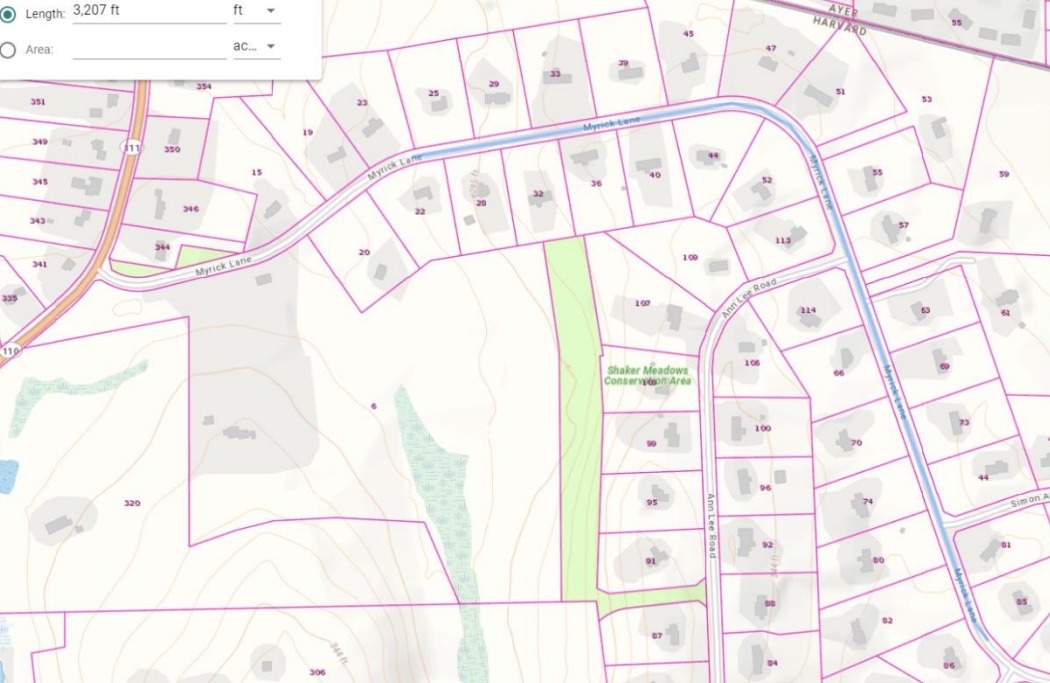


Myrick Lane

Length: 3,310 ft
Area: ac...

