Chapter III.L: Traffic and Transportation – Fjord Trail

A. INTRODUCTION

This chapter evaluates the Proposed Action's potential impacts on traffic and transportation, including parking, traffic operations, pedestrian, transit, and safety. Unlike most other technical chapters in this DGEIS, because potential traffic and transportation impacts are regional, this chapter analyzes potential impacts from implementation of Fjord Trail North and Fjord Trail South (collectively referred herein as the Fjord Trail).

Development of the Fjord Trail is expected to increase the number of visitors to the area and the Trail Corridor. While the Fjord Trail is anticipated to open in 2031, a surge of visitation is expected during the opening year followed by a drop in visitation once visitation has normalized. Therefore, the traffic and transportation analyses assess operations and identifies potential impacts and mitigation for a 2033 future build year.

B. EXISTING CONDITIONS

The four municipalities in the Fjord Trail Corridor (the City of Beacon, Towns of Fishkill and Philipstown, and the Village of Cold Spring) are located roughly an hour and a half north of New York City. The Fjord Trail Corridor is accessible by car and commuter rail (Metro-North Railroad [MNR]). The primary roadway in the Trail Corridor is NYS Route 9D, which travels north-south between Beacon and Cold Spring as a two-lane roadway (one lane in each direction). Other major transportation corridors in the area surrounding the Fjord Trail Corridor include Interstate 84 that travels east-west over the Newburgh-Beacon Bridge, which connects to NYS Route 9D just north of the Trail Corridor. The Taconic State Parkway and US Route 9 are both major north-south roadways to the east of the Fjord Trail Corridor, which connect to the Trail Corridor via I-84, NYS Route 52, or NYS Route 301.

This section describes the existing conditions in the Trail Corridor for parking, traffic and access, transit, pedestrians, vehicle and pedestrian safety, and visitation.

PARKING

The Fjord Trail Corridor contains a number of existing off-street and on-street parking areas that are available to existing visitors to the area and existing trail users of the Hudson Highlands State Park Preserve (HHSPP). From north to south, existing public parking areas include the MNR Beacon train station (payment required on weekdays and free of charge on weekends and designated holidays), Long Dock Park, Denning's Point (HHSPP), Mt. Beacon, and Madam Brett Park in the City of Beacon; at the Washburn Lot in Philipstown across the road from Little Stony Point (HHSPP); at Mayor's Park and at a metered public lot just south of Mayor's Park in Cold Spring; and at the MNR Cold Spring train station (payment required on weekdays and free of charge on weekends and designated holidays). There is considerable informal parking (unstriped, unpaved parking at various locations) occurring along the shoulders of NYS Route 9D in the vicinity of Little Stony Point, in an area extending for roughly one-half mile north of the Breakneck Ridge Tunnel, and at four small dirt pull-off areas further north in the vicinity of the

Notch Trail trailhead. This informal parking has become a safety hazard to pedestrians and motorists. Parking overflow also happens in Cold Spring along Village streets and at a dirt lot across NYS Route 9D from the Haldane schools. In 2017, the Washburn Lot was expanded from a 20-car capacity dirt/gravel lot to a formalized 48-car capacity paved lot. The Mt. Beacon Lot has also recently been expanded from a 55-car capacity to a 77-car capacity.

Observations of parking capacities and utilization for parking facilities located in the four municipalities in the Fjord Trail Corridor were conducted on Saturday, September 18, 2021, and Sunday, September 19, 2021. The Saturday and Sunday parking observations were conducted at 2:00 PM and 11:00 AM, respectively, as these were estimated to represent the peak hours for parking.

Additional parking capacities and utilization for parking facilities located in the four municipalities in the Fjord Trail Corridor were conducted for the project on Saturday October 8, 2022 between 8:00 AM and 2:00 PM.

To provide for a conservative assessment of existing parking conditions, the 2021 and 2022 parking utilizations for each parking facility were each grown by one percent per year based on guidance from the New York State Department of Transportation (NYSDOT) to estimate 2023 parking utilizations for each data set. The higher of the two estimated 2023 utilizations for each parking facility was then utilized for the number of parked vehicles at each facility. The parking locations described above along with their capacities and observed utilization are summarized in **Table III.L-1** and depicted on **Figure III.L-1**.

9.22.24

1 - Beacon Train Station
2 - Long Dock Park at Beacon
3 - Dia Beacon
4 - Denning's Point
5 - Madam Brett Park
6 - Mt Beacon Lot
7 - Mt Beacon - Howland Ave./Exeter Circle
8 - Dirt Pull-offs, North of Breakneck Ridge
9 - Dutchess Manor (Closed)
10 - Breakneck Ridge Parking
11 - Dirt Pull-offs, Breakneck Ridge to Little Stony Point
12 - Little Stony Point
13 - Washburn Lot
14 - Fair Street Road
15 - Mayor's Park Lot
16 - Fair Street Paid Lot
17 - Route 9D Lot, across from Haldane School Campus
18 - Cold Spring Train Station
19 - Street Parking, vicinity of Lower Main Street
20 - Wade's Hill Lot (part of the Proposed Action)
21 - Notch Lot (park of the Proposed Action)

0 2 MILES

Trail Corridor

Parking Locations

Emergency Access Locations

Parking and Emergency Access Locations

HUDSON HIGHLANDS FJORD TRAIL

Figure III.L-1

Table III.L-1
Summary of Existing Area Parking Supply and Utilization – Fall 2023***

Location	Supply/Capacity					Utilization			
				Percentage (%) of Formal* vs. Informal Spaces**		Saturday (2:00 PM)***		Sunday (11:00 AM)***	
	Total	Formal Spaces*	Informal Spaces**	% Formal Spaces*	% Informal Spaces**	# Parked	% Utilization	# Parked	% Utilization
Beacon Train Station[1,2]	631	631	0	100%	0%	102	16%	263	42%
Long Dock Park at Beacon	80	22	58	27%	73%	61	76%	54	68%
Dia Beacon	N/A – For Dia Visitors Only	N/A – For Dia Visitors Only		N/A – For Dia Visitors Only		N/A – For Dia Visitors Only		N/A – For Dia Visitors Only	
Denning's Point	35[3]	0	35	0%	100%	31	89%	22	63%
Madam Brett Park	15	0	15	0%	100%	15	100%	11	73%
Mt Beacon Lot	77[2]	0	77	0%	100%	74	96%	56	73%
Mt Beacon – Howland Ave/Exeter Cir[4]	30	3	27	10%	90%	17	57%	9	30%
Dirt Pull-offs North of Breakneck Ridge (including Notch)	20	0	20	0%	100%	4	20%	1	5%
Dutchess Manor	200[2,5]	Closed		Closed		Closed		Closed	
Breakneck Ridge Parking[6]	158[2,6]	0	158	0%	100%	158	100%	130	82%
Dirt Pull-offs Breakneck Ridge to Little Stony Point	N/A – Signed as No Parking	N/A – Signed as No Parking		N/A – Signed as No Parking		N/A – Signed as No Parking		N/A – Signed as No Parking	
Little Stony Point	30	0	30	0%	100%	30	100%	29	97%
Washburn Lot	48	48	0	100%	0%	48	100%	48	100%
Fair Street Road	N/A – Signed as No Parking	N/A – Signed as No Parking		N/A – Signed as No Parking		N/A – Signed as No Parking		N/A – Signed as No Parking	
Mayor's Park Lot	30	30	0	100%	0%	26	87%	9	30%
Fair Street Paid Lot	38	38	0	100%	0%	38	100%	10	26%
Route 9D Lot at Haldane	35	0	35	0%	100%	35	100%	9	26%
Cold Spring Train Station	200[2]	200	0	100%	0%	102	51%	48	24%
Street Parking on and around Lower Main St	45	45	0	100%	0%	40	89%	42	93%
TOTAL	**1,472**	**1,017**	**455**	**69%**	**31%**	**781**	**53%**	**741**	**50%**

Notes:
* Formal parking spaces are considered as those delineated with pavement markings/striping or other physical delineators (e.g., parking blocks).
** Informal parking spaces are considered as those not delineated by pavement markings/striping or other physical delineators.
*** 2023 Utilization developed by applying 1% annual growth factor to utilization counts from Saturday 9/18/2021, 10/8/2022, and Sunday 9/19/2021. Saturday utilization numbers are calculated using the higher of the two Saturday survey dates grown to 2023 levels.
[1] The area of the Beacon train station parking closest to the platform on the west side was closed on the 2021 days counts were made.
[2] Capacity provided by Creighton Manning Engineering, LLP. Train station parking requires payment on weekdays and is available free of charge on weekends and designated holidays. The train station has an overall parking lot capacity of 1,262 and 50% of that number (631) would be available on weekends.
[3] Estimated observed capacity of 35 spaces.
[4] Three marked/formal spots on Howland Avenue until recent repaving of the road. The remaining parking was informal and parallel.
[5] Dutchess Manor Lot is currently closed to the public. Number of spaces shown are not included in the Existing parking supply total.
[6] Old Breakneck Ridge Lot is closed. Numbers shown are for roadside parking only. Site of future proposed Breakneck Connector parking facilities with proposed capacity of 105 spaces.

Based on the surveys, there is an overall supply of 1,472 spaces across the existing parking areas. However, it is important to note that many of the parking facilities are not formally striped and informal parking will account for variations in the parking supply and/or utilization numbers. Approximately 1,017, or 69 percent, of the 1,472 spaces are formally striped/designated parking spaces while 455, or 31 percent, of the 1,472 spaces are not formally striped/designated and are considered informal parking.

As presented in **Table III.L-1**, the overall peak utilization percentage for all the surveyed parking facilities combined was approximately 53 percent for the Saturday observations and 50 percent for the Sunday observations.

TRAFFIC AND ACCESS

STUDY AREA

To assess the traffic impacts associated with the proposed Fjord Trail, an overall study area was determined as shown in **Figure III.L-2**. As shown in **Figure III.L-2**, six intersections were identified for detailed analysis including:

1. Beekman Street and Beacon Train Station Road (Unsignalized) *(City of Beacon)*
2. Beekman Street and Red Flynn Drive (Unsignalized) *(City of Beacon)*
3. South Avenue and NYS Route 9D (Wolcott Avenue) (Signalized) *(City of Beacon)*
4. Fair Street and NYS Route 9D (Unsignalized) *(Village of Cold Spring)*
5. Main Street and NYS Route 9D (Chestnut Street/Morris Avenue) (Signalized) *(Village of Cold Spring)*
6. Main Street and Fair Street (Unsignalized) *(Village of Cold Spring)*

ROADWAY CHARACTERISTICS

The following is a brief description of the major roadways within the study area.

NYS Route 9D. NYS Route 9D is a minor arterial roadway that generally traverses in a north-south direction within the study area. However, in the vicinity of its intersection with South Avenue in Beacon, NYS Route 9D traverses in an east-west direction. NYS Route 9D generally provides one moving lane in each direction within the study area. The roadway is under the jurisdiction of NYSDOT along two segments within the study area: (1) from its intersection with NYS Route 301 in Cold Spring to the Beacon City Line and (2) from just west of its intersection with South Avenue to the Fishkill Town Line. The segment of NYS Route 9D between the Beacon City Line and just west of its intersection with South Avenue is under the jurisdiction of the City of Beacon. Within the City of Beacon, NYS Route 9D is designated as Wolcott Avenue. Within the Village of Cold Spring, NYS Route 9D is designated as Morris Avenue north of Main Street and as Chestnut Street south of Main Street. The posted speed limits along NYS Route 9D within the study area range from 15 mph (school zones) to 55 mph. Sidewalks are provided along NYS Route 9D within the City of Beacon and Village of Cold Spring, but no sidewalks are generally present in the five-mile section between the two municipalities.

South Avenue (Beacon). South Avenue is a two-way roadway under the jurisdiction of the City of Beacon that generally traverses in a north-south direction within the study area. North of its intersection with NYS Route 9D, South Avenue is classified as a minor arterial roadway and south of its intersection with NYS Route 9D, it is classified as a local roadway. South Avenue generally

11.19.24

1 - Beekman Street and Beacon Train Station Road
2 - Beekman Street and Red Flynn Drive
3 - South Avenue and Route 9D
4 - Fair Street and Route 9D
5 - Main Street and Route 9D
6 - Main Street and Fair Street

0 2 MILES

Trail Corridor - Fjord Trail North

Trail Corridor - Fjord Trail South

Study Area Intersections

Study Area Intersections

HUDSON HIGHLANDS FJORD TRAIL

Figure III.L-2

provides one moving lane in each direction. The posted speed limits along South Avenue range between 15 mph (school zones) and 30 mph. Sidewalks are provided north of Dennings Avenue.

Beekman Street (Beacon). Beekman Street is a major collector roadway under the jurisdiction of the City of Beacon that generally traverses in a north-south direction within the study area and intersects with NYS Route 9D at both its northern and southern endpoints. Beekman Street provides two-way traffic flow and generally provides one moving lane in each direction within the study area. The posted speed limits along Beekman Street range between 25 and 30 mph. Sidewalks are provided on at least one side of the roadway.

Red Flynn Drive/Long Dock Road/Beekman Street North (collectively referenced as "Red Flynn Drive" for the purposes of this study) (Beacon). Red Flynn Drive, Long Dock Road, and Beekman Street North form a single continuous roadway generally sharing the same characteristics described below, with Red Flynn Drive serving as the longest segment. Red Flynn Drive is a major collector roadway under the jurisdiction of the City of Beacon that generally traverses in a north-south direction within the study area. Red Flynn Drive provides two-way traffic flow and generally provides one moving lane in each direction within the study area. Red Flynn Drive provides direct access to some of the parking lots for the MNR Beacon train station and provides on-street parking for a portion of its length. The speed limit along Red Flynn Drive is 30 mph. Sidewalks are provided between the Beacon train station and Beekman Street.

Beacon Station Road (Beacon). Beacon Station Road is an access road owned by the Metropolitan Transportation Authority (MTA)/Metro-North Railroad (MNR) and serves as the primary access route to the MNR Beacon train station and parking lots. Beacon Station Road generally provides one moving lane entering the train station and two moving lanes exiting the train station. The posted speed limit along Beacon Station Road is 10 mph.

Main Street (Cold Spring). Main Street is a two-way roadway that generally traverses in an east-west direction within the study area. East of its intersection with NYS Route 9D, Main Street is also designated as NYS Route 301, is classified as a minor arterial roadway, and is under the jurisdiction of NYSDOT. West of its intersection with NYS Route 9D, Main Street is classified as a major collector roadway, and is under local jurisdiction. Main Street generally provides one moving lane in each direction and on-street parking within the study area. The posted speed limits along Main Street range between 25 and 30 mph. Sidewalks are provided on both sides of the roadway.

Fair Street (Cold Spring). Fair Street is a major collector roadway that generally traverses in a northwest-southeast direction. Fair Street generally provides two-way traffic flow and one moving lane in each direction within the study area. However, on Sundays, Fair Street is designated with signage as a one-way northbound street between Main Street and Northern Avenue. Between its intersection with NYS Route 9D and the Village of Cold Spring line, Fair Street is also designated as Putnam County Road 17 and is under the jurisdiction of Putnam County. Within the Village of Cold Spring, Fair Street is under local jurisdiction. The posted speed limits along Fair Street range between 15 and 30 mph. Sidewalks are provided between Main Street and the metered parking lot.

INTERSECTION CAPACITY ANALYSIS METHODOLOGY

The operation of the study area intersections was analyzed utilizing the Synchro 11 traffic capacity analysis software. A detailed description of the capacity analysis methodology is provided in **Appendix III/IV.L-1**.

DATA COLLECTION

Existing traffic conditions in the study area were established based on traffic counts conducted in October 2016, October 2022, and October 2023. The counts were conducted in October to account for the peak fall foliage season. Manual turning movement counts (TMC) were collected at the study area intersections during the Saturday (9:00 AM–1:00 PM) and Sunday (9:00 AM–1:00 PM) peak periods. Data collection sheets are provided in **Appendix III/IV.L-2**.

In addition to the manual turning movement counts, Automatic Traffic Recorder (ATR) counts were conducted at the following locations:

- NYS Route 9D (eastbound and westbound), west of South Avenue in Beacon (October 2016 only);
- NYS Route 9D (northbound and southbound), north of the Breakneck Ridge lot in the Town of Fishkill;
- NYS Route 9D (northbound and southbound), south of the Railroad Bridge Path in the Town of Fishkill (October 2016 only); and
- NYS Route 9D (northbound and southbound), north of Fair Street in Cold Spring.

ATR data collection sheets are provided in **Appendix III/IV.L-2**.

Existing traffic conditions were initially developed in 2021 using the 2016 traffic counts and applying a one percent annual growth rate per direction from NYSDOT. However, to address concerns from the Village of Cold Spring related to existing traffic conditions in the Village, additional data was collected in 2022 and 2023 at the designated count locations in the Village. In order to develop conservative traffic network volumes for use in the capacity analysis for locations in the village, a comparison was conducted of the 2021 baseline traffic volumes and the October 2022 and October 2023 count data.

The comparison of the volume and count data listed above did not identify a single year where both the overall intersection and intersection movement volumes/counts were highest. Therefore, a composite traffic network was developed based on the maximum values of the three years examined for each intersection movement to establish the baseline 2023 Existing Conditions traffic volumes. See AKRF's Traffic Count Update and Comparison memorandum dated January 4, 2024 provided in **Appendix III/IV.L-2** for further details on the traffic count/volume comparisons.

