US 2 / CLAY POINT ROAD

Intersection Scoping Study Report

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Prepared for:
Chittenden County Regional Planning Commission

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US 2 / CLAY POINT ROAD INTERSECTION SCOPING STUDY

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Executive Summary

The intersection of US Route 2 and Clay Point Road in the Town of Colchester has notable safety issues for motorists. Two fatal crashes occurred - one in June 2022 and one July 2023. The Town and VTrans completed a Corridor Safety Review after the first fatal crash in 2022. At the request of the Town Selectboard, the State reduced the speed limit from 55 mph to 50 mph in October 2022. Chittenden County Regional Planning Commission (CCRPC) completed an intersection safety review in October 2023. After discussions over the course of 2024 among the Town, CCRPC, and VTrans, short term actions from the Corridor Safety and intersection safety review were initiated by the Town. These include increasing the size of stop signs on the minor road approaches, adding flashing red beacons to stop signs, pursuing splitter islands on the minor road approaches through a Section 1111 application, and initiating this scoping study. The Town of Colchester, in partnership with CCRPC, the Northwest Regional Planning Commission (NRPC), and VTrans, conducted this intersection scoping study to develop and evaluate a full suite of alternatives that improve safety and reduce crash risk. The study follows the VTrans project definition process and builds upon existing conditions, public input, and current and future land use patterns.

Alternatives were quantitatively evaluated using Federal Highway Administration (FHWA) crash reduction factors (CRFs) and the VTrans Intersection Control Evaluation (ICE) process and qualitatively evaluated on alignment with the project Purpose and Need. Public input, along with feedback from a Project Advisory Group consisting of representatives of CCRPC, NRPC, VTrans, and the Town, informed the refinement and further evaluation of alternatives prior to selecting a recommended option.

The selected preferred alternative is Alternative 3: Roundabout. This alternative includes replacing the existing stop-controlled intersection configuration with a modern single lane roundabout. Constructing a roundabout is expected to improve safety, reduce the frequency and severity of crashes, and reduce vehicle speeds through the intersection.

1 Introduction

The Town of Colchester, in partnership with the Chittenden County Regional Planning Commission (CCRPC), conducted an intersection scoping study of US 2 and Clay Point Road. Figure 1 shows the project study area outlined in red. The project team included representatives from the CCRPC, the Town of Colchester, and Stantec.

In addition to the scoping analysis, the project team completed the Vermont Agency of Transportation's Intersection Control Evaluation (ICE) process, which is intended to be completed concurrently with a scoping study, and provides a consistent approach for evaluating and comparing intersection control strategies. The Stage 1 and Stage 2 ICE analyses prepared for this project are included as supplemental materials in Appendices 1 and 2. Stage 1 provides an initial screening of feasible intersection control strategies following the VTrans ICE Guide, while Stage 2 offers a more detailed comparison of those alternatives through operational, safety, equity, environmental, and life cycle cost evaluations. These analyses were completed as part of VTrans' pilot implementation of the ICE process. Since submitting the ICE reports to VTrans, the project team has refined the alternatives based on feedback received from the public and VTrans, as well as additional analysis. These refinements are reflected in the main scoping report, while the original ICE documents remain unchanged in the appendices.

Figure 1: Project Area (Vermont Orthoimagery Finder, 2023)

2 Purpose and Need

The following statement was developed based on the existing conditions assessment, public input, and project advisory group discussions.

Purpose: The purpose of the US 2 / Clay Point Road Intersection Project is to develop short and long term alternatives that improve intersection safety while providing reasonable accommodations for all motorists and bicyclists.

Need: Recognizing the significance of this intersection in the transportation system for the Town of Colchester and surrounding communities, which are experiencing ongoing development, the following needs for the project have been identified:

1. *There is a need to reduce the frequency and severity of crashes.* Two fatal crashes occurred at this intersection in 2022 and 2023, understandably causing concern within the community as to the overall safety of the intersection. It is noted that some residents avoid using this intersection if possible.

2. *There is a need to address conflicting vehicular speeds along US 2 near the intersection.* Speeds on US 2 make it challenging for motorists on Clay Point Road to gauge acceptable gaps for safely turning onto or crossing US 2. This is complicated by population growth in neighboring Grand Isle County that utilizes US 2 to commute to Chittenden County for jobs, goods and services. Speeds on US 2 also affect vehicles turning left from US 2 onto Clay Point Road.

3. *There is a need to address intersection visibility.* Vehicles in the right turn jug handle lane can obstruct the view of through vehicles on US 2 for motorists stopped on Clay Point Road. The east-west alignment of US 2 leads to sun glare impacting visibility around sunset. There is currently no streetlighting in the vicinity of the intersection, reducing nighttime visibility at the intersection for all users.

3 Existing Plan and Study Review

Existing plans and studies reviewed for the preparation of this scoping study are listed and summarized below.

- Vermont Triennial Highway Safety Plan (2024-2026)
- Town of Colchester, Update on Safety at the State of Vermont Highway U.S. Route 2 & Clay Point Road Intersection (2025)
- US 2/Clay Point Road Intersection Safety Review (2023)
- VTrans Bicycle and Pedestrian Strategic Plan (2021)
- Colchester Town Plan (2019)
- 2040 Vermont Long-Range Transportation Plan (2018)

3.1 Vermont Triennial Highway Safety Plan (2024-2026)

The Vermont Triennial Highway Safety Plan (2024-2026) addresses several critical emphasis areas (CEAs) to improve safety by reducing major crashes. The following CEAs are emphasized in this scoping study for the US 2/Clay Point Road intersection:

- Speed and Aggressive Driving
- Intersections
- Lane Departures

3.2 Town of Colchester, Update on Safety at the State of Vermont Highway U.S. Route 2 & Clay Point Road Intersection (2025)

This memo summarizes the Town's requests to VTrans to improve safety at the US 2/Clay Point Road intersection and the outcomes of those requests. Actions implemented to date include a speed limit reduction approved in 2022 and the completion of a safety review of the US 2/Clay Point Road corridor. In addition, the Town has implemented safety improvements on Town-maintained approaches, including larger stop signs with flashing beacons and advanced warning signs. Other requested measures, including radar speed feedback signs, dynamic warning signs, optical speed bars, and guardrails, were denied, while extended edge-line and centerline rumble strips and splitter islands on the Clay Point Road approaches remain under consideration pending further review and permitting.

3.3 US 2/Clay Point Road Intersection Safety Review (2023)

The US 2/Clay Point Road Intersection Safety Review addressed safety concerns after two fatal crashes occurred at the intersection in June of 2022 and July of 2023. The review was submitted to the Vermont Agency of Transportation in October of 2023. VTrans responded to the memo in March of 2024. The memo highlighted possible safety improvements. Short, medium, and long-term options were provided. A medium-term option was to conduct a scoping study for the intersection, and the long-term solution was to implement the scoping study's preferred alternative.

The memo also provided background on past changes at the intersection, including the installation of exclusive left turn lanes on US 2 in 2016, which provided an alternative to the existing jug handle configuration for left turns.

3.4 VTrans Bicycle and Pedestrian Strategic Plan (2021)

The VTrans Bicycle and Pedestrian Strategic Plan (BPSP) developed strategies to consider bicycling and walking as part of all VTrans projects and activities. The BPSP is the third phase developed for the VTrans On-Road Bicycle Plan. Phase I estimated bicycling demand on state roads (VTrans Bicycle Corridor Priority Map) and Phase II assessed state roadway conditions for bicycling [Bicycle Level of Comfort (BLOC) Map]. Relevant components of Phases I & II are addressed in the Pedestrian and Bicycle Facilities section (4.3) of this scoping report.

3.5 Colchester Town Plan (2019)

The 2019 Colchester Town Plan does not specifically reference the intersection of US 2 and Clay Point Road. However, it emphasizes the importance of maintaining safety and operational efficiency along major transportation corridors, including US 2. While it does not mention the Clay Point Road intersection specifically, it highlights the need for coordinated planning along major corridors like US 2. The Plan encourages consideration of future land use patterns and supports improvements that enhance safety, mobility, and connectivity for all users. As stated in the Plan, "The Town shall plan for, provide, and maintain a safe and efficient transportation network that implements its land use planning goals," reinforcing the importance of infrastructure projects that align with both safety priorities and long-term development.

3.6 2040 Vermont Long-Range Transportation Plan (2018)

The first goal in the 2040 Vermont Long Range Transportation Plan is to "improve safety and security across all transportation modes." That goal is addressed in this scoping study through the first objective developed in the plan for that goal:

1.1 Reduce the number of crashes on Vermont highways, with a focus on those resulting in a fatality or incapacitating injury.

4 Existing Conditions

4.1 Roadway Characteristics

US 2 is a two-lane, state-owned highway classified as a Limited Access Highway and designated as a Principal Arterial in the vicinity of Clay Point Road. It runs east–west through the study area. The posted speed limit on US 2 is 50 mph, reduced from 55 mph in October 2022 following a request from the Town of Colchester. US 2 includes 11-foot travel lanes and approximately 11-foot shoulders on both sides. Left turns from US 2 are currently accommodated via exclusive left turn lanes in each direction, which were installed in 2016, and each provides approximately 375 feet of storage length. Prior to this installation, left turns were made using jug handle configurations, where drivers turned right, stopping at Clay Point Road, turned left onto Clay Point Road, stopped at US 2, and then crossed US 2. These jug handles remain in place and now primarily serve right turn movements from US 2. “Do Not Enter” signs are posted at the jug handle exits to Clay Point Road to prevent wrong-way movements.

Clay Point Road is a two-lane local road under Town jurisdiction, running north–south. The posted speed limit on Clay Point Road is 30 mph. Clay Point Road consists of two 10-foot travel lanes with narrow shoulders ranging from one to three feet in width. The intersection operates as a two-way stop-controlled intersection, with stop signs on both Clay Point Road approaches. To enhance visibility, flashing beacons have been mounted on the stop signs to alert drivers approaching US 2 from Clay Point Road.

4.2 Land Use and Zoning

The intersection of US 2 and Clay Point Road, displayed in Figure 2, is located in the Town of Colchester, Vermont, along the corridor of US 2 that connects the Champlain Islands to Interstate 89. This corridor is heavily used by motorists traveling to and from the Champlain Islands and by residents of the surrounding neighborhoods. The surrounding area is rural, with land use primarily characterized by single-family residential homes.

The intersection lies at the boundary of two zoning districts: Residential 1 and General Development 1, as shown on the Town of Colchester zoning map in Appendix 3. The Residential 1 district allows for low-density, primarily single-family residential development, while the General Development 1 district permits a mix of residential and commercial uses. Residential properties are located just beyond the intersection along Clay Point Road, and additional residential development is anticipated in this area.

