

Date: September 24, 2024

To: HHFT and VDC

From: Georges Jacquemart, PE, PP, FAICP
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Subject: VDC Final Review of Traffic Impacts for the HHFT Project

Introduction and General Conclusion

The purpose of this memorandum is to conclude the review of the traffic impact analysis conducted by AKRF as part of their EIS work for the Fjord Trail, specifically the Draft Generic EIS that is currently being prepared. Pursuant to New York State laws the purpose of the DGEIS is to identify the impacts created by the construction of the Fjord Trail, the project that is the subject of the action. To identify the transportation impacts of the proposed action, the DGEIS will first analyze the transportation conditions that will exist in the future target year 2033 without the construction of the Fjord Trail and will then analyze the conditions with the proposed Fjord Trail. The difference between the two future scenarios – the incremental traffic – represents the impacts of the project. Depending on the significance and magnitude of the impacts, the EIS consultant will need to propose mitigation measures. These mitigation measures have to improve the transportation conditions back to future no-build conditions or better. The mitigation measures do not need to bring conditions back to existing conditions or mitigate issues that are not related to the Fjord Trail.

The DGEIS is not published yet, however, AKRF presented a Summary Memorandum dated August 8, 2024 to the VDC members with base traffic data, traffic projections, traffic level of service results and preliminary mitigation measures. Whereas traffic impacts are quantified according to generally accepted methodologies (as defined in the federal Highway Capacity Manual), the impacts on transit conditions (Metro North riders) and pedestrian conditions will be explained more qualitatively. Pedestrian conditions along Main Street east of the train tracks in Cold Spring are expected to improve as there will be a Fjord Trail connection to the Dockside Park in Cold Spring thus diverting visitors away from Main Street. The decision on whether to include the Shoreline trail segment connecting Dockside Park to Little Stony Point may be paused until a year after Phase 1 of the Fjord Trail is operational.

AKRF follows the general traffic impact methodologies recommended by federal and state transportation authorities. Note that levels of service (LOS) are the key metrics used for these analyses referring to the estimated delays that drivers encounter at the intersection approaches. They are graded from A to F with levels A, B and C generally considered as good conditions and LOS D generally considered as an acceptable threshold for peak hours. LOS E tends to be close to the capacity of an intersection or highway segment. And LOS F stands for bumper-to-bumper or gridlock traffic. The traffic impact analysis shows that today during high visitation days there are certain intersections operating at difficult conditions (levels of service E or F). These conditions will worsen in the future no-build scenario and again in the build scenario. Mitigation measures are proposed for those intersections that show changes from LOS D to E or F, or from LOS E to LOS F, or a significant worsening in the LOS F domain. AKRF identifies the following traffic mitigation measures for the intersections that will be affected to a significant degree:

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- At Main Street and Route 9D: add exclusive left-turn lanes along both Main Street approaches by taking out the parking lanes along the segments with the left-turn lanes. To increase the traffic capacity along Route 9D - the most critical approaches - some of the green time for the Main Street phase would be shifted to the Route 9D phase.
- At Route 9D and Fair Street (and the future location of a parking lot entrance) AKRF proposes to build a roundabout.
- At Main and Fair Street in Cold Spring AKRF proposes to make Fair Street one-way northbound only on Saturdays in a similar fashion as it operates on Sundays.

It is reasonable to expect that the above mitigation measures will provide the general reduction of projected delays indicated in Table 2 attached to this memo. The other intersections that were analyzed (Route 9D and South Avenue in Beacon; Beekman Street and Beacon Train Station Road and Beekman Street and Red Flynn Drive) are projected to operate at good or acceptable LOS conditions in the year 2033 (LOS A, B or C).

Review of Traffic Impact Projections

AKRF analyses the Fjord Trail impacts based on peak season traffic counts that were originally counted in 2016. To address local concerns in Cold Spring additional traffic counts were undertaken on a Saturday and Sunday in October of 2022 and 2023 between the hours of 9 am and 1 pm. The highest of these two counts were used as a basis to undertake the impact analysis. To estimate the future traffic conditions AKRF uses the 2023 traffic count data and increases them by 1% annually over 10 years to present the 2033 traffic projections without the Fjord Trail. This 1% annual increase was recommended by NYSDOT. AKRF also added the traffic increases generated by the new parking lot and shuttle bus at Dutchess Manor as part of the future no-build traffic. No traffic volumes were added for the upgrade of the Manor itself. Note that the parking capacity at the Dutchess Manor would be reduced. VDC members questioned whether the 1% background growth in traffic was appropriate for the next 10 years, given that the growth in HHPP visitation is projected to be greater than 3%. The Sunday peak-hour intersection traffic at Route 9D and Main Street increased on average by 1.7% per year between 2016 and 2023. If AKRF were to use a higher growth rate the future no-build conditions (levels of service and delays) would be correspondingly worse and the percent increase generated by the Fjord Trail would be slightly reduced.