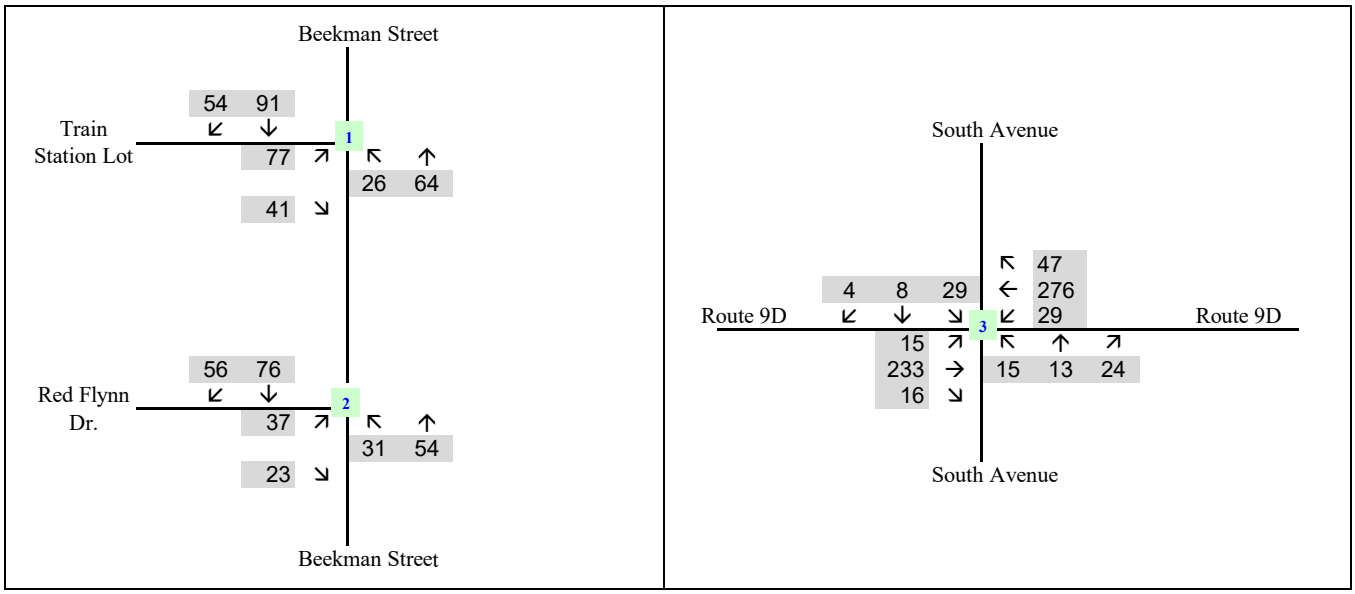
Traffic counts for the three Beacon intersections (Beekman Street and Beacon Train Station Road, Beekman Street and Red Flynn Drive, and South Avenue and NYS Route 9D) were not counted in 2022 and 2023, but the 2021 Existing Conditions traffic volumes for these intersections were conservatively grown by applying an annual growth rate of one (1) percent to develop the corresponding 2023 Existing Conditions traffic volumes.

TRAFFIC CONDITIONS

Figures III.L-3 and III.L-4 show the intersection turning movement volumes in the study area for existing conditions for the peak hours analyzed. Based on the traffic count data, the peak hours of the analysis were determined to be:

- Saturday Midday Peak Hour – 12:00 PM to 1:00 PM
- Sunday Midday Peak Hour – 11:45 AM to 12:45 PM

CITY OF BEACON



VILLAGE OF COLD SPRING

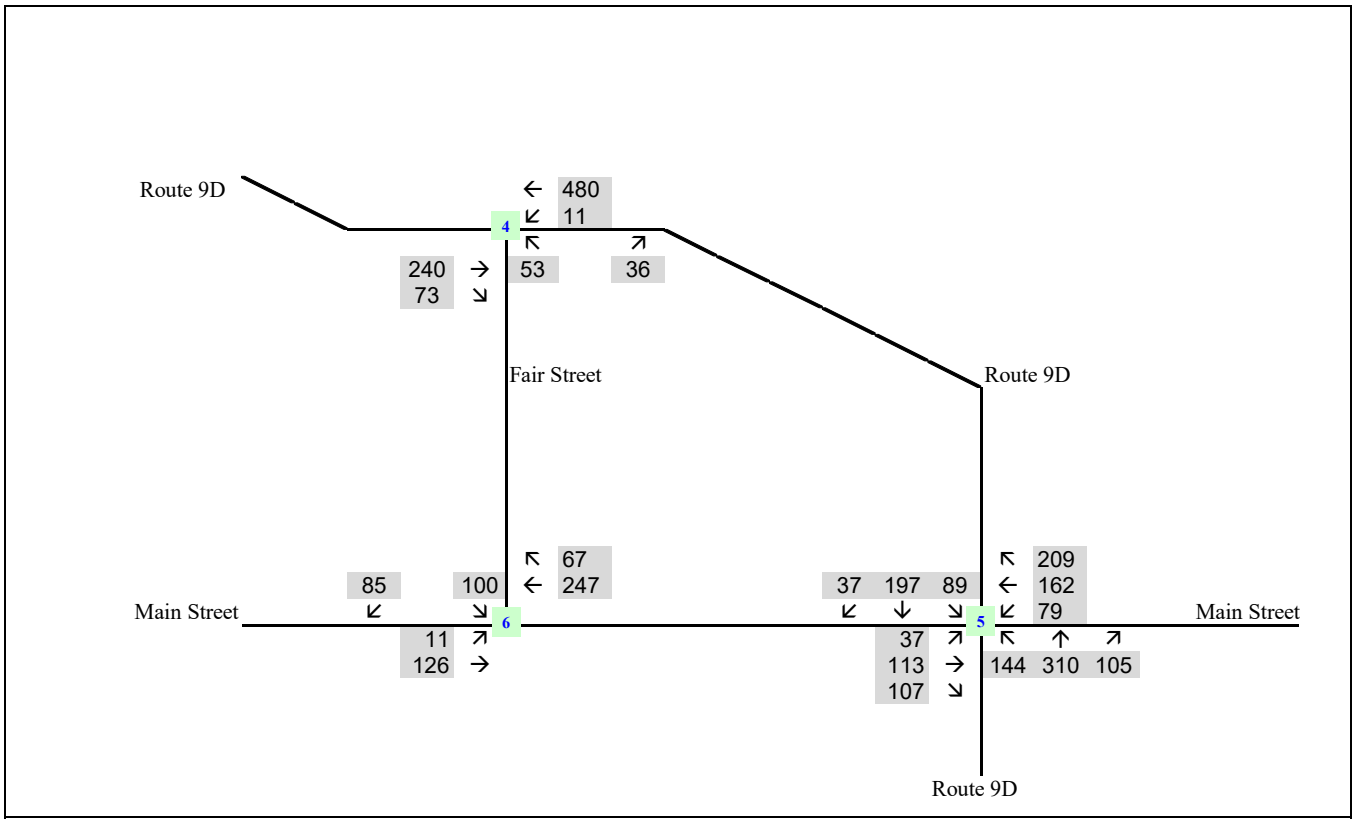


Figure III.L-3
2023 Existing Traffic Volumes
Saturday Midday Peak Hour (12:00 PM - 1:00 PM)

CITY OF BEACON

VILLAGE OF COLD SPRING

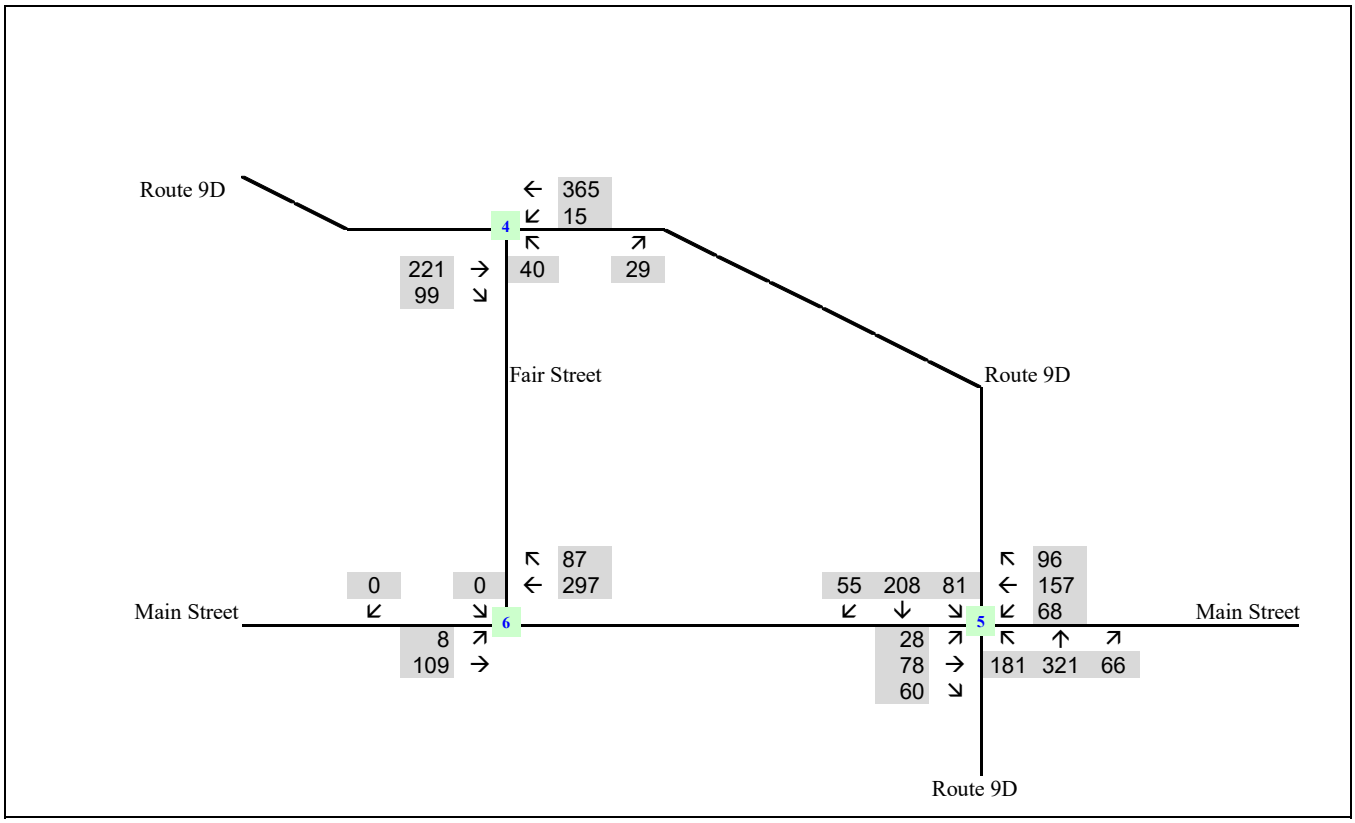


Figure III.L-4
2023 Existing Traffic Volumes
Sunday Midday Peak Hour (11:45 AM - 12:45 PM)

Traffic operating conditions at each study area intersection were analyzed utilizing the Synchro 11 traffic analysis software based on the Synchro 11 Percentile Delay and *HCM6* methodologies as described in **Appendix III/IV.L-1** (see **Appendix III/IV.L-3** for Synchro 11 output reports for all study area intersections) to compute delays, volume to capacity (v/c) ratios, and Level of Service (LOS).

Traffic operations are categorized by LOS, ranging from LOS A through F, with LOS A representing the maximum traffic flow condition with little or no congestion and delay, and LOS F representing the worst operating condition with extensive congestion and delay. During peak hours, LOS D operations are considered to be acceptable operating conditions for signalized and unsignalized intersections. As shown in **Table III.L-2**, the majority of the lane groups/approaches for the study area intersections generally operate at LOS D or better under 2023 Existing Conditions during the peak hours analyzed with the following exceptions:

- Main Street and NYS Route 9D (Chestnut Street/Morris Avenue) in Cold Spring – The westbound Main Street approach and northbound NYS Route 9D approach operate at LOS F during the Saturday Midday peak hour. The northbound NYS Route 9D approach operates at LOS E during the Saturday Midday peak hour.
- Main Street and Fair Street – The southbound Fair Street approach operates at LOS E during the Saturday Midday peak hour.

Table III.L-2
2023 Existing Conditions Level of Service Analysis

Intersection	Saturday Peak Hour				Sunday Peak Hour			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections								
South Avenue and NYS Route 9D (Wolcott Avenue)								
Eastbound	LTR	0.41	132	B	LTR	0.36	12.2	B
Westbound	LTR	0.44	13.4	B	LTR	0.42	13.0	B
Northbound	LTR	0.11	8.6	A	LTR	0.09	9.9	A
Southbound	LTR	0.08	12.1	B	LTR	0.11	11.5	B
	Intersection		12.8	B	Intersection		12.4	B
Main Street and NYS Route 9D (Chestnut Street/Morris Avenue)								
Eastbound	LTR	0.67	26.8	C	LTR	0.45	19.7	B
Westbound	LTR	1.34	197.1	F	LTR	0.87	47.2	D
Northbound	LTR	1.25	156.6	F	LTR	1.01	66.3	E
Southbound	LTR	0.74	32.9	C	LTR	0.59	20.8	C
	Intersection		119.8	F	Intersection		43.9	D
Unsignalized Intersections								
Beekman Street and Beacon Train Station Road								
Eastbound	L	0.38	17.0	C	L	0.27	14.2	B
	R	0.14	11.1	B	R	0.05	10.0	B
Northbound	L	0.03	8.3	A	L	0.02	8.0	A
Beekman Street and Red Flynn Drive								
Eastbound	LR	0.15	12.1	B	LR	0.28	11.8	B
Northbound	LT	0.04	7.9	A	LT	0.05	7.6	A
Fair Street and NYS Route 9D								
Westbound	LT	0.01	8.6	A	LT	0.01	8.2	A
Northbound	LR	0.45	25.0	D	LR	0.30	17.3	C
Main Street and Fair Street								
Eastbound	LT	0.02	9.1	A	LT	0.02	15.5	C
Southbound	LR	0.68	36.9	E	LR	Fair Street operates as one-way northbound only on Sundays		

Notes: v/c = volume to capacity, LOS = Level of Service; L = Left Turn, T = Through, R = Right Turn

TRANSIT

MNR provides commuter passenger rail service between New York City's Grand Central Terminal and Poughkeepsie via its Hudson Line. Within the Trail Corridor, rail service is provided at the Cold Spring, Breakneck Ridge (limited weekend only service), and Beacon stations. Based on the published MNR Hudson Line schedules, trains stop approximately 22 to 23 times per day in each direction at both the Cold Spring and Beacon stations and approximately five to six times per day in each direction at the Breakneck Ridge station year-round during weekends only. However, for the fall 2023 season, MNR added 20 additional Hudson Line trains on Saturdays and Sundays from October 7th through November 5th with stops at the Cold Spring, Breakneck Ridge, and Beacon stations to further accommodate fall tourism travel to the area.

Within the City of Beacon, Dutchess County Public Transit operates three Bus Routes, Routes B ("Poughkeepsie Transit Hub to Beacon"), F ("Beacon to Hopewell Junction"), and G ("Beacon Free Loop"). While there are bus stops at the MNR Beacon train station and other select locations in the City of Beacon, none of these routes travel further south outside of the City of Beacon to Fishkill, Philipstown, or Cold Spring.

Putnam County's Cold Spring Trolley has scheduled stops at the MNR Cold Spring and Beacon train stations along with requested stops at Little Stony Point, Breakneck Ridge, and Mount Beacon. Additionally, the trolley operates on a flag system, meaning any rider may request a stop along the route and potential riders can "flag" the bus down by waving within view of the bus from a safe sidewalk or shoulder of the road, providing visitors with alternate means of access to trails along the prescribed routes.

PEDESTRIANS

Due to the proximity of the trail heads in HHSPP and other parks to Cold Spring and the crowding that occurs on Main Street due to both visitors and shoppers to Cold Spring and hikers, the pedestrian assessment focused on Main Street in Cold Spring. A detailed summary and assessment of pedestrian activity on Main Street is presented in the *Hudson Highland Fjord Trail Visitor Utilization Study and Survey Results (December 1, 2023)* provided in **Appendix III/IV.L-4**. In general, during a peak hour, the hourly pedestrian volumes along Main Street ranged between 150 and 663 pedestrian per hour, with the largest concentration on Main Street between Fair Street and Church Street. While sidewalks are provided along Main Street, pedestrian congestion occurs due to obstacles caused by street furniture or groups of people lining up for restaurants/businesses.

