

# Shrub Road Traffic Calming Study

City of Bristol, CT

Shrub Road – Burlington Avenue to Jerome Ave



**PREPARED FOR:**

City of Bristol, CT  
Department of Public Works  
111 North Main Street  
Bristol, CT 06010



**PREPARED BY:**

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919 Middle Street  
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## 1.0 Introduction

During the public involvement meeting for the Shrub Road sidewalk project, Shrub Road residents expressed concern regarding excessive speeds on the roadway. As the improvements in the project only included the addition of sidewalks, with no impact to roadway geometry or cross section, AI Engineers has been tasked with investigating additional traffic calming measures that can be implemented to reduce speeds along the roadway. The impact of speed in an area frequented by pedestrians cannot be ignored. If a pedestrian is struck by a vehicle, speeds upwards of 36 miles per hour is often fatal.

**Figure 1: Study Area of Shrub Road Traffic Calming Study**



## 2.0 Existing Conditions

Approximately 5,000 feet in length, Shrub Road is classified as a Minor Urban Arterial, connecting Burlington Avenue (State Route 69) in the West to Jerome Avenue in the East. The sidewalk project will include the installation of sidewalk along the northern edge of this roadway, as well as continuing the sidewalk down Jerome Avenue to connect to Stevens Street. From traffic monitoring stations along the roadway, it can be seen that the roadway has a 40.2 mile per hour 85<sup>th</sup> percentile design speed (2020), with an AADT of 4,200 vehicles per day (2021). The roadway's posted speed is 30 miles per hour, and can be found to be deficient geometrically and cross section wise.

The existing roadway is narrow. The roadway, being roughly 24 feet wide for its length, is nearly as narrow as allowed by design criteria. If it were to be reconstructed, the roadway would likely need to be reconstructed wider to a minimum of 26' would be required by the City, with two 11'-0" travel lanes and a minimum of 2'-0" shoulder.

## 3.0 Build Alternatives

Utilizing resources produced by the Federal Highway Administration, various traffic calming techniques outlined in their Traffic Calming ePrimer have been evaluated for their ability to have a substantial effect on Shrub Road.

Figure 2: FHWA Traffic Calming Table 3.1 and 3.2, Abridged

Traffic Calming Measure	Segment or Intersection	Suitability	Cost of Implementation	AIE Comments
<b>Horizontal Deflection</b>				
Lateral Shift	Segment	3	Medium	Not considered due to cross section limitations and nature of Shrub Road
Chicane	Segment	1	Medium	Unsuitable for an Arterial
Realigned Intersection	Intersection	1	Medium	Unsuitable for an Arterial
Traffic Circle	Intersection	1	Medium	Unsuitable for an Arterial
Small Modern & Mini-Roundabout	Intersection	3	Medium/High	Not considered due to Right-of-Way and geometry limitations at intersections.
Roundabout	Intersection	5	High	No suitable intersections within project limits
<b>Vertical Deflection</b>				
Speed Hump	Segment	1	Low	Unsuitable for an Arterial
Speed Cushion	Segment	1	Low	Unsuitable for an Arterial
Speed Table	Segment	3	Medium	Unsuitable for AADTs along Shrub Road
Offset Speed Table	Segment	3	Medium	Unsuitable for AADTs along Shrub Road
Raised Crosswalk	Both	3	Medium	Unsuitable for Shrub Road 85th Percentile Speed
Raised Intersection	Intersection	3	High	Unsuitable for Shrub Road 85th Percentile Speed
<b>Street Width Reduction</b>				
Corner Extension	Intersection	5	Medium/High	Applicable, utilize at intersections where possible.
Choker	Segment	5	Medium/High	Unsuitable due to narrow proposed cross section
Median Island	Both	5	Medium/High	Applicable
On-Street Parking	Segment	5	Low	Applicable
Road Diet	Both	5	Low	Difficult to apply due to narrow roadway cross section, road diet concepts should be applied where applicable.

Due to Right of Way impacts and costs it would be impracticable to improve the roadway to a 40 mile per hour design and have an undesirable impact on residents of the street. Instead, using commonly used

traffic calming techniques, we will seek to decrease the speeds along the roadway. **Figure 2** above details the potential traffic calming measures and their suitability for this application.

#### 4.0 Final Alternatives

Traffic calming can be achieved through a combination of three different methods, vertical deflections, street width reductions, and horizontal deflections. As shown in **Figure 2**, methods using horizontal and vertical deflection are less suitable for a major thoroughfare, and those that are either have other limitations, such as excessive right of way impacts, that would be unwanted along Shrub Road.