Figure 2: Project Location (Google Maps, 2025)

4.3 Pedestrian and Bicycle Facilities

There are no sidewalks or crosswalks at the intersection of US 2 and Clay Point Road. The Western New England Greenway, a multi-state bicycle route that links New York City and Montreal, follows US 2 through the study area and continues north toward the Champlain Islands, as shown in Figure 3. Approximately 11-foot wide shoulders on both sides of US 2 provide space for bicyclists.

The segment of US 2 in the project area is identified as a Moderate Use / Moderate Priority bicycle corridor on the VTrans On-Road Bicycle Priority Map, developed as part of Phase 1 of the VTrans On-Road Bicycle Plan, to quantify bicycle use along state roads. Phase 2 of the On-Road Bicycle Plan included developing an online Bicycle Level of Comfort (BLOC) Map, scoring roadway segments on a four-point scale of bicycle comfort. A score of 1 indicates the most comfort for bicyclists and a score of 4 indicates the least comfort for bicyclists. The segment of US 2 in the project area scored a 3, indicating that this segment is comfortable for experienced and confident bicyclists. This classification from the VTrans On-Road Bicycle Plan indicates that while the roadway segment in the study area is a medium priority segment in the statewide on-road bicycle network and receives medium use from bicyclists, improvements should be considered to increase the bicycling comfort for all ages and abilities.

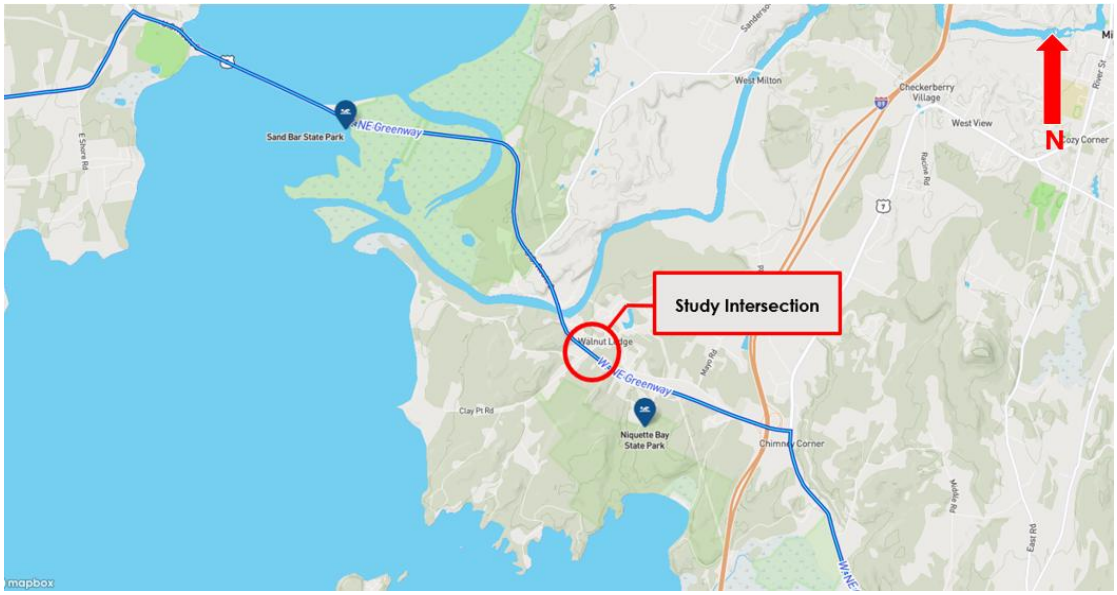


Figure 3: Western New England Greenway Route, Local Motion

4.4 Transit Services

There are no transit facilities within the project study area. The nearest bus stop, shown in Figure 4, is at the Colchester Park and Ride, located off US Route 7. This stop is served by Green Mountain Transit (GMT) and Vermont Translines, operated by Premier Coach. GMT provides local and commuter service, including the Route 56 Milton Commuter and Route 96 St. Albans LINK Express, which connect Colchester to Burlington and surrounding towns. Vermont Translines offers long distance service to destinations such as Middlebury, Rutland, and Albany, NY.

Figure 4: Bus Stop Locations, Vermont Orthoimagery Finder (2023)

4.5 Traffic Volumes

Traffic volume data, including Annual Average Daily Traffic (AADT) and peak hour volumes for the study area, were collected from VTrans and the CCRPC, respectively. AADT values collected by VTrans for 2022 and projected for future years, based on growth factors from the VTrans Continuous Traffic Counter Report ("The Redbook"), are displayed for the study area in Table 1. Overall, traffic volumes are over ten times higher along US 2 than along Clay Point Road.

Table 1: AADT Volumes

Location	2022	2025	2030	2045
US 2	11,310	11,446	11,683	12,384
Clay Point Road (Northbound)	926	937	957	1,014
Clay Point Road (Southbound)	492	498	508	539

Existing weekday commuter peak hour traffic conditions for the study intersection were evaluated using turning movement count data collected by CCRPC in June 2025. The majority of traffic at the intersection is through traffic on US 2, with eastbound through traffic heavier in the morning and westbound through traffic heavier in the evening, reflecting commuter patterns. Most vehicles from Clay Point Road turn east toward Interstate 89. Figures 5 and 6 present the turning movement counts for the AM and PM peak hours in 2025.

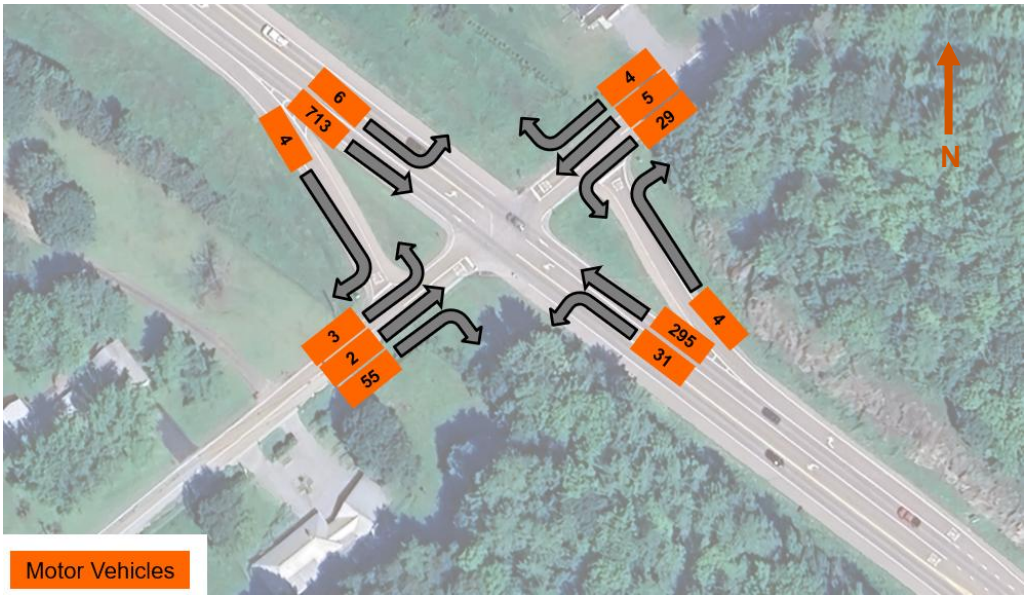


Figure 5: AM Peak Turning Movement Counts (2025)

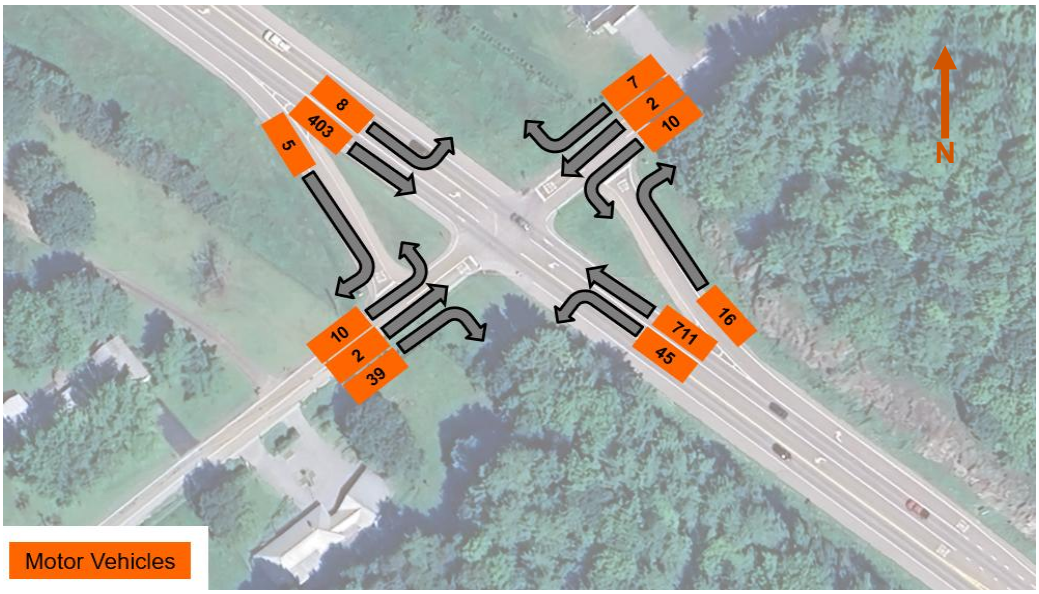


Figure 6: PM Peak Turning Movement Counts (2025)

4.6 Intersection Operations

Intersection operating levels of service (LOS) were calculated based on traffic volumes, geometry, and traffic signal timing and phasing.

LOS is used to describe the quality of the traffic flow on a roadway facility at a particular point in time. It is an aggregate measure of travel delay, travel speed, congestion, driver discomfort, convenience, and safety based on a comparison of roadway system capacity to roadway system travel demand. Operating levels of service are reported on a scale of A to F, with A representing the best operating conditions with little or no delay to motorists, and F representing the worst operating conditions with long delays and traffic demands sometimes exceeding roadway capacity.

Intersection operating levels of service are calculated in accordance with procedures defined in the *Highway Capacity Manual*, published by the Transportation Research Board. For unsignalized and signalized intersections, the operating level of service is based on travel delays. Delays can be measured in the field but generally are calculated as a function of the following: traffic volume, peaking characteristics of traffic flow, the percentage of heavy vehicles in the traffic stream, type of traffic control, the number of travel lanes and lane use, intersection approach grades, and pedestrian activity. Through this analysis, volume-to-capacity ratios can be calculated for individual movements or the intersection overall. A volume-to-capacity ratio of 1.0 indicates that a movement or intersection is operating at its theoretical capacity. The specific delay criteria applied per the *Highway Capacity Manual, 6th Edition* to determine operating levels of service are summarized in Table 2.

Table 2: Unsignalized Intersection Level of Service Criteria

Level of Service	Average Delay per Vehicle (Seconds)
A	≤10
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F[1]	>50.0

[1]Level of Service F is also assigned if the volume-to-capacity ratio exceeds 1.0 for a specific movement or lane group. For approach-based and intersection assessments, LOS is defined solely by delay. (Source: Highway Capacity Manual, 6th Edition. Transportation Research Board, National Academy of Sciences, Washington, DC, 2016.)

