



Traffic Engineering Study

Willow, Bridge, Depot, and Prospect Streets Project

Winchester, Connecticut

PREPARED FOR

Town of Winchester
338 Main Street
Winsted, CT 06098

PREPARED BY



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August 2019



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Introduction

Vanasse Hangen Brustlin, Inc. (VHB) has been retained by the town of Winchester to conduct a traffic engineering study for the intersections of Bridge Street at Willow Street, Prospect Street, and Depot Street in Winchester, Connecticut. The purpose of this engineering study is to evaluate existing conditions and to develop alternative conceptual plans to improve traffic operating conditions, pedestrian mobility, access to the adjacent development, and safety. An additional goal of this project is to identify options to increase the quantity of on-street parking to support adaptive reuse of the adjacent old mill building and encourage future economic development in the area.

This document provides a detailed description of the study methodology and recommendations.

Existing Conditions

The first phase of this project consisted of a thorough evaluation of existing conditions in the project area. As part of this existing conditions assessment, VHB has reviewed the physical characteristics of the roadways and intersections, collected traffic count data, evaluated crash history, and conducted capacity analyses to evaluate current traffic operating conditions. A summary of the existing conditions assessment is presented in the following section.

Description of Existing Roadways

The following section provides a description of the physical characteristics of the existing roadways and intersections in the project area.

Study Roadways

Bridge Street

Bridge Street is a two-lane (one lane in each direction) roadway with a posted speed limit of 25 miles per hour. Bridge Street begins at the intersection of Main Street (Route 44/183) in the north and continues south through the project area providing access to a residential neighborhood. Bridge Street is classified by CTDOT as a collector roadway north of Prospect Street and as a local road south of Prospect Street. A double yellow line is striped on Bridge Street between Main Street and Willow Street. There are no pavement markings on Bridge Street south of Willow Street. Bridge Street has a very steep slope (over 15-percent) south of Willow Street. There are sidewalks along both sides of Bridge Street north of Prospect Street and no sidewalks further south.

Prospect Street

Prospect Street is a two-lane (one lane in each direction) collector roadway (as classified by CTDOT) with a posted speed limit of 25 miles per hour. Prospect Street begins at the intersection with Bridge Street and continues west, parallel to Main Street (Route 44/183), and ends at the intersection with Lake Street. A painted stop-



bar and double yellow centerline is provided on Prospect Street at the intersection with Bridge Street. There are sidewalks on the north side of Prospect Street.

Willow Street

Willow Street is a two-lane (one lane in each direction) local roadway with a posted speed limit of 25 miles per hour. Willow Street begins at the intersection with Bridge Street and continues east to Rowley Street. A painted stop-bar and crosswalk are provided on Willow Street at the intersection with Bridge Street. On-street parking is permitted on both sides of Willow Street in the project area. There are sidewalks along both sides of Willow Street in the vicinity of Bridge Street. The sidewalk along the north side of Willow Street ends approximately 40-feet east of Bridge Street, and the sidewalk along the south side ends approximately 170-feet east of Bridge Street.

Depot Street

Depot Street Avenue is a two-lane (one lane in each direction) local roadway with a speed limit of 25 miles per hour. Depot Street begins at its intersection with Bridge Street in the west and runs approximately 200-feet to the east, where the road bends to the right and becomes Charles Street. There are no sidewalks along Depot Street.

Study Intersections

Bridge Street at Willow Street

Bridge Street and Willow Street form a three-leg intersection approximately 100-feet south of Main Street (Route 44/183). The northbound and southbound Bridge Street approaches operate under free-flow conditions, and the westbound Willow Street approach is stop controlled. All three approaches at the intersection consist of a single lane. A striped crosswalk is provided across Willow Street. There are no crosswalks provided across Bridge Street.

Bridge Street at Prospect Street and Depot Street

Bridge Street is intersected by Prospect Street from the west and Depot Street from the east to form a four-leg intersection with atypical geometry approximately 75-feet south of Willow Street. The northbound and southbound Bridge Street approaches operate under free-flow conditions. The eastbound Prospect Street and westbound Depot Street approaches are stop controlled. All four approaches consist of a single lane. No crosswalks are provided at this intersection.

A driveway for the mill building is located at the northwest corner of the intersection. This northwestern curb has a large radius, which enables motorists to travel at higher speeds turning right from Bridge Street onto Prospect Street. The steep slope on Bridge Street continues through this intersection before slightly leveling off, creating a hump with a steep cross slope for motorists entering the intersection from Prospect Street or Depot Street.

An aerial view of the project area is shown on *Figure 1*.



Source: Capitol Region Council of Governments. (2016). 2016 Aerial imagery.
Retrieved from <http://cteco.uconn.edu/data/flight2016/index.htm>.



FIGURE 1

Bridge Street at Willow Street,
Prospect Street, and Depot Street
Winchester, Connecticut

Crash Data

Crash records within the project area were obtained from the University of Connecticut, Connecticut Crash Data Repository (CTCDR) for the most recent three-year period available, from January 2016 to December 2018. Each collision case report contained the following information: police case number, date, time, location, collision type, collision severity, number of vehicles involved, travel direction of each vehicle involved, weather/lighting conditions, and contributing factor (if available). It should be noted that only collisions that result in death, injury, or property damage in excess of \$1,000 are required to be reported.

Based on this data, five crashes were reported in the study area during the three-year analysis period. One crash involved a vehicle hitting a fixed object on Prospect Street. Two crashes were rear-end collisions involving vehicles traveling westbound on Willow Street towards Bridge Street. The other two crashes were angle collisions within the intersection of Bridge Street at Willow Street. There were no apparent injuries documented in any of the crashes reported in the study area.

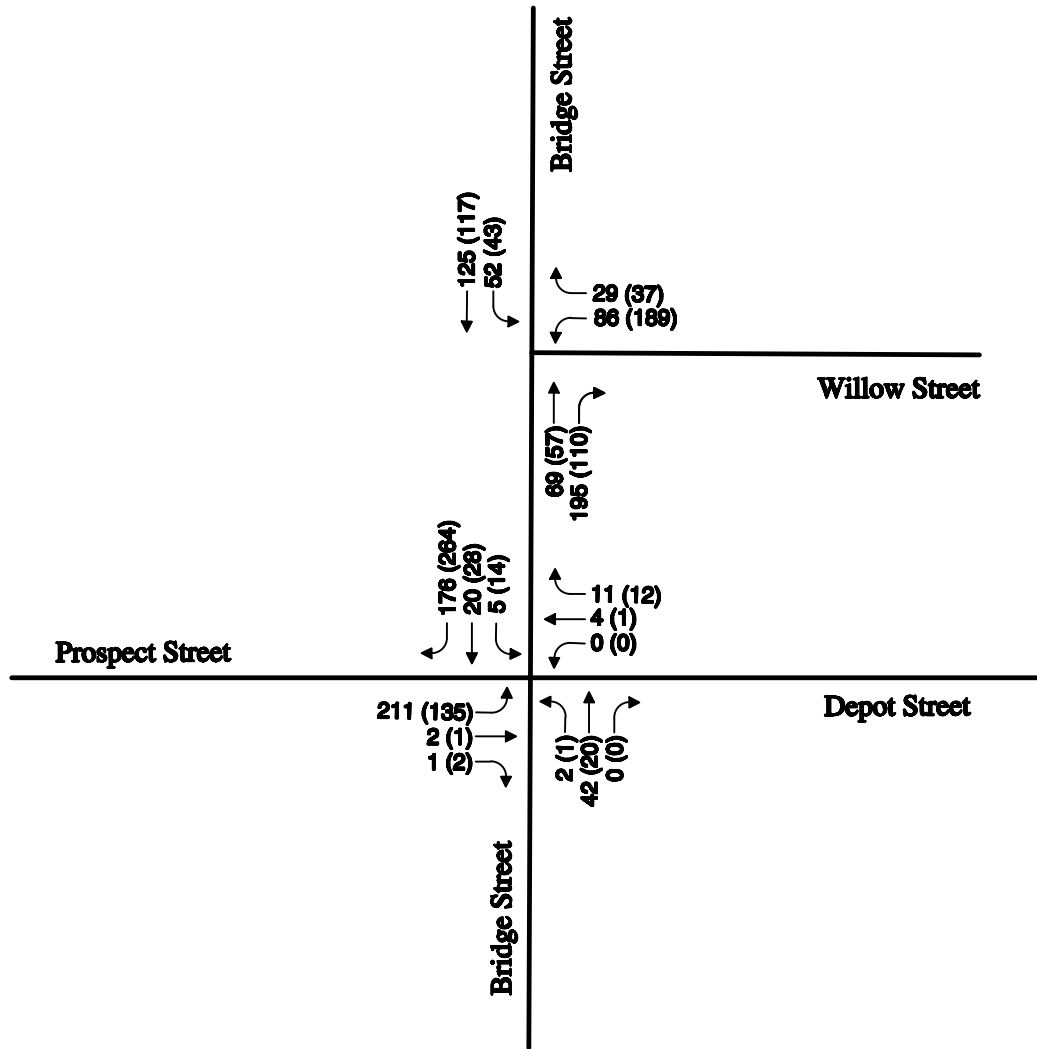
Five reported crashes over three years is typically considered a low crash rate for this type of intersection with unusual geometry. Although this data contains a relatively low frequency of crashes over the past three years, it should be noted that Town staff has indicated that “near misses” occur frequently in this area. Additionally, the mill building was vacant or only partially occupied during the three-year analysis period. Additional traffic generated by the anticipated re-use of this building or other nearby development could affect the frequency of crashes in the future.

Existing Traffic Volumes

To assess existing traffic conditions in the study area, peak hour manual turning movement traffic counts were recorded on Wednesday, December 5, 2018 during the typical morning (7am-9am) and evening (4pm-6pm) peak traffic periods.

The peak hour turning movement volumes are summarized on *Figure 2*. As shown on this figure, the heaviest traffic movement through these intersections involves motorists making an ‘S’ movement traveling between Prospect Street and Willow Street. The complete traffic count data is included in the appendix.

Only three pedestrians were observed crossing the road in the study area during the four hours in December when the traffic counts were collected. However, Town staff has indicated that there is much higher pedestrian activity during the summer. In particular, the Town noted that children frequently walk through the project area during the summer to travel between Main Street and the baseball fields further east on Willow Street. Additionally, the Town plans to extend a multi-use trail, which currently ends at the western limits of the parking lot for the old mill building, through the project area and to the east along Willow Street. This trail crossing would increase pedestrian traffic crossing Bridge Street.



KEY

XX - AM PEAK HOUR TRAFFIC VOLUMES
(XX) - PM PEAK HOUR TRAFFIC VOLUMES



Existing Peak Hour Traffic Volumes

Winchester, Connecticut

FIGURE 2



Intersection Capacity Analysis

To assess the quality of traffic flow in the study area during the peak periods, intersection capacity analyses were conducted for the weekday morning and weekday evening peak traffic periods using the traffic count data discussed in the previous section. The intersection capacity analyses were conducted based on the evaluation criteria contained in the 2010 Highway Capacity Manual¹ (HCM) using Synchro™ software (Version 9). Synchro software is widely used by traffic engineering professionals and is consistent with the procedures in the HCM.

Capacity analyses results are reported using a variety of performance measures, including “Level of Service” (LOS) and vehicle queue length. The level of service designation is based on the average delay experienced by a vehicle traveling through the intersection. Similar to a report card, LOS designations are letter based, ranging from A to F, with LOS A representing the best operating condition (lowest vehicle delays) and LOS F representing the worst operating condition (highest vehicle delays). LOS D or better is typically considered tolerable, whereas LOS E and F represents overly congested conditions.

For unsignalized intersections with stop-control on the side street approaches (such as Bridge Street at Willow Street, Depot Street, and Prospect Street), the analysis assumes that through and right-turning movements on the main street (Bridge Street) are unimpeded by side street traffic. As such, LOS and delay are reported only for left-turns from the main street and for all movements from the side street.

Vehicle queue lengths are typically reported in terms of the 95th percentile vehicle queue. The 95th percentile queue is the queue length (in number of vehicles) which is expected to be exceeded only 5-percent of the time during the peak period analyzed. The 95th percentile queue is generally considered the maximum queue for design purposes.

The results of the capacity analysis are summarized in *Table 1*.