This conceptual design of Shrub Road would consist of reconstructing the street to a consistent 26'-0", providing 11'-0" travel lanes and 2'-0" shoulders, a 2'-0" snow shelf and 5'-0" sidewalk. Trees would be planted along both sides of the roadway to alleviate the effects of the wider roadway and sidewalk to create a less "open" feel to the roadway and discourage the driver from

**Figure 3 – On-street parking at Seymour Park**

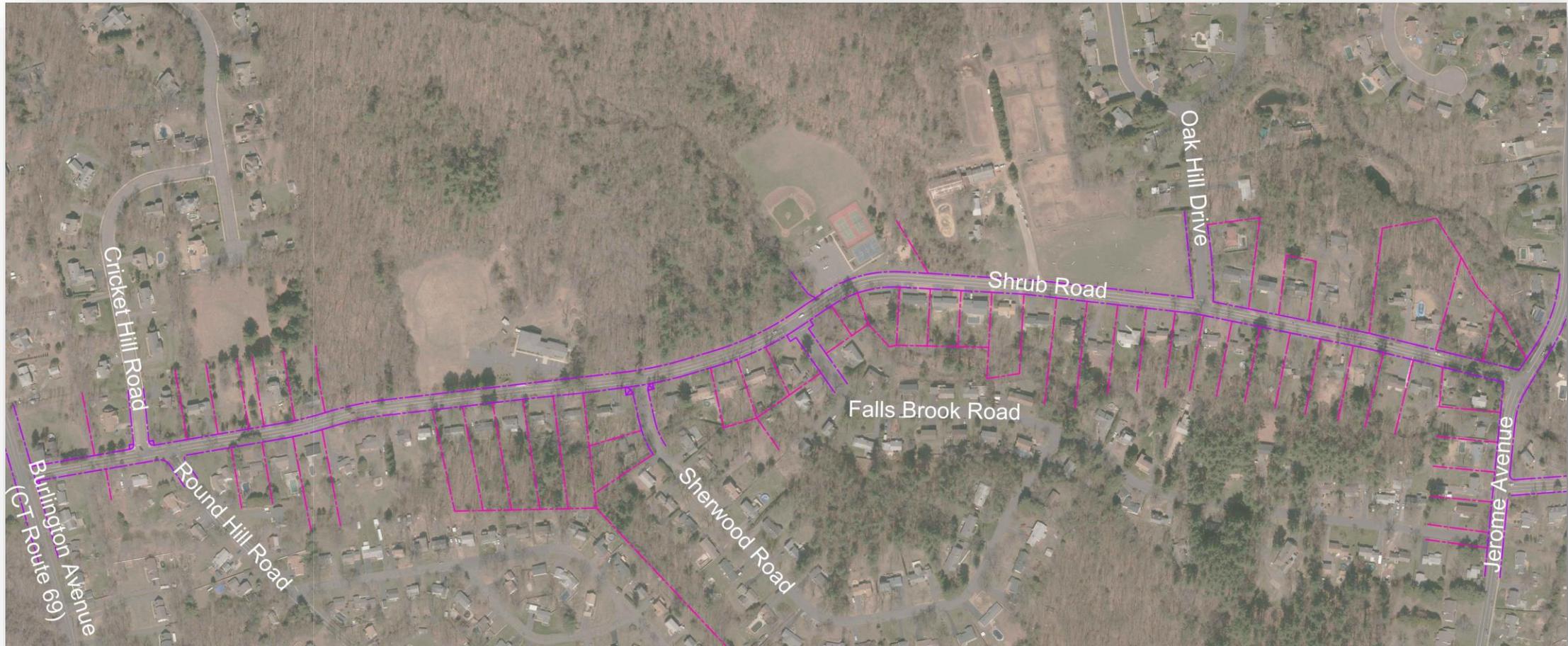
feeling comfortable at higher speeds. The cross section would change briefly at Seymour Park, where a row of on-street parallel parking would be added for roughly 180 feet. This cross-section change would serve to increase the awareness of the motorist, as well as provide additional parking for the public, as shown above in **Figure 3**.