The intersection peak hour operating levels of service were calculated using the Highway Capacity Manual methods as applied by the Synchro software package. Analysis results for existing conditions are reported in Table 3 for 2025 volumes. The analysis results indicate that the intersection operates with varying levels of service under 2025 conditions. Southbound vehicles on Clay Point Road, which is stop-controlled, experience significant delays when turning left onto US 2. During the AM peak hour, this movement operates at LOS F with an average delay of almost one minute. Long delays on minor road approaches at unsignalized intersections can lead to driver impatience and willingness to take more risk when turning into the major approach roadway. In contrast, movements along US 2, which operates freely as the major road, operates at LOS A with minimal delays for the westbound left turn movement during both peak periods. The performance of the southbound left turn approach emphasizes capacity and delay concerns that may worsen with future traffic growth. Other movements such as the northbound and eastbound left have less traffic volume compared to their counterparts, expected to remain within acceptable levels of service, and were therefore omitted from Table 3. More detailed capacity analysis tables are presented in Appendix 4 and capacity analysis worksheets are presented in Appendix 5.

Table 3: Existing Intersection Capacity Analysis Results

				2025			
	Control	Condition	Peak Hour	LOS[1]	Delay[2]	V/C[3]	Queue Length 95th (FT)
Clay Point Road	Stop	SB Left	AM	F	58.2	0.52	61
			PM	F	53.9	0.37	38
US 2	Free	WB Left	AM	A	9.5	0.05	4
			PM	A	8.5	0.06	5

[1] LOS= Level of Service
[2] Delay = Average delay expressed in seconds per vehicle
[3] V/C = Volume-to-capacity ratio for critical movements

4.7 Crash History

The last five years of crash data (2019–2023) for the study area were investigated by Stantec using the Vermont Public Crash Data Query Tool. VTrans maintains records of reported crashes by milepost along State and Federal Aid highways in Vermont. The VTrans crash database also includes crashes reported by local agencies along local roads. The summaries include the location (mile marker, address, or intersection), date, time of day, weather conditions, contributing circumstances, crash type, and severity for reported crashes.

As shown in Table 4, a total of seven crashes were reported at the subject intersection during this five-year period. Of these, two crashes resulted in fatalities, three resulted in personal injuries, and two involved property damage only. Broadside crashes with no turning movement were the most frequent crash type, followed by angle, rear-end, and sideswipe crashes. No crashes involved single vehicles or head-on collisions. Most crashes occurred during clear weather, with one reported during cloudy conditions. The two fatal crashes, which occurred in June 2022 and July 2023, both involved driver impairment.

Table 4: Crash Data Summary

Year	Crashes 2019-2023
2019	2
2020	0
2021	1
2022	2
2023	2
Total	**7**
Type	
Angle	2
Rear-end	1
Head-on	0
Single Vehicle	0
Sideswipe	1
Broadside; No Turns	3
Total	**7**
Severity	
Property Damage	2
Personal Injury	3
Fatality	2
Total	**7**
Weather	
Clear	6
Cloudy	1
Total	**7**

4.8 Natural and Cultural Resources

Stantec used the Vermont Agency of Natural Resources (ANR) Natural Resources Atlas mapping program to evaluate known natural resources within the project area. This evaluation is summarized below and located in Appendix 6 with map figures. Historic and archeological resources were evaluated by Hartgen Archeological Associates, Inc. Summaries of these findings are provided below and included in Appendices 7 and 8.

Wetlands and Streams

According to the ANR Natural Resources Atlas Wetlands and Streams Map, there is a Vermont Significant Wetland Inventory (VSWI) wetland near the easterly edge of the Project Area. The wetland is a class II wetland and would require a 50 FT buffer. Any improvements designed for this project will need to avoid and minimize impacts to this resource. If the wetland is impacted, coordination and permitting will be required through resource regulatory agencies.

Rare, Threatened, and Endangered (RTE) Species

According to the ANR Natural Resources Atlas Rare, Threatened, and Endangered Species Map, there are no RTE species mapped in the project area. However, all of Vermont is considered critical habitat for the state and federally threatened northern long-eared bat. Trees and bridges provide potential habitat for this species. The project will comply with the Federal Highway Administration (FHWA) Range-side Programmatic Informal Consultation for Indiana and Northern Long-eared Bats.

Wildlife and Wildlife Habitat

According to the ANR Natural Resources Atlas Wildlife and Wildlife Habitat Map, there is a medium-priority habitat block southeasterly of the project area, which is not expected to be impacted by the project. The project area does not include deer wintering areas or significant natural communities.

Agricultural Land

According to the ANR Natural Resources Atlas Prime Agricultural Soils Map, there are statewide agricultural soils within the project area. Project improvements would not impact soils that are likely to be used for agricultural purposes.

Public Land and Designated Conservation Areas

According to the ANR Natural Resources Atlas Section 4(f) and Section 6(f) Resources Map, the project area does not include public recreation lands (Section 4(f)) or public land developed with Land and Water Conservation Funds (Section 6(f)).

Hazardous Materials

The ANR mapping program was reviewed for information on Hazardous Waste Sites in the project vicinity. According to the ANR Natural Resources Atlas Hazardous Waste Sites Map, no active Hazardous Waste Sites or Hazardous Waste Generators are located within the project area.

Historic Resources Review & Archaeological Resources Assessment

Hartgen completed both a Historic Resources Identification Assessment (Appendix 7) and an Archeological Resource Assessment (Appendix 8). The work was completed in accordance with Section 106 of the National Historic Preservation Act. A preliminary Area of Potential Effect was established to include all areas that could be directly or indirectly altered, totaling approximately 11.8 acres. VTrans Cultural Resources staff will formalize the Area of Potential Effect once conceptual design is completed.

No direct impacts on any historic structures or proposed historic districts within the Area of Potential Effect are anticipated. Hartgen noted that mature plantings associated with National Register eligible or State Register listed properties should be treated with care during project development to avoid inadvertent impacts.

The Archeological Resource Assessment identified one Archeological Sensitivity Area within the Area of Potential Effect, located northwest of the intersection and shown in Map 2 in Appendix 8. This area is considered sensitive for precontact resources due to nearby site density, its relationship to the Lamoille River, and because it was not disturbed during the construction of US 2 in 1980. Hartgen recommends avoiding this area or completing a Phase 1 investigation if avoidance is not feasible. Hartgen also noted that the top of the bedrock ridge southeast of the intersection may be sensitive. This ridge is unlikely to be affected by the project, but if future work extends into this location, a pedestrian survey and limited shovel testing are recommended.

5 Alternatives

The project team considered a range of improvements to address the project's purpose and need. During the project meetings, various options were discussed. Based on these discussions, the following alternatives were developed and evaluated:

- Alternative 1: Restricted Crossing U-Turn (RCUT)
- Alternative 2: Signal
- Alternative 3: Single-lane Roundabout

5.1 Alternative 1: Restricted Crossing U-Turn (RCUT)

Alternative 1 proposes a Restricted Crossing U-Turn (RCUT) intersection, shown in Figure 7, with stop control for the minor street approaches, left turns from the major road, and for the U-turn locations. The RCUT design removes direct left turn and through movements from side streets, requiring drivers to turn right onto the major road and then make a U-turn at a designated location to proceed in their intended direction. Left turns from the major road are accommodated by a dedicated left turn lane and a stop-controlled median-protected area before crossing the opposing lane onto the minor road. According to the FHWA, this configuration can reduce fatal and injury crashes by 20% at two-way stop-controlled intersections. Supporting FHWA Crash Modification Factors Clearinghouse reports are provided in Appendix 9.

To accommodate turning movements, dedicated right turn, left turn, and U-turn lanes would be added to US 2. Lane widths will match existing conditions, with 11-foot lanes on US 2 and 10-foot lanes on Clay Point Road. Following the FHWA RCUT Informational Guide, U-turn locations will be set approximately 550 feet from the main intersection and use a 100-foot radius curve. Loons, which are pavement bump-outs designed to accommodate the turning radius of larger vehicles, will be added at both the westbound and eastbound U-turn locations to support school buses and trucks.

Curbed grass medians along US 2 will separate U-turn lanes from through traffic, while concrete medians are installed at the main intersection area for left turns onto Clay Point Road. Six-foot-wide splitter islands on the minor roads will help protect stopped vehicles from errant drivers approaching on US 2 and provide separation between minor road travel lanes. Raised median islands will define the U-turn lanes, and pavement markings throughout the RCUT layout will help guide drivers. Existing jug handles will be removed as part of this design. After the U-turn locations, medians will taper to return to the existing roadway configuration. This alternative would involve full-depth reconstruction along US 2 and a combination of mill and overlay paving and full-depth reconstruction on Clay Point Road where widening is necessary. A full street lighting analysis and design would be conducted to improve nighttime visibility.

A graphic showing the full RCUT impact extents and how the design ties back into the existing roadway is included in Appendix 10.

5.2 Alternative 2: Signal

Under this signalized alternative, shown in Figure 8, the intersection would be reconfigured to remove the existing jug handles along US 2. The new layout would include one shared through and right turn lane, and one dedicated left turn lane on US 2 in each direction. This lane configuration was confirmed using Synchro traffic analysis software. The left turn lanes would have a storage length of 400 feet, and all lanes on US 2 would maintain the existing 11-foot widths. Raised medians would replace the existing painted median, transitioning to 2-foot-wide medians along each left turn lane to separate opposing directions of traffic on US 2. These medians are proposed as curbed raised medians with rounded noses to better guide vehicles and improve channelization. Splitter islands would be added along Clay Point Road. The wide shoulders on US 2 would remain in place to continue accommodating bicycle traffic traveling to and from the Champlain Islands. This alternative includes mill and overlay paving, as the existing pavement is relatively new and does not require full-depth reconstruction. A full street lighting analysis and design would be conducted to improve nighttime visibility. Advanced warning signs would inform motorists about the new signal. A graphic showing the full signal impact extents and transitioning back to the existing roadway is included in Appendix 10.