¹ Highway Capacity manual 2010; Transportation Research Board, National Research Council, Washington, DC (2010).



Table 1
Capacity Analysis Summary

| Intersection / Time Period | Lane Group | LOS ¹ | Delay ² | Queue ³ |
|---|-----------------------------|------------------|--------------------|--------------------|
| <u>Bridge Street at Willow Street</u> <i>Weekday Morning Peak Hour</i> | - Westbound Willow Street | B | 13.9 | 0.9 |
| | - Southbound Left-turns | A | 7.3 | 0 |
| <i>Weekday Evening Peak Hour</i> | - Westbound Willow Street | C | 18.9 | 2.8 |
| | - Southbound Left-turns | A | 8.3 | 0 |
| <u>Bridge Street at Prospect Street & Depot Street</u> <i>Weekday Morning Peak Hour</i> | - Eastbound Prospect Street | B | 13.3 | 1.7 |
| | - Westbound Depot Street | A | 9.5 | 0.1 |
| | - Northbound Left-turns | A | 7.8 | 0 |
| | - Southbound Left-turns | A | 7.3 | 0 |
| | | | | |
| <i>Weekday Evening Peak Hour</i> | - Eastbound Prospect Street | B | 12.4 | 0.9 |
| | - Westbound Depot Street | A | 9.6 | 0.1 |
| | - Northbound Left-turns | A | 8.0 | 0 |
| | - Southbound Left-turns | A | 7.3 | 0 |

Source: Vanasse Hangen Brustlin, Inc. using Synchro 9.0 software.

1 Level of service

2 Average control delay of the critical approach in seconds per vehicle

3 95th percentile queue in number of vehicles

As shown in the table above, Bridge Street, Prospect Street, and Depot Street all operate at LOS B or better conditions during the weekday morning and evening peak traffic periods. Willow Street operates at LOS B during the weekday morning peak traffic period and LOS C during the weekday evening peak traffic period.

This analysis indicates that the intersections are currently operating well below capacity with low delays during the peak traffic periods.

Existing Conditions Summary

The following is a summary of the key issues identified through this existing conditions assessment:

- The highest volume traffic movement in the study area involves motorists traveling between Willow Street and Prospect Street. These two streets are offset by approximately 75-feet, which results in a high volume of traffic making an 'S' movement through the intersections. Additionally, the Prospect Street intersection has an atypical geometry with a very large radius on the northwest corner, which permits motorists to travel at higher speeds turning right onto Prospect Street.
- A wide driveway for the mill building is located on the northwest corner of Bridge Street and Prospect Street. The location of this driveway is problematic, because it is located within the intersection, and the sight distance for motorists exiting this driveway is significantly limited by the existing building to the left.
- Bridge Street has a very steep slope at the intersection with Prospect Street. This excessive slope limits the available options to reconfigure this intersection. Installation of "Stop" or "Yield" signs on Bridge Street could create unsafe conditions as motorists would have difficulty stopping in wet or icy conditions. Additionally, geometric modifications to the intersection configuration could require significant earthwork and installation of a retaining wall to address the steep grades.
- There are currently no crosswalks provided across Bridge Street within the study area. Additionally, the atypical intersection configuration at Prospect Street results in long and awkward crossing maneuvers. The need for a safe and convenient crossing across Bridge Street is important as the Town moves forward with plans to extend a multi-use trail from the old mill property west of Bridge Street to the east along Willow Street.
- There is limited parking available in the vicinity of the old mill building. The town has expressed a desire to increase the quantity of on-street parking in the area to support adaptive re-use of an old mill building and encourage future economic development.
- The capacity analysis results indicate that the study intersections do not experience excessive delays during the peak traffic periods. Therefore, increasing capacity is not needed, and future improvements should be developed to prioritize the other issues noted above, particularly safety and pedestrian accessibility.

Recommended Improvements

VHB developed multiple conceptual improvement plans to address the issues identified in the previous section. Based on discussions with Town staff, two of these plans were selected as preferred alternatives. The first alternative is a “short-term” plan that could be constructed at moderate cost with minimal right-of-way impacts. The other alternative selected is a “long-term” plan intended for future planning purposes, as it would require more significant costs and property acquisition.

The preferred alternatives are discussed in the following section. The concept plans that were rejected by the Town are included in the Appendix.

Short-term Improvements Plan

The short-term conceptual improvement plan is depicted on *Figure 3*. This plan involves a realignment of Prospect Street, Bridge Street, Depot Street, and the mill driveway to form a more traditional four-leg intersection with the western leg of Prospect Street and the northern leg of Bridge Street aligned to effectively become the new through movement. Additionally, the southern leg of Bridge Street will be realigned to intersect with Depot Street immediately east of the Prospect Street/mill driveway intersection. This realignment of Bridge Street may potentially require an easement or partial taking of the property on the southeast corner. However, right-of-way information is not currently available to evaluate these potential impacts.

A new crosswalk is provided across the northern leg of Bridge Street. VHB recommends installing stop signs on all four approaches to the intersection to improve safety for pedestrians. Additionally, all-way stop control mitigates the lack of sight distance from the mill driveway, since motorists exiting the driveway would only need to be able to see up to the opposing stop bar.

Under this plan, Bridge Street is converted to one-way southbound traffic flow between Maple Street and a residential driveway to the north. This one-way street conversion is intended to address safety concerns caused by motorists traveling northbound down the hill on Bridge Street and being required to stop at a stop sign

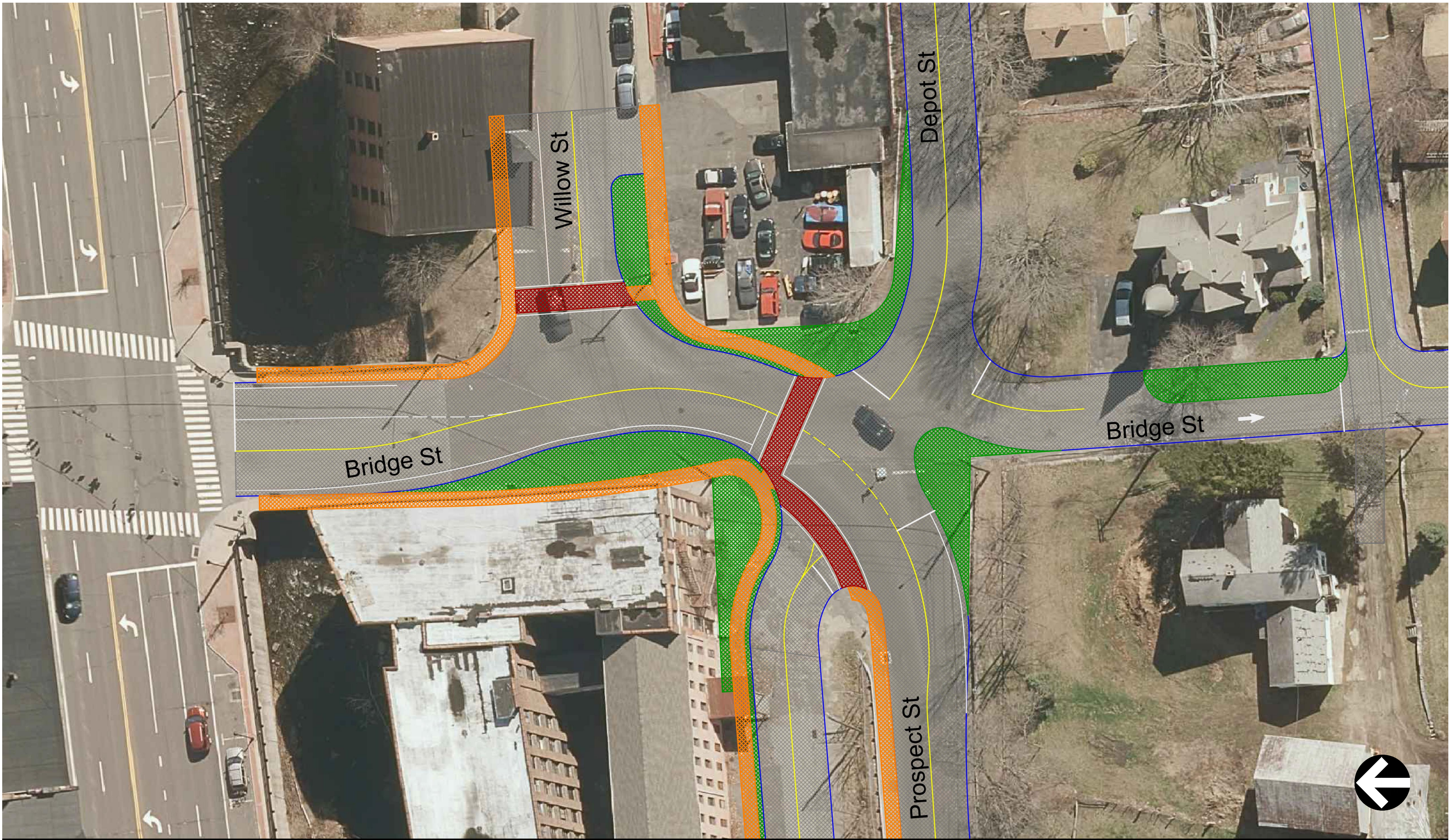


on a steep hill. Two-way traffic flow is retained between the residential driveway and Depot Street to maintain access to the street network for the residence.

It should be noted that closing the southern leg of Bridge Street was also investigated as a short-term improvement. Closing the southern leg of Bridge Street would allow more significant improvements by regrading the intersection to reduce the slopes. However, the Fire Department indicated that closing Bridge Street would divert Fire trucks through residential neighborhoods with intersections that are not adequately designed to accommodate fire truck turning movements. This would require additional geometric improvements to intersections that are beyond the scope of this project. Therefore, the Town has indicated that closing the southern leg of Bridge Street is not feasible as a short-term improvement.

Construction Cost Estimate

VHB has completed a planning level construction cost estimate for these improvements and estimates the order of magnitude construction cost to be approximately **\$350,000**. This estimate includes incidentals and contingencies but excludes potential right of way costs.



Willow, Bridge, Depot, and Prospect Street Project
Winchester, CT

0 15 30 Feet

Figure 3
Short-Term Improvements
August 2019



Long-term Improvements Plan

The long-term conceptual improvement plan is depicted on *Figure 4*. This plan includes a similar intersection realignment of Bridge Street and Prospect Street as the short-term plan, except that the southern leg of Bridge Street is closed entirely. Additionally, this plan includes a realignment of Willow Street onto the current alignment of Depot Street. The existing western portion of Willow Street is converted to one-way eastbound with the addition of on-street parking spaces. Although right-of-way information is not currently available, this long-term plan would require significant acquisition of private property.

This plan offers significant operational benefits over the short-term improvements. Realigning Willow Street opposite of Prospect Street reduces delays for motorists traveling between Willow Street and Prospect Street. This realignment also provides additional safety benefits by reducing potential conflicts associated with traffic turning onto Bridge Street from Willow Street. Additionally, the existing western portion of Willow Street can be reconfigured to provide additional parking.

Construction Cost Estimate

VHB has completed a planning level construction cost estimate for these improvements and estimates the order of magnitude construction cost to be approximately **\$750,000**. This estimate includes incidentals and contingencies but excludes potential right of way costs.



