

# Putnam County Complete Street Study



Prepared for  
Putnam County Planning, Development and  
Public Transportation

Prepared by  
AKRF, Inc.

June 2024



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## Memorandum

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**To:** Barabara Barosa, AICP; Putnam County Planning, Development and Public Transportation  
**From:** Michael Beattie, PE, PTOE and James Miller; AKRF, Inc.  
**Date:** June 15, 2024  
**Re:** Final Putnam County Complete Streets Study  
**cc:**

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### A. INTRODUCTION

The Putnam County Department of Planning, Development, and Public Transportation, funded through the New York Metropolitan Transportation Council (NYMTC) Unified Planning Work Program (UPWP), initiated a Complete Streets feasibility study along selected roadways in Putnam County. This planning effort examined the transportation network existing conditions and developed conceptual recommendations to enhance roadway safety and improve the active transportation (walking, biking, etc.) environment.

### STUDY AREAS

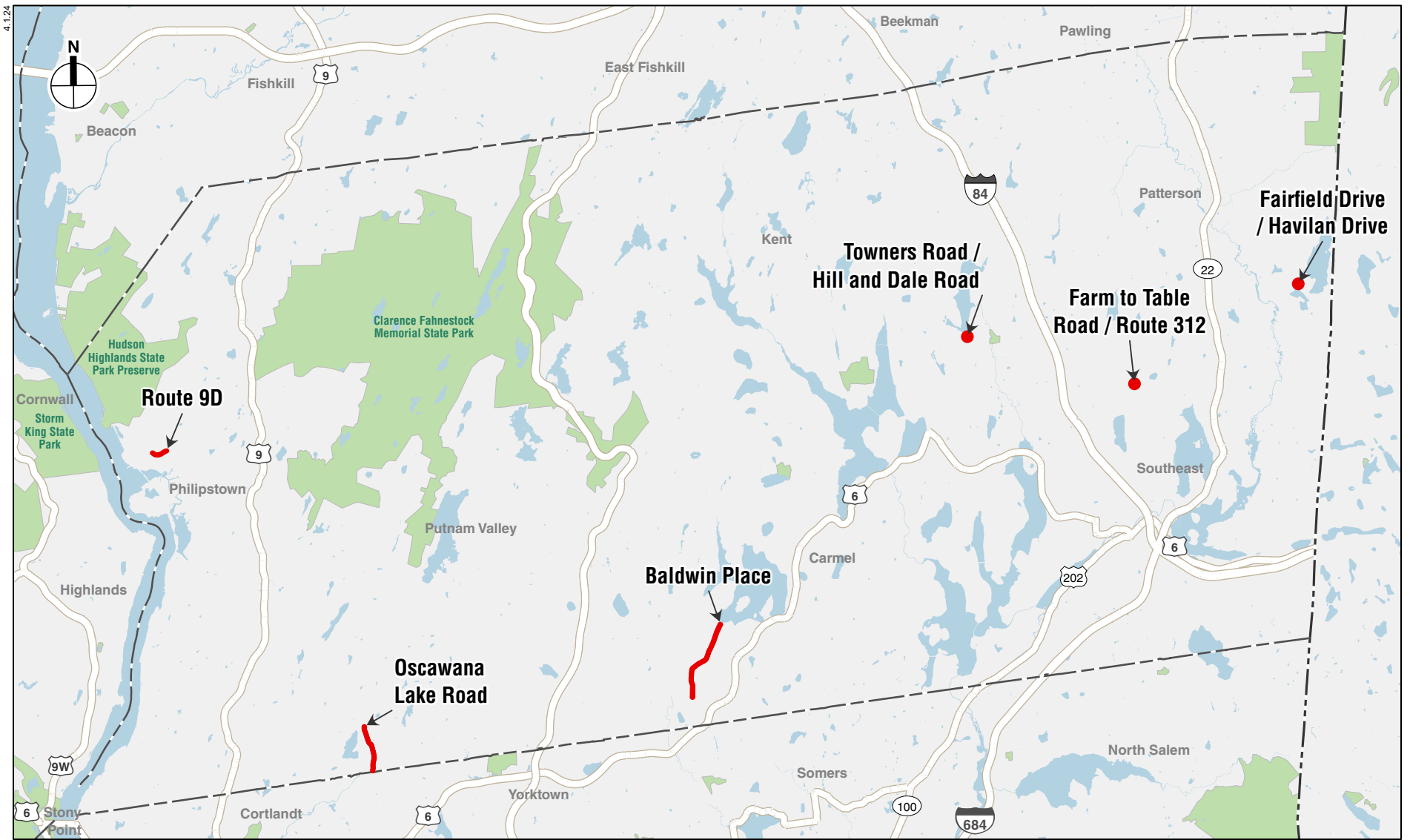
The study areas were developed in coordination with Putnam County staff and included the following intersections and roadways in Putnam County:

- Towners Road and Hill & Dale in Lake Carmel;
- Fairfield Drive and Haviland Drive in Putnam Lake;
- Baldwin Place Road near Mahopac Schools;
- Oscawana Lake Road between Gilbert Lane and Enloe Street in Putnam Valley;
- Route 312 and Farm to Market Road in Southeast; and
- Route 9D between Chestnut Street and Chestnut Street/Paulding Avenue in Cold Spring.

The study locations are presented in **Figure 1**.

### DATA COLLECTION

Vehicular and bicycle turning movement counts and pedestrian crosswalk volumes were collected at the study intersections or intersections along the study corridors during the weekday AM (7:00 AM – 9:00AM) and PM (4:00 PM – 6:00 PM) peak periods in March 2024 while schools were in session. In addition, seven day, 24-hour Automated Traffic Recorder (ATR) counts were deployed at key locations to obtain daily volumes and speeds. It should be noted that during the data collection period some of the



ATR tubes were damaged. For those locations data was supplemented with available information provided by New York State Department of Transportation (NYSDOT) Traffic Data Viewer. Count data is provided in **Appendix A** of this report.

Field visits were conducted during the traffic data collection time periods to observe traffic and active transportation operations, collect physical inventories, and identify land uses and access management in the study areas.

Finally, crash data for the most recent five-year period (September 1, 2018 through August 31, 2023) were obtained from the NYSDOT. The data obtained quantify the total number of reportable crashes, fatalities, and injuries during the five years. Crash data was analyzed by study intersection and by study corridor.

## **REPORT ORGANIZATION**

Given the wide geographic area covered by the study areas, this report is organized by study area to provide the reader a complete summary of existing and proposed conditions within one chapter. Therefore, for each study area chapter the following is provided:

- Intersection and/or roadway descriptions
- Traffic count summary and field observations
- Pedestrian and bicycle count summary and field observations
- Safety assessment
- Description of the proposed recommendations
- Conceptual drawings of the proposed recommendations.

Since improving intersection operations was not the focus of the study, intersection analyses are only provided for locations where a change in traffic control or lane geometries are proposed.

## **B. TOWNERS ROAD & HILL AND DALE ROAD & LAKESHORE DRIVE EAST IN LAKE CARMEL**

### **EXISTING CONDITIONS**

#### *ROADWAY DESCRIPTION*

Towners Road is an east-west County owned major collector road. It has one lane in each direction with 11-foot lanes and no sidewalks within the study area. It intersects with Hill and Dale Road, a north-south County owned major collector road with 11-foot lanes and no sidewalks, and Lakeshore Drive East, a local road that is 25 feet wide with no centerline and no sidewalks. The posted speed limit in the vicinity of the intersection is 30 miles per hour (mph). The intersection is two-way stop controlled with stop signs for Hill and Dale Road and Lakeshore Drive East. Towners Road curves sharply and changes grade significantly through this intersection.

Both Hill and Dale Road and Lakeshore Drive East have stop signs set back a significant distance from the travelled path of Towners Road. The Lakeshore Drive East approach currently does not have a stop line. At this junction there are several businesses that have driveway aprons with perpendicular parking.

## TRAFFIC

### Traffic Volumes

The intersection experiences 316 vehicles during the AM peak hour, with 10 percent heavy vehicles, and 444 vehicles during the PM peak hour, with 2 percent heavy vehicles. NYSDOT Traffic Data Viewer indicates 85 percentile speeds at 35 mph.

### Field Observations

Due to the curve and grade changes, there is poor sight distance on approaches. In addition, due to the curve along Towners Road and the large turn radius between Towners Road and Hill and Dale Road it is often unclear where oncoming vehicles are headed, making the two-way stop control problematic. Drivers headed eastbound on Towners Road turning right onto Hill and Dale Road often did not slow down or use a turn signal. The unusual geometry of the intersection combined with the through and right turn movements along Towners Road not being stop controlled made the intersection confusing to navigate as a pedestrian and as a driver.

The lack of a stop bar on the Lakeshore Drive East approach (**Figure 2**) along with the stop sign being positioned over 30 feet away from the edge line of Towners Road along with the significant up grade made sight distance and judging gaps in traffic challenging without travelling a significant distance past the stop sign.



**Figure 2 – Lakeshore Drive East Approach**

## PEDESTRIAN AND BICYCLE

### Volumes

Minimal pedestrian and bicycle activity were observed during the AM and PM data collection periods with less than 10 pedestrians during each peak period and no bicyclists during the AM peak period and two bicyclists during the PM peak period.

### Field Observations

A school bus was observed (**Figure 3**) dropping of students on Towners Road immediately west of the intersection on the south side. Parents and students crossed at that point to access businesses on the north side. Due to the large parking/driveway aprons, the area where pedestrians are exposed to traffic is very large and there are no safe places to wait for gaps in traffic to cross. Due to Towners Road not being stop controlled, gaps in traffic to cross were more challenging to find.



**Figure 3 – School Bus Drop-Off**

## SAFETY ASSESSMENT

As shown in **Table 1**, during the five-year period, 10 crashes occurred at the Hill and Dale Road / Lakeshore Drive East and Towners Road intersection, resulting in three injuries and zero fatalities.

As shown in **Table 2**, the predominant crash type at the intersection is a left turn collision with right angle crashes secondary. This could be attributed to the intersection geometries and curve in the road as described above. In addition, environmental factors did not play a significant role in crashes. Dry

conditions were present for 90 percent of all crashes. All crashes at the intersection were attributed to driver error.

**Table 1**  
**Hill and Dale Road / Lakeshore Drive East and Towners Road**  
**Intersection Crash Summary**

Intersection	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Hill and Dale Road / Lakeshore Drive East and Towners Road	4	0	2	0	4	0	3	0

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

**Table 2**  
**Hill and Dale Road / Lakeshore Drive East and Towners Road**  
**Crash Types**

Crash Type	Number	Percentage
Rear End	1	10%
Right Turn	1	10%
Left Turn	4	40%
Sideswipe	0	0%
Right Angle	3	30%
Overtaking	0	0%
Fixed Object	1	10%
Overturning	0	0%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
<b>Total</b>	<b>10</b>	<b>100%</b>

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

## PROPOSED IMPROVEMENTS

The proposed improvements focused on addressing the geometric deficiencies of the intersection which were contributing to the crash history and driver confusion (see conceptual plan presented below). By realigning Lakeshore Drive East through public land and converting a portion Lakeshore Drive East to a one-way northbound roadway with on-street parking, the single four-leg intersection is converted into two T-intersections. The intersection of Towners Road and Hill and Dale Road would be all-way stop controlled. At the intersection of Towners Road and the realigned Lakeshore Drive East, Towners Road has free operation and Lakeshore Drive East has a stop sign.

The intersection is tightened with striping and curbed islands with pedestrian landings on the south side of the Towers Road/Hill and Dale intersection to decrease turn radii and bring the intersection closer to 90 degrees. Based on field observations, vehicle operations at Gino's Deli and JPE Automobile Repair should not be impacted with the curbed islands but would need to be further investigated if the concept is progressed to a design phase. Crosswalks would be provided at each leg of the Towners Road and Hill and Dale Road intersection, enhanced with "Yield to Pedestrians" signage.

Sidewalks would be provided on the north side of Towners Road, which would also provide an opportunity to install bus shelters for the Putnam Area Rapid Transit's PART 5 route.

The sidewalk adjacent to Parlor 109 would remove access to the existing parking spaces. To replace the parking, eight on-street parallel parking spaces (five on Towners Road and three on the converted Lakeshore Drive East roadway) would be provided.

In addition to the sidewalks on Towners Road, a 5 foot sidewalk could also be provided along Lakeshore Drive East to connect to residential and recreational land uses further north.