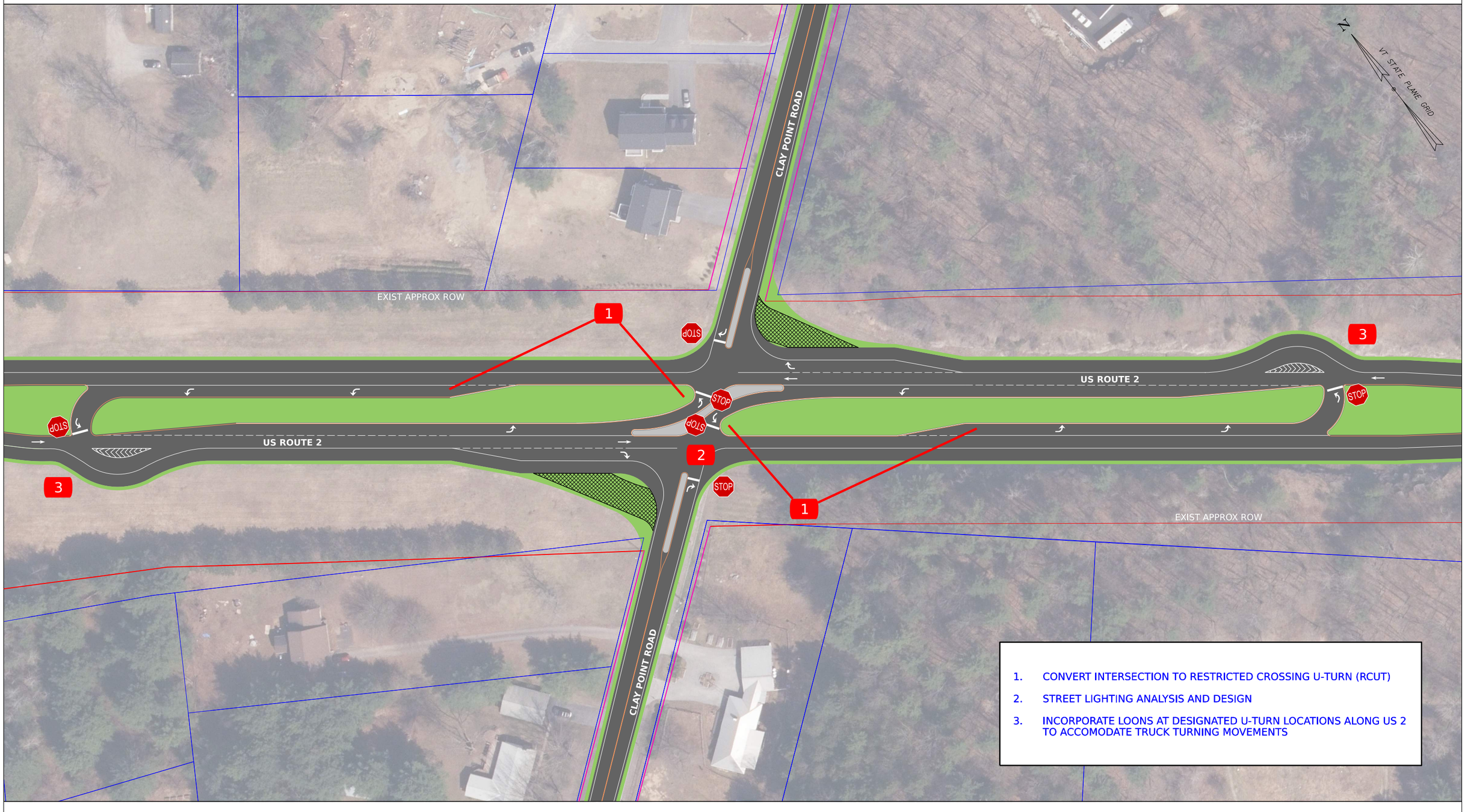
A signal warrant analysis was conducted for the intersection. Signal Warrant 1, which considers minimum vehicular volumes, was closest to being satisfied under the 56 percent reduced-threshold condition. This warrant requires that traffic volumes meet or exceed specified thresholds during any eight hours of an average day. At this intersection, only one of the two required volume thresholds was reached, so the full warrant was not satisfied. However, the Manual on Uniform Traffic Control Devices (MUTCD) allows for traffic signal installation when supported by safety or operational concerns. The full set of signal warrant analyses is included in Appendix 11.

5.3 Alternative 3: Roundabout

The roundabout alternative, shown in Figure 9, involves converting the existing intersection into a single-lane roundabout. The roundabout has an inscribed circle diameter of 150 feet, with an 18-foot-wide circulatory roadway, and an 18-foot-wide mountable truck apron. This design would help calm traffic and improve overall flow through the intersection. Roundabout warning signs, “Yield Ahead” signs, and speed advisory signs, to be specified during design, would be installed 200 feet in advance of each approach to alert drivers to the upcoming intersection configuration. Splitter islands are proposed on each approach, forcing vehicles to slow down before entering the roundabout. Since this is a rural, higher-speed area, a series of progressively sharper curves are included on the US 2 approaches along with extended splitter islands to help slow traffic to an appropriate entry speed. A full street lighting analysis and design would be conducted to improve nighttime visibility.

The wide shoulders on US 2 transition into eight-foot-wide shared use paths to facilitate bicycle connectivity around the roundabout. Crosswalks along Clay Point Road facilitate bicycle traffic through the intersection in order to continue on US 2. These features improve safety and connectivity for non-motorized users while

maintaining traffic operations through the intersection. Due to the complexity of the intersection geometry, this alternative would require full-depth reconstruction.



LEGEND

- PARCELS
- MUNICIPAL R.O.W.
- STATE R.O.W.

JUGHANDLES TO BE REMOVED

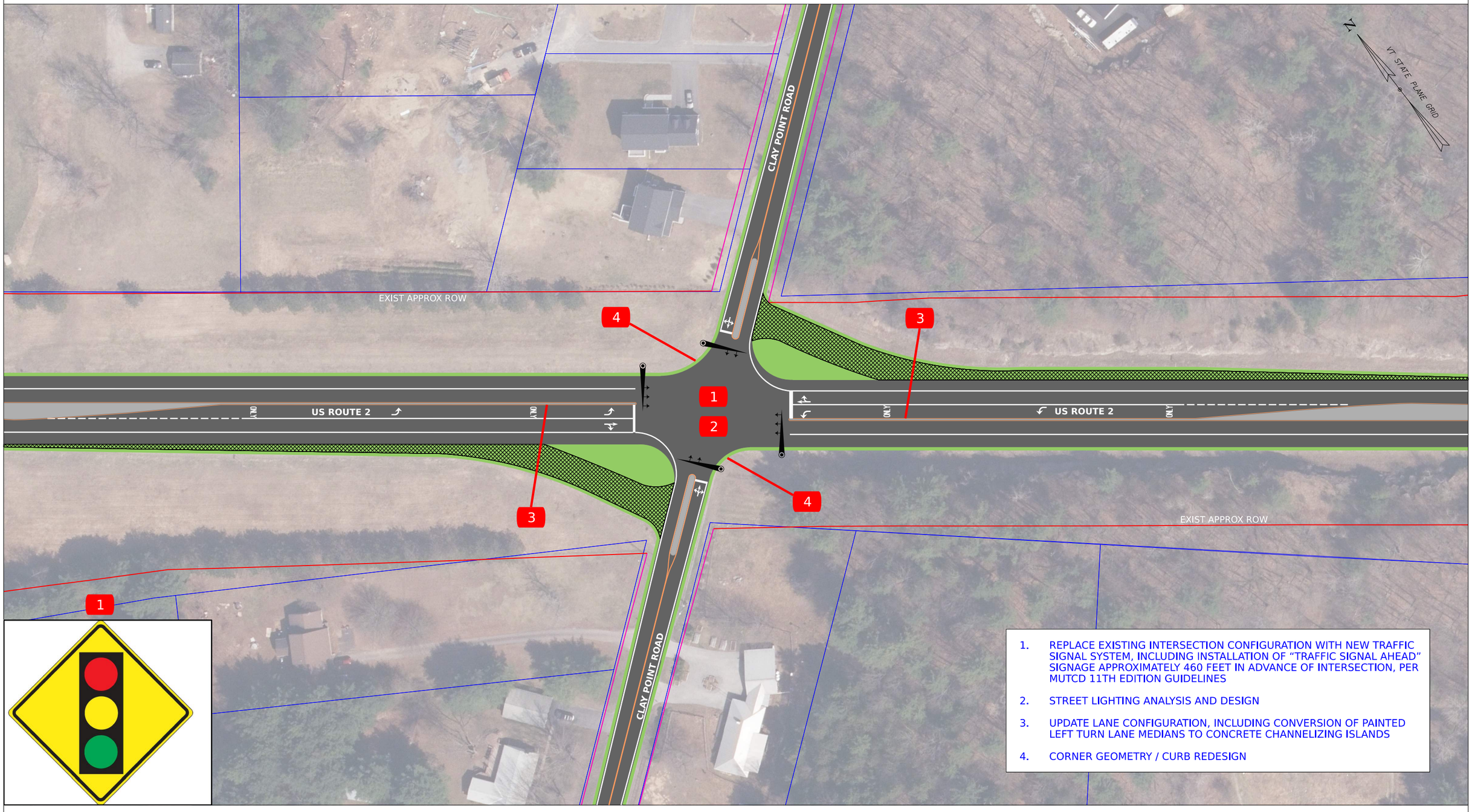
*DATA OBTAINED FROM VT ROW SPATIAL DATA HUB (2024)

FIGURE 7.

US 2 / CLAY POINT ROAD SCOPING STUDY
RESTRICTED CROSSING U-TURN (RCUT) ALTERNATIVE

0 40 80
SCALE IN FEET

Stantec



1. REPLACE EXISTING INTERSECTION CONFIGURATION WITH NEW TRAFFIC SIGNAL SYSTEM, INCLUDING INSTALLATION OF "TRAFFIC SIGNAL AHEAD" SIGNAGE APPROXIMATELY 460 FEET IN ADVANCE OF INTERSECTION, PER MUTCD 11TH EDITION GUIDELINES
2. STREET LIGHTING ANALYSIS AND DESIGN
3. UPDATE LANE CONFIGURATION, INCLUDING CONVERSION OF PAINTED LEFT TURN LANE MEDIANS TO CONCRETE CHANNELIZING ISLANDS
4. CORNER GEOMETRY / CURB REDESIGN

LEGEND

- PARCELS
- MUNICIPAL R.O.W.
- STATE R.O.W.

