J Traffic Impact Study

Traffic Impact Study

Hampshire Country Club

Proposed Residential Development

Village of Mamaroneck, NY

PREPARED FOR

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Introduction

VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by Hampshire Recreation, LLC to conduct a traffic impact study documenting the potential traffic impacts associated with the proposed Hampshire Country Club Planned Residential Development (PRD) in the Village of Mamaroneck, Westchester County, NY. The traffic impact study quantifies both the existing traffic conditions along area roadways surrounding the site and the projected future traffic conditions expected with and without the proposed development of the site.

This traffic study has been prepared as part of the Draft Environmental Impact Statement (DEIS) for the proposed action and is in accordance with the requirements of the New York State Environmental Quality Review Act (SEQRA) and the Scoping Document (adopted 11/18/2015) for the proposed action. This document provides a detailed description of the study methodology, analysis, and key findings.

Project Description

The Project site is located on the existing 106.2-acre Hampshire County Club property and is generally bounded by East Cove Road to the east, Eagle Knolls Road to the west, South Cove Road to the south and Old Boston Post Road to the north. The Project Site is currently developed with recreational membership club facilities, including an 18-hole golf course, clubhouse, swimming pool, tennis courts, maintenance facilities, and other support uses. The Village/Town of Mamaroneck municipal boundary line passes through the Project Site, creating a 98.9-acre portion in the Village of Mamaroneck and a smaller 7.3-acre portion within Town of Mamaroneck. The proposed PRD is to consist of 44 single-family homes and 61 townhomes. The existing 18-hole golf course would be downsized to a 9-hole course to facilitate the development of the PRD, which would have approximately 36 acres of common open space.

Access points to the site are currently provided from Cove Road and Eagle Knolls Road. A third access point from Cooper Avenue provides access to the golf course maintenance facility. These three existing access points will be modified as part of the Proposed Action. Cove Road will be relocated and will form the central corridor for the project. Eagle Knolls Road will be relocated from its existing location and will terminate in a cul-de-sac. Cooper Avenue will be extended into the Site and will intersect with Cove Road. This roadway extension is currently envisioned to be a one-way, exit only road for development residents to provide access to Boston Post Road (US Route 1) via Old Boston Post Road.

Study Locations

Per the Scoping Document, the following 7 key intersections were identified as requiring analysis:

1) Boston Post Road (US Route 1) and Hommocks Road/Weaver Street (signalized)
2) Hommocks Road and Eagle Knolls Road (unsignalized)
3) Orienta Avenue and East Cove Road (unsignalized)
4) Boston Post Road (US Route 1) and Orienta Avenue/Delancey Avenue (signalized)
5) Old Boston Post Road and Cooper Avenue (unsignalized)
6) Boston Post Road (US Route 1) and Old Boston Post Road/Richbell Road (signalized)
7) Fairway Lane and Orienta Avenue (unsignalized)

Existing & Future Traffic Volumes

To assess existing traffic conditions in the vicinity of the Proposed Action, peak period manual turning movement traffic volume counts were recorded at the seven study intersections in March 2016. The intersection counts included tallies of automobiles, trucks, buses, pedestrians and bicyclists. Automatic traffic recorder (ATR) 24-hour counts were also conducted for a one-week period in March 2016 on Boston Post Road, Hommocks Road and Orienta Avenue. The existing traffic volumes were grown to account for anticipated increases in background traffic by the time the project is completed, establishing the future traffic volume conditions without the proposed Project. The future traffic volumes include increases associated with 7 proposed vicinity developments anticipated to be contructed prior to the subject development.

Project-Development Traffic

Traffic anticipated to be generated by the project was forecast based on published trip generation data. Adjustments were made to the residential trips to account for the reduction of trips due to the smaller 9-hole golf course. The Proposed Action is expected to generate a total of 61 new trips during the AM peak hour, 73 new trips during the PM peak hour and 61 new trips during the Saturday peak hour.

The site-generated traffic volumes were assigned to the area roadways based on the anticipated arrival and departure patterns which were determined based on a review of the existing roadway network, existing traffic patterns and proposed access to the Project.

Existing and Future Traffic Conditions

Capacity analyses were conducted at the study intersections to assess the quality of traffic flow in the study area under existing conditions and future conditions with and without the proposed action. Under existing conditions, all intersections, with one exception, operate at acceptable levels of service. The exception is the signalized intersection of Boston Post Road and Hommocks Road/Weaver Street which currently operates at an overall level of service "E" during the AM peak hour.

In the future, with the forecast increases in traffic volumes but without the proposed residential development (No-Build conditions), there will be a slight increase in overall delays at the three

signalized intersections along Boston Post Road, generally on the order of 2 seconds or less. The levels of service will remain unchanged from those experienced under existing conditions. At the unsignalized intersections, the minor-street turning movements operate at level of service (LOS) "B" or better during each peak hour.

In the future, with the added traffic from the Proposed Action (Build conditions), there will be a slight increase in overall delays at the three signalized intersections along Boston Post Road, generally on the order of 1 second or less. The levels of service will remain unchanged from those experienced under No-Build conditions. At the unsignalized intersections, the minor-street turning movements will continue to operate at LOS "B" or better during each peak hour with only minor increases in delay of 1.1 seconds or less.

Queuing analyses indicate that the average queues (50th percentile) experienced on the turning movements at the three signalized study intersections will be at acceptable lengths under Existing, No-Build and Build conditions. At two of the signalized intersections (Boston Post Road with Hommocks Road/Weaver Street and Boston Post Road with Richbell Road/Old Boston Post Road) some of the maximum (95th percentile) queues will exceed the storage lengths.

Conclusions

Based on the findings above, it is concluded that the proposed PRD will not have a significant adverse impact on area traffic operating conditions. Furthermore, the proposed modifications to the internal roadways including wider roads and the addition of a sidewalk along Cove Road will provide a benefit for residents on either side of the property, including those who travel back and forth to Hommocks Middle School.

1 Introduction

VHB Engineering, Surveying and Landscape Architecture, P.C. (VHB) has been retained by Hampshire Recreation, LLC to conduct a traffic impact study documenting the potential traffic impacts associated with the proposed Hampshire Country Club Planned Residential Development (PRD) in the Village of Mamaroneck, Westchester County, NY. The traffic impact study quantifies both the existing traffic conditions along area roadways surrounding the site and the projected future traffic conditions expected with and without the proposed development of the site.

This traffic study has been prepared as part of the Draft Environmental Impact Statement (DEIS) for the proposed action and is in accordance with the requirements of the New York State Environmental Quality Review Act (SEQRA) and the Scoping Document (adopted 11/18/2015) for the proposed action. This document provides a detailed description of the study methodology, analysis, and key findings.

Project Description

The Project site, as depicted on **Exhibit 1,** is located on the existing 106.2-acre Hampshire County Club property and is generally bounded by East Cove Road to the east, Eagle Knolls Road to the west, South Cove Road to the south and Old Boston Post Road to the north. The Project Site is currently developed with recreational membership club facilities, including an 18-hole golf course, clubhouse, swimming pool, tennis courts, maintenance facilities, and other support uses. The Village/Town of Mamaroneck municipal boundary line passes through the Project Site, creating a 98.9-acre portion in the Village of Mamaroneck and a smaller 7.3-acre portion within Town of Mamaroneck. The proposed PRD is to consist of 44 single-family homes and 61 townhomes. The existing 18-hole golf course would be downsized to a 9-hole course to facilitate the development of the PRD, which would have approximately 36 acres of common open space.

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Source: ESRI GIS

0 240 480 960 Feet

1 Study Locations

Hampshire Country Club - PRD | Village of Mamaroneck, NY

Study Locations

Access points to the site are currently provided from Cove Road and Eagle Knolls Road. A third access point from Cooper Avenue provides access to the golf course maintenance facility. These three existing access points will be modified as part of the Proposed Action. Cove Road will be relocated and will form the central corridor for the project. Eagle Knolls Road will be relocated from its existing location and will terminate in a cul-de-sac. Cooper Avenue will be extended into the Site and will intersect with Cove Road. This roadway extension is currently envisioned to be a one-way, exit only road for development residents to provide access to Boston Post Road (US Route 1) via Old Boston Post Road.

Study Methodology

The focus of this study was to evaluate traffic flows and operating conditions on the roadways and intersections projected to be used by motorists traveling to and from the proposed development and to quantify the potential traffic impacts on these roadways and intersections.

As identified in the Scoping Document, the project study area consists of the 7 intersections listed below.

1) Boston Post Road (US Route 1) and Hommocks Road/Weaver Street
2) Hommocks Road and Eagle Knolls Road
3) Orienta Avenue and East Cove Road
4) Boston Post Road (US Route 1) and Orienta Avenue/Delancey Avenue Halstead Avenue (CR 54) and Surface Lot # 2 (MTA)
5) Old Boston Post Road and Cooper Avenue
6) Boston Post Road (US Route 1) and Old Boston Post Road/Richbell Road
7) Fairway Lane and Orienta Avenue

Traffic operating conditions at the study intersections were analyzed during the weekday AM and PM peak hours and the Saturday midday peak hour, representing the periods when the greatest cumulative impacts of project-related traffic are likely to occur.

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Existing Conditions

Evaluation of the traffic impacts associated with the proposed Project requires a thorough understanding of the existing roadway system in the vicinity of the site. The existing conditions observed in the study area include an inventory of roadway, sidewalk and intersection geometry, traffic control devices, traffic signal timings, and the collection of traffic volumes. This information is provided in the following section.

Study Roadways and Intersections

Boston Post Road, designated as US Route 1, is a north-south urban principal arterial under the jurisdiction of the New York State Department of Transportation (NYSDOT). It runs west of the project site and provides two travel lanes in each direction with additional turn lanes at key intersections. The roadway is relatively straight and level with horizontal radii of generally 1,100 feet or greater and vertical grades of two percent or less.

Within the study area, travel lanes measure 10 to 11 feet wide and concrete curbs and sidewalks are provided along each side of the roadway. The sidewalk varies in width from 5 feet to 15 feet. The pavement is in generally fair to good condition with some surface distress. Parking is permitted, with some restrictions, along the east (northbound) side of Boston Post Road from a point just north of the intersection with Old Boston Post Road/Richbell Road to Rockland Avenue. Along the southbound side of the road, parking is permitted between Orienta Avenue and the northern driveway to Mamaroneck High School. The posted speed limit on this section of roadway is 30 miles per hour (mph)

A 2016 Automatic Traffic Recorder (ATR) count on Boston Post Road near Mamaroneck High School indicates a daily traffic volume of 19,320 on weekdays and 18,549 on Saturdays.

Hommocks Road, is a local road which runs east from Boston Post Road and serves the Hommocks Middle School, Hommocks Pool and Ice Rink and the residences further to the east. The western portion of the road is in the Town of Mamaroneck and is posted with the 30 mph Town speed limit. The eastern portion of the road is in the Village of Mamaroneck. Hommocks

Road provides one travel lane measuring 11 to 12-feet wide in each direction. The roadway is generally level with grades of one percent or less. Hommocks Road has an "S" curve near the Middle School; otherwise, the roadway is generally straight within the study area.

A sidewalk is provided along the south side of the road from Boston Post Road to and extending along the frontage of the middle school with sidewalk widths ranging from 5 feet to 10 feet. On the north side of the roadway, a sidewalk is provided between Boston Post Road and the Middle School main driveway with widths varying from 5 feet near the Middle School to 20 feet adjacent to Walgreens. Except for an area along the south side of the road in front of the Middle School, which permits one-hour parking on weekdays, there is no on-street parking. The roadway's asphalt pavement is in fair condition.

An Automatic Traffic Recorder count in indicated that the average weekday traffic volume on Hommocks Road, just north of Eagle Knolls Road, is 708 vehicles.

Weaver Street, designated as NYS Route 125, is a State principal arterial roadway that connects White Plains to the north to Boston Post Road in Mamaroneck to the south. Within the study area, Weaver Street provides two 12-foot travel lanes and has a posted speed limit of 30 mph. There are areas of the roadway with horizontal curves, with the sharpest curve in the study area located near Howell Avenue and having a radius of 425 feet. As it approaches Boston Post Road, Weaver Street has a two percent downhill grade.

Sidewalks ranging in width from 4-feet to 8-feet are provided on both sides of the road in the vicinity of its intersection with Boston Post Road. Parking is prohibited on both sides of the roadway and the pavement is in generally good condition.

The NYSDOT count on Weaver Street shows a 2015 AADT estimate of 8,755 vehicles.

Eagle Knolls Road is a local public roadway between its terminus at Hommocks Road and extending to the east to the Proposed Action's property line. Within the site, Eagle Knolls Road is a private roadway. The western portion of the roadway is in the Town of Mamaroneck and the eastern portion is part of the Village of Mamaroneck. Eagle Knolls Road provides one 10 to 11-foot travel lane in each direction. The pavement in the public portion of the roadway is in fair condition; while the pavement within the private section is in poor condition.

Sidewalks are not provided along Eagle Knolls Road and parking is not permitted in the private portion of the road.

East Cove Road is a private road and connects Orienta Avenue to private residences and the Hampshire Country Club. It provides one 10-foot travel lane per direction with varying pavement conditions. Between its intersection with Orienta Avenue and the entrance to the Hampshire County Club property, the pavement is in generally fair to good condition. Within the Country Club property, the pavement is in fair to poor condition. Sidewalks are not provided and parking is not permitted on the portion of the roadway within the Hampshire Country Club property.

The roadway has generally level terrain with grades of two percent or less. The horizontal curvature of East Cove Road is generally straight with some curves; the sharpest curve is located approximately 300 feet to the west of Orienta Avenue and has a radius of 75-feet.

Orienta Avenue is a collector roadway that extends from Boston Post Road to Flagler Drive and is under the jurisdiction of the Village of Mamaroneck. A 15-foot wide service road is provided to the east of Orienta Avenue, in the area between Bleeker Avenue and Protano Lane. The service road is also designated as a bike path for use by pedestrians and bicyclists. Orienta Avenue provides two 10-foot travel lanes in each direction and has a posted speed limit of 25 mph. Sidewalks are provided in the section between Boston Post Road and Rushmore Avenue, between Old Boston Post Road and the service road and between the service road and Bleeker Avenue. Parking is prohibited on both sides of the roadway and the pavement is in generally fair to good condition.

A 2016 Automatic Traffic Recorder (ATR) count on Orienta Avenue to the north of Rushmore Avenue indicates a daily traffic volume of 6,818 on weekdays and 5,682 on Saturdays. Further to the east of this location, a NYSDOT ATR count on Orienta Avenue near Fairway Lane estimates an average daily traffic volume of 3,052 vehicles.

Delancey Avenue is a two-lane, 30-foot wide local roadway extending from Boston Post Road through a residential area to its terminus near the Metro-North Railroad tracks. The pavement is generally in good condition. Within the study area, parking is permitted along the north side of Delancey Avenue. Sidewalks, measuring 4-feet wide, are provided on both sides of the road between Boston Post Road and Palmer Avenue; sidewalks are not provided to the west of Palmer Avenue. Truck traffic is not permitted along Delancey Avenue.

Delancey Avenue has a 7 percent decrease in elevation traveling from Munro Avenue to Boston Post Road. Elsewhere the roadway is fairly level. The horizontal alignment of the roadway is relatively straight.

Cooper Avenue is a two-lane local road extending a short distance through a residential area from Old Boston Post Road to its terminus at the driveway to the Hampshire Country Club's maintenance facility. The roadway width varies from 16 feet to 18 feet and parking is permitted on the east side of the road. Traveling from Old Boston Post Road, the elevation decreases approximately 5 percent. The horizontal roadway alignment is generally straight. Although there is no posted speed limit, the Village speed limit of 30 mph would be in effect.

Fairway Lane is a two-lane local road extending from Orienta Avenue through a small residential area to its terminus in a cul-de-sac. The roadway width varies from 15 feet to 18 feet and parking is permitted on both sides of the road. Traveling from Orienta Avenue to the cul-de-sac, the vertical elevation decreases approximately 3 percent. The roadway has a straight horizontal alignment. There are no sidewalks along Fairway Lane. Although there is no posted speed limit, the Village speed limit of 30 mph would be in effect.

Old Boston Post Road is a one-lane, local road that provides one-way travel in the southbound direction from Orienta Avenue in the north to its terminus at Boston Post Road (US Route 1), opposite Richbell Road to the south. The roadway width varies from 20 feet to 33 feet and parking is permitted on the west side of the road in some areas. Old Boston Post Road has a posted speed limit of 25 mph and the pavement is in generally good condition. A sidewalk is provided on the west side of the road across the frontage of the Orienta Gardens apartment complex. A 6-foot striped pedestrian walkway is provided on the eastern edge of the road

starting at the Old Boston Post Road Cut-off near Orienta Avenue and continuing to the McDonald's exit driveway, near Boston Post Road.