Willow, Bridge, Depot, and Prospect Street Project
Winchester, CT

0 30 60 Feet

Figure 4
Long-Term Improvements
August 2019



Appendix

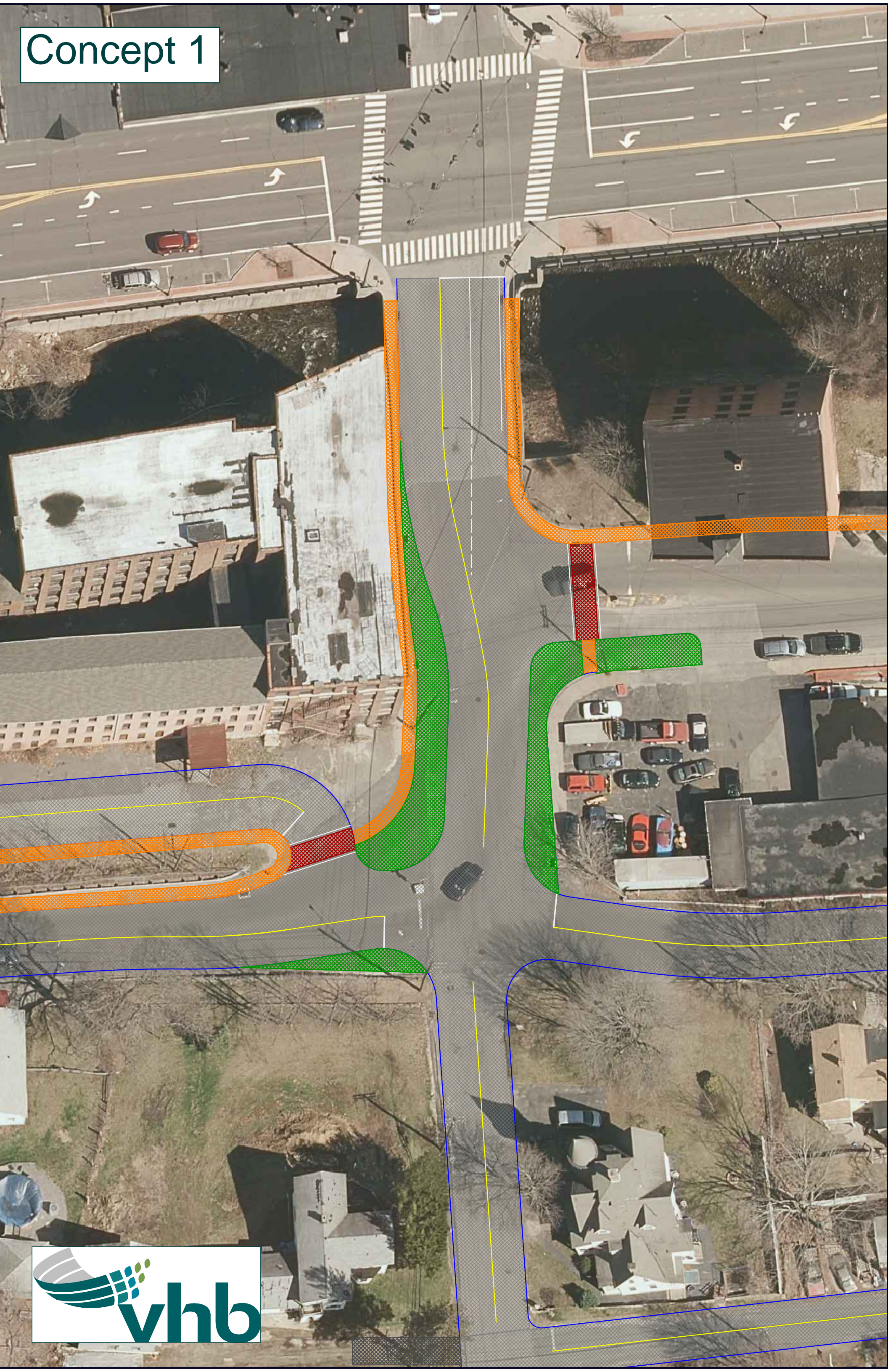
Rejected Conceptual Improvement Plans

Traffic Count Data

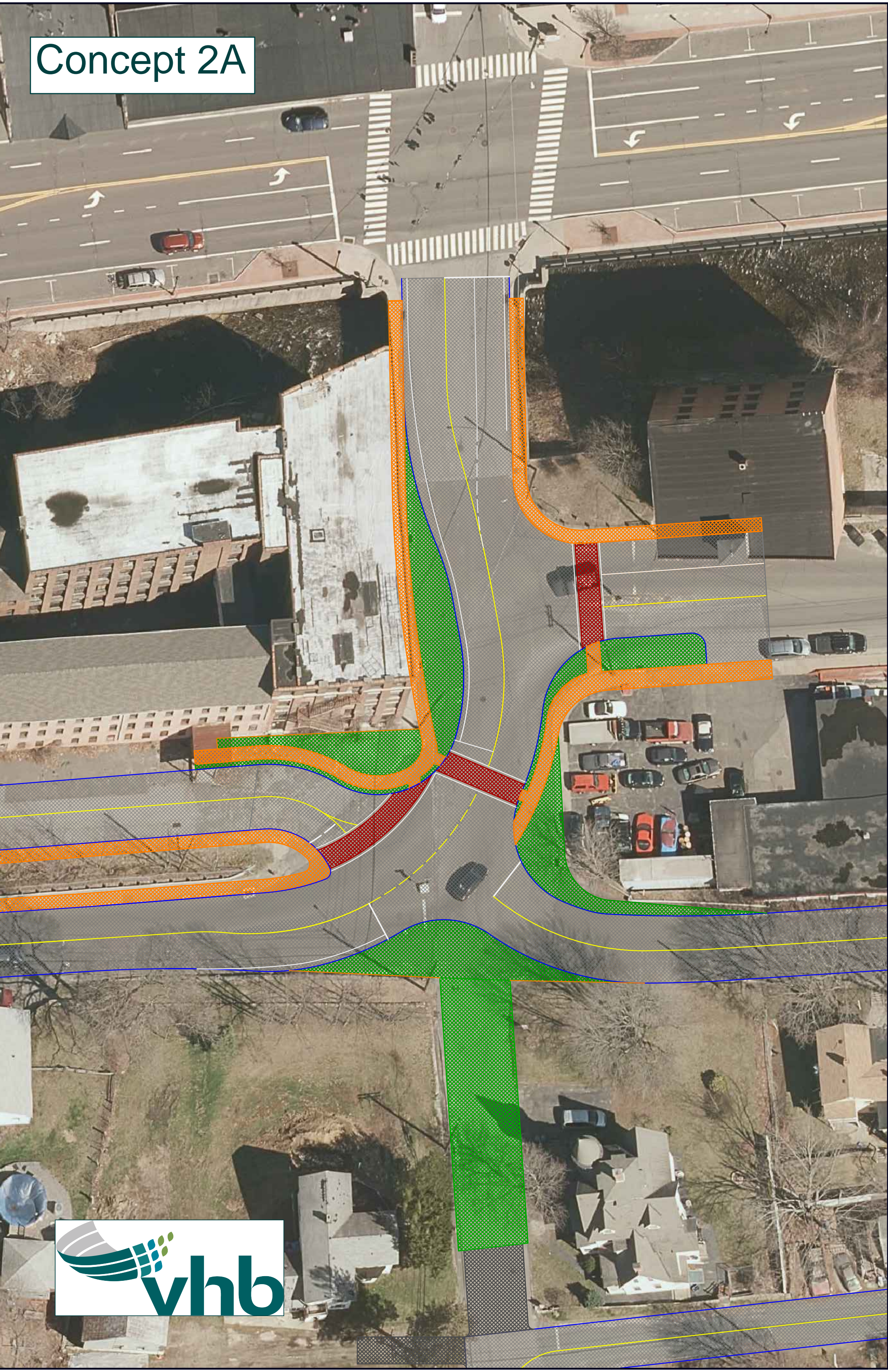
Intersection Capacity Analysis

Rejected Conceptual Improvement Plans

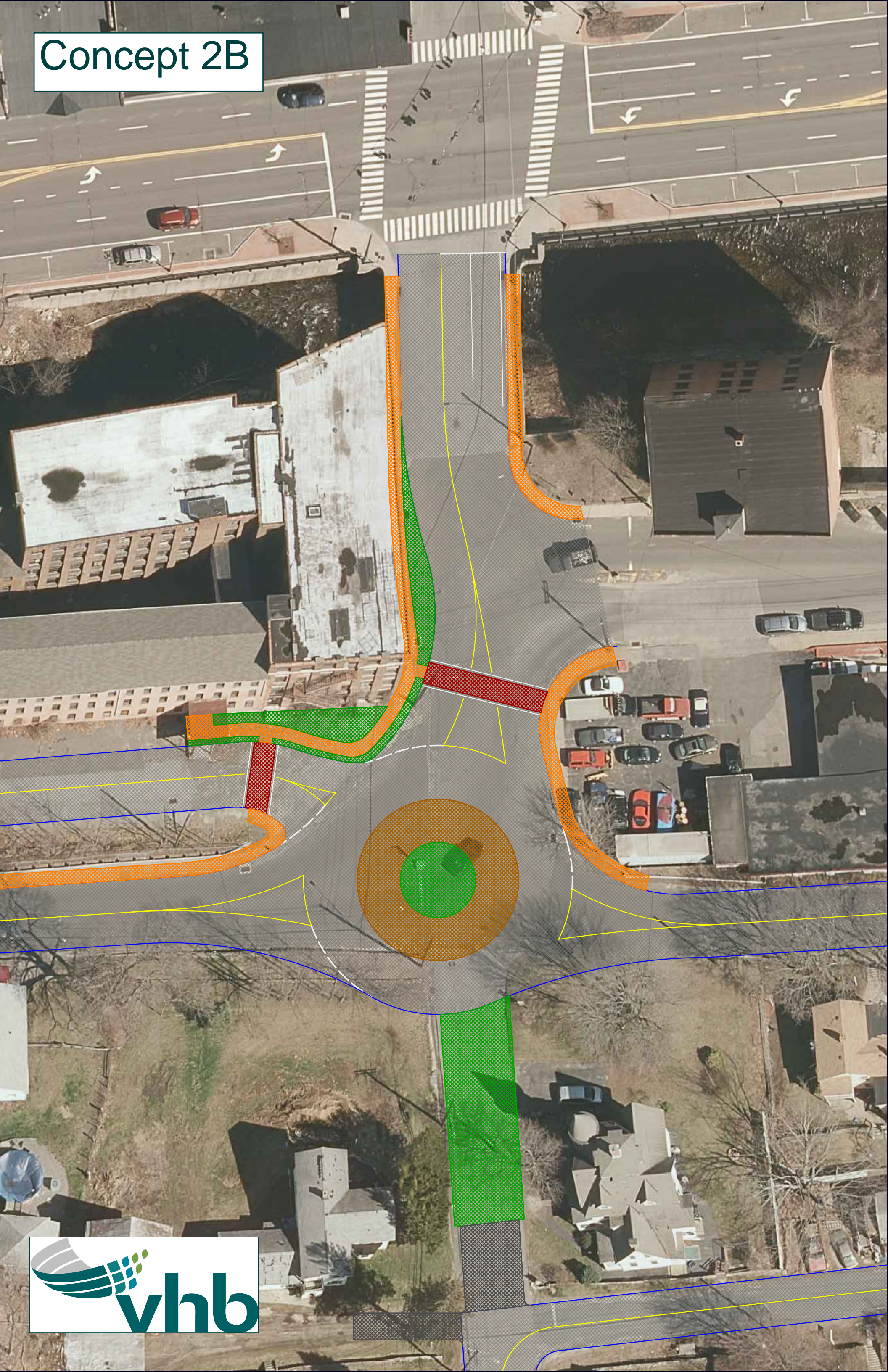
Concept 1



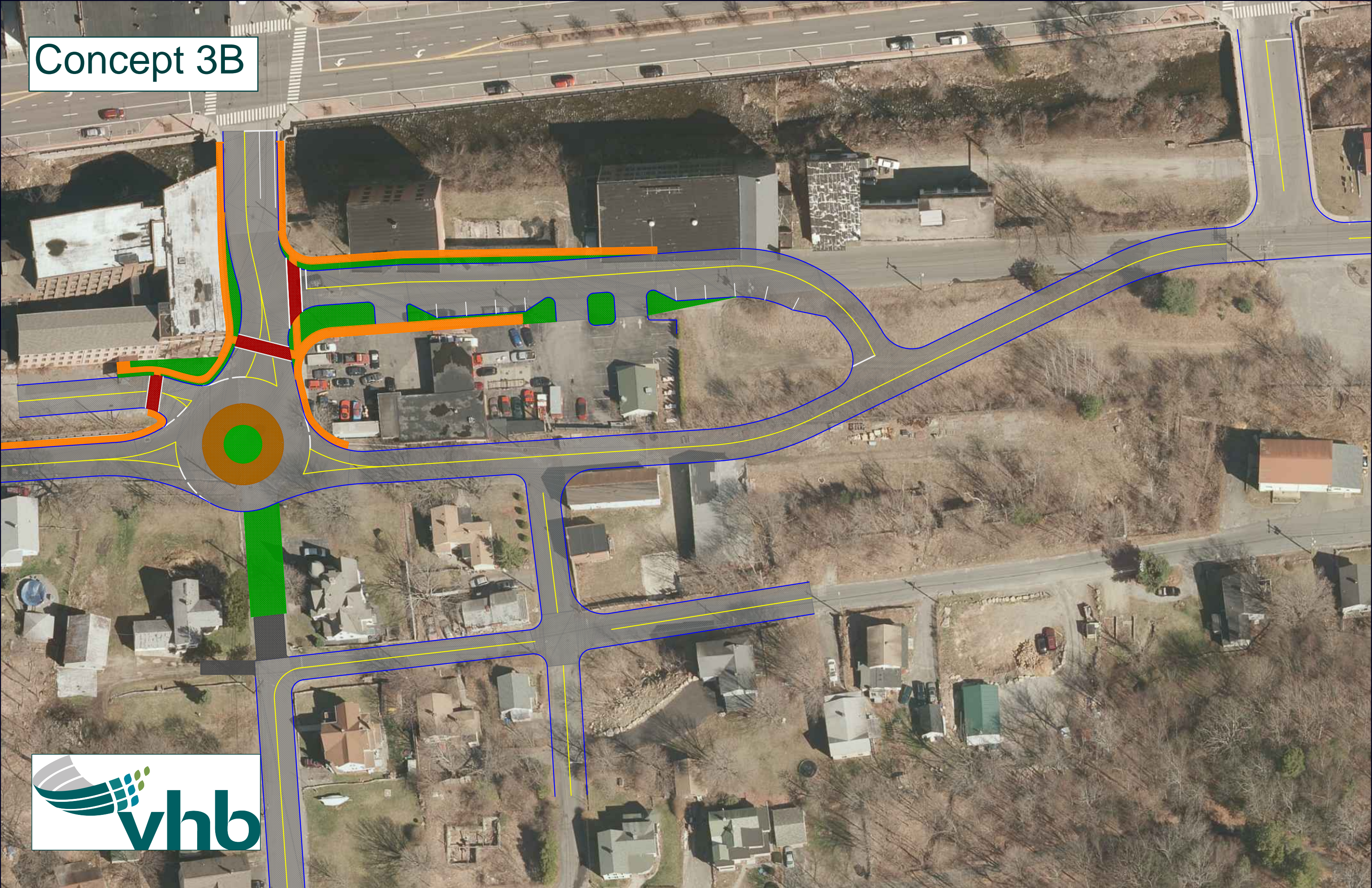
An aerial photograph of a city intersection with a proposed transit station layout overlaid. The layout features a central station platform, indicated by a green hatched area, and surrounding transit zones, indicated by orange hatched areas. The intersection is bounded by a multi-lane road at the top and a residential area at the bottom. The text "Concept 2A" is in the top left, and the "vhb" logo is in the bottom left.



Concept 2B



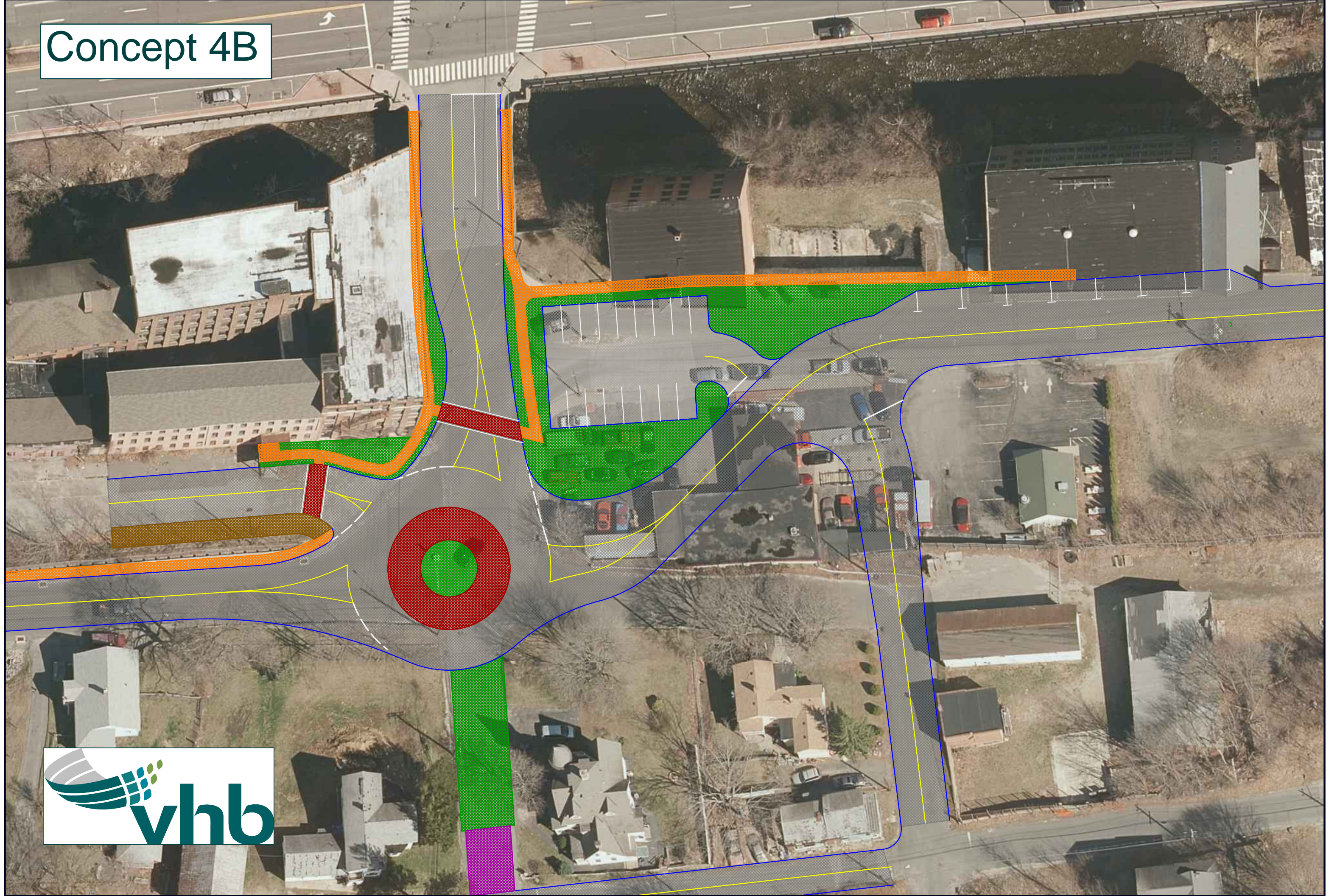
Concept 3B



Concept 4A



Concept 4B



Traffic Count Data

Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

Bridge Street at Prospect St/Willow St
Winchester, Connecticut

File Name : 18222
Site Code : 18222
Start Date : 12/5/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

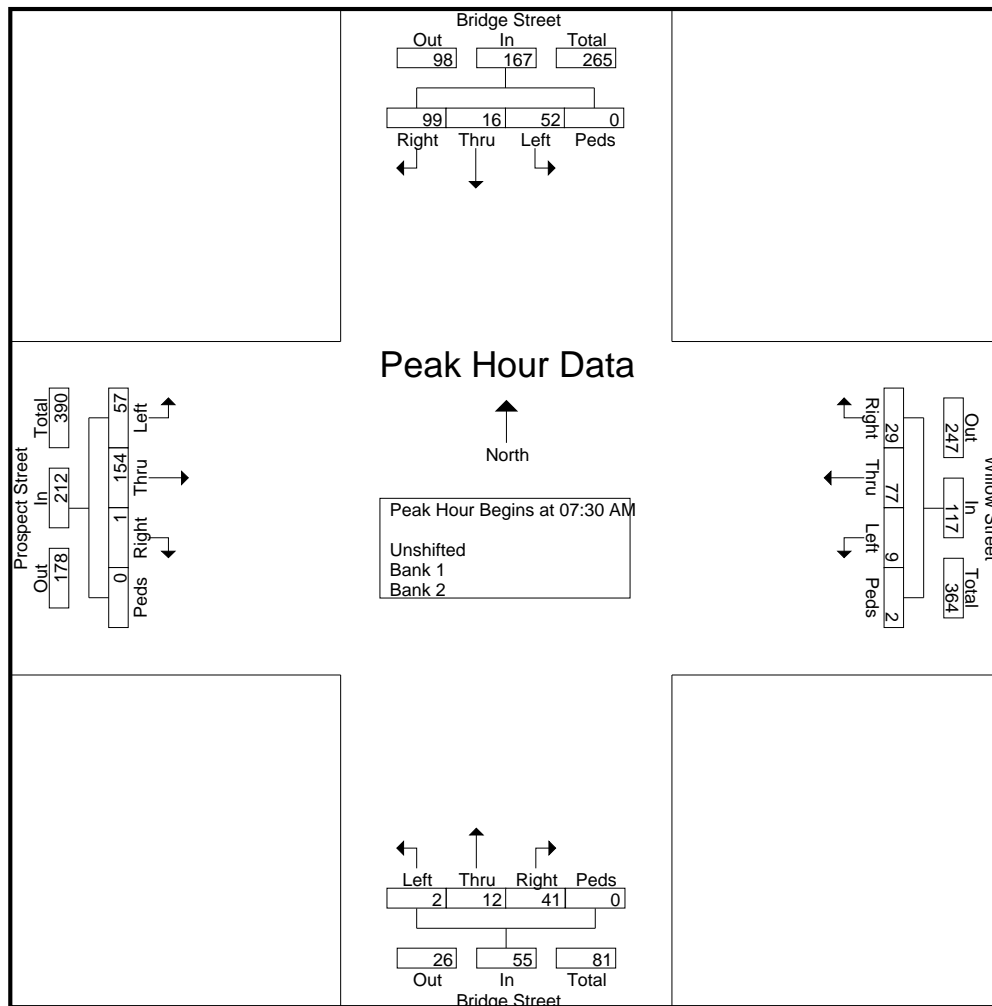
| | Bridge Street From North | | | | | Willow Street From East | | | | | Bridge Street From South | | | | | Prospect Street From West | | | | | |
|-------------|-----------------------------|------|------|------|------------|----------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|------------------------------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| 07:00 AM | 10 | 0 | 10 | 0 | 20 | 10 | 11 | 0 | 0 | 21 | 4 | 2 | 0 | 0 | 6 | 0 | 34 | 4 | 0 | 38 | 85 |
| 07:15 AM | 11 | 2 | 10 | 0 | 23 | 15 | 13 | 1 | 0 | 29 | 6 | 3 | 1 | 0 | 10 | 0 | 31 | 11 | 0 | 42 | 104 |
