HOOSICK ROAD CORRIDOR STUDY

Draft Existing Conditions Report

Prepared for:

Town of Brunswick

CDTC

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Chapter 1 – Introduction

The Hoosick Road Corridor Study is funded by the Town of Brunswick and the Capital District Transportation Committee (CDTC) through the CDTC 2022-2023 Community and Transportation Linkage Planning Program to identify transportation network improvements on Hoosick Road (NY Route 7) from Lake Avenue in the City of Troy to Sweetmilk Creek Road in the Town of Brunswick.

Hoosick Road is a heavily used, major roadway that is a fundamental component of both the local Brunswick street network and the greater Capital Region highway system. As a regional corridor, Hoosick Road serves as a primary route between Vermont and the New York State Thruway, facilitating interstate freight movement and tourism. However, Hoosick Road is also a local destination. As a commercial corridor, Hoosick Road provides access to numerous businesses of varying sizes ranging from local stores to national franchises. Commercial developments over the past decade have generated new traffic in the corridor, resulting in an increased need for Hoosick Road to serve both local traffic and a large amount of vehicular through traffic, totaling upwards of 25,000 vehicles per day in parts of the corridor. This need is compounded by the fact that although Route 2 may provide an alternate route for regional traffic, there are generally no parallel roads to provide alternative routes for local traffic.

IMAGE 1.1: TYPICAL CONGESTION EAST OF N. LAKE AVENUE

Due to increased traffic volumes and competing needs of mainline traffic progression and side-street access, Hoosick Road often experiences peak period traffic congestion. The CDTC Congestion Management Process identifies Hoosick Road as one of the most congested corridors in the region with excessive peak hour delays. Likewise, Town of Brunswick staff observe that Hoosick Road users

experience significant travel delay during peak hours and at intersections when making left turns onto Hoosick Road. These observations, combined with potential growth in the corridor from planned residential and commercial developments, result in a need for a comprehensive review of the Hoosick Road corridor.

This study will attempt to propose feasible recommendations that promote safety for all roadway users in a manner that balances the competing needs of different modes and enhances community quality of life. This study evaluates existing multi-modal conditions and needs, and a full range of concepts to recommend the most feasible and context appropriate improvements for this corridor. A robust stakeholder and community driven process is being used throughout the study and during development of the recommendations.

Study Approach

A Study Advisory Committee (SAC) was established to guide this study, and review and provide feedback on interim and final study products. SAC members included staff from the Town of Brunswick, Capital District Transportation Committee (CDTC), New York State Department of Transportation (NYSDOT) Region 1, Capital District Transportation Authority (CDTA), Capital District Regional Planning Commission (CDRPC), Rensselaer County, City of Troy, and residents of the adjacent neighborhoods. A Technical Advisory Committee (TAC) comprised of the Town Supervisor, CDTC Project Manager, and NYSDOT, was also formed to review progress and advance the study. Specific SAC and TAC committee members are listed in the project's Public Participation Plan.

The goal of these committees is to share technical information, provide input on public outreach materials, enable informed decision-making, help shape the draft and final study recommendations, and provide overall guidance on the study as it progresses. The cross-section of agencies and interests on these committees, combined with the open public process, helps to ensure that diverse views are represented and the plan is comprehensive and publicly supported.

Recommendations presented in this study will use a Complete Streets approach to ensure consideration of all roadway users regardless of travel mode or ability. While recommendations will be evaluated to the extent possible for a planning study, they are conceptual and presented to characterize the types of improvements that are desirable, and that may be implemented as part of future land use and transportation improvement projects. All transportation concepts will require further engineering evaluation and review.

Study Purpose

At the outset of the study, the Study Advisory Committee (SAC) discussed and established the following Study Purpose Statement, which establishes the basis for consideration of concepts, and future expenditures.

Study Purpose:

The purpose of this study is to develop recommendations for reducing traffic congestion, improving safety, and improving multimodal mobility on Hoosick Road from Lake Avenue in the City of Troy to Sweetmilk Creek Road in the Town of Brunswick.

Study Area/Network Context

The primary study area is an approximate 2.5 mile segment of Hoosick Road (NYS Route 7) from the Lake Ave intersection (in the City of Troy) to Sweetmilk Creek Road in the Town of Brunswick. Beyond the Hoosick Road corridor, the secondary study area encompasses the adjacent neighborhoods, as shown in Figure 1.1. From a network standpoint, the study area lacks nearby parallel routes, so the majority of local traffic and through traffic is funneled to the corridor.

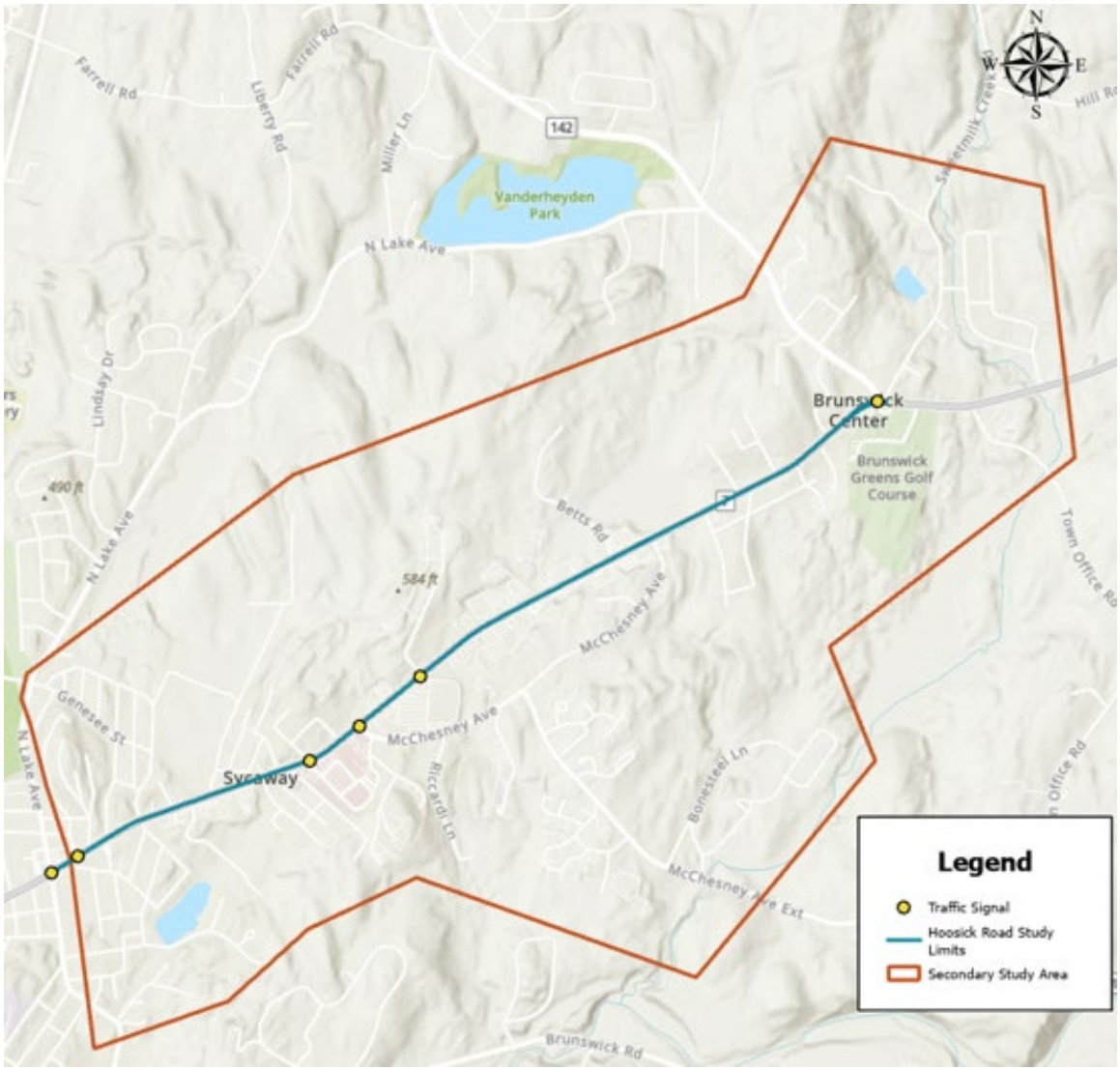


FIGURE 1.1 – STUDY AREA

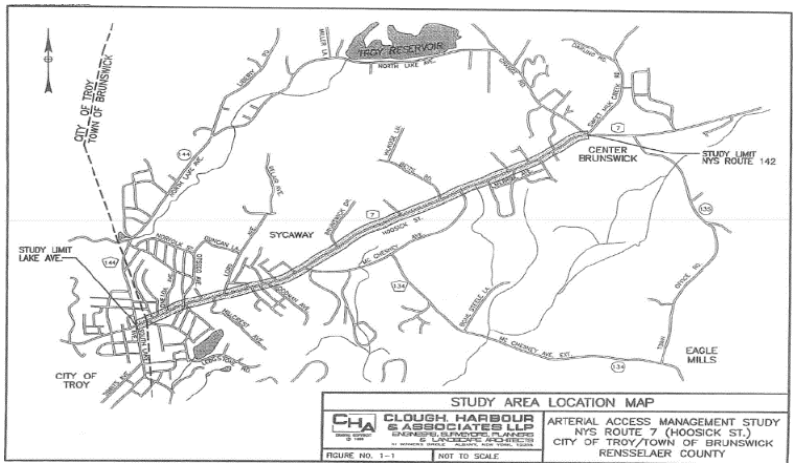
PREVIOUS STUDIES

A number of previous studies pertain to the corridor.