Old Boston Post Road has a 2.6 percent increase in elevation traveling from Orienta Avenue to Old Post Lane. Between Old Post Lane and Boston Post Road, the elevation decreases by 1.5 percent. The horizontal curvature of Old Boston Post Road is generally straight with some curves; the sharpest curves are located near Fairway Green and near the roadway terminus at Boston Post Road.

Descriptions of the 7 study locations are provided below.

1) Boston Post Road (US Route 1) and Hommocks Road/Weaver Street

   Boston Post Road provides two through lanes and an exclusive left turn lane in each direction at this signalized, four-way intersection. The eastbound Weaver Street and westbound Hommocks Road approaches each provide an exclusive left turn lane, a shared through/right turn lane and one receiving lane. Crosswalks and pedestrian displays are provided on each leg and the intersection is controlled by a multi-phase traffic signal, which includes a protected phase for the left turn movements on Boston Post Road and a separate, actuated pedestrian-only phase.

2) Hommocks Road and Eagle Knolls Road

   The unsignalized intersection of Hommocks Road & Eagle Knolls Road is a three-legged T-intersection. One lane per direction is provided on each roadway. The intersection is controlled by stop signs on each approach.

3) Orienta Avenue and East Cove Road

   The unsignalized intersection of Orienta Avenue with East Cove Road is a three-legged T-intersection. Each roadway provides one approach lane and one receiving lane. Stop signs are provided on each approach to control traffic.

4) Boston Post Road (US Route 1) and Orienta Avenue/Delancey Avenue

   Boston Post Road provides two through lanes in each direction at this signalized, four-way intersection. Delancey Avenue and Orienta Avenue are offset from each other by 130 feet. Delancey Avenue forms the eastbound approach and provides a left turn lane and a right turn lane and one receiving lane. At Delancey Avenue, pedestrian crosswalks are provided on the north and west legs of the intersection. The westbound Orienta Avenue approach consists of exclusive left turn and right turn lanes and one receiving lane. At Orienta Avenue, pedestrian crosswalks are provided on the south and east legs of the intersection. The intersection is controlled by a four-phase traffic signal.

5) Old Boston Post Road and Cooper Avenue

The unsignalized intersection of Old Boston Post Road and Cooper Avenue is a three-legged T-intersection. Old Boston Post Road is a one-way roadway in the southbound direction with one travel lane. Cooper Avenue provides one left-turn lane. The intersection is controlled by a stop sign on the Cooper Avenue approach. A sidewalk is provided on the west side of Old Boston Post Road along the frontage of the Orienta Gardens apartment complex. Along the east side of the Old Boston Post Road, there is a striped pedestrian lane. Crosswalks are not provided at this intersection.

6) Boston Post Road (US Route 1) and Old Boston Post Road/Richbell Road

Boston Post Road provides two through lanes in each direction and an exclusive left turn lane in the northbound direction at this signalized, four-way intersection. Old Boston Post Road is a one-way westbound roadway with an exclusive left-turn lane and a shared through/right-turn lane. The eastbound Richbell Road approach has one left-turn lane and one right-turn lane. Pedestrian displays and crosswalks are provided on each leg. The intersection is controlled by a multi-phase traffic signal, which includes a protected phase for the northbound left turn movement on Boston Post Road and a separate, actuated pedestrian-only phase.

7) Fairway Lane and Orienta Avenue

The unsignalized intersection of Orienta Avenue with Fairway Lane is a three-legged T-intersection. Each roadway provides one approach lane and one receiving lane. A Stop sign is provided on the Fairway Lane approach. There are no sidewalks or pedestrian crosswalks at this intersection.

Existing Pedestrian Crossings

Sidewalks are provided connecting all of the businesses on Boston Post Road between Hommocks Road/Weaver Street and Orienta Avenue/Delancey Avenue. Signalized crossings of Boston Post Road are provided at Hommocks Road/Weaver Street, Richbell Road/Old Boston Post Road, the High School driveway and Orienta Avenue/Delancey Avenue. All of the intersections were observed to be properly marked to accommodate pedestrians and appeared to be functioning safely. Crossing guards were provided at the intersections of Boston Post Road with Hommocks Road/Weaver Street and with Richbell Road/Old Boston Post Road.

Sidewalks are provided on both sides of Hommocks Road from Boston Post Road to the driveway to the school's main parking lot where there are unsignalized crosswalks. These crosswalks are staffed by a crossing guard during morning and afternoon school dismissal periods. East of the parking lot driveway, a sidewalk continues on the school side of Hommocks Road all the way to the school's rear driveway, allowing students complete access to the campus from Boston Post Road without having to walk in the street.

Public Transit

The site is afforded convenient access to public transit, including rail and bus service. The MTA's Metro-North Railroad's New Haven line runs parallel with Boston Post Road and has two stations in proximity to the project site, the Mamaroneck and Larchmont rail stations. The New Haven line provides service between Grand Central Terminal in New York City and New Haven, CT. Connections to Amtrak service are also available along the New Haven line at the New Rochelle and Stamford, CT stations. There are 91 Metro North trains each weekday on the New Haven line between New York City and the Mamaroneck and Larchmont stations (46 southbound trains, 45 northbound trains). On weekends, there are 75 trains on Saturdays (37 southbound; 38 northbound) and 63 trains on Sundays (31 southbound; 32 northbound).

Westchester County runs the Bee-Line Bus Service within the study area. Bus route #70, also known as the Bonnie Briar Commuter, is the only route that operates in vicinity of the Proposed Action. Route #70 provides weekday service that operates in a loop with the starting and ending points at the Larchmont train station. Route #70 travels along Boston Post Road between Weaver Street and Richbell Road and operates 4 buses during the morning peak commuter period and 7 buses during the PM peak period. At the Larchmont station, connections can be made to other Bee-Line buses (#61, #66, and #71).

Map indicating Bee-Line Bus routes within the study area

Existing Traffic Data

To assess existing traffic conditions in the vicinity of the Proposed Action, peak period manual turning movement traffic volume counts were recorded at the seven study intersections in March 2016. The intersection counts included tallies of automobiles, trucks, buses, pedestrians and bicyclists. Automatic traffic recorder (ATR) 24-hour counts were also conducted for a one-week period in March 2016 on Boston Post Road, Hommocks Road and Orienta Avenue. The ATR counts collected traffic volumes and vehicle classifications (automobiles, trucks and buses). The manual and ATR count locations are shown on **Exhibit 2**.

In consultation with Village planning staff, the manual counts were recorded during a typical weekday AM peak period (7:00 to 9:15 AM) and a typical weekday PM peak period (2:00 to 6:15 PM) which encompassed the peak arrival and departure periods at the Hommocks Middle School. Manual counts were also conducted in March 2016 during a typical Saturday midday peak period (11:00 AM to 1:00 PM). All counts were conducted during periods with scheduled activities at the Hommocks Park Ice Rink (house league hockey games, group skating lessons or public skating sessions) and Hommocks Pool (early morning swim, open swim, swim lessons or lifeguarding).

The traffic counts were tabulated and peak hour factors (PHF) were calculated and then applied to the volumes to identify the hour within the weekday and Saturday count periods which had the greatest peak-hour-factored volumes. The hour with the highest factored volumes was chosen for analysis. The peak hours are identified as 7:30 to 8:30 AM, 3:45 to 4:45 PM and 11:45 AM to 12:45 PM for the weekday AM, PM and Saturday midday periods, respectively. The existing peak hour volumes were compared to the ATR counts to confirm their validity and were balanced and increased as needed to provide a conservative approach. The Existing peak hour traffic volumes are shown on **Exhibits 3 and 4**.

A review of the exhibits indicates that overall, the AM, PM and Saturday peak hour volumes are similar. The Saturday peak hour volumes are slightly higher (from 0.4 to 0.9 percent higher) than the AM and PM peak hour volumes, although AM peak hour volumes tend to be more concentrated around the start of the school day at the Hommocks Road school and the high school.

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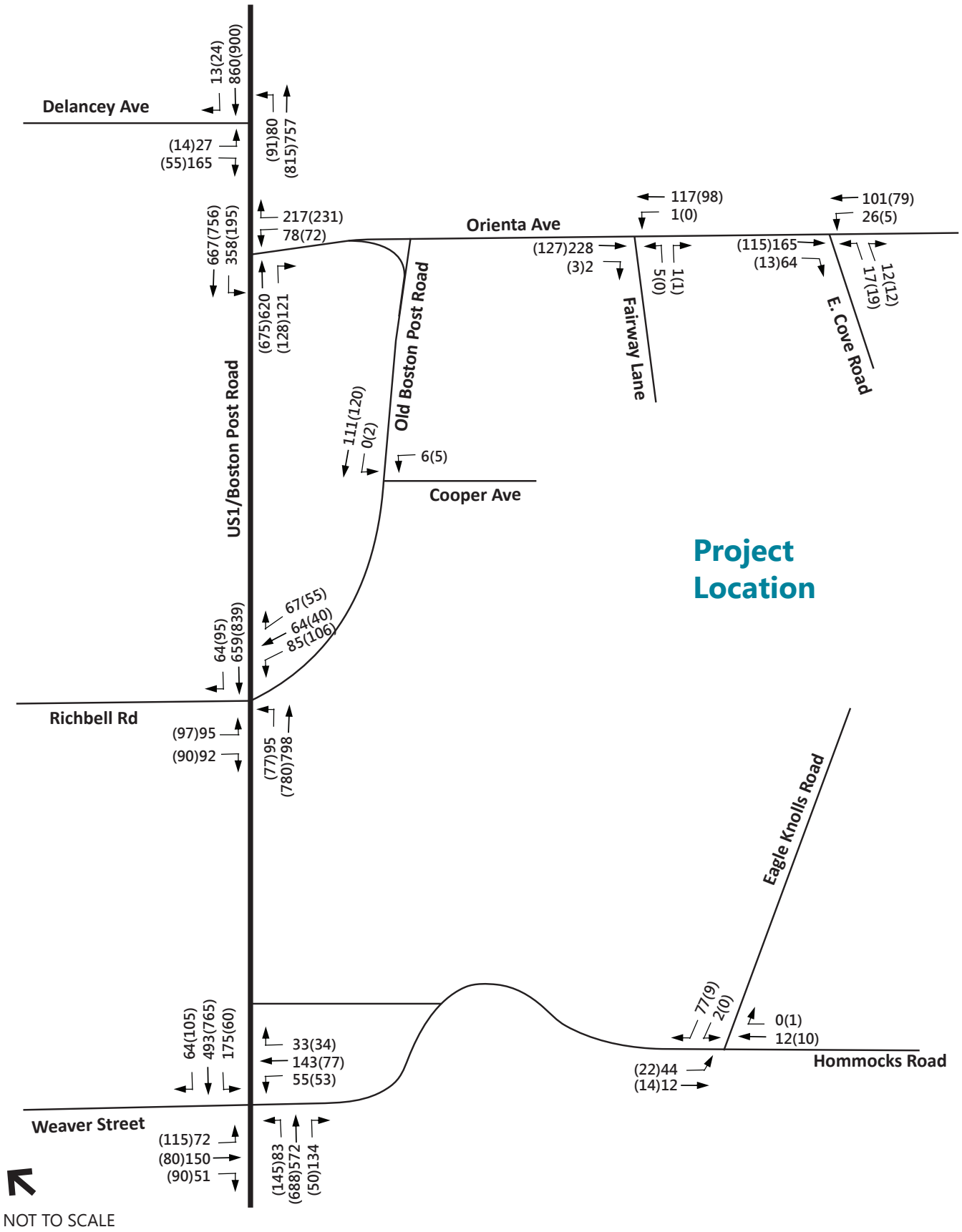
0 240 480 960 Feet

Hampshire Country Club - PRD | Village of Mamaroneck, NY

1 Intersection Manual Count Location

ATR Count Location

Count Locations



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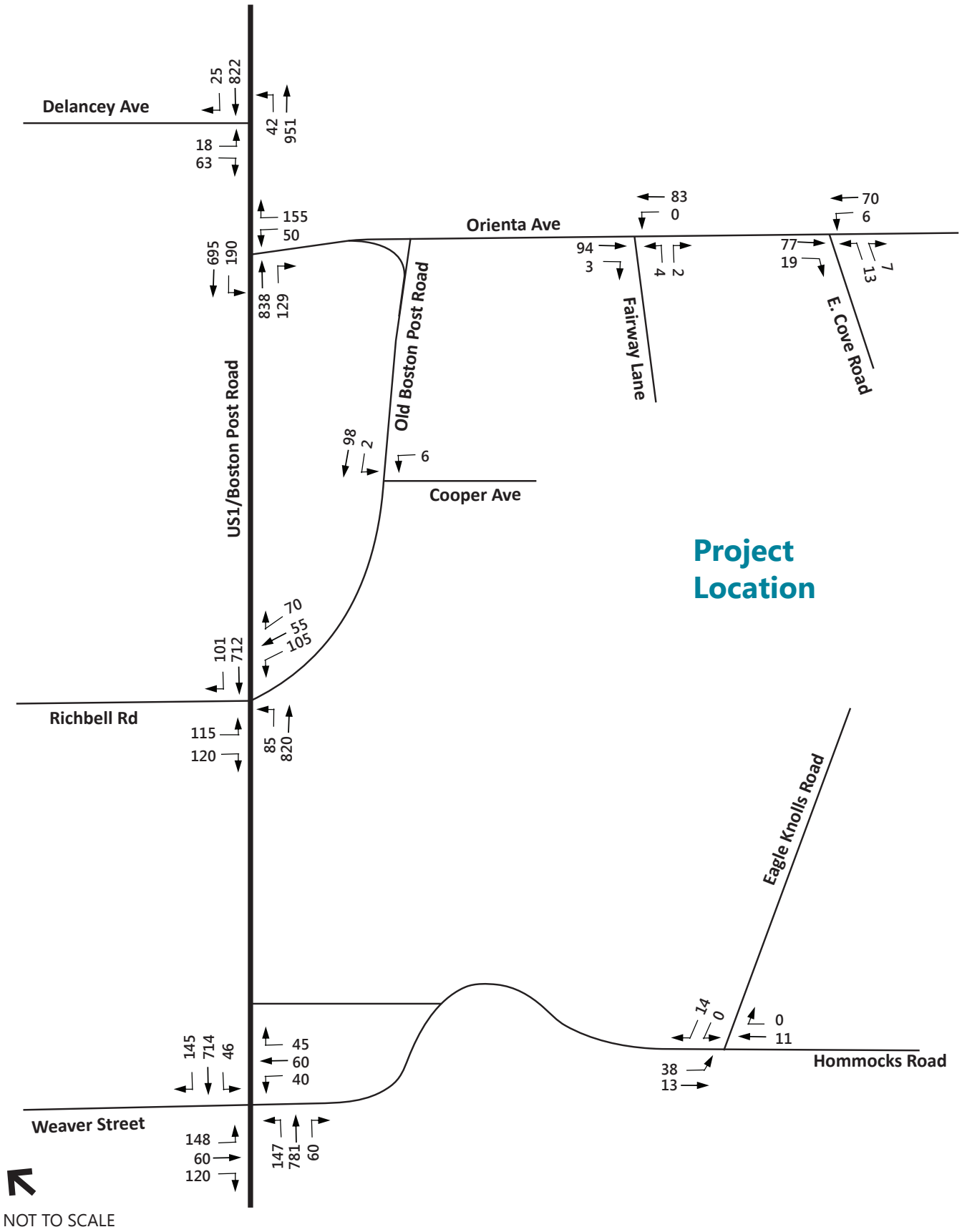
00= AM Peak Hour

(00)=PM Peak Hour

Existing Weekday Peak Hour Traffic Volumes



Hampshire Country Club - PRD | Village of Mamaroneck, NY

Existing Saturday Peak Hour Traffic Volumes

Pedestrian and Bicyclist Activity

The intersection counts included tallies of pedestrians and bicyclists, which are summarized in **Table 1**, below.