*DATA OBTAINED FROM VT ROW SPATIAL DATA HUB (2024)

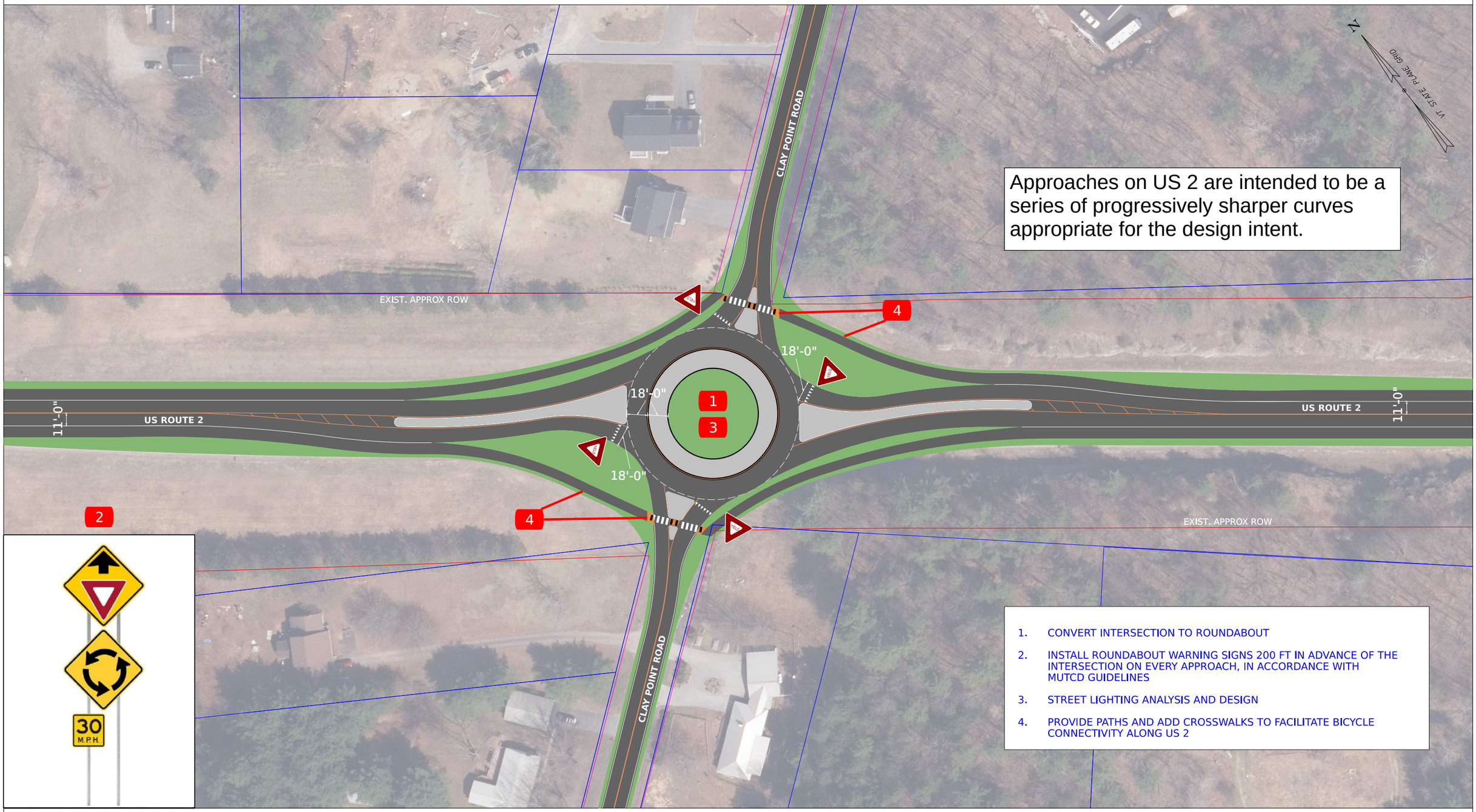
- MAST ARM
- MAST ARM POLE
- SIGNAL HEAD
- JUGHANDLES TO BE REMOVED

FIGURE 8.

US 2 / CLAY POINT ROAD SCOPING STUDY SIGNAL ALTERNATIVE

0 40 80
SCALE IN FEET

Stantec



LEGEND

- PARCELS
- MUNICIPAL R.O.W.
- STATE R.O.W.

*DATA OBTAINED FROM VT ROW SPATIAL DATA HUB (2024)

FIGURE 9.

US 2 / CLAY POINT ROAD SCOPING STUDY
ROUNDABOUT ALTERNATIVE
AUTOTURN - WB67

0 40 80
SCALE IN FEET

Stantec

5.4 Comparison of Alternatives

5.4.1 Safety Impacts

Safety for all transportation modes is expected to improve under the build alternatives when compared to the No Build scenario.

The RCUT alternative is expected to provide the least overall improvement in safety, with a crash modification factor (CMF) of 20%, indicating crashes are estimated to be reduced by 20%. The RCUT reduces conflict points by eliminating direct left turns and through movements from the side street but still relies on drivers making multiple movements to complete certain maneuvers. The signal alternative is expected to result in moderate safety improvements, with a CMF of 44%. Signalization provides controlled phasing for all approaches, which helps reduce conflicts between turning vehicles and opposing traffic. The roundabout alternative is expected to provide the greatest safety benefit, with a CMF of 68%. Although there may be a short-term increase in crashes immediately after converting a stop-controlled intersection to a signal or roundabout, while drivers adjust to the new configuration, these are typically minor rear-end crashes, and long-term crash rates and severity decline. Advance warning signs to advise motorists of the signal or roundabout would be needed. Supporting FHWA CMF reports are provided in Appendix 9.

5.4.2 Traffic Calming Impacts

The RCUT alternative provides the least improvement in managing speeds. While the wide medians create some visual narrowing, through traffic on US 2 does not stop and would generally continue at existing speeds. Speed enforcement would still rely on police presence.

The signal alternative provides moderate improvement in speed management. Vehicle speeds are reduced during the red phases when traffic is stopped, but speeds may remain the same or worsen during green and yellow phases as drivers accelerate to clear the intersection. Speed enforcement would still rely on police presence.

The roundabout alternative provides the most improvement in traffic calming. By design, the roundabout geometry slows vehicles on all approaches and maintains lower, consistent travel speeds through the intersection. Since this is a rural, higher-speed area, a series of progressively sharper curves are included on the US 2 approaches along with extended splitter islands to help slow traffic to an appropriate entry speed. This creates a self-enforcing environment for speeds through the intersection.

The intent of this study is to implement engineering safety solutions to manage speeds at the intersection, rather than relying solely on enforcement. While this study is intended to develop a preferred alternative that manages speeds at the intersection, speeds along the US 2 corridor remain an ongoing concern. As a result, there will continue to be a need for speed enforcement along the corridor. The NRPC is currently concluding a Bicycle and Pedestrian grant at US 2 and Featherbed Lane, and other locations along the US

2 corridor have also been identified as areas of concern. A future corridor-level study focused on speed management may provide an opportunity to address these broader corridor-wide concerns.

5.4.3 Visibility Impacts

All build alternatives improve intersection visibility compared to the No Build scenario. Each alternative removes the existing jug handles and adds street lighting, improving sightlines for approaching drivers and enhancing nighttime visibility.

5.4.4 Pedestrian and Bicycle Safety Considerations

For bicyclists, the RCUT and signal alternatives both maintain wide shoulders that provide room for bicycles. The roundabout alternative maintains wide shoulders that transition to shared use paths leading to crosswalks on Clay Point Road and back to shared use path segments to transition back to existing shoulders on US 2.

Currently, active transportation facilities are not accommodated to support access north and south of this intersection, nor are they identified in the roundabout as a preferred alternative. As additional residential development occurs north and south of Route 2, it is anticipated that there will be an increasing desire to accommodate active transportation connecting the two residential communities. As a result, future design considerations should include active transportation accommodation for north–south circulation.

5.4.5 Traffic Operations Impacts

Roadway and traffic conditions in the study area were projected to a future construction year of 2030 and a design year of 2045. Traffic volumes were increased based on growth rates obtained from the VTrans Continuous Traffic Counter Report (“The Redbook”) which compiles and analyzes traffic volume data collected by VTrans.

Traffic operations were evaluated for the existing intersection configuration, which is a two-way stop-controlled intersection, and compared with projected 2030 and 2045 No Build and Build conditions. As shown in Table 5, the No Build condition is expected to experience increased delay and queuing over time, with LOS F maintained on the southbound approach during both AM and PM peak hours in 2030 and 2045. Delay on the minor approach increases from 58.2 seconds in 2025 to 86.6 seconds by 2045 during the AM peak.

Three Build alternatives were evaluated for 2030 and 2045: an unsignalized RCUT, a traffic signal, and a single-lane roundabout. All three Build alternatives are projected to improve overall operations compared to the No Build scenario. The most restrictive movement for the RCUT is the westbound left turn from US 2, which operates at LOS B or C with delays under 18 seconds and low v/c ratios for both AM and PM peak periods. The traffic signal operates at overall LOS B for both AM and PM peak periods in 2030 and 2045, though queues are higher, with projected 95th percentile queues up to 418 feet in the PM peak hour by

2045. The roundabout is expected to operate at LOS A or B for both AM and PM peak periods in 2030 and 2045, with minimal queuing (under 10 feet), and the lowest delays.

Traffic operations results by approach, including 50th and 95th percentile queues, are provided in Appendix 4. Synchro output reports are included in Appendix 5.

Table 5: US 2 / Clay Point Road Existing and Future Intersection Capacity Analysis Results