VEHICLE AND PEDESTRIAN SAFETY

Table III.L-3 summarizes traffic accident data compiled from the NYSDOT records for the period of January 1, 2017 through December 31, 2022 (see **Appendix III/IV.L-5** for NYSDOT accident data records) for the following area road segments:

- NYS Route 9D between NYS Route 301 (Main Street in Cold Spring) and Beekman Street/West Church Street (in Beacon)
- Beekman Street between its northern and southern intersections with NYS Route 9D (in Beacon)
- NYS Route 301 (Main Street) between NYS Route 9D (Morris Avenue/Chestnut Street) and Fair Street (in Cold Spring)
- Fair Street between NYS Route 9D and NYS Route 301 (Main Street) (in Cold Spring)

Table III.L-3
Study Area Crash Summary – Area Road Segments

Road Segment	Number of Crashes (by Year)						Safety Trend		Crash Trend (Number of Crashes by Type)													
	2017	2018	2019	2020	2021	2022	# of Personal Injuries	# of Fatalities	Overtaking	Rear End	Right Angle	Left Turn (with other car)	Left Turn (against other car)	Right Turn (with other car)	Right Turn (against other car)	Side-swipe	Head On	Ped/Bike	Fixed Object	Animal	Other	Unknown
NYS Route 9D – between NYS Route 301 (Main Street in Cold Spring) to Beekman Street/West Church Street (in Beacon)	37	49	40	25	33	52	89	0	13	61	21	4	9	1	1	7	7	8	43	39	20	2
Beekman Street – between northern and southern intersections with NYS Route 9D	6	6	2	2	0	4	6	0	2	3	4	0	2	0	0	2	0	1	4	1	0	1
NYS Route 301 (Main Street) – between NYS Route 9D (Morris Avenue/Chestnut Street) and Fair Street	4	8	7	5	1	7	4	0	8	9	3	3	1	1	0	0	1	0	3	0	1	2
Fair Street – between NYS Route 9D and NYS Route 301	2	1	0	1	1	0	0	0	1	2	0	0	1	0	0	0	0	0	0	0	0	0

Source: NYSDOT records for the period of January 1, 2017 through December 31, 2022

As shown in **Table III.L-3**, the largest number of accidents (236) occurred along the NYS Route 9D section over the six-year period examined, followed by the NYS Route 301 (Main Street) section (32 accidents), Beekman Street (20 accidents) and Fair Street (5 accidents).

The NYS Route 9D road section experienced its peak number of accidents (52) in 2022, the Beekman Street section experienced its peak number of accidents (6) in both 2017 and 2018, the NYS Route 301 (Main Street) section experienced its peak number of accidents (8) in 2018, and the Fair Street section experienced its peak number of accidents (2) in 2017.

The most commonly occurring type of accidents over the six-year period for each of the studied road sections included:

- NYS Route 9D – Rear end collisions (61), collisions with fixed objects (43), and collisions with animals (39).
- Beekman Street – Collisions with fixed objects (4), right angle collisions (4), and rear end collisions (3).
- NYS Route 301 (Main Street) – Rear end collisions (9), overtaking (8), and right angle (3), left turn (with other car) (3), and fixed object collisions (3).
- Fair Street – Rear end collisions (2), overtaking (1), head on (1), and left turn (1).

During the six-year period studied, there were a total of nine accidents that involved pedestrians and/or bicycles along the road segments examined. Of these nine accidents, eight occurred along NYS Route 9D and one occurred along Beekman Street. These nine accidents represent a small percentage (less than four percent) of the accidents that occurred along the studied road segments.

There were no fatalities reported along the above roadway segments during the six-year time period studied.

Emergency vehicle access locations along the Fjord Trail Corridor are depicted on **Figure III.L-1**. Along the Fjord Trail North Corridor, existing access points include Long Dock Park, Denning's Point, and Madam Brett Park. Within the Fjord Trail South Corridor, access is provided at Little Stony Point and Dockside Park.

C. FUTURE WITHOUT THE PROPOSED ACTION

The Future without the Proposed Action, or "No Action," traffic condition, is an interim scenario that establishes a future baseline condition without the proposed Fjord Trail. This section describes the future conditions without the Fjord Trail for parking, traffic and access, transit, vehicle and pedestrian safety, and visitation.

Although the Proposed Action is expected to be constructed in phases, for a conservative analysis, 2033 is assumed as the future year for the No Action scenario.

PARKING

As part of the Breakneck Connector and Bridge Project (BNCB), parking for up to 105 vehicles will be provided in formal parking lots and with formal parallel parking along NYS Route 9D, including designated space for emergency vehicles and four ADA-accessible parking spaces.[1]

[1] ADA-accessible parking spaces are parking spaces designed to comply with standards of the American with Disabilities Act (ADA) and are designed to provide reserved parking spaces for people with disabilities.

This new parking would replace the existing, informal, unstriped, parallel parking on either side of NYS Route 9D north of the tunnel that currently accommodates up to 178 vehicles (158 at Breakneck Ridge and 20 at and around Notch Trailhead). This total does not include the informal, dirt, pull-in parking area at Breakneck Ridge, which has been closed with placement of concrete barriers across its entrance. The BNCB proposed parking is meant to eliminate the existing haphazard parking conditions and the resulting unsafe conditions in this area. The BNCB is scheduled for completion (2026) prior to the development of Fjord Trail North and Fjord Trail South and, as such, the improvements proposed with the BNCB are included in the No Action traffic condition.

In addition, the currently closed Dutchess Manor parking area is assumed to be open and available for parking under 2033 No Action conditions. This area would have a capacity of up to an estimated 181 parking spaces. Under the 2033 No Action scenario, it is assumed that of the 181 vehicles that the lot could accommodate, approximately 16 percent of those vehicles (29 vehicles) would enter the lot during each of the peak hours examined. The 16 percent is based on the daily visitation profile where a peak hour experienced 16 percent of the daily visitation. Similarly, an additional 4 percent of those 181 vehicles (8 vehicles) are assumed to exit the lot during each of the peak hours examined. The additional peak hour trips to the Dutchess Manor parking area (29 entering, 8 exiting) have been assumed to be new trips generated by the opening of this parking area and therefore have been added and dispersed throughout the traffic network based on general existing traffic patterns in the area. Approximately 65 percent of these trips are estimated to arrive from/depart to the south and 35 percent from/to the north along NYS Route 9D.

A table which summarizes the parking capacities for existing and future conditions is provided in **Appendix III/IV.L-6 (Parking Supply Table)**. As shown in the table, under the No Action scenario, the area parking supply would be increased to 1,580 spaces, as outlined above.

TRAFFIC AND ACCESS

- 2033 No Action traffic conditions were estimated based on the following procedure:
- Increase the 2023 Existing Conditions traffic volumes by one percent per year from 2023 (existing conditions year) to 2033 (no build/build year) for background growth, resulting in an overall growth rate of 10 percent. The use of the one percent growth rate per year accounts for any additional general traffic growth along the Corridor from other potential development projects in the area.
- Addition of new vehicle trips estimated to be generated by the opening of the Dutchess Manor parking area.
- Consideration of major roadway improvements in the vicinity of the study area.

Based on available information, there are no major roadway improvement projects scheduled through 2033 that were identified which would affect traffic patterns along the study area roadways. However, the existing lighting system in the NYS Route 9D Breakneck Tunnel would be updated. This project would replace the existing lighting system and would make repairs to the tunnel only to accommodate the installation of a replacement light system. This project is scheduled for completion in Summer 2025 by NYSDOT.

TRAFFIC CONDITIONS

Figures III.L-5 and III.L-6 show the intersection turning movement volumes in the study area for the 2033 No Action conditions for the peak hours analyzed.

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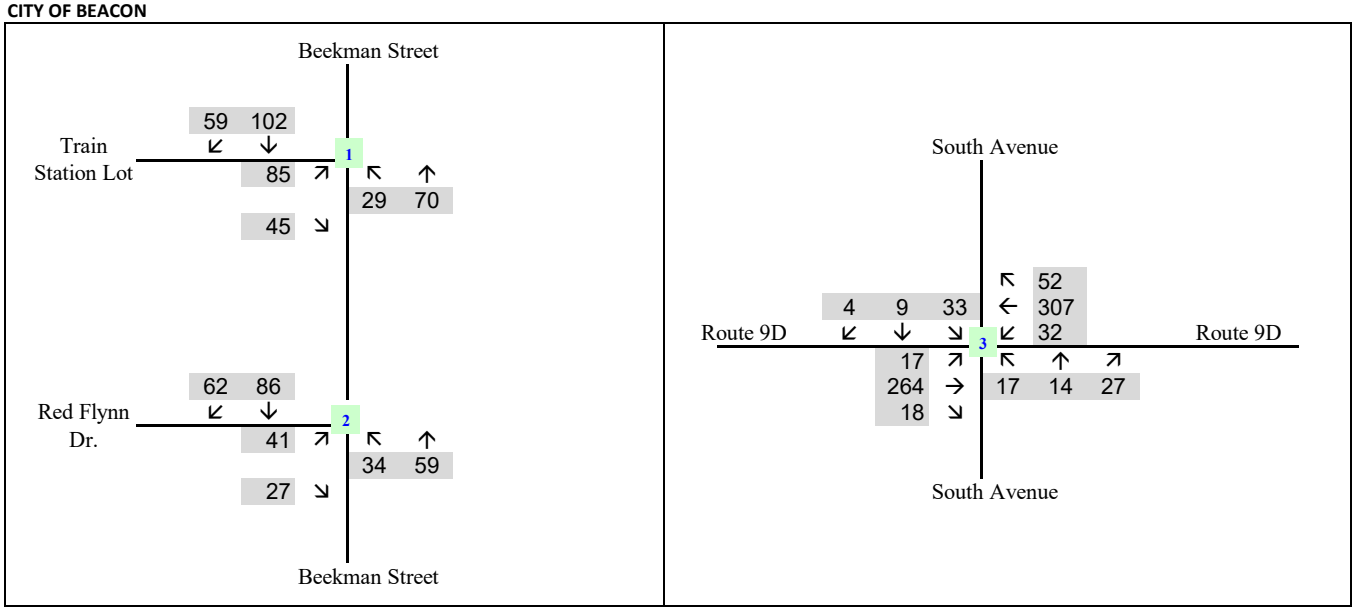

VILLAGE OF COLD SPRING

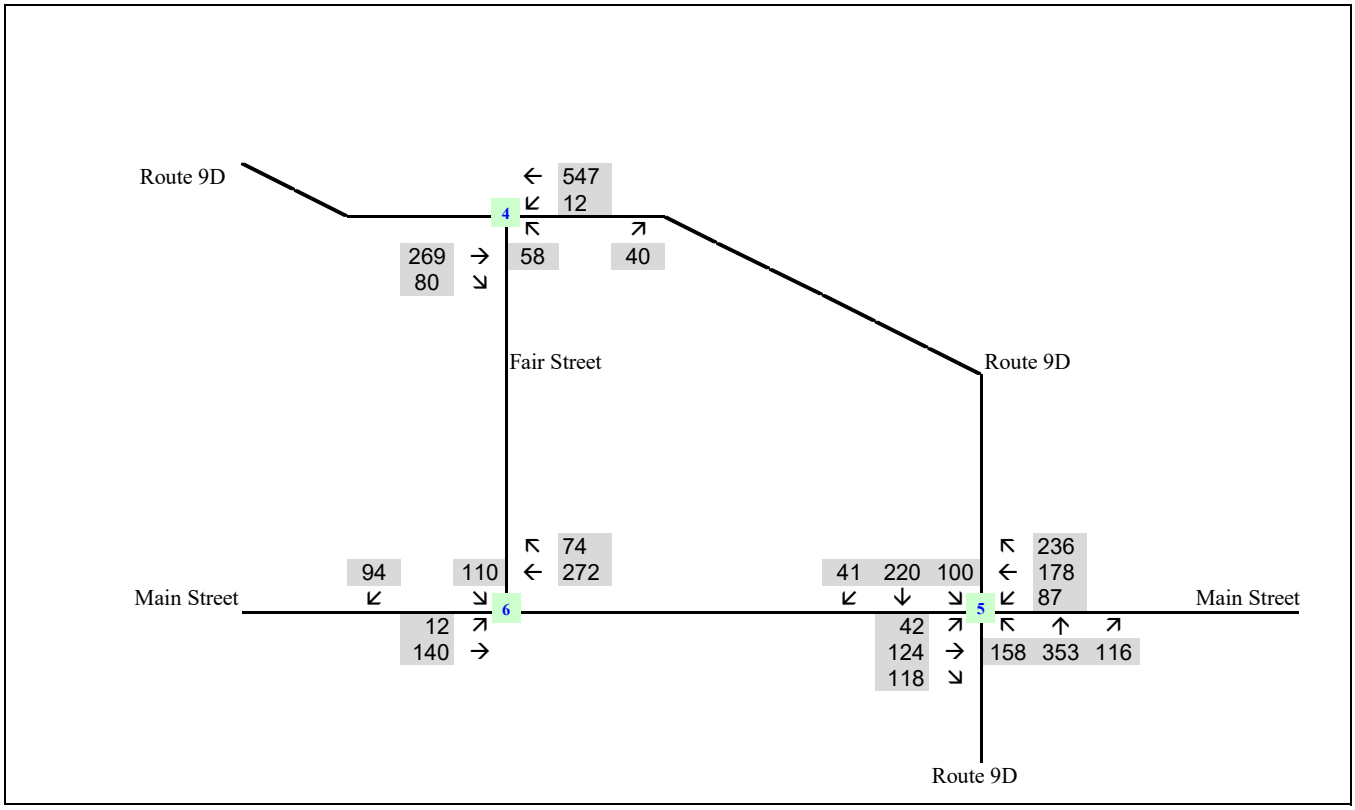

Figure III.L-5
2033 No Action Traffic Volumes
Saturday Midday Peak Hour (12:00 PM - 1:00 PM)

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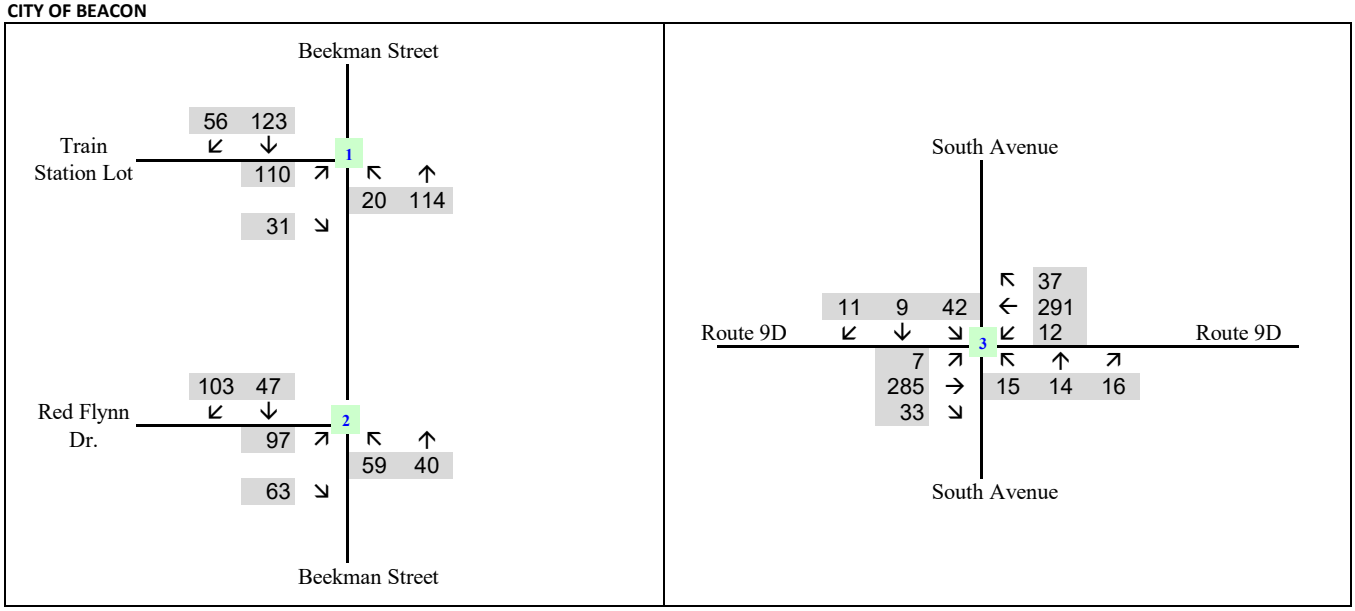

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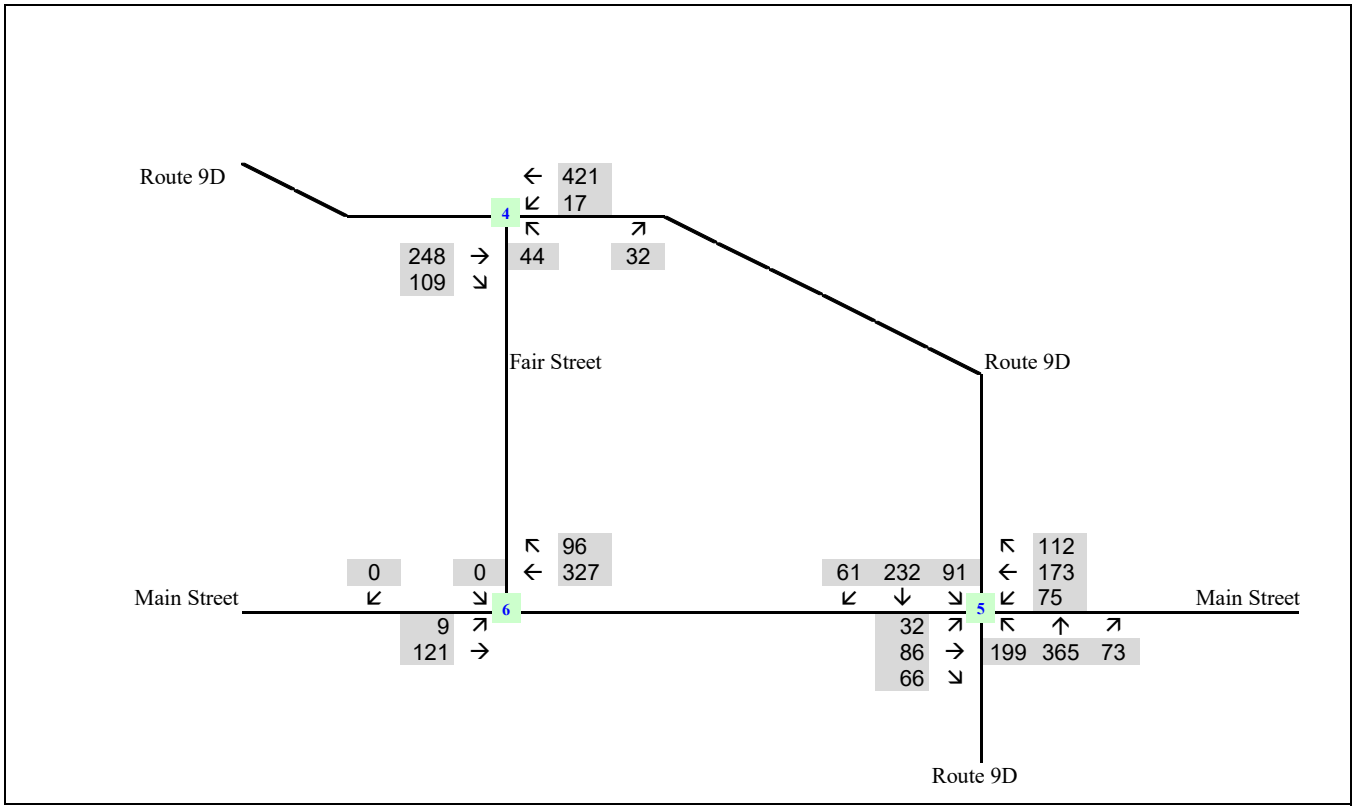

Figure III.L-6
2033 No Action Traffic Volumes
Sunday Midday Peak Hour (11:45 AM - 12:45 PM)

Table III.L-4 presents a comparison of 2023 Existing and 2033 No Action LOS conditions for the study area intersections for the Weekday AM, Weekday PM, and Saturday peak hours. Synchro 11 output reports for the 2033 No Action Condition are provided in **Appendix III/IV.L-7**.