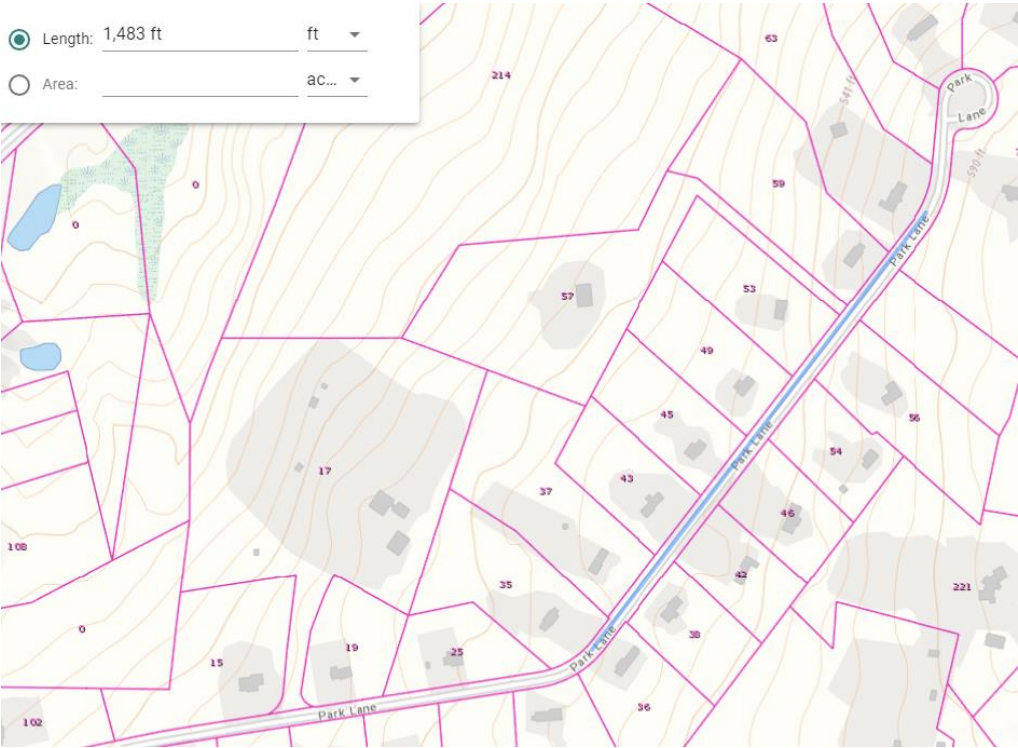


Length: 3,207 ft
Area: ac...