| 07:30 AM | 11 | 4 | 14 | 0 | 29 | 13 | 13 | 1 | 0 | 27 | 13 | 4 | 0 | 0 | 17 | 1 | 40 | 8 | 0 | 49 | 122 |
| 07:45 AM | 25 | 1 | 16 | 0 | 42 | 8 | 22 | 2 | 0 | 32 | 9 | 3 | 0 | 0 | 12 | 0 | 28 | 7 | 0 | 35 | 121 |
| Total | 57 | 7 | 50 | 0 | 114 | 46 | 59 | 4 | 0 | 109 | 32 | 12 | 1 | 0 | 45 | 1 | 133 | 30 | 0 | 164 | 432 |
| 08:00 AM | 27 | 4 | 5 | 0 | 36 | 7 | 17 | 4 | 2 | 30 | 12 | 2 | 2 | 0 | 16 | 0 | 46 | 24 | 0 | 70 | 152 |
| 08:15 AM | 36 | 7 | 17 | 0 | 60 | 1 | 25 | 2 | 0 | 28 | 7 | 3 | 0 | 0 | 10 | 0 | 40 | 18 | 0 | 58 | 156 |
| 08:30 AM | 16 | 3 | 7 | 0 | 26 | 5 | 13 | 0 | 0 | 18 | 3 | 3 | 0 | 0 | 6 | 0 | 27 | 18 | 0 | 45 | 95 |
| 08:45 AM | 16 | 2 | 8 | 0 | 26 | 6 | 14 | 0 | 0 | 20 | 4 | 5 | 0 | 0 | 9 | 0 | 46 | 15 | 0 | 61 | 116 |
| Total | 95 | 16 | 37 | 0 | 148 | 19 | 69 | 6 | 2 | 96 | 26 | 13 | 2 | 0 | 41 | 0 | 159 | 75 | 0 | 234 | 519 |
| Grand Total | 152 | 23 | 87 | 0 | 262 | 65 | 128 | 10 | 2 | 205 | 58 | 25 | 3 | 0 | 86 | 1 | 292 | 105 | 0 | 398 | 951 |
| Apprch % | 58 | 8.8 | 33.2 | 0 | | 31.7 | 62.4 | 4.9 | 1 | | 67.4 | 29.1 | 3.5 | 0 | | 0.3 | 73.4 | 26.4 | 0 | | |
| Total % | 16 | 2.4 | 9.1 | 0 | 27.5 | 6.8 | 13.5 | 1.1 | 0.2 | 21.6 | 6.1 | 2.6 | 0.3 | 0 | 9 | 0.1 | 30.7 | 11 | 0 | 41.9 | |
| Unshifted | 140 | 22 | 77 | 0 | 239 | 54 | 122 | 10 | 2 | 188 | 58 | 25 | 2 | 0 | 85 | 1 | 280 | 100 | 0 | 381 | 893 |
| % Unshifted | | | | | | | | | | | | | | | | | | | | | |
| Bank 1 | 0 | 0 | 2 | 0 | 2 | 6 | 4 | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 14 |
| % Bank 1 | 0 | 0 | 2.3 | 0 | 0.8 | 9.2 | 3.1 | 0 | 0 | 4.9 | 0 | 0 | 0 | 0 | 0 | 0 | 0.7 | 0 | 0 | 0.5 | 1.5 |
| Bank 2 | 12 | 1 | 8 | 0 | 21 | 5 | 2 | 0 | 0 | 7 | 0 | 0 | 1 | 0 | 1 | 0 | 10 | 5 | 0 | 15 | 44 |
| % Bank 2 | 7.9 | 4.3 | 9.2 | 0 | 8 | 7.7 | 1.6 | 0 | 0 | 3.4 | 0 | 0 | 33.3 | 0 | 1.2 | 0 | 3.4 | 4.8 | 0 | 3.8 | 4.6 |