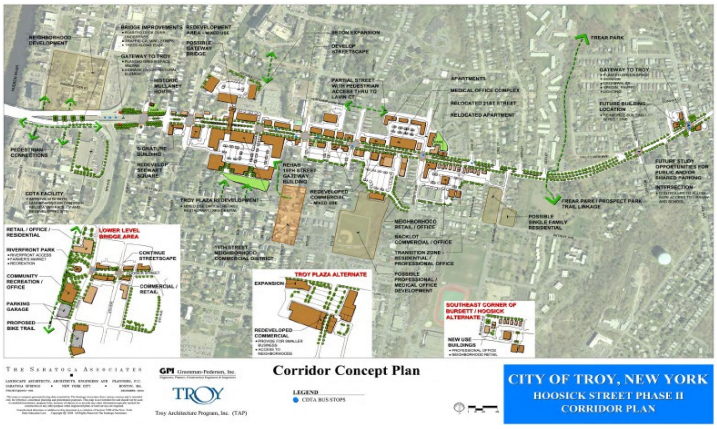
NYSDOT PIN 1306.53 Final Design Report/Environmental Assessment (1999). In 1999 NYSDOT published this report which documented the need for improvements to Hoosick Road, documented design alternatives and environmental considerations, and identified a preferred design alternative for the segment of NY Route 7 (Hoosick Road) from the Troy City Line to NY Route 142 (Grange Road). Based on the analysis and public comments, Hoosick Road was widened to accommodate construction of the cross-section that currently exists. The design report also examined a five-lane configuration on Hoosick Road, which was determined to be a non-feasible alternative due to excessive impacts and project costs due to ROW acquisition.

Town of Brunswick Comprehensive Plan (2013). In 2013, the Town published an updated comprehensive plan to guide development in the Town by establishing a framework for future public and private investments to achieve desired future land use and development patterns in line with the Town's vision of preserving its natural beauty and resources, agricultural heritage, and high quality of life for existing and future residents. Transportation goals identified in the plan include improving and maintaining the integrity and capacity of major arteries, addressing congestion issues, and improving accessibility for residents and business patrons, as well as encouraging the development of a safe and efficient transportation network that considers all modes of transportation to satisfy existing and future needs of the community. Specific recommendations that pertain to Hoosick Road include reducing traffic congestion, identifying access management solutions to improve traffic circulation, encouraging shared driveway access, and improving pedestrian circulation and safety.

NYSDOT Arterial Access Management Report, NYS Route 7, Lake Avenue to Route 142 (2000). This study was prepared to examine the existing land use and access patterns within the NYS Route 7 corridor from Lake Avenue to NYS Route 142 with the goal of applying access management principles to preserve the utility of the arterial. The study presents recommendations for long-term improvements to meet this objective. The long-term improvements include applications of transportation and land-use tools that may be implemented to further enhance traffic operations in the corridor and to reduce the dependence on Route 7 for direct access to adjacent land uses. These long-term strategies include recommendations for future signal placement, new collector/service roads, consolidation of access, and shared parking.



Hoosick Street Phase II Corridor Plan (2004). The City of Troy completed a Phase I Corridor Study of Hoosick Street in February 2000. This study concluded that physically enhancing the existing corridor to promote pedestrian safety, improve local traffic access and circulation, minimize impacts of arterial traffic, preserve the character of residential neighborhoods, and mitigate land use conflicts should be the preferred alternative. The Phase I study contained a series of broad recommendations for land use management, physical enhancement, and redevelopment in the corridor. The ideas generated in that initial study of the corridor served as a starting point for the Phase II Study, which provides a detailed implementation plan for moving forward with engineering and construction of the recommended improvements.

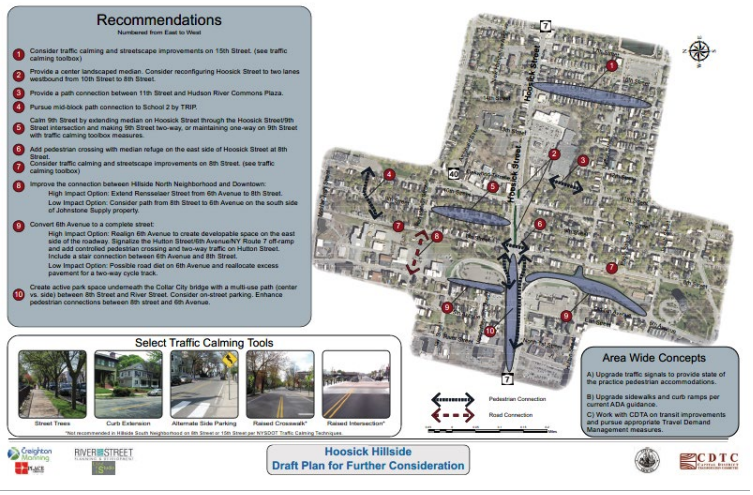


CDTC Regional Freight and Goods Movement Plan (2016). This report examined freight and goods movement in the Capital Region and established a Freight Priority Network (FPN). The FPN is a designated system of routes that facilitate efficient and safe truck mobility within, to, and from the region, and includes a hierarchy of route types ranging from major routes which are generally designed, operated, and constructed to accommodate significant truck volumes, minor routes which provide mobility between major industrial and logistics origins and destinations and the major routes, and connectors which provide access between major and minor routes and individual destinations or small clusters of logistics activities. The report classifies Hoosick Road as a minor route.

CDTC Capital District Trails Plan (2019). This plan developed an updated vision for a connected network of trails throughout the Capital District. Concepts developed in the plan are categorized into core trails which act as primary transportation highways for non-vehicular travel, often connecting to areas outside the four-county region and usually linking together multiple towns or population centers, and supporting trail networks which provide secondary connections serving lower population areas, providing alternative routes, choices, and access to the larger system. Although six core trails and 10 supporting trail network segments are identified in the plan for Rensselaer County. None are within the Hoosick Road study area.

Capital District Trails—Rensselaer	
Core Trails	
G	Albany Hudson Electric Trail (AHET)
H	Rensselaer Riverwalk/RPI Trail
I	South Troy Riverfront Bikeway
J	Uncle Sam Bike Trail
K	River Road
L	River to Ridge Path
Supporting Trail Network	
15	Uncle Sam to Mahican Trail Link
16	Mahican Trail
17	Tomhannock North Ridge Run
18	Empire State - Rensselaer Plateau Link
19	Wynantskill Trolley Path
20	Rensselaer Plateau Ridge
21	Corkscrew Rail Trail
22	Nassau - Stephentown Path
23	Schodack—Papscanee Connection
24	Hoosick to Bennington

Hoosick Hillside Study (2020). This study identified improvements to connect the Hillside North and Hillside South neighborhoods, as well as the Hudson River and Downtown Troy to support the City of Troy's efforts to improve pedestrian and bicycle connectivity and calm traffic in these neighborhoods, promoting access to goods and services, and improving quality of life for neighborhood residents. The recommendations include traffic calming in the neighborhoods north and south of Hoosick Street, pedestrian connections to 6th Avenue and Hudson River Commons, and a concept for a raised median on Hoosick Street at 8th Avenue to facilitate pedestrian crossings and simplify traffic operations to and from the Collar City Bridge.



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Chapter 2 – Existing Conditions

ZONING

The purpose of zoning is to positively shape the community by regulating building size (height and width), lot coverage (placement of buildings), density, and land use by type. The study area zoning is shown on Figure 2.1, and is comprised of primarily commercial uses adjacent to the study corridor, with residential uses setback from the corridor.

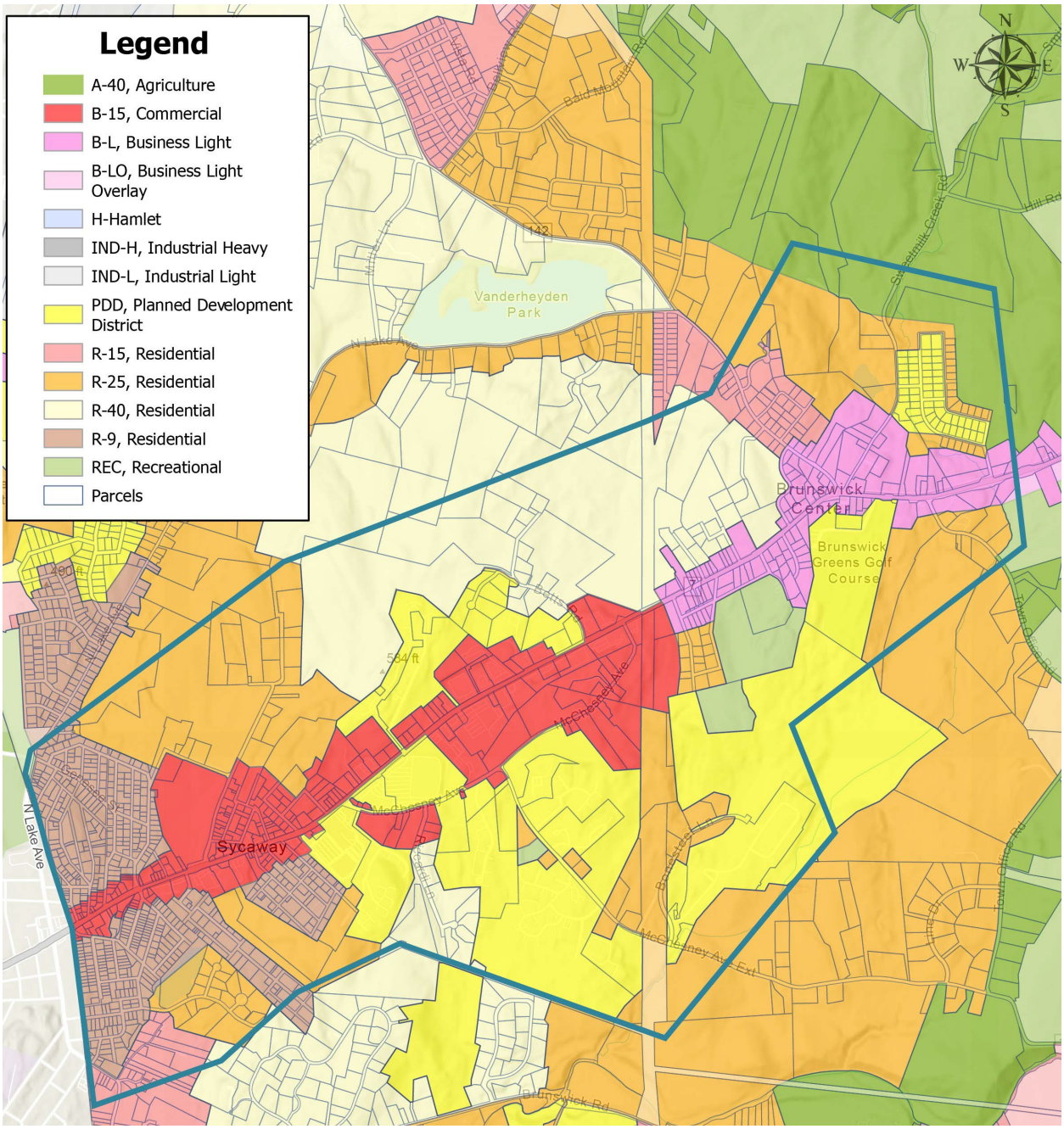


FIGURE 2.1 – EXISTING ZONING

LAND USE

Land use in the study area primarily consists of commercial uses on both sides of the corridor, although several residential uses are located along Hoosick Road, generally between Brunswick Drive and Grange Road (NY 142). Within the secondary study area, land use is primarily residential or agricultural. Figure 2.2 shows the variety of land uses within the corridor.