Table III.L-4
2023 Existing and 2033 No Action Conditions Level of Service Analysis

	Saturday Peak Hour								Sunday Peak Hour							
	2023 Existing				2033 No Action				2023 Existing				2033 No Action			
Intersection	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
South Avenue and NYS Route 9D (Wolcott Avenue)																
Eastbound	LTR	0.41	13.2	B	LTR	0.47	14.1	B	LTR	0.36	12.2	B	LTR	0.40	12.8	B
Westbound	LTR	0.44	13.4	B	LTR	0.50	14.2	B	LTR	0.42	13.0	B	LTR	0.46	13.6	B
Northbound	LTR	0.11	8.6	A	LTR	0.13	8.7	A	LTR	0.09	9.9	A	LTR	0.10	9.8	A
Southbound	LTR	0.08	12.1	B	LTR	0.08	12.3	B	LTR	0.11	11.5	B	LTR	0.12	11.7	B
	Intersection		12.8	B	Intersection		13.6	B	Intersection		12.4	B	Intersection		12.9	B
Main Street and NYS Route 9D (Chestnut Street/Morris Avenue)																
Eastbound	LTR	0.67	26.8	C	LTR	0.76	32.5	C	LTR	0.45	19.7	B	LTR	0.47	19.7	B
Westbound	LTR	1.34	197.1	F	LTR	1.54	283.0	F	LTR	0.87	47.2	D	LTR	0.91	51.5	D
Northbound	LTR	1.25	156.6	F	LTR	1.44	235.1	F	LTR	1.01	66.3	E	LTR	1.26	157.4	F
Southbound	LTR	0.74	32.9	C	LTR	0.87	44.7	D	LTR	0.59	20.8	C	LTR	0.74	29.9	C
	Intersection		119.8	F	Intersection		174.2	F	Intersection		43.9	D	Intersection		81.6	F
Unsignalized Intersections																
Beekman Street and Beacon Train Station Road																
Eastbound	L	0.38	17.0	C	L	0.46	19.9	C	L	0.27	14.2	B	L	0.31	15.5	C
	R	0.14	11.1	B	R	0.16	11.6	B	R	0.05	10.0	A	R	0.06	10.3	B
Northbound	L	0.03	8.3	A	L	0.03	8.4	A	L	0.02	8.0	A	L	0.02	8.1	A
Beekman Street and Red Flynn Drive																
Eastbound	LR	0.15	12.1	B	LR	0.18	12.8	B	LR	0.28	11.8	B	LR	0.33	12.6	B
Northbound	LT	0.04	7.9	A	LT	0.04	8.0	A	LT	0.05	7.6	A	LT	0.05	7.6	A
Fair Street and NYS Route 9D																
Westbound	LT	0.01	8.6	A	LT	0.01	8.8	A	LT	0.01	8.2	A	LT	0.02	8.4	A
Northbound	LR	0.45	25.0	D	LR	0.58	35.1	E	LR	0.30	17.3	C	LR	0.38	20.7	C
Main Street and Fair Street																
Eastbound	LT	0.02	9.1	A	LT	0.02	9.4	A	LT	0.02	15.5	C	LT	0.03	17.6	C
Southbound	LR	0.68	36.9	E	LR	0.86	61.9	F	LR*				LR*			

Notes:
v/c = volume to capacity, LOS = Level of Service; L = Left Turn, T = Through, R = Right Turn
*Fair Street operates as a one-way northbound roadway on Sundays.

Under the 2033 No Action Conditions, there would be the following notable change in LOS for the study area intersections:

- Main Street and NYS Route 9D in Cold Spring – the westbound through movement would deteriorate within LOS F during the Saturday peak hour. The northbound through approach would deteriorate within LOS F and from LOS E to LOS F during the Saturday and Sunday peak hours, respectively.
- Fair Street and NYS Route 9D in Cold Spring – the northbound approach would deteriorate from LOS D to LOS E during the Saturday peak hour.
- Main Street and Fair Street in Cold Spring – the southbound approach would deteriorate from LOS E to LOS F during the Saturday peak hour.

While not quantified in the capacity analysis results presented in **Table III.L-4**, the BNCB serves as a first step in addressing traffic congestion and safety concerns stemming from conflicts between pedestrians, cyclists, and vehicles, by eliminating haphazard pull-off and roadside parking, particularly along NYS Route 9D.

PEDESTRIANS

Based on available information, no significant changes in the pedestrian infrastructure on Main Street in Cold Spring are expected under 2033 No Action conditions. Main Street would continue to experience congested conditions as visitation continues to grow.

TRANSIT

Based on available information, no significant changes in public transportation/transit conditions are expected under 2033 No Action condition. While a minor increase in public transit ridership is expected with the general background growth, it is the policy of the transit agencies (MNR, Dutchess County Public Transit, Putnam Area Rapid Transit) to adjust their operating schedules to reflect demand as needed.

As part of the construction of the BNCB, the MTA will temporarily close the Breakneck Ridge train station starting in 2025 and HHFT, Inc. will replace the Breakneck Ridge train station platforms with longer ADA-accessible platforms, which will decrease the time needed for hikers to exit the train. These, and other area improvements, including construction of a pedestrian and bicycle path connection between the Breakneck Ridge MNR train station and the Breakneck Ridge trailhead by HHFT, Inc. will be completed prior to the commencement of the Fjord Trail. MNR plans to reopen the station as a weekend stop on the Hudson Line upon completion of construction by HHFT, Inc. MNR service to the MNR Cold Spring and Beacon train stations will not be impacted by this closure.

In the No Action Condition, HHFT, Inc. proposes to implement a shuttle service to operate between the MNR Beacon and Cold Spring train stations, which would stop at existing parking areas and planned parking areas (i.e., Dutchess Manor and BNCB), providing patrons the ability to move from parking areas to existing trail heads and HHSPP access points without the need to park at the desired trail entry location. The frequency and specific route details will be determined at a future date. The shuttle will be implemented in conjunction with the BNCB.

Additionally, Putnam County's Cold Spring Trolley is expected to continue carrying visitors to the MNR Beacon and Cold Spring train stations and various other stops providing access to trailheads between the stations.

VEHICLE AND PEDESTRIAN SAFETY

As part of the BNCB, several improvements are proposed to improve vehicular and pedestrian safety in the area, including:

- Creation of a pedestrian and bicycle path connection between the Breakneck Ridge MNR train stop and the Breakneck Ridge trailhead to keep pedestrians out of the roadway (NYS Route 9D).
- Demarcating on-street parking and emergency vehicle staging along NYS Route 9D in the half-mile section north of the Breakneck tunnel and eliminating nose-in and other dangerous parking conditions.
- Reducing the speed limit on NYS Route 9D from 55 to 40 mph and adding pedestrian crossings with Rectangular Rapid Flashing Beacons (RRFB) to provide a visual cue to drivers that pedestrians are crossing the road and other features to improve safety (any speed limit reductions on NYS Route 9D would need to be approved by NYSDOT).

Based on the relatively high number of vehicle crashes with animals along NYS Route 9D, NYSDOT may consider evaluating the NYS Route 9D corridor for placement of animal crossing warning signs.

As mentioned in the "Traffic and Access" section above, the existing lighting system in the NYS Route 9D Breakneck Tunnel would be updated. This project would replace the existing lighting system and would make repairs to the tunnel only to accommodate the installation of a replacement light system. This project is scheduled for completion in Summer 2025 and would serve to improve safety in the Breakneck Tunnel and at its approaches along NYS Route 9D.

D. FUTURE WITH THE PROPOSED ACTION

This section describes the Future with the proposed Fjord Trail, or "With Action," traffic condition. This section evaluates potential impacts of the Fjord Trail on parking, traffic and access, transit, vehicle and pedestrian safety, and visitation assessments.

Although the Proposed Action is to be constructed in phases, for a conservative analysis, 2033 is assumed as the future year for the With Action traffic condition assessments.

PARKING

The Proposed Action would include three new or expanded parking facilities that would supplement the existing parking areas presented in **Table III.L-1** and parking areas planned in the No Action Condition (i.e., Dutchess Manor and BNCB) to be available for trail users. The three new parking facilities would include:

- Notch parking area – This new parking area would potentially provide 80 spaces and would result in a new access drive off NYS Route 9D. A preliminary assessment of the potential 2033 With Action traffic volumes at this location shows that the Saturday and Sunday peak hour volumes would not meet the Manual on Uniform Traffic Control Devices (MUTCD) Peak Hour Warrant threshold requirements for the installation of a traffic signal at this location. However, as design advances, the need for signalization would be confirmed. If needed, signalization would aid in creating gaps in the traffic stream that in turn would facilitate turning movements in and out of the driveway. The design of the entrance to The Notch parking area would conform with all NYSDOT standards and requirements for access from a State road and would be coordinated with NYSDOT. Once the design is complete, the appropriate permits from NYSDOT would need to be acquired for the construction of the proposed entrance.
- Wade's Hill Lot – This new parking area would potentially provide 90 spaces and would result in a new access driveway off NYS Route 9D, north of Hartsook Lane. This driveway would provide two-way traffic flow (ingress and egress) to the Wade's Hill Lot. A preliminary assessment of the potential 2033 With Action traffic volumes at this location shows that the Saturday and Sunday peak hour volumes would not meet the Peak Hour Warrant threshold requirements for the installation of a traffic signal at these locations. However, as design advances, the need for signalization would be confirmed. The design of the entrance to the Wade's Hill Lot would conform with all NYSDOT standards and requirements for new curb cuts on a State road and would be coordinated with NYSDOT. Once the design is complete, the appropriate permits from NYSDOT would need to be acquired for the construction of the proposed entrances.
- Washburn Lot expansion – The existing 48-space Washburn Lot would be expanded to provide an additional 48 spaces for a total of 96 spaces. As part of the expansion, the existing Washburn Lot access driveway, which currently provides two-way traffic flow (ingress and egress), would be converted to a one-way driveway (egress only). A new curb cut and access

drive along NYS Route 9D opposite Fair Street would provide one-way traffic flow (ingress only) to access the expanded Washburn parking area, forming a four-leg intersection at this location. A preliminary assessment of the potential 2033 With Action traffic volumes at this location show that the Saturday and Sunday peak hour volumes would not meet the Peak Hour Warrant threshold requirements for the installation of a traffic signal at this location. The design of the access drives to/from the expanded Washburn parking area would conform with all NYSDOT standards and requirements for new/modified curb cuts on a State road and would be coordinated with NYSDOT. Once the design is complete, the appropriate permits from NYSDOT would need to be acquired for the construction of the proposed entrances.

Accounting for the 80 new spaces provided at Notch, 90 new spaces at Wade's Hill, and 48 new spaces at Washburn,[2] there would be 218 new spaces available between the three parking areas. (However, to provide for a conservative analysis it has been assumed that the utilization of the Dutchess Manor lot would already be at capacity under 2033 With Action conditions and that the 181 Dutchess Manor spaces would not be available). This would increase the total area parking supply from 1,580 spaces (2033 No Action) to 1,798 spaces (2033 With Action).

An estimate of projected parking demand under 2033 With Action conditions was developed by growing the 2023 parking demand values by one (1) percent per year to 2033 and adding the number of projected daily vehicles anticipated to be generated by the proposed Fjord Trail. As shown in **Table III.L-5**, the anticipated parking demand would range between 1,321 and 1,277 vehicles for the Saturday and Sunday time periods examined, yielding a projected utilization of between 73 and 71 percent.

Table III.L-5
Summary of Projected With Action Study Area Parking Supply and Utilization

Condition	Parking Supply (# of Spaces)	Utilization			
		Saturday (2:00 PM)		Sunday (11:00 AM)	
2023 Existing Conditions	1,472	781	53%	741	50%
2033 No Action Supply[1]/# of Parkers (Grown from 2023)[2]	1,580	1,040		996	
2033 With Action Capacity Increment /Vehicle Increment[3,4]	218	281		281	
2033 WITH ACTION TOTAL	1,798	1,321	73%	1,277	71%

Notes:
[1] BNCB project would result in a total reduction of 73 parking spaces at Breakneck Ridge. 181 new spaces would be available at Dutchess Manor.
[2] Based on 2023 Existing parking numbers grown to 2033 levels utilizing a 1 percent annual growth rate plus 181 vehicles assumed to utilize the Dutchess Manor parking area.
[3] Additional number of spaces based on sum of 80 new spaces at Notch, 90 new spaces at the Wade's Hill Lot, and 48 new spaces at the Washburn Lot.
[4] The daily incremental parking demand anticipated to be generated by the new trail is projected to be 542 vehicles, however 281 vehicles represents the peak incremental demand, reflective of parking turnover (based on 4-hour turnover times) throughout the day. It is important to note that both the projected peak and daily incremental parking demands (of 281 and 542 vehicles, respectively) could be accommodated with the projected parking supply.

[2] While the total number of spaces in the expanded Washburn parking area would be 96 spaces, the original 48 spaces are assumed to be occupied and unavailable for trail user parking under 2033 With Action conditions and therefore only the 48 spaces added as part of the Washburn parking area expansion are expected to be available for trail user parking.

Each of the parking facilities listed in **Table III.L-1**, along with the two new parking areas at the Notch and Wade's Hill Lot, as well as the expanded parking at the Washburn Lot, would provide pedestrian trail access at or near existing trailheads and proposed access points to the Fjord Trail. It is anticipated that each of the parking areas could be utilized by trail patrons arriving by car.

As part of the BNCB, which would occur in the No Action Condition, parking for up to 105 cars will be provided in formal parking lots and with formal parallel parking along NYS Route 9D, including designated space for emergency vehicles and four ADA-accessible parking spaces. A shuttle service is also proposed to operate between the MNR Beacon and Cold Spring train stations, which would stop at several of the parking areas. Additionally, Putnam County's Cold Spring Trolley is expected to continue carrying visitors to the Beacon and Cold Spring stations and various other stops providing access to trailheads between the stations.

However, to provide for a conservative traffic capacity analysis, the projected peak hour vehicular trips for the Fjord Trail were assumed to exclusively utilize the Notch, Wade's Hill, and Washburn parking areas as these are the most centrally located parking areas within the study area and this would route the largest amount of traffic through the study area intersections. See the "Visitor Projection Study" section below for further details on the traffic trip generation and assignments.

The proposed new Notch and Wade's Hill parking areas and the expanded Washburn parking areas would be paid parking for users and will utilize smart parking system technology such as E-signage along area roadways and E-parking apps to direct drivers to available parking spaces in real-time and allow drivers to pay for parking electronically.

The proposed new parking areas would increase the parking supply in the study area to accommodate the anticipated increased use and demand of the Fjord Trail. The availability of these new parking areas would be expected to reduce illegal parking in the area. Smart parking system technology would assist in providing drivers with real-time information on parking availability, allowing drivers to locate parking more efficiently. Therefore, no significant parking impacts are anticipated as part of the development of the Fjord Trail.

VISITOR PROJECTION ESTIMATES

As the proposed trail development is a unique use for which limited trip generation data is available, a visitor projection study was conducted to develop trip generation estimates for the entire Fjord Trail.

While the Fjord Trail is anticipated to open in 2031, a surge of visitation is expected during the opening year followed by a drop in visitation once visitation has normalized. Therefore, to assess the operations and identify potential impacts and mitigations, visitation projections were developed for a future year 2033 condition.