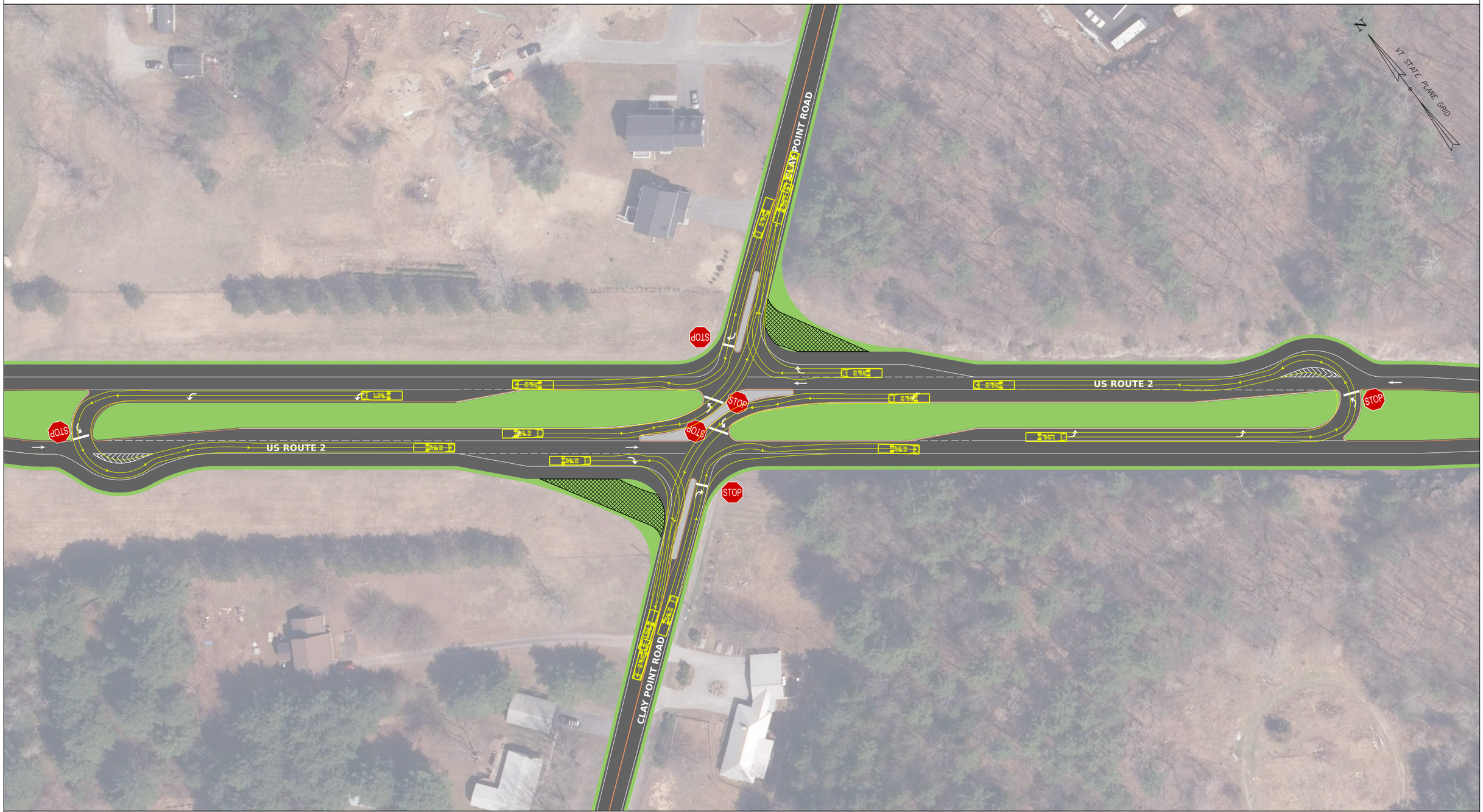
Condition			AM	PM
Existing (2025)				
2-Way Stop Controlled	**SB Left**	**LOS[1]**	F	F
		Delay[2]	58.2	53.9
		V/C	0.52	0.37
		Queue[4]	61	38
Future (2030) No Build				
2-Way Stop Controlled	**SB Left**	**LOS[1]**	F	F
		Delay[2]	66.6	58.6
		V/C	0.57	0.39
		Queue[4]	69	40
Future (2030) Build				
RCUT	**WB Left**	**LOS[1]**	C	B
		Delay[2]	17.0	12.6
		V/C	0.10	0.09
		Queue[4]	8	7
Future (2030) Build				
Signal	**Overall**	**LOS[1]**	B	B
		Delay[2]	12.4	12.0
		V/C	0.57	0.53
		Queue[4]	306	384
Future (2030) Build				
Roundabout	**Overall**	**LOS[1]**	A	B
		Delay[2]	9.7	10.7
		V/C	0.56	0.74
		Queue[4]	6	7
Future (2045) No Build				
2-Way Stop Controlled	**SB Left**	**LOS[1]**	F	F
		Delay[2]	86.6	75.2
		V/C	0.66	0.49
		Queue[4]	84	54
Future (2045) Build				
RCUT	**WB Left**	**LOS[1]**	C	B
		Delay[2]	17.7	12.9
		V/C	0.10	0.10
		Queue[4]	9	8
Future (2045) Build				
Signal	**Overall**	**LOS[1]**	B	B
		Delay[2]	13.1	12.4
		V/C	0.59	0.55
		Queue[4]	395	418
Future (2045) Build				
Roundabout	**Overall**	**LOS[1]**	B	B
		Delay[2]	10.5	11.8
		V/C	0.58	0.77
		Queue[4]	6	8

[1] LOS= Level of Service
[2] Delay = Average delay expressed in seconds per vehicle
[3] V/C = Volume-to-capacity ratio for overall intersection
[4] Queue = 95th percentile queue length expressed in feet

5.4.6 Truck Turning Analysis

Oversized vehicles infrequently turn onto or off of Clay Point Road; therefore, the truck turning analysis included school buses, fire trucks, and WB-67 tractor trailers. AutoTURN templates were developed for the RCUT, signal, and roundabout alternatives to verify that each design adequately supports the necessary vehicle movements.

For the RCUT alternative, trucks can complete U-turn movements with the aid of loons. Loons are pavement bump-outs that expand the turning area sufficient for large vehicles. These turning paths are shown in Figures 10 and 11 for a school bus and fire truck. For the signal alternative, turning movements were evaluated using the same vehicles. The results show that the intersection geometry can accommodate the necessary movements, as shown in Figures 12 and 13. For the roundabout alternative, the proposed 150-foot inscribed circle diameter accommodates all movements for a WB-67 tractor trailer. As shown in Figure 14, the truck cab remains entirely within the travel lane and does not mount the truck apron, while only the trailer tracks onto the apron.

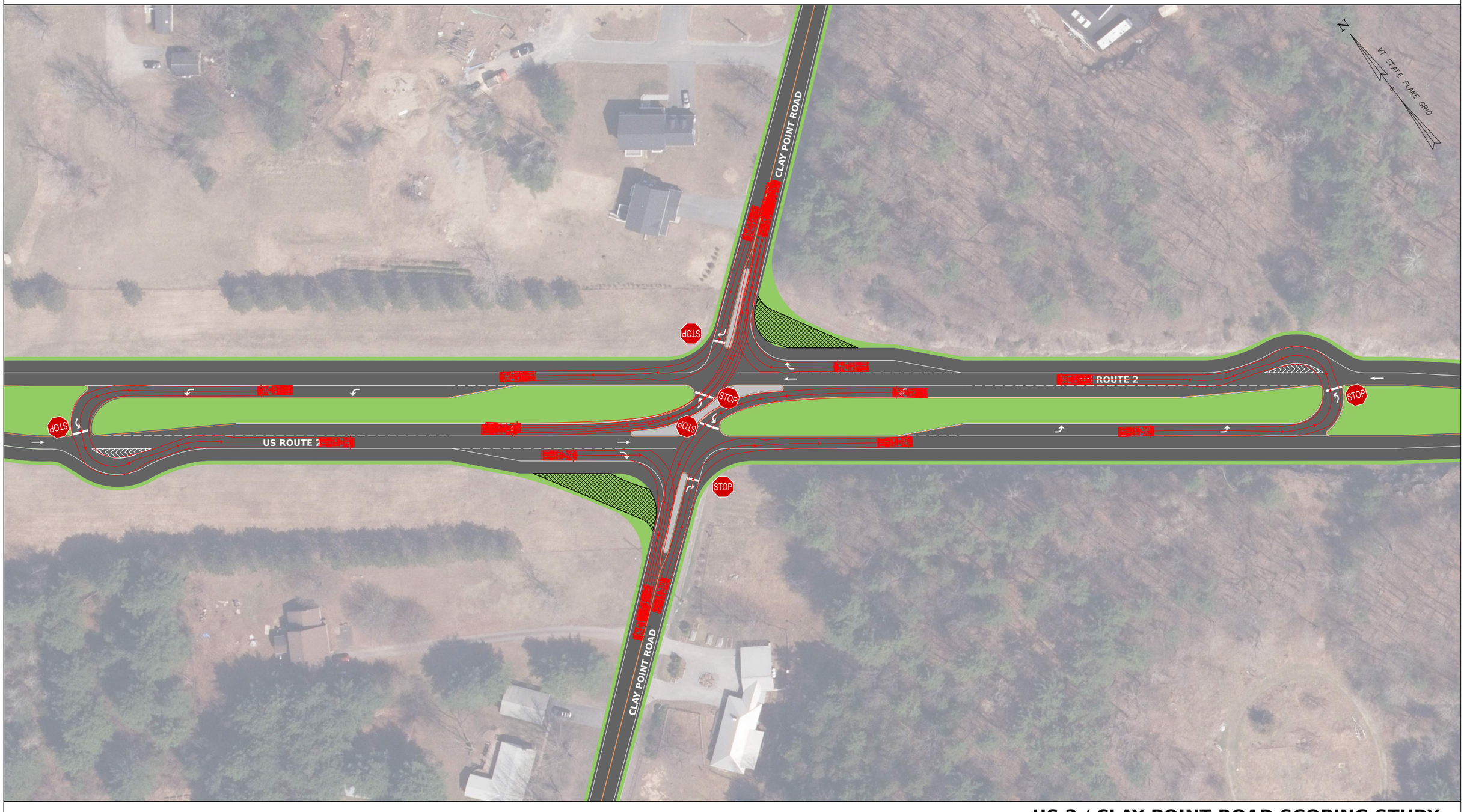


US 2 / CLAY POINT ROAD SCOPING STUDY
RESTRICTED CROSSING U-TURN (RCUT) ALTERNATIVE
AUTOTURN - SCHOOL BUS

0 40 80
SCALE IN FEET

Stantec

FIGURE 10.

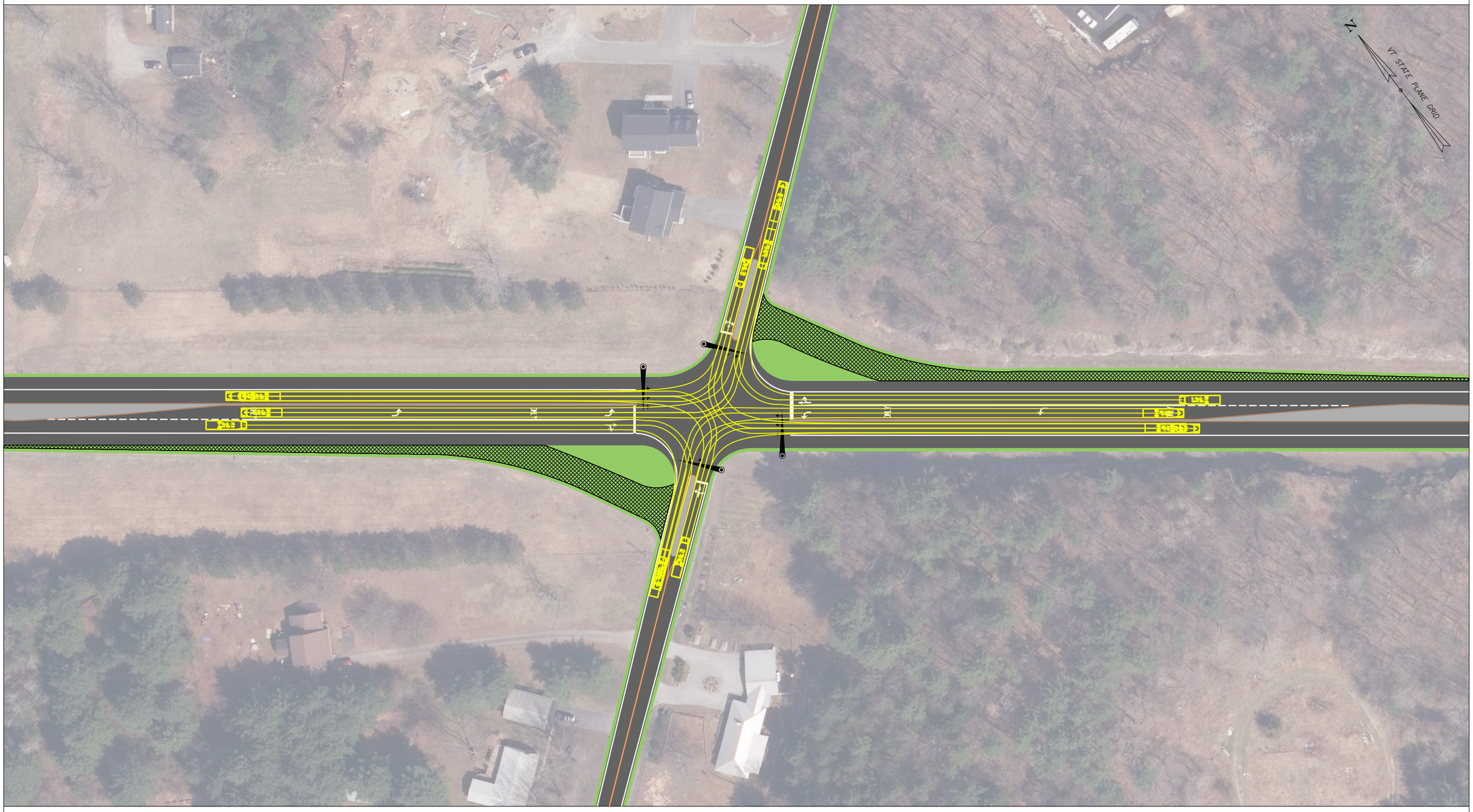


US 2 / CLAY POINT ROAD SCOPING STUDY
RESTRICTED CROSSING U-TURN (RCUT) ALTERNATIVE
AUTOTURN - FIRETRUCK

0 40 80
SCALE IN FEET

Stantec

FIGURE 11.