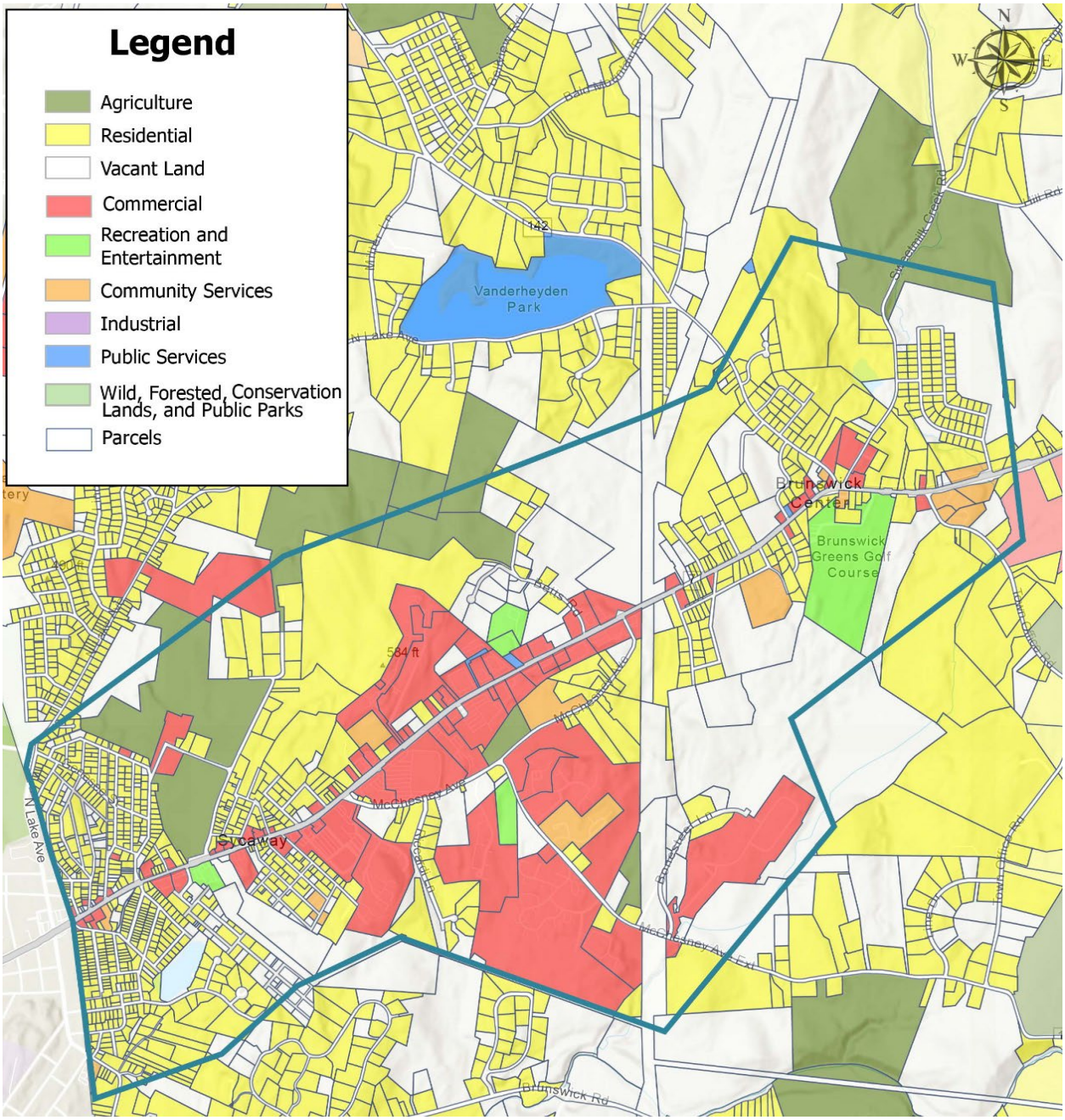


FIGURE 2.2 – EXISTING LAND USE

TRANSPORTATION INFRASTRUCTURE

Hoosick Road (NY Route 7) is an Urban Principal Arterial on the National Highway System (NHS) which provides east-west travel through the Town of Brunswick. In general, Hoosick Road is a 3-lane roadway with a 10 ½ foot wide travel lane in each direction, and a twelve-foot wide two-way left turn lane. The roadway widens between Roosevelt Avenue and Brunswick Drive to provide an additional eastbound travel lane; resulting in a 4-lane cross section. The typical right of way width is approximately 60 to 70 feet +/- from back of sidewalk to back of sidewalk.

IMAGE 2.1 – TYPICAL VIEW OF HOOSICK ROAD IN THE STUDY AREA

Sidewalks are present along both sides of Hoosick Road from North Lake Avenue to the eastern intersection with McChesney Avenue. East of the eastern McChesney Avenue intersection, sidewalks are provided on the south side only. Sidewalks vary in width from four to five feet wide for most of the corridor. Marked crosswalks with pedestrian push buttons are present at each of the signalized intersections.

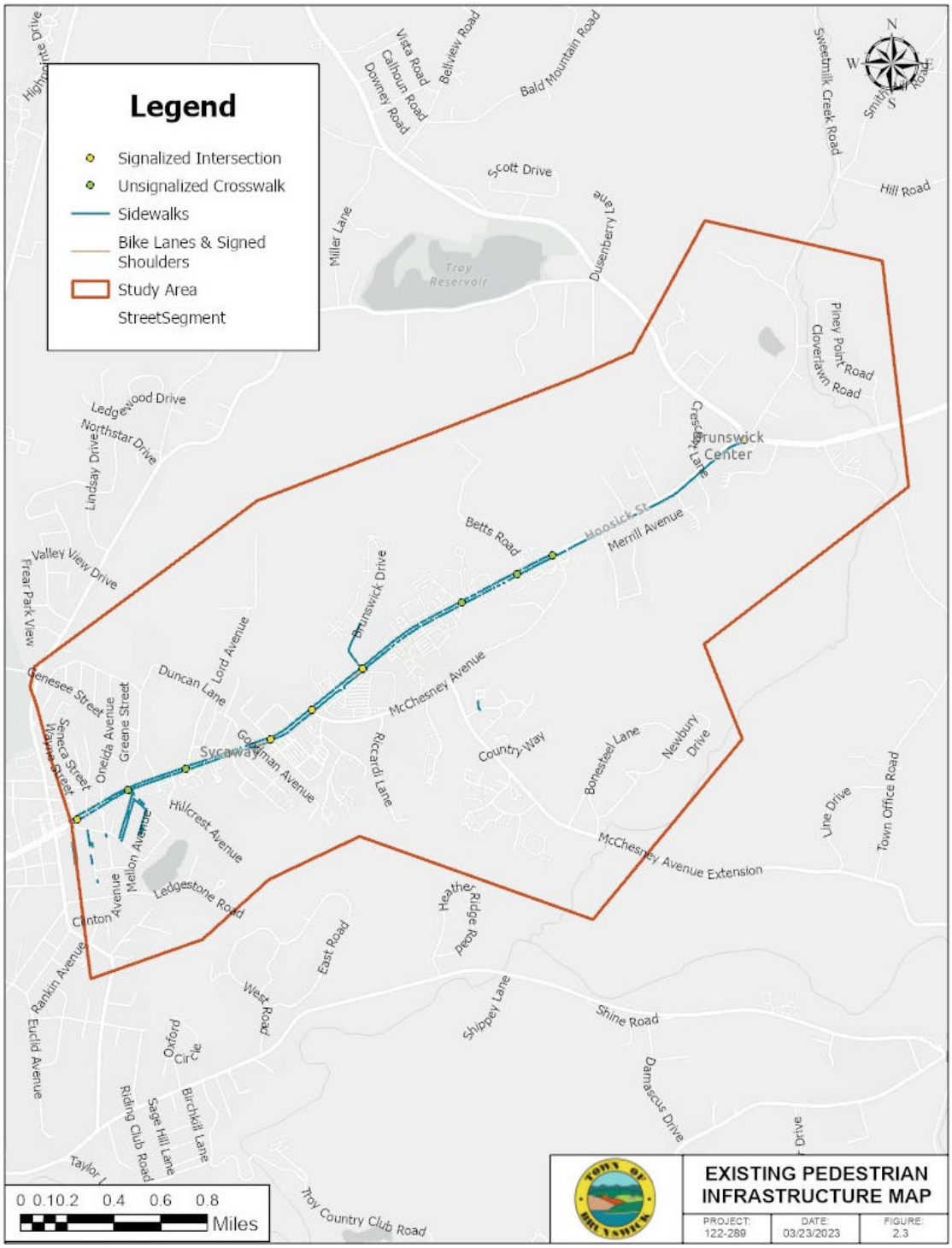


FIGURE 2.3 – EXISTING PEDESTRIAN INFRASTRUCTURE

Traffic signal timing and phasing data provided by NYSDOT indicates that signal coordination varies within the corridor. Specifically, the Roosevelt Avenue and McChesney Avenue (west) signals are coordinated during the morning, midday, and evening peak periods to prioritize eastbound traffic progression. Additionally, these signals are coordinated with the Brunswick Drive signal during the morning peak hour, although Brunswick Drive operates in free mode during other periods of the day. The remaining signals in the corridor are operating in free mode (not coordinated.) Signal coordination will be explored further during the concept development phase of this study.