The 2033 visitor projection study is provided in **Appendix III/IV.L-8**. The components of the projected Fjord Trail visitation included:

- Captured Visits – visitors that are intending to visit the area for other attractions (e.g., Breakneck Ridge Trail, Wilkinson Memorial Trail, Washburn Trail) and would use Fjord Trail as a convenient access route. Thus, these visits would not constitute a net new visitation in the area.
- Add-On and Shifted Visits – the average visitor to the Hudson Highlands area visits two major activity areas during their daily visit. Thus, it is expected that many visitors will add Fjord

Trail to their already-planned visit to an adjacent park or trail and would not constitute a net new visitation in the area.

- Net New Visits – Visitors that are arriving to the area for the Fjord Trail. This could include both people who currently visit but would visit more often and people who do not currently visit but would if the Fjord Trail was built.

As presented in the visitor projection study, the Fjord Trail design day[3] visitation was projected to be 4,100 daily visitors; however, this includes visitors that would be arriving to the area without the Fjord Trail (identified as captured, add-on, or shifted users). The incremental new number of daily visitors, the net new visits, attributed to the Fjord Trail would be 1,710 daily visitors.

Since the traffic and transportation analysis focuses on a peak hour when traffic volumes would typically be highest, the peak hour visitation was developed with the following methodology:

1. Develop daily visitation estimates by travel mode. Based on modal split surveys conducted, 75 percent of the visitors drive to the area, 19 percent arrive by train, and the remaining six percent walk or bike to the area.
2. Convert the daily visitation by mode to a peak hour visitation by mode. Based on surveys conducted, 14 percent of the daily visitors who drive or walk/bike to the area would arrive during a peak hour, while 47 percent of the daily visitors who arrive by Metro-North Railroad arrive during a peak hour.
3. Convert the peak hour visitors arriving by vehicles to number of vehicles arriving in a peak hour. Based on surveys the average vehicle occupancy is 2.35 people/vehicle.
4. To present a conservative analysis, the number of vehicles departing in a peak hour were assumed to be equal to the number of arrivals.

A summary of the peak hour visitation projections and calculations is provided in **Table III.L-6**. As presented, 152 new vehicles trips (76 vehicles arriving and 76 vehicles departing in a peak hour) are projected to be new vehicle trips generated by the Fjord Trail.

[3] "Design day" refers to a typical busy day, such as a weekend day, where visitation is generally higher. "Peak day" refers to a less frequent, outlier day, where visitation is exceptionally high, such as during a peak fall foliage weekend.

Table III.L-6
2033 Net New Peak Hour Visitation by Travel Mode

Travel Mode[1]		Visitors		Vehicle Trips	
		Design Day New Arrivals	Design Day Peak Hour New Arrivals[2]	Vehicle Occupancy[3]	Vehicle Trips (In and Out)[4]
Drive	75%	1,275	178	2.35	152
MNR	19%	325	153		
Walk/Bike	7%	110	16		
TOTAL		**1,710**	**347**		

Notes:
[1] Travel mode split based on ORCA visitation surveys
[2] Based on visitation surveys, 14% of the daily trips occur during a peak hour except for those arriving by train, which experiences 47% of daily traffic arriving during a peak hour
[3] Vehicle occupancy based on surveys; represents number of passengers per vehicle
[4] Applying a 2.35 people/vehicle occupancy rate and then doubling to account for inbound and outbound trips (178 visitors/2.35 visitors per vehicle * 2 trips)

The 152 net new vehicles trips were assigned to the new parking facilities based on supply (existing parking areas were assumed to already be full, so new trips would use the new lots and individual turning movement volumes at the study area intersections were increased accordingly, see "Traffic and Access" section below).

TRAFFIC AND ACCESS

TRAFFIC CONDITIONS

As outlined above in the "Visitor Projection Study" section, the peak hour vehicle trip generation for the trail would be 152 vehicular trips (76 entering trips and 76 exiting trips) for the development of the Fjord Trail.

For the purposes of estimating a conservative distribution of project generated trips across the study area intersections, a directional distribution of vehicle trips to and from the Notch, Wade's Hill, and Washburn parking areas were created utilizing the existing travel patterns in the study area. General area-wide trip distribution percentages are shown in **Figure III.L-7**. Intersection-specific trip distribution patterns are shown in **Figures III.L-8 and III.L-9** for the Saturday and Sunday peak hours, respectively. These trip distribution patterns represent the most logical approach and departure paths to the general area of the Notch, Wade's Hill, and Washburn parking areas. **Figures III.L-10 and III.L-11** show the project generated vehicle trips for the Saturday and Sunday peak hours, respectively, for the proposed Fjord Trail.

While the new Notch parking area would not be available without the development of the Fjord Trail North section, the established directional distributions of vehicle trips shown in **Figures III.L-7 through III.L-11** provide a conservative routing of traffic for conditions with the Fjord Trail South section only as it routes the highest amount of traffic along NYS Route 9D and through the study area intersections. Without the new Notch, Wade's Hill, and expanded Washburn parking areas, traffic would depart from NYS Route 9D to access other available parking areas.

The project generated vehicle trips for the proposed Fjord Trail described above were added to the No Action traffic volumes to estimate the With Action traffic volumes. **Figures III.L-12 and III.L-13** show the 2033 With Action traffic volumes for the Saturday and Sunday peak hours, respectively, for the proposed Fjord Trail. **Table III.L-7** presents a comparison of the 2033 No

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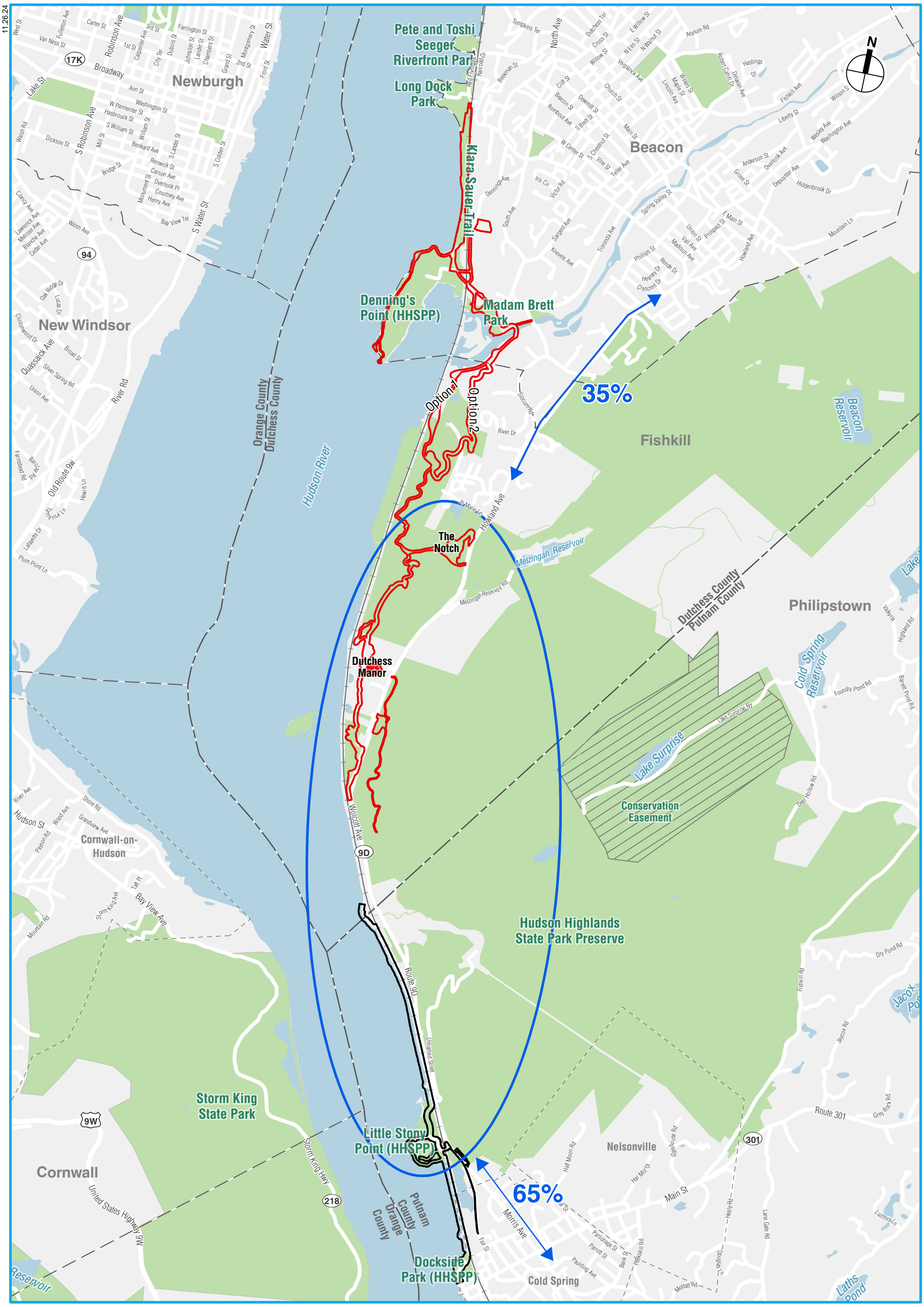


Trail Corridor - Fjord Trail North

Trail Corridor - Fjord Trail South

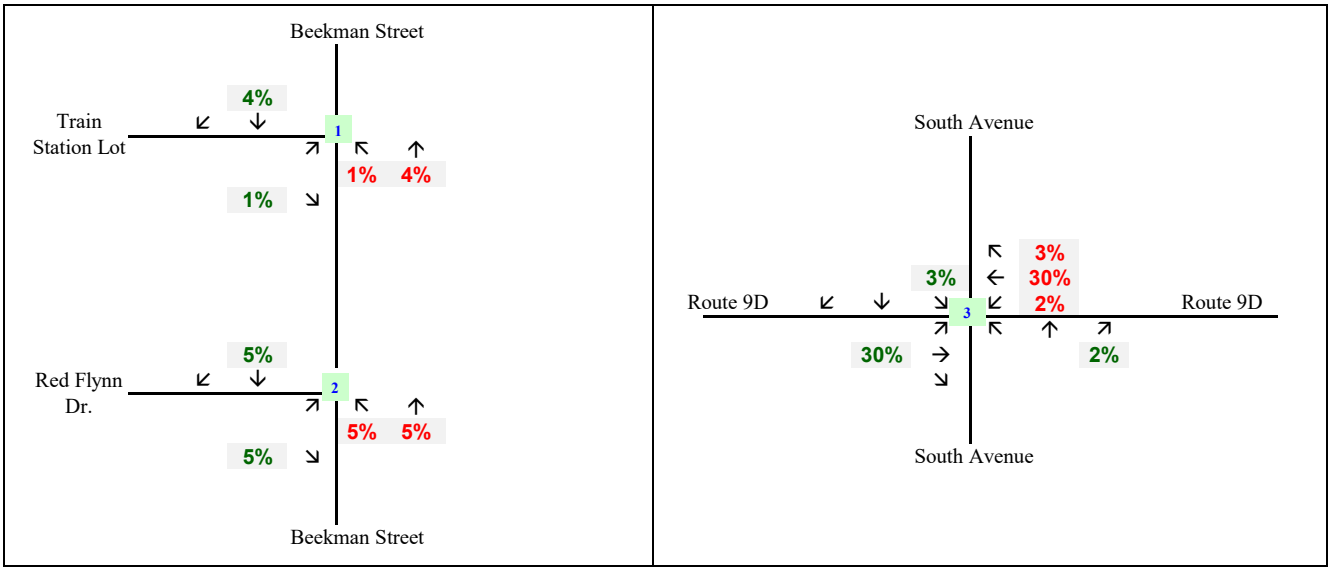
General Area of New Parking Locations (Notch, Wade's Hill, and Washburn Lot Expansion)

Area Trip Distribution Percentages

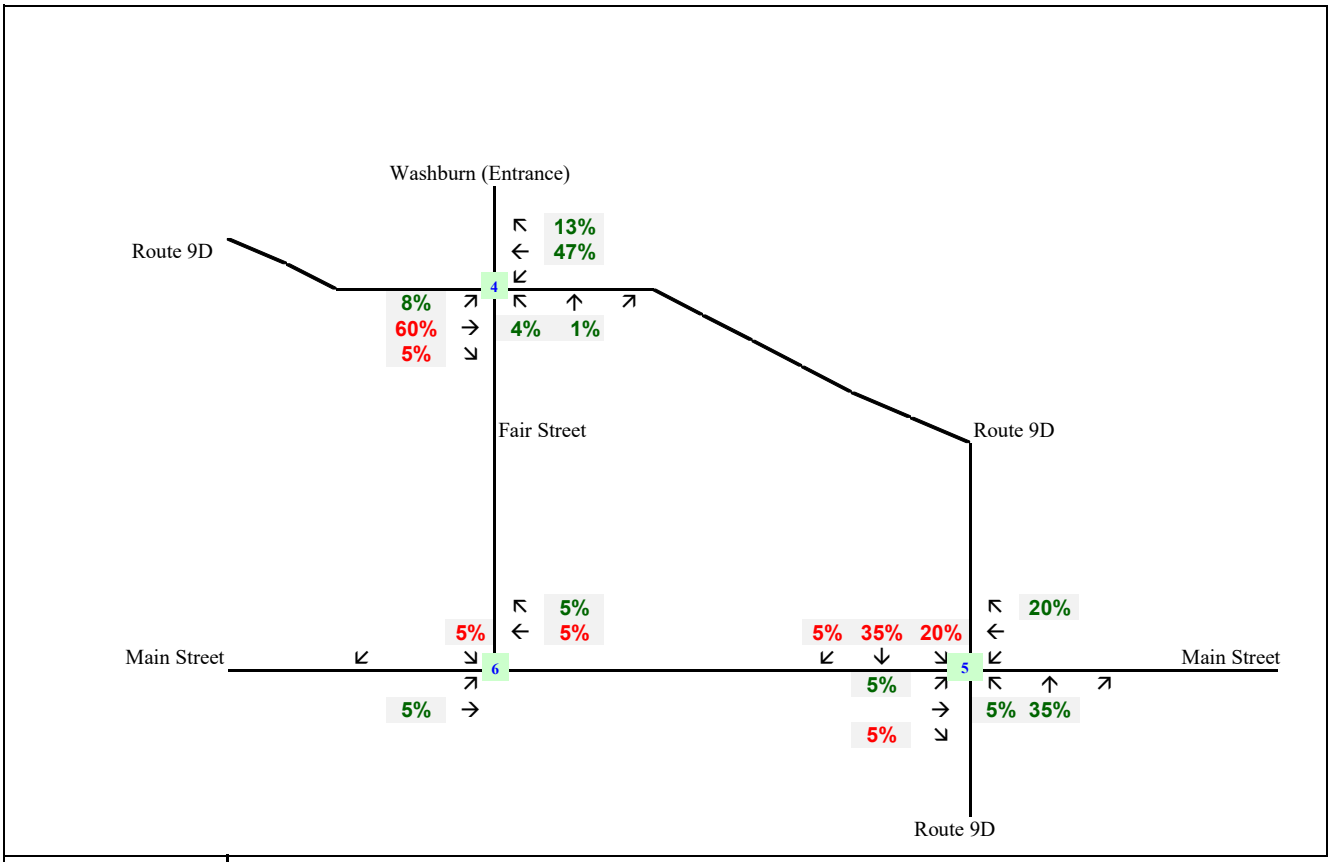
HUDSON HIGHLANDS FJORD TRAIL

Figure III.L.7

CITY OF BEACON



VILLAGE OF COLD SPRING



5% 'IN' Trips

5% 'OUT' Trips

Figure III.L-8
Study Area Intersection Project Trip Distribution Percentages
Saturday Peak Hour

