

Ref: 8587

October 23, 2024

Mr. Zachary McBride, Chair  
Zoning Board of Appeals  
Town of Sherborn  
19 Washington Street  
Sherborn, MA 01770

Re: North Main Street (Route 27) at Elliot Street (Route 16) Improvement Plan  
The Pines – 41 North Main Street (Route 27)  
Sherborn, Massachusetts

Dear Chair McBride and Members of the Zoning Board of Appeals:

As requested at the October 10, 2024 Zoning Board of Appeals (ZBA) hearing, Vanasse & Associates, Inc. (VAI) has prepared a conceptual design and supporting analysis for the modifications to the North Main Street (Route 27)/Elliot Street (Route 16) intersection in order to accommodate the addition of the driveway to The Pines multifamily residential community (the “Project”) into the intersection. These modifications are depicted on Figure 1 and can be completed within the public right-of-way, or on land that is associated with the Project, and subject to receipt of all necessary rights, permits and approvals from the Town (both North Main Street and Elliot Street at this location are under the jurisdiction of the Town of Sherborn).

As shown on Figure 1, the primary elements of the intersection modifications are as follows:

- Reconstructing Elliot Street to accommodate two-way travel along the north side of the existing circular island to align with the proposed driveway;
- Expanding the island area to channelize the right-turn movement from North Main Street northbound and to accommodate a north-south pedestrian connection along the east side of the intersection;
- Reconstructing the sidewalks at and approaching the intersection to comply with Americans with Disabilities Act (ADA) requirements, including sidewalk width, wheelchair ramp location and pushbutton accessibility; and
- Replacing/upgrading the traffic signal system to meet current design standards and to include signal indications for the proposed driveway.

These accommodations will also serve to improve mobility and enhance safety at the intersection.

In order to assess operating conditions (i.e., levels of service, motorist delay and vehicle queueing) with the intersection modifications, a traffic operations analysis was performed using the 2027 No-Build condition traffic volumes that were presented in the January 29, 2021 *Response to Peer Review of Transportation Impact Assessments* letter that was prepared by VAI with the addition of traffic that is associated with the modified development program for the Project (28-unit multifamily residential community). This approach allows for a direct comparison of operating conditions at the subject intersection with the modified development program and

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access configuration to that of the prior development program (60 multifamily residential units with primary access from Powderhouse Lane). The results of this analysis is presented in Table 1 along with the intersection operations that were reported in the January 29, 2021 response letter for 2027 No-Build and 2027 Build conditions.

As can be seen in Table 1, overall intersection operations were shown to be similar to those that were reported for the prior development program; however, motorist delays and vehicle queueing were shown to be reduced to the extent that the improved intersection with the modified development program would operate similar to 2027 No-Build conditions. That being said, the significant benefit that is afforded by the intersection modifications for pedestrian mobility is not captured by the analysis.

We trust that this information is responsive to the request of the ZBA from the October 10, 2024 hearing. If you should have any questions, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.



Jeffrey S. Dirk, P.E., PTOE, FITE  
Managing Partner

*Professional Engineer in CT, MA, ME, NH, RI and VA*

JSD/jsd

Attachments

**Table 1**  
**SIGNALIZED INTERSECTION LEVEL-OF-SERVICE AND VEHICLE QUEUE SUMMARY**

Signalized Intersection/Peak-hour/Movement	2027 No-Build				2027 Build Prior Development Program (60 units)				2027 Build with Improvements Current Development Program (28 units)			
	V/C <sup>a</sup>	Delay <sup>b</sup>	LOS <sup>c</sup>	Queue <sup>d</sup> 50 <sup>th</sup> /95 <sup>th</sup>	V/C	Delay	LOS	Queue 50 <sup>th</sup> /95 <sup>th</sup>	V/C	Delay	LOS	Queue 50 <sup>th</sup> /95 <sup>th</sup>
<b>North Main Street at Eliot Street and the Project Site</b>												
<i>Weekday Morning:</i>												
Project Site Driveway EB LT/TH/RT	--	--	--	--	--	--	--	--	0.07	34.6	C	0/1
Eliot Street WB LT	0.62	27.1	C	5/5	0.62	27.1	C	5/5	0.85	47.0	D	5/6
Eliot Street WB TH/RT	0.06	20.9	C	0/1	0.06	20.9	C	0/1	0.05	23.1	C	0/1
North Main Street NB LT/TH	0.92	23.7	C	17/30	0.93	24.6	C	17/31	0.94	25.6	C	9/32
North Main Street NB RT	0.39	0.8	A	0/0	0.39	0.8	A	0/0	0.47	1.1	A	0/0
North Main Street SB LT/TH/RT	0.95	34.8	C	10/20	0.92	28.5	C	9/19	0.75	11.7	B	4/18
<b>Overall</b>	--	<b>20.9</b>	<b>C</b>	--	--	<b>19.8</b>	<b>B</b>	--	--	<b>18.4</b>	<b>B</b>	--
<i>Weekday Evening:</i>												
Project Site Driveway EB LT/TH/RT	--	--	--	--	--	--	--	--	0.06	35.1	D	0/1
Eliot Street WB LT	1.41	>80.0	F	19/27	1.42	>80.0	F	19/27	1.41	>80.0	F	18/27
Eliot Street WB TH/RT	0.02	19.8	B	0/1	0.02	19.8	B	0/1	0.01	17.4	B	0/1
North Main Street NB LT/TH	0.57	9.7	A	7/10	0.58	9.7	A	7/10	0.66	12.6	B	6/14
North Main Street NB RT	0.17	0.5	A	0/0	0.17	0.5	A	0/0	0.21	0.3	A	0/0
North Main Street SB LT/TH/RT	0.84	17.5	B	13/23	0.85	17.9	B	14/25	0.88	22.3	C	11/28
<b>Overall</b>	--	<b>69.2</b>	<b>E</b>	--	--	<b>70.2</b>	<b>E</b>	--	--	<b>70.0</b>	<b>E</b>	--