Table 1: Summary of Pedestrian and Bicyclist Peak Hour Counts

Intersection	AM Peds/Bikes	PM Peds/Bikes	Sat Peds/Bikes
Boston Post Road (US Route 1) and Hommocks Road/Weaver Street	245/6	64/4	74/9
Hommocks Road and Eagle Knolls Road	11/10	4/6	16/0
Orienta Avenue and East Cove Road	2/4	1/6	13/1
Boston Post Road (US Route 1) and Orienta Avenue/Delancey Avenue	24/6	31/0	43/11
Old Boston Post Road and Cooper Avenue	16/0	5/0	19/0
Boston Post Road (US Route 1) and Old Boston Post Road/Richbell Road	106/5	80/0	51/12
Fairway Lane and Orienta Avenue	2/6	2/2	2/2

As indicated in the table, pedestrian activity was at its greatest during the AM peak hour, with the highest concentration of pedestrians at the intersection of Boston Post Road and Hommocks Road/Weaver Street. At this intersection, a total of 245 pedestrians were counted during the AM peak hour, the majority of which were students walking to Hommocks Middle School. A total of 64 pedestrians were counted at this intersection during the PM peak hour and 74 pedestrians were observed during the Saturday peak hour. At the Boston Post Road intersection with Old Boston Post Road and Richbell Road, a total of 106 pedestrians were counted during the AM peak hour, 80 during the PM peak hour and 51 during the Saturday peak hour. All other study intersections had fewer pedestrians with the least amount observed at the Orienta Avenue intersections with East Cove Road and Fairway Lane. Only a handful of bicyclists (12 or fewer) were observed at any study location, with the highest number (11 and 12) occurring during the Saturday peak hour at the intersections of Boston Post Road with Old Boston Post Road/Richbell Road and Orienta Avenue/Delancey Avenue.

Traffic Circulation Patterns on and surrounding the Site

Primary access to the project site is currently provided from Eagle Knolls Road and East Cove Road; access to the golf course maintenance area is provided through Cooper Avenue. Vehicles from the south generally approach the site via Hommocks Road and Eagle Knolls Road. Vehicles from the north generally approach the site via Orienta Avenue and East Cove Road. Hommocks Road provides access to the Hommocks Middle School and the residences on Eagle Knolls Road, Hommocks Road and Oak Lane. Orienta Avenue provides access to the residences and businesses to the north of the site. Old Boston Post Road provides access to the residences to the west of the site.

Within the Hampshire Country Club's property, Eagle Knolls Road and East Cove Road are private roads. A review of the existing traffic volumes shown on Exhibits 3 and 4 indicates that these roadways are used as a short cut by traffic between Orienta Avenue and Hommocks Road,

most notably on weekday mornings when some residents to the east of the site travel back and forth to the school.

Hommocks Middle School

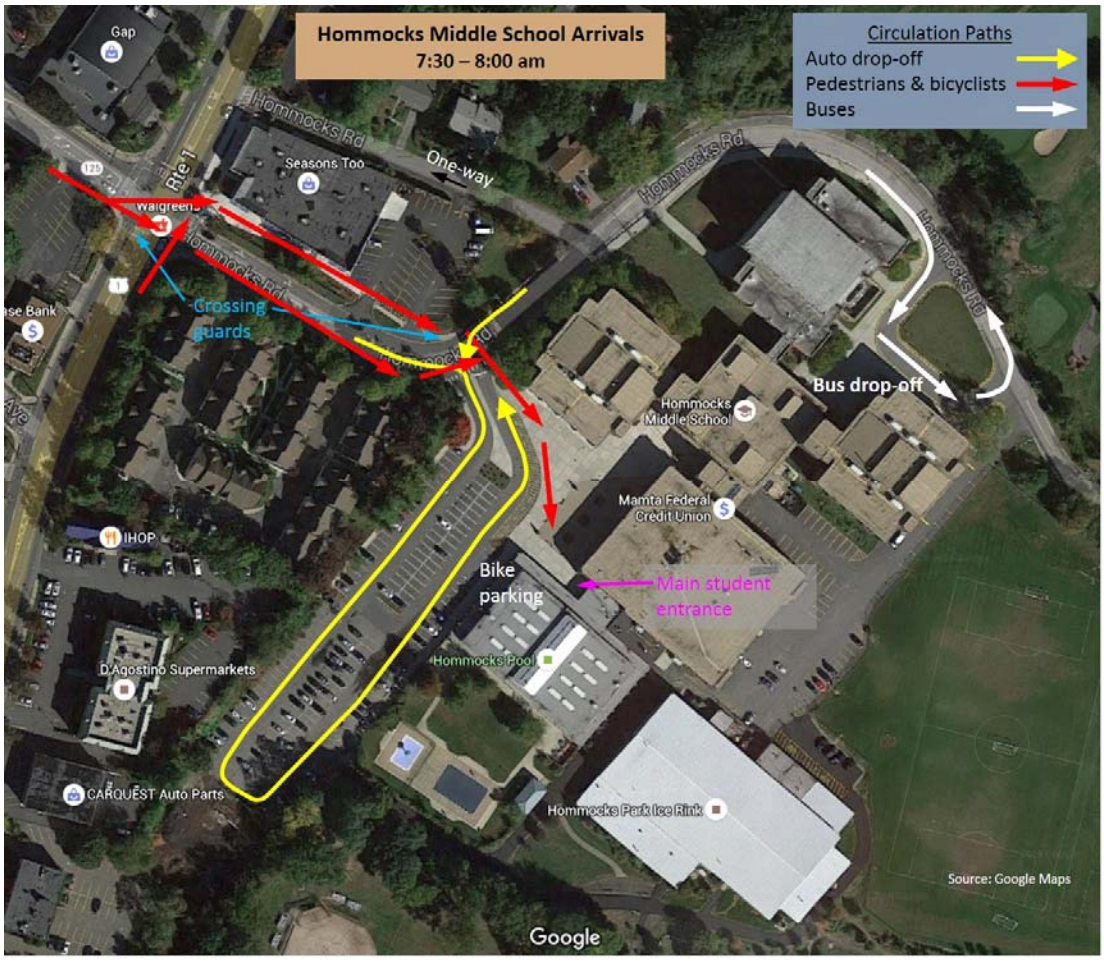
The Hommocks Middle School campus also includes the Hommocks Park Ice Rink and Hommocks Pool. VHB observed vehicular, pedestrian and bicyclist circulation during the peak morning arrival period and during the peak afternoon dismissal period at the Hommocks Middle School. As school bus transportation is provided only for students who live more than 2 miles from the school, the majority of students walk, bike or are driven to school by a parent/guardian. The circulation paths during the peak morning period for walkers, bicyclists, vehicle and bus drop-offs are described below and shown on **Exhibit 5**.

The first bell is at 8:00 AM with most students arriving between 7:30 and 7:55 AM. In the afternoon, dismissal is at 2:57 with most students departing between 3:00 and 3:20 PM. In the morning and afternoon, crossing guards are assigned to the Boston Post Road and Hommocks Road/Weaver Street intersection and at the Boston Post Road and Richbell Road/Old Boston Post Road intersection. At these two signalized intersections, crosswalks are provided on each approach leg and the traffic signals have an exclusive pedestrian phase during which all vehicular traffic is stopped. A crossing guard is also assigned on Hommocks Road in front of the School. Crosswalks are provided on the main school driveway and on Hommocks Road to the east of the school driveway. The majority of students walking or biking to/from the school from Boston Post Road use the sidewalk adjacent to Walgreen's and then cross Hommocks Road when directed by the crossing guard.

Motorists dropping off or picking up students enter the main school driveway and circulate around to the drop-off/pick-up area in front of the school entrance. Drivers then exit the driveway onto Hommocks Road when directed to by the crossing guard. School buses travel along Hommocks Road to the bus drop-off/pick-up area located on the northern part of the campus.

The Larchmont/Mamaroneck Safe Routes to School Committee (L/M SRTS) was established in 2008 to promote the health and fitness among students by providing safe walking and bicycling routes to area schools. Walking and biking to school is encouraged at all Mamaroneck schools and students and parents are provided tips on biking and pedestrian safety to increase awareness among drivers and pedestrians. At the Hommocks Middle School, per the L/M SRTS, it is quite busy during the arrival and dismissal periods with pedestrians, cyclists, buses and cars. Prior to the beginning of the school year in 2015, the School (with help from law enforcement) established a drop off lane and a "through" lane in the front parking lot to increase efficiency and improve safety. More information on the Safe Routes to School initiatives is provided in the Appendix.

Exhibit 5 – Hommocks Middle School Circulation Patterns



Crash History Analysis

Historical crash data for the study intersections were obtained from the New York State Department of Transportation (NYSDOT) for the latest available three-year period from January 1, 2013 to December 31, 2015. The data was reviewed and tabulated according to location, crash severity (fatalities or injuries), crash type (rear-end, right-angle, etc.) and contributing factors. The accident data are summarized by roadway corridor and by study location in **Tables 2 and 3**, respectively. A detailed breakdown of the crash data is provided in the Appendix.

Table 2 - Accident Summary by Corridor

Corridor	2013	2014	2015	Total 2013 to 2015
Boston Post Road (US Route 1)	36	46	46	**128**
Orienta Avenue	4	1	3	**8**
Hommocks Road/Weaver St (NY Route 125)	0	1	1	**2**
Old Boston Post Road	1	0	2	**3**
Eagle Knolls Road	0	0	0	**0**
East Cove Road	0	0	0	**0**
Fairway Lane	0	0	0	**0**
Cooper Avenue	0	0	0	**0**
Total	**41**	**48**	**52**	**141**

Table 3 - Accident Summary by Study Location

Study Location	Total No. of Accidents	Accident Severity		No. of Accidents involving	
		Fatalities	Injuries	Pedestrians	Bicyclists
Boston Post Road (US Route 1) and Hommocks Road/Weaver Street	27	0	10	0	2
Hommocks Road and Eagle Knolls Road	1	0	1	0	0
Orienta Avenue and East Cove Road	3	0	1	0	0
Boston Post Road (US Route 1) and Orienta Avenue/Delancey Avenue	35	0	15	2	1
Old Boston Post Road and Cooper Avenue	0	0	0	0	0
Boston Post Road (US Route 1) and Old Boston Post Road/Richbell Road	40	0	21	6	2
Fairway Lane and Orienta Avenue	1	0	0	0	0
Total	**107**	**0**	**48**	**8**	**5**

As indicated in Table 2, during the three-year period there was a total of 141 crashes with 128 crashes (91 percent) reported on Boston Post Road, 8 crashes on Orienta Avenue, 2 on Hommocks Road/Weaver Street and 3 on Old Boston Post Road. No accidents were reported on Eagle Knolls Road, East Cove Road, Fairway Lane or Cooper Avenue. Of the 141 crashes within the study area, 107 occurred at the study intersections, with the remaining 34 crashes occurring at other locations along the roadway corridors. As shown in Table 3, the highest number of crashes in the 3-year period occurred at the Boston Post Road (US Route 1) and Old Boston Post Road/Richbell Road intersection with a total of 40 crashes. That intersection also had the most crashes involving pedestrians (6) and bicyclists (2). A further tabulation of the accidents was conducted to show the manner of collision, as summarized in Table 4.

Table 4 - Accident Summary – Manner of Collision

Study Location	Total No. of Accidents	Manner of Collision								
		Rear End	Right Angle	Left turn	Right Turn	Over-taking	Head-on	Ped	Bike	Other
Boston Post Road (US Route 1) and Hommocks Road/Weaver Street	27	8	5	3	1	4	-	-	2	4
Hommocks Road and Eagle Knolls Road	1	-	-	-	-	-	-	-	-	1
Orienta Avenue and East Cove Road	3	1	1	-	-	-	1	-	-	-
Boston Post Road (US Route 1) and Orienta Ave/Delancey Ave.	35	15	6	1	0	9	-	2	1	1
Old Boston Post Road and Cooper Avenue	0	-	-	-	-	-	-	-	-	-
Boston Post Road (US Route 1) and Old Boston Post Road/Richbell Road	40	3	9	6	1	6	-	6	2	7
Fairway Lane and Orienta Avenue	1	-	1	-	-	-	-	-	-	-
Total	**107**	**27**	**22**	**10**	**2**	**19**	**1**	**8**	**5**	**13**

As shown in Table 4, of the 107 crashes, the most predominant type were rear-end collisions with a total of 27 crashes (25 percent), followed by right-angle (22 crashes/21 percent) and overtaking (19 crashes/18 percent).

3

Future Conditions

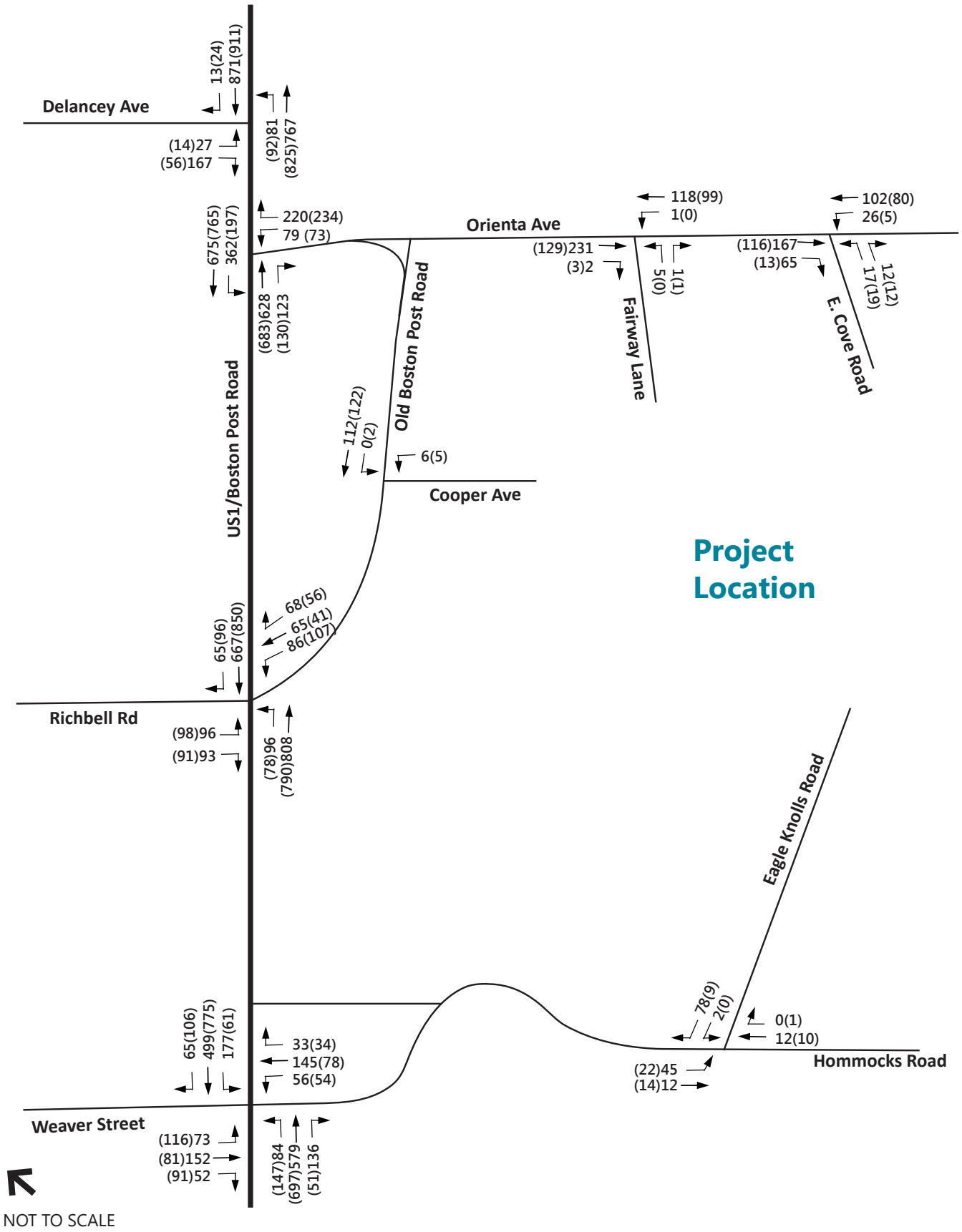
An analysis of future conditions, both with and without the proposed development ("Build" and "No-Build" conditions, respectively), was performed for each of the peak hours to evaluate the effect of the proposed action on future traffic in the area. The No-Build condition represents the future traffic conditions that can be expected to occur, if the proposed development does not materialize. The No-Build condition serves as a comparison to the Build condition, which represents expected future traffic conditions resulting from both project and non-project-generated traffic.

No-Build Condition

Traffic growth is typically a function of the expected land development, economic activity and changes in demographics in the region. To estimate the rate at which traffic can be expected to grow during the study period, both historical growth and planned area developments are reviewed and considered, as described below.