Data published by the New York State Department of Transportation in the *2021 Pavement Data Report* indicates that the pavement on Hoosick Road in the study area is generally in good condition (Rated 7 or 8) with distress beginning to show. It is noted that pavement condition in the west end of the study area is generally worse (Rated 6) while areas adjacent to new construction or recent roadwork are in excellent condition (Rated 9).

TRAFFIC DATA COLLECTION

Due to the variable nature of the Hoosick Road corridor, traffic observations were conducted in two phases, with the first phase intended to assess typical travel patterns and peak periods, while the second phase focused on collecting more detailed data for traffic modeling.

The first phase of traffic data collection was conducted in December 2022 and included the installation of automatic traffic recorders (ATRs) at three locations on Hoosick Road to identify peak travel periods for further analysis and traffic modeling. Specifically, ATRs were installed on the segments of Hoosick Road west of Hillcrest Avenue, west of Brunswick Drive, and west of Grange Road (NY 142) for a one-week period to record daily traffic volumes, peak travel times, and travel speed information. Figure 2.4 illustrates the average daily two-way traffic at each location by day type.

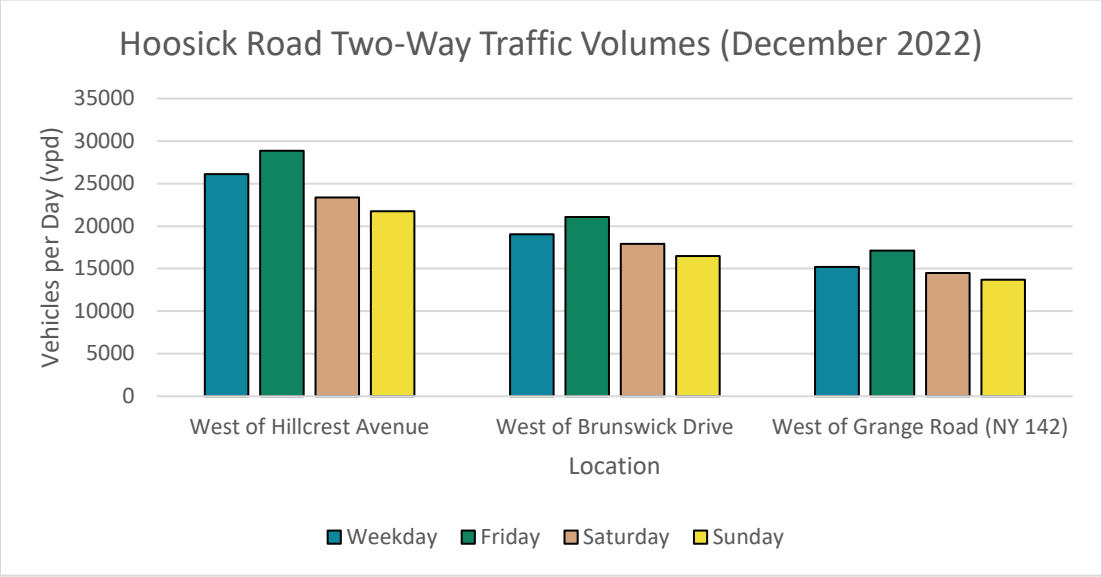


FIGURE 2.4 – HOOSICK ROAD TWO-WAY TRAFFIC VOLUMES (DECEMBER 2022)

The figure shows that traffic volumes are generally highest in the west end of the corridor and gradually decrease further east as vehicles access destinations within the corridor. Fridays experienced the highest traffic volumes, followed by the typical weekday period, with Saturday and Sunday volumes

being lower overall. Figure 2.5 illustrates the hourly variation in two-way traffic for the segment west of Hillcrest Avenue and indicates that Hoosick Road does not have the traditiaonal morning and evening rush hours that are seen on primarily commuter roads, but instead has a long traffic plateau from late morning through 6:00 p.m. This trend is further pronounced on Friday's with the peak period occurring midday from 12:00 p.m. to 2:00 p.m.

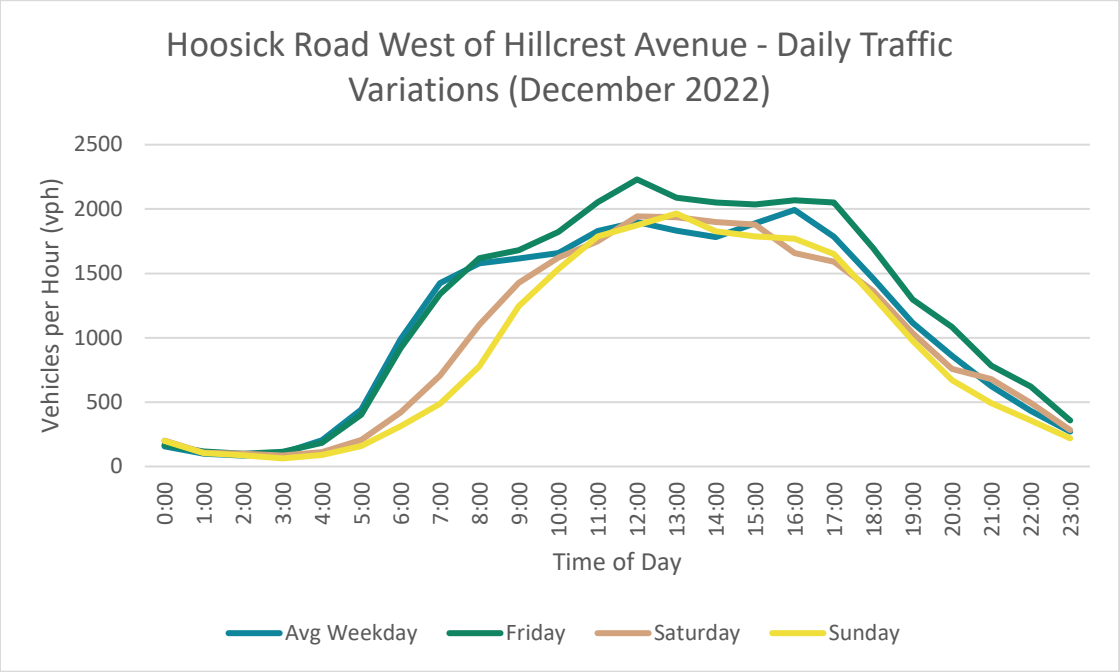
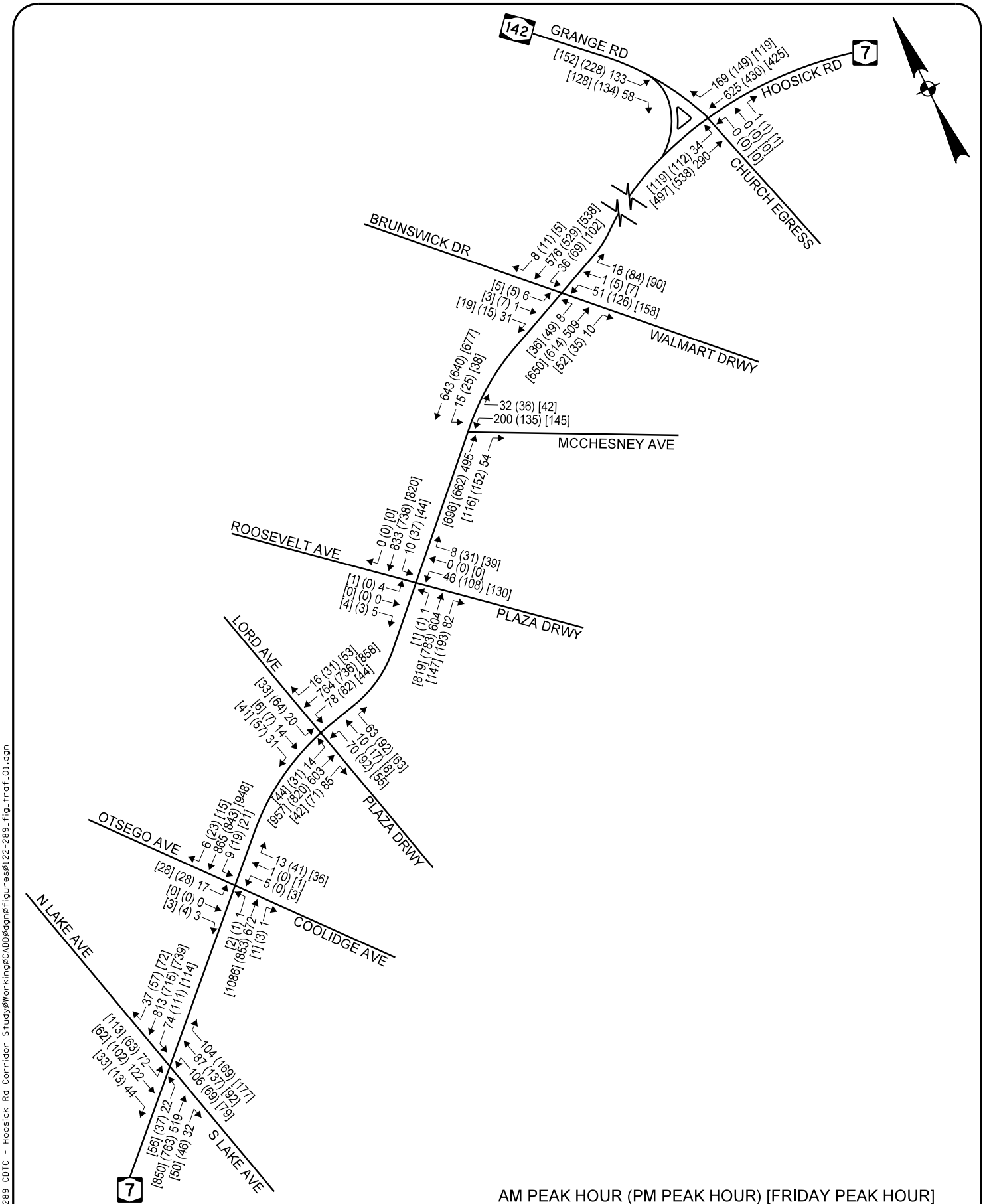


FIGURE 2.5 – HOOSICK ROAD DAILY TRAFFIC VARIATIONS (DECEMBER 2022)

The second phase of data collection conducted in March 2023 included ATRs at the three locations from phase 1 for comparison to the December 2022 counts, as well as intersection turning movement counts (TMCs) at the six signalized intersections on Hoosick Road within the study area and the unsignalized intersection at Hoosick Road/Coolidge Avenue/Otsego Avenue to facilitate the development of a traffic simulation model. The TMCs were completed during the peak periods identified in the first phase of data collection as noted above and balanced where appropriate. It is noted that due to the variable nature of the corridor, the observed Friday peak hour volumes on the west end of the corridor were approximately 35 percent lower than the previous December 2022 counts. As such, adjustment factors were applied to the Lake Avenue, Lord Avenue, and Roosevelt Avenue intersections for the Friday peak period to account for seasonal variations. The factored volumes are shown in Figure 2.5.