### INTERSECTION OPERATIONS ANALYSIS

With the proposed conversion from a two-way to all-way stop controlled intersection, an intersection analysis was conducted using the Synchro software to assess the existing and proposed intersection operations. As shown in **Table 3**, the intersection would operate at a level of service A on all approaches.

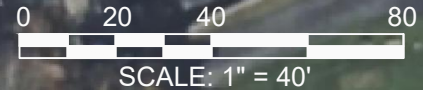
**Table 3**  
**Existing Conditions and Proposed Improvements**  
**Intersection Level of Service Analysis**


Intersection	Lane Group	AM Peak Hour			PM Peak Hour			
		V/C Ratio	Delay (sec)	LOS	V/C Ratio	Delay (sec)	LOS	
<b>Existing Conditions</b>								
Towners Road	Eastbound	LTR	0.01	7.3	A	0.02	7.4	A
	Westbound	LTR	0.03	7.5	A	0.02	7.5	A
Hill and Dale Road	Northbound	LTR	0.15	11.0	B	0.30	12.9	B
Lakeshore Drive East	Southbound	LTR	0.09	10.0	B	0.07	10.0	B
<b>Proposed Improvements</b>								
Towners Road	Eastbound	TR	0.12	7.5	A	0.21	8.6	A
	Westbound	LT	0.18	8.4	A	0.19	8.7	A
Hill and Dale Road	Northbound	LR	0.13	8.2	A	0.25	9.2	A
Lakeshore Drive East	-	-	-	-	-	-	-	-
<b>Notes:</b> L = Left Turn, T = Through, R = Right Turn; V/C = volume-to-capacity ratio; LOS = Level of Service								



# LEGEND

- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- CYAN - ROAD EDGE
- BLUE - BUS SHELTERS



<p><b>SITE/CIVIL ENGINEER</b></p>  <p>AKRF INC. 34 SOUTH BROADWAY, SUITE 300 WHITE PLAINS, NY 10601 (914) 949-7336 (PHONE) (914) 949-7559 (FAX)</p>	<p><b>CLIENT</b></p> <p>PUTNAM COUNTY PLANNING, DEVELOPMENT AND PUBLIC TRANSPORTATION</p> <p>841 FAIR STREET CARMEL, NY 10512 (845) 878-3480 (PHONE) (845) 808-1948 (FAX)</p>	<p>PROJECT</p> <p><b>PUTNAM COUNTY COMPLETE STREETS</b></p>		<p>SHEET TITLE</p> <p><b>TOWNERS ROAD/HILL AND DALE/LAKESHORE DRIVE E LAKE CARMEL</b></p>	
		<p>DRAWN BY</p> <p><b>JM</b></p>	<p>CHECKED BY</p> <p><b>MB</b></p>	<p>SHEET NO.</p> <p><b>1</b></p>	
		<p>SCALE</p> <p><b>1" = 40'</b></p>	<p>DATE</p> <p><b>2024-6-5</b></p>	<p>SHEET 1 OF 14</p>	



## C. FAIRFIELD DRIVE & HAVILAND DRIVE IN PUTNAM LAKE

### EXISTING CONDITIONS

#### *ROADWAY DESCRIPTION*

Fairfield Drive is a County owned major collector road running east-west across Putnam Lake, continuing into Connecticut to the east. It intersects with Haviland Drive, a County owned major collector road that runs north-south. This forms a T-intersection with a channelized right turn lane from Fairfield Drive westbound to Haviland Drive northbound, creating a triangular central area which contains a monument with a flagpole. It is an all-way stop controlled intersection with no sidewalks or marked crosswalks. Both roads have 12-foot lanes and a speed limit of 30 mph in the vicinity of the intersection. There are several small businesses along the south side of Fairfield Drive beginning immediately west of the intersection which have perpendicular parking in an apron immediately abutting the road edge. Along the north side of Fairfield Drive and the west side of Haviland Drive, the Putnam Lake Fire Station has approximately 300 feet of frontage with seven (7) garage doors and two (2) parking areas. West of the fire station there is a supermarket with a parking lot containing approximately 50 parking spaces. Putnam Area Rapid Transit (PART) Route 1 runs through this intersection and operates as a flag system meaning riders can flag down a bus at any point along the route to board or disembark.

#### *TRAFFIC*

##### *Traffic Volumes*

During the AM peak hour, this intersection had a total volume of 682 with 5 percent heavy vehicles. At the PM peak hour, the total volume was 862 with 2 percent heavy vehicles. NYSDOT Traffic Data Viewer indicates 85 percentile speeds at 35 mph.

##### *Field Observations*

The perpendicular parking along the south side of Fairfield Drive (**Figure 4**) requires drivers to back out into the travel lane with limited visibility, often relying on other drivers to stop to let them out. Four near misses were witnessed during the observation period at lunch hour. At the intersection, the Haviland Drive approach does not have a stop line and the stop sign does not indicate that it is an all way stop. The channelized right turn from Fairfield Drive to Haviland Drive also does not have a stop line.



**Figure 4 – Perpendicular Parking along Fairfield Drive**

#### *PEDESTRIAN AND BICYCLE*

##### *Volumes*

Minimal pedestrian and no bicycle activity were observed during the AM and PM peak periods data collection periods. Less than 10 pedestrians during each peak period and no bicyclists during either AM peak or PM peak periods.

##### *Field Observations*

The only crosswalk in the vicinity of the intersection is over 200 feet away and lands in front of an auto repair shop, 80 feet away from the private sidewalk in front of the restaurants and other small businesses along the south side of Fairfield Drive. On the north side, due to the 300 feet



**Figure 5 – Pedestrian Walking in Front of Fire Station**

of driveway apron in front of the fire station, pedestrians have no protection from traffic while walking between the commercial area and nearby residential areas (**Figure 5**).

#### *SAFETY ASSESSMENT*

During the September 2018 through August 2023 period, a total of four reported crashes occurred at the study intersection resulting in no injuries, including no serious injuries, no pedestrian crashes, and no bicycle crashes. There were no recorded fatalities during the five-year period. A summary of the study intersection crashes is presented in **Table 4**.

**Table 4**  
**Fairfield Drive and Haviland Drive**  
**Intersection Crash Assessment Summary**

Intersection	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Fairfield Drive and Haviland Drive	1	2	0	0	1	0	0	0

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

As shown in **Table 5**, the predominant crash types were rear end and right turn crashes. All crashes at the intersection were attributed to driver error.

**Table 5**  
**Fairfield Drive and Haviland Drive**  
**Crash Type**

Crash Type	Number	Percentage
Rear End	2	50%
Right Turn	0	0%
Left Turn	0	0%
Sideswipe	0	0%
Right Angle	2	50%
Overtaking	0	0%
Fixed Object	0	0%
Overtaking	0	0%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	4	

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

#### **PROPOSED IMPROVEMENTS**

The proposed improvements, see conceptual plan presented below, focused on adding pedestrian facilities to improve pedestrian safety and accessibility to the commercial area, as well as improving the safety of the parking along Fairfield Drive.

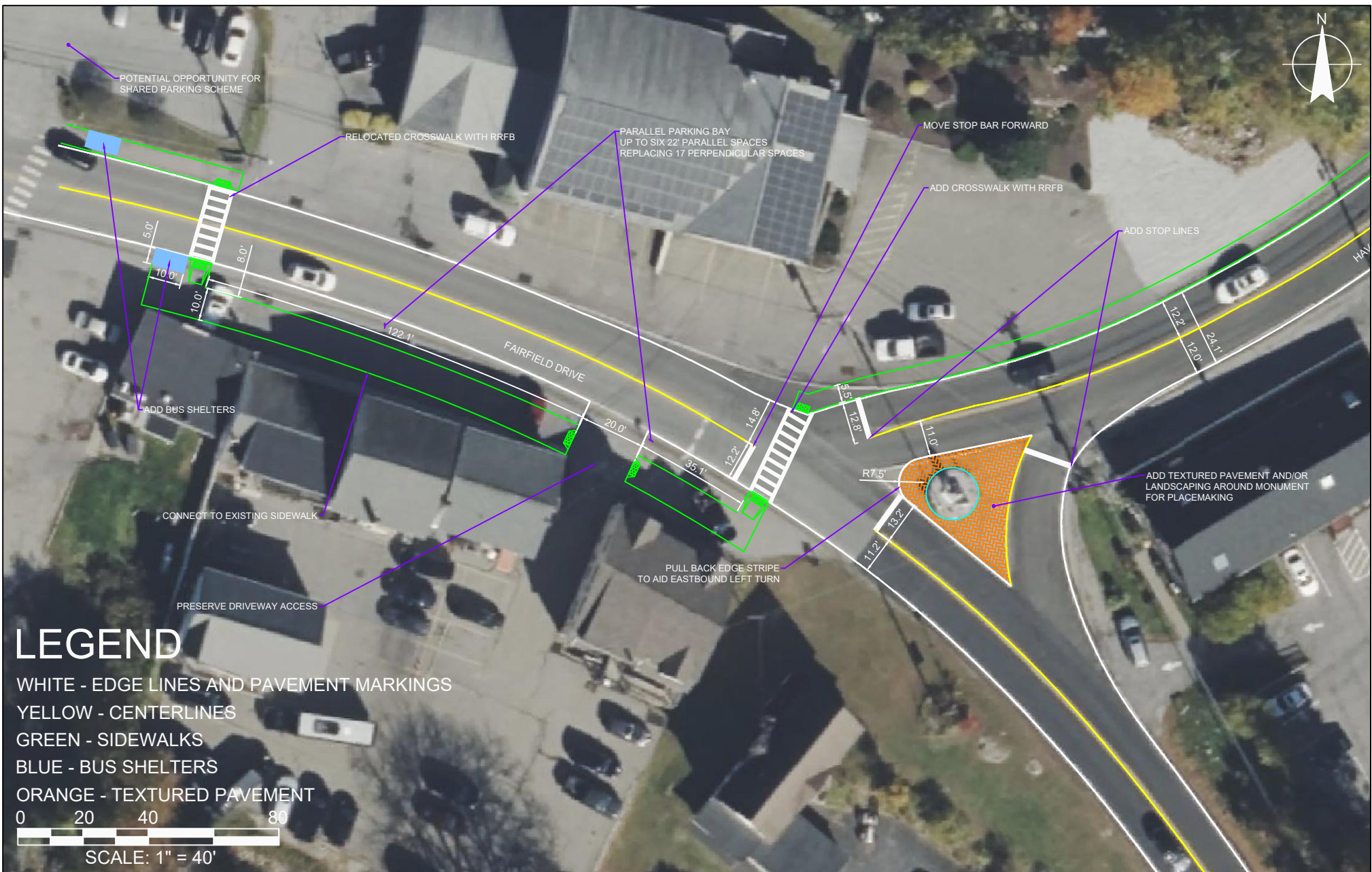
Due to this intersection's proximity to several small businesses, significant pedestrian activity is anticipated. Adding sidewalks and crosswalks will improve safety for pedestrians while also creating a main street feel. The proposed changes include adding a 10-foot sidewalk, allowing for pedestrian circulation as well as amenities for the adjacent business, with a parallel parking bay in front of the businesses on the south side of Fairfield Drive. The parallel parking would remove the conflicts occurring with vehicles backing out of a perpendicular space with limited sight distance on Fairfield Avenue, however, it should be noted that this would serve vehicles traveling eastbound on Fairfield Avenue.

On both ends of the sidewalk, crosswalks are provided to connecting to sidewalks on the north side of Fairfield Drive and Haviland Drive. The sidewalk to the west connects to the driveway for the supermarket parking lot. This parking lot is a potential opportunity for created a shared parking scheme to compensate for the reduction in parking spaces due to converting the perpendicular parking to parallel parking. Connecting these areas with pedestrian facilities allows for shoppers to park once and walk to multiple destinations.

To the east, a section of the Fire Department's parking lot street frontage can be converted into a sidewalk along the north side of Haviland Drive, creating a pedestrian connection to the nearby neighborhoods and to another commercial area along the east side of Haviland Drive.

The addition of sidewalks and the relocated midblock cross walk offers opportunities for bus stops or shelters. On the south side of the street there may be room with the widened sidewalk to provide a bus stop with shelter. On the north side of the road there would be an opportunity to place a bus stop here, however, the available width might not be able to accommodate a bus shelter.

An alternate option explored, shown below, is to convert the intersection into a mini roundabout with the monument at the center and a mountable apron around it. This option can be combined with the same sidewalks and parallel parking bay as above. Traffic calming may be diminished compared to the all-way stop option due to eastbound through traffic on Fairfield Drive having only a minor deflection angle. Additionally, eastbound left turns from Fairfield Drive may not be possible for trucks over a certain length, requiring a truck detour through side streets. During traffic counts there were 10 trucks observed making this turn at AM peak hour and three (3) at PM peak hour.



