

Date: November 7, 2022  
To: Erin Lambert, Wilcox & Barton  
From: Erica Wygonik, PhD, PE  
Subject: Long Meadow Commons: Transportation Assessment

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WCG has reviewed the proposed residential development of the Long Meadow Commons project along County Road in New London, New Hampshire. This memo documents the traffic generation expected with the development and reviews the safety of the adjacent transportation network.

### Summary

- The proposed site is located at [268 County Road in New London, New Hampshire](#).
- The proposed location is across from New London Hospital.
- The proposed project seeks to construct 60 units of rental apartments with a mix of 1- and 2-bed units.
- The proposed project would have vehicular access on County Road, with a driveway immediately across from New London Hospital's Emergency Entrance.
- Parking would be provided in surface lots proximate to the proposed buildings.
- The overall project is estimated to generate 24 AM peak hour trips, 31 PM peak hour trips, and 460 daily trips, not accounting for any adjustments or reductions associated with bicycle, pedestrian, or transit trips. The proposed trip generation is less than a third of the threshold used by NHDOT to merit congestion analysis (100 peak hour trips).
- The estimated trip generation is likely to be negligible within the overall road network, and this project is not expected to impact roadway capacity or result in any unreasonable congestion.
- Available intersection and stopping sight distances exceed the required design minimums.
- WCG recommends the following features:
  - The site design has excellent pedestrian connectivity within the site and to the abutting property to the north. A pedestrian path or sidewalk should be provided to County Road, allowing for safe access to the sidewalk network serving New London Hospital. The site plan should consider incorporating long-term covered secure bicycle parking, short-term exterior bicycle racks, a bicycle wash station, and electric bicycle charging infrastructure.
  - The site designers should consider including electric vehicle charging stations (or provisions for future installation) for resident vehicles.

- The site drive should be designed to maximize safety along the roads by limiting obstructions, such as plantings, to sight lines from the drive.

Based on the analysis conducted for this report, the proposed project is not expected to impact the condition or capacity of the affected roads and associated infrastructure. The proposed project will not cause or exacerbate any unreasonable congestion or unsafe conditions on the local roadway network and will not unnecessarily or unreasonably endanger the public's investment in any local roads, highways, or related infrastructure.

### Background

The Long Meadow Commons project is a proposed multi-building residential complex with 60 rental apartments in a mix of 1- and 2-bedroom units. The proposed site is located at [268 County Road in New London, New Hampshire](#).

The project proposes to access the surrounding roadway network via County Road, directly across the road from the New London Hospital Emergency Entrance. The proposed site plan is illustrated in Figure 1.