For the traffic conditions with the Fjord Trail AKRF uses the design day projections developed by ORCA by mode of transportation as follows:

Incremental Design Day Travel Statistics					
Travel Mode	Visitors	Peak Hour Percentage	Peak Hour Visitors	Vehicle Occupancy	Peak Hour Vehicle Trips 1-way
Drive 75%	1275	14%	179	2.35	76
MNR 19%	325	47%	153		
Walk Bike 7%	110	14%	15		
Total	1710		347		

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Note that AKRF uses a peak-hour factor of 14% for all modes except for the Metro North mode where the peak hour arrivals are much more peaked (47% for the peak hour). Based on this calculation it is estimated that there will be an incremental 179 persons arriving by car during the peak hour. Assuming an average occupancy of 2.35 persons per car this translates into an additional 76 vehicles arriving during the peak hours on Saturday and on Sunday.

The AKRF impact study adds these additional peak-hour person and vehicle trips to the Metro North trains and roadway system assuming that they will overlap with the operating peak hours of these travel modes, thus reflecting a worst-case analysis. As some of these modes already operate at or above practical capacity it is likely that some of the trips may shift to other hours or days or may not be done at all.

Table 2 from the AKRF August 8 memo is attached to this memo to show the detailed impact data for the four scenarios being analyzed for a busy Saturday peak hour and Sunday peak hour. The following are the four study scenarios:

- Existing Conditions (2023)
- Future No-Action Conditions (2033)
- Future Conditions with Action (2033)
- 2033 Conditions with mitigation measures (for the intersections that are impacted)

As the 76 vehicle trips projected by ORCA for the high-season peak hour are one-way (presumably inbound) trips AKRF had to add the vehicle trips in the opposite (outbound) direction. Based on an hour-by-hour arrival pattern and testing two scenarios related to the average duration of the visitors' stay AKRF concluded that the best approach would be to add a total of 152 vehicle trips to the peak-hour traffic loads under the no-build scenario, 76 inbound and 76 outbound. These trips were first distributed according to the origins in the larger region as follows:

- 35% to/from Route 9D (North) in Beacon
- 20% to/from Main Street East (Route 301)
- 40% to/from Route 9D South
- 5% to/from Main Street West

These vehicle trips were then assigned within the Fjord Trail "bubble" to the three new or expanded parking lots according to the added parking capacities: Notch lot (75 spaces), Wade's Hill lot (90 spaces) and Washburn lot (48 additional spaces). Whereas this assignment within the parking bubble may not reflect how the incremental Fjord Trail users will behave (some will go to the Dutchess Manor lot), the assignment methodology within the bubble is acceptable in the sense that during the peak hours of the high-season days the parking lots will tend to be filled to their capacity whether that is with new Fjord Trail visitors or other HHPP visitors. In other words, if one of the new Fjord Trail visitor cars will drive to the Dutchess Manor lot, that car will displace a car from that lot to any of the newer or expanded parking lots.

HHFT plans to use a real-time parking app that will inform visitors of the parking lots that have excess parking capacity and to minimize parking overflow issues. This is similar to some large downtown areas that have real-time displays on the major access routes showing available parking supplies. This app will need to be combined with real-time occupancy or accumulation sensors of the parking lots being evaluated.

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Another way to evaluate the traffic impacts of the Fjord Trail is to calculate the percent increase in traffic loads at key intersections or roadway segments. The first table below shows the total traffic volumes driving through four key intersections and the second table shows the traffic volumes on some key roadway segments in the study area. In each case we show the volumes projected for 2033 without the Fjord Trail, the 2033 volumes with the Fjord Trail and the percent increase in volumes.