# LEGEND

- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- GREEN - SIDEWALKS
- BLUE - BUS SHELTERS
- ORANGE - TEXTURED PAVEMENT



**SITE/CIVIL ENGINEER**



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**PROJECT**

PUTNAM COUNTY COMPLETE  
 STREETS

**DRAWN BY**

JM

**SCALE**

1" = 40'

**CHECKED BY**

MB

**DATE**

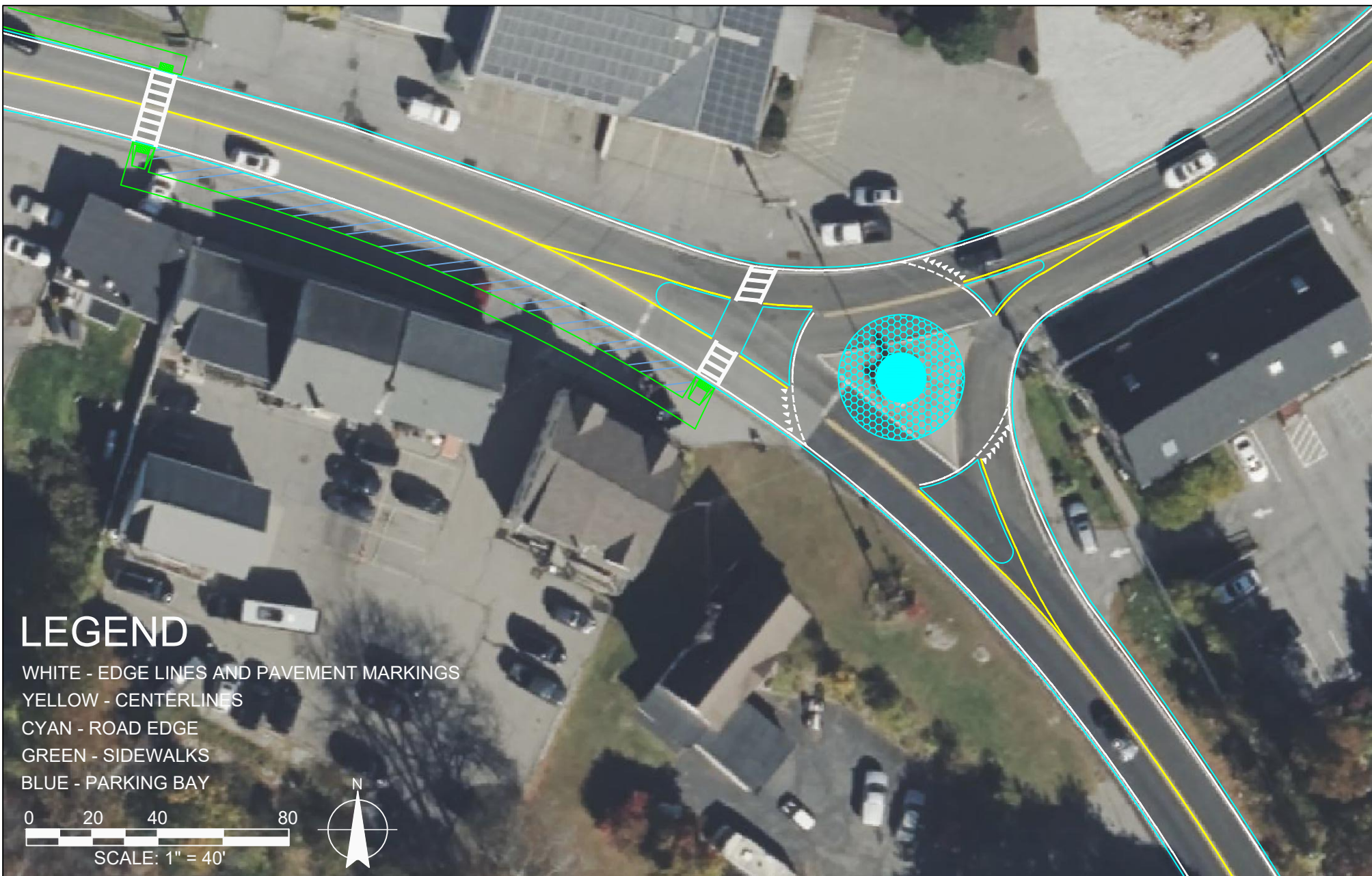
2024-6-4

**SHEET TITLE**

FAIRFIELD DRIVE/HAVILAND  
 DRIVE  
 PUTNAM LAKE

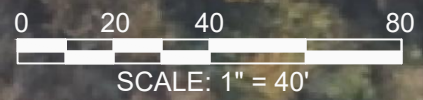
**SHEET NO.**

2



# LEGEND

- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- CYAN - ROAD EDGE
- GREEN - SIDEWALKS
- BLUE - PARKING BAY



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**PROJECT**

PUTNAM COUNTY COMPLETE  
 STREETS

**DRAWN BY**

JM

**SCALE**

1" = 40'

**CHECKED BY**

MB

**DATE**

2024-6-4

**SHEET TITLE**

ROUNDBOUT ALTERNATE  
 FAIRFIELD DR/HAVILAND DR  
 PUTNAM LAKE

**SHEET NO.**

3

## D. BALDWIN PLACE ROAD NEAR MAHOPAC SCHOOLS

### EXISTING CONDITIONS

#### *ROADWAY DESCRIPTION*

Baldwin Place Road is a County owned major collector road that runs north-south. It has 11-foot lanes and a school zone speed limit of 30 mph north of Ryan Court. South of Ryan Court the speed limit is 40 mph. There are no sidewalks along Baldwin Place Road within the study area. The road runs along the east edge of a campus containing three (3) schools in the Mahopac Central School District. There are three driveways for the school campus. There is a two-way driveway at the north edge of the campus for Mahopac Middle School, directly across from Drago Lane, a dead-end subdivision street serving fewer than a dozen homes. The next driveway is a quarter mile south of Drago Lane and is a one-way entrance driveway to Mahopac High School. Five hundred (500) feet south of that is a two-lane exit driveway, directly across from Gleneida Boulevard, a subdivision street serving several dozen homes. Half a mile south of Gleneida Blvd, Baldwin Place Road intersects with Myrtle Avenue, a county owned road which runs north-south along the west edge of the school campus with driveways serving Mahopac Falls Academy. Another half mile south of Myrtle Ave, Baldwin Place Road intersects with Grand Meadow Drive which connects to a small subdivision of 15 homes, a preschool, and Baldwin Meadows Park.

All three school driveways have sidewalks that end at the intersection with Baldwin Place Road. Several students were observed walking on the edge of Baldwin Place Road both adjacent to, and south of campus, on both sides of the road and in both directions. Additionally, traffic counts conducted showed 30 pedestrians crossing from Gleneida Boulevard to the High School exit driveway across Baldwin Place Road, conflicting with turning cars and school buses at AM peak hour, with all pedestrian crossings within 30 minutes of each other.

#### *TRAFFIC*

##### *Traffic Volumes*

Baldwin Place Road had a weekday traffic volume of approximately 3,330 vehicles. During the AM peak hour from 7 to 8 AM, there were 366 vehicles total. During the PM peak hour from 4 to 5 PM, there were 276 vehicles. In addition, at the Mahopac High School exit driveway across from Gleneida Boulevard, there were 197 vehicles observed exiting during the AM peak hour with 25 percent of which were heavy vehicles (i.e., school buses). The 85th percentile speed along Baldwin Place Road was measured to be 45 mph.

##### *Field Observations*

Traffic operations appeared to be acceptable during field observations within the study area. On occasion a queue would form on the northbound approach to the intersection of Baldwin Place Road and Lake Boulevard—north of the study area—extending to the Mahopac Middle School driveway/Drago Lane.

#### *PEDESTRIAN AND BICYCLE*

##### *Volumes*

Significant pedestrian volumes were observed at the High School exit driveway and Gleneida Boulevard intersection, with 34 pedestrians crossing during peak hour despite the lack of pedestrian facilities (crosswalks, pedestrian crossing signs, etc.) All pedestrians observed appeared to be high school students. All except one crossed from the east side of Baldwin Place Road to the school on the west side with one exception who walked along the west side of Baldwin Place Road from south of the intersection. There were no bicyclists observed during the AM or PM peak hours.

*Field Observations*

During field observations several school age pedestrians were seen walking along the edge of Baldwin Place Road, both adjacent to the school campus as well as south of the school campus. **(Figure 6)** Due to the lack of pedestrian facilities or a road shoulder, these pedestrians were exposed to relatively high volumes of high-speed traffic.



**Figure 6 – Pedestrian Walking on Shoulder along Baldwin Place Road**

*SAFETY ASSESSMENT*

During the September 2018 through August 2023 period, a total of 10 reported crashes occurred at study intersections along the Baldwin Place Road study corridor resulting in seven injuries, including no serious injuries, one pedestrian crash, and no bicycle crashes. There were no recorded fatalities during the five-year period. A summary of the study intersection crashes is presented in **Table 6**.

**Table 6  
Baldwin Place Road Corridor  
Intersection Crash Assessment Summary**

Intersection	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Baldwin Place Road and Drago Lane / Mahopac Middle School Driveway	1	1	0	0	0	0	4	0
Baldwin Place Road and Mahopac High School Entrance Driveway	1	0	0	0	0	0	0	0
Baldwin Place Road and Gleneida Boulevard / Mahopac High School Driveway	1	0	0	2	0	0	1	1
Baldwin Place Road and Myrtle Avenue	1	1	0	0	1	0	2	0
Baldwin Place Road and Grand Meadow Drive	0	0	1	0	0	0	0	0
<b>Total</b>	<b>4</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>1</b>	<b>0</b>	<b>7</b>	<b>1</b>

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

A total of 29 reported midblock crashes occurred along the Baldwin Place Road corridor, resulting in 11 injuries, including no serious injuries, one pedestrian crash, and no bicycle crashes. There were no recorded fatalities during the five-year period. A summary of the midblock crashes is presented in **Table 7**.

**Table 7**  
**Baldwin Place Road Corridor**  
**Midblock Crash Assessment Summary**

Corridor	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Baldwin Place Road between Drago Lane and Grand Meadow Drive	10	5	3	5	6	0	11	1

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

*Baldwin Place Road and Drago Lane / School Driveway*

During the five-year period, two crashes occurred at the Baldwin Place Road and Drago Lane / School Driveway intersection, resulting in four injuries.

As shown in **Table 8**, the predominant crash types at the intersection were rear end and left turn crashes. In addition, wet road surface conditions (50 percent of the total crashes) were common contributing environmental factors. All crashes at the intersection were attributed to driver error.

**Table 8**  
**Baldwin Place Road and Drago Lane / School Driveway**  
**Crash Type**

Crash Type	Number	Percentage
Rear End	1	50%
Right Turn	0	0%
Left Turn	1	50%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	0	0%
Fixed Object	0	0%
Overtaking	0	0%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	2	

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

*Baldwin Place Road and School Driveway*

During the five-year period, one crash occurred at the Baldwin Place Road and School Driveway intersection, resulting in no injuries.

As shown in **Table 9**, the predominant crash type at this intersection is an overtaking crash. This crash was attributed to driver error.



**Table 9**  
**Baldwin Place Road and School Driveway**  
**Crash Type**

Crash Type	Number	Percentage
Rear End	0	0%
Right Turn	0	0%
Left Turn	0	0%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	1	100%
Fixed Object	0	0%
Overturning	0	0%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	1	
<b>Source:</b> NYSDOT, September 1, 2018 through August 31, 2023 crash data.		

*Baldwin Place Road and Gleneida Boulevard / School Driveway*

During the five-year period, three crashes occurred at the Baldwin Place Road and Gleneida Boulevard / School Driveway intersection, resulting in no injuries.

As shown in **Table 10**, the predominant crashes are rear end, left turn, and pedestrian crashes. In addition, dark-road conditions (33 percent of total crashes) were common contributing environmental conditions. All crashes at the intersection were attributed to driver error.

**Table 10**  
**Baldwin Place Road and Gleneida Blvd / School Driveway**  
**Crash Type**

Crash Type	Number	Percentage
Rear End	1	33%
Right Turn	0	0%
Left Turn	1	33%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	0	0%
Fixed Object	0	0%
Overturning	0	0%
Head On	0	0%
Pedestrian	1	33%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	3	
<b>Source:</b> NYSDOT, September 1, 2018 through August 31, 2023 crash data.		