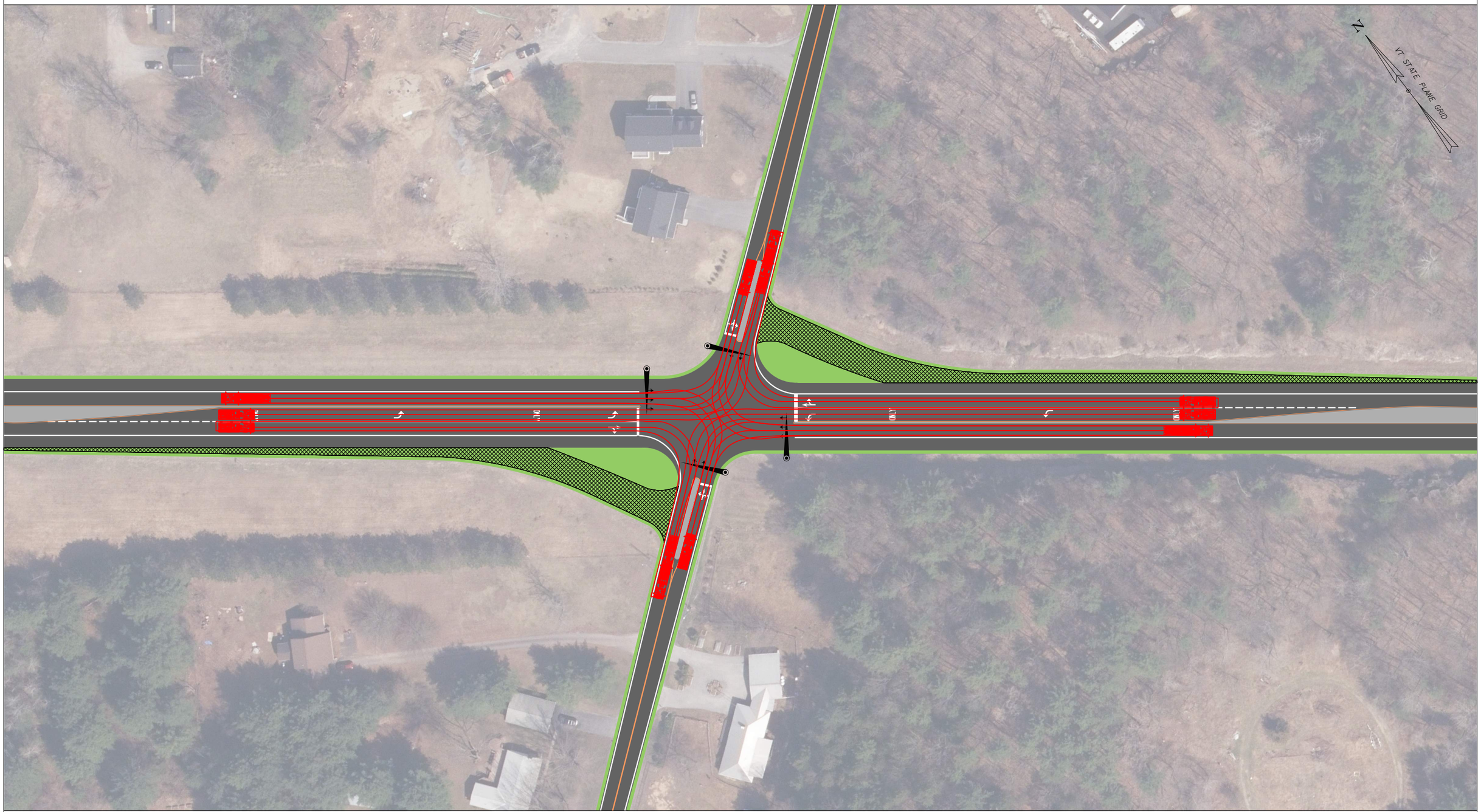


US 2 / CLAY POINT ROAD SCOPING STUDY
SIGNAL ALTERNATIVE
AUTOTURN - SCHOOL BUS

0 40 80
SCALE IN FEET

Stantec

FIGURE 12.

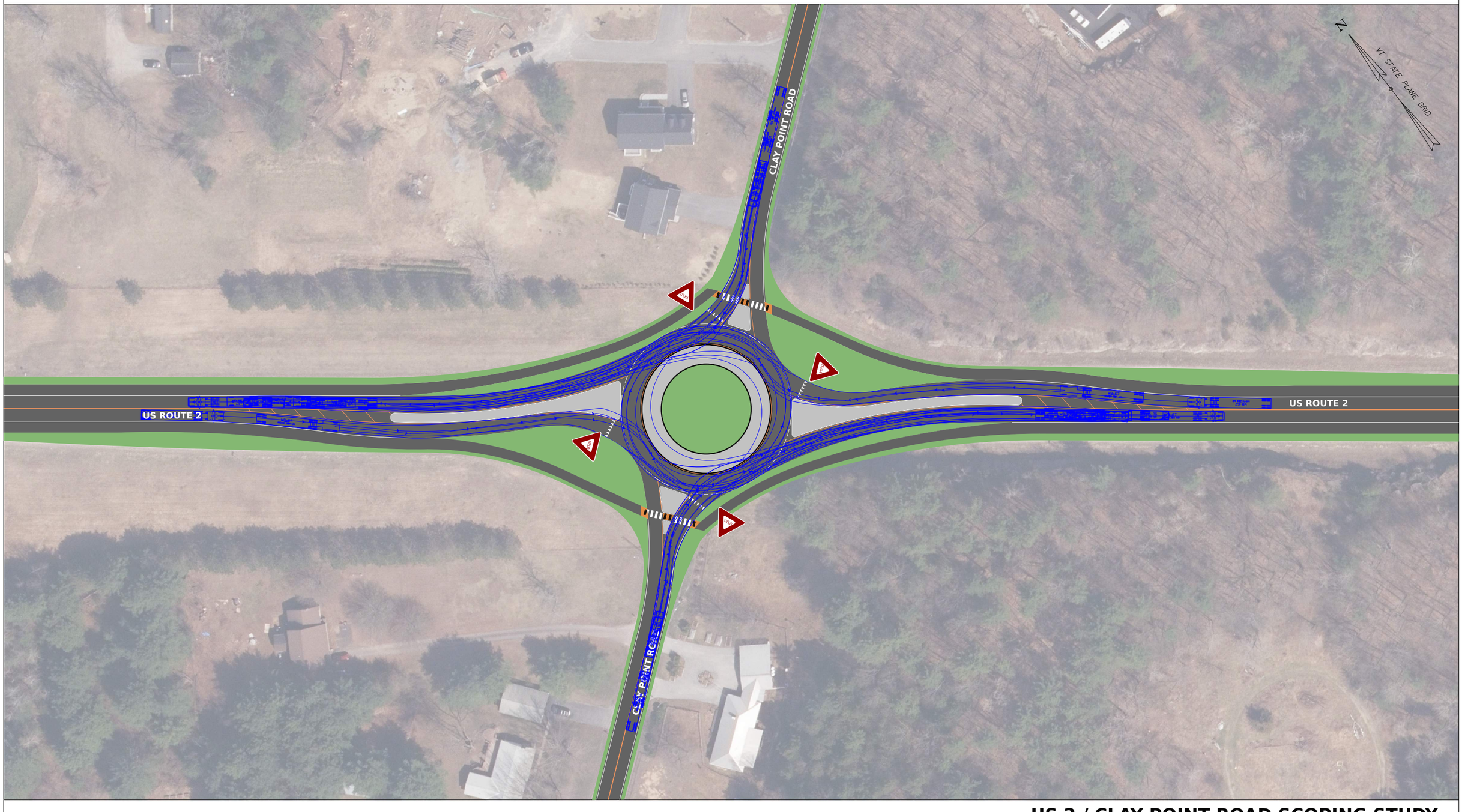


US 2 / CLAY POINT ROAD SCOPING STUDY
SIGNAL ALTERNATIVE
AUTOTURN - FIRETRUCK

0 40 80
SCALE IN FEET

Stantec

FIGURE 13.



US 2 / CLAY POINT ROAD SCOPING STUDY
ROUNDABOUT ALTERNATIVE
AUTOTURN - WB67

0 40 80
SCALE IN FEET

Stantec

FIGURE 14.

5.4.7 Right-of-Way Impacts

Impacts to right-of-way are not anticipated for either the RCUT or signal alternatives. The roundabout alternative would require approximately 1,255 square feet of permanent ROW impacts at the corners of adjacent parcels to accommodate the proposed geometry. This would be refined during design.

5.4.8 Utility Impacts

Utility coordination will be required for all alternatives to address potential impacts to existing aerial facilities within the project area. Aerial utility poles are located on Clay Point Road north and south of the intersection, carrying aerial utility lines across the intersection.

5.4.9 Stormwater Impacts

According to the 2017 Vermont Stormwater Management Manual Rule and Design Guidance, an operational stormwater permit is required when a project results in 0.5 acres or more of new or redeveloped impervious area. The signal alternative would not introduce any new impervious surface, while the roundabout alternative is expected to add approximately 0.4 acres of new impervious surface, and the RCUT alternative is expected to add approximately 1.1 acres of new impervious surface. Based on these values, the RCUT alternative would be the only option that requires an operational stormwater permit.