Key Intersections	Saturday			Sunday		
	No Action	Action	% Change	No Action	Action	% Change
Route 9D / Main St	1,773	1,871	5.5%	1,565	1,663	6.3%
Main St / Fair St	702	718	2.3%	553	565	2.2%
Route 9D / Fair St	1,006	1,113	10.6%	871	978	12.3%
Route 9D / South Ave	794	848	6.8%	772	826	7.0%

Key Road Segments	Saturday			Sunday		
	No Action	Action	% Change	No Action	Action	% Change
Route 9D north of Main St	992	1082	9.1%	893	987	10.5%
Main St between Fair St and Route 9D	596	612	2.7%	544	556	2.2%
Fair St south of Route 9D	190	198	4.2%	202	206	2.0%
Route 9D east of South Ave	715	769	7.6%	343	370	7.9%

Please note that traffic changes that are in the 3% range or less are generally not noticeable or measurable as they tend to be lower than the day-to-day variations in traffic loads at a particular location and time period.

For the four intersections being analyzed the Route 9D/Fair Street intersection will see the highest increase in traffic volumes, partially because of the new Washburn parking lot entrance created at that intersection.

The following summarizes the proposed mitigation measures:

- At Main Street and Route 9D: add exclusive left-turn lanes along both Main Street approaches and shift some of the green time from the Main Street phase to the Route 9D phase.
- At Route 9D and Fair Street (and the future location of a parking lot entrance) AKRF proposes a roundabout to reduce the delays for the approach from Fair Street.
- At Main and Fair Street in Cold Spring AKRF proposes to make Fair Street one-way northbound only on Saturdays in a similar fashion as it operates on Sundays.

If implemented, the above mitigation measures would achieve the improvements in traffic operation as shown in the Table 2 attached. The Village of Cold Spring will have a say in whether on-street parking on sections of Main Street should be eliminated to allow the addition of the left-turn lanes.

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VDC members raised the following concerns:

- Traffic congestion impacts created by vehicles arriving at one of the Fjord Trail parking lots and having to leave that lot due to full occupancy. Will that create additional congestion within the bubble of the parking lots? HHFT intends to mitigate these impacts through the use of the real time parking app that will inform the visitors of the available parking vacancies.
- The AKRF traffic impact study is based on a design day for the mid-range projections. What happens if the high-range projections that are 15% greater become real? HHFT plans to monitor future visitation and, if visitation will increase faster than projected for the mid-range, HHFT will implement additional visitation management measures that will redirect visitors to other visitation days or locations. These measures may include the requirement to purchase advance tickets to visit the Fjord Trail. As has been experienced at other park facilities, such as Muir Woods in California, advance reservation requirements have generally been successful, even though there may be a percentage of visitors that do not follow these rules.
- Whereas traffic impacts and mitigation measures focus on the incremental impacts of the Fjord Trail doesn't AKRF also need to review the behavior changes of all Fjord Trail visitors? Some of the existing visitors to the HHPP will change their travel pattern once the Fjord Trail is built. This may affect pedestrian volumes along Main Street in Cold Spring.
- Why was the Cold Spring station parking lot not considered as a travel generator for the Fjord Trail in the same manner as the other parking lots in the bubble? It would be easy to drive down Main Street and park in the station parking lot and then walk to Dockside Park where the Fjord Trail will start in the same manner as visitors getting of the Metro North Trains. HHFT will not identify the Cold Spring Station parking lot as a Fjord Trail lot, and the parking app will direct visitors to the other lots.

Attached are Table 2 from the AKRF Summary Memorandum with the detailed LOS and delay projections for future conditions and the question, comment and answer log of all comments and questions that have been raised by the VDC.