*Baldwin Place Road and Myrtle Avenue*

During the five-year period, three crashes occurred at the Myrtle Avenue and Baldwin Place Road intersection, resulting in two injuries and no serious injuries.

As shown in **Table 11**, the predominant crash type at the intersection is a fixed object collision with overturning crashes secondary. In addition, wet road surface conditions (33 percent of the total crashes) were common contributing environmental conditions. Sixty-seven percent of the crashes at the intersection were attributed to driver error.

**Table 11**  
**Myrtle Avenue and Baldwin Place Road**  
**Crash Type**

<b>Crash Type</b>	<b>Number</b>	<b>Percentage</b>
Rear End	0	0%
Right Turn	0	0%
Left Turn	0	0%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	0	0%
Fixed Object	2	67%
Overturning	1	33%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	3	
<b>Source:</b> NYSDOT, September 1, 2018 through August 31, 2023 crash data.		

*Baldwin Place Road and Grand Meadow Drive*

During the five-year period, one crash occurred at the Baldwin Place Road and Grand Meadow Drive intersection, resulting in no injuries.

As shown in **Table 12**, the predominant crash type at this intersection is a sideswipe crash. This crash was attributed to driver error.

**Table 12**  
**Baldwin Place Road and Grand Meadow Drive**  
**Crash Type**

Crash Type	Number	Percentage
Rear End	0	0%
Right Turn	0	0%
Left Turn	0	0%
Sideswipe	1	100%
Right Angle	0	0%
Overtaking	0	0%
Fixed Object	0	0%
Overturning	0	0%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	1	

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

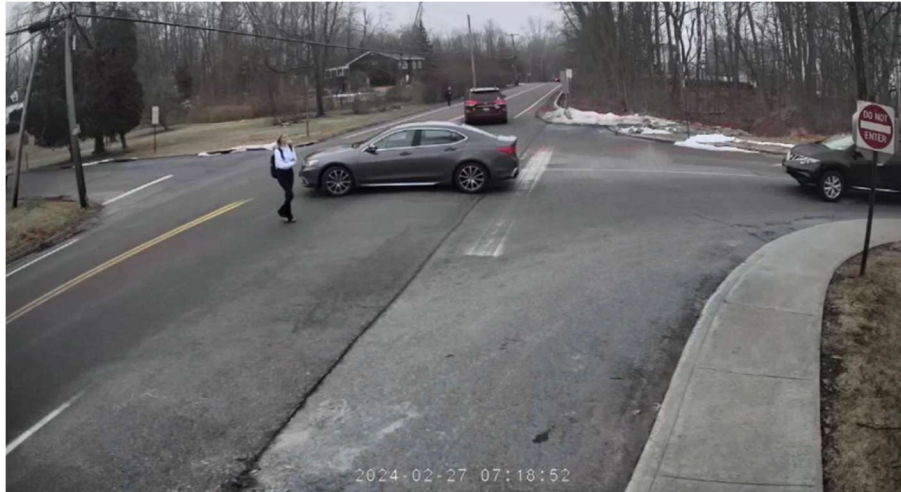
## PROPOSED IMPROVEMENTS

The proposed improvements, see conceptual plans below, focus on adding pedestrian facilities to safely accommodate the demand for pedestrian access to the school from nearby residential neighborhoods. This includes a sidewalk along the east side of Baldwin Place Road between Muscoot Road and Gleneida Boulevard and on the west side of Baldwin Place Road between Gleneida Boulevard and Myrtle Ave. This would provide safe pedestrian connectivity to the school from several residential streets along Baldwin Place Road. While the was pedestrian demand observed on the west side of the roadway, the recommended sidewalk south of Gleneida Avenue would likely require right of way acquisition and/or shifting Baldwin Place Road based on some of the existing physical constrains. For example, there is landscape and stairway to a private residence near Ryan Court (**Figure 7**) that would require right of way acquisition or roadway alignment modifications.

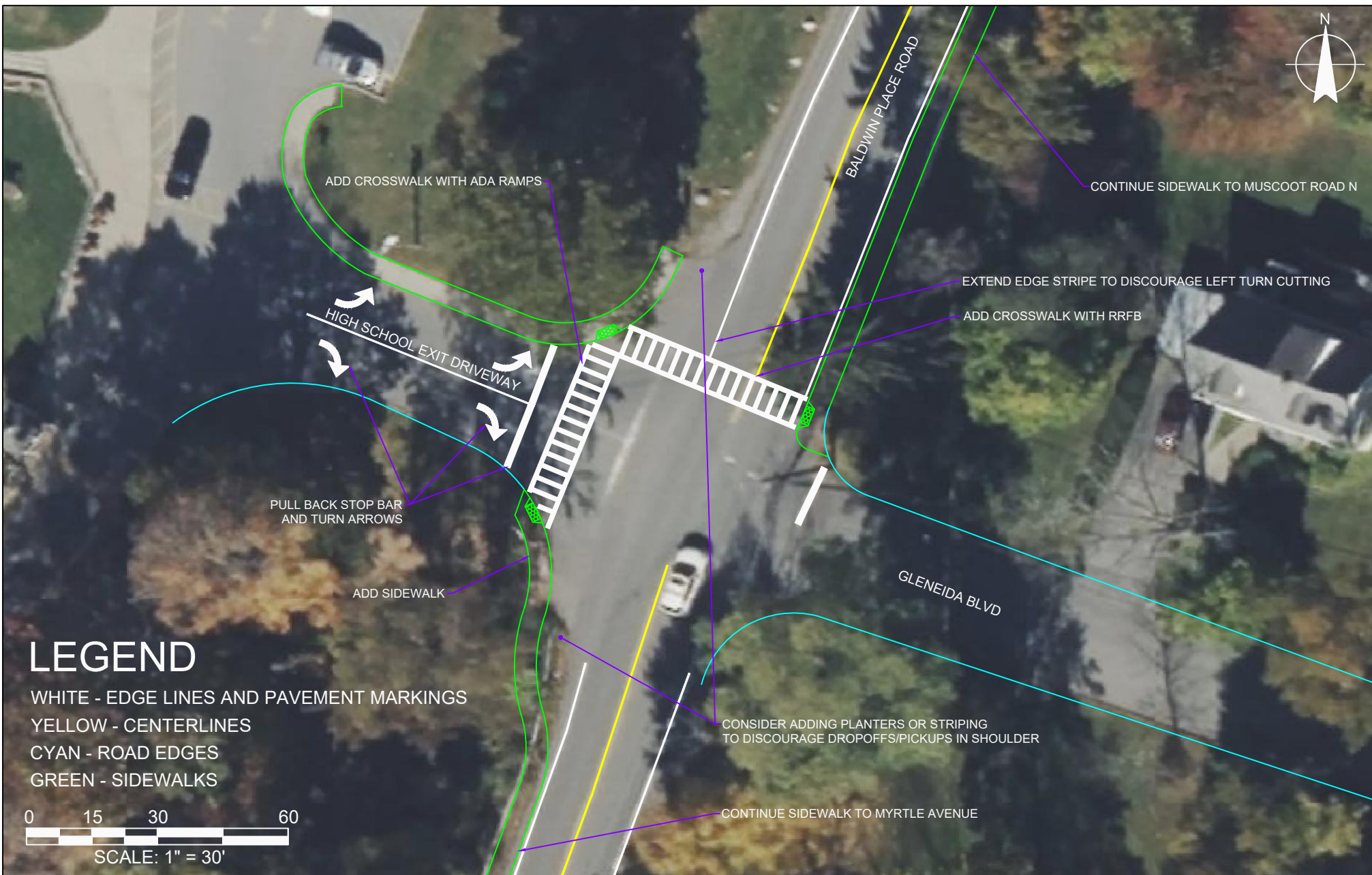


**Figure 7– Right-of-Way Constraints**

Additionally, high visibility crosswalks are recommended at all driveway crossings. In addition, due to the high volume of pedestrians was observed crossing Baldwin Place Road from Gleneida Boulevard to the High School driveway (**Figure 8**), a high visibility crosswalk with Rectangular Rapid Flashing Beacons (RRFB) is recommended at this crossing point. As an alternative, a traffic signal at this location can considered which will need to be assessed future signal warrant studies.



***Figure 8 – Pedestrian Crossing Baldwin Place Road at Gleneida Boulevard***



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SHEET TITLE  
**BALDWIN PLACE  
 ROAD/GLENEIDA BLVD  
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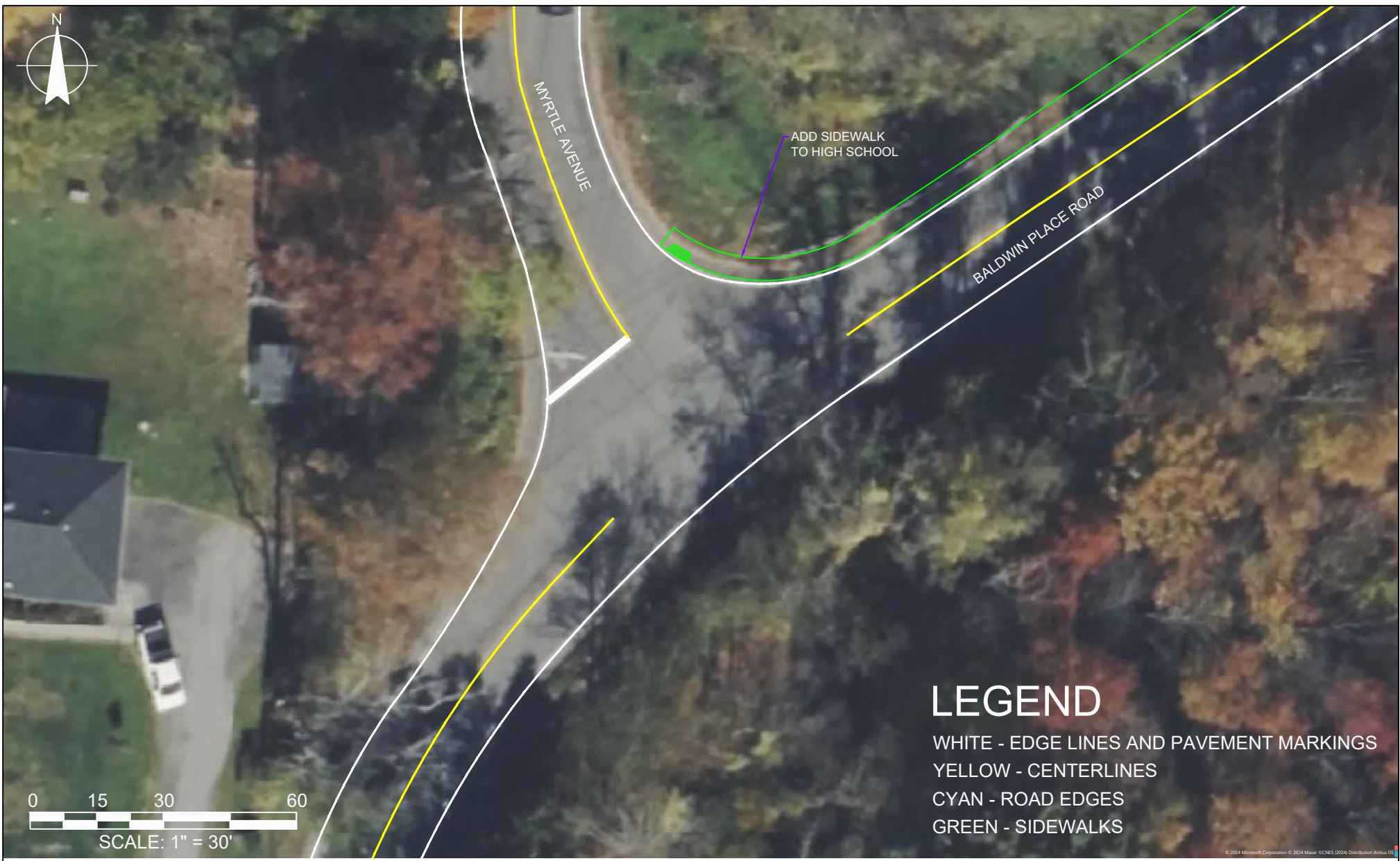
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DATE  
**2024-6-4**



# LEGEND

- WHITE - EDGE LINES AND PAVEMENT MARKINGS
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- CYAN - ROAD EDGES
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**DATE**

2024-6-4

**SHEET TITLE**

BALDWIN PLACE  
 ROAD/MYRTLE AVENUE  
 MAHOPAC

**SHEET NO.**

5

## E. OSCAWANA LAKE ROAD FROM GILBERT LANE TO ENLOE STREET IN PUTNAM VALLEY

### EXISTING CONDITIONS

#### *ROADWAY DESCRIPTION*

Oscawana Lake Road is a County owned major collector that runs north-south. It has 12-foot lanes and a speed limit of 30 mph speed limit within the study area. At the north end of the study area, it intersects with Gilbert Lane, a no-outlet subdivision street serving about three dozen homes. At the southern end of the study area, Oscawana Lake Road serves a commercial area beginning south of Enloe Street as well as the Putnam Valley Library north of Enloe Street. Two other intermediate intersections were studied. 1,000 feet south of Gilbert Lane, William Street forms a T intersection with Oscawana Lake Road and is a local street connecting to a residential area to the west. 1,200 feet south of William Street, Morrisey Drive serves an industrial and commercial area and forms a T intersection with Oscawana Lake Road and heads west. It has 15-foot lanes and a 15-foot-wide parking area on the north side of the street.