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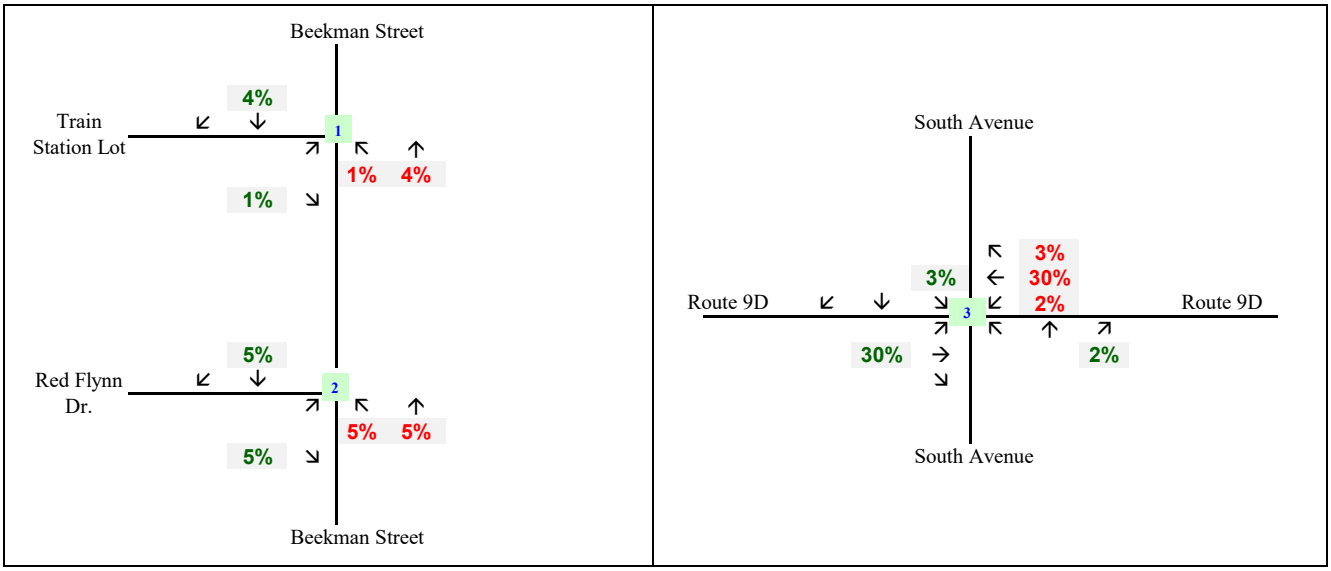
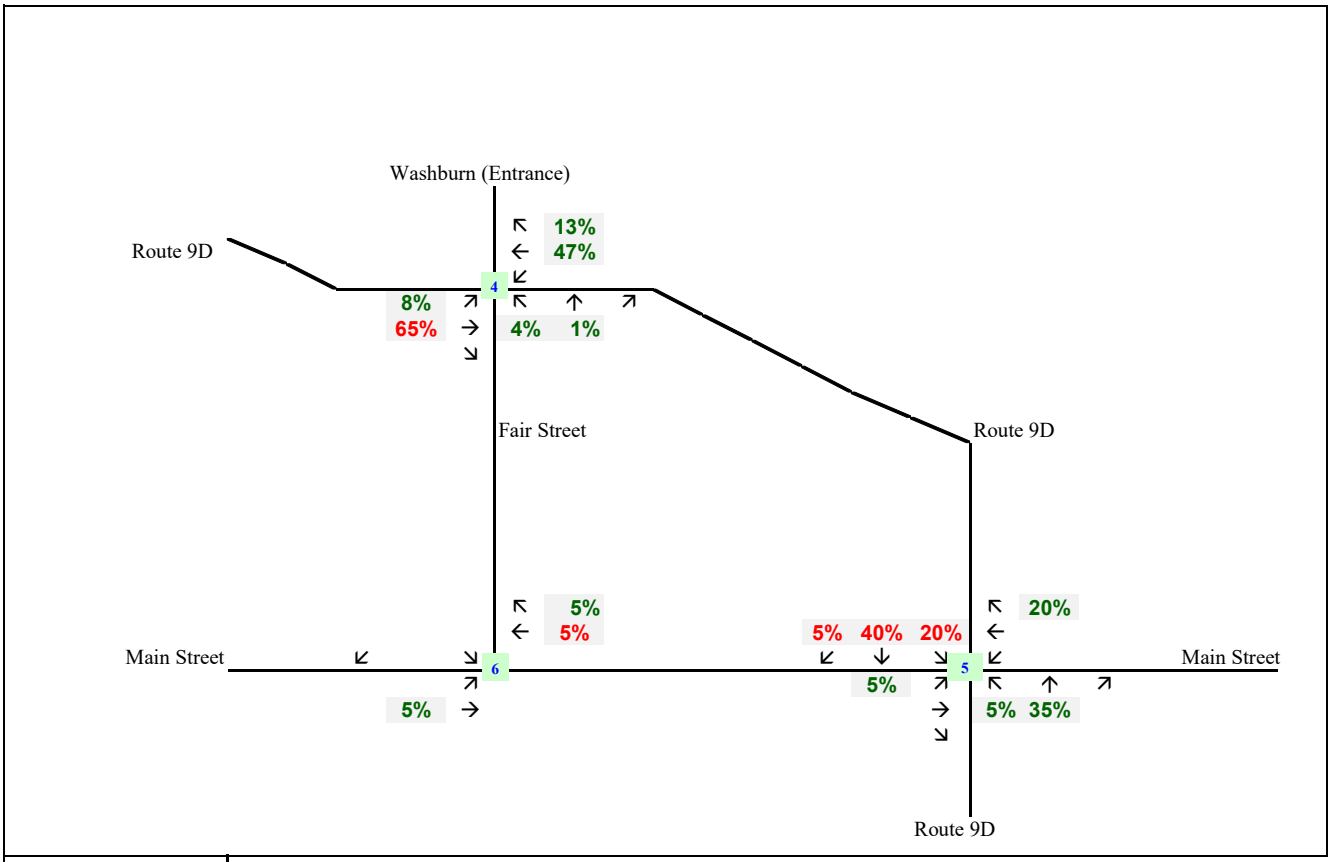


VILLAGE OF COLD SPRING

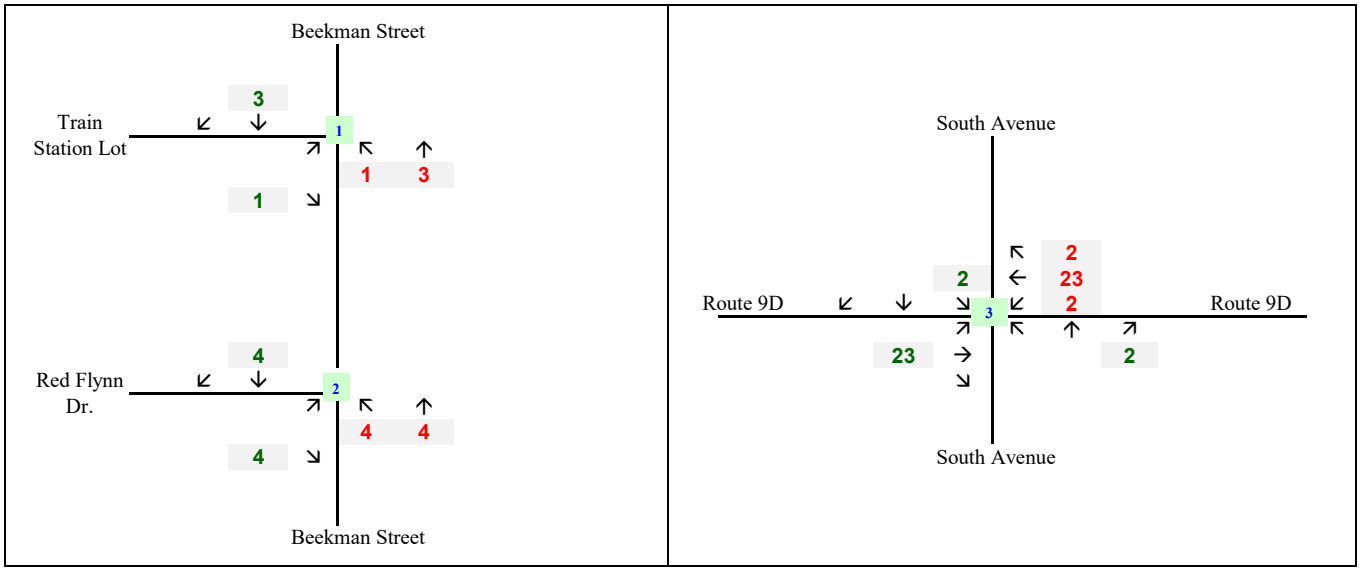


5% 'IN' Trips

5% 'OUT' Trips

Figure III.L-9
Study Area Intersection Project Trip Distribution Percentages
Sunday Peak Hour

CITY OF BEACON



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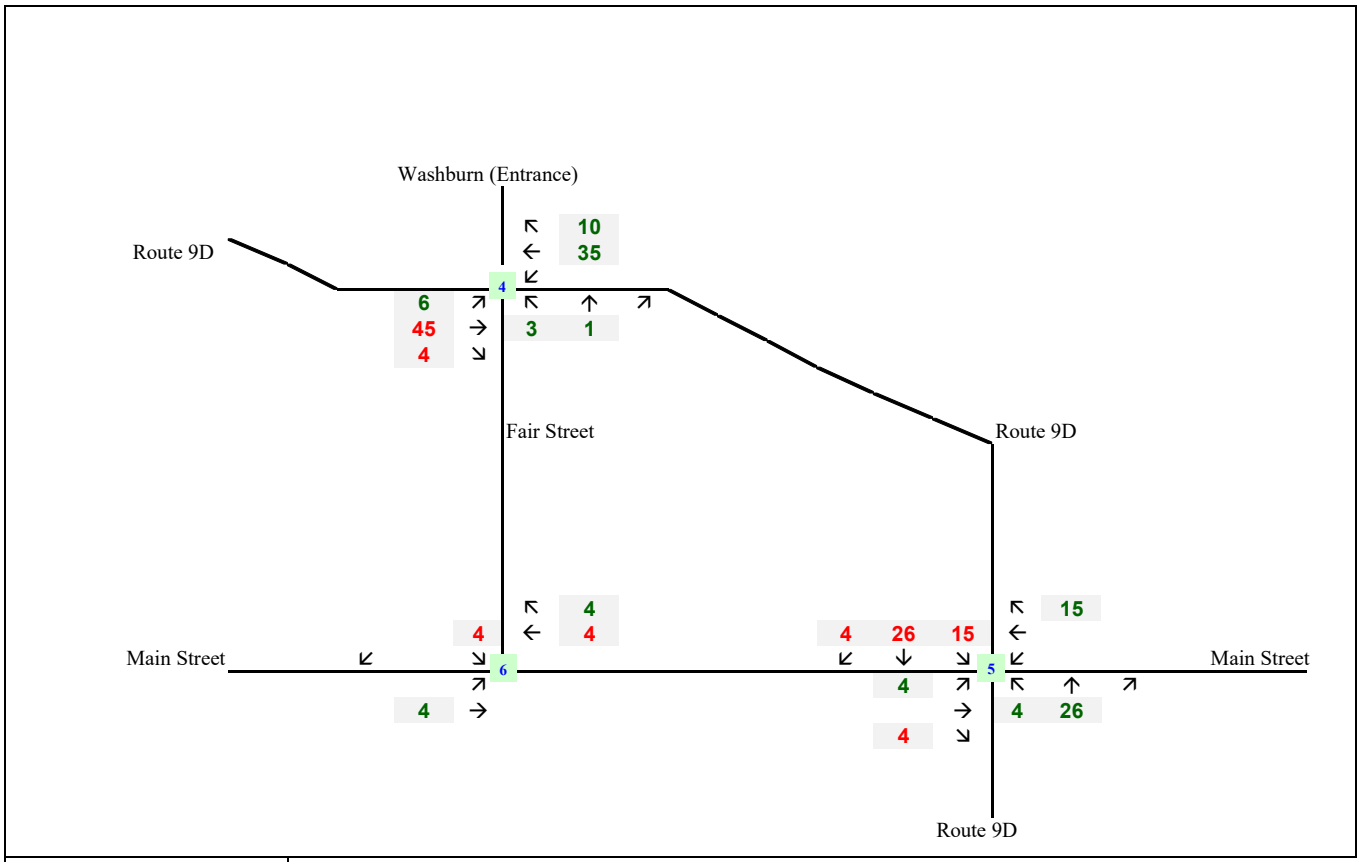
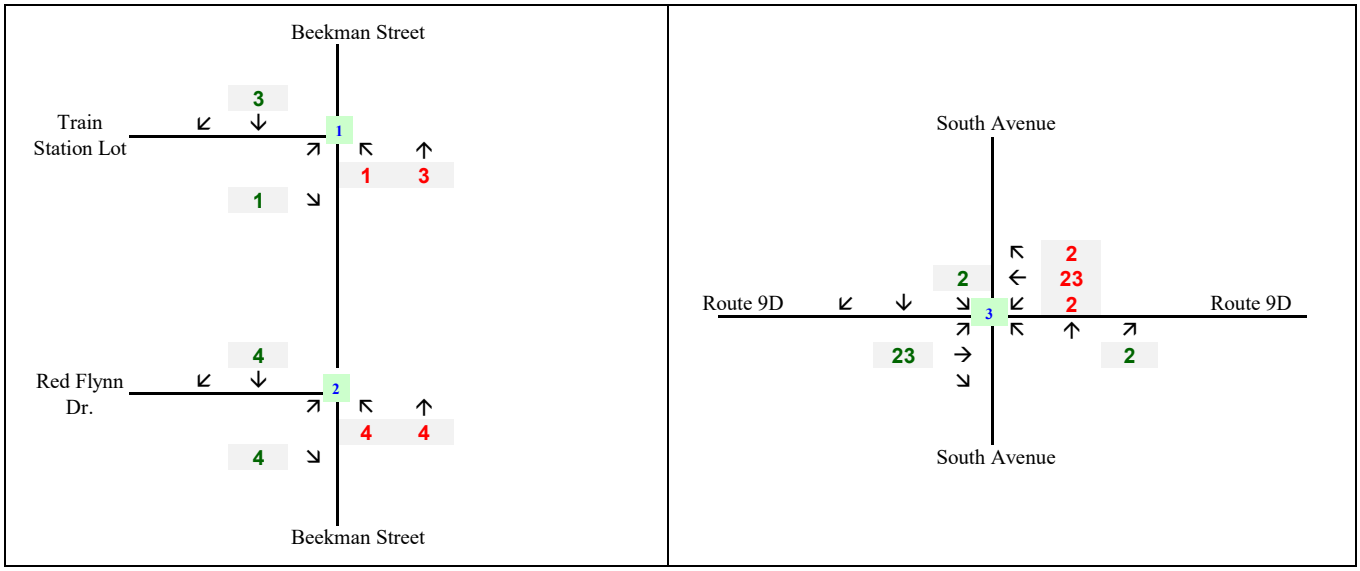


76 = Total 'In' Trips

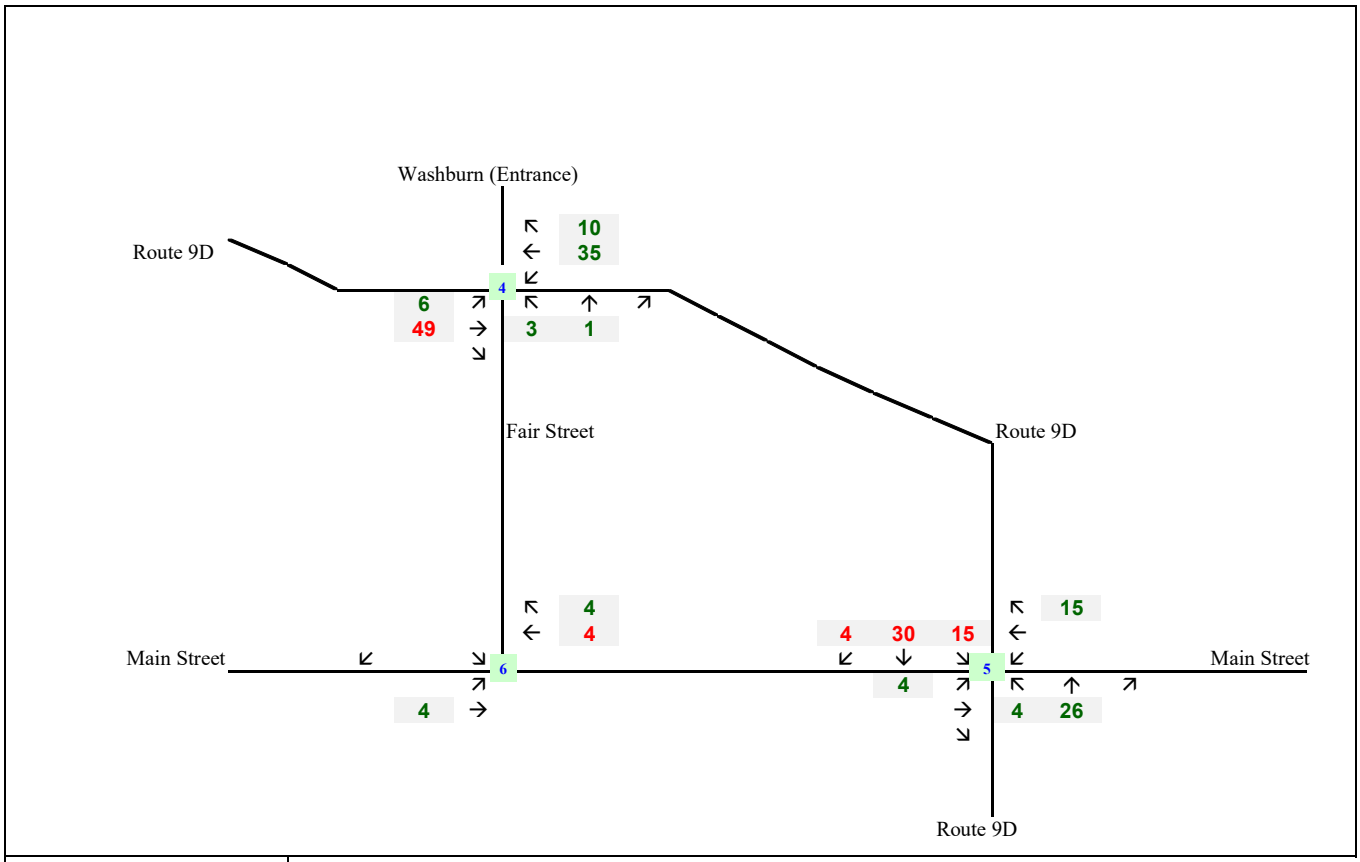
76 = Total 'Out' Trips

Figure III.L-10
Project Generated Trips
Saturday Midday Peak Hour (12:00 PM - 1:00 PM)