AM PEAK HOUR (PM PEAK HOUR) [FRIDAY PEAK HOUR]

EXISTING PEAK HOUR
TRAFFIC VOLUMES

HOOSICK ROAD CORRIDOR STUDY
RENSSELAER COUNTY, NEW YORK

Creighton Manning

PROJECT: 122-289	DATE: 05/2023	FIGURE: 2.6

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TRAFFIC FORECASTS

CDTC maintains a travel demand model for the four county region called the STEP Model (Systematic Transportation Planning and Evaluation Model). The STEP Model is based on population, housing and employment data and estimates traffic volumes based on demand. These estimated volumes are compared against actual traffic counts to validate the model. Each trip in the model simulation chooses a path based on the best travel time available, and as congestion increases, trips divert to alternate routes if the alternate route travel time is less. The CDTC STEP Model utilizes Visum software developed by the PTV Group. The model includes 1,000 traffic analysis zones that cover the entire four counties of Albany, Rensselaer, Saratoga and Schenectady. The network includes all federal aid highways in the four counties, as well as selected streets not on the federal aid system. The network consists of over 11,100 directional links and over 4,300 nodes.

Future traffic volume forecasts were prepared for the year 2045 to examine the operational characteristics of the corridor for an approximate 20-year horizon. CDTC's STEP model was used to develop a background growth rate of 0.1 percent per year which was applied to the existing traffic volumes.

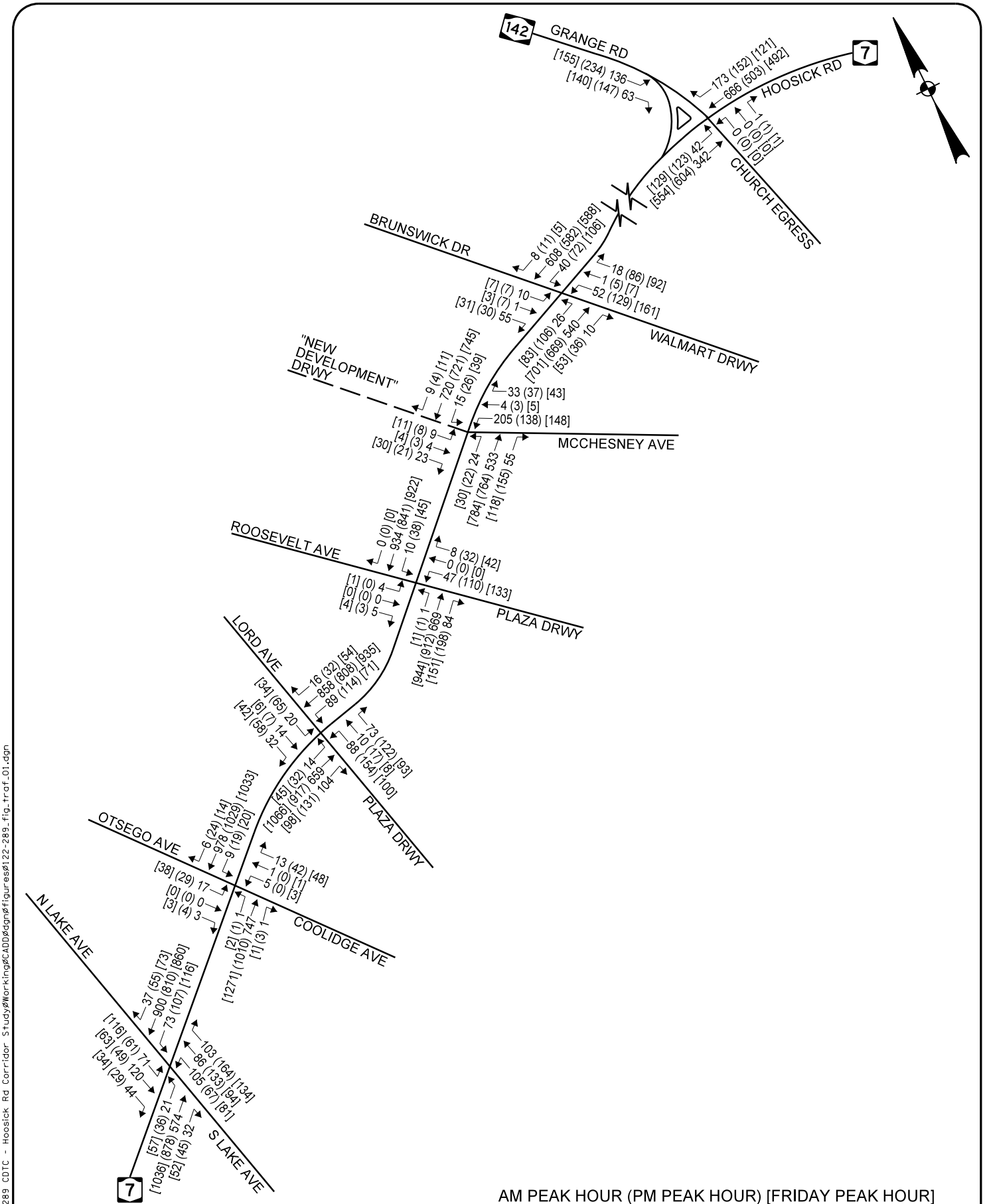
In addition, traffic generated by specific nearby pending projects was estimated and included in the forecasts. Table 2.1 shows pending and speculative projects provided by the Town.

TABLE 2.1 – PROPOSED DEVELOPMENTS AS OF APRIL 2023

ID	Development	Size	AM Peak Hour			PM Peak Hour		
			Enter	Exit	Total	Enter	Exit	Total
1	Betts Road Multi-family	250 Apartment Units	24	76	100	80	48	128
2	Betts Road Single-Family	8 Single Family Homes	1	5	6	5	3	8
3	Aldi	17,825 SF Grocery Store	10	2	12	81	80	161
4	Marise Muse (Opposite McChesney)	4,250 SF Retail, 2,350 SF Restaurant	60	58	118	55	52	107

The trips corresponding to proposed developments were distributed on the roadway network and added to the existing traffic volumes with background growth to develop the 2045 forecast volumes. The results indicate that traffic in the corridor is anticipated to increase by approximately 10 to 15 percent by 2045.

The resulting traffic forecast design hour volumes are shown Figure 2.7



AM PEAK HOUR (PM PEAK HOUR) [FRIDAY PEAK HOUR]

2045 FORECAST
TRAFFIC VOLUMES

HOOSICK ROAD CORRIDOR STUDY
RENSSELAER COUNTY, NEW YORK

Creighton Manning

PROJECT: 122-289	DATE: 05/2023	FIGURE: 2.7

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TRAFFIC OPERATIONS

Intersection Level of Service (LOS) and capacity analysis relate traffic volumes to the physical characteristics of an intersection. Evaluations of the signalized intersections were made using Synchro11 software, which automates the procedures in the Highway Capacity Manual published by the Transportation Research Board (TRB). Levels of service range from A to F, with LOS A conditions considered excellent (less than 10 seconds of delay) while LOS F represents conditions with very long delays (greater than 50 seconds at unsignalized intersections or 80 seconds at signalized intersections). Table 2.2 summarizes the existing LOS results in the study corridor.

