Hybrid Two Lane Roundabout

LEBANON, NH

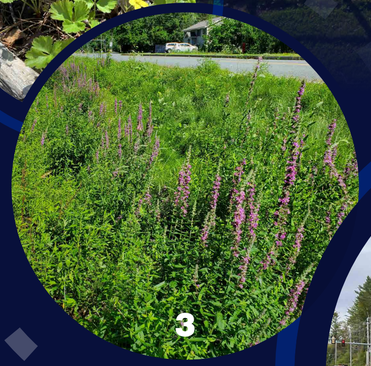
The intersection of Lahaye Drive and Mount Support Road is one of the primary entrances to Dartmouth Hospital, the largest hospital in New Hampshire and home to a Level I Trauma Center. Over the past 15 years, traffic volumes at this intersection have increased significantly, largely due to the hospital's continued growth. In 2020, the city recognized that the current signalized intersection was constraining both traffic operations and the area's future development potential.

Because of the existing intersection's layout, physical site limitations, and high traffic volumes, a creative, context-sensitive solution was needed. To solve these challenges and improve safety for drivers and pedestrians, the design team created a modern, multi-lane roundabout. The team designed a hybrid two-lane roundabout to improve traffic flow while reducing impacts on nearby properties and environmental features.

This project involved constructing a hybrid two-lane roundabout, adding a new shared-use path to provide a critical connection between the surrounding community and Dartmouth Hospital, and relocating overhead utility lines to accommodate the new roundabout. Other improvements included new stormwater infrastructure featuring hydrodynamic separators, improved street lighting, and Rectangular Rapid Flashing Beacons to enhance pedestrian safety.

Construction was phased to keep traffic moving through the signalized intersection. First, the road was widened and drainage installed before relocating overhead utilities. Moving utilities was especially important because it involved the hospital's main power supply and needed careful planning and coordination to avoid service disruptions. After relocating the utilities, the contractor reclaimed and regraded the roadway, improving its shape and long-term pavement conditions. Final paving and markings were done at night to minimize traffic disruptions.

The city's goal was to improve intersection safety and operations and plan for growth. Opening the roundabout was a major achievement. The project made the intersection safer and more efficient, and supports multimodal access, enhanced traffic flow, and creates a welcoming gateway to the hospital. This success sets a strong precedent for using roundabouts at other key locations in the city.



1. Existing signalized intersection
2. Rare Species - Appalachian Barren Strawberry
3. Wetlands located on all four quadrants of the intersection
4. Overhead utility line that services Dartmouth Hospital
5. Existing pavement condition was very poor
6. Crossings utilized Rapid Rectangular Flashing Beacons in concurrence with updated MUTCD guidance

Client

CITY OF LEBANON, NH
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Submitted by:

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