



City of Burlington  
Department of Public Works

Technical Services Engineering Division  
645 Pine Street, Suite A  
Burlington, VT 05402  
P 802-863-9094 / F 802-863-0466 / TTY 802-863-0450  
[www.burlingtonvt.gov/DPW](http://www.burlingtonvt.gov/DPW)

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# Memo

*Date:* October 19, 2022

*To:* Transportation, Energy and Utilities Committee

*From:* Laura Wheelock, P.E., Senior Public Works Engineer  
Julia Ursaki, Public Works Engineer

*Subject:* Shelburne Street Roundabout – Evaluation Plan

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## SUMMARY

This memo provides an overview of DPW and the Chittenden County Regional Planning Commission (CCRPC)'s proposed Shelburne Street Roundabout Evaluation Plan, as requested by City Council in their February 2009 resolution. This evaluation plan establishes benchmarks to compare traffic data, crash data, and public input against to determine the need to convert the single lane roundabout. It also establishes the type and frequency of traffic, crash, and public input data that the CCRPC and DPW will collect.

## BACKGROUND

On February 9, 2009, the City Council resolved that "the single lane roundabout constructed in the footprint of the hybrid roundabout option is the City of Burlington's preferred alternative to address traffic safety issues at the intersection of South Willard, Saint Paul, Shelburne, Locust Streets, and Ledge Road." They further resolved that "DPW staff work with the Chittenden County Metropolitan Planning Organization staff and develop criteria for benchmarks that would be reviewed biannually that would be used to determine the need to convert the single lane facility at some future date."

With the Shelburne Street roundabout set to open in November 2022, DPW staff have worked with the CCRPC to develop an Evaluation Plan for the Shelburne Street roundabout based on the current best practices for data collection. The Evaluation Plan (full memo attached) includes the following data collection and benchmark comparisons.

### Traffic Data

*To be collected annually (until two years after the completion of the Champlain Parkway)*

Evaluation Metric	Location	Benchmark
Side Street Delays	Adams Ct Gove Ct Possible: Hoover St	Side street delay is LOS E or better
Traffic Volumes & Speeds on each roundabout approach	Shelburne south Shelburne north Locust St S Willard St Ledge Rd	Speeds are consistent with City posted speeds
Queue Counts on each approach	Shelburne south Shelburne north Locust St S Willard St Ledge Rd	Compare actual queuing to expected queuing from traffic modelling, relative to Federal Highway Standards

### Crash Data

*To be collected annually for five years following completion of the roundabout*

Evaluation Metric	Location	Benchmark
Crashes	Crash data at the intersection	Number of crashes is reduced. Compare 5 years of post-construction data to 5 years of pre-construction (and pre-pandemic) years.

### Public Input

*To be collected 6 months, 18 months, and 30 months following completion of the roundabout (i.e. April 2023, April 2024, and April 2025)*

Evaluation Metric	Questions	Benchmark
Public Input	Walk/bike navigability of the roundabout  General perceptions/user satisfaction	Residents are generally satisfied with their ability to walk, bike, or drive through the roundabout

## NEXT STEPS

Each year after traffic data is collected, DPW staff will compare the current conditions of the roundabout to the benchmarks listed above. If benchmarks are not met, DPW staff will investigate the reasons why and develop recommendations to address deficiencies in the intersection's performance.

Feel free to contact us at [lwheelock@burlingtonvt.gov](mailto:lwheelock@burlingtonvt.gov) or [jursaki@burlingtonvt.gov](mailto:jursaki@burlingtonvt.gov) to discuss any of this in further detail. Thank you.

## DISCUSSION

The resolution mentioned above indicates that DPW will do this evaluation and update with the City Council. Given the changes to the City Council and TEUC since 2009, are Councilors comfortable with annual updates to the TEUC, and anything that is a more significant finding could be brought to the Council, instead of annual updates to City Council?

## ATTACHMENTS:

Attachment A: 2009 City Council Resolution

Attachment B: Shelburne St Roundabout Evaluation Plan

# Resolution Relating to

**RESOLUTION 11.01**

Sponsored by Councilors Montroll,  
Keogh, Davis

Introduced: 02/09/09

Referred to: \_\_\_\_\_

Action: adopted, amended (typo)

Date: 02/09/09

Signed by Mayor: 02/24/09

SHELBURNE STREET ROTARY

## CITY OF BURLINGTON

In the year Two Thousand Nine.....  
Resolved by the City Council of the City of Burlington, as follows:

That WHEREAS, at its 4/14/2008 meeting the Burlington City Council adopted a resolution sponsored by the Transportation Energy and Utilities Committee (TEUC) which supported a recommendation from the Public Works Commission identifying a roundabout concept as the preferred alternative to address traffic problems at the intersection of Locust, Shelburne, Saint Paul, and South ~~Union~~ <sup>Willard</sup> Streets and Ledge Road commonly referred to as the Shelburne Street Rotary; and