Background Traffic Growth

A review of historical data provided by NYSDOT indicates that traffic has decreased by approximately 0.4% per year between 1996 and 2014, with more recent data (2011 to 2014) indicating a 0.8% per year decline. In consultation with the Village of Mamaroneck Planner, it has been determined that an increase of 0.25% per year would be appropriate and would provide for a representative analysis. The existing traffic volumes for all three peak hours were increased by a total of 1.3 percent to represent the grown volumes. The Weekday and Saturday peak hour volumes are shown on **Exhibits 6 and 7**.



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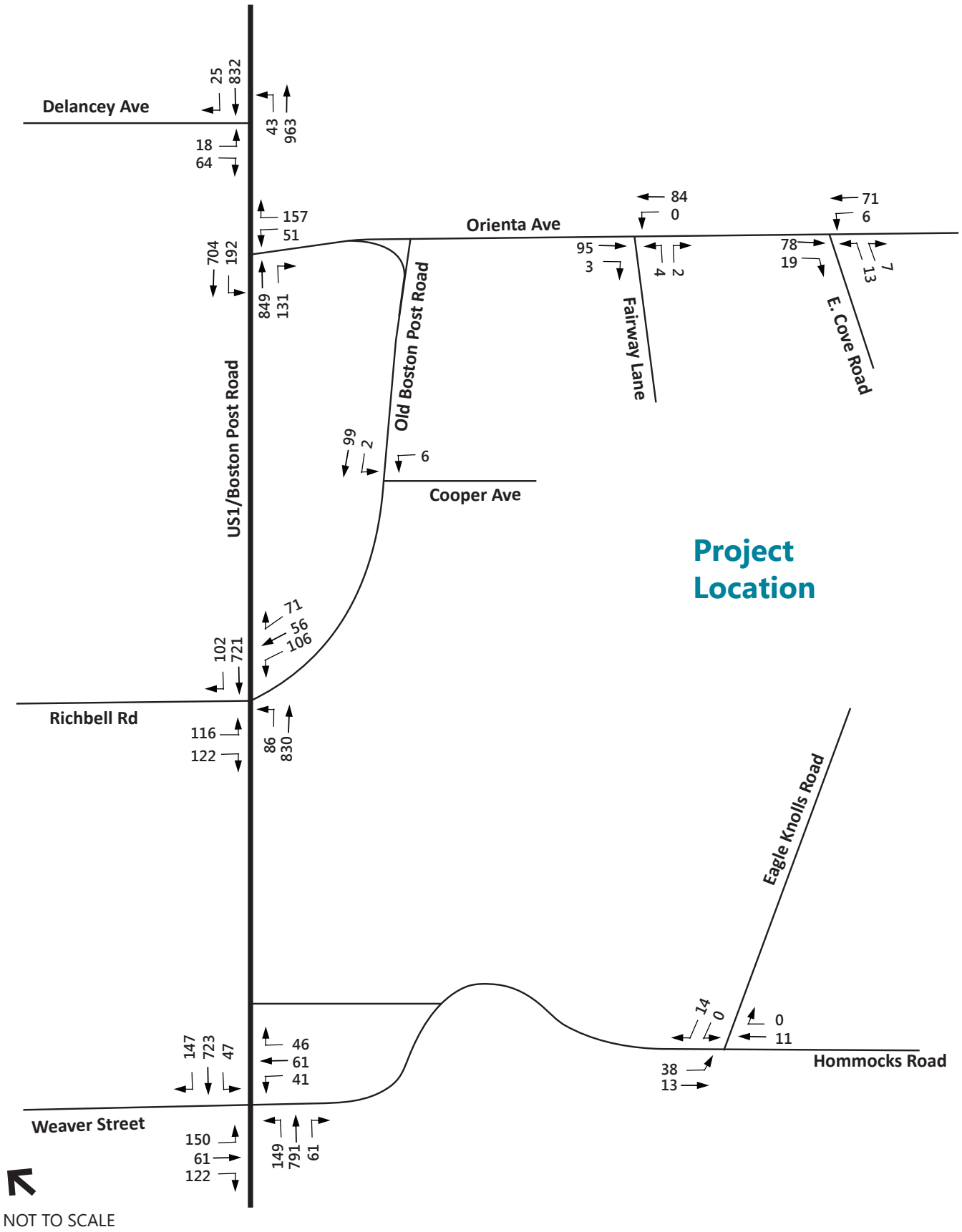
00= AM Peak Hour

(00)=PM Peak Hour

Grown Weekday Peak Hour Volumes



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Grown Saturday Peak Hour Volumes

Planned Vicinity Developments

The Planning Boards of the Village and Town of Mamaroneck provided information on proposed vicinity developments in the area. A total of 7 residential developments were identified; 6 in the Village of Mamaroneck and 1 project in the Town of Mamaroneck, as noted in **Table 5**.

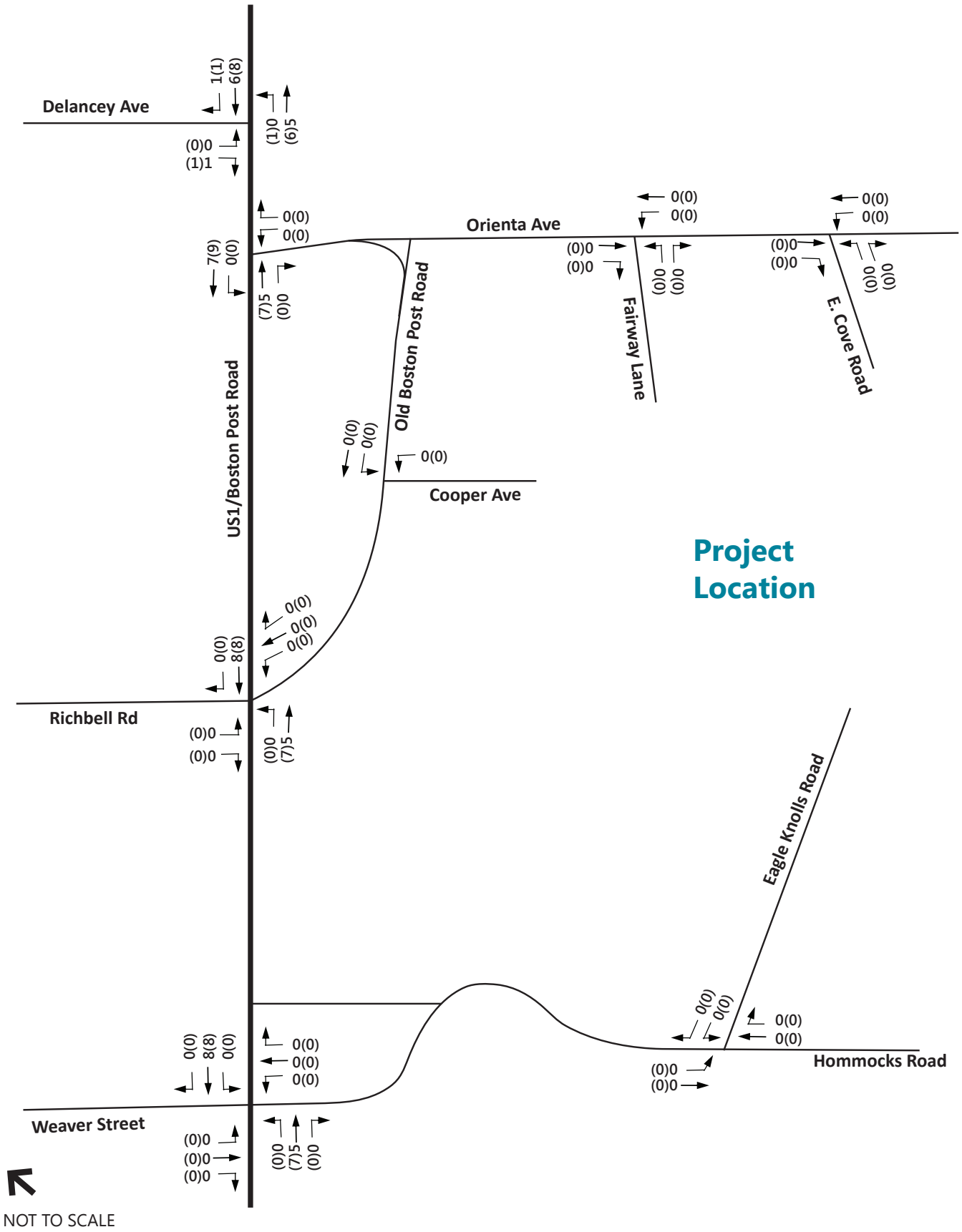
Table 5 - Vicinity Developments

Development	Size
690 Mamaroneck Avenue	21 units
270 Waverly Avenue	96 units
620 W. Boston Post Road	6 units
422 E. Boston Post Road	13 units
151 Mamaroneck Avenue (1)	10 units
532 W. Boston Post Road	7 units
The Cambium (Town)	149 units

Note: (1) Subsequent to preparing the traffic analyses in this study, VHB was advised that this project is no longer going forward; however, the volumes are included in the analyses.

The traffic volumes associated with the above developments were obtained from traffic studies, if available, or were estimated by VHB using standard trip generation methodology. Altogether, the 7 developments are projected to increase traffic in the study area by a further 0.7 percent. The vicinity development trips added to the study area intersections, are indicated on **Exhibits 8 and 9**.

The vicinity development volumes were added to the grown volumes resulting in the future No-Build peak hour traffic volumes shown on **Exhibits 10 and 11**.



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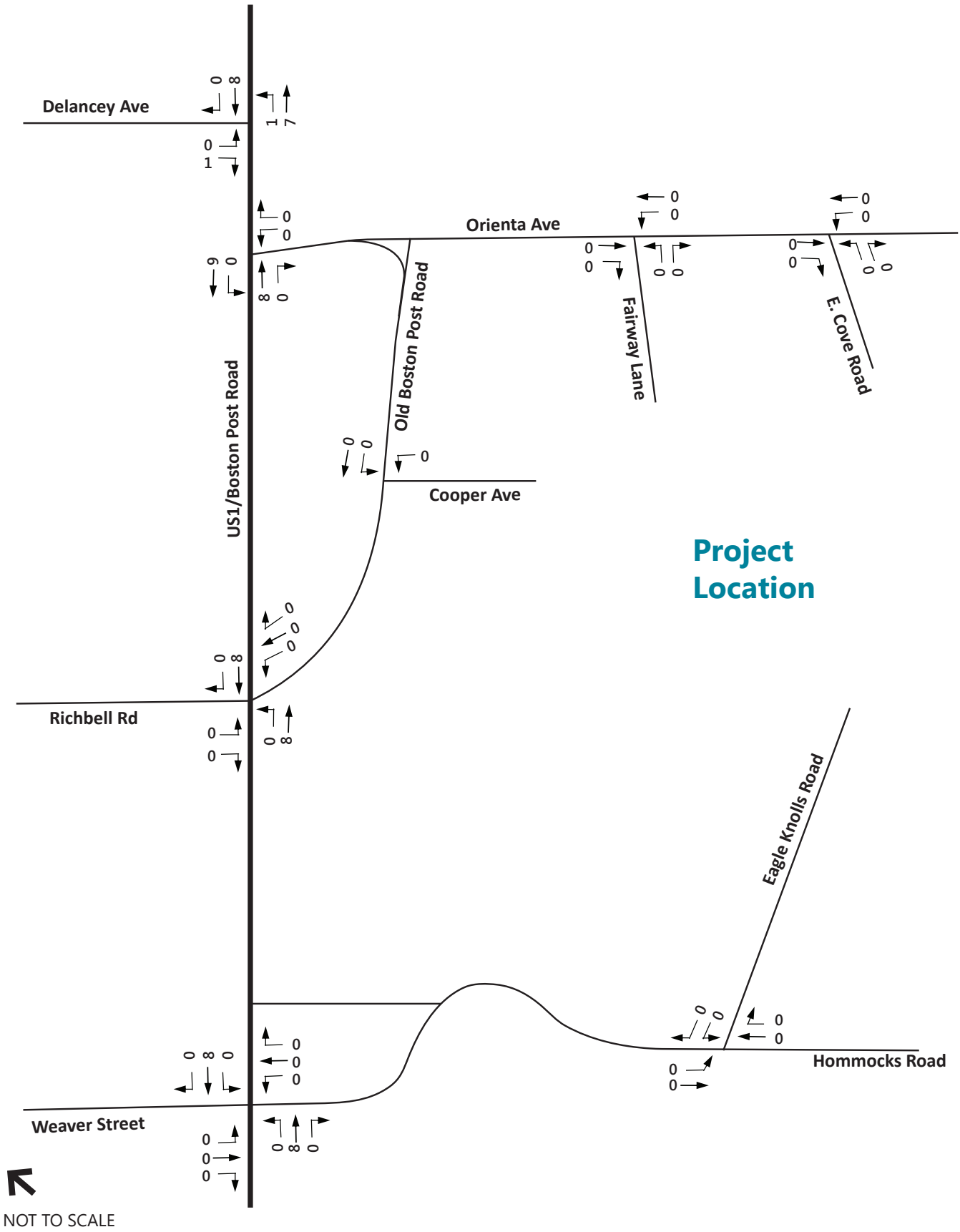
00= AM Peak Hour

(00)=PM Peak Hour

Vicinity Development
Weekday Hour Volumes



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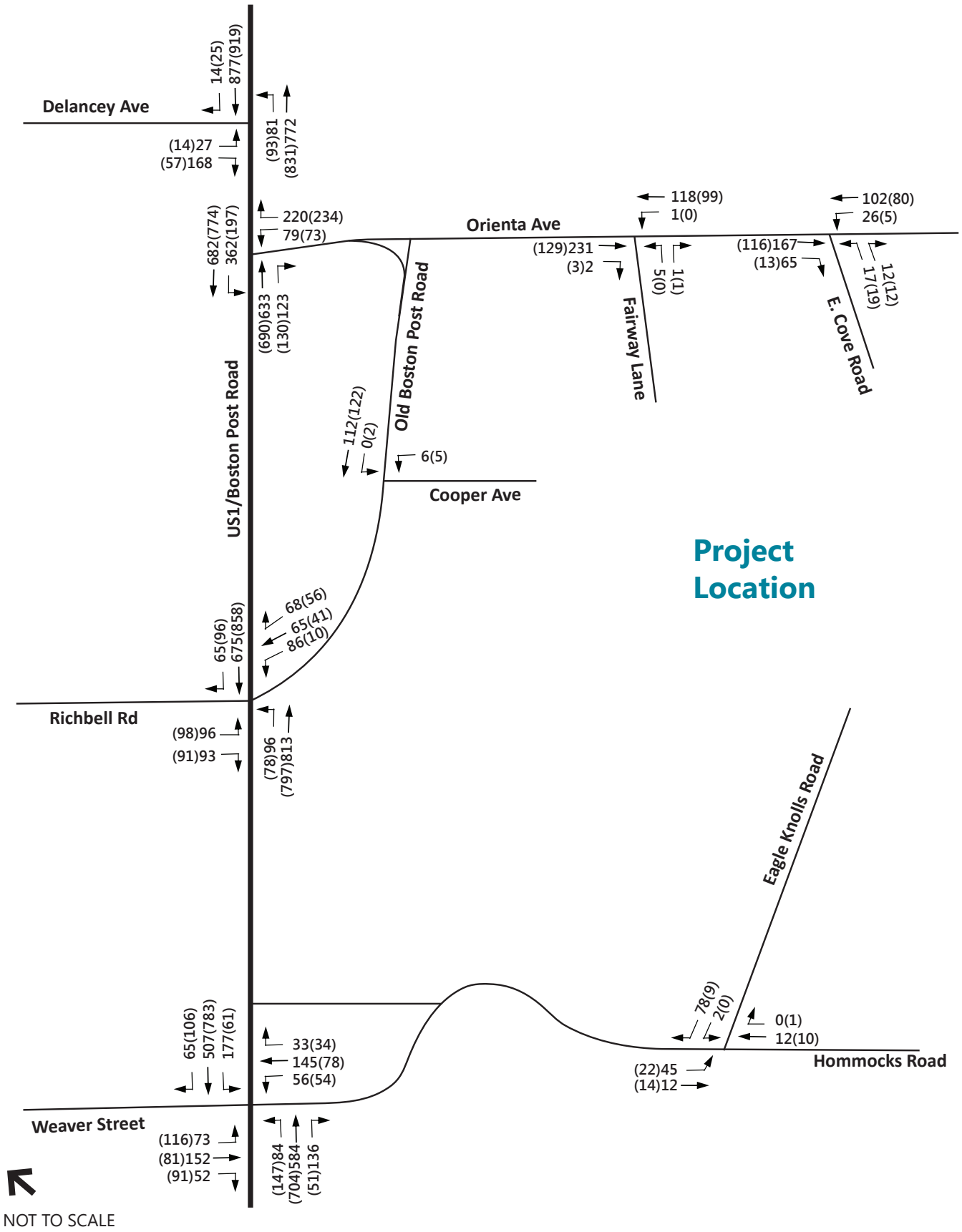
Vicinity Development Saturday Peak Hour Volumes