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File Name : 18222
Site Code : 18222
Start Date : 12/5/2018
Page No : 2

| | Bridge Street From North | | | | | Willow Street From East | | | | | Bridge Street From South | | | | | Prospect Street From West | | | | | |
|--|-----------------------------|------|------|------|------------|----------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|------------------------------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:30 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:30 AM | 11 | 4 | 14 | 0 | 29 | 13 | 13 | 1 | 0 | 27 | 13 | 4 | 0 | 0 | 17 | 1 | 40 | 8 | 0 | 49 | 122 |
| 07:45 AM | 25 | 1 | 16 | 0 | 42 | 8 | 22 | 2 | 0 | 32 | 9 | 3 | 0 | 0 | 12 | 0 | 28 | 7 | 0 | 35 | 121 |
| 08:00 AM | 27 | 4 | 5 | 0 | 36 | 7 | 17 | 4 | 2 | 30 | 12 | 2 | 2 | 0 | 16 | 0 | 46 | 24 | 0 | 70 | 152 |
| 08:15 AM | 36 | 7 | 17 | 0 | 60 | 1 | 25 | 2 | 0 | 28 | 7 | 3 | 0 | 0 | 10 | 0 | 40 | 18 | 0 | 58 | 156 |
| Total Volume | 99 | 16 | 52 | 0 | 167 | 29 | 77 | 9 | 2 | 117 | 41 | 12 | 2 | 0 | 55 | 1 | 154 | 57 | 0 | 212 | 551 |
| % App. Total | 59.3 | 9.6 | 31.1 | 0 | | 24.8 | 65.8 | 7.7 | 1.7 | | 74.5 | 21.8 | 3.6 | 0 | | 0.5 | 72.6 | 26.9 | 0 | | |
| PHF | .688 | .571 | .765 | .000 | .696 | .558 | .770 | .563 | .250 | .914 | .788 | .750 | .250 | .000 | .809 | .250 | .837 | .594 | .000 | .757 | .883 |



Connecticut Counts LLC

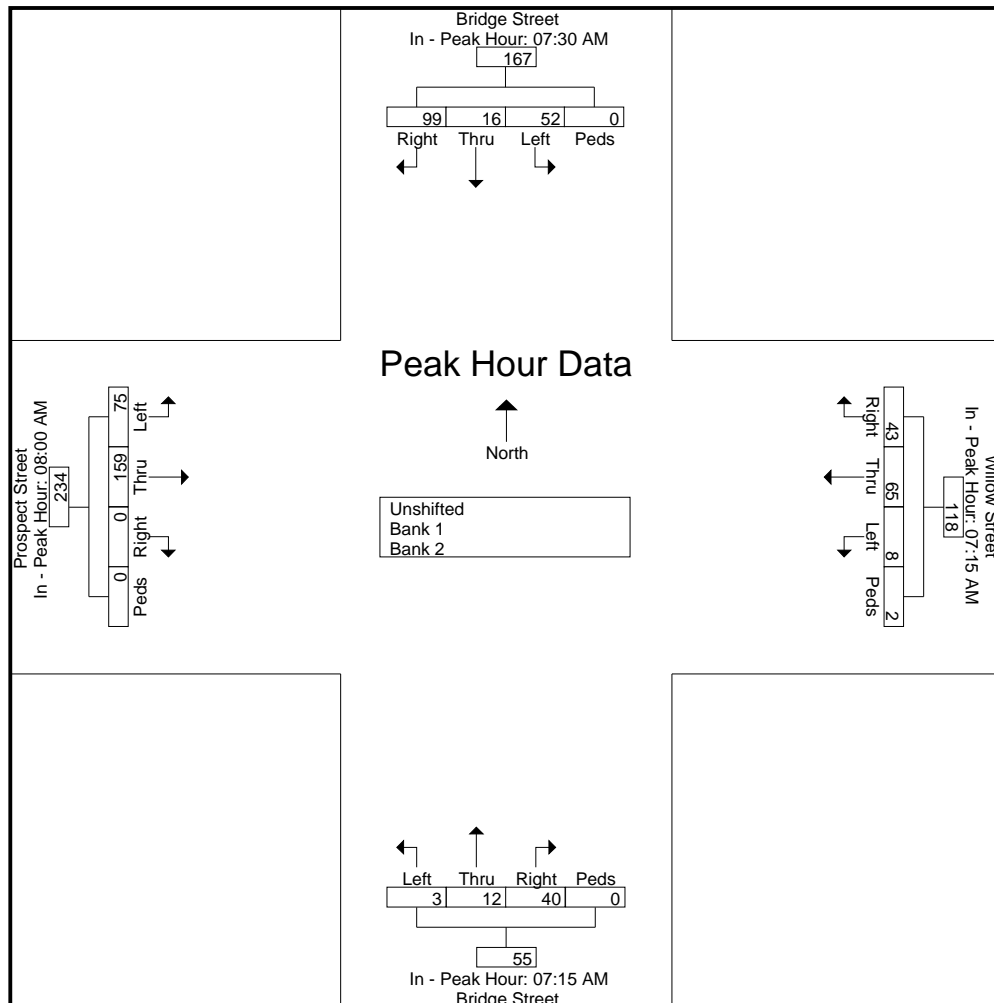
Kensington, Connecticut 06037
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File Name : 18222
Site Code : 18222
Start Date : 12/5/2018
Page No : 3

| | Bridge Street From North | | | | | Willow Street From East | | | | | Bridge Street From South | | | | | Prospect Street From West | | | | | |
|---------------|-----------------------------|------|------|------|------------|----------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|------------------------------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

| | 07:30 AM | | | | | 07:15 AM | | | | | 07:15 AM | | | | | 08:00 AM | | | | | |
|--------------|----------|------|------|------|------|----------|------|------|------|------|----------|------|------|------|------|----------|------|------|------|------|--|
| +0 mins. | 11 | 4 | 14 | 0 | 29 | 15 | 13 | 1 | 0 | 29 | 6 | 3 | 1 | 0 | 10 | 0 | 46 | 24 | 0 | 70 | |
| +15 mins. | 25 | 1 | 16 | 0 | 42 | 13 | 13 | 1 | 0 | 27 | 13 | 4 | 0 | 0 | 17 | 0 | 40 | 18 | 0 | 58 | |
| +30 mins. | 27 | 4 | 5 | 0 | 36 | 8 | 22 | 2 | 0 | 32 | 9 | 3 | 0 | 0 | 12 | 0 | 27 | 18 | 0 | 45 | |
| +45 mins. | 36 | 7 | 17 | 0 | 60 | 7 | 17 | 4 | 2 | 30 | 12 | 2 | 2 | 0 | 16 | 0 | 46 | 15 | 0 | 61 | |
| Total Volume | 99 | 16 | 52 | 0 | 167 | 43 | 65 | 8 | 2 | 118 | 40 | 12 | 3 | 0 | 55 | 0 | 159 | 75 | 0 | 234 | |
| % App. Total | 59.3 | 9.6 | 31.1 | 0 | | 36.4 | 55.1 | 6.8 | 1.7 | | 72.7 | 21.8 | 5.5 | 0 | | 0 | 67.9 | 32.1 | 0 | | |
| PHF | .688 | .571 | .765 | .000 | .696 | .717 | .739 | .500 | .250 | .922 | .769 | .750 | .375 | .000 | .809 | .000 | .864 | .781 | .000 | .836 | |



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Bridge Street at Prospect St/Willow St Winchester, Connecticut

File Name : 18223
Site Code : 18223
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Groups Printed- Unshifted - Bank 1 - Bank 2

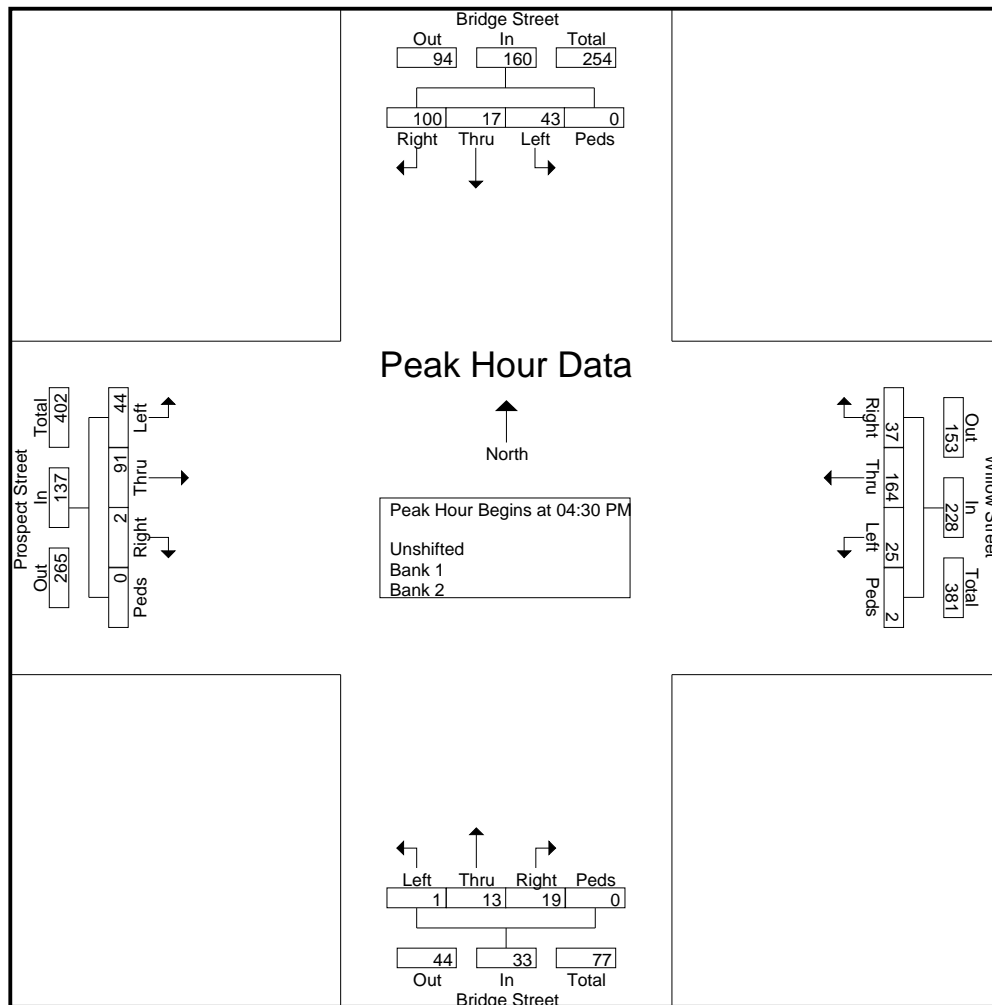
[illegible]