Table 2
Level of Service Analysis

Intersection	Saturday Peak Hour																Sunday Peak Hour																				
	2023 Existing				2033 No Action				2033 With Action				2033 With Mitigation				2023 Existing				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	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	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	0.50	14.6	B	LTR	0.50	14.6	B	LTR	0.36	12.2	B	LTR	0.40	12.8	B	LTR	0.43	13.3	B	LTR	0.43	13.3	B	LTR	0.43	13.3	B	
Westbound	LTR	0.44	13.4	B	LTR	0.50	14.2	B	LTR	0.53	14.9	B	LTR	0.53	14.9	B	LTR	0.42	13	B	LTR	0.46	13.6	B	LTR	0.50	14.3	B	LTR	0.50	14.3	B	LTR	0.50	14.3	B	
Northbound	LTR	0.11	8.6	A	LTR	0.13	8.7	A	LTR	0.13	8.5	A	LTR	0.13	8.5	A	LTR	0.09	9.9	A	LTR	0.10	9.8	A	LTR	0.10	9.5	A	LTR	0.10	9.5	A	LTR	0.10	9.5	A	
Southbound	LTR	0.08	12.1	B	LTR	0.08	12.3	B	LTR	0.09	12.4	B	LTR	0.09	12.4	B	LTR	0.11	11.5	B	LTR	0.12	11.7	B	LTR	0.13	11.8	B	LTR	0.13	11.8	B	LTR	0.13	11.8	B	
	Intersection	12.8	B		Intersection	13.6	B		Intersection	14.1	B		Intersection	14.1	B		Intersection	12.4	B		Intersection	12.9	B		Intersection	13.4	B		Intersection	13.4	B		Intersection	13.4	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	0.80	36.2	D	L	0.37	31.2	C	LTR	0.45	19.7	B	LTR	0.47	19.7	B	LTR	0.47	19.9	B	L	0.25	22.8	C					
													TR	0.68	29.7	C																		TR	0.41	17.1	B
Westbound	LTR	1.34	197.1	F	LTR	1.54	283.0	F	LTR	1.61	313.0	F	L	0.44	30.3	C	LTR	0.87	47.2	D	LTR	0.91	51.5	D	LTR	0.92	53.6	D	L	0.32	22.9	C					
													TR	1.45	246.2	F																		TR	0.83	42.9	D
Northbound	LTR	1.25	156.6	F	LTR	1.44	235.1	F	LTR	1.52	270.0	F	LTR	1.32	183.2	F	LTR	1.01	66.3	E	LTR	1.26	157.4	F	LTR	1.39	212.1	F	LTR	1.18	123.1	F					
Southbound	LTR	0.74	32.9	C	LTR	0.87	44.7	D	LTR	1.02	76.3	E	LTR	0.88	42.2	D	LTR	0.59	20.8	C	LTR	0.74	29.9	C	LTR	0.89	43.8	D	LTR	0.76	26.7	C					
	Intersection	119.8	F		Intersection	174.2	F		Intersection	199.8	F		Intersection	133.6	F		Intersection	43.9	D		Intersection	81.6	F		Intersection	105.4	F		Intersection	64.2	E						
Unsignalized Intersections																																					
Beekman Street and Beacon Train Station Road																																					
Eastbound	L	0.38	17	C	L	0.46	19.9	C	L	0.47	20.3	C	L	0.47	20.3	C	L	0.27	14.2	B	L	0.31	15.5	C	L	0.32	15.7	C	L	0.32	15.7	C					
	R	0.14	11.1	B	R	0.16	11.6	B	R	0.17	11.7	B	R	0.17	11.7	B	R	0.05	10	A	R	0.06	10.3	B	R	0.06	10.3	B	R	0.06	10.3	B					
Northbound	L	0.03	8.3	A	L	0.03	8.4	A	L	0.04	8.4	A	L	0.04	8.4	A	L	0.02	8	A	L	0.02	8.1	A	L	0.02	8.1	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	0.19	13.0	B	LR	0.19	13.0	B	LR	0.28	11.8	B	LR	0.33	12.6	B	LR	0.34	12.9	B	LR	0.34	12.9	B					
Northbound	LT	0.04	7.9	A	LT	0.04	8.0	A	LT	0.05	8.0	A	LT	0.05	8.0	A	LT	0.05	7.6	A	LT	0.05	7.6	A	LT	0.06	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	0.43	7.2	A									LTR	0.01	8.4	A	LTR	0.41	6.7	A					
Westbound	LT	0.01	8.6	A	LT	0.01	8.8	A	LTR	0.01	9.0	A	LTR	0.54	9.4	A	LT	0.01	8.2	A	LT	0.02	8.4	A	LTR	0.02	8.6	A	LTR	0.43	7.4	A					
Northbound	LR	0.45	25	D	LR	0.58	35.1	E	LTR	0.72	53.3	F	LTR	0.20	6.5	A	LR	0.3	17.3	C	LR	0.38	20.7	C	LTR	0.47	26.7	D	LTR	0.16	5.7	A					
Main Street and Fair Street																																					
Eastbound	LT	0.02	9.1	A	LT	0.02	9.4	A	LT	0.02	9.5	A	LT	0.02	9.5	A	LT	0.02	15.5	C	LT	0.03	17.6	C	LT	0.03	17.7	C	LT	0.03	17.7	C					
Southbound	LR	0.68	36.9	E	LR	0.86	61.9	F	LR	0.89	68.4	F	LR*				LR*				LR*				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. **Converting Fair Street to operate as a one-way northbound roadway on Saturdays could be implemented as a potential mitigation measure for the impact at this location for the Saturday Peak Hour.**