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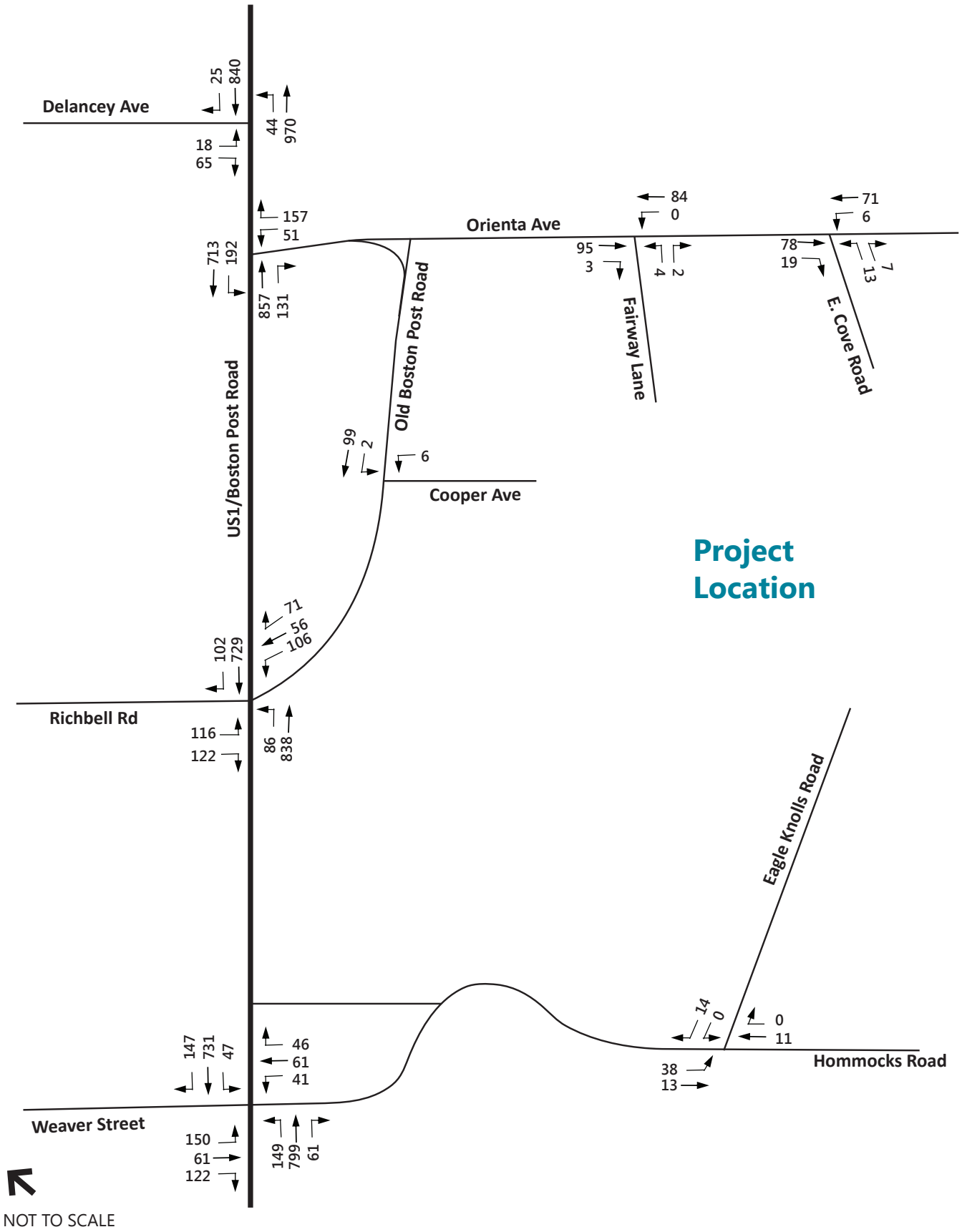
00= AM Peak Hour

(00)=PM Peak Hour

No-Build Weekday Peak Hour Traffic Volumes



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No-Build Saturday Peak Hour Traffic Volumes

Site-Generated Traffic

The Proposed Action is to consist of 105 residential units, comprised of 44 single-family detached homes and 61 townhouses. The existing 18-hole golf course will be reduced to a 9-hole course to facilitate the development of the project. The existing membership club facilities (including a clubhouse, pool and parking areas) will remain.

To evaluate the traffic impact of the Proposed Action, it is necessary to determine the traffic volumes expected to be generated by the 105-unit residential development and how much traffic activity at the existing country club will be reduced by the elimination of 9 holes of the golf course. A review was undertaken of the available trip generation data sources, including the reference published by the Institute of Transportation Engineers ("ITE"), *Trip Generation Manual*, Ninth Edition. This widely utilized reference source contains trip generation rates for related uses, "Single-Family Detached Housing" (Land Use Code 210) and "Residential Condominium/Townhouse" (Land Use Code 230).

The existing road network through the site connects the Hommocks Road School with the residential neighborhood to the north of the site and approximately 23 homes are accessed off of either Eagle Knolls Road or East Cove Road. Current levels of traffic activity at the existing Hampshire Country Club were identified based on a review of the existing traffic volumes which indicated that that the facility currently generates 33 trips during the weekday AM peak hour (19 in and 14 out), 50 trips during the weekday PM peak hour (21 in and 29 out) and 69 trips during the Saturday peak hour (47 in and 22 out). These values compare reasonably well with ITE values for an 18-hole golf course (37, 53 and 83 in the AM. PM and Saturday peak hours, respectively).

It was assumed that 6 percent of country club traffic activity in the morning peak hour (2 trips) were staff arriving at the facility and that 23 percent of activity in the afternoon and Saturday peak hours (12 and 16 trips, respectively) were staff and members arriving or leaving the clubhouse. Subtracting these trips from the 33, 50 and 69 peak-hour trips yielded 31, 38 and 53 AM, PM and Saturday peak-hour trips, respectively, associated with the golf course component of the facility. It was conservatively assumed that the elimination of 9 holes of the golf course would reduce golf-course traffic generation by 37 percent or 11 trips in the AM peak Hour, 13 trips in the PM peak hour and 20 trips on the Saturday peak hour.

In addition, to account for expected pedestrian trips, including internal trips between the single-family homes, town homes and the clubhouse/golf course, a 5 percent credit was applied to the residential trips (a 4 trip reduction in each of the peak hours). The resulting new trips from the Project on the local roadways are summarized in **Table 6**.

Table 6 - Project Trip Generations

Land Use	No. of Units	AM Peak Hour Total (in/out)	PM Peak Hour Total (in/out)	Saturday Peak Hour Total (in/out)
Single-Family Home	44	41 (11/30)	50 (33/17)	48 (26/22)
Townhouse	61	35 (10/25)	40 (27/13)	37 (20/17)
Total Residential Trips	105	*76 (21/55)*	*90* (60/30)	*85* (46/39)
- Internal Credit (5%)	-	-4 (-2/-2)	-4 (-2/-2)	-4 (-2/-2)
- Golf Course Trip Credit [(1)]	-	-11 (-8/-3)	-13 (-9/-4)	-20 (-11/-9)
Total New Trips		**61 (11/50)**	**73 (49/24)**	**61 (33/28)**

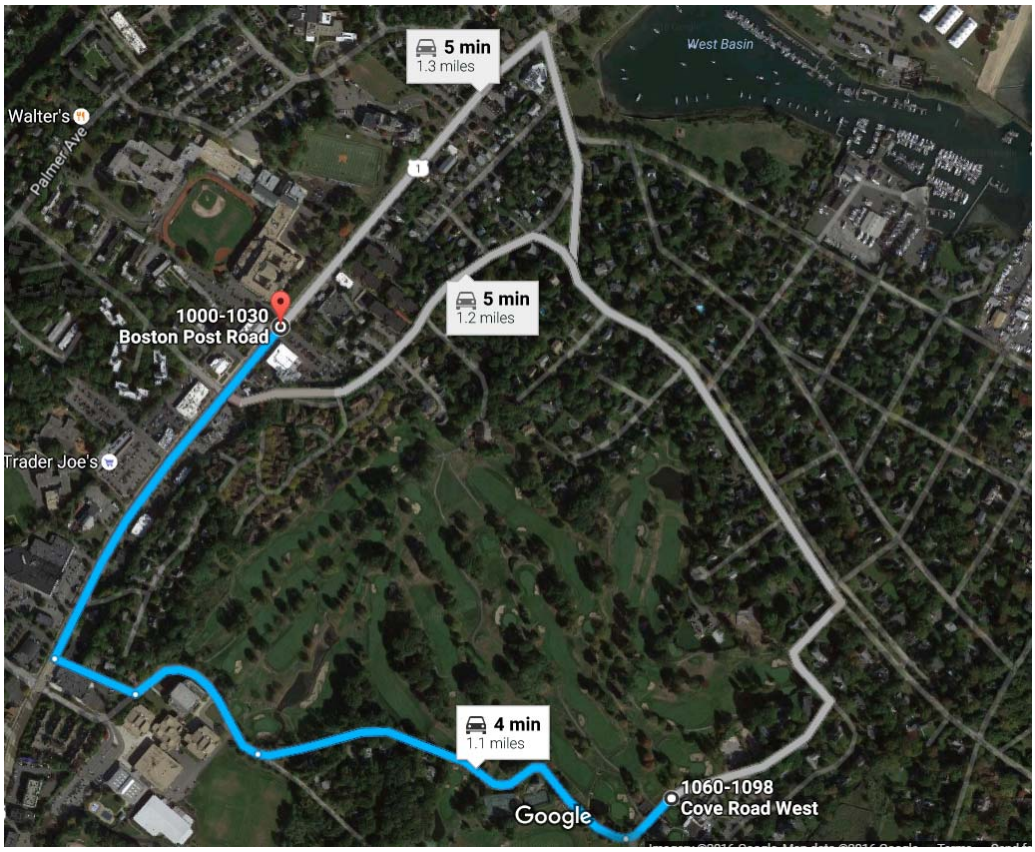
Source: ITE Trip Generation Manual, Ninth Edition.
Note: (1) Assumed 50% of the existing golf course trips would be eliminated.

As shown in Table 6, the Proposed Action is expected to generate a total of 61 new trips during the AM peak hour, 73 new trips during the PM peak hour and 61 new trips during the Saturday peak hour.

Trip Distribution and Assignment

The three existing access points to the project site (Cove Road, Eagle Knolls Road and Cooper Avenue) will be modified as part of the Proposed Action. The privately-owned portion of Cove Road within the Project site will be relocated, and this road will form the central corridor for the project which will connect with Eagle Knolls Road. Portions of Eagle Knolls Road will also be relocated from its existing location and will terminate in a cul-de-sac. Cooper Avenue, which currently extends from Old Boston Post Road to its terminus at the driveway to the golf course maintenance facility will be extended into the Site and will intersect with Cove Road.

As part of the development of the site plan, consideration was given to what configuration access to Cooper Avenue should take. This evaluation determined that allowing project traffic to exit via Cooper Avenue would have the greatest overall benefit, as it would encourage motorists travelling from the site to Richbell Road or any destination on Boston Post Road between Hommocks Road and the Mamaroneck High School to do so without passing through the busiest intersection in the study area (Boston Post Road with Hommocks Road/Weaver Street) or by the Hommocks Road School. Because of the one-way orientation of Old Boston Post Road, allowing project traffic to enter via Cooper Avenue would not achieve the same outcome. As a result of this evaluation. The extension of Cooper Avenue is currently envisioned to be a one-way, exit only road for development residents to provide access to Boston Post Road (US Route 1) via Old Boston Post Road.

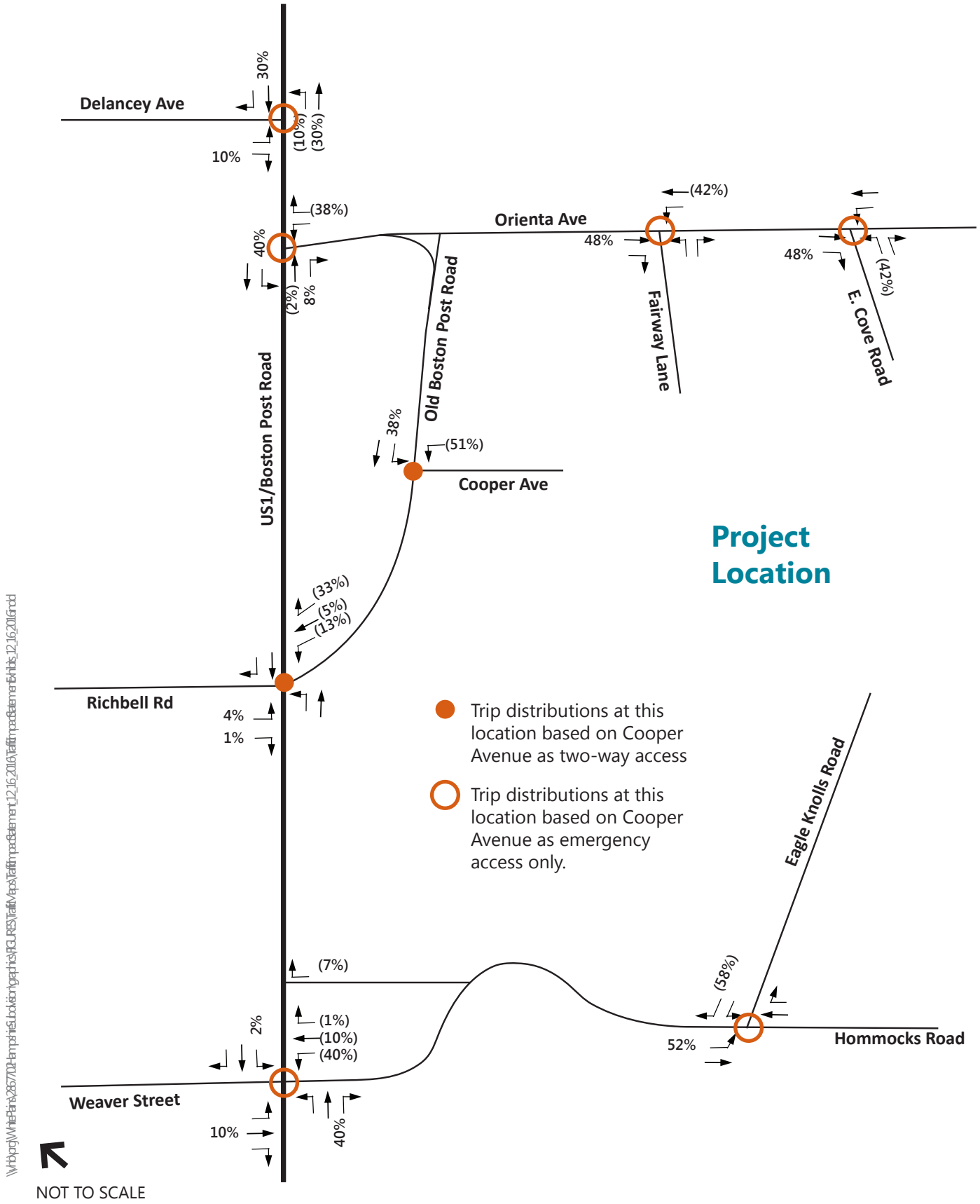


Trip arrival and departure patterns, which show how the newly-generated trips will travel to and from the site, were determined based on a review of the existing roadway network, existing traffic patterns and proposed access to the project. The trip origin and destination percentages for the project-generated trips are shown in **Table 7**.

Table 7 - Trip Origins and Destinations

Trip Origin/Destination	Percent of Site Traffic
Boston Post Road (US Route 1) from/to the north	30
Boston Post Road (US Route 1) from/to the south	40
Weaver Street (NYS Route 125) from/to the west	10
Delancey Avenue from/to the west	10
Richbell Road from/to the west	5
From/to Local streets	5

The distribution percentages at each study location are shown on **Exhibit 12**. In the event that access to the site not be provided via Cooper Avenue, this study conservatively assumed that all project traffic would enter and exit via Hommocks Road or Orienta Avenue. Similarly, were two-way access to be provided to the site via Cooper Avenue, the study also evaluated the impacts of this condition on the intersections of Old Boston Post Road with Cooper Avenue and Richbell Road/Boston Post Road.