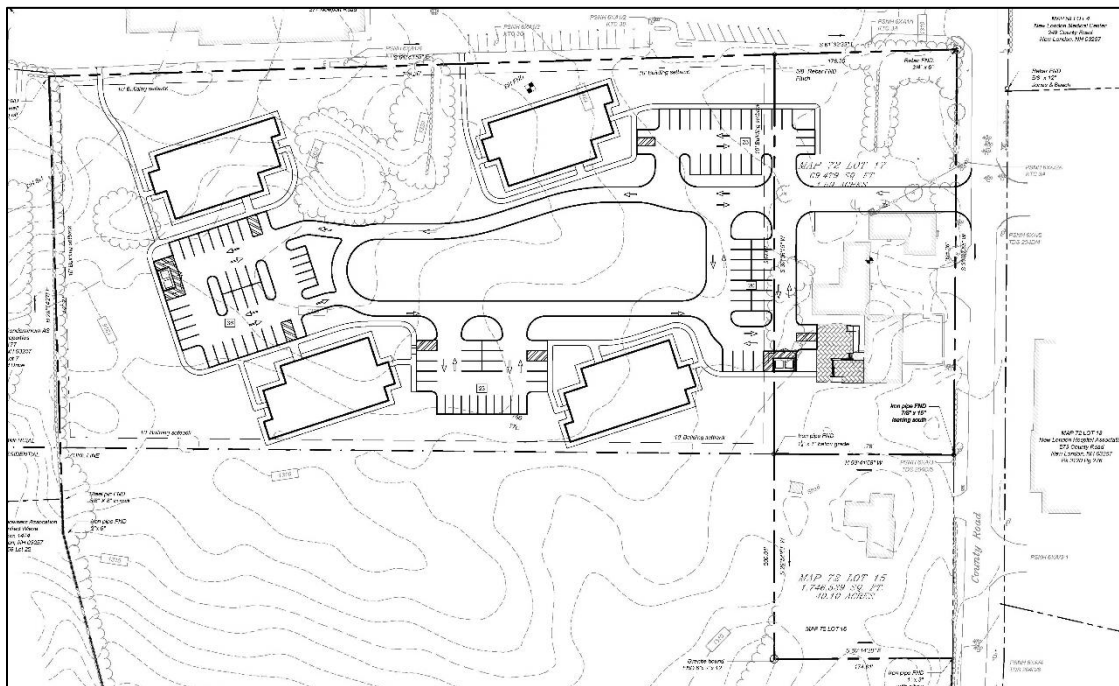


Figure 1: Draft site plan, dated September 13, 2022 by Wilcox & Barton

County Road is a Tier 5 local road functioning as a rural collector. The roadway consists of one vehicle lane in each direction, approximately 12-feet wide. No dedicated walking or bicycling facilities are provided along County Road. Sidewalks are available at the roundabout intersection of County Road & Newport Road. The speed limit along County Road is 25 mph.

NHDOT spot count (site 82335069) on County Road south of Forest Acres Road estimated a motor vehicle average annual daily traffic (AADT) volume of 1,554 vehicles per day (vpd) for

2021 based on a 2020 count. The 2020 count yielded a design hour volume (DHV) of 174 vehicles per hour (vph).

**Estimated Trip Generation**

Trip generation refers to the number of vehicle trips originating at or destined for a particular land use development. Data from the Institute of Transportation Engineers (ITE) can be applied to estimate trip generation associated with the former and proposed land uses. WCG consulted the ITE Trip Generation Manual, 11<sup>th</sup> Edition to estimate base vehicle trips. Base vehicle trips are the total estimated vehicle trips prior to any reductions associated with internal capture, pass-by, or transportation demand management (TDM) features.

ITE Land Use Code (LUC) 220: Multifamily Housing (Low-Rise) is reflective of the units in the proposed project. The ITE Trip Generation Manual describes the land use as:

*“Low-rise multifamily housing includes apartments, townhouses, and condominiums located within the same building with at least three other dwelling units and that have two or three floors (levels). Various configurations fit this description, including walkup apartment, mansion apartment, and stacked townhouse.”*

The estimated AM peak hour, PM peak hour, and daily base vehicle trip generation is documented in Table 1 for LUC 220: Multifamily Housing (Low-Rise) with 60 units.

*Table 1: Estimated base vehicle trip generation of the proposed project*

Twin Pines Housing Trust - New London			AM Peak Hour			PM Peak Hour			Daily Total
Description	ITE LUC	Size	Enter	Exit	Total	Enter	Exit	Total	
Multifamily Housing (Low Rise)	220	60 units	6	18	<b>24</b>	20	11	<b>31</b>	460

The estimated new trip generation is 24 AM peak hour trips, 31 PM peak hour trips, and 460 daily trips.

NHDOT guidelines specify that a traffic study should be considered if the proposed development will generate 100 or more peak hour trips. The base vehicle trip generation is estimated at less than one third of this threshold before with reductions associated with active travel modes. The estimated trip generation is likely to be negligible within the overall road network, and this project is not expected to impact roadway capacity or result in any unreasonable congestion.

**Combined Impact of the Proposed Long Meadow Commons and New London Place**

New London Place is a permitted, but not yet constructed, continuing care retirement community to be located south and east of New London Hospital. It will have an access on County Road and on Parkside Road. The traffic study for the New London Place project (dated 2 July 2018) indicated 10% of trips associated with the project were anticipated to travel to or from New London Place via County Road to the north. The updated trip generation analysis for the New London Place project (dated 2 August 2022) indicated a total of 40 AM peak hour trips and 49 PM peak hour trips, resulting it approximately 4 AM peak hour trips and approximately 5

PM peak hour trips traveling on County Road past the proposed Long Meadows Commons project. The combined total number of trips from both projects at the Long Meadows Common project driveway (28 AM peak hour trips and 36 PM peak hour trips) is also well below the NHDOT guidelines to merit a full traffic impact study.

### Sight Distance Review

As defined in the 2018 publication *A Policy on Geometric Design of Highways and Streets*, from the American Association of State Highway and Transportation Officials (AASHTO), sight distance is the “the length of roadway ahead that is visible to the driver.”<sup>1</sup> Sight distances of sufficient length are necessary at all points along a roadway to ensure vehicles can safely stop or avoid colliding with potential obstructions or other vehicles on the roadway.

Standard practice in assessing intersection safety and operations involves measuring two separate sight distances – **stopping sight distance** and **intersection sight distance**.