#### *TRAFFIC*

##### *Traffic Volumes*

During the AM peak hour, this corridor had a total traffic volume of 411 vehicles. During the PM peak hour, the total volume was 482 vehicles. The 85th percentile speed was measured to be 39 mph.

##### *Field Observations*

All the intersections along this corridor have very large turn radii allowing vehicles to make turns at high speed. At Morrisey Drive, the parking area and wide shoulder along the edge of the road creates an area used to cut the corner. In addition, the center- and edge-lines are extremely faded. At the intersection with William Street, the street is approximately 60 feet wide at the intersection due to the large turn radius, and there is no stop line.

#### *PEDESTRIAN AND BICYCLE*

##### *Volumes*

Minimal pedestrian and no bicycle volumes were observed. Each intersection had fewer than 10 pedestrian crossings during both AM and PM peak hours. No bicyclists were observed during the AM or PM peak hours.

##### *Field Observations*

There are no pedestrian facilities along Oscawana Lake Road in the corridor except for a short stretch of sidewalk that runs north from Enloe Street and dead ends 25 feet before reaching the library parking lot (see **Figure 9**). Much of the corridor appears to have adequate space along the road edge for pedestrian facilities with the exception of the intersection with Gilbert Lane which is at a curve in Oscawana Lake Road and has a guardrail on the east edge of the road and vegetation directly up to the edge of the west edge of the road.



*Figure 9 – Sidewalk Dead End*

### SAFETY ASSESSMENT

During the September 2018 through August 2023 period, a total of 17 reported crashes occurred at study intersections along the Oscawana Lake Road study corridor resulting in 10 injuries, including three serious injuries, no pedestrian crashes, and no bicycle crashes. There were no recorded fatalities during the five-year period. A summary of the study intersection crashes is presented in **Table 13**.

**Table 13**  
**Oscawana Lake Road Corridor**  
**Intersection Crash Assessment Summary**

Intersection	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Oscawana Lake Road and Gilbert Lane	1	2	1	3	0	0	6	0
Oscawana Lake Road and Morrissey Drive	1	1	1	1	0	0	2	0
Oscawana Lake Road and William Street	0	0	2	0	0	0	1	0
Oscawana Lake Road and Enloe Street	1	2	0	1	0	0	4	0
<b>Total</b>	<b>3</b>	<b>5</b>	<b>4</b>	<b>5</b>	<b>0</b>	<b>0</b>	<b>13</b>	<b>0</b>

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

A total of 12 reported midblock crashes occurred along the Oscawana Lake Road corridor, resulting in two injuries, including no serious injuries, no pedestrian crashes, and no bicycle crashes. There were no recorded fatalities during the five-year period. A summary of the midblock crashes is presented in **Table 14**.

**Table 14**  
**Oscawana Lake Road**  
**Midblock Crash Assessment Summary**

Corridor	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Oscawana Lake Road between Gilbert Lane and Enloe Street	3	3	1	2	3	0	2	0

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

#### *Oscawana Lake Road and Gilbert Lane*

During the five-year period, seven crashes occurred at the Gilbert Lane and Oscawana Lake Road intersection, resulting in five injuries and one serious injury.

As shown in **Table 15**, the predominant crash type at the intersection is a fixed object collision with left turn crashes secondary. In addition, dark-road conditions (43 percent of the total crashes), and wet road



surface conditions (14 percent of total crashes) were common contributing environmental conditions. Eighty-six percent of the crashes at the intersection were attributed to driver error.

**Table 15**  
**Gilbert Lane and Oscawana Lake Road**  
**Crash Type**

Crash Type	Number	Percentage
Rear End	0	0%
Right Turn	0	0%
Left Turn	2	29%
Sideswipe	1	14%
Right Angle	0	0%
Overtaking	0	0%
Fixed Object	3	43%
Overturning	0	0%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	1	14%
Other	0	0%
Total	7	

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

*Oscawana Lake Road and Morrissey Drive*

During the five-year period, four crashes occurred at the Oscawana Lake Road and Morrissey Drive intersection, resulting in two injuries and no serious injuries. As shown in **Table 16**, the predominant crash types at the intersection were rear end, left turn, overtaking, and overturning crashes. In addition, dark-road conditions (50 percent of the total crashes) and wet road surface conditions (25 percent of the total crashes) were common contributing environmental conditions. All crashes at the intersection were attributed to driver error.

**Table 16**  
**Oscawana Lake Road and Morrissey Drive**  
**Crash Type**

Crash Type	Number	Percentage
Rear End	1	25%
Right Turn	0	0%
Left Turn	1	25%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	1	25%
Fixed Object	0	0%
Overturning	1	25%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	4	

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

*Oscawana Lake Road and William Street*

During the five-year period, two crashes occurred at the Oscawana Lake Road and William Street intersection, resulting in one injury.

As shown in **Table 17**, the predominant crash type at the intersection is a rear end collision. In addition, wet road surface conditions (25 percent of the total crashes) were common contributing environmental factors. All crashes at the intersection were attributed to driver error.

**Table 17**  
**Oscawana Lake Road and William Street**  
**Crash Type**

<b>Crash Type</b>	<b>Number</b>	<b>Percentage</b>
Rear End	2	100%
Right Turn	0	0%
Left Turn	0	0%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	0	0%
Fixed Object	0	0%
Overturning	0	0%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	2	
<b>Source:</b> NYSDOT, September 1, 2018 through August 31, 2023 crash data.		

*Oscawana Lake Road and Enloe Street*

During the five-year period, four crashes occurred at the Oscawana Lake Road and Enloe Street intersection, resulting in two injuries, and two serious injuries.

As shown in **Table 18**, the predominant crash types at the intersection were rear end, left turn, overtaking, and head on crashes. In addition, wet road surface conditions (25 percent of total crashes) and dark-road conditions (25 percent of total crashes) were common contributing environmental conditions. All crashes at the intersection were attributed to driver error.

**Table 18**  
**Crash Type**  
**Oscawana Lake Road and Enloe Street**

Crash Type	Number	Percentage
Rear End	1	25%
Right Turn	0	0%
Left Turn	1	25%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	1	25%
Fixed Object	0	0%
Overturning	0	0%
Head On	1	25%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	4	

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

## PROPOSED IMPROVEMENTS

At the Oscawana Lake Road and Gilbert Lane intersection, the turn radius should be reduced for the southbound right-turn movement to slow vehicle turning speeds at this location.

A lack of sidewalks along the majority of Oscawana Lake Road reduces pedestrian accessibility to the library and the commercial district from nearby residential neighborhoods. The proposed improvements (see conceptual plans below) include a sidewalk along Oscawana Lake Road from William Street to Enloe Street along the west side of the roadway.

At Morrissey Drive a crosswalk would be added on the west leg of the intersection. It is also recommended that future studies be conducted add a sidewalk along Morrissey to provide a pedestrian connection between Lake Drive with Oscawana Lake Road.

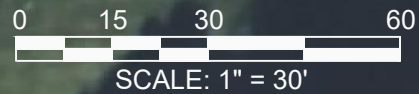
At the Putnam Valley Library entrance, a high visibility crosswalk with RRFBs would connect the sidewalk on the west side of Oscawana Lake Road to sidewalks recommended along the Library building frontage, which would extend to the current sidewalk terminus on the east side of Oscawana Lake Road just north of Enloe Street.


At the intersection with Enloe Street, a high visibility crosswalks on the north and east legs of the intersection will be added. A sidewalk on the north side of Enloe Street will connect residential areas to this safe crossing point to access the commercial area. Existing curb ramps on the east leg crossing of the intersection will be updated to ADA curb ramps with detectable warning surfaces.

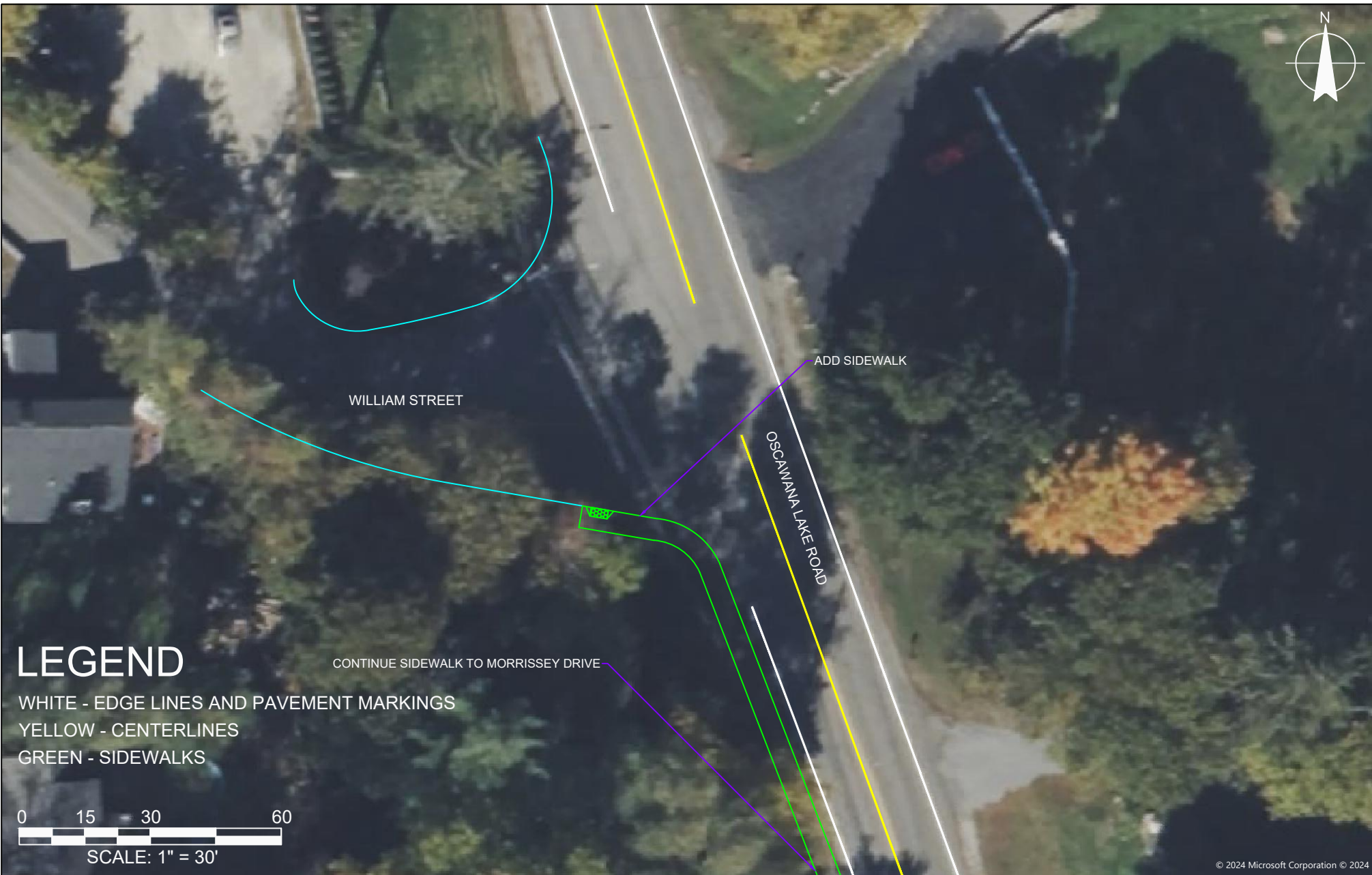


# LEGEND

- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- CYAN - ROAD EDGES
- GREEN - SIDEWALKS