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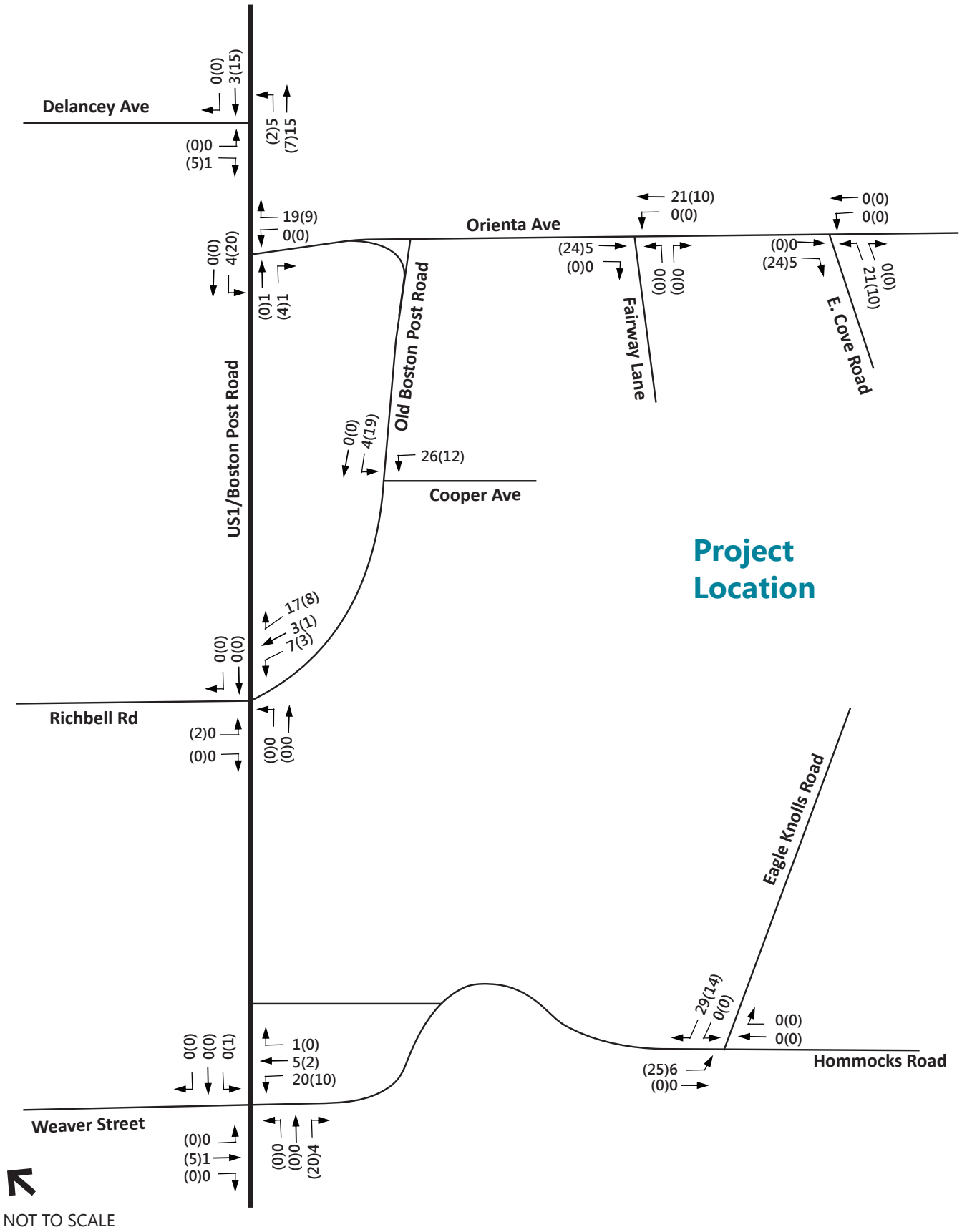
00= Arrival

(00)=Departure

Trip Distributions

The trip distributions shown on Exhibit 12 were then applied to the project trips shown in Table 6 and the resulting volumes were assigned to the local roadway network. These project-generated volumes are shown on **Exhibits 13 and 14**.

The project-generated volumes were added to the No-Build traffic volumes shown on Exhibits 10 and 11 resulting in the Build traffic volumes for the AM, PM and Saturday peak hours shown on **Exhibits 15 and 16**.

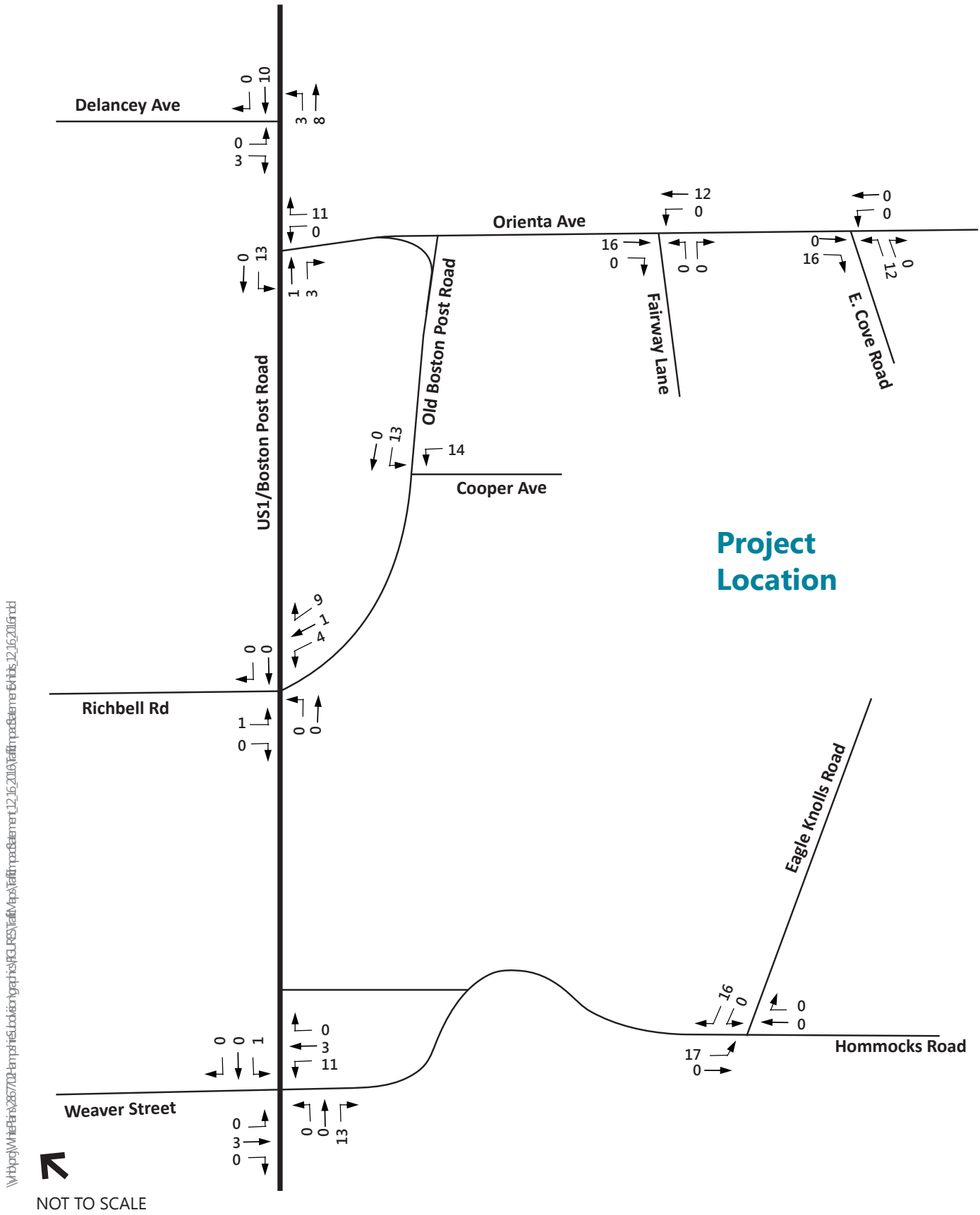


Hampshire Country Club - PRD | Village of Mamaroneck, NY

00= AM Peak Hour

(00)=PM Peak Hour

Project Generated Weekday Peak Hour Volumes



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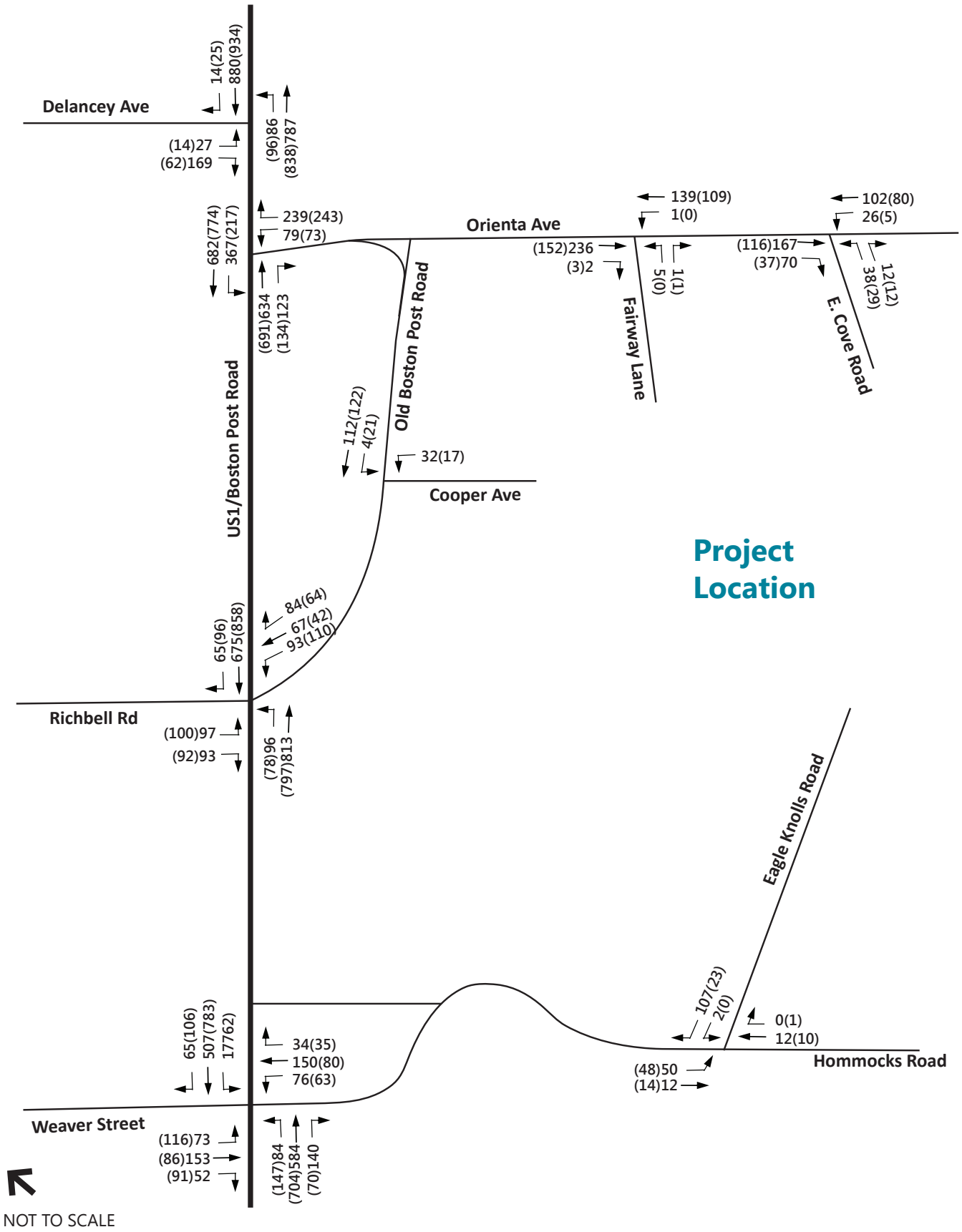
Project Generated Saturday Peak Hour Volumes

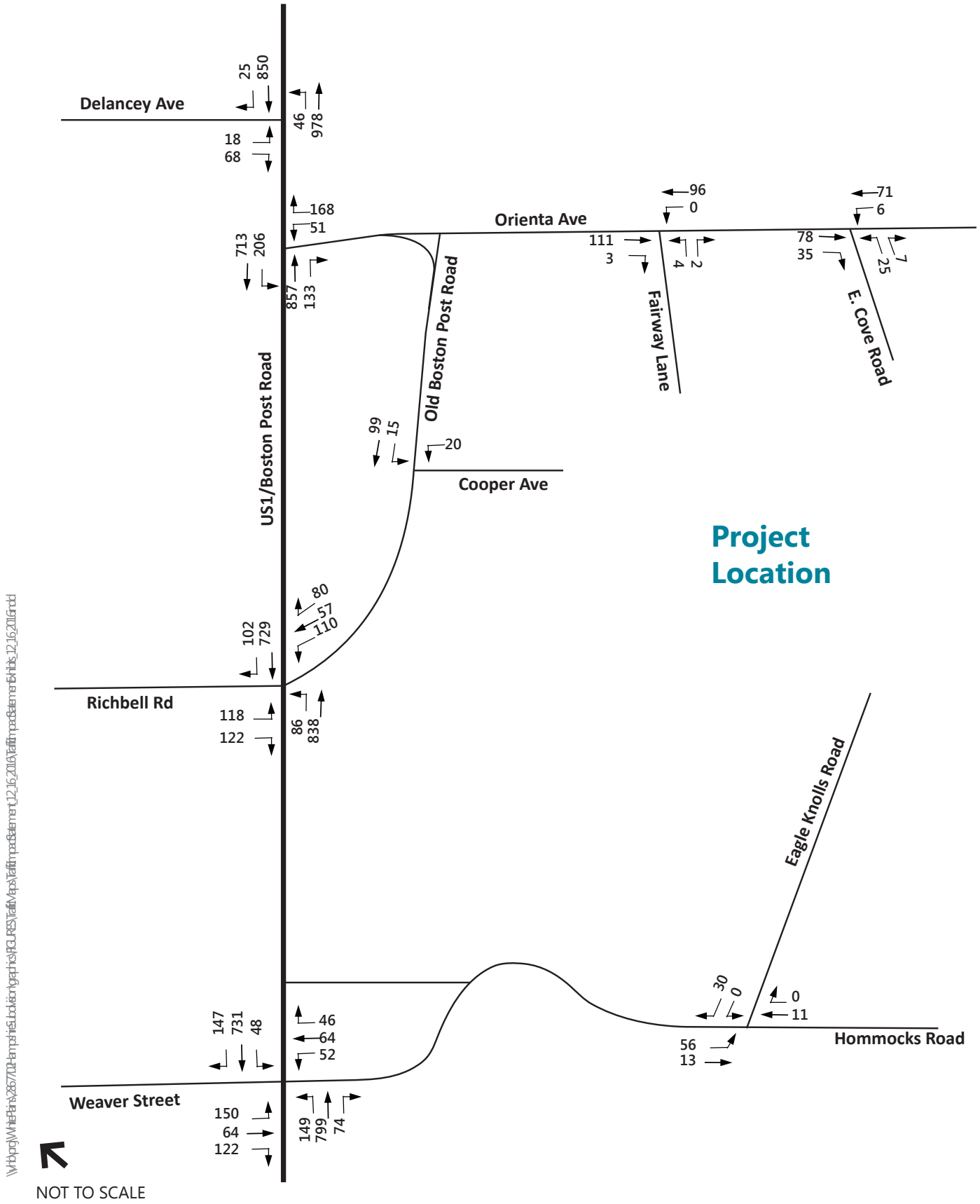


Hampshire Country Club - PRD | Village of Mamaroneck, NY

00= AM Peak Hour

(00)=PM Peak Hour

Build Weekday Peak Hour Traffic Volumes



Hampshire Country Club - PRD | Village of Mamaroneck, NY

Build Saturday Peak Hour Traffic Volumes

4

Traffic Operations

To assess the quality of traffic flow in the study area during the peak hours, intersection capacity analyses were conducted for Existing, No-Build, and Build (with the proposed residential development) traffic volume conditions. The following section summarizes the methods of capacity analyses used in this study and documents the results.