Park Lane

Length: 1,483 ft ft ▾
Area: ac... ▾



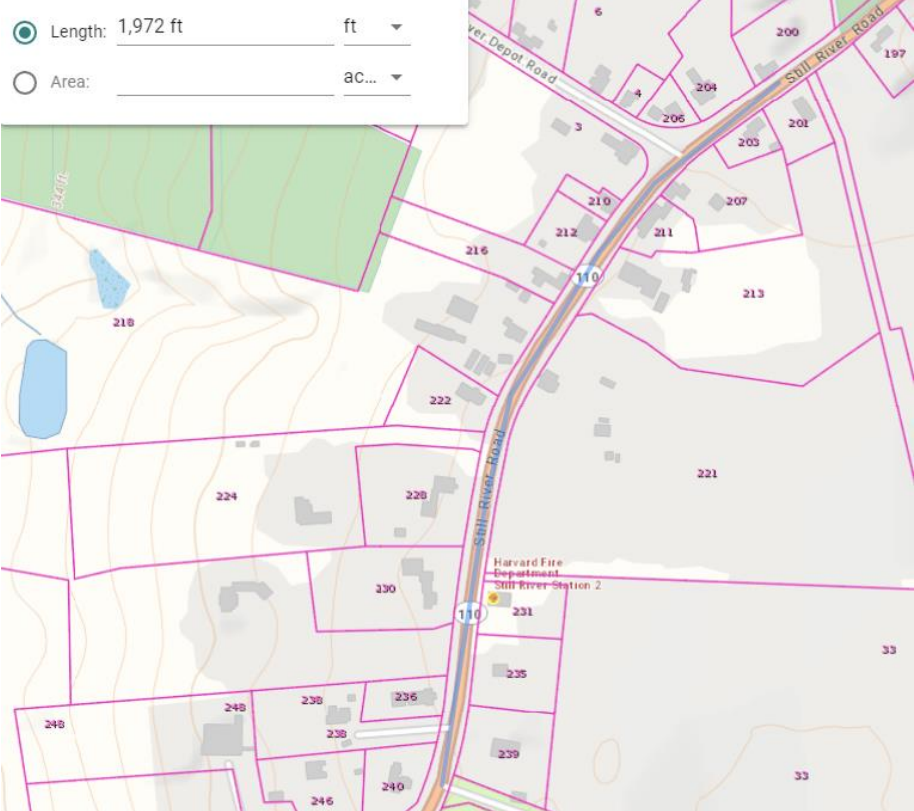
Still River Depot Road

Length: 1,290 ft ft ▾
Area: ac... ▾



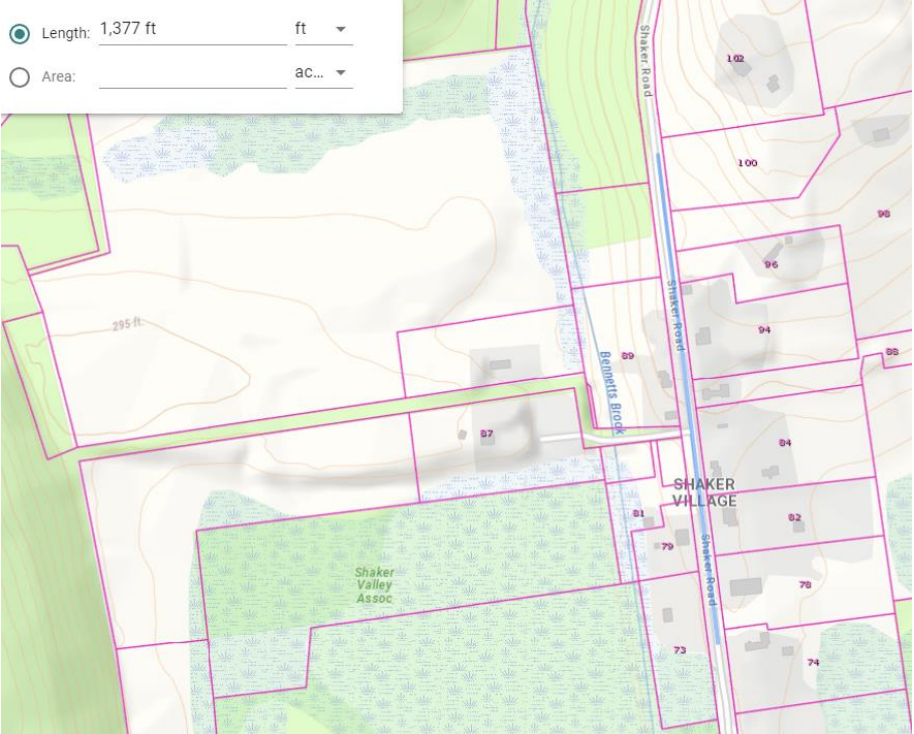
Still River Road

Length: 1,972 ft
Area: aC...

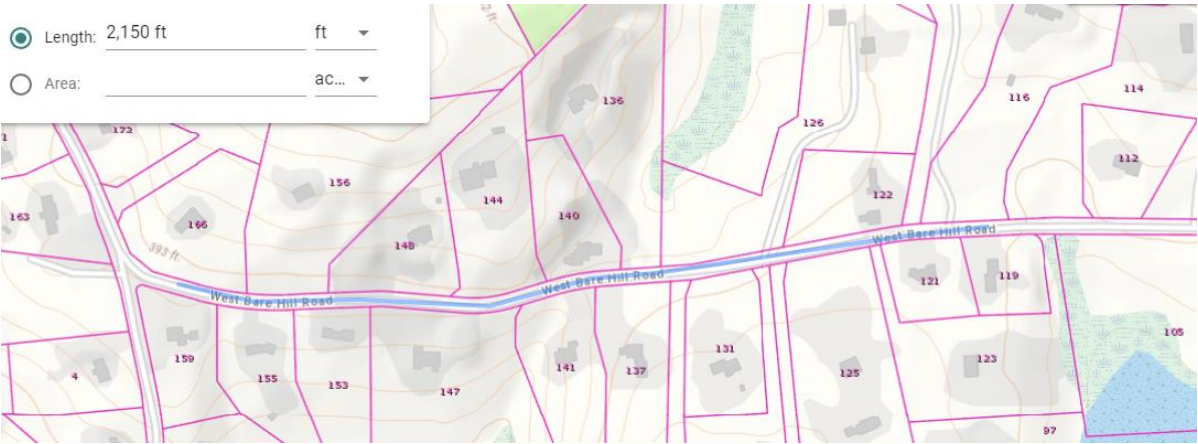


Shaker Road

Length: 1,377 ft
Area: aC...



West Bare Hill Road



Woodside Road