5.4.10 Environmental Resource Impacts

A desktop review of natural resources was completed to identify any potential environmental impacts within the project area, presented in Section 4.8. Based on this review, no environmental impacts are anticipated for any of the alternatives.

5.4.11 Cultural Resource Impacts

The signal and roundabout alternatives are not expected to encroach on the Archeological Sensitivity Area northwest of the intersection or the potentially sensitive bedrock ridge on either side of US 2 to the southeast. The RCUT alternative introduces a larger area of ground disturbance and will require greater attention to avoiding these locations. If avoidance cannot be achieved during design, a Phase 1 archeological investigation would be required.

5.4.12 Project Costs

Table 6 shows a summary of project costs, in 2025 dollars, for the proposed improvements. Total project costs are estimated at approximately $6,360,000 for the RCUT Alternative, $2,070,000 for the Signal Alternative, and approximately $5,420,000 for the Roundabout Alternative. A detailed breakdown of project construction costs is provided in Appendix 12, and project cost forecasts for future construction years, based on a 5.4 percent annual increase (recommended by VTrans), are presented in Appendix 13.

Table 6: Summary of Project Costs

Item	RCUT	Signal	Roundabout
Construction Costs	$5,300,000	$1,800,000	$4,500,000
Design Engineering	$795,000	$180,000	$680,000
Construction Engineering	$265,000	$90,000	$230,000
Right-of-way Costs	$0	$0	$10,000
Total Project Costs	**$6,360,000**	**$2,070,000**	**$5,420,000**

5.4.13 Evaluation Matrix

Table 7 provides an evaluation matrix summarizing the above information pertaining to project costs, how well each alternative meets the Purpose & Need, and impacts to traffic operations, right-of-way, cultural resources, and maintenance. The roundabout would have a greater reduction in crash frequency and severity than the RCUT or signal. The roundabout would better manage and enforce vehicle speeds than the RCUT or signal. The roundabout would provide the best overall traffic operations. The roundabout would require minor right-of-way impacts, while the RCUT and signal would not. The roundabout would cost more than the signal but less than the RCUT.

Table 7. Evaluation Matrix

CRITERIA	No Build	RCUT	Signal	Roundabout
Total Project Costs	$0	$6,360,000	$2,070,000	$5,420,000
Purpose and Need				
Reduce Crash Frequency & Severity	No Change	Least Improvement, 20% Crash Reduction	Moderate Improvement, 44% Crash Reduction	Most Improvement, 68% Crash Reduction
Manage Speeds / Speed Enforcement	No Change	Least Improvement, wide medians but through traffic does not stop, Police needed for enforcement	Moderate Improvement for red phase, Green/yellow maybe worse, Police needed for enforcement	Most Improvement, slows traffic and self enforcing through geometry
Address Intersection Visibility	No Change	Removes jughandles, adds street lighting		
Satisfies Purpose and Need?	No	Yes (least)	Yes	Yes (most)
Impacts				
Traffic Operations	No Change	Least Improvement	Moderate Improvement	Most Improvement
Right-of-way	None	No Impacts	No Impacts	1,255 Sq FT
Cultural Resource	None	Possible above ledge	None	None
Maintenance	None	Mowing and maintaining raised islands	Signal equipment	Mowing and maintaining central island, plowing of shared-use path

6 Stakeholder Input and Recommendations

On April 3, 2025, the project team held a Public Input Meeting at the Colchester Town Hall to introduce the project and receive feedback from residents. Background information and existing conditions were presented, and input was collected throughout the meeting. Input is summarized here and provided in the relevant meeting notes in Appendix 14. Residents raised concerns about visibility constraints, sun glare, and difficulty judging acceptable gaps when entering US 2. Many participants stated they avoid the intersection due to high travel speeds, uncomfortable left turn movements, and confusion created by the jug handle configuration. Comments also referred to winter maintenance challenges, driver behavior issues, confusing signage, and the overall complexity of the intersection. The project team noted that additional traffic data would be collected during summer 2025 to better capture seasonal travel patterns.

On November 6, 2025, the project team held an Alternatives Presentation at the Colchester Town Hall. The three alternatives were presented and compared in terms of how well they meet the Purpose & Need, impacts to operations, right-of-way, and cultural resources, as well as project costs. Input is summarized here, with full meeting notes included in Appendix 14. Many residents suggested adding marked pedestrian crossings across US 2, noting that they and their children regularly cross the highway on foot to reach nearby neighbors' homes. Other comments focused on property impacts, construction duration, and future traffic growth, and the project team noted that right-of-way needs and geometric details would be refined during the design phase. Input also referenced possible interim safety measures, which were reviewed by the project team following the meeting. Yellow flashing beacons were discussed prior to and during this study, including during the Alternatives Presentation. Supporting information is documented in a memo included in Appendix 15. The Town expressed that a flashing yellow beacon on US 2 at Clay Point Road could provide meaningful interim safety benefits prior to implementation of a long-term improvement. The roundabout was identified as providing the greatest reduction in crash frequency and severity due to lower travel speeds, less conflict points, and improved protection for entering drivers.

Residents in the area also provided input on concerns about making turns from side roads, the performance of each alternative under future traffic growth, and the ability for alternatives to accommodate large vehicles and recreational vehicles. Email comments submitted after the Alternatives Presentation indicated support for the roundabout's safety benefits.

The project team met with the project advisory group on four occasions, including representatives from the Town, CCRPC, Northwest Regional Planning Commission, and VTrans to receive their input on existing conditions, possible solutions, and final alternatives. Input is summarized in Appendix 14.

On May 26, 2026, alternatives were again presented to the Selectboard and the public. Town staff recommended a roundabout due to its strong ability to reduce crash frequency. One member of the public felt driver behavior was the cause of the safety concerns at the intersection, and a few members expressed support for a roundabout. With further discussion, the Selectboard voted to advance the roundabout alternative as the preferred alternative. Town staff were also directed to strongly advocate for active

transportation accommodations in the design, consistent with requests raised by residents. Input is summarized here and provided in the relevant meeting notes in Appendix 14.

7 Preferred Alternative

Based on evaluation by the project team, including the Town of Colchester and the CCRPC, the project advisory group, and with input from the Selectboard and the public, the project team recommends Alternative 3, a single lane modern roundabout, as the best alternative to meet the project Purpose and Need. The roundabout is recommended over the RCUT and signal alternatives due to greater reduction in crash frequency and severity, better speed mitigation, and better capacity. Another advantage is that it reduces the amount of equipment being added to the State's responsibility for signal maintenance.

The Town of Colchester Selectboard reviewed this study and, at a Selectboard meeting held on May 26, 2026, endorsed Alternative 3, a single lane modern roundabout, as the preferred alternative. There is currently no identified funding to advance the project beyond the scoping phase. Potential future funding sources may include State funding through the VPSP2 process, federal programs such as the BUILD (Better Utilizing Investments to Leverage Development) Grant and the Rural Surface Transportation Grant program, as well as other State and local grant opportunities.

7.1 Project Cost Share

Most Federal and State grant programs require project cost sharing, which means that a portion, referred to as the "local match" or "non-Federal share", of the project's cost is not paid by Federal funds. The match requirement is typically stated as a percentage of the total project cost. Most Federal grant programs require a 20 percent local match, but some Federal programs provide flexibility in cost sharing requirements, particularly for rural or disadvantaged areas. Each Federal grant program's Notice of Funding Opportunity (NOFO) and each State grant program's application guide will provide specific requirements, which can vary from year to year. Figure 15 provides an example of how the local match is typically determined.

While a cash match, sometimes referred to as a "hard match", is most commonly used to provide the local match, some grant programs allow for the local match contribution to be met using third-party in-kind match, sometimes referred to as a "soft" match. In-kind match typically refers to the valuation of non-cash contributions to the project, such as the provision of services, supplies, real property, and equipment for the project. Each grant program has their own requirements related to in-kind match, and whether or not it is allowable. Early coordination with respective grant program managers to determine the potential for in-kind match, what prior approval may be required, and how in-kind value will be determined is encouraged. For State grant programs, additional coordination between VTrans and Federal partners may be required. Additional information on match requirements is available at https://www.transportation.gov/grants/dot-navigator/understanding-non-federal-match-requirements. General information on Federal grants programs and resources can be found at https://www.transportation.gov/navigator.

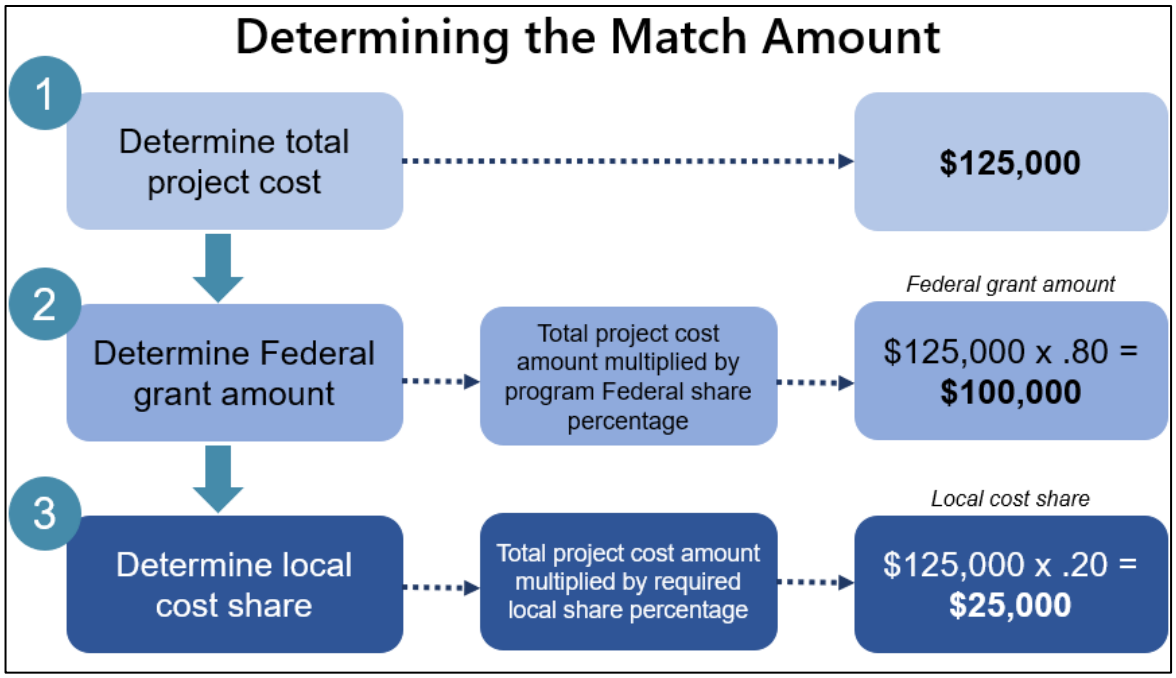


Figure 15. Determining the Match Amount. Source: U.S. Department of Transportation