Shading indicates traffic impact

**Hudson Highlands Fjord Trail
Visitation Data Committee
Traffic Impacts Questions & Responses**

9/25/24

Item	Commenter	Date Recieved	Issuance Source	Review Comments / Questions	Response Form	Resolution/ Response Comment
1	BFJ Planning	8/14/24	Email	What were the weather conditions when the base traffic counts and the refresher counts were taken?	Email - 08/28/24	Counts were conducted in October to capture the peak foliage season during dry weather days.
2	BFJ Planning	8/14/24	Email	The 1% growth rate recommended by NYSDOT for the next 10 years seems low in relation to the growth in visitation we have seen and used for the Hudson Highlands State Park Preserve. It probably is a NYSDOT growth rate that is appropriate for average annual daily traffic (AADT) but not the Saturday and Sunday traffic during busy visitation months, the period that is of concern for this study. Wouldn't a greater growth rate – maybe 2% p.a. – be more appropriate? What are the implications of using a higher growth rate for the next 10 years?	Email - 08/28/24	The 1% growth was provided by NYSDOT to adjust the weekend counts that were collected in 2016 to, at the time, develop 2020 weekend traffic volumes, which reflect Pre-COVID growth. Growth following post-COVID might still be fluctuating thus difficult to obtain a reasonable growth rate post-COVID given the drop and recovery of traffic levels. Over 10 years a 2%/year may not be appropriate as it assumes all vehicular traffic will continue to grow at a greater rate than what NYSDOT projected during pre-Covid conditions.
3	BFJ Planning	8/14/24	Email	We all recognize that the projections made for the future base case (no action) and for the future incremental traffic with the Fjord Trail are subject to greater variability. What are the consequences (impacts and potential mitigation measures) if we use the high range projections (15% higher than the mid-range projections used by AKRF?	Email - 08/28/24	While traffic could fluctuate from the mid-design day projections (both lower and higher) than what was analyzed in the DGEIS, HHFT has a number of strategies to manage visitation that could be deployed in the future should visitation exceed what was projected. Some of these are listed in the Traffic and Transportation summary memo provided to the VDC. In addition, annual monitoring plans could be deployed to capture visitation compared to projections that could be used to determine if additional mitigations or visitation management strategies are needed.