**Figure 4 – Median Island, Nature Center (left), Oak Hill Drive (right)**

In addition to these cross-section changes, median islands would be installed at the entrance to the Harry Barnes Memorial Nature Center, and just west of Oak Hill Drive. The locations of these would serve as a visual cue to the driver of entering a new area, and the preferred speed. A variety of treatments could be used, with varying degrees of complexity, cost, and effectiveness. The most effective treatments would be the use of raised, landscaped islands, again to reduce the "open" feel of the street. Drawbacks would include impacting the function of driveways, complexity, cost and maintenance. Alternatively, a flush island could be provided, using stamped bituminous pavement could be used with little impact to driveways, but still with needed maintenance. At the very least, the median islands could be painted, still providing the necessary horizontal deflection to slow traffic.

# Appendix A: Existing Conditions



Project Area Map

Source: CT ECO and City of Bristol GIS

# Appendix A: Existing Conditions



## LEGEND

- PROPERTY LINES
- CITY R.O.W.
- TREE LINE
- GUIDERAIL
- WATER
- WETLAND
- UTILITY POLE WITH LIGHT
- UTILITY POLE
- DRAINAGE

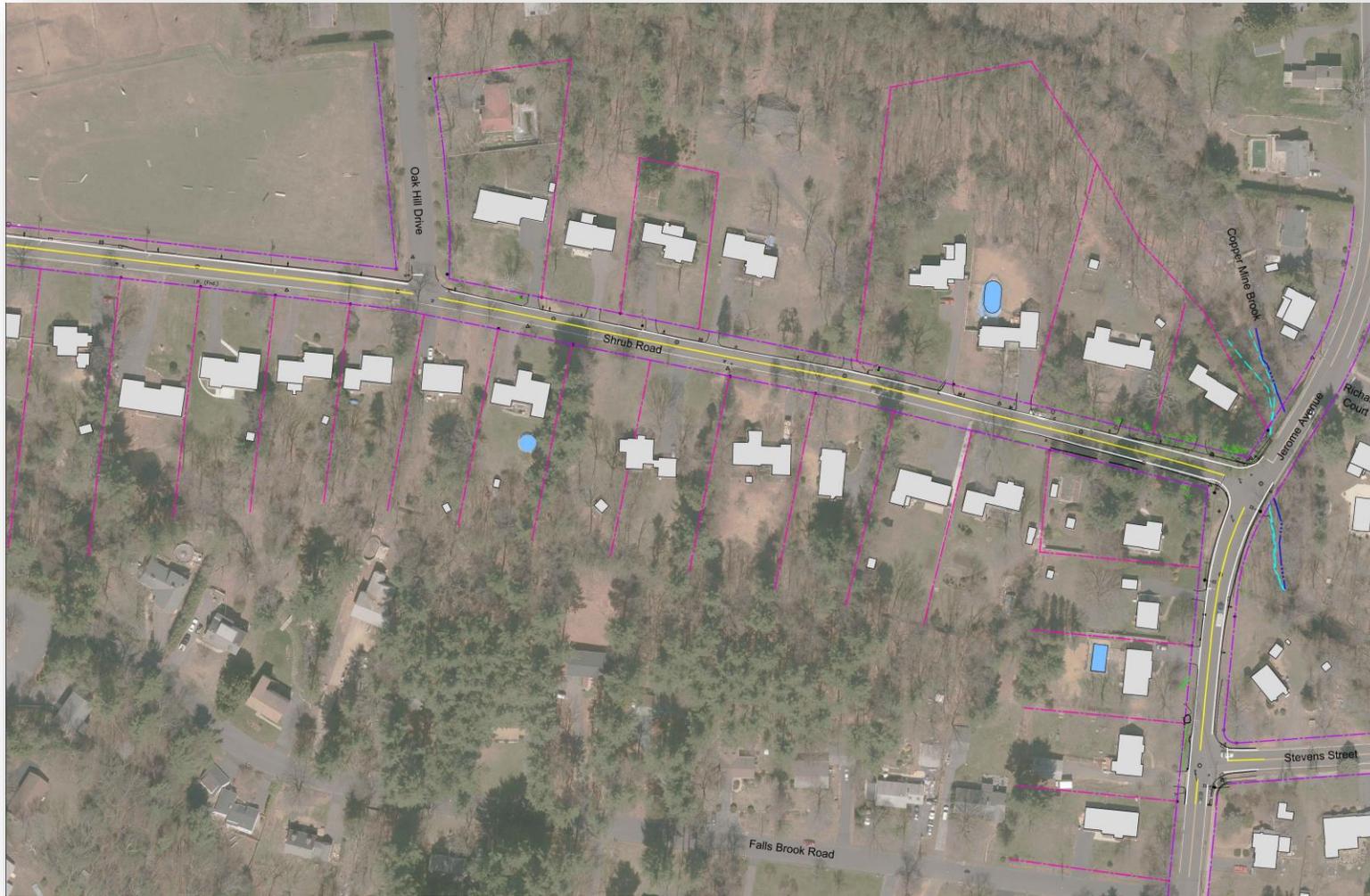
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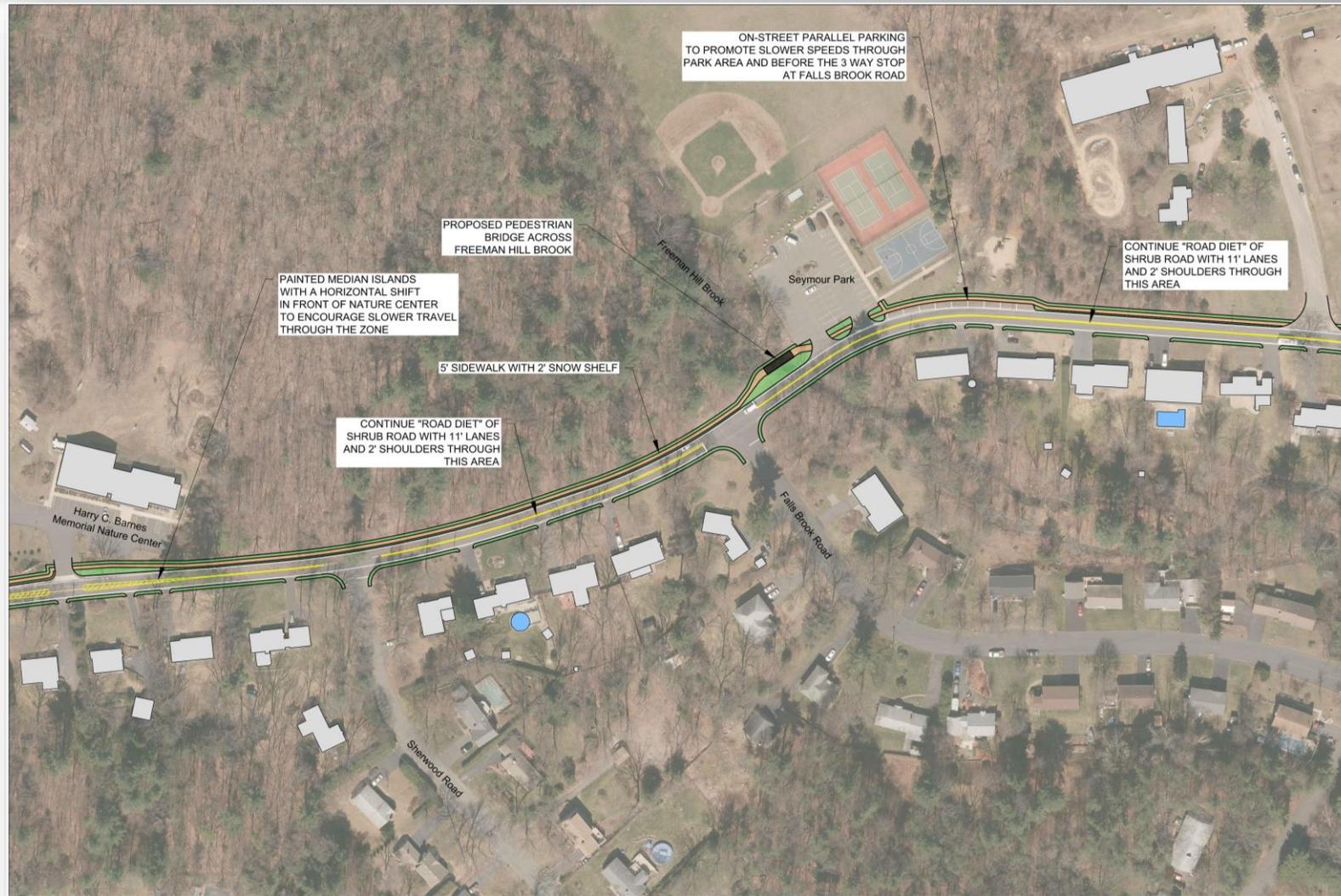
# Appendix B: Proposed Conditions



Proposed Conditions Map - 1

Source: CT ECO and City of Bristol GIS

# Appendix B: Proposed Conditions



Proposed Conditions Map - 2

Source: CT ECO and City of Bristol GIS

# Appendix B: Proposed Conditions



Proposed Conditions Map - 3

Source: CT ECO and City of Bristol GIS

# Appendix C: Crash Heat Map