CITY OF BEACON



VILLAGE OF COLD SPRING

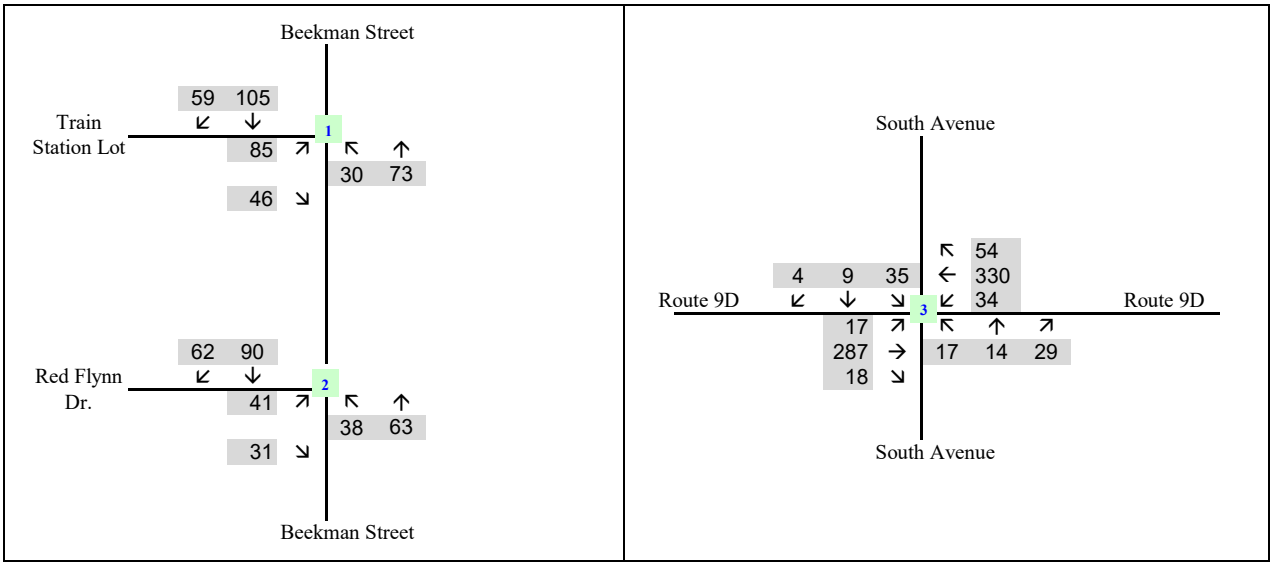


76 = Total 'In' Trips

76 = Total 'Out' Trips

Figure III.L-11
Project Generated Trips
Sunday Midday Peak Hour (11:45 AM - 12:45 PM)

CITY OF BEACON



VILLAGE OF COLD SPRING

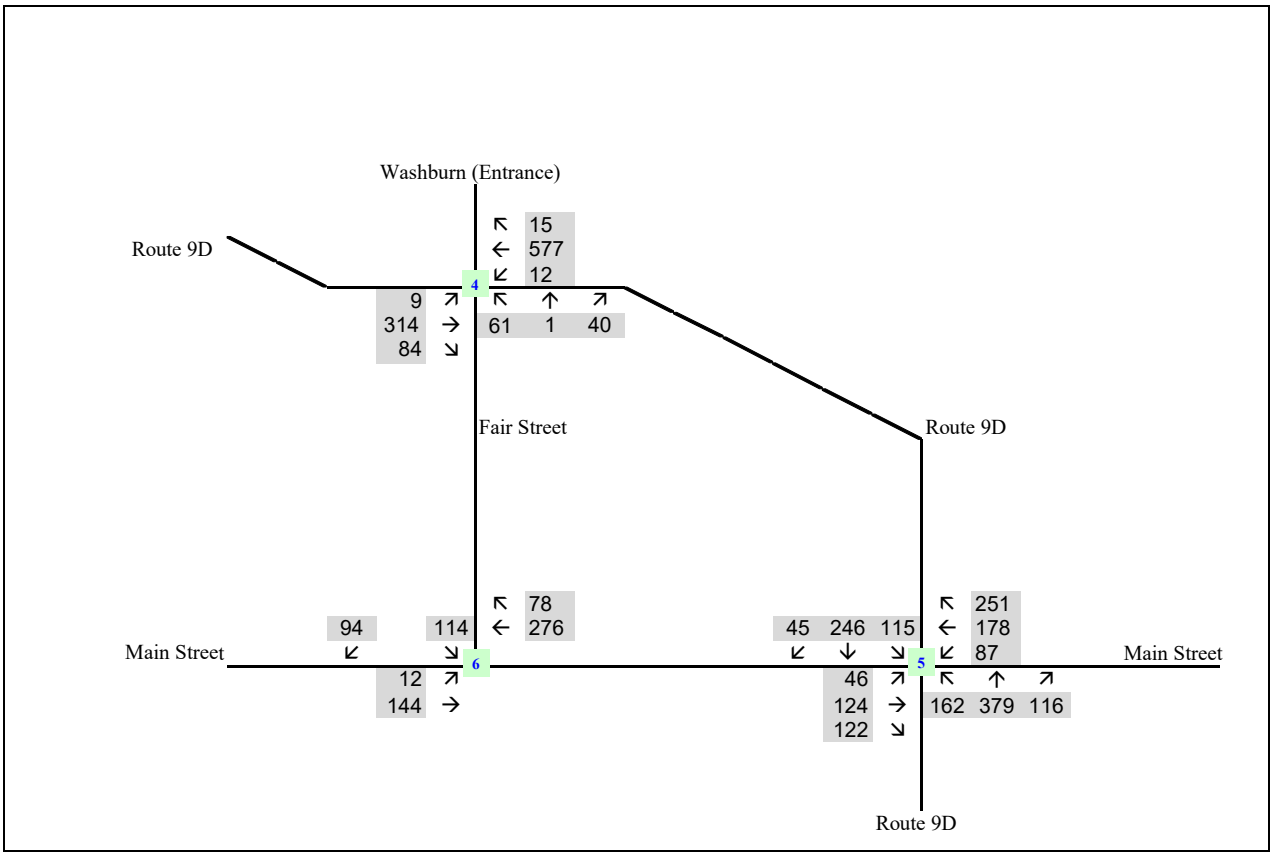
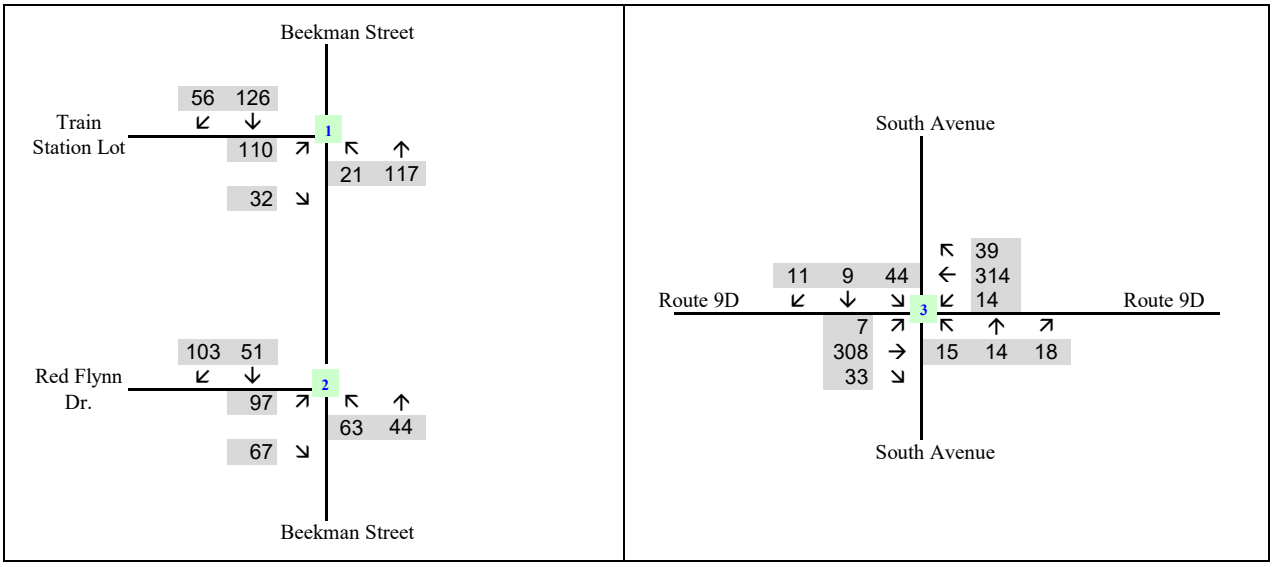


Figure III.L-12
2033 With Action Traffic Volumes
Saturday Midday Peak Hour (12:00 PM - 1:00 PM)

CITY OF BEACON



VILLAGE OF COLD SPRING

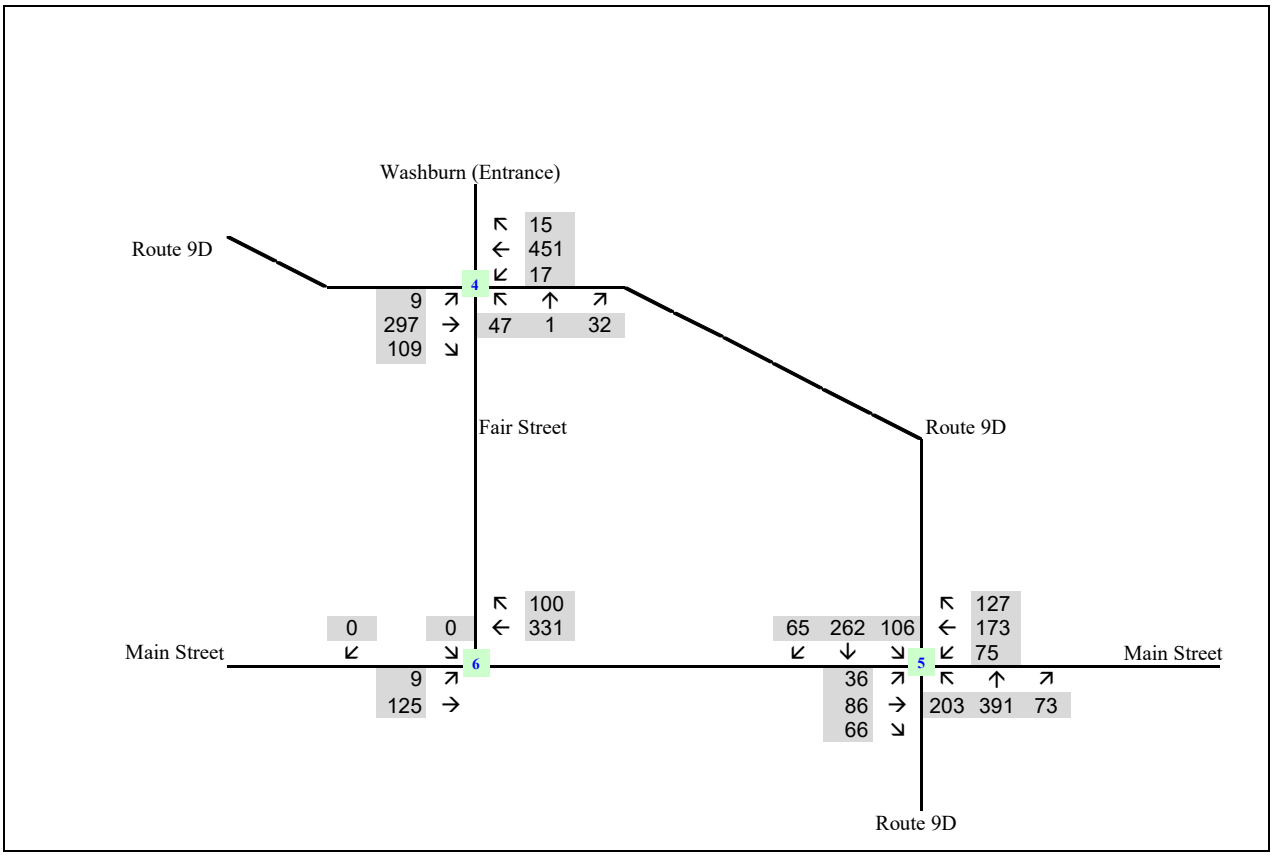


Figure III.L-13
2033 With Action Traffic Volumes
Sunday Midday Peak Hour (11:45 AM - 12:45 PM)

Action and 2033 With Action LOS conditions for the study area intersections for the Fjord Trail. Synchro 11 output reports for the 2033 With Action condition are provided in **Appendix III/IV.L-9**.

Table III.L-7
2033 No Action and With Action Conditions Analysis

	Saturday Peak Hour								Sunday Peak Hour							
	2033 No Action				2033 With Action				2033 No Action				2033 With Action			
Intersection	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Signalized Intersections																
South Avenue and NYS Route 9D (Wolcott Avenue) (Beacon)																
Eastbound	LTR	0.47	14.1	B	LTR	0.50	14.6	B	LTR	0.40	12.8	B	LTR	0.43	13.3	B
Westbound	LTR	0.50	14.2	B	LTR	0.53	14.9	B	LTR	0.46	13.6	B	LTR	0.50	14.3	B
Northbound	LTR	0.13	8.7	A	LTR	0.13	8.5	A	LTR	0.10	9.8	A	LTR	0.10	9.5	A
Southbound	LTR	0.08	12.3	B	LTR	0.09	12.4	B	LTR	0.12	11.7	B	LTR	0.13	11.8	B
	Intersection		13.6	B	Intersection		14.1	B	Intersection		12.9	B	Intersection		13.4	B
Main Street and NYS Route 9D (Chestnut Street/Morris Avenue) (Cold Spring)																
Eastbound	LTR	0.76	32.5	C	LTR	0.80	36.2	D	LTR	0.47	19.7	B	LTR	0.47	19.9	B
Westbound	LTR	1.54	283.0	F	LTR	1.61	313.0	F	LTR	0.91	51.5	D	LTR	0.92	53.6	D
Northbound	LTR	1.44	235.1	F	LTR	1.52	270.0	F	LTR	1.26	157.4	F	LTR	1.39	212.1	F
Southbound	LTR	0.87	44.7	D	LTR	1.02	76.3	E	LTR	0.74	29.9	C	LTR	0.89	43.8	D
	Intersection		174.2	F	Intersection		199.8	F	Intersection		81.6	F	Intersection		105.4	F
Unsignalized Intersections																
Beekman Street and Beacon Train Station Road (Beacon)																
Eastbound	L	0.46	19.9	C	L	0.47	20.3	C	L	0.31	15.5	C	L	0.32	15.7	C
	R	0.16	11.6	B	R	0.17	11.7	B	R	0.06	10.3	B	R	0.06	10.3	B
Northbound	L	0.03	8.4	A	L	0.04	8.4	A	L	0.02	8.1	A	L	0.02	8.1	A
Beekman Street and Red Flynn Drive (Beacon)																
Eastbound	LR	0.18	12.8	B	LR	0.19	13.0	B	LR	0.33	12.6	B	LR	0.34	12.9	B
Northbound	LT	0.04	8.0	A	LT	0.05	8.0	A	LT	0.05	7.6	A	LT	0.06	7.6	A
Fair Street and NYS Route 9D (with Washburn Lot Entrance under With Action condition) (Cold Spring)																
Eastbound					LTR	0.01	8.7	A					LTR	0.01	8.4	A
Westbound	LT	0.01	8.8	A	LTR	0.01	9.0	A	LT	0.02	8.4	A	LTR	0.02	8.6	A
Northbound	LR	0.58	35.1	E	LTR	0.72	53.3	F	LR	0.38	20.7	C	LTR	0.47	26.7	D
Main Street and Fair Street (Cold Spring)																
Eastbound	LT	0.02	9.4	A	LT	0.02	9.5	A	LT	0.03	17.6	C	LT	0.03	17.7	C
Southbound	LR	0.86	61.9	F	LR	0.89	68.4	F	LR*				LR*			

Notes: v/c = volume to capacity, LOS = Level of Service; L = Left Turn, T = Through, R = Right Turn
* Fair Street operates as a one-way northbound roadway on Sundays.
Shading indicates traffic impact

Based on traffic impact criteria accepted by NYSDOT in their review of traffic impact studies in the region, significant adverse traffic impacts are identified as: (1) any change in LOS D or better to LOS E or F; (2) any change from LOS E to LOS F; or (3) any increase of 10 percent or greater in delay for LOS F. The significant impact criteria are applied to the approach/lane group LOS for signalized intersections and approach/movement group LOS for unsignalized intersections.

Under the 2033 With Action condition, there would be a significant adverse impact at the following intersection location:

- Main Street and NYS Route 9D in Cold Spring—the westbound Main Street approach delay would deteriorate within LOS F, experiencing an increase in delay in excess of 10 percent during the Saturday peak hour (an increase of 30.0 seconds). The northbound NYS Route 9D approach delay would deteriorate within LOS F, experiencing an increase in delay in excess of 10 percent, during the Saturday and Sunday peak hours (an increase of 34.9 seconds and 54.7 seconds for the Saturday and Sunday peak hours, respectively). The southbound NYS Route 9D approach would deteriorate from LOS D to LOS E during the Saturday peak hour.
- Fair Street/Washburn Lot Entrance and NYS Route 9D in Cold Spring—the northbound Fair Street approach would decline from LOS E to LOS F during the Saturday peak hour.

- Main Street and Fair Street in Cold Spring—the southbound Fair Street approach would deteriorate within LOS F, experiencing an increase in delay in excess of 10 percent, during the Saturday peak hour (an increase of 6.5 seconds).

Potential mitigation measures are presented in Section E, "Mitigation."