TABLE 2.2 – LEVEL OF SERVICE SUMMARY

Intersection Approach		Control	2023 Existing			2045 Forecast		
			AM Peak Hour	PM Peak Hour	Friday Peak Hour	AM Peak Hour	PM Peak Hour	Friday Peak Hour
Hoosick Road/Lake Avenue		S						
Hoosick Road EB	L		B (12.4)	B (10.4)	B (12.1)	B (13.8)	B (11.6)	B (12.3)
	T, TR		B (14.5)	B (13.2)	B (15.4)	B (14.9)	B (15.7)	B (16.9)
Hoosick Road WB	L		B (11.0)	B (10.3)	B (12.0)	B (11.1)	B (12.3)	B (15.6)
	T, TR		B (14.5)	B (11.6)	B (13.3)	B (15.3)	B (13.8)	B (17.1)
S. Lake Avenue NB	L		D (43.6)	D (51.6)	D (52.9)	D (43.7)	D (50.6)	D (51.6)
	T		D (52.5)	E (71.8)	E (67.2)	D (52.3)	E (66.9)	E (62.2)
	R		D (46.8)	D (52.9)	D (54.4)	D (46.6)	D (49.6)	D (51.7)
N. Lake Avenue SB	L		D (49.5)	D (52.9)	D (53.4)	D (50.2)	D (53.7)	E (57.8)
	TR		E (67.1)	E (63.8)	E (62.2)	E (69.9)	E (69.2)	E (63.8)
	Overall		C (24.7)	C (23.7)	C (24.0)	C (24.6)	C (24.4)	C (25.0)
Hoosick Road/Coolidge/Otsego Avenue		U						
Hoosick Road EB	L		B (10.7)	B (10.7)	B (14.6)	B (12.1)	B (12.3)	C (17.5)
Hoosick Road WB	L		A (9.0)	A (9.8)	B (10.7)	A (9.3)	B (10.6)	B (11.8)
Coolidge Avenue NB	LTR		C (15.6)	C (17.1)	C (22.8)	C (17.6)	C (20.7)	D (29.9)
Otsego Avenue SB	LTR		C (20.5)	D (26.9)	E (39.0)	C (24.7)	E (38.0)	F (63.2)
	Overall		B (13.9)	B (16.1)	C (21.8)	B (15.9)	C (20.4)	D (30.6)
Hoosick Road/Lord Avenue		S						
Hoosick Road EB	L		B (14.7)	B (16.7)	C (19.2)	C (20.5)	C (25.3)	C (27.5)
	TR		C (22.1)	E (68.7)	E (67.8)	D (36.5)	F (187.4)	F (168.8)
Hoosick Road WB	L		B (11.5)	B (17.3)	B (16.5)	B (14.7)	B (18.2)	B (17.0)
	TR		B (20.1)	C (23.9)	D (39.4)	D (36.1)	D (54.0)	E (70.4)
Plaza Driveway NB	L		D (37.1)	D (39.8)	C (34.7)	D (38.2)	D (41.4)	D (40.7)
	TR		D (35.4)	D (35.7)	C (34.2)	D (35.1)	D (37.7)	D (35.9)
Lord Avenue SB	L		D (37.2)	D (36.6)	C (36.1)	D (37.1)	D (37.0)	D (36.6)
	TR		D (38.5)	D (35.7)	D (35.8)	D (38.6)	D (39.7)	D (37.9)
	Overall		C (22.4)	D (44.6)	E (51.0)	D (35.3)	F (106.3)	F (109.3)
Hoosick Road/Roosevelt Avenue		S						
Hoosick Road EB	L		C (24.0)	B (17.1)	C (21.1)	C (21.8)	B (18.0)	B (18.8)
	T		D (38.4)	C (24.7)	E (53.7)	C (31.7)	C (33.8)	D (47.7)
	R		B (19.0)	B (11.6)	B (16.8)	B (14.8)	B (11.1)	B (12.2)
Hoosick Road WB	L		B (11.8)	B (19.1)	D (35.8)	B (11.6)	C (32.9)	D (38.7)
	TR		C (24.8)	D (48.9)	C (30.7)	C (20.3)	C (33.3)	C (29.2)
Plaza Driveway NB	LT		E (65.6)	E (69.7)	E (68.2)	E (66.0)	E (66.4)	E (73.8)
	R		E (58.4)	D (54.1)	D (50.5)	E (58.3)	D (52.1)	D (51.0)
Roosevelt Avenue SB	LTR		E (58.4)	D (53.9)	D (50.4)	E (58.3)	D (52.0)	D (50.8)
	Overall		C (31.1)	D (35.8)	D (42.1)	C (25.9)	C (33.4)	D (39.1)

Intersection Approach		Control	2023 Existing			2045 Forecast		
			AM Peak Hour	PM Peak Hour	Friday Peak Hour	AM Peak Hour	PM Peak Hour	Friday Peak Hour
Hoosick Road/McChesney Avenue		S						
Hoosick Road EB	[L]T, TR		B (11.4)	A (8.4)	B (14.8)	C (22.8)	B (17.9)	B (19.5)
Hoosick Road WB	L		A (7.4)	A (3.4)	A (4.8)	A (7.9)	A (5.8)	A (6.8)
	T[R]		B (10.6)	A (3.8)	A (5.9)	B (12.4)	A (7.2)	A (8.3)
McChesney Avenue NB	L[T]R		E (66.4)	E (69.0)	E (66.6)	E (67.9)	E (64.8)	E (70.2)
"Marise Muse" SB	[LTR]		--	--	--	D (40.9)	D (46.3)	D (44.7)
	Overall		B (19.9)	B (12.8)	B (16.7)	C (25.1)	B (18.5)	C (20.6)
Hoosick Road/Brunswick Drive		S						
Hoosick Road EB	L		A (1.0)	A (1.1)	B (11.3)	A (2.2)	A (5.7)	A (8.7)
	T		A (5.6)	A (3.3)	B (21.2)	A (7.5)	A (9.4)	B (15.9)
	R		A (2.1)	A (0.2)	C (19.2)	A (4.0)	A (6.2)	A (7.4)
Hoosick Road WB	L		A (1.4)	A (3.5)	A (10.0)	A (1.7)	A (4.7)	A (8.9)
	TR		A (2.2)	A (4.6)	B (11.4)	A (2.7)	A (6.4)	B (10.3)
Walmart Driveway NB	LT		E (68.8)	E (74.8)	D (42.9)	E (78.7)	D (53.9)	D (46.4)
	R		E (57.8)	D (51.1)	D (36.9)	E (56.3)	D (46.0)	D (39.3)
Brunswick Drive SB	LTR		E (58.2)	D (51.1)	D (36.5)	E (56.9)	D (46.1)	D (39.1)
	Overall		A (8.8)	B (13.1)	C (20.3)	B (10.8)	B (14.1)	B (17.6)
Hoosick Road/Grange Road		S						
Hoosick Road EB	L		D (39.5)	D (51.4)	D (48.3)	D (41.7)	F (60.6)	E (56.0)
	T		A (6.2)	B (12.6)	A (9.2)	A (6.7)	B (14.9)	B (10.3)
Hoosick Road WB	TR		C (31.0)	C (32.8)	C (23.1)	D (42.6)	D (50.6)	C (28.6)
Church Egress NB	LTR		D (40.4)	D (48.6)	D (45.6)	D (40.8)	D (49.5)	D (46.1)
Grange Road SB	L, R		D (35.1	D (45.7)	D (42.6)	C (35.5)	D (45.7)	D (43.3)
	Overall		C (26.3)	C (30.2)	C (24.2)	C (32.9)	D (38.0)	C (27.2)

S, U = Traffic Signal or Unsignalized controlled intersection
EB, WB, NB, SB = Eastbound, Westbound, Northbound, and Southbound intersection approaches
L, T, R = Left-turn, Through, and/or Right-turn movements
X (Y.Y) = Level of service (Average delay in seconds per vehicle)
NA = Not Available

The results of the level of service analysis show that the majority of intersections in the study area currently operate at overall LOS D or better during the peak hours. Although overall level of service does not indicate excessive delay in the corridor, some movements such as side-street approaches or left turns from Hoosick Road experience longer delays and experience LOS D/E during the peak hours. Likewise, closely spaced intersections and driveways may experience queueing impacts that are not evident from the level of service calculation. Specifically, long delays associated with the Hoosick Road/Lord Avenue intersection result in long queues on the eastbound approach which have been observed extending through the Lake Avenue intersection, indicating that the Lord Avenue intersection is likely a bottleneck in the corridor. These queuing impacts are evident in the travel time reliability analysis as summarized below.

The future traffic analysis indicates that after accounting for growth, traffic delays will generally increase, with intersections currently operating poorly continuing to experience long delays. This is particularly the case on the movements to and from side streets and driveways, with some movements expected to experience LOS F.

Travel Time Reliability

Traffic congestion on Hoosick Road can be examined using data from the National Performance Management Research Dataset (NPMRDS). The NPMRDS contains travel time information for all major roads in the United States and is published monthly by USDOT for the purpose of providing the data needed for congestion management planning. The data is displayed by roadway segment, and contains information on travel time dating back to 2016 for all hours of the day and all days of the year in 15-minute intervals, based on data collected from GPS-connected devices. Based on the data, the following metrics can be calculated to provide a measure of reliability:

Level of travel time reliability (LOTTR) – calculated as the 80th percentile travel time divided by the 50th percentile travel time during peak travel times. This value represents consistency of travel time by comparing a fairly slow travel period (80th percentile) to the average travel time (50th percentile). For example, an LOTTR value of 1.5 suggests that, during 20% of peak periods, travel will take 1.5 times longer than average. An LOTTR close to 1.0 represents highly reliable travel times, and values of 2.0 or greater represent highly unreliable travel.

Person-hours of excessive delay (PHED) – calculated as the total amount of extra time spend in congested conditions when travel speed is below a delay threshold. This value represents the total magnitude of delay experienced by all travelers due to signal delay and traffic. It is reported on a per-mile basis.

The LOTTR and PHED was calculated for the Hoosick Road Study area segments from Lake Avenue to McChesney Avenue, and McChesney Avenue to Grange Road (NY 142) and are summarized in Table 2.3:

Table 2.3 – Hoosick Road Travel Time Reliability (NPMRDS)

Year	Direction	Segment	LOTTR	PHED
2019	EB	Route 7 – Lake Ave to McChesney Ave	1.70	39,550
	WB	Route 7 – Lake Ave to McChesney Ave	1.23	4,760
	EB	Route 7 – McChesney Ave to NY-142 Grange Rd	1.17	2,204
	WB	Route 7 – McChesney Ave to NY-142 Grange Rd	1.25	1,933
2020	EB	Route 7 – Lake Ave to McChesney Ave	1.81	35,840
	WB	Route 7 – Lake Ave to McChesney Ave	1.21	4,473
	EB	Route 7 – McChesney Ave to NY-142 Grange Rd	1.17	1,489
	WB	Route 7 – McChesney Ave to NY-142 Grange Rd	1.19	1,514
2021	EB	Route 7 – Lake Ave to McChesney Ave	1.96	61,471
	WB	Route 7 – Lake Ave to McChesney Ave	1.22	4,390
	EB	Route 7 – McChesney Ave to NY-142 Grange Rd	1.18	2,327
	WB	Route 7 – McChesney Ave to NY-142 Grange Rd	1.25	1,864

The NPMRDS data available in the study area suggests that the greatest traffic congestion occurs in the eastbound direction. Greater congestion occurs in the western segment (Lake Avenue to McChesney

Avenue). The magnitude of the traffic congestion is very high – in 2021, the LOTTR in the eastbound direction was 1.96, suggesting that 20% of trips take nearly twice as long as average. The total hours of delay (61,471 annual person-hours of delay per mile) is also very high, suggesting frequent recurring congestion in this area.

The NPMRDS can also be used to examine congestion by time-of-day. Figure 2.8 shows average hours of delay in each five-minute period of the day from 7 A.M. to 7 P.M. Congestion is greater in the PM hours, beginning at noon and peaking from 4 P.M to 5 P.M.