Method of Capacity Analysis

The intersection capacity analyses were conducted based on the evaluation criteria contained in the 2010 Highway Capacity Manual[1] (HCM). As documented in the HCM, intersection performance is influenced by a number of factors, including: traffic demand; lane configurations; lane widths; turning restrictions; roadway grades; speeds; and signal phasing and timing settings for signalized intersections. The existing physical roadway characteristics and signal phasing and timing settings at the signalized study intersection were determined by collecting field measurements.

Synchro 9 software was used to model the study intersections based on the parameters mentioned above. Synchro 9 software is widely used by traffic engineering professionals, is approved for use by NYSDOT, and is consistent with the procedures in the HCM.

Capacity analyses results are reported using a variety of performance measures, including "Level of Service" (LOS). The level of service designation is an index based on the average control delay experienced by a vehicle traveling through the intersection. Similar to a report card, LOS designations are letter-based, ranging from A to F, with LOS A representing the best operating condition (lowest vehicle delays) and LOS F representing the worst operating condition (highest vehicle delays).

LOS is reported differently for signalized and unsignalized intersections. For signalized intersections, the analysis considers the operation of all traffic entering the intersection, and the LOS can be reported for individual turning movements, approaches, or for the intersection as a whole. For unsignalized intersections, the most critical lane group delay on each approach is typically reported and the overall intersection LOS is not calculated. Thus the LOS designation is for the critical movement exiting the side street, which is generally the left turn out of the

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

side street or side driveway. As such, LOS is reported only for left-turns from the main street and for all movements from the side street.

Intersection Capacity Analysis

Intersection capacity analyses were conducted for the Existing condition and future No-Build and Build conditions for each of the key intersections. The results of the capacity analyses for the weekday AM and PM peak hours are summarized in **Table 8** and the capacity analyses results for the Saturday peak hour are summarized in **Table 9**. The detailed Synchro capacity analysis worksheets are contained in the Appendix.

Table 8 - Capacity Analysis Summary – Weekday AM & PM Peak Hours

Intersection	Approach	Lane Group	Existing				No-Build				Build			
			AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
			LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
Boston Post Rd (US Route 1) & Hommocks Rd/Weaver St	EB	L	E	58.0	D	48.4	E	59.1	D	48.7	E	60.3	D	48.8
		TR	D	51.6	D	47.1	D	52.1	D	47.3	D	52.2	D	47.6
	WB	L	D	54.1	D	46.9	E	55.3	D	47.1	E	64.1	D	47.9
		TR	D	50.6	D	44.4	D	50.9	D	44.6	D	51.6	D	44.7
	NB	L	D	39.7	D	53.1	D	41.7	E	56.2	D	41.7	E	56.2
		TR	E	68.7	C	30.7	E	72.9	C	30.9	E	74.5	C	31.4
	SB	L	E	75.5	C	25.8	E	76.2	C	26.4	E	76.2	C	27.4
		TR	D	37.4	D	40.2	D	38.0	D	40.9	D	38.0	D	40.9
	Intersection		**E**	**55.4**	**D**	**38.8**	**E**	**57.3**	**D**	**39.4**	**E**	**58.3**	**D**	**39.6**
Hommocks Rd & Eagle Knolls Rd (unsignalized)	WB	LR	A	7.6	A	6.5	A	7.6	A	6.5	A	8.1	A	6.6
	NB	TR	A	7.6	A	7.0	A	7.6	A	7.0	A	7.8	A	7.1
	SB	LT	A	8.3	A	7.3	A	8.4	A	7.3	A	8.7	A	7.6
Orienta Ave & East Cove Rd (unsignalized)	EB	LR	A	8.2	A	7.6	A	8.2	A	7.6	A	8.7	A	7.8
	NB	LT	A	8.9	A	7.7	A	8.9	A	7.7	A	9.1	A	7.8
	SB	TR	A	9.8	A	8.1	A	9.9	A	8.1	B	10.2	A	8.2
Boston Post Rd (US Route 1) & Orienta Ave/ Delancey Ave	EB	L	D	43.9	D	43.8	D	43.6	D	43.6	D	43.6	D	43.4
		R	B	10.5	B	13.0	B	10.4	B	12.8	B	10.4	B	12.5
	WB	L	D	44.5	D	42.1	D	44.8	D	42.2	D	44.8	D	42.5
		R	A	9.0	A	8.6	A	9.0	A	8.6	A	9.0	A	8.7
	NB	TR	D	41.6	D	36.6	D	42.1	D	37.0	D	42.2	D	37.2
	SB	TR	C	22.8	C	23.0	C	23.3	C	23.4	C	23.4	C	23.7
	Intersection		**C**	**25.7**	**C**	**21.0**	**C**	**27.8**	**C**	**21.5**	**C**	**28.0**	**C**	**21.6**
Old Boston Post Rd & Cooper Ave (unsignalized)	WB	L	A	9.6	A	9.3	A	9.6	A	9.3	A	9.9	A	9.6
	SB	LT	A	0.0	A	0.1	A	0.0	A	0.1	A	0.3	A	1.2
Boston Post Rd (US Route 1) & Old Boston Post Rd/Richbell Rd	EB	L	D	48.1	D	43.9	D	49.3	D	44.2	D	51.1	D	44.1
		R	D	41.0	D	39.8	D	41.5	D	40.1	D	41.1	D	39.8
	WB	L	D	39.7	D	39.8	D	40.2	D	40.1	D	40.2	D	39.9
		TR	D	42.7	D	39.3	D	43.3	D	39.7	D	44.0	D	39.9
	NB	L	B	18.8	B	13.8	B	18.9	B	14.0	B	19.3	B	14.3
		T	B	18.8	B	13.2	B	18.8	B	13.3	B	19.3	B	13.6
	SB	TR	C	28.6	C	24.0	C	28.6	C	24.3	C	29.1	C	24.6
	Intersection		**C**	**27.1**	**C**	**22.7**	**C**	**27.3**	**C**	**23.0**	**C**	**28.0**	**C**	**23.3**
Orienta Ave & Fairway Ln (unsignalized)	EB	LR	B	10.9	A	9.0	B	10.9	A	9.0	B	11.2	A	9.2
	NB	LT	A	0.1	A	0.0	A	0.1	A	0.0	A	0.1	A	0.0
	SB	TR	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0	A	0.0

Source: VHB, using Synchro 9 software. Delay is reported in seconds per vehicle.

Table 9 - Capacity Analysis Summary – Saturday Peak Hour

Intersection	Approach	Lane Group	Existing		No-Build		Build	
			LOS	Delay	LOS	Delay	LOS	Delay
Boston Post Rd (US Route 1) & Hommocks Rd/Weaver St	EB	L	D	45.4	D	45.7	D	45.8
		TR	D	43.8	D	43.9	D	44.0
	WB	L	D	43.0	D	43.1	D	43.5
		TR	D	41.1	D	41.1	D	41.2
	NB	L	D	47.5	D	49.8	D	49.8
		TR	C	32.8	C	33.1	C	33.4
	SB	L	C	27.1	C	28.2	C	29.2
		TR	D	41.4	D	42.1	D	42.1
	Intersection		**D**	**38.9**	**D**	**39.4**	**D**	**39.6**
Hommocks Rd & Eagle Knolls Rd (unsignalized)	WB	LR	A	6.6	A	6.6	A	6.7
	NB	TR	A	7.1	A	7.1	A	7.2
	SB	LT	A	7.5	A	7.5	A	7.7
Orienta Ave & East Cove Rd (unsignalized)	EB	LR	A	7.4	A	7.4	A	7.6
	NB	LT	A	7.5	A	7.5	A	7.6
	SB	TR	A	7.5	A	7.5	A	7.5
Boston Post Rd (US Route 1) & Orienta Ave/Delancey Ave	EB	L	D	45.4	D	45.2	D	45.1
		R	B	13.1	B	13.0	B	12.8
	WB	L	D	40.1	D	40.3	D	40.5
		R	A	8.5	A	8.5	A	8.4
	NB	TR	D	40.0	D	40.8	D	41.0
	SB	TR	C	20.9	C	21.2	C	21.4
	Intersection		**C**	**24.1**	**C**	**24.7**	**C**	**24.7**
Old Boston Post Rd & Cooper Ave (unsignalized)	WB	L	A	9.3	A	9.3	A	9.6
	SB	LT	A	0.1	A	0.1	A	1.0
Boston Post Rd (US Route 1) & Old Boston Post Rd/Richbell Rd	EB	L	D	40.8	D	41.6	D	42.2
		R	A	9.6	A	9.6	A	9.6
	WB	L	D	35.7	D	36.2	D	36.2
		TR	C	26.2	C	26.7	C	26.5
	NB	L	B	14.6	B	14.6	B	14.8
		T	B	14.8	B	14.8	B	15.0
	SB	TR	C	24.7	C	24.7	C	24.9
	Intersection		**C**	**21.2**	**C**	**21.3**	**C**	**21.5**
Orienta Ave & Fairway Ln (unsignalized)	EB	LR	A	9.3	A	9.3	A	9.5
	NB	LT	A	0.0	A	0.0	A	0.0
	SB	TR	A	0.0	A	0.0	A	0.0

Source: VHB, using Synchro 9 software. Delay is reported in seconds per vehicle.

Existing Conditions - As indicated in Tables 8 and 9, under existing conditions, the signalized intersection of Boston Post Road and Hommocks Road/Weaver Street currently operates at an overall level of service (LOS) "E" during the AM peak hour. LOS "E" is also experienced on individual movements (eastbound and southbound left turn movements and northbound through movement) during the AM peak hour. The intersection operates at acceptable LOS "D" during the PM and Saturday hours, with all individual movements operating at LOS "D" or

better. The two other signalized study intersections operate at an overall LOS "C" during the peak hours.

At the unsignalized intersections, the minor street turning movements operate at LOS "B" or better during each peak hour.

Future No-Build Conditions - In the future, without the proposed residential development (No-Build conditions), but with the forecast increases in traffic volumes, there will be a slight increase in overall delays at the three signalized intersections along Boston Post Road, generally on the order of 2 seconds or less. The levels of service will remain unchanged from those experienced under existing conditions.

At the unsignalized intersections, the minor street turning movements will continue to operate at LOS "B" or better during each peak hour with imperceptible increases in delay of up to 0.1 seconds.

Future Build Conditions – In the future, with the added traffic from the Proposed Action, there will be a slight increase in overall delays at the three signalized intersections along Boston Post Road, generally on the order of 1 second or less. The levels of service will remain unchanged from those experienced under No-Build conditions.

At the unsignalized intersections, the minor street turning movements will continue to operate at LOS "B" or better during each peak hour with only minor increases in delay of 1.1 seconds or less.

Queuing Analysis

In addition to providing the level of service values, the Synchro analyses also provide a calculation of the average (50^{th} percentile) and maximum (95^{th} percentile) queues expected on individual lane groups. The queues and available storage lengths for the Existing, No-Build and Build volume conditions are summarized in **Tables 10 to 12**.

Table 10 – Summary of Existing Queues

Intersection	Approach	Lane Group	Available Storage Length	Existing					
				AM Peak Hour		PM Peak Hour		Sat Peak Hour	
				50th	95th	50th	95th	50th	95th
Boston Post Rd (US Route 1) & Hommocks Rd/Weaver St	EB	L	*145'*	73'	112'	103'	**178'**	118'	**198'**
		TR	-						
	WB	L	*150'*	54'	87'	45'	93'	30'	66'
		TR	-						
	NB	L	*180'*	49'	69'	75'	115'	70'	111'
		TR	-						
	SB	L	*140'*	135'	**176'**	30'	54'	21'	42'
		TR	-						
Hommocks Rd & Eagle Knolls Rd (unsignalized) (1)	WB	LR	*N/A - All-Way stop intersection - queue not calculated*						
	NB	TR							
	SB	LT							
Orienta Ave & East Cove Rd (unsignalized) (1)	EB	LR	*N/A - All-Way stop intersection - queue not calculated*						
	NB	LT							
	SB	TR							
Boston Post Rd (US Route 1) & Orienta Ave/Delancey Ave	EB	L	-						
		R	*70'*	0'	61'	0'	37'	0'	40'
	WB	L	*450'*	58'	110'	49'	99'	33'	74'
		R	*450'*	0'	70'	0'	74'	0'	59'
	NB	TR	-						
	SB	TR	-						
Old Boston Post Rd & Cooper Ave (unsignalized)	WB	L	*200' +*	0'	1'	0'	0'	0'	1'
	SB	LT	-						
Boston Post Rd (US Route 1) & Old Boston Post Rd/Richbell Rd	EB	L	-	67'	132'	36'	135'	38'	148'
		R	*140'*	62'	121'	33'	122'	0'	51'
	WB	L	*100'*	57'	**113'**	39'	**139'**	34'	**131'**
		TR	-						
	NB	L	*175'*	40'	78'	10'	61'	11'	68'
		T	-						
	SB	TR	-						
Orienta Ave & Fairway Ln (unsignalized)	EB	LR	*450'+*	0'	1'	0'	0'	0'	1'
	NB	LT	-						
	SB	TR	-						

Note: (1) Synchro does not provide queue length calculations for movements at all-way stop intersections. However, the low volume of traffic and Level-of-Service "A" conditions suggest average queues of 25 feet or less and 95th percentile queues of 50 feet or less.

Table 11 – Summary of No-Build Queues

Intersection	Approach	Lane Group	Available Storage Length	No-Build					
				AM Peak Hour		PM Peak Hour		Sat Peak Hour	
				50th	95th	50th	95th	50th	95th
Boston Post Rd (US Route 1) & Hommocks Rd/Weaver St	EB	L	*145'*	74'	115'	104'	**179'**	120'	**201'**
		TR	-						
	WB	L	*150'*	56'	90'	46'	94'	30'	68'
		TR	-						
	NB	L	*180'*	49'	70'	76'	118'	71'	113'
		TR	-						
	SB	L	*140'*	138'	**179'**	30'	55'	21'	43'
		TR	-						
Hommocks Rd & Eagle Knolls Rd (unsignalized)	WB	LR	*N/A - All-Way stop intersection - queue not calculated*						
	NB	TR							
	SB	LT							
Orienta Ave & East Cove Rd (unsignalized)	EB	LR	*N/A - All-Way stop intersection - queue not calculated*						
	NB	LT							
	SB	TR							
Boston Post Rd (US Route 1) & Orienta Ave/Delancey Ave	EB	L	-						
		R	*70'*	0'	62'	0'	38'	0'	40'
	WB	L	*450'*	60'	111'	50'	100'	33'	74'
		R	*450'*	0'	70'	0'	75'	0'	60'
	NB	TR	-						
	SB	TR	-						
Old Boston Post Rd & Cooper Ave (unsignalized)	WB	L	*200' +*	0'	1'	0'	0'	0'	1'
	SB	LT	-						
Boston Post Rd (US Route 1) & Old Boston Post Rd/Richbell Rd	EB	L	-	68'	135'	37'	136'	39'	151'
		R	*140'*	64'	124'	34'	123'	0'	52'
	WB	L	*100'*	58'	**115'**	40'	**141'**	35'	**133'**
		TR	-						
	NB	L	*175'*	40'	78'	10'	63'	12'	69'
		T	-						
	SB	TR	-						
Orienta Ave & Fairway Ln (unsignalized)	EB	LR	*450'+*	0'	1'	0'	0'	0'	1'
	NB	LT	-						
	SB	TR	-						

Note: (1) Synchro does not provide queue length calculations for movements at all-way stop intersections. However, the low volume of traffic and Level-of-Service "A" conditions suggest average queues of 25 feet or less and 95th percentile queues of 50 feet or less.