WHEREAS, the resolution requested that DPW staff and Commission and their consultants while furthering their design, work with the TEUC to address concerns raised by residents of Adams Court and Hoover Street; and

WHEREAS, DPW staff and their consultants developed two options to the initial concept: a hybrid which maintained two lanes along Shelburne Street to South Willard Street and a hybrid in the footprint of the single lane which would enable the City to expand to the two lanes at some future date should it be determined necessary based upon previously determined criteria; and

WHEREAS, the TEUC held a public hearing to review the options and solicited additional comments from the CCTA, Burlington Fire Department and Burlington Police Department; and

\* \* \* \* \*

ORIGINAL

**DISTRIBUTION:**

I hereby certify that this resolution  
has been sent to the following  
department(s) on

RESOLUTION RELATING TO

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Adopted by the City Council

....., 20.....

..... Clerk

Approved....., 20.....

..... Mayor

Attest:

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\* \* \* \* \*

**Resolution Relating to** SHELBURNE STREET ROTARY

WHEREAS, the CCTA had concerns about their ability to maintain their schedule on the affected route at some time in the future and the Burlington Fire and Police Departments offered that the single lane posed no problems for their operations; and

WHEREAS, following the public hearing the TEUC requested that VTrans review the options to determine whether they would qualify for funding; and

WHEREAS, VTrans determined that only one of the options in addition to the initial concept would be eligible for funding under the proposed program; and

WHEREAS, the Public Works Commission reviewed this work and reiterated their preference for the single lane alternative;

NOW, THEREFORE, BE IT RESOLVED that the single lane roundabout constructed in the footprint of the hybrid option is the City of Burlington's preferred alternative to address traffic safety issues at the intersection of South Willard, Saint Paul, Shelburne, Locust Streets and Ledge Road; and

BE IT FURTHER RESOLVED that DPW staff communicate the identification of the preferred alternative to VTrans; and

BE IT FURTHER RESOLVED that DPW staff work with the Chittenden County Metropolitan Planning Organization staff and develop criteria for benchmarks that would be reviewed biannually that would be used to determine the need to convert the single lane facility at some future date. Criteria will address traffic movement, possible traffic diversions and pedestrian safety.

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ORIGINAL

**DISTRIBUTION:**

I hereby certify that this resolution has been sent to the following department(s) on

RESOLUTION RELATING TO

Shelburne Street Rotary

DPW-Dan Bradley

City Attorneys Office- Linda Stanchard

AS AMENDED (TYPO)

Adopted by the City Council  
February 9, 2009

*[Signature]* Clerk

Approved..... 2/24, 2009

*[Signature]* Mayor

Attest:  
*[Signature]*  
Lori Olberg  
Administrative Assistant

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## **MEMORANDUM**

To: Julia Ursaki, Olivia Darisse PE, Laura Wheelock PE; Burlington DPW  
From: Jason Charest PE/PTP; CCRPC  
Date: October 3, 2022  
Re: Shelburne Street Roundabout - DRAFT Evaluation Plan

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### ***Background & Introduction:***

The City of Burlington requested the CCRPC's assistance in developing an evaluation plan for the Shelburne Street Roundabout. During the planning process over a decade ago, there were concerns about the possibility for significant queues on Shelburne Street and how they would impact nearby residents. This sentiment is captured in the resolution passed at the April 14, 2008 City Council meeting with specific mention given to the residents that live on Adams Court and Hoover Street. The roundabout was constructed with the allowance for future expansion to two entry lanes northbound on Shelburne Street.

There are a couple of important pieces of information to keep in mind for when the roundabout is completed. The first is that it will cause congestion on Shelburne Street. This is a design feature that is intended to slow down vehicles, provide increased and safer pedestrian crossings, reduce crashes, and make it easier for vehicles on Ledge Road, Locust Street, and Willard Street to navigate the intersection. The second is that the completion of the Champlain Parkway is expected to reduce traffic volumes at the roundabout. No decisions for expanding the roundabout should be made until the Champlain Parkway is completed and post-monitoring data is gathered and evaluated.

This evaluation plan lays out a framework for data collection efforts, how the data can be used to evaluate the performance of the roundabout, and when expansion of the northbound approach should be considered.

### ***Evaluation Metrics:***

- Side street delays at Adams Court and Gove Court
  - This data can be gathered via traffic data collection devices and used to evaluate how long it takes vehicles to find an acceptable gap in traffic to turn left or right onto Shelburne Street during the AM and PM peak periods.
  - Hoover Street could be added to this list if deemed necessary. Since Adams Court is significantly closer to the roundabout, the egress impacts should be greater when compared to Hoover Street.
- Crashes at the roundabout