4	BFJ Planning	8/14/24	Email	Can AKRF confirm that the DGEIS will also address the crowded pedestrian conditions along Main Street as impacted by the Fjord, as well as the passenger loads on the Metro North trains?	Email - 08/28/24	<p>Detailed pedestrian crosswalk and sidewalk level of service was not conducted and is typically not conducted for locations outside of New York City. In the DEIS there is a qualitative discussion on the pedestrian environment on Main Street. 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. This was demonstrated in the visual simulations developed by ORCA that presented pedestrian simulations of Main Street without and with Fjord Trail.</p> <p>The DEIS includes a discussion on the increase in ridership for MetroNorth as well as describing planned improvements including replacing the Breakneck Ridge train station platforms with longer ADAaccessible platform, which will decrease the time needed for hikers to exit the train and the construction of a shared-use trail connection between the MNR Breakneck Ridge train stop and the Breakneck Ridge trailhead area.</p>
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5	BFJ Planning	8/14/24	Email	BFJ Question to ORCA on arrival and departure patterns for Fjord Trail visitation	Email - 08/28/24	<p>The development of net incremental vehicular trips associated with the Fjord Trail involves identifying the modal split, applying a vehicular occupancy factor, and then distributing the vehicles throughout the day. To establish the incremental daily vehicles arriving on a design day, the percent of visitors arriving by vehicle, 75%, was applied to the arriving net incremental 1,710 design day visitors. A 2.35 person/vehicles occupancy rate was applied to develop a daily incremental increase in vehicles arriving to the area (See Table 1).</p> <p>The daily 546 incremental vehicles arriving to the study area were then distributed throughout the day based on a projected daily arrival pattern. Table 2 provides the hourly distribution percentages and associated number of incremental arriving vehicles.</p> <p>Table 2 represents the arriving vehicle trips but does not capture the departing vehicle trips. To develop the departing vehicular profile the estimated time spent for the Fjord Trail (2 to 2.5 hours) was applied to the arriving vehicles to develop the departing vehicles and the total incremental hourly vehicular volumes (arriving and departing).</p>
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						<p>Table 3 presents two scenarios: 1) visitors that would leave after 2 hours and 2) visitors that would leave after 2.5 hours. As shown, the highest peak hourly incremental vehicle, 145 vehicles, would occur assuming a 2.5 hour visitation time. Under the 2 hour visitation assumption the peak incremental vehicle traffic would be 144 vehicles.</p> <p>To provide a conservative analysis in the DGEIS, the highest incremental arriving hourly volumes (76 vehicles) was doubled, resulting in 152 incremental vehicle trips in a peak hour, above the peak hour incremental trips presented in Table 3 for both the 2-hour and 2.5 hour visitation scenario.</p> <p>In addition, while the peak incremental daily volumes could occur at various times during the day, the analysis added the 152 incremental peak hour vehicles to the traffic volumes based on traffic counts collected before 1:00 PM. As show in the daily vehicular volumes on Route 9D on a Saturday and Sunday (see figure below) the volumes between 12 PM – 1 PM are slightly higher than the hours during the remainder of the day. Therefore, the 152 incremental peak hour traffic volumes added to the traffic during the peak hour of the day represents a conservative analysis.</p>
6	Sarah Mencher	8/13/24	Email	I would suggest adding small maps to illustrate the intersections described in Table 2 and another one illustrating the crash study areas for Table 3	Email - 08/28/24	The map at the end of the memo provides the locations of the study intersections and overall study area.
7	Sarah Mencher	8/13/24	Email	The description of Table 3 highlights “eight crashes involving pedestrians on NYS Route 9D”, however the number in the Table represents ped/bike altercations (which I suspect are probably more bike crashes than pedestrian).	Email - 08/28/24	The text is meant to say pedestrian and bicyclists. If requested the crash data can be reviewed to identify the number of crashes involving pedestrians versus bicyclists.
8	Sarah Mencher	8/13/24	Email	To me it’s not clear what the map at the end of the memo is describing. It’s possible that the way I printed it (B&W, cut off at edges) prevents my full understanding of it.	Email - 08/28/24	The map at the end of memo provides the location of the 6 study intersections.
9	Chris Winward	8/13/24	Email	As with the ORCA visitation projection report, this appears to be a high-level summary of traffic studies only, without the background data so the VDC’s and BFJ’s review is limited to the data presented.	Email - 08/28/24	AKRF has provided additional info requested by BFJ.