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File Name : 18223
Site Code : 18223
Start Date : 12/5/2018
Page No : 2

| | Bridge Street From North | | | | | Willow Street From East | | | | | Bridge Street From South | | | | | Prospect Street From West | | | | | |
|--|-----------------------------|------|------|------|------------|----------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|------------------------------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:30 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:30 PM | 29 | 4 | 14 | 0 | 47 | 8 | 47 | 7 | 0 | 62 | 2 | 4 | 1 | 0 | 7 | 0 | 25 | 12 | 0 | 37 | 153 |
| 04:45 PM | 18 | 7 | 12 | 0 | 37 | 10 | 44 | 11 | 1 | 66 | 2 | 2 | 0 | 0 | 4 | 0 | 25 | 11 | 0 | 36 | 143 |
| 05:00 PM | 20 | 4 | 11 | 0 | 35 | 12 | 39 | 4 | 0 | 55 | 15 | 6 | 0 | 0 | 21 | 1 | 18 | 11 | 0 | 30 | 141 |
| 05:15 PM | 33 | 2 | 6 | 0 | 41 | 7 | 34 | 3 | 1 | 45 | 0 | 1 | 0 | 0 | 1 | 1 | 23 | 10 | 0 | 34 | 121 |
| Total Volume | 100 | 17 | 43 | 0 | 160 | 37 | 164 | 25 | 2 | 228 | 19 | 13 | 1 | 0 | 33 | 2 | 91 | 44 | 0 | 137 | 558 |
| % App. Total | 62.5 | 10.6 | 26.9 | 0 | | 16.2 | 71.9 | 11 | 0.9 | | 57.6 | 39.4 | 3 | 0 | | 1.5 | 66.4 | 32.1 | 0 | | |
| PHF | .758 | .607 | .768 | .000 | .851 | .771 | .872 | .568 | .500 | .864 | .317 | .542 | .250 | .000 | .393 | .500 | .910 | .917 | .000 | .926 | .912 |



Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

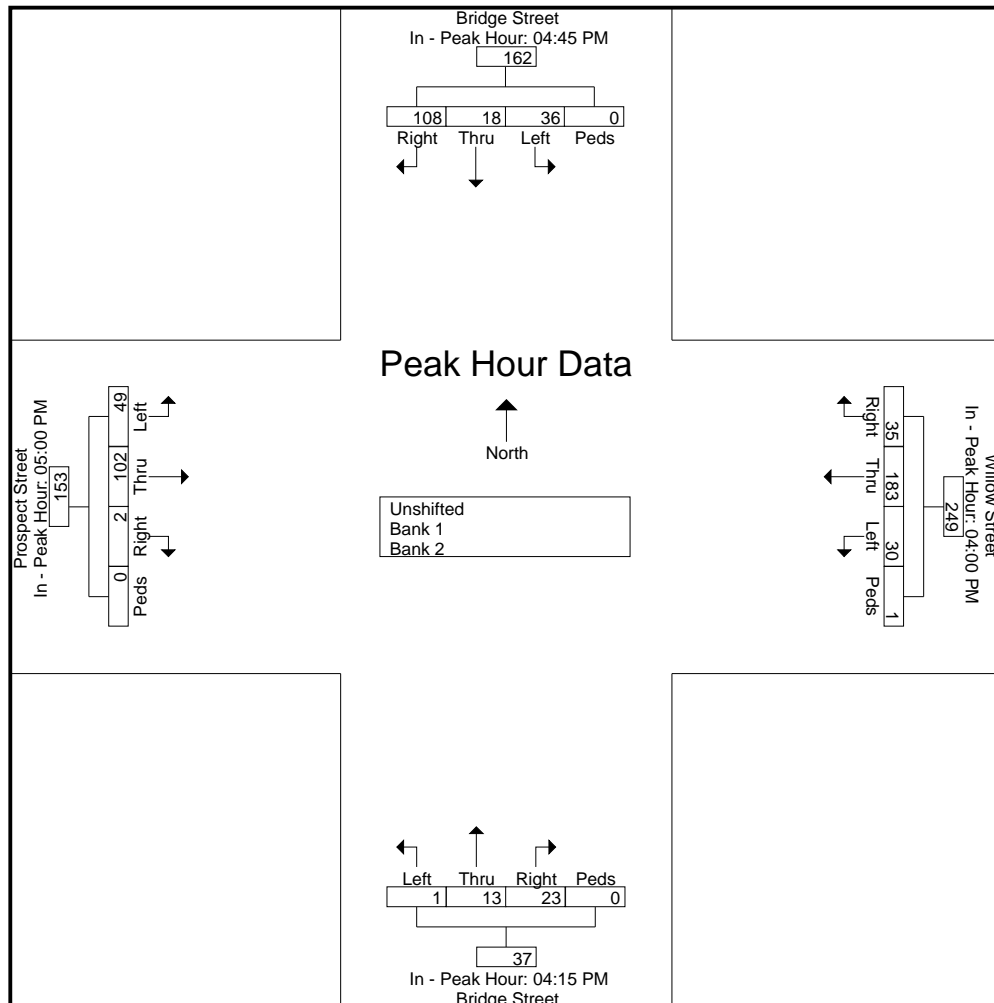
File Name : 18223
Site Code : 18223
Start Date : 12/5/2018
Page No : 3

| | Bridge Street From North | | | | | Willow Street From East | | | | | Bridge Street From South | | | | | Prospect Street From West | | | | | |
|------------|-----------------------------|------|------|------|------------|----------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|------------------------------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 04:45 PM | | | | | 04:00 PM | | | | | 04:15 PM | | | | | 05:00 PM | | | | |
|--------------|----------|------|------|------|------|----------|------|------|------|------|----------|------|------|------|------|----------|------|------|------|------|
| +0 mins. | 18 | 7 | 12 | 0 | 37 | 13 | 46 | 8 | 0 | 67 | 4 | 1 | 0 | 0 | 5 | 1 | 18 | 11 | 0 | 30 |
| +15 mins. | 20 | 4 | 11 | 0 | 35 | 4 | 46 | 4 | 0 | 54 | 2 | 4 | 1 | 0 | 7 | 1 | 23 | 10 | 0 | 34 |
| +30 mins. | 33 | 2 | 6 | 0 | 41 | 8 | 47 | 7 | 0 | 62 | 2 | 2 | 0 | 0 | 4 | 0 | 36 | 15 | 0 | 51 |
| +45 mins. | 37 | 5 | 7 | 0 | 49 | 10 | 44 | 11 | 1 | 66 | 15 | 6 | 0 | 0 | 21 | 0 | 25 | 13 | 0 | 38 |
| Total Volume | 108 | 18 | 36 | 0 | 162 | 35 | 183 | 30 | 1 | 249 | 23 | 13 | 1 | 0 | 37 | 2 | 102 | 49 | 0 | 153 |
| % App. Total | 66.7 | 11.1 | 22.2 | 0 | | 14.1 | 73.5 | 12 | 0.4 | | 62.2 | 35.1 | 2.7 | 0 | | 1.3 | 66.7 | 32 | 0 | |
| PHF | .730 | .643 | .750 | .000 | .827 | .673 | .973 | .682 | .250 | .929 | .383 | .542 | .250 | .000 | .440 | .500 | .708 | .817 | .000 | .750 |



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Bridge Street at Depot Street Winchester, Connecticut

File Name : 18224
Site Code : 18224
Start Date : 12/5/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

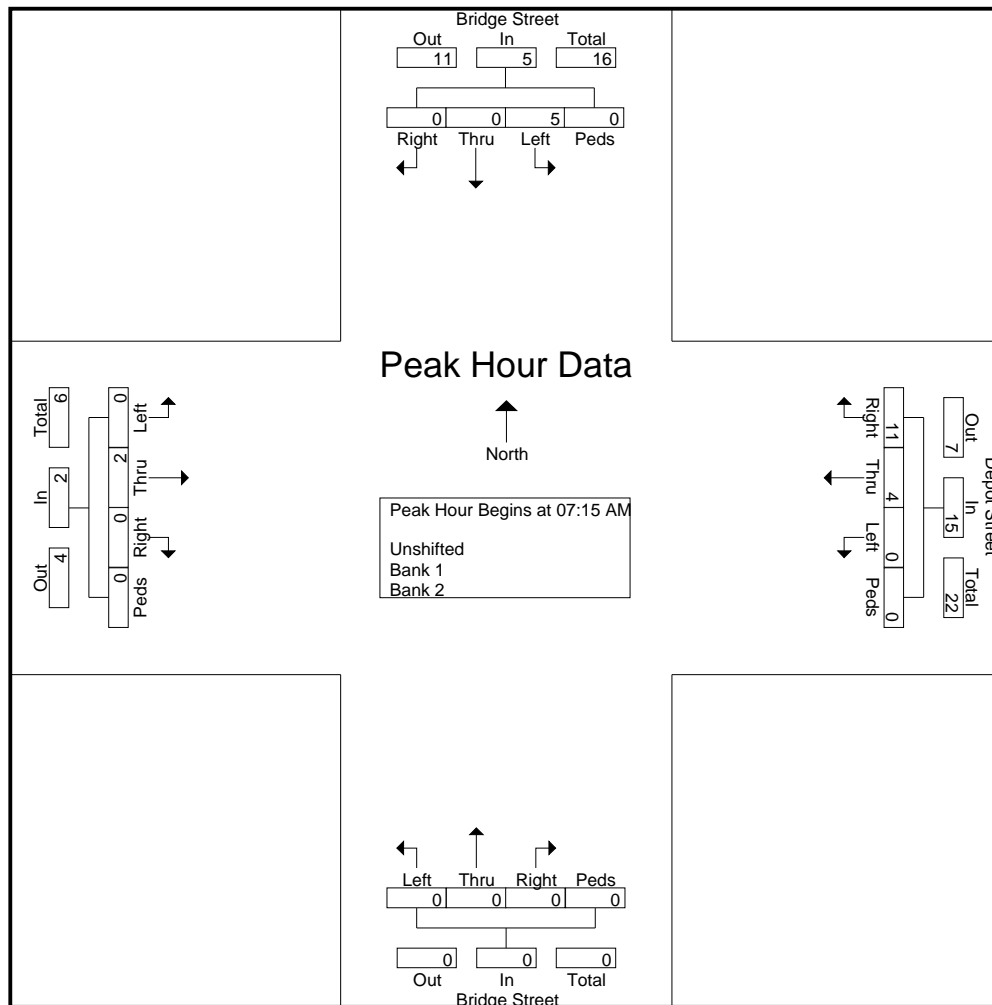
[illegible]

Connecticut Counts LLC

Kensington, Connecticut 06037
(860) 828-1693

File Name : 18224
Site Code : 18224
Start Date : 12/5/2018
Page No : 2

| | Bridge Street From North | | | | | Depot Street From East | | | | | Bridge Street From South | | | | | From West | | | | | |
|--|-----------------------------|------|------|------|------------|---------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|-----------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 07:15 AM | | | | | | | | | | | | | | | | | | | | | |
| 07:15 AM | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 5 |
| 07:30 AM | 0 | 0 | 2 | 0 | 2 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 |
| 07:45 AM | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| 08:00 AM | 0 | 0 | 2 | 0 | 2 | 5 | 3 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 11 |
| Total Volume | 0 | 0 | 5 | 0 | 5 | 11 | 4 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 22 |
| % App. Total | 0 | 0 | 100 | 0 | | 73.3 | 26.7 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 100 | 0 | 0 | | |
| PHF | .000 | .000 | .625 | .000 | .625 | .550 | .333 | .000 | .000 | .469 | .000 | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .000 | .500 | .500 |