Table 12 – Summary of Build Queues

Intersection	Approach	Lane Group	Available Storage Length	Build					
				AM Peak Hour		PM Peak Hour		Sat Peak Hour	
				50th	95th	50th	95th	50th	95th
Boston Post Rd (US Route 1) & Hommocks Rd/Weaver St	EB	L	*145'*	74'	121'	104'	**180'**	120'	**202'**
		TR	-						
	WB	L	*150'*	78'	134'	54'	108'	39'	81'
		TR	-						
	NB	L	*180'*	49'	70'	76'	118'	71'	113'
		TR	-						
	SB	L	*140'*	138'	**179'**	31'	55'	22'	44'
		TR	-						
Hommocks Rd & Eagle Knolls Rd (unsignalized)	WB	LR	*N/A - All-Way stop intersection - queue not calculated*						
	NB	TR							
	SB	LT							
Orienta Ave & East Cove Rd (unsignalized)	EB	LR	*N/A - All-Way stop intersection - queue not calculated*						
	NB	LT							
	SB	TR							
Boston Post Rd (US Route 1) & Orienta Ave/Delancey Ave	EB	L	-						
		R	*70'*	0'	61'	0'	40'	0'	41'
	WB	L	*450'*	60'	111'	50'	100'	33'	75'
		R	*450'*	0'	73'	0'	76'	0'	62'
	NB	TR	-						
	SB	TR	-						
Old Boston Post Rd & Cooper Ave (unsignalized)	WB	L	*200' +*	0'	5'	0'	2'	0'	2'
	SB	LT	-						
Boston Post Rd (US Route 1) & Old Boston Post Rd/Richbell Rd	EB	L	-	70'	138'	38'	138'	40'	155'
		R	*140'*	64'	124'	34'	124'	0'	52'
	WB	L	*100'*	64'	**123'**	41'	**144'**	36'	**137'**
		TR	-						
	NB	L	*175'*	42'	78'	11'	63'	12'	69'
		T	-						
	SB	TR	-						
Orienta Ave & Fairway Ln (unsignalized)	EB	LR	*450'+*	0'	1'	0'	0'	0'	1'
	NB	LT	-						
	SB	TR	-						

Note: (1) Synchro does not provide queue length calculations for movements at all-way stop intersections. However, the low volume of traffic and Level-of-Service "A" conditions suggest average queues of 25 feet or less and 95th percentile queues of 50 feet or less.

The existing queues provided in Table 10 were compared to the available storage lengths which indicated that the maximum (95th percentile) queue exceeded the provided storage at two intersections. During the AM peak hour at the Boston Post Road intersection with Hommocks Road and Weaver Street, the southbound left turn queue is 176 feet where the available storage is 140 feet. The eastbound left-turn from Weaver Street exceeds the 145-foot available storage during the PM (178 feet) and Saturday (198 feet) peak hours. At the Boston Post Road and Old Boston Post Road/Richbell Road intersection, the calculated maximum queue for the

westbound left turn from Old Boston Post Road exceeds the available 100-foot left-turn storage during the AM (113'), PM (139') and Saturday (131') peak hours. The average (50th percentile) queues at all locations is less than the available storage. At the unsignalized intersections, the queue lengths measure less than the provided storage.

As indicated in Table 11, under future No-Build conditions, with the forecast increases in traffic volumes, there will be a slight increase in the length of the queues at the three signalized intersections along Boston Post Road, generally on the order of 3 feet or less. The average (50th percentile) queues at all locations will remain at acceptable lengths. At the unsignalized intersections, the 50th and 95th percentile queue lengths will continue to be acceptable.

As indicated in Table 12, under future Build conditions, with the added traffic from the Proposed Action, at the three signalized study locations there will be a slight increase in the length of the maximum (95th percentile) queues on the turning lane movements that exceeded the available storage under No-Build conditions, generally on the order of 8 feet or less. On Boston Post Road, the maximum queue on the southbound left turn into Hommocks Road currently exceeds the available storage area during the AM peak hour and will continue to do so in the future without the project. The Proposed Action will not add any traffic to this movement during the AM peak hour; therefore, the backups will not increase from future No-Build conditions. The Proposed Action will not have any impacts on this movement during the PM and Saturday peak hours as only 1 vehicle will be added during each peak hour.

The average (50th percentile) queues at all locations will remain at acceptable lengths. At the unsignalized intersections, the 50th and 95th percentile queue lengths will continue to be acceptable.

Sight Distance Analysis

Sight distance analyses were conducted at the four unsignalized study intersections to determine if sufficient sight lines are provided. The sight distances at each location were measured and compared to the requirements provided in the American Association of State Highway and Transportation Officials' (AASHTO) publication, *A Policy on Geometric Design of Highways and Streets (2011)*. Two of the intersections are controlled by Stop signs on all approaches (Orienta Avenue and East Cove Road; Hommocks Road and Eagle Knolls Road). Per AASHTO, at these two all-way stop intersections, the first stopped vehicle on one approach should be visible to the drivers of the first stopped vehicles on the other approaches. At the two other unsignalized intersections (Orienta Avenue and Fairway Lane; Old Boston Post Road and Cooper Avenue), Stop signs are provided on the minor street approaches (Fairway Lane and Cooper Avenue). AASHTO sight distance requirements at these locations are generally based on travel speeds, grades, number of lanes to cross and type of traffic control. The sight distance analysis is summarized in **Table 13**.

Table 13 - Sight Distance Analysis

Intersection	Control	Approach/ Movement	Sight Distance	
			Required	Available
Orienta Avenue & East Cove Road	All-way Stop	All approaches	First stopped vehicle visible	Yes
Hommocks Road & Eagle Knolls Road	All-way Stop	All approaches	First stopped vehicle visible	SB – Yes NB & WB – No (1)
Orienta Avenue & Fairway Lane	Stop (Fairway Ln)	EB LR	280′ looking left 280′ looking right	410′ left 512′ right
Old Boston Post Rd & Cooper Avenue	Stop (Cooper Ave)	NB L	280′ to the right	120′ right (1)

Note: Required sight distances based on AASHTO publication, *A Policy on Geometric Design of Highways and Streets (2011)*.
(1) – Sight distance can be increased to the minimum required by the removal of foliage.

As shown in Table 13, acceptable sight distances are provided at the Orienta Avenue and East Cove Road all-way stop intersection. At the Hommocks Road and Eagle Knolls Road all-way stop intersection, the drivers on the Eagle Knolls Road approach and the northbound Hommocks Road approach have somewhat limited visibility due to foliage on the southeast corner of the intersection which partially obstructs the view, as indicated in the photograph below. If a small bush at the corner of the intersection were removed and the tree next to it pruned so the branches do not hang down within 4 feet of the ground, adequate sight distance would be provided.

At the intersection of Cooper Avenue with Old Boston Post Road, a lot of vegetation has grown since the August 2013 photograph below was taken. This new vegetation has significantly reduced sightlines and should be removed to restore the required 280 feet of sight distance.

For the on-site intersections, a review of the site plan indicates that a minimum of 200 feet can be provided from all intersections which will be sufficient to accommodate vehicles traveling at the posted Village-wide speed limit of 30 mph.

6

On-Site Roadways and Circulation

Site Roadways and Intersections

Site Roadways

As noted previously, the three existing access points to the project site (Cove Road, Eagle Knolls Road and Cooper Avenue) will be modified as part of the Proposed Action. The privately-owned portion of Cove Road within the Project site will be relocated and will form the central corridor for the project. Eagle Knolls Road will be relocated from its existing location and will intersect with the relocated Cove Road prior to terminating in a cul-de-sac. Cooper Avenue will be extended into the Site and will intersect with Cove Road. This roadway extension is currently envisioned to be a one-way, exit only road for development residents to provide access to Boston Post Road (US Route 1) via Old Boston Post Road. A new internal roadway, "Road A", will intersect with Cove Road and terminate in a cul-de-sac. Each roadway will be 28 feet wide, wide enough to provide one 10-foot wide lane for travel in either direction along with allowing 8 feet on one side of the road or the other to be used for on-street parking. At its west end, Cove Road will narrow down as it leaves the property to match the existing section width. The relocated Cove Road will have a sidewalk run along its entire length. Each internal intersection will be designed to provide sufficient sight distance for vehicles traveling within the site.

At the present time, the portions of Eagle Knolls Road, Cove Road and Cooper Avenue within the Project Site are private roads. In the future, with the proposed Project and planned modifications to these roadways, those portions of the road within the Project Site will remain as private roads. The proposed homeowners' association will be responsible for maintenance of the roadways within the Project Site.

With respect to rights of access over those portions of Eagle Knolls Road and Cove Road under private ownership, the proposed Project will not prohibit the area residents who currently use the private roads to access Hommocks Road from Eagle Knolls Road or the public portions of Cove Road beyond the Project Site.

The improved Cove Road, including the proposed sidewalk, will greatly enhance east-west access for both motorists and pedestrians who live on either side of Hampshire Country Club. In addition, the Proposed Action will significantly improve the safety of Eagle Knolls and Cove Road by elevating low-lying portions of these roads above the floodplain. The road pavement conditions will be upgraded from their present condition.

Emergency access and evacuation will be provided via the three access routes to the Project Site. These roadways will be designed so that fire trucks and other emergency vehicles will be able to easily access and circulate within the Site. Elevating Cove Road will also improve emergency evacuation for the entire neighborhood.

Site Intersections

A qualitative analysis was conducted at the three newly created "T" intersections with Cove Road (Cooper Avenue Extension, Road "A" and Eagle Knolls Road) to identify future traffic operating conditions. Each approach at the three intersections will have one lane with Stop signs controlling the minor leg approaches (Cooper Avenue Extension, Road "A" and Cove Road at its intersection with Eagle Knolls Road). The project-generated traffic volumes were assigned to the internal intersections based on the distributions identified on Exhibit 12 and the location of the residential units along the internal roadways. The project trips were then added to the No-Build volumes to develop the Build volumes on the internal roads. A review of the Build volumes along the relocated Cove Road indicates that the AM peak hour volumes are 72 percent higher than the PM peak hour volumes and 52 percent higher than the Saturday peak hour volumes (primarily as a result of traffic to and from the Hommocks Middle School).

A Synchro analysis was conducted with the higher AM peak hour volumes which indicate that the minor street approaches at all three internal intersections will operate at level of service A. Level of service "A" generally means that queuing on a minor street approach is rare and that there are little or no delays. A further analysis was conducted in which the AM peak hour volumes were increased by a magnitude of five. This sensitivity analysis indicated that, even with the substantial increase in traffic volumes, the minor street approaches at each intersection would operate at acceptable LOS B. During the PM and Saturday peak hours, it can be concluded that traffic operating conditions will be better than the AM peak hour conditions as the PM and Saturday volumes are much lower than the AM volumes.

Pedestrian and Bicyclist Circulation

Pedestrian and bicycle circulation would be facilitated on the Project Site through the redeveloped and improved road network. The Proposed Action would include sidewalks on the north side of the extended and rerouted Cove Road, which would provide a path for residents and children biking or walking through the proposed development to access community facilities nearby, including Hommocks Middle School, Hommocks Ice Rink and Hommocks Pool, and the commercial corridor along Boston Post Road/U.S. Route 1. The other proposed roadways, which will be very low volume roadways (less than 1 vehicle every 2 minutes during the busiest hour) would not include sidewalks or bicycle pathways. This is in keeping with much of the road network immediately surrounding the Project Site, primarily the portions of Hommocks Road, Cove Road, Cooper Avenue, and Fairway Lane immediately adjacent to the Project Site, which do not contain designated bicycle pathways or sidewalks. The existing and proposed roadway network would also be wide enough to accommodate on-road cycling.

7

Parking

Existing Parking

The existing parking at the Hampshire Country Club is located in parking lots adjacent to the clubhouse. A total of 207 permanent parking spaces are provided. During events at the clubhouse, if needed, parking for an additional 50 vehicles is available along the roadways within the property which is more than adequate to meet the typical event parking demand. Valet parking is used during larger events. The existing parking supply and typical use of the parking areas is provided in **Table 14**.

Table 14 – Existing Parking Supply and Use

Number of Spaces Provided	Typical Non-Event Parking Demand	Typical Event Parking Demand
207 permanent 50 roadway	80	120

Proposed Parking

Country Club Parking - In the future, with the Proposed Action, a total of 163 parking spaces would be provided at the clubhouse and parking for an additional 16 vehicles will be available during large club events, for a total of 179 spaces. Parking regulations, per Village Code §342-56(A), require 2 spaces for each 3 individual, family or other type of memberships. The club had 264 memberships as of 2017 which require 176 parking spaces per the Village code. With the downsizing of the golf course offset by the potential new memberships generated by the planned residential development, it is anticipated that the membership total will remain at its current level in the future with the Proposed Action. Therefore, the 179 parking spaces to be provided will be in compliance with Village parking requirements. The clubhouse's banquet hall can accommodate up to 250 guests for weddings or other events. The 179 parking spaces will also be able to accommodate the parking for events.

Residential Parking - For the PRD, four spaces will be provided for each residential unit, including two in the driveway and two in the garage, yielding 210 enclosed spaces and 210 driveway apron spaces for a total of 420 private residential parking spaces. In addition, on-street parking within the PRD development will be permitted on one side of all streets (2 x 10

foot travel ways and 8 feet for parking). It is calculated that parking for approximately 125 vehicles will be able to be accommodated on street.

Village Code §342-52(I) states that "Off-street parking shall be provided within each planned residential development at the rate of not less than two spaces for each one-family detached dwelling, and one space per dwelling unit, plus one-half (1/2) space per bedroom for each dwelling unit in an attached or semi-detached dwelling. No less than one-third (1/3) nor more than two-thirds (2/3) of the minimum required off-street parking spaces shall be enclosed. Of the unenclosed spaces, an amount equal to at least one-third (1/3) of the total number of required spaces shall not be reserved for the use of specific dwelling units and shall, at all times, remain open and available for the use of visitors and guests, as well as other residents."

Applying the Code mandates that a minimum of 241 parking spaces be provided, 88 for the single family homes and 153 for the semi/attached carriage houses, each of which has 3 bedrooms. Between 80 and 160 of the required parking spaces must be enclosed and at least 80 of the unenclosed parking spaces must be available for use by anyone.

A total of 545 parking spaces (420 private + 125 on-street) are proposed for the PRD, which is well more than the 241 required. The 125 vehicles which will be able to be accommodated on street will be well more than 80 required for use by any one at any time.

8

Conclusions

Based on the results of the analyses conducted for the purpose of this report, VHB has arrived at the following conclusions:

- Under existing conditions, the Boston Post Road intersection with Hommocks Road/Weaver Street currently operates at an overall level of service "E" during the AM peak hour with notable delays on the eastbound and southbound left turn movements and northbound through movement. All other intersections currently operate at acceptable LOS C" or better during the peak hours.
- Queuing analyses for the existing condition indicate that, at all study locations, the average queues (50th percentile) do not exceed the available storage lengths. The maximum (95th percentile) queues exceed available storage lengths at 2 signalized intersections.
- In the three-year period from 2013 through 2015, a total of 141 crashes occurred in the study area with 107 crashes at the study intersections. Most of the crashes (91 percent) occurred on Boston Post Road and the study intersection experiencing the highest number of crashes was the Boston Post Road intersection with Richbell Road/Old Boston Post Road with a total of 40 crashes. There were 48 crashes with injuries and there were no fatalities. Eight crashes involved pedestrians and 5 crashes involved bicyclists.
- Sight distance analyses at the unsignalized study intersections indicate that, with appropriate landscaping modifications, sufficient sight distance can be provided at all locations.
- In the future, under No-Build conditions and with the forecast increases in background traffic and traffic from 7 vicinity developments, compared to existing conditions, there will be a slight increase in overall delays, generally on the order of 2 seconds or less.
- Queuing analyses under No-Build conditions indicate that there will be a slight increase in the length of the queues at the three signalized intersections along Boston Post Road, generally averaging 3 feet or less.
- The proposed Project will add 61 new trips to the surrounding roadways during the weekday AM peak hour, 73 new trips during the weekday PM peak hour and 61 new trips during the Saturday midday peak hour.

- In the future, under the Build condition with the added traffic from the Project, there will be only a slight increase in overall delays at the signalized locations during the peak hours, generally on the order of 1 second or less. The minor street movements at the unsignalized intersections will operate at level of service "B" or better during each peak hour with only minor increases in delay of 1.1 seconds or less.
- Queuing analyses with the added traffic from the proposed project indicate that there will be a slight increase in the length of the maximum queues on the turning lane movements that exceeded the available storage under No-Build conditions, generally averaging 8 feet or less. The average queues at all locations will continue to be at acceptable lengths.
- The proposed Project will include an improved internal roadway network which will be wide enough to accommodate on-road cycling. A sidewalk will be constructed on the north side of Cove Road thereby providing a path for residents and children biking or walking through the proposed development to access community facilities nearby and the nearby Boston Post Road commercial corridor.
- Providing a site egress from Cooper Avenue will reduce project traffic past the Hommocks Middle School and through the busy intersection of Boston Post Road with Hommocks Road/Weaver Street.
- The proposed development will not have a significant adverse impact on area traffic operating conditions. However, the Applicant is proposing to implement the following improvements:
    - Improved internal roadway network which will be wide enough to accommodate on-road cycling.
    - Improved road surface, profile and alignment of Cove Road across the site for residents on either side of the property, including those who travel back and forth to Hommocks Middle School;
    - Improved pedestrian environment with the completion of a sidewalk across the property;
    - Improved emergency evacuation routes with the raising of Cove Road above the flood elevation.

Based on these findings, it is concluded that the proposed action will not have a significant adverse impact on area traffic operating conditions.