<sup>a</sup>Volume-to-capacity ratio.

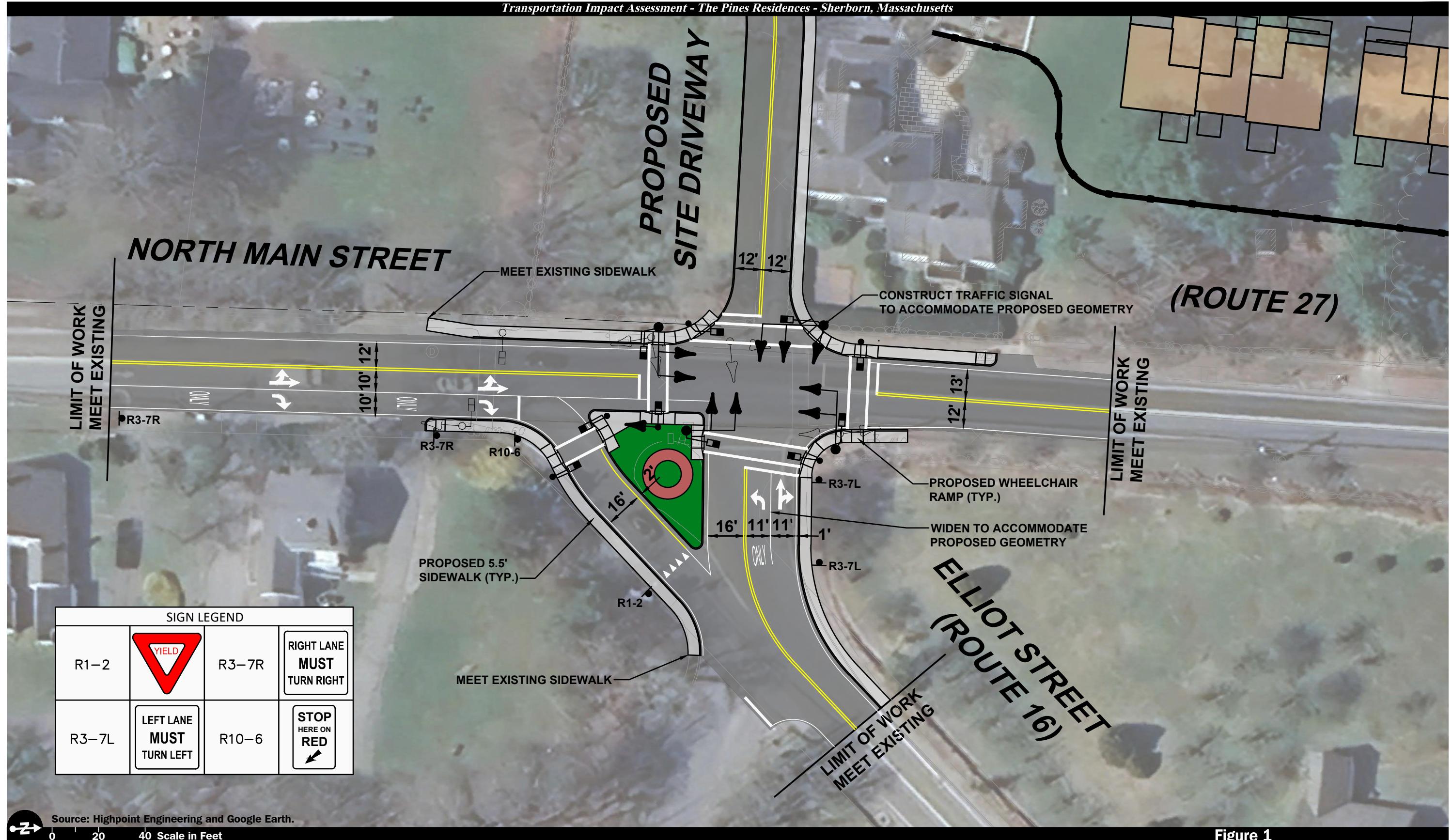
<sup>b</sup>Percentile delay per vehicle in seconds.

<sup>c</sup>Level-of-Service.

<sup>d</sup>Queue length in vehicles.

NB = northbound; SB = southbound; EB = eastbound; WB = westbound; LT = left-turning movements; TH = through movements; RT = right-turning movements.

**Transportation Impact Assessment - The Pines Residences - Sherborn, Massachusetts**



**Figure 1**

# **Conceptual Improvement Plan North Main Street (Route 27) at Elliot Street (Route 16) and The Pines Driveway**