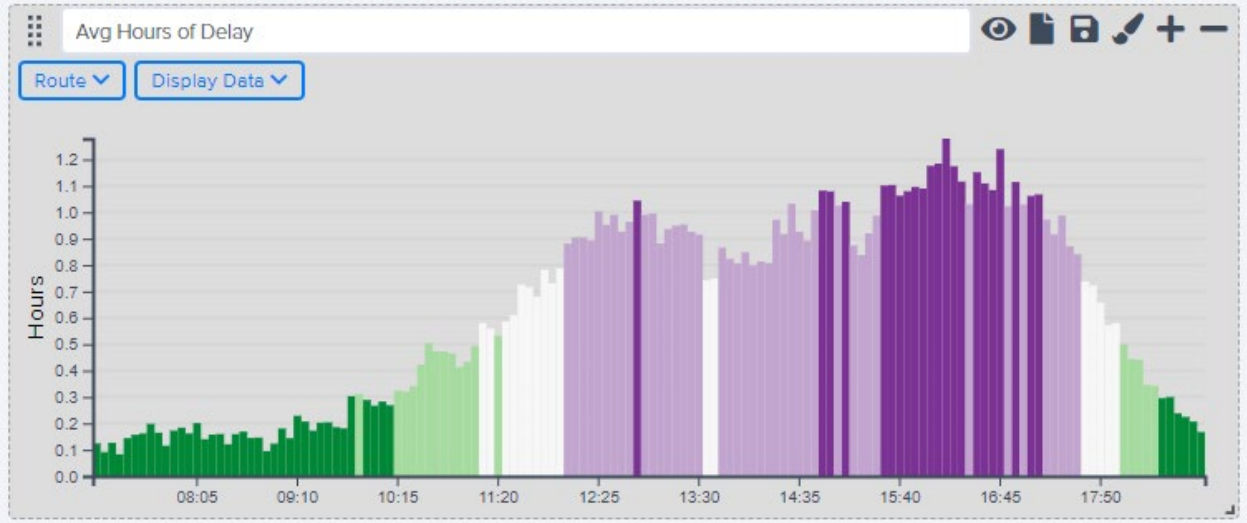

FIGURE 2.8 – AVERAGE HOURS OF DELAY BY TIME-OF-DAY ON HOOSICK ROAD

By examining total delay by day of the week, it is evident that congestion occurs on weekends, and that Friday has significantly more delay than any other day of the week:

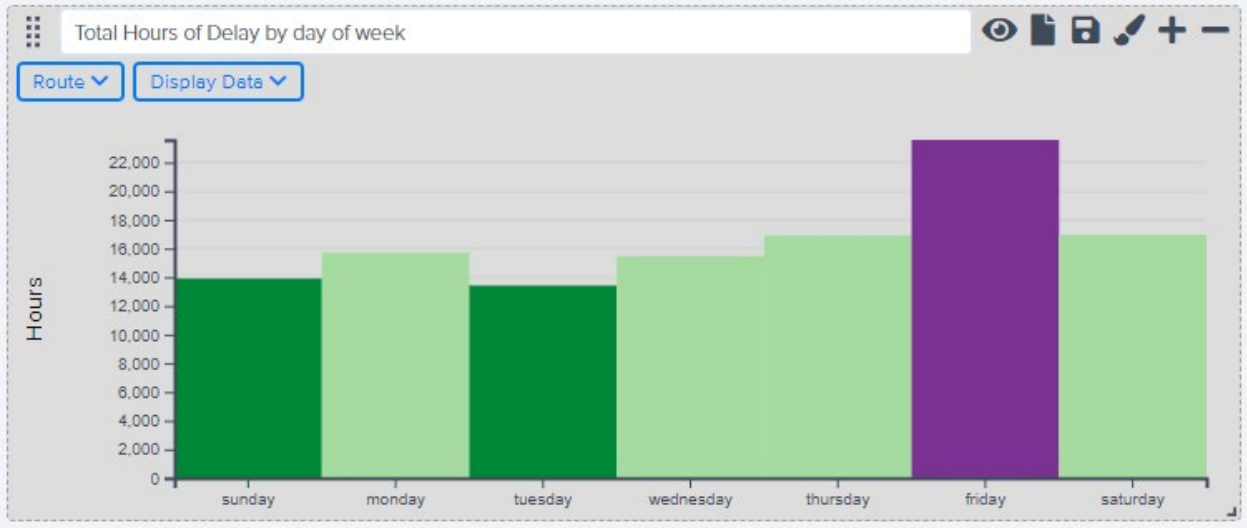

FIGURE 2.9 – AVERAGE HOURS OF DELAY BY DAY OF THE WEEK ON HOOSICK ROAD

Travel Patterns

An origin-destination (O-D) assessment was performed to identify existing travel patterns and inform the development and analysis of future concepts. Data was queried from Replica, a web-based data platform that uses a regional travel activity model to simulate movements of residents, visitors, and commercial vehicles over the course of a typical weekday. The model uses numerous data sources including location based data, spend data, and demographic data to provide detailed trip tables.

Replica data was queried to identify the level of through traffic on Hoosick Road. The data indicates that approximately 6,500 daily trips in each direction travel through the study area on Hoosick Road. This accounts for approximately 35 percent of all eastbound traffic and 60 percent of all westbound traffic in the corridor.

Pedestrian Characteristics

Pedestrian counts were conducted during the intersection turning movement counts conducted in March 2023 as noted above. Table 2.4 shows the number of pedestrians observed at each of the study intersections, during the peak hour traffic counts.

Table 2.4 – Hoosick Road Pedestrian Crossing Summary

Intersection	AM Peak Hour	PM Peak Hour	Friday Peak Hour	Total
Hoosick Road/Lake Avenue	3	46	11	**60**
Hoosick Road/Otsego Avenue/Coolidge Avenue	7	5	6	**18**
Hoosick Road/Lord Avenue	5	1	7	**13**
Hoosick Road/Roosevelt Avenue	8	6	9	**23**
Hoosick Road/McChesney Avenue	2	6	6	**14**
Hoosick Road/Brunswick Drive	0	9	15	**24**
Hoosick Road/Grange Road (NY 142)	0	0	0	**0**
Total	**25**	**73**	**54**	**152**

The data shows a total of 25 pedestrian crossings during the AM peak, 73 crossings during the PM peak hour, and 54 crossing during the Friday midday peak hour. The busiest crossing location is the Hoosick Road/Lake Avenue intersection followed by Hoosick Road/Brunswick Drive and Hoosick Road/Roosevelt Avenue intersections.

IMAGE 2.2 –EXAMPLE OF PEDESTRIAN CROSSING AT A MARKED CROSSWALK ON HOOSICK ROAD

BICYCLE CHARACTERISTICS

Table 2.5 shows the number of bicyclists observed at each intersection during the peak hour counts. The data shows a total of 6 bicyclists during the three peak periods, indicating that the corridor is not currently heavily used by bicyclists.

TABLE 2.5 – BICYCLE ACTIVITY SUMMARY

Intersection	AM Peak Hour	PM Peak Hour	Friday Peak Hour	Total
Hoosick Road/Lake Avenue	0	0	2	**2**
Hoosick Road/Otsego Avenue/Coolidge Avenue	0	0	2	**2**
Hoosick Road/Lord Avenue	1	0	0	**1**
Hoosick Road/Roosevelt Avenue	0	0	0	**0**
Hoosick Road/McChesney Avenue	0	1	0	**1**
Hoosick Road/Brunswick Drive	0	0	0	**0**
Hoosick Road/Grange Road (NY 142)	0	0	0	**0**
Total	**1**	**1**	**4**	**6**

PUBLIC TRANSIT CHARACTERISTICS (ROUTES, RIDERSHIP)

The Capital District Transportation Authority (CDTA) provides bus service throughout Rensselaer, Albany, Schenectady, Saratoga, and Montgomery counties. CDTA Route 87 operates along the Hoosick Road corridor providing service between Downtown Troy, Rensselaer Polytechnic Institute (RPI), and Wal-Mart. Route 87 is classified as a trunk route and operates seven days per week with service generally every 20 minutes from 6:00 a.m. to 11:00 p.m. on weekdays and Saturdays. Sunday service operates on a shorter span and with longer headways. Figure X illustrates the Route 87 alignment through the study area.

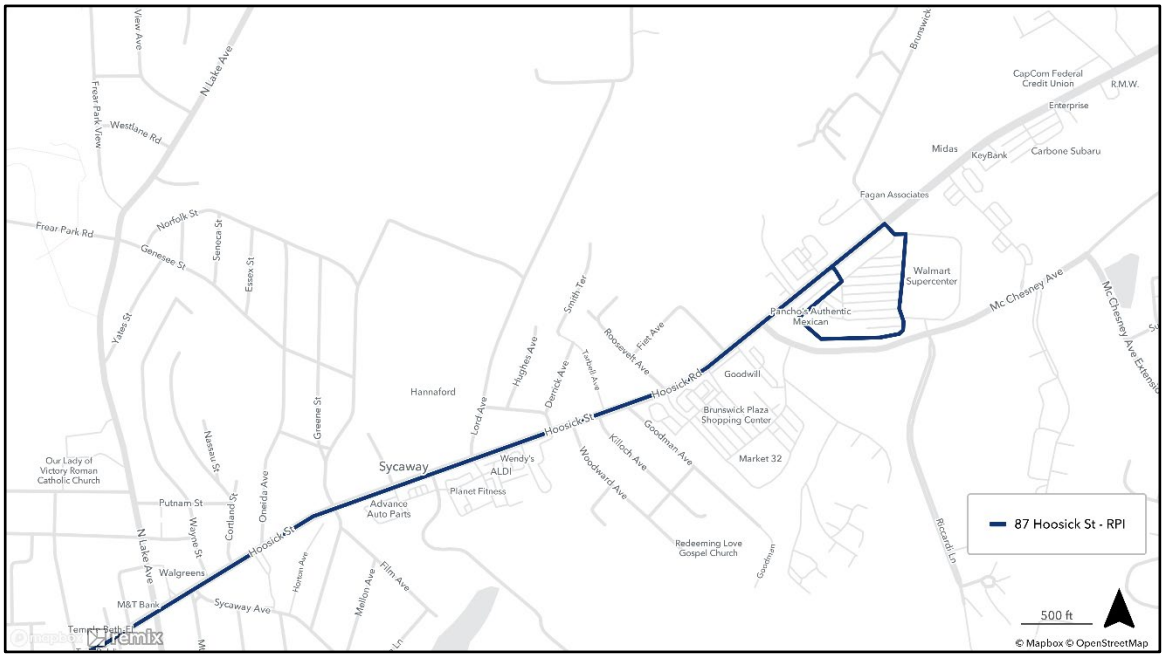

FIGURE 2.10 – CDTA ROUTE 87

Transit data was provided by CDTA from October through December 2022 and is summarized in Table 2.6. The table shows the average daily weekday ridership for each bus stop along the corridor and indicates that the bus stop located at Wal-Mart has the highest ridership with an approximate 14 boardings per hour. It is noted that ridership on Saturday's is higher with a total of 494 eastbound rides and 448 westbound rides.