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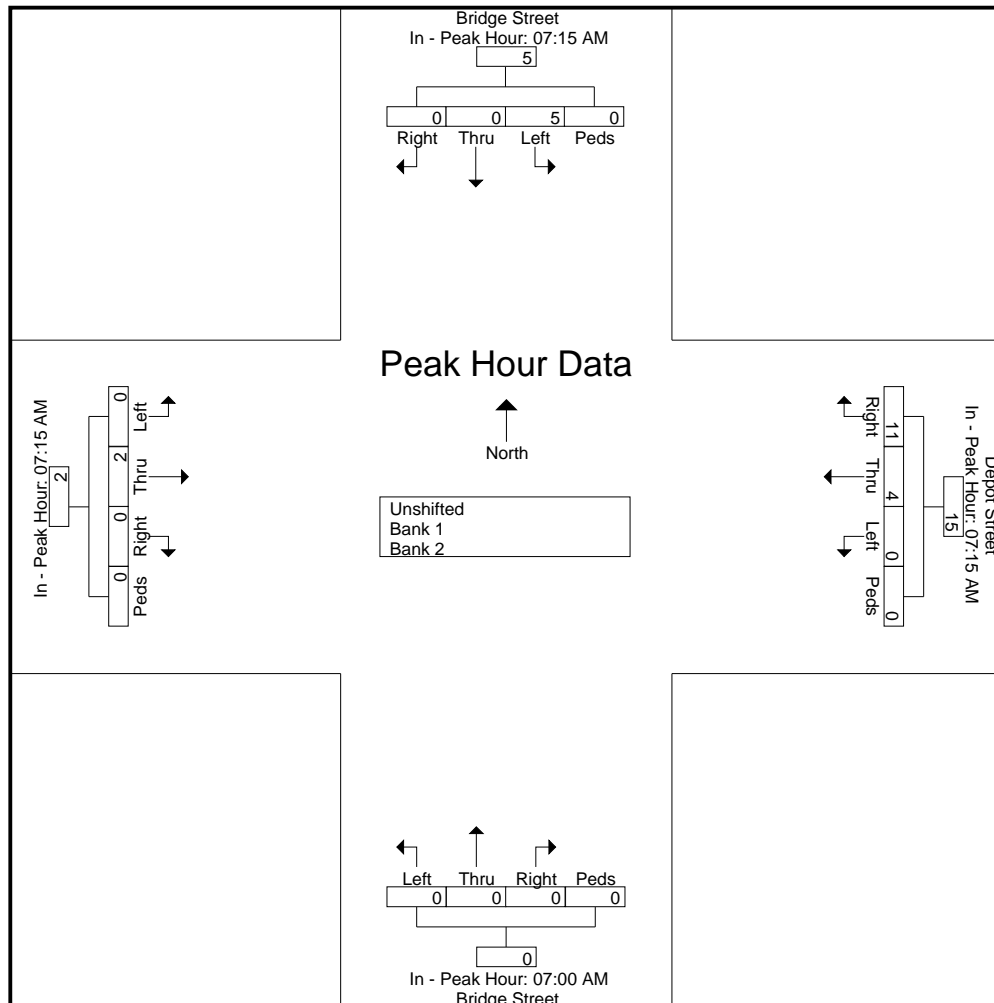
File Name : 18224
Site Code : 18224
Start Date : 12/5/2018
Page No : 3

| | Bridge Street From North | | | | | Depot Street From East | | | | | Bridge Street From South | | | | | From West | | | | | |
|------------|-----------------------------|------|------|------|------------|---------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|-----------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1

Peak Hour for Each Approach Begins at:

| | 07:15 AM | | | | | 07:15 AM | | | | | 07:00 AM | | | | | 07:15 AM | | | | |
|--------------|----------|------|------|------|------|----------|------|------|------|------|----------|------|------|------|------|----------|------|------|------|------|
| +0 mins. | 0 | 0 | 1 | 0 | 1 | 2 | 1 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| +15 mins. | 0 | 0 | 2 | 0 | 2 | 3 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +30 mins. | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +45 mins. | 0 | 0 | 2 | 0 | 2 | 5 | 3 | 0 | 0 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| Total Volume | 0 | 0 | 5 | 0 | 5 | 11 | 4 | 0 | 0 | 15 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 |
| % App. Total | 0 | 0 | 100 | 0 | | 73.3 | 26.7 | 0 | 0 | | 0 | 0 | 0 | 0 | 0 | | 100 | 0 | 0 | |
| PHF | .000 | .000 | .625 | .000 | .625 | .550 | .333 | .000 | .000 | .469 | .000 | .000 | .000 | .000 | .000 | .000 | .500 | .000 | .000 | .500 |



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Bridge Street at Depot Street
Winchester, Connecticut

File Name : 18225
Site Code : 18225
Start Date : 12/5/2018
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

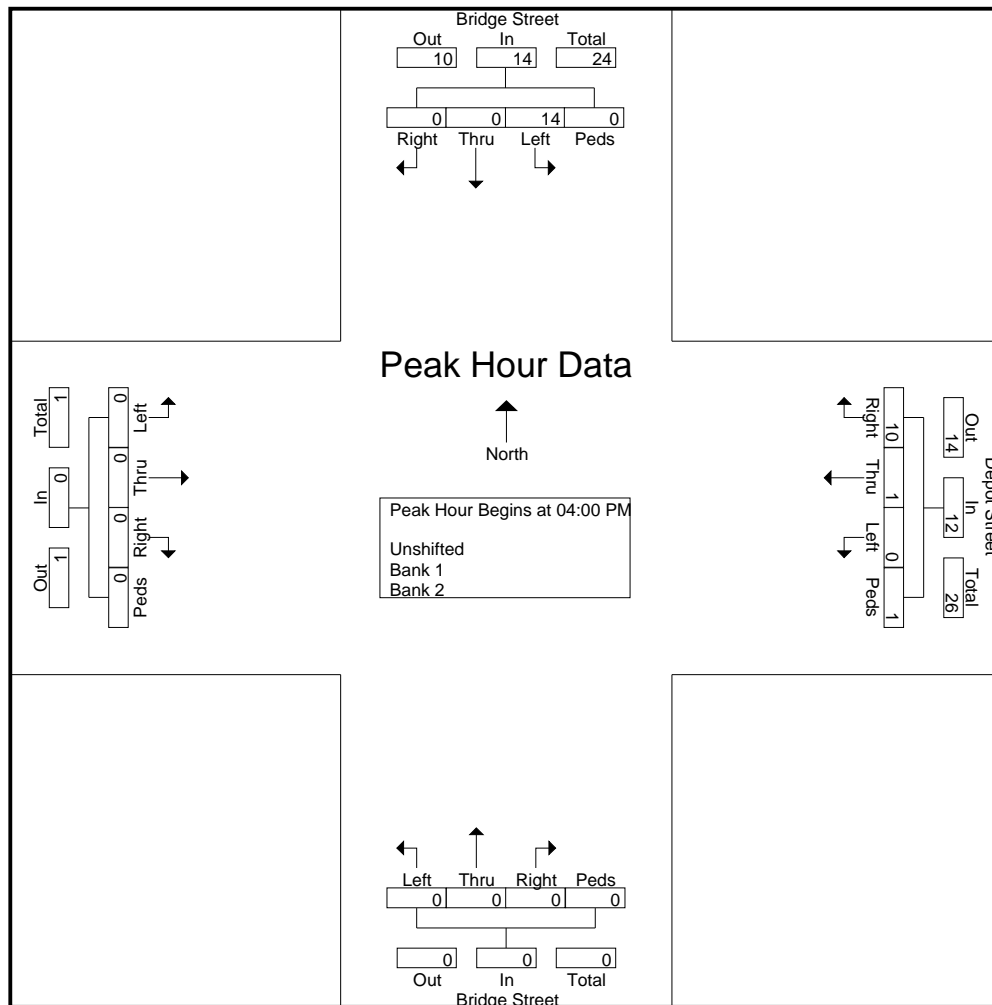
[illegible]

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Kensington, Connecticut 06037
(860) 828-1693

File Name : 18225
Site Code : 18225
Start Date : 12/5/2018
Page No : 2

| | Bridge Street From North | | | | | Depot Street From East | | | | | Bridge Street From South | | | | | From West | | | | | |
|--|-----------------------------|------|------|------|------------|---------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|-----------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |
| Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1 | | | | | | | | | | | | | | | | | | | | | |
| Peak Hour for Entire Intersection Begins at 04:00 PM | | | | | | | | | | | | | | | | | | | | | |
| 04:00 PM | 0 | 0 | 4 | 0 | 4 | 3 | 1 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 04:15 PM | 0 | 0 | 3 | 0 | 3 | 4 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 |
| 04:30 PM | 0 | 0 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 |
| 04:45 PM | 0 | 0 | 5 | 0 | 5 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 |
| Total Volume | 0 | 0 | 14 | 0 | 14 | 10 | 1 | 0 | 1 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 26 |
| % App. Total | 0 | 0 | 100 | 0 | | 83.3 | 8.3 | 0 | 8.3 | | 0 | 0 | 0 | 0 | 0 | | 0 | 0 | 0 | 0 | |
| PHF | .000 | .000 | .700 | .000 | .700 | .625 | .250 | .000 | .250 | .600 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .000 | .813 |



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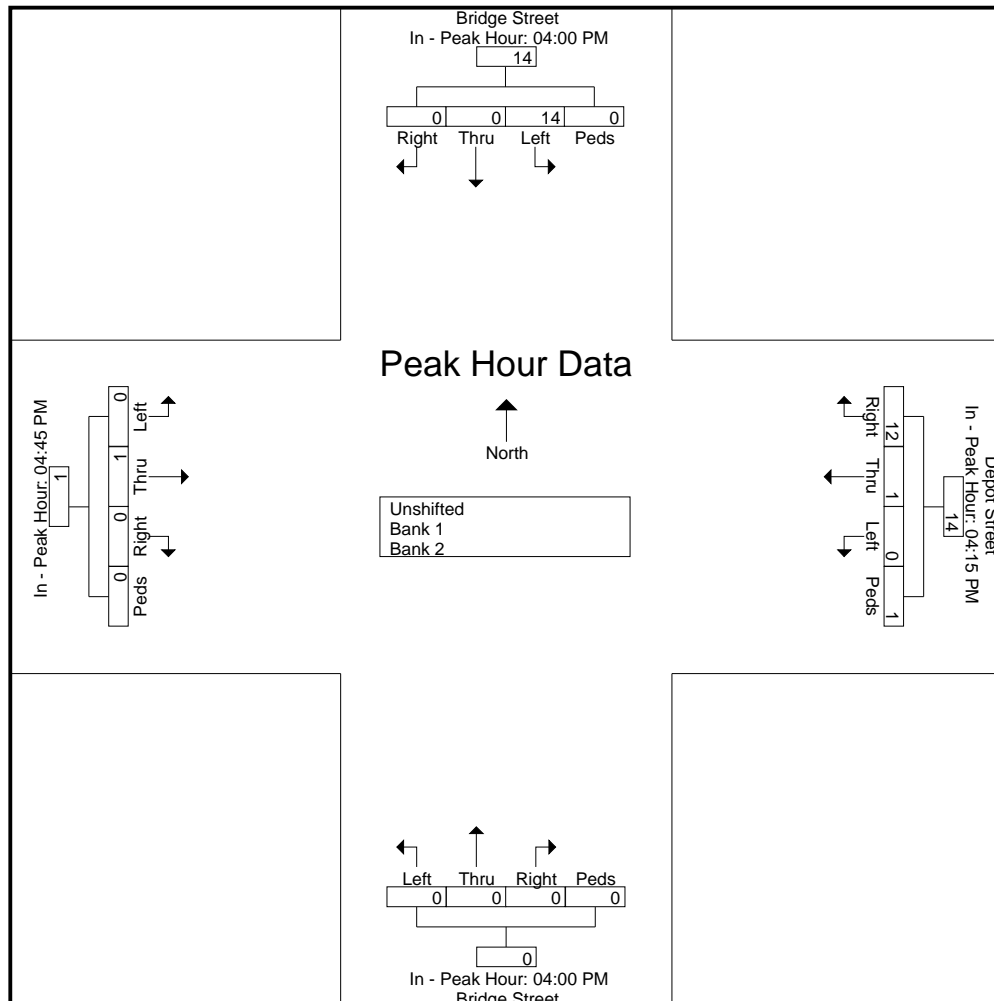
File Name : 18225
Site Code : 18225
Start Date : 12/5/2018
Page No : 3

| | Bridge Street From North | | | | | Depot Street From East | | | | | Bridge Street From South | | | | | From West | | | | | |
|------------|-----------------------------|------|------|------|------------|---------------------------|------|------|------|------------|-----------------------------|------|------|------|------------|-----------|------|------|------|------------|------------|
| Start Time | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Right | Thru | Left | Peds | App. Total | Int. Total |