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		<b>DRAWN BY</b> JM	<b>CHECKED BY</b> MB	<b>SHEET NO.</b> 6
		<b>SCALE</b> 1" = 30'	<b>DATE</b> 2024-6-4	SHEET 6 OF 14




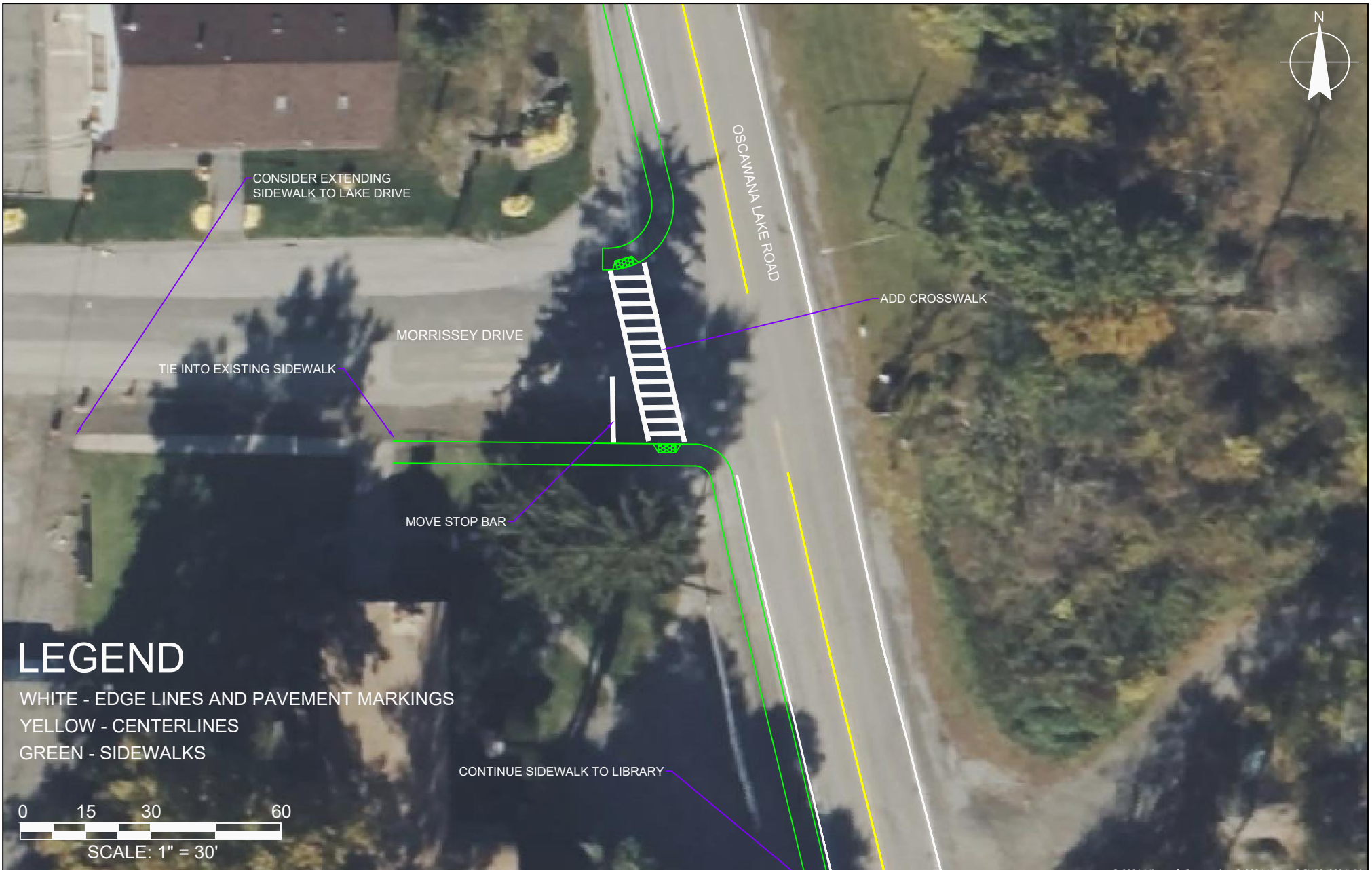
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- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- GREEN - SIDEWALKS



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		<p>DRAWN BY</p> <p><b>JM</b></p>	<p>CHECKED BY</p> <p><b>MB</b></p>	<p>SHEET NO.</p> <p><b>8</b></p>	
		<p>SCALE</p> <p><b>1" = 30'</b></p>	<p>DATE</p> <p><b>2024-6-4</b></p>	<p>SHEET 8 OF 14</p>	

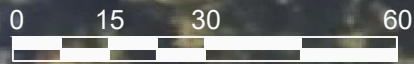


# LEGEND

WHITE - EDGE LINES AND PAVEMENT MARKINGS

YELLOW - CENTERLINES

GREEN - SIDEWALKS



SCALE: 1" = 30'

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### DATE

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### SHEET TITLE

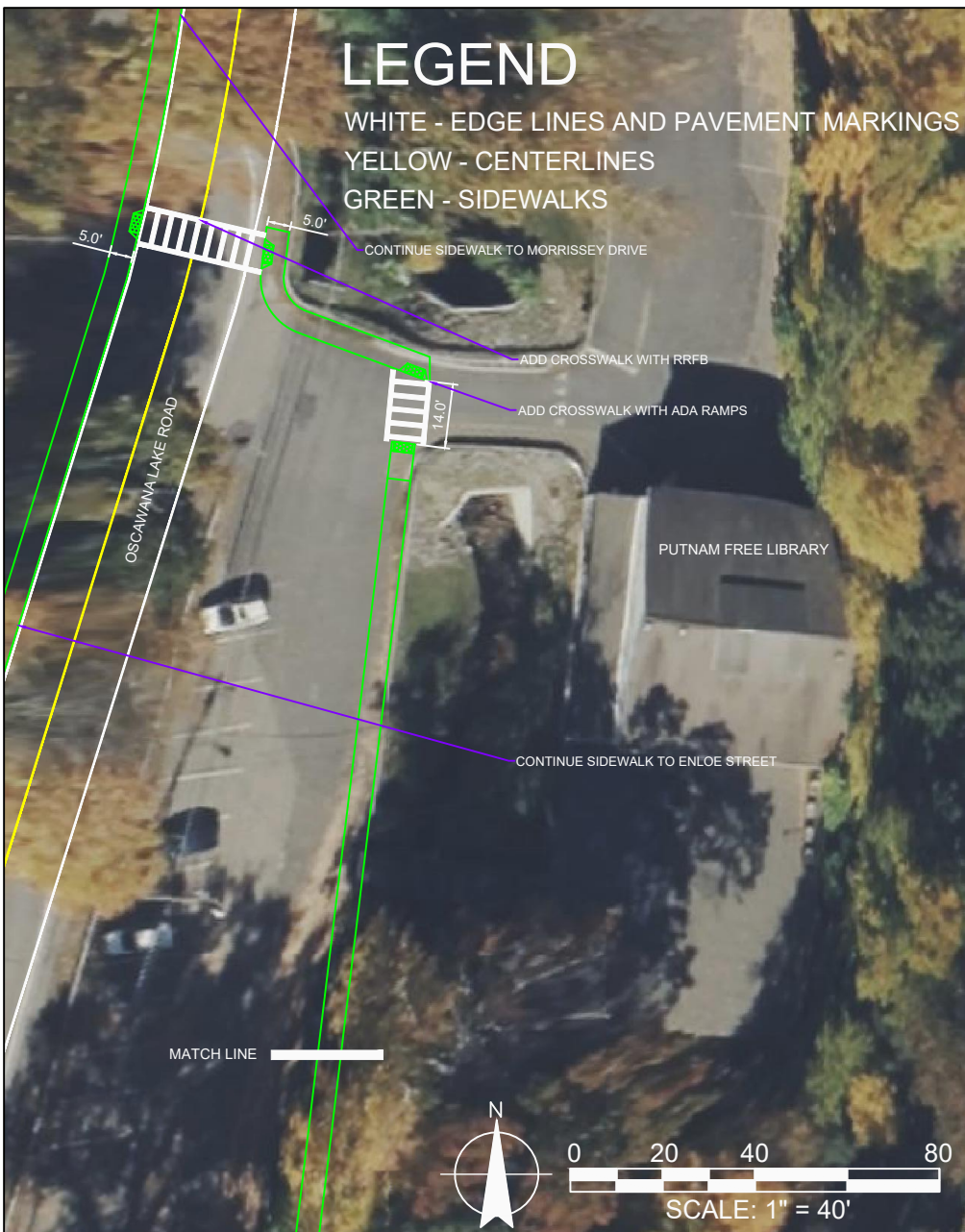
OSCAWANA LAKE ROAD/  
MORRISSEY DRIVE  
PUTNAM VALLEY

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7

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- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- GREEN - SIDEWALKS



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2024-6-12

**SHEET TITLE**

OSCAWANA LAKE ROAD/  
 PUTNAM FREE LIBRARY  
 PUTNAM VALLEY

**SHEET NO.**

9



CONTINUE SIDEWALK TO MORRISSEY DRIVE

ADD SIDEWALK ON NORTH SIDE OF ENLOE STREET

OSCAWANA LAKE ROAD

5.0'

ADD CROSSWALK AND UPDATE CURB RAMPS TO ADA STANDARD

5.0'

R18.5'

ENLOE STREET

ADD CROSSWALK WITH RRFB

# LEGEND

WHITE - EDGE LINES AND PAVEMENT MARKINGS

YELLOW - CENTERLINES

GREEN - SIDEWALKS



SCALE: 1" = 30'

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### SHEET TITLE

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ENLOE STREET  
PUTNAM VALLEY

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### CHECKED BY

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### SCALE

1" = 30'

### DATE

2024-6-12



## F. ROUTE 312 & FARM TO MARKET ROAD & BREWSTER HILL ROAD IN SOUTHEAST

### EXISTING CONDITIONS

#### *ROADWAY DESCRIPTION*

Route 312 is an eastbound/westbound minor arterial under NYSDOT jurisdiction. At this intersection it is one shared through / right lane and one left only lane in each direction. It intersects with Farm to Market Road a County owned major collector road, and Brewster Hill Road a major collector road under the jurisdiction of the Town of Southeast. To the north-east of the intersection there is a campus with four (4) schools in the Brewster Central school district. On the south-east corner there is a gas station and deli. The intersection is signalized and has a 50-foot crosswalk with pedestrian signals and call buttons on the east leg. There are no sidewalks at this intersection.

#### *TRAFFIC*

##### *Traffic Volumes*

During the AM peak hour this intersection had a traffic volume of 1,316 with 12 percent heavy trucks. At PM peak hour the intersection had a traffic volume of 1,226 with 12 percent heavy trucks. The 85th percentile speed is 44 mph according to the NYSDOT Traffic Data Viewer.

##### *Field Observations*

There were no observed issues with traffic operations at this intersection.

#### *PEDESTRIAN AND BICYCLE*

##### *Volumes*

During the AM peak hour (7:15-8:15 AM) and PM peak hour (4:15-5:15 PM) there were no pedestrians or bicyclists observed. However, outside of those peak hours students cross at the Route 312 crosswalk between the school and the gas station/deli.

##### *Field Observations*

Due to a crest along Route 312 approximately 350 feet from the intersection, it was determined that a midblock crossing is infeasible, and the existing crossing location is the safest location for crossing between the school and the deli and gas station. The landing areas of the crosswalk were observed to be deficient in terms of safety and accessibility. On the south side, the crosswalk lands at a curbed landscaped area which is likely not traversable when the landscaping plants are grown. Between the curb and the travel lane there is an 8-foot shoulder which is likely used to access the driveway from the crosswalk. The pedestrian call button on the south side is mounted facing Brewster Hill Road, a significant distance from the crosswalk landing, requiring more traversing through landscaping or walking along the travel lane to access the button (see **Figure 10**).



**Figure 10 – Route 312 Crosswalk and Pedestrian Push Button**

#### *SAFETY ASSESSMENT*

During the September 2018 through August 2023 period, a total of 16 reported crashes occurred at the study intersection resulting in six injuries, including no serious injuries, no pedestrian crashes, and no

bicycle crashes. There were no recorded fatalities during the five-year period. A summary of the study intersection crashes is presented in **Table 19**.