- The [Vermont Public Crash Data Query Tool](#) can be used to evaluate changes in crash patterns. The most recent five-year period of pre-pandemic data (2014-2019) can be compared to crash data at the roundabout on an annual basis.
- This will need to be a long-term evaluation metric as any initial changes in crash frequency in the first couple of years (good or bad) could be anomalies. Ideally, a five-year period of before and after data should give an accurate depiction as to whether the roundabout was successful in decreasing the number and/or severity of crashes.
- Crashes involving pedestrians and bicyclists, so long as they're reported, can be broken out for comparison as well.
- Traffic volumes and speeds on each approach to the roundabout
  - Automatic Traffic Recorders (ATRs) can be deployed approximately 500ft from each entry/exit to the roundabout for a total of five locations.
  - The volume data will help understand how many vehicles are using the intersection compared to the original traffic forecasts. This can also be used as a base point for how the Champlain Parkway affects traffic at the roundabout.
  - Since roundabouts often have a traffic calming effect, the speed data will show how close people are traveling to the speed limit of a given street. If speed data is available from before the roundabout was constructed, comparisons can be made.
- Queue counts on each approach to the roundabout
  - Vehicle queues can be quantified by the number of vehicles and/or the number of feet on each of the five approaches using traffic data collection devices.
  - This data can be collected during the AM and PM peak periods and compared to original traffic forecasts.
- Survey of nearby residents focused on walk/bike navigability and general perceptions of the roundabout.
  - The ease of crosswalk navigability or biking through the roundabout is challenging to quantify. Nonetheless, it is a critical piece to consider in the decision-making balance of whether to pursue expansion of the northbound approach to two lanes as this will make it more difficult to utilize the applicable crosswalks.
  - A survey could be designed and shared with the nearby neighborhoods to help understand user satisfaction. Outreach could include Front Porch Forum, NPA meetings, and signage placed in the field near crosswalks.
  - A “honeymoon” period of 3 to 6 months should be taken into account as well to allow people to become somewhat familiar with navigating the roundabout. In addition, oftentimes the acceptance of roundabouts increases over time. The survey could be designed to be something that could be repeated at set intervals e.g., 6, 18, and 30 months after completion.

### ***Data Collection Timeline***

Traffic data collection (side street delay, volumes, speeds, and queues) should be collected sometime during the summer months when traffic volumes are typically at their peak. We recommend collecting this data annually prior to the Champlain Parkway completion and two years following its completion. Crash data can be examined on an annual basis for five years following the roundabout's completion.

As suggested above, a survey could be repeated at set intervals, e.g. 6, 18, and 30 months after completion.

### ***What Defines Success?***

Success means different things to different people. Some will think the roundabout should be expanded as soon as it's completed. Others will never want to see it expanded regardless of traffic back-ups. It is important to consider both perspectives when establishing and evaluating the metrics for success.

- Side street delays
  - The VTrans Level of Service (LOS) policy would be a good starting point to establish what success looks like. This strives to maintain an LOS D or better for side roads with volumes exceeding 100 vehicles/hour. There is no LOS criteria for volumes less than 100 vehicles/hour.
  - Given the limited number of residences on Adams and Gove Courts, the hourly volumes are likely to be below 100. With that, and since Burlington is an urban area where some traffic congestion is to be expected, a reduced LOS of E should be acceptable.
  - If a threshold of LOS E is not met, options to improve side street egress should be explored. Oftentimes, while counterintuitive, it can be easier to turn right and utilize the roundabout to make a U-turn versus waiting to turn left. This would be applicable to Adams and Hoover Streets.
- Crashes
  - Roundabouts have been proven to increase safety for vehicles and pedestrians with bicyclists being a mixed bag contingent on the facility's design and ability of the bicyclist.
  - If after five years the roundabout is not yielding the anticipated results, an evaluation should be conducted to determine why this is and what could be done to improve the situation.
- Operating characteristics
  - The comparison of actual traffic volumes and queuing to previous traffic modeling is likely to be one of the earliest signs of how the roundabout is performing relative to expectations. It is also perhaps the most directly related to public perceptions of success given its daily visibility during peak hours.
  - While queuing beyond that which is expected is concerning, equally important is its duration and frequency. Consideration should be given to the tradeoffs between extensive queuing that might be limited to peak hours and the anticipated benefits of safer pedestrian crossings, slower speeds, and reduced crashes at all hours of the day.
  - Queuing beyond expectations will be the driving force behind any calls for expanding the roundabout. While expansion would reduce queuing, at least temporarily, it is not without tradeoffs.
- Public input
  - Last but certainly not least is public input. Survey results and general feedback received should weigh heavily in considering the expansion of the roundabout. The decision to

keep the Shelburne Street northbound approach to one lane was partly based on traffic modeling results, but also largely driven by the will of the nearby residents.

The above picture of what might define success should not be seen as set in stone. It is possible there are factors not taken into account that may be realized shortly after the roundabout's completion. Adjustments to the evaluation plan should be anticipated.

It bears repeating that the Champlain Parkway is expected to reduce traffic volumes at the roundabout. As previously mentioned, no decisions for expanding the roundabout should be made until the Champlain Parkway is completed and post-monitoring data is gathered and evaluated.

***End of Memo***

DRAFT