TABLE 2.6 – AVERAGE CDTA DAILY RIDERSHIP

Stop Location	Route 87		
	On	Off	Total
Eastbound Stops			
Hoosick Rd& Hillcrest Ave (02871)	2.0	26.8	28.7
Hoosick Rd & Killock Ave (02870)	0.1	4.5	4.6
Hoosick Rd & Lord Ave (02871)	1.2	22.3	23.6
Hoosick Rd & Roosevelt Rd (02857)	2.7	64.2	67.0
Hoosick St & Coolidge Ave (02872)	1.2	3.5	4.7
Hoosick St & S. Lake Ave (02861)	3.7	23.2	26.9
Trustco Bank- Brunswick Plaza (02868)	1.3	24.7	26.0
Wal-Mart – Brunswick Plaza (02867)	0.0	234.5	234.5

Westbound Stops			
Hoosick Rd & Derrick Ave (03131)	6.1	0.4	6.4
Hoosick Rd & Lord Ave (12016)	13.8	0.4	14.2
Hoosick Rd & Roosevelt Rd (02856)	45.5	2.1	47.7
Hoosick St & N. Lake Ave (02860)	23.3	4.1	27.4
Hoosick St & Oneida Ave (03128)	2.9	1.2	4.0
Hoosick St & Otsego Ave (10967)	3.7	0.2	4.0
Wal-Mart – Brunswick Plaza (02867)	250.4	11.5	261.9

Crash Analysis

Crash data was provided by CDTC for the most recent five years of available data (May 31, 2017 to May 31, 2022), for the 2.5 mile segment of Hoosick Road from Lake Avenue to Grange Road (NY 142). The source data was a spreadsheet summarizing crash data from the NYSDOT Crash Location & Engineering Analysis & Reporting (CLEAR) database. In total, 593 crashes occurred over the five-year period on Hoosick Road from Lake Avenue to Grange Road (NY 142). A safety screening was performed on the crash data including calculation of segment crash rates (including intersection crashes) and intersection only crash rates. Tables 2.7 through 2.9 summarize the crash analysis.

Table 2.7 – Crashes by Severity

Crash severity	Count
A - SERIOUS INJURY	8
B - INJURY	6
C - POSSIBLE INJURY	82
U – UNKNOWN (Not Reported)	1
(Crashes with no injuries)	496
Total	**593**

Of the 593 reported crashes, 96 involved one or more injuries. There were no fatal crashes in this period. The table below summarizes crashes by severity. Crashes with multiple injuries are classified by the most severe injury that occurred.

Table 2.8 – Crashes by Crash Type

Crash type	Count
COLL. W/LIGHT PEDESTRIAN/BICYCLIST	9
COLLISION WITH ANIMAL	24
COLLISION WITH FIXED OBJECT	18
COLLISION WITH MOTOR VEHICLE	541
NOT ENTERED	1
Total	**593**

Of the 593 reported crashes, 541 were crashes between two or more motor vehicles (92%). There were five crashes involving bicyclists, and four involving pedestrians. Of the nine crashes involving bicyclists and pedestrians, six resulted in injury.

TABLE 2.9 – CRASHES BY COLLISION TYPE

Collision type	Count
HEAD ON	4
LEFT TURN (AGAINST OTHER CAR)	31
NOT ENTERED	1
OTHER	49
OVERTAKING	94
REAR END	355
RIGHT ANGLE	45
RIGHT TURN	14
Total	**593**

Of the 593 reported crashes, rear end crashes are the most common, representing 355 crashes (60% of crashes). Further review of collision patterns indicates that rear-end collisions are prevalent in the eastern portion of the corridor between Lake Avenue and Brunswick Drive, which corresponds to the more densely developed portion of the corridor. Rear end crashes are indicative of stop-and-go traffic. Traffic congestion on this signalized corridor may contribute to the high proportion of rear end crashes. In contrast, review of the right-angle collisions indicate that these crashes typically occurred at the non-signalized intersections in the corridor, which could be indicative of overcapacity conditions where drivers exiting side-streets and driveways accept smaller gaps to turn onto Hoosick road. It is noted that the large majority of sideswipe/overtaking collisions occur on the segment of Hoosick Road between Lake Avenue and Coolidge Avenue near the Sycaway Avenue intersection where Hoosick Road transitions to a single eastbound lane.

The locations of the crashes were mapped to identify locations with concentrations of crashes in the corridor. Figure 2.11 shows a heat map for all study area crashes and shows a concentration of crashes in the western end of the corridor, where traffic volumes are higher and congestion is more prevalent.

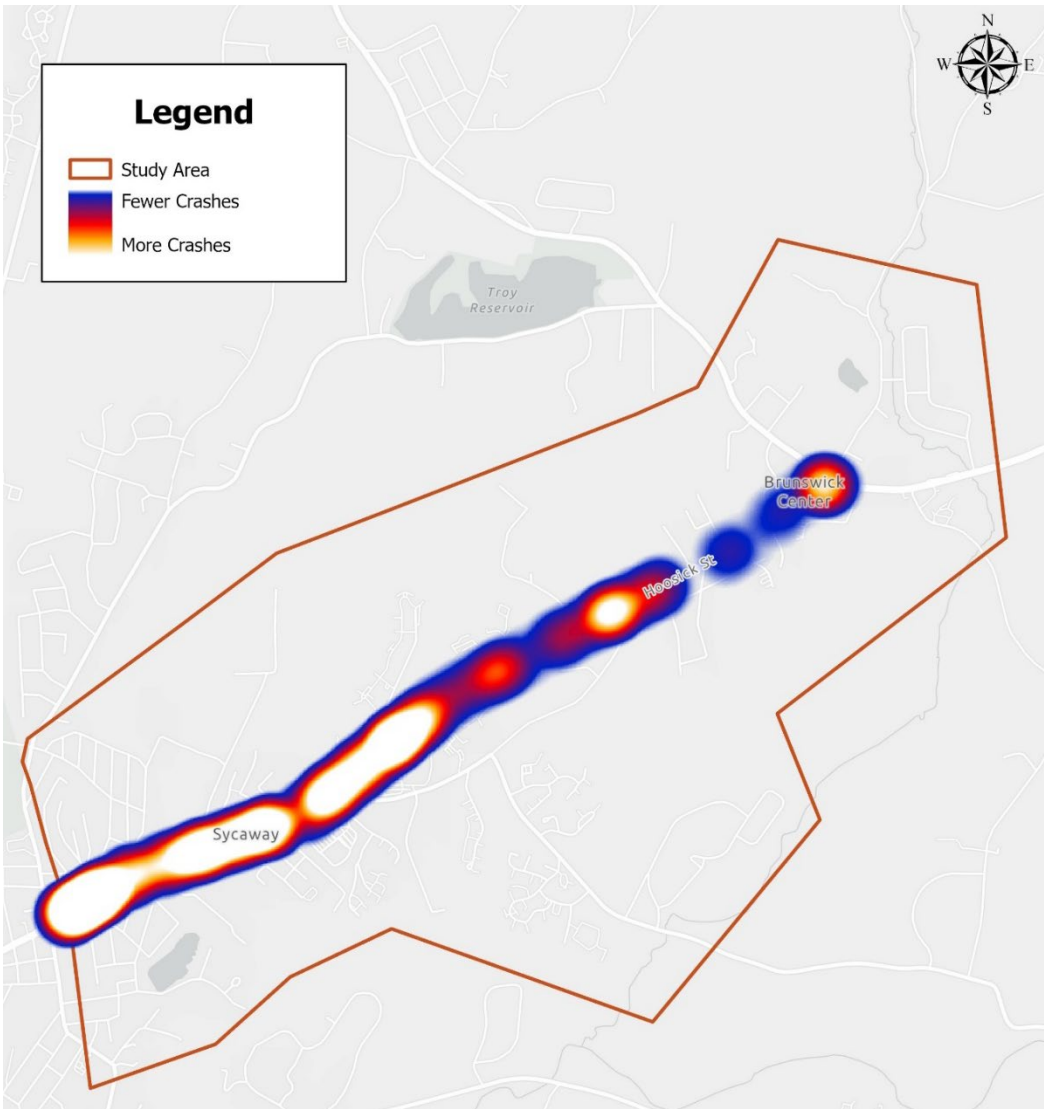

Figure 2.11 – Study Area Crashes

While the above tables and maps illustrate the number of crashes that occurred within the study area. They do not account for variations in traffic volumes at different intersections. As such, intersection crash rates were calculated in order to relate the number of crashes to traffic volumes at the study area intersections, and are summarized in Table X which shows that the study intersections generally have rates that are comparable to similarly designed intersections.

Intersection	Number of Crashes	Crash Rate	Statewide Average Rate
1. Hoosick Road/Lake Avenue	36	0.65	0.52
2. Hoosick Road/Lord Avenue	22	0.44	0.52
3. Hoosick Road/Roosevelt Avenue	0	0.00	0.52
4. Hoosick Road/McChesney Avenue	10	0.23	0.32
5. Hoosick Road/Brunswick Drive	28	0.76	0.52
6. Hoosick Road/Grange Road (NY 142)	22	0.53	0.32