**Table 19**  
**Farm to Market Road and Route 312**  
**Intersection Crash Assessment Summary**

Intersection	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Farm to Market Road and Route 312	3	1	3	2	7	0	6	0

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

As shown in **Table 20**, the predominant crash type at the intersection are rear end and left turn crashes with right angle as secondary. In addition, dark-road conditions (25 percent of total crashes) and wet road surface conditions (25 percent of total crashes) were common contributing environmental conditions. All crashes at the intersection were attributed to driver error.

**Table 20**  
**Farm to Market Road and NYS Route 312**  
**Crash Type**

Crash Type	Number	Percentage
Rear End	6	25%
Right Turn	0	0%
Left Turn	6	25%
Sideswipe	0	0%
Right Angle	2	0%
Overtaking	1	25%
Fixed Object	1	0%
Overturning	0	0%
Head On	0	25%
Pedestrian	0	0%
Bicycle	0	0%
Animal	0	0%
Other	0	0%
Total	16	
<b>Source:</b> NYSDOT, September 1, 2018 through August 31, 2023 crash data.		

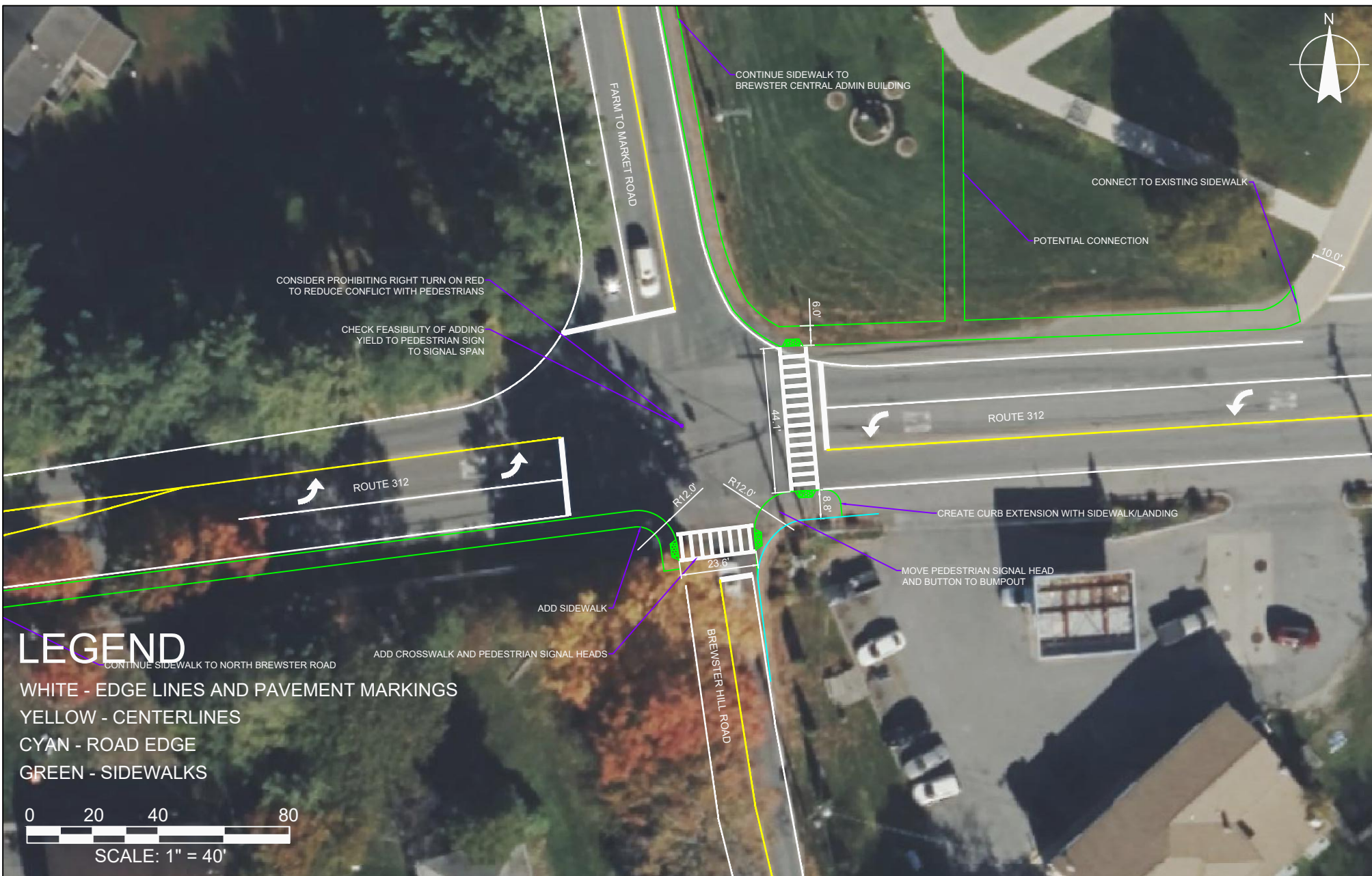
## PROPOSED IMPROVEMENTS

Due to the crosswalk being out of the way of the direct path from the sidewalk on school campus to the deli and gas station, it should be made more accessible to encourage its use. As shown in the conceptual plans below, extending the existing sidewalk on the north side of Route 312 and provide a landing for the crosswalk would create a safe and comfortable place to wait. On the south side, a curb extension should be added to create a landing and relocation of the pedestrian call button and signal head (same configuration as on the north side) to make it accessible from the edge of the crosswalk will create a safe pedestrian refuge, encouraging signal compliance. In addition, prohibiting right turns on red for approaches that conflict with the pedestrian phase can further improve crossing safety, especially for school children who are less visible while crossing. The conflicting approaches are the Brewster Hill Road northbound and Route 312 westbound. Pedestrian safety can be further enhanced with the addition of flashing Yield to pedestrian signage; however, further studies would need to be conducted to determine if the signal span wire can support the additional weight.

While no desire line was observed, the most direct path from the school walkway to the crosswalk is across a lawn. The potential connection as shown saves 175 feet of walking distance compared to following the existing and proposed sidewalk. The lawn is significantly graded so this path would require stairs but is a potential opportunity to discuss with the school at a later date if there is an observed desire line along that path.

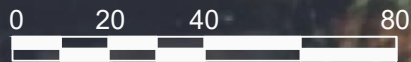
Sidewalks should also be extended north on the east side of Farm to Market Road to the CV Starr Intermediate School entrance. To avoid the utility poles along the east side of Farm to market Road the sidewalk would be located within the school's right of way.

In addition, sidewalks should be extended to the west on the south side of Route 312 to North Brewster Road to provide a pedestrian route between the school and the North Brewster Deli & Market and La Strada Pizza and Pasta. This could be further enhanced with a sidewalk along the east side of North Brewster Road.



# LEGEND

- CONTINUE SIDEWALK TO NORTH BREWSTER ROAD
- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- CYAN - ROAD EDGE
- GREEN - SIDEWALKS



SCALE: 1" = 40'

**SITE/CIVIL ENGINEER**



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**PROJECT**

PUTNAM COUNTY COMPLETE  
STREETS

**DRAWN BY**

JM

**SCALE**

1" = 40'

**CHECKED BY**

MB

**DATE**

2024-6-4

**SHEET TITLE**

ROUTE 312/FARM TO MARKET  
ROAD/BREWSTER HILL ROAD  
SOUTHEAST

**SHEET NO.**

11

## G. ROUTE 9D FROM CHESTNUT STREET TO BANK STREET IN COLD SPRING

### EXISTING CONDITIONS

#### *ROADWAY DESCRIPTION*

Route 9D is a State route that runs north-south paralleling US 9 which has a speed limit of 30 mph within the study area. Route 9D in the study area runs east-west between Chestnut Street and Bank Street, both local roads. Along this quarter-mile corridor to the south there are two senior living complexes, one on the north side (Butterfield) and on the south side (Chestnut Ridge Apartments). Also, on the north side there is a post office and a medical center.

#### *TRAFFIC*

##### *Traffic Volumes*

NYSDOT Traffic Data Viewer indicates this section of Route 9D experiences approximately 7,500 daily vehicles with an 85 percentile speed of 33 mph. During the AM peak hour, the corridor experiences approximately 545 peak hour volumes. During the PM peak hour, the corridor experiences approximately 588 peak hour volumes.

##### *Field Observations*

While there were no observed traffic operation issues, the intersection configurations are not ideal in accommodating traffic movements. At Chestnut Street, the roadway angles promote a high speed turning movement from Route 9D traveling eastbound onto Chestnut Street (**Figure 11**). In addition, vehicles exiting Chestnut Street making a left onto Route 9D has limited sight distance on vehicles traveling westbound on Route 9D.

At Chestnut Street/Paulding Avenue/Bank Street, the side street approaches are skewed as they approach Route 9D that create multiple conflict points at one intersection.

#### *PEDESTRIAN AND BICYCLE*

##### *Volumes*

At Chestnut Street there were a total of seven pedestrians crossing during the AM peak period and a total of 17 pedestrians during the PM peak period. At Chestnut Street/Paulding Avenue/Bank Street there were a total of 11 pedestrians crossing during the AM peak period and a total of eight pedestrians during the PM peak period. During the peak periods there was only one bicycle counted.

##### *Field Observations*

While a marked crosswalk is provided at Chestnut Street, multiple pedestrians were observed crossing mid-block between the multifamily residential area to the south and the sidewalk on the north side of Route 9D (**Figure 12**).

The intersections of Route 9D with Chestnut Street/Paulding Avenue/Bank Street at the east end of the study area along with a private driveway (Downey Energy) form a large area exposing crossing pedestrians to traffic which can take turns at high speed due to the large turn radii (**Figure 13**). There are also no marked



**Figure 11 – Chestnut Street Intersection**



**Figure 12 – Pedestrian Crossing Midblock**

pedestrian crossings on any of the approaches.



**Figure 13– Pedestrian Crossing Paulding Avenue**

*SAFETY ASSESSMENT*

During the September 2018 through August 2023 period, a total of five reported study intersection crashes occurred along the Route 9D study corridor resulting in two injuries, including no serious injuries, no pedestrian crashes, and no bicycle crashes. There were no recorded fatalities during the five-year period. A summary of the study intersection crashes is presented in **Table 21**.

**Table 21**  
**Route 9D Study Corridor**  
**Intersection Crash Assessment Summary**

Intersection	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Chestnut Street and Route 9D	1	0	0	2	0	0	2	0
Chestnut Street / Paulding Avenue and Route 9D	0	1	0	0	1	0	0	0
<b>Total</b>	1	1	0	2	1	0	2	0

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

No midblock crashes occurred along the Route 9D corridor, as shown in **Table 22**.

**Table 22**  
**Route 9D Study**  
**Midblock Crash Assessment Summary**

Corridor	Crashes by Year					Total Fatalities	Total Injuries	Pedestrian Crashes
	Year 1	Year 2	Year 3	Year 4	Year 5			
Route 9D between Chestnut Street and Bank Street	0	0	0	0	0	0	0	0

Source: NYSDOT September 1, 2018 through August 31, 2023 crash data.

**Bold** = high crash locations defined as an intersection exceeding ten crashes in one consecutive year.

Year 1 = September 2018 through August 2019, Year 2 = September 2019 through August 2020, Year 3 = September 2020 through August 2021, Year 4 = September 2021 through August 2022, Year 5 = September 2022 through August 2023

#### *Chestnut Street and Route 9D*

During the five-year period, two crashes occurred at the Chestnut Street and Route 9D intersection, resulting in two injuries, and no serious injuries.

As shown in **Table 23**, the predominant crash types at the intersection were rear end, head on, and animal crashes. In addition, dark-road conditions (33 percent of the total crashes) was a common contributing environmental factor. Sixty-seven percent of crashes at the intersection were attributed to driver error.

**Table 23**  
**Chestnut Street and Route 9D**  
**Crash Types**

Crash Type	Number	Percentage
Rear End	1	33%
Right Turn	0	0%
Left Turn	0	0%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	0	0%
Fixed Object	0	0%
Overturning	0	0%
Head On	1	33%
Pedestrian	0	0%
Bicycle	0	0%
Animal	1	33%
Other	0	0%
Total	3	

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

#### *Chestnut Street / Paulding Avenue and Route 9D*

During the five-year period, two crashes occurred at the Chestnut Street / Paulding Avenue and Route 9D intersection, resulting in no injuries.

As shown in **Table 24**, the predominant crash types at the intersection were rear end and animal crashes. One crash at the intersection was attributed to driver error.