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1

Peak Hour for Each Approach Begins at:





| | 04:00 PM | | | | | 04:15 PM | | | | | 04:00 PM | | | | | 04:45 PM | | | | | |
|--------------|----------|------|------|------|------|----------|------|------|------|------|----------|------|------|------|------|----------|------|------|------|------|---|
| +0 mins. | 0 | 0 | 4 | 0 | 4 | 4 | 0 | 0 | 1 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +15 mins. | 0 | 0 | 3 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +30 mins. | 0 | 0 | 2 | 0 | 2 | 2 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| +45 mins. | 0 | 0 | 5 | 0 | 5 | 5 | 1 | 0 | 0 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| Total Volume | 0 | 0 | 14 | 0 | 14 | 12 | 1 | 0 | 1 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 |
| % App. Total | 0 | 0 | 100 | 0 | | 85.7 | 7.1 | 0 | 7.1 | | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 0 | 0 | | |
| PHF | .000 | .000 | .700 | .000 | .700 | .600 | .250 | .000 | .250 | .583 | .000 | .000 | .000 | .000 | .000 | .000 | .250 | .000 | .000 | .250 | |






Intersection Capacity Analysis

HCM 2010 TWSC
3: Bridge Street & Prospect Street/Depot Street

Existing AM
01/25/2019

| Intersection | | | | | | | | | | | | |
|--------------------------|--------|---|--------|------------|---|--------|-------|---|--------|-------|---|------|
| Int Delay, s/veh | 6 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Vol, veh/h | 211 | 2 | 1 | 0 | 4 | 11 | 2 | 42 | 0 | 5 | 20 | 176 |
| Future Vol, veh/h | 211 | 2 | 1 | 0 | 4 | 11 | 2 | 42 | 0 | 5 | 20 | 176 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 84 | 84 | 84 | 47 | 47 | 47 | 81 | 81 | 81 | 70 | 70 | 70 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 251 | 2 | 1 | 0 | 9 | 23 | 2 | 52 | 0 | 7 | 29 | 251 |
| | | | | | | | | | | | | |
| Major/Minor | Minor2 | | Minor1 | | | Major1 | | | Major2 | | | |
| Conflicting Flow All | 241 | 225 | 155 | 226 | 350 | 52 | 280 | 0 | 0 | 52 | 0 | 0 |
| Stage 1 | 169 | 169 | - | 56 | 56 | - | - | - | - | - | - | - |
| Stage 2 | 72 | 56 | - | 170 | 294 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 713 | 674 | 891 | 729 | 574 | 1016 | 1283 | - | - | 1554 | - | - |
| Stage 1 | 833 | 759 | - | 956 | 848 | - | - | - | - | - | - | - |
| Stage 2 | 938 | 848 | - | 832 | 670 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | | - | - |
| Mov Cap-1 Maneuver | 684 | 669 | 891 | 722 | 569 | 1016 | 1283 | - | - | 1554 | - | - |
| Mov Cap-2 Maneuver | 684 | 669 | - | 722 | 569 | - | - | - | - | - | - | - |
| Stage 1 | 831 | 754 | - | 954 | 846 | - | - | - | - | - | - | - |
| Stage 2 | 905 | 846 | - | 823 | 666 | - | - | - | - | - | - | - |
| | | | | | | | | | | | | |
| Approach | EB | | WB | | | NB | | | SB | | | |
| HCM Control Delay, s | 13.3 | | 9.5 | | | 0.4 | | | 0.2 | | | |
| HCM LOS | B | | A | | | | | | | | | |
| | | | | | | | | | | | | |
| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR | | | | | |
| Capacity (veh/h) | 1283 | - | - | 685 | 840 | 1554 | - | - | | | | |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.372 | 0.038 | 0.005 | - | - | | | | |
| HCM Control Delay (s) | 7.8 | 0 | - | 13.3 | 9.5 | 7.3 | 0 | - | | | | |
| HCM Lane LOS | A | A | - | B | A | A | A | - | | | | |
| HCM 95th %tile Q(veh) | 0 | - | - | 1.7 | 0.1 | 0 | - | - | | | | |

| Intersection | | | | | | |
|--------------------------|---|----------|---|------|-------|---|
| Int Delay, s/veh | 3.3 | | | | | |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Vol, veh/h | 86 | 29 | 69 | 195 | 52 | 125 |
| Future Vol, veh/h | 86 | 29 | 69 | 195 | 52 | 125 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 92 | 92 | 81 | 81 | 70 | 70 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 93 | 32 | 85 | 241 | 74 | 179 |
| Major/Minor | Minor1 | Major1 | Major2 | | | |
| Conflicting Flow All | 533 | 206 | 0 | 0 | 326 | 0 |
| Stage 1 | 206 | - | - | - | - | - |
| Stage 2 | 327 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 507 | 835 | - | - | 1234 | - |
| Stage 1 | 829 | - | - | - | - | - |
| Stage 2 | 731 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 473 | 835 | - | - | 1234 | - |
| Mov Cap-2 Maneuver | 473 | - | - | - | - | - |
| Stage 1 | 829 | - | - | - | - | - |
| Stage 2 | 682 | - | - | - | - | - |
| Approach | WB | NB | SB | | | |
| HCM Control Delay, s | 13.9 | 0 | 2.4 | | | |
| HCM LOS | B | | | | | |
| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL | SBT | | |
| Capacity (veh/h) | - | - | 531 | 1234 | - | |
| HCM Lane V/C Ratio | - | - | 0.235 | 0.06 | - | |
| HCM Control Delay (s) | - | - | 13.9 | 8.1 | 0 | |
| HCM Lane LOS | - | - | B | A | A | |
| HCM 95th %tile Q(veh) | - | - | 0.9 | 0.2 | - | |

HCM 2010 TWSC
3: Bridge Street & Prospect Street/Depot Street




Existing PM
01/25/2019

| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|------|------|
| Int Delay, s/veh | 3.8 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↕ | | | ↕ | | | ↕ | | | ↕ | |
| Traffic Vol, veh/h | 135 | 1 | 2 | 0 | 4 | 11 | 1 | 20 | 0 | 14 | 28 | 264 |
| Future Vol, veh/h | 135 | 1 | 2 | 0 | 4 | 11 | 1 | 20 | 0 | 14 | 28 | 264 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Stop | Stop | Stop | Stop | Free | Free | Free | Free | Free | Free |
| RT Channelized | - | - | None | - | - | None | - | - | None | - | - | None |
| Storage Length | - | - | - | - | - | - | - | - | - | - | - | - |
| Veh in Median Storage, # | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 93 | 93 | 93 | 60 | 60 | 60 | 39 | 39 | 39 | 85 | 85 | 85 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 145 | 1 | 2 | 0 | 7 | 18 | 3 | 51 | 0 | 16 | 33 | 311 |

| Major/Minor | Minor2 | | Minor1 | | Major1 | | Major2 | | | | | |
|----------------------|--------|-------|--------|-------|--------|-------|--------|---|---|-------|---|---|
| Conflicting Flow All | 291 | 278 | 189 | 279 | 433 | 51 | 344 | 0 | 0 | 51 | 0 | 0 |
| Stage 1 | 221 | 221 | - | 57 | 57 | - | - | - | - | - | - | - |
| Stage 2 | 70 | 57 | - | 222 | 376 | - | - | - | - | - | - | - |
| Critical Hdwy | 7.12 | 6.52 | 6.22 | 7.12 | 6.52 | 6.22 | 4.12 | - | - | 4.12 | - | - |
| Critical Hdwy Stg 1 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Critical Hdwy Stg 2 | 6.12 | 5.52 | - | 6.12 | 5.52 | - | - | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 4.018 | 3.318 | 3.518 | 4.018 | 3.318 | 2.218 | - | - | 2.218 | - | - |
| Pot Cap-1 Maneuver | 661 | 630 | 853 | 673 | 516 | 1017 | 1215 | - | - | 1555 | - | - |
| Stage 1 | 781 | 720 | - | 955 | 847 | - | - | - | - | - | - | - |
| Stage 2 | 940 | 847 | - | 780 | 616 | - | - | - | - | - | - | - |
| Platoon blocked, % | | | | | | | | - | - | - | - | - |
| Mov Cap-1 Maneuver | 635 | 620 | 853 | 662 | 508 | 1017 | 1215 | - | - | 1555 | - | - |
| Mov Cap-2 Maneuver | 635 | 620 | - | 662 | 508 | - | - | - | - | - | - | - |
| Stage 1 | 779 | 711 | - | 952 | 844 | - | - | - | - | - | - | - |
| Stage 2 | 913 | 844 | - | 767 | 608 | - | - | - | - | - | - | - |

| Approach | EB | | WB | | NB | | SB | |
|----------------------|------|--|-----|--|-----|--|-----|--|
| HCM Control Delay, s | 12.4 | | 9.6 | | 0.4 | | 0.3 | |
| HCM LOS | B | | A | | | | | |

| Minor Lane/Major Mvmt | NBL | NBT | NBR | EBLn1WBLn1 | SBL | SBT | SBR |
|-----------------------|-------|-----|-----|-------------|-------|-----|-----|
| Capacity (veh/h) | 1215 | - | - | 637 803 | 1555 | - | - |
| HCM Lane V/C Ratio | 0.002 | - | - | 0.233 0.031 | 0.011 | - | - |
| HCM Control Delay (s) | 8 | 0 | - | 12.4 9.6 | 7.3 | 0 | - |
| HCM Lane LOS | A | A | - | B A | A A | A | - |
| HCM 95th %tile Q(veh) | 0 | - | - | 0.9 0.1 | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|---|----------|---|-------|-------|---|
| Int Delay, s/veh | 6.1 | | | | | |
| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
| Lane Configurations |  | |  | | |  |
| Traffic Vol, veh/h | 189 | 37 | 57 | 110 | 43 | 117 |
| Future Vol, veh/h | 189 | 37 | 57 | 110 | 43 | 117 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | 0 | - | - | 0 |
| Grade, % | 0 | - | 0 | - | - | 0 |
| Peak Hour Factor | 86 | 86 | 39 | 39 | 85 | 85 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 220 | 43 | 146 | 282 | 51 | 138 |
| Major/Minor | Minor1 | Major1 | Major2 | | | |
| Conflicting Flow All | 527 | 287 | 0 | 0 | 428 | 0 |
| Stage 1 | 287 | - | - | - | - | - |
| Stage 2 | 240 | - | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | - | - | 4.12 | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | - | - | 2.218 | - |
| Pot Cap-1 Maneuver | 512 | 752 | - | - | 1131 | - |
| Stage 1 | 762 | - | - | - | - | - |
| Stage 2 | 800 | - | - | - | - | - |
| Platoon blocked, % | | | - | - | | - |
| Mov Cap-1 Maneuver | 487 | 752 | - | - | 1131 | - |
| Mov Cap-2 Maneuver | 487 | - | - | - | - | - |
| Stage 1 | 762 | - | - | - | - | - |
| Stage 2 | 761 | - | - | - | - | - |
| Approach | WB | NB | SB | | | |
| HCM Control Delay, s | 18.9 | 0 | 2.2 | | | |
| HCM LOS | C | | | | | |
| Minor Lane/Major Mvmt | NBT | NBRWBLn1 | SBL | SBT | | |
| Capacity (veh/h) | - | - | 517 | 1131 | - | |
| HCM Lane V/C Ratio | - | - | 0.508 | 0.045 | - | |
| HCM Control Delay (s) | - | - | 18.9 | 8.3 | 0 | |
| HCM Lane LOS | - | - | C | A | A | |
| HCM 95th %tile Q(veh) | - | - | 2.8 | 0.1 | - | |