

Shelburne St. Roundabout

Project Status

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The “Rotary”

A Relic of the Early 1900’s



Figure 1: The "Rotary" in the 1940's

The “Rotary”

A Relic of the Early 1900’s



Figure 2: The "Rotary" in 2011

Not much has changed with the streets at the intersection in nearly 80 years. The “rotary” was enlarged and raised in that time, but most of the major changes occurred outside of the roadways, mainly with business/residence changes and landscaping reductions.

Identified Issues

The “Rotary’s” Problems

- High Vehicular Volumes = 19,200 vehicles per day
- High Crash Location
 - In 2006 = 53 reported crashes in 5 years
 - In 2016 = 50 reported crashes in 5 years => No Improvement!
- The “Rotary”
 - Improper size and shape
 - Too small and restricts certain movements and storage
 - Improper location within the intersection
 - For sight distance and sight lines
- Left Turns
 - Generally high throughout the intersection
 - Awkward left turns around the “Rotary”
- Uncontrolled drive accesses
 - At Century 21, Majestic
- Adjacent school and churches – Not really an “issue”, but more of a consideration
- Elevated presence of bicyclists and pedestrians
 - Especially children to/from school
 - Long crosswalks
 - Inadequate number of crosswalks
- Aesthetically unappealing
 - A sea of pavement
 - Lack of landscaping
- Aging and failing (or soon-to-be failing) utilities
 - 37,000+ feet (>7 miles) buried utilities
- Lack of modern stormwater treatment

The Solution

The Modern Roundabout



Modern
Roundabout
in Waterbury,
VT



The Solution

The Modern Roundabout

- Can handle 19,200 vehicles per day without needing new lanes*
- Expected crash reduction of up to 72%.
- Geometry of the Roundabout focuses user’s sight distance by obscuring and reveal certain perspectives.
- Left turns become right turns and become more predictable to all users
- Adjacent drives will be controlled.
- Crosswalks will be shorter in length, only cross one lane of traffic at a time and are located at highly visible locations.
- The Roundabout’s central and splitter island create opportunity for aesthetic treatments.
- New trees and shrubs throughout the project.
- Buried utility infrastructure will be updated and consolidated in neatly assembled corridors and easily (and safely) accessible for maintenance personnel.
- New buried sand filters and detention vaults to treat stormwater without surcharging the existing downstream infrastructure.

*An excerpt from *NCHRP Report 672*, Transportation Research Board (TRB), 2010:

Roundabouts: An Informational Guide

Exhibit 1-9
Roundabout Category Comparison

Design characteristics of the three roundabout categories.

Design Element	Mini-Roundabout	Single-Lane Roundabout	Multilane Roundabout
Desirable maximum entry design speed	15 to 20 mph (25 to 30 km/h)	20 to 25 mph (30 to 40 km/h)	25 to 30 mph (40 to 50 km/h)
Maximum number of entering lanes per approach	1	1	2+
Typical inscribed circle diameter	45 to 90 ft (13 to 27 m)	90 to 180 ft (27 to 55 m)	150 to 300 ft (46 to 91 m)
Central island treatment	Fully traversable	Raised (may have traversable apron)	Raised (may have traversable apron)
Typical daily service volumes on 4-leg roundabout below which may be expected to operate without requiring a detailed capacity analysis (veh/day)*	Up to approximately 15,000	Up to approximately 25,000	Up to approximately 45,000 for two-lane roundabout

*Operational analysis needed to verify upper limit for specific applications or for roundabouts with more than two lanes or four legs.

Challenges

No Small Feats

Ledge

- Shallow in a lot of places (<2' in some locations outside of streets).

Archaeology

- Stone flakes, likely from debris from Native American stone tool manufacturing and cooking activities, were discovered.
- Attempts to recover some artifacts will occur concurrently with construction.

Stormwater Treatment

- Locust Street structures will be deep (10'-12' to the top).