**Table 24**  
**Chestnut Street / Paulding Avenue and Route 9D**  
**Crash Types**

Crash Type	Number	Percentage
Rear End	1	50%
Right Turn	0	0%
Left Turn	0	0%
Sideswipe	0	0%
Right Angle	0	0%
Overtaking	0	0%
Fixed Object	0	0%
Overturning	0	0%
Head On	0	0%
Pedestrian	0	0%
Bicycle	0	0%
Animal	1	50%
Other	0	0%
Total	2	

**Source:** NYSDOT, September 1, 2018 through August 31, 2023 crash data.

## PROPOSED IMPROVEMENTS

### *ROUTE 9D*

This section of Route 9D is on the edge of the Village of Cold Spring and has a major curve as it passes through an area with multiple senior housing developments and a commercial center. The proposed improvements (see conceptual plans below) include altering striping at both the east and west intersections of Chestnut Street and Route 9D to improve sight distances on approaches.

At the east intersection, a high visibility crosswalk with RRFBs is proposed on the west leg paired with a sidewalk extension from the existing sidewalk along Chestnut Street. Edge striping to bring the Chestnut Street intersection angle closer to 90 degrees is also proposed. In addition, to accommodate these changes, the driveway access for Downey Energy, located on 1 Bank Street should be modified from parking lot access on Bank Street and Paulding Avenue to only provide access off of Bank Street.

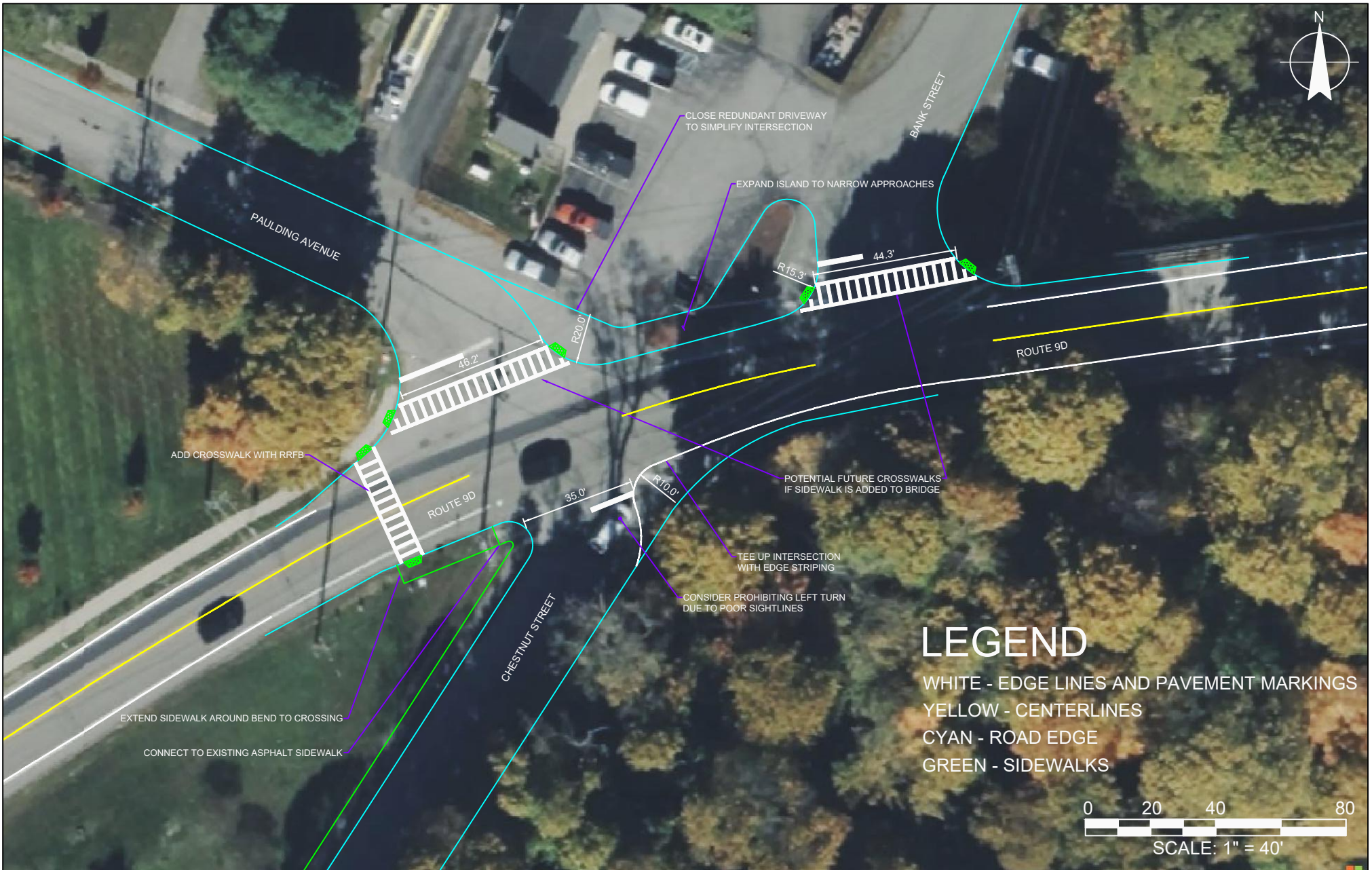
At the west intersection, creating a raised curb area in the southwest corner of the intersection would bring the intersection angle to 90 degrees and force eastbound vehicles turning right onto Chestnut Street to go around a ten (10) foot radius while also providing for additional open space that can be used by local businesses or residents. a high visibility crosswalk is added to the currently unmarked south leg of this intersection, and RRFBs are added to the east leg crosswalk across Route 9D. This area would also provide an opportunity to construct new sidewalks along the south side of the roadway between Chestnut Street and the Drug World and Yanitelli Wines & Spirits parking lot.

Ultimately, it would be desirable to close off the curb cut access along Route 9D serving the Drug World and Yanitelli Wines & Spirits parking lot and reconfigure the parking lot to be accessed only from Benedict Road, however, this would require coordination with a private property to change access and on-site circulation and further analysis. As an alternative, the conceptual plan below presents an option that would connect the new sidewalk on Route 9D to the existing sidewalks along the frontage of Drug World and Yanitelli Wines & Spirits, creating a pedestrian facility between Chester Street and Benedict Road.

Lastly, in response to observations of pedestrians crossing between the east and west intersections of this corridor, a midblock crossing is proposed. Two desire lines were observed between private walkways in the housing complex on the south side of Route 9D to gaps in the hedges along the street. The options for

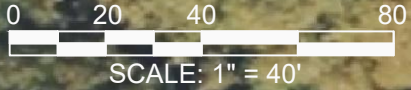



the proposed crosswalks are at approximately 500 feet and 700 feet east of the marked crosswalk at Chestnut Street along Route 9D. The proposed crosswalk at Paulding Ave/Chestnut Street is 1,100 feet from the Chestnut Street crosswalk. There is potential to work with the housing complex owner to formalize the observed desire lines to further connect the north and south sides of the street and safely accommodate the observed demand for crossing between these areas.



# LEGEND

- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- CYAN - ROAD EDGE
- GREEN - SIDEWALKS

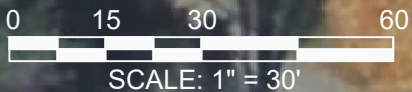


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		<p>DRAWN BY</p> <p><b>JM</b></p>	<p>CHECKED BY</p> <p><b>MB</b></p>	<p>SHEET NO.</p> <p><b>13</b></p>	
		<p>SCALE</p> <p><b>1" = 40'</b></p>	<p>DATE</p> <p><b>2024-6-4</b></p>	<p>SHEET 13 OF 14</p>	



# LEGEND

- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- CYAN - ROAD EDGE
- GREEN - SIDEWALKS



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**PROJECT**

PUTNAM COUNTY COMPLETE  
 STREETS

**DRAWN BY**

JM

**SCALE**

1" = 30'

**CHECKED BY**

MB

**DATE**

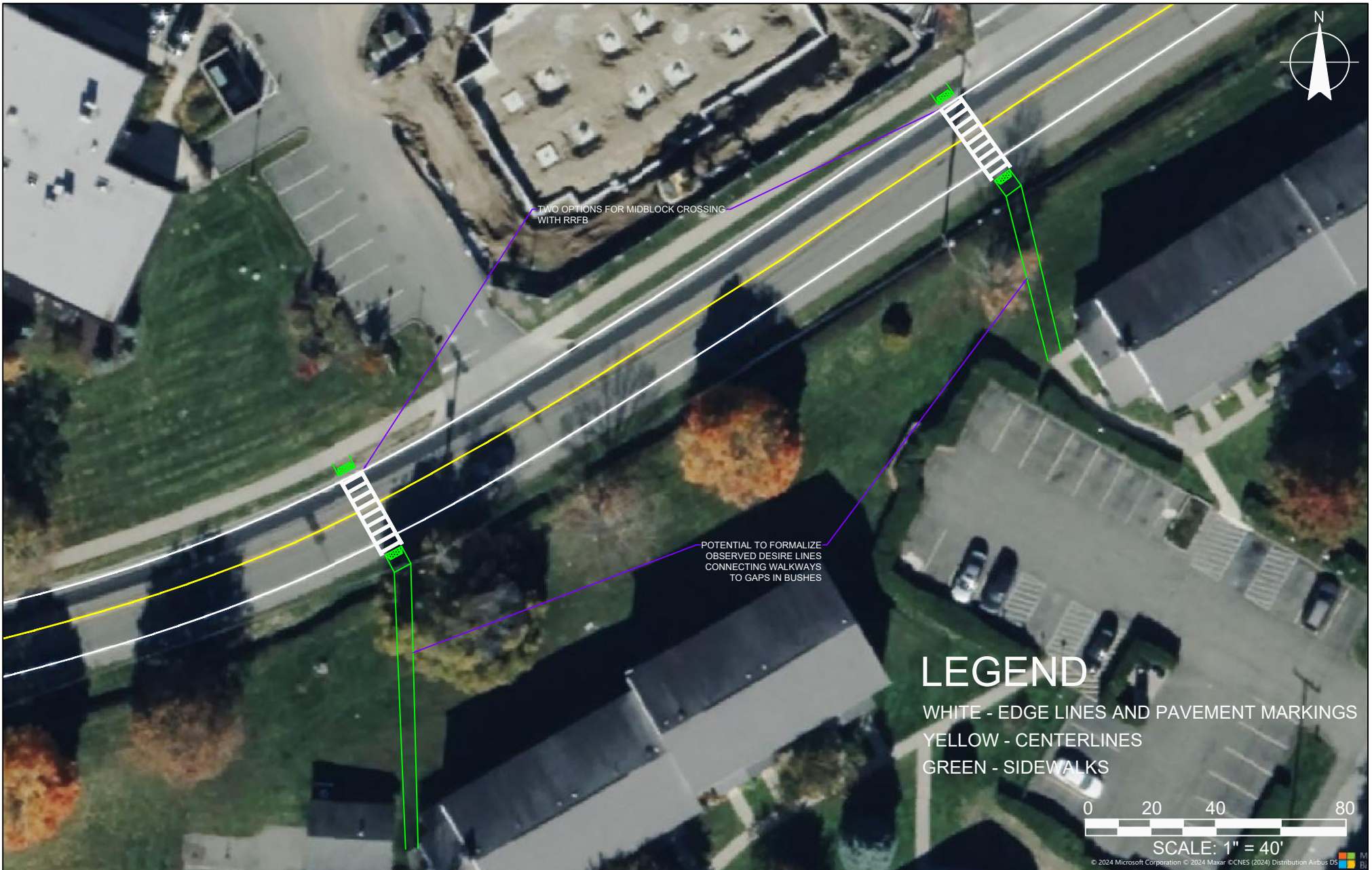
2024-6-4

**SHEET TITLE**

ROUTE 9D/CHESTNUT STREET  
 COLD SPRING

**SHEET NO.**

12



# LEGEND

- WHITE - EDGE LINES AND PAVEMENT MARKINGS
- YELLOW - CENTERLINES
- GREEN - SIDEWALKS



SCALE: 1" = 40'

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		<p><b>DRAWN BY</b></p> <p>JM</p>	<p><b>CHECKED BY</b></p> <p>MB</p>	<p><b>SHEET NO.</b></p> <p>14</p>	
		<p><b>SCALE</b></p> <p>1" = 40'</p>	<p><b>DATE</b></p> <p>2024-6-4</p>	<p>SHEET 14 OF 14</p>	