In Nelsonville, it is estimated an additional 30 vehicles would travel along Main Street/Route 301 east of Route 9D. This would represent only a five percent increase in vehicular traffic during the weekend peak hours.

PARKING LOT ACCESS

Many of the parking facilities listed in **Table III.L-1**, along with the three new or expanded areas at Notch, Wade's Hill, and Washburn, would either provide pedestrian trail access at or near proposed access points to the Fjord Trail or would be served by a shuttle or trolley service to provide trail access. It is anticipated that each of the parking areas could be utilized by trail patrons arriving by car. Additionally, Putnam County's Cold Spring Trolley is expected to continue carrying visitors to the MNR Beacon and Cold Spring train stations and various other stops, providing access to the Fjord Trail entrances between the stations.

The need for traffic signals at the new or modified intersections that would be formed by the new Notch, Wade's Hill, and Washburn parking area access driveways and NYS Route 9D would be determined as design advances. A signal must first be warranted (meeting certain threshold requirements) and then approved by NYSDOT prior to being installed. A preliminary assessment of the potential 2033 With Action traffic volumes at these locations shows that the Saturday and Sunday peak hour volumes would not meet the Peak Hour Warrant threshold requirements for the installation of a traffic signal at these locations.

PEDESTRIAN

While visitation to the area is expected to increase due to the Fjord Trail, providing access to the Fjord Trail and amenities via Dockside Park will divert existing and future hiker trips that arrive by train from using Main Street and Fair Street to access the hiking trails to the Dockside Park Fjord Trail entrance. This diversion would result in reducing the pedestrian demand on Main Street. In addition, to further minimize the number of hikers traveling along Main Street, a number of Visitor Demand Management Strategies, presented in Section E, "Mitigation", could be deployed.

TRANSIT

Based on the results of the Visitation Projection Study, it is anticipated that there would be an increase of approximately 256 people in daily visitation arriving by MNR under 2033 With Action conditions, which would equate to 512 daily trips (combined number of inbound and outbound trips). It is the policy of the transit agencies (MNR, Dutchess County Public Transit, Putnam Area Rapid Transit) to adjust their operating schedules to reflect demand as needed.

As part of the BNCB construction process, MNR will temporarily close the Breakneck Ridge train station starting in 2024 for HHFT, Inc. to replace the Breakneck Ridge train station platforms with longer ADA-accessible platforms, which will decrease the time needed for hikers to exit the train. These, and other area improvements by HHFT, Inc., including construction of a shared-use trail connection between the MNR Breakneck Ridge train stop and the Breakneck Ridge trailhead area will be completed prior to the commencement of the Fjord Trail. MNR plans to reopen the station as a weekend stop on the Hudson Line upon completion of construction of BNCB.

Additionally, Putnam County's Cold Spring Trolley is expected to continue carrying visitors to the MNR Beacon and Cold Spring train stations and various other stops, providing access to the Fjord Trail entrances between the stations.

As noted under the No Action Condition, HHFT, Inc. also proposes to operate a shuttle service between the MNR Beacon and Cold Spring train stations, which would stop at existing and planned parking areas (i.e., Dutchess Manor and BNCB). A proposed shuttle route is provided in Figure III.A-3. The shuttle will be implemented in conjunction with the BNCB. The frequency and specific route details will continue to be refined as the Proposed Action is implemented. HHFT, Inc. will coordinate with Dutchess County and Putnam County transit services to potentially coordinate the shuttle with other local bus routes.

VEHICLE AND PEDESTRIAN SAFETY

While there would be a weekend daily increase of 542 vehicles making round trips (1,084 one-way/in or out trips), it is important to note that those trips would be spread across a roughly 12-hour period, only 152 of those trips are projected to occur during the peak hour, and the trips would be distributed across the study area roadways, see **Figures III.L-8 through III.L-11**. Since the proposed Fjord Trail would not significantly increase traffic volume in the study area, it is anticipated there would not be a significant increase in the number of accidents. Also, as stated above there are no high accident locations in the study area.

Based on the relatively high number of vehicle crashes with animals along NYS Route 9D, NYSDOT may consider evaluating the corridor for placement of animal crossing warning signs.

Fjord Trail South will allow pedestrians and bikers to leave from Cold Spring on their way to Little Stony Point, Washburn Trail, and Breakneck Ridge without having to traverse certain downtown Cold Spring roads including Fair Street and NYS Route 9D. This is a critical benefit of the construction of the Fjord Trail South as it would help reduce vehicular, bicycle, and pedestrian safety and congestion issues along these sections of Fair Street and NYS Route 9D.

Emergency vehicle access locations along the proposed Fjord Trail Corridor are depicted on **Figure III.L-1**. With the development of the Fjord Trail North and Fjord Trail South, these access points would remain with the potential for some improvement depending on the final design at each location. For additional information on emergency service providers and access locations, both existing and possible new, refer to Chapters III.N, "Emergency Services – Fjord Trail North," and IV.N, "Emergency Services – Fjord Trail South."

CONSTRUCTION ASSESSMENT

All construction activity is anticipated to take place on weekdays only; no construction related vehicle trips would take place on Saturdays or Sundays barring any unforeseen conditions. Therefore, no increases in traffic or traffic impacts are anticipated as a result of the construction activity at the study area intersections during the Saturday and Sunday peak hours study herein.

Weekday construction hours would typically be between 7:00 AM and 4:00 PM. The daily on-site worker count is anticipated to peak at approximately 25 to 30 workers with workers expected to arrive on site at 6:45 AM and depart around 4:15 PM. The daily number of trucks/construction vehicles for any given stage of construction is anticipated to range from one to two trucks per day up to 10 to 15 vehicles per day, depending on the specific stage of construction. Based on the projected number of construction-related vehicles, the additional traffic added to the surrounding roadway system is not anticipated to result in significant impacts during the construction phases.

Construction access points and staging would be determined by the selected contractor. The selected contractor would be responsible for making arrangements with private commercial property owners to rent or lease space for storage, logistics, and parking. In addition, the selected contractor would be responsible for employing all required resources including fencing, flagmen, supplying notifications to governmental agencies having jurisdiction over roadways where work would be performed (also obtaining any necessary highway work permits), and truck delivery escorts to comply with all rules and regulations for public and worker safety.

Anticipated construction access points for Fjord Trail South are shown in Figure II-4 in Chapter II, "Project Description." A portion of Fjord Trail South would be constructed via barge (see Chapter II). For on-grade construction activities, construction vehicles would gain access via Little Stony Point and Dockside Park. Construction vehicles would primarily use NYS Route 9D, which is already a heavily trafficked roadway, to access these points. To access Dockside Park from NYS Route 9D, trucks would need to travel along Main Street, Lunn Terrace, Market Street, North Street, West Street, and New Street. Construction vehicles would be distributed between the Little Stony Point access and Dockside Park access, with more trucks generally directed toward Little Stony Point off NYS Route 9D. Truck traffic would vary during the construction period and would be less intense during the restricted in-water work periods.

For Fjord Trail North, several access points have been identified that could potentially serve as worker parking, access, and material staging areas, including points directly accessed from NYS Route 9D (the northern end of the BNCB, Dutchess Manor, and the Notch site) and points accessed from NYS Route 9D via local streets (Long Dock Park via Beekman Street and Long Dock Road, Denning's Point via Dennings Avenue, and Madam Brett Park via Tioronda Avenue). The following is a list of issues and/or constraints that would need to be taken into consideration for the use of these access points:

- Access at Long Dock Park in Beacon would require coordination with Scenic Hudson.
- Access at Madam Brett Park is constrained by a single lane, low clearance underpass, and would require coordination with Scenic Hudson.
- At the entrance to Denning's Point, a bridge over the MNR tracks can accommodate small vehicles. Coordination with OPRHP would be required as vehicular access to the bridge is currently gated and locked.
- Access points off NYS Route 9D would require a Highway Work Permit from NYSDOT.

All construction within MNR right-of-way would be performed in accordance with the requirements of MNR, including review/approval of contractor work plans prior to construction, and construction hours. Construction operations adjacent to the MNR right-of-way would avoid obstruction of the tracks and comply with all MNR requirements, including the review and approval by MNR and the need for flaggers. As described in Chapter II, "Project Description," the proposed construction methodology for sections of Fjord Trail South includes the use of barges and a top-down approach, which would limit the proximity of construction activities to the MNR tracks and minimize potential impacts to MNR service. Where construction activities would need to travel over MNR tracks, existing crossings would be used (including the Beacon Line inactive railbed and the existing bridge at Denning's Point along Fjord Trail North and the existing bridge at the entrance to Little Stony Point from NYS Route 9D along Fjord Trail South). Construction activities would be coordinated with MNR, as needed.

E. MITIGATION

For the impacted intersections, mitigation measures were examined to improve traffic operating conditions under 2033 With Action conditions to 2033 No Action conditions or better. In addition to mitigation measures to address traffic operations, potential visitor demand management strategies are provided that could further reduce visitation demand during peak hours, however, conservatively, the analyses of impacts do not assume reduced visitation using any of these measures.

TRAFFIC OPERATIONS

The following identifies potential mitigation measures at the impacted intersection locations. Synchro 11 output reports for the 2033 Mitigation condition are provided in **Appendix III/IV.L-10**. These mitigations would further be enhanced with implementation of visitor demand management strategies presented in the next section.

MAIN STREET AND NYS ROUTE 9D

The impacts at the northbound NYS Route 9D approach of the intersection of Main Street and NYS Route 9D in Cold Spring could be mitigated with the following measures:

- Removal of parking on the eastbound and westbound Main Street approaches and restriping the eastbound approaches to provide an exclusive left-turn lane and a shared through-right turn lane.
- Reallocation of six seconds of green time from the eastbound/westbound phase to the northbound/southbound phase (Saturday peak hour only).

The improved operating conditions resulting from the mitigation measures outlined above are described below.

Saturday Peak Hour

- The westbound Main Street approach would improve from operating with a delay of 313.0 seconds (LOS F) to 30.3 seconds (LOS C) and 246.2 seconds (LOS F) for the left-turn and shared through/right-turn movements, respectively. While the westbound Main Street shared through/right-turn movement would still operate at LOS F, it would no longer experience an increase in delay in excess of 10 percent from No Action conditions.
- The northbound NYS Route 9D approach would improve from operating with a delay of 270.0 seconds (LOS F) under 2033 With Action conditions to a delay of 183.2 seconds (LOS F). While the northbound NYS Route 9D approach would still operate at LOS F, it would no longer experience an increase in delay in excess of 10 percent from No Action conditions.
- The southbound NYS Route 9D approach would improve from operating with a delay of 76.3 seconds (LOS E) under 2033 With Action conditions to a delay of 42.2 seconds (LOS D).

Sunday Peak Hour

- The northbound NYS Route 9D approach would improve from operating with a delay of 211.7 seconds (LOS F) under 2033 With Action conditions to a delay of 123.1 seconds (LOS F). While the northbound NYS Route 9D approach would still operate at LOS F, it would no longer experience an increase in delay in excess of 10 percent from No Action conditions.

The signal retimings and geometric changes described above would mitigate the impacts but would require approval from NYSDOT and the Village of Cold Spring.

Table III.L-8 presents a comparison of the 2033 No Action, 2033 With Action, and 2033 With Mitigation LOS conditions for the intersection of Main Street and NYS Route 9D.

Table III.L-8
2033 No Action, With Action, and Mitigation Conditions Analysis
Main Street and NYS Route 9D (Chestnut Street/Morris Avenue)

Approach	2033 No Action				2033 With Action				2033 With Mitigation			
	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS	Lane Group	v/c Ratio	Delay (sec)	LOS
Saturday Peak Hour												
Eastbound	LTR	0.76	32.5	C	LTR	0.80	36.2	D	L	0.37	31.2	C
									TR	0.68	29.7	C
Westbound	LTR	1.54	283.0	F	LTR	1.61	313.0	F	L	0.44	30.3	C
									TR	1.45	246.2	F
Northbound	LTR	1.44	235.1	F	LTR	1.52	270.0	F	LTR	1.32	183.2	F
Southbound	LTR	0.87	44.7	D	LTR	1.02	76.3	E	LTR	0.88	42.2	D
	Intersection		174.2	F	Intersection		199.8	F	Intersection		133.6	F
Sunday Peak Hour												
Eastbound	LTR	0.47	19.7	B	LTR	0.47	19.9	B	L	0.25	22.8	C
									TR	0.41	17.1	B
Westbound	LTR	0.91	51.5	D	LTR	0.92	53.6	D	L	0.32	22.9	C
									TR	0.83	42.9	D
Northbound	LTR	1.26	157.4	F	LTR	1.39	212.1	F	LTR	1.18	123.1	F
Southbound	LTR	0.74	29.9	C	LTR	0.89	43.8	D	LTR	0.76	26.7	C
	Intersection		81.6	F	Intersection		105.4	F	Intersection		64.2	E

Notes: v/c = volume to capacity, LOS = Level of Service, L = Left Turn, T = Through, R = Right Turn

FAIR STREET/WASHBURN LOT ENTRANCE AND NYS ROUTE 9D

The impacts at the northbound Fair Street approach of the intersection of Fair Street/Washburn Lot Entrance and NYS Route 9D could be mitigated with the redesign of this intersection to provide a roundabout with yield control at each of the approaches.

The improved operating conditions resulting from the mitigation measures outlined above are described below.

Saturday Peak Hour

- The northbound Fair Street approach would improve from operating with a delay of 53.3 seconds (LOS F) under 2033 With Action conditions to a delay of 6.5 seconds (LOS A).

The installation of the roundabout at this location would mitigate the impacts at this location and all approaches would improve to operate at LOS A for both the Saturday and Sunday peak hours. The installation of the roundabout at this location will require approval from NYSDOT.

Table III.L-9 presents a comparison of the 2033 No Action, 2033 With Action, and 2033 With Mitigation LOS conditions for the intersection of Fair Street/Washburn Lot Entrance and NYS Route 9D.

Table III.L-9
2033 No Action, With Action, and Mitigation Conditions Analysis
Fair Street/Washburn Lot Entrance and NYS Route 9D

	2033 No Action				2033 With Action				2033 With Mitigation			
Approach	**Lane Group**	**v/c Ratio**	**Delay (sec)**	**LOS**	**Lane Group**	**v/c Ratio**	**Delay (sec)**	**LOS**	**Lane Group**	**v/c Ratio**	**Delay (sec)**	**LOS**
Saturday Peak Hour												
Eastbound					LTR	0.01	8.7	A	LTR	0.43	7.2	A
Westbound	LT	0.01	8.8	A	LTR	0.01	9.0	A	LTR	0.54	9.4	A
Northbound	LR	0.58	35.1	E	LTR	0.72	53.3	F	LTR	0.20	6.5	A
									Intersection		8.1	A
Sunday Peak Hour												
Eastbound					LTR	0.01	8.4	A	LTR	0.41	6.7	A
Westbound	LT	0.02	8.4	A	LTR	0.02	8.6	A	LTR	0.43	7.4	A
Northbound	LR	0.38	20.7	C	LTR	0.47	26.7	D	LTR	0.16	5.7	A
									Intersection		6.9	A

Notes: v/c = volume to capacity, LOS = Level of Service, L = Left Turn, T = Through, R = Right Turn

MAIN STREET AND FAIR STREET

The intersection volumes at the Main Street and Fair Street intersection do not warrant a signal. A potential mitigation would be Fair Street as a one-way northbound street between Main Street and Northern Avenue on Saturdays, as is currently done on Sundays. This would require approvals from the Village of Cold Spring and Putnam County.

VISITOR DEMAND MANAGEMENT STRATEGIES

The traffic and transportation analysis focused on design day visitation level. However, there are management demand strategies that could be deployed that can address periods where the peak hourly visitation exceeds the design day and to potentially reduce the peak hour visitation demand during design days. Potential strategies include:

- Dynamic Parking Prices – To encourage off-peak visitation by those arriving by car, parking rates could vary according to the day of the week and the season. This approach is referred to as "dynamic pricing." Higher parking rates should be in effect for projected high-attendance days, with the lowest rates in effect during low-attendance periods.
- Parking Reservations – Though requiring parking reservations at the Fjord Trail would reduce traffic volumes and lower demand at the reserved parking lots, access to the trail areas would remain "porous," as visitors could still arrive via ride share/taxi, by train, or on foot or via at any of the trail's access points. However, a limited approach—designating select lots as reservations-only parking areas on peak days—would aid in traffic relief and would provide a service to those using the affected lots, as parking availability for those users would be guaranteed.
- Incentivize Carpooling – Offering creative incentives to encourage carpooling would encourage participation, provided the incentives are relevant to the Fjord Trail user experience. Examples can include discounts on parking, food truck purchases and/or rental bikes, tangible items such as sample-size bug spray or sunscreen, and priority parking location.

- Incentivize Transit Use – Incentives for using public transportation have proven effective for changing behaviors in some locations, such as by providing transportation subsidies, or by allowing pre-tax contributions to offset public transportation expenses.
- Time Entries – Develop a reservation system for visitors to select an entry time during peak visitation hours. Limiting the number of timed entries shift visitors to off-peak hours and/or days.
- Off-Peak Visitation Campaigns – A messaging campaign promoting weekday visitation to shift visitation away from peak weekend visitation times.
- Roadside Variable Message Signs – Placement of a portable variable message sign(s) south of Cold Spring is recommended to advise approaching Fjord Trail visitors to avoid the Main Street area in Cold Spring due to heavy congestion. ✷