Contaminated Soils & Groundwaters

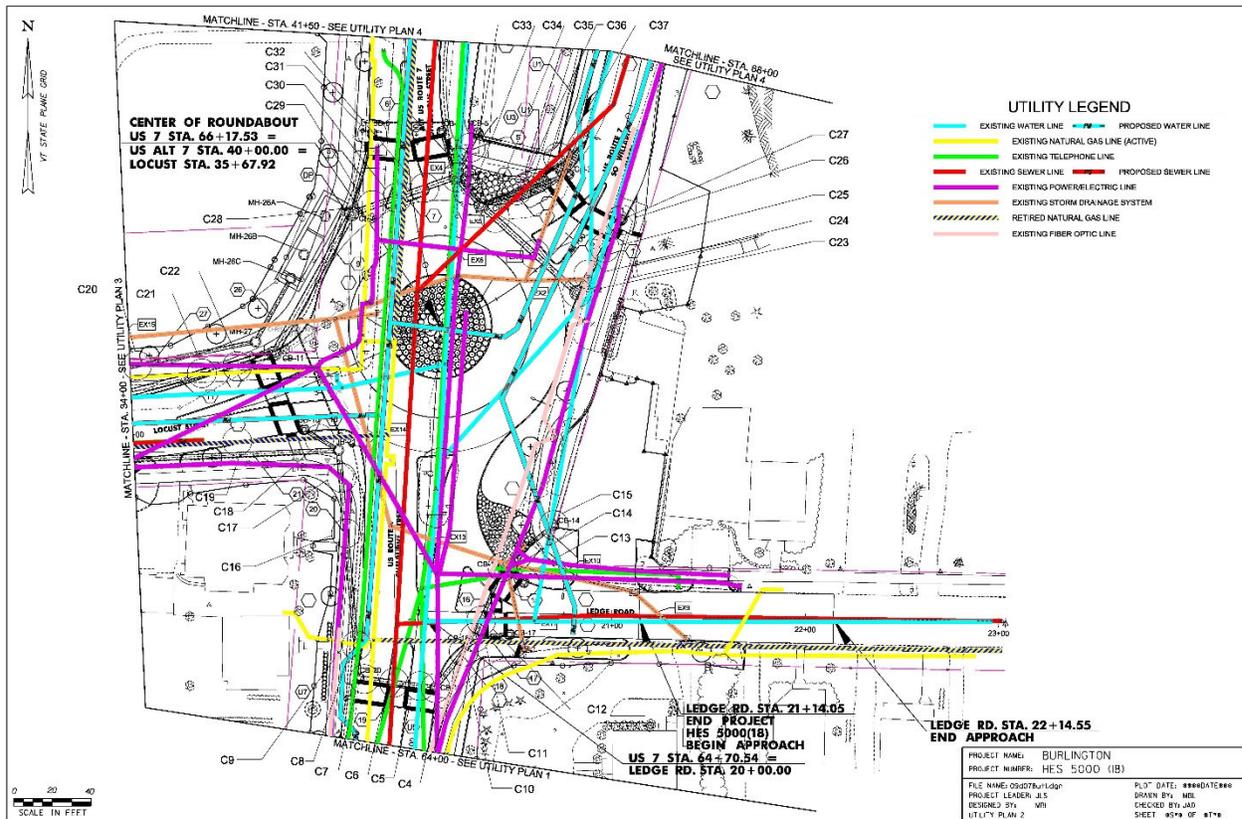
- Four properties are/were fueling stations throughout history.
- Currently investigating magnitude of contamination and estimating mitigation and remediation techniques if encountered and associated costs for these techniques.

Challenges

No Small Feats (cont'd)

Utilities

- 7 miles of buried utilities, some which are nearly 100 years old.
- Existing sewer system to be re-lined by DPW ahead of the project to protect them.
- The entire first construction season will be dedicated to relocating and/or building new infrastructure while maintaining existing services.



Budget/Costs

Nothing's Free

The City entered into a Finance & Maintenance Agreement on 23 May 2019.