**Stopping sight distance** (SSD) is the visible distance along a roadway between an advancing motorist and a potential obstacle in the roadway. It is measured from a point representing the approaching driver’s eye and a point representing an obstacle in the roadway.<sup>2</sup> Stopping sight distances of adequate length are needed along all roadways, both at and away from intersections, so that drivers travelling at design speeds can react to potential obstacles and safely brake to avoid collisions. Design minimum stopping sight distances are calculated based on factors such as design speed, response times, and grades as reported in the *2018 Policy on Geometric Design of Highways and Streets*.<sup>3</sup>

**Intersection sight distance** (ISD) is the distance available along the major road travelled way corresponding with the maximum visibility between an advancing motorist on the major road and an entering motorist on an intersecting minor road. It is measured between a point representing the advancing driver’s eye above the major road and a point representing the entering driver’s eye above the intersecting road.<sup>4</sup>

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<sup>1</sup> American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, Seventh Edition (Washington D.C.: American Association of State Highway and Transportation Officials, 2018). Page 3-2.

<sup>2</sup> As noted in the 2018 Policy on Geometric Design of Highways and Streets (page 3-15), the height of the driver’s eye is assumed to be 3.5’ above the road surface and the height of a potential obstacle is 2.0’ above the road surface.

<sup>3</sup> American Association of State Highway and Transportation Officials, *A Policy on Geometric Design of Highways and Streets*, Seventh Edition (Washington D.C.: American Association of State Highway and Transportation Officials, 2018). Page 3-5 to 3-6.

<sup>4</sup> As noted in the 2018 Policy on Geometric Design of Highways and Streets (page 3-16), the height of the driver’s eye of the approaching vehicle is assumed to be 3.5’ above the road surface of the major road and the height of the driver’s eye of the entering vehicle is assumed to 3.5’ above the minor road surface. The decision point offset from the travel way varies with sight conditions (page 9-38); in this case we assume the decision point is 15-feet from the travel way.

The 2018 *Policy on Geometric Design of Highways and Streets* states that the available intersection sight distance should be at least equal to the required stopping sight distance along the major road.

*“Sight distance is also provided at intersections to allow the drivers of stopped vehicles a sufficient view of the intersecting highway to decide when to enter the intersecting highway or to cross it. If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient sight distance to anticipate and avoid collisions.”*

However, when possible, it is desirable to have intersection sight distances that exceed the design minimum stopping sight distances to offer improved operations, such that major road traffic need not decelerate to accommodate entering traffic.

*“However, in some cases a major-road vehicle may need to stop or slow to accommodate the maneuver by a minor road vehicle. To enhance traffic operations, intersection sight distances that exceed stopping sight distances are desirable along the major road.”*

Based on the 25-mph speed limit and relatively level grade along County Road, the design minimum intersection sight distance for turning traffic is 240 feet to the left and 280 feet to the right. The design minimum stopping sight distance is 155 feet.

Sight distances at the proposed access point were reviewed. The intersection sight distance views to the left and right at the proposed driveway are shown in the following figure, and the measured intersection and stopping sight distances are presented in the accompanying table.



Figure 2: Driver's perspective 15-feet from the edge of travel way at the proposed driveway location along County Road to the north (left) and south (right).

Table 2: Measured SSD and ISD at proposed County Road site driveway

	<b>County Road Site Driveway</b>		
	Required Minimum	Design Target	Measured
<b>Stopping Sight Distance</b>	eastbound: 155' westbound: 155'	n/a n/a	eastbound: >350' <b>(met)</b> westbound: >350' <b>(met)</b>
<b>Intersection Sight Distance</b>	left, to north: 155' right, to south: 155'	left, to north: 240' right, to south: 280'	left, to north: >350' <b>(met)</b> right, to south: >350' <b>(met)</b>

### Recommendations

The proposed site is not expected to result in roadway capacity or congestion related issues. WCG recommends the following features to ensure safe access to the site:

- The site design has excellent pedestrian connectivity within the site and to the abutting property to the north. A pedestrian path or sidewalk should be provided to County Road, allowing for safe access to the sidewalk network serving New London Hospital. The site plan should consider incorporating long-term covered secure bicycle parking, short-term exterior bicycle racks, a bicycle wash station, and electric bicycle charging infrastructure.
- The site designers should consider including electric vehicle charging stations (or provisions for future installation) for resident vehicles.
- The site drive should be designed to maximize safety along the roads by limiting obstructions, such as plantings, to sight lines from the drive.

Based on the analysis conducted for this report, the proposed project is not expected to impact the condition or capacity of the affected roads and associated infrastructure. The proposed project will not cause or exacerbate any unreasonable congestion or unsafe conditions on the local roadway network and will not unnecessarily or unreasonably endanger the public's investment in any local roads, highways, or related infrastructure.