Construction Estimate (includes utility relocation): **\$7,155,000**

State's Engineering: **\$888,000 spent out of \$950,000 budget (93%)**

Rights-of-Way: **\$154,000 spent out of \$175,000 budget (88%)**

City's Engineering and Utility Design: **100% reimbursable**

Sewer Re-lining – DPW: **100% reimbursable**

Remaining Schedule

Nearing the Backstretch

January 2020

Solicit bids for Public Outreach contract

March 2020

Drop dead date for City's condemnation of properties; Final Plan development re-starts

June 2020

Plans submitted for Construction Contracting

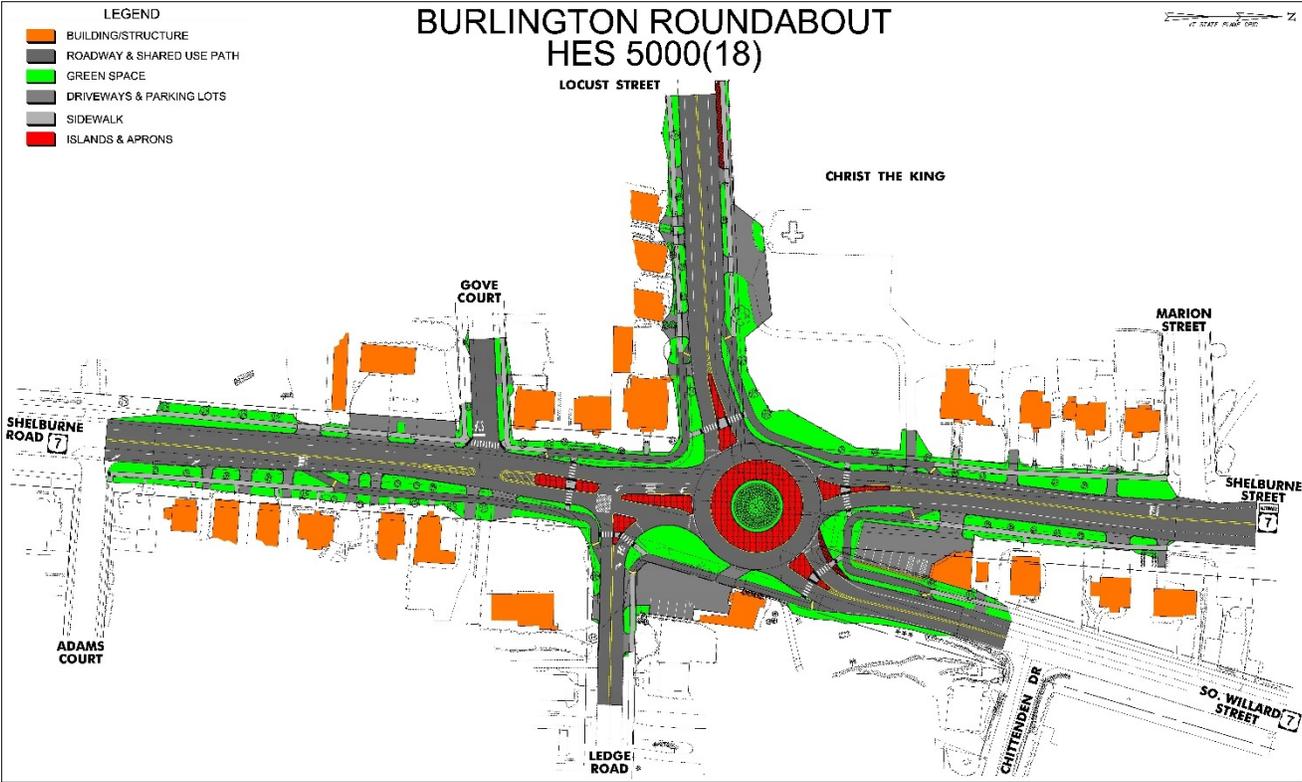
September 2020

Contract Award

Spring 2021

Groundbreaking

Thank You!



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