10	Chris Winward	8/13/24	Email	The AKRF analysis only focuses on a peak hour impact, not impact throughout a full day.	Email - 08/28/24	It is standard practice in an EIS to analyze the peak hour of operations when traffic volumes peak.
11	Chris Winward	8/13/24	Email	2033 visitation does not include the full 4100 projected design day visitors to the FT project corridor, only the 1710 projected new visitors to the HHFT. The Fjord Trail is supposed to be created to resolve and mitigate current and projected visitation to the surrounding trail heads. Why aren't the total 4100 daily visitors that are expected by vehicle/MNR/bike counts included? Don't you need to take those #'s into account when planning parking and vehicular, MNR, bike and pedestrian traffic to the area? Can you add an additional table showing this please?	Email - 08/28/24	The EIS assesses the net incremental change in visitation, therefore the traffic study analyzes the additional 1,710 visitors. In response to BFJ questions, a further breakdown establishing the peak hour traffic volumes was provided. In the EIS, the parking assessment includes the total visitation and parking demand.
12	Chris Winward	8/13/24	Email	Footnote 1 – Can you confirm in what month you are planning a design day for, it doesn't say? How many design days are you taking an average of, from what month and year? Is your peak day definition the same as ORCA's – taking only the top 3 highest visitation days, excluding the 1st highest?	Email - 08/28/24	The analysis utilized data from October when background traffic would peak during foliage with the design day visitation estimates overlaid to develop the with Fjord traffic volumes.
13	Chris Winward	8/13/24	Email	P.2 – Traffic Analysis Scenario Existing conditions: The original traffic counts were taken in October of 2016, 8 years ago, pre-covid. Visitation to the HHSP has doubled since then. Is a 2 day refresh of the numbers sufficient to get an accurate picture of existing conditions? How many days were the 2016 counts based on? What dates were they taken? Were full day counts taken and used or just peak hour?	Email - 08/28/24	Typically intersection traffic volumes for an EIS are not collected on multiple days, but involves collecting peak hour traffic volumes and then comparing the volumes to Automatic Tube Counts to confirm the volumes represent typical conditions.
14	Chris Winward	8/13/24	Email	What were the dates in October '22 and Oct '23 that were used? The ORCA report says the peak hour is 10-11 AM, this is different than the AKRF report which states peak hours are 12-1 PM on Saturdays and 11:45-12:45 PM on Sundays.	Email - 08/28/24	October '22 counts were collected on Oct 8 and 9. October '23 counts were collected on the weekend of the 22nd and the 29th with the higher volumes utilized. The count data collected from 9AM to 1PM indicated the peak hours to be 12-1 PM on Saturdays and 11:45-12:45 PM on Sundays.

15	Chris Winward	8/13/24	Email	No Action Condition - The 2033 growth rate of Existing Condition traffic volumes is based on 1%. Why not use the 3.2% growth rate we've landed on?	Email - 08/28/24	The growth rate is based on feedback and direction from the New York State Department of Transportation.
16	Chris Winward	8/13/24	Email	Table 2- The Cold Spring area intersection Level of Service data show conditions worsening with the creation of the Fjord Trail, to LOS F levels, the worst or lowest operating conditions. Does the Fjord Trail project accomplish the goals of improving traffic congestion or worsen it?	Email - 08/28/24	The EIS assesses the incremental change in delay and LOS with the project and provided mitigation to at least return the intersection operations to the No Build condition. There are visitation demand strategies that have been developed that could better manage visitation levels and circulation that could further improve operations beyond what the EIS mitigated to.
17	Chris Winward	8/13/24	Email	Why missing data for CS intersections?	Email - 08/28/24	Please confirm intersections in question.
18	Jeff Robins	8/13/24	Email	Page 1: while the report states that the trail is expected to generate an additional 268,700 new visits, that is just the middle of what is acknowledged to be a very rough estimate based on limited data. It would be more accurate to stay that it has been estimated to generate In the range of 228,400-309,000 with the middle of the range being 268,700.	Email - 08/28/24	The middle of the design day range represents a reasonable projection of visitation. Since the EIS focuses on the peak hour of operations, the higher number within the design day range would only represent a 15% increase, which would translate to an additional 21 peak hour vehicles distributed throughout the network, which is not anticipated to change the traffic analysis findings.
19	Jeff Robins	8/13/24	Email	Use of design day/peak hours: -report should indicate number of days expected to be above and below a design day. -report should also indicate the expectation for a "design day" if the high and low ends of the visitation estimate are used.	Email - 08/28/24	The analysis focuses on the peak hour utilizing October counts for the No Build volumes overlaid with design day incremental volumes.
20	Jeff Robins	8/13/24	Email	please describe the methodology for translating a design day expected visitation number due only to the trail, to automobile numbers, including the hour used, why it was identified as peak (based on cars only or total visitation) and how the modal split for that hour was determined.	Email - 08/28/24	The development of peak hour incremental visitation volumes and modal splits was provided in the response to BFJ comments.
21	Jeff Robins	8/13/24	Email	Why does the traffic analysis summary only consider peak hours on design days, what do the other hours of a design day look like? Are there any counts of number of hours per day where there is expected material negative impact on LOS?	Email - 08/28/24	It is standard practice in an EIS to analyze the peak hour of operations when traffic volumes peak.

22	Jeff Robins	8/13/24	Email	ORCA projected a “design day” to be a typical weekend day in September. October weekend days are presumably expected to be above design. Why was a design day project of net new visitors added to October traffic counts? Wouldn’t an actual October day be higher than the results reported?	Email - 08/28/24	Since October provides a higher background traffic volumes that was used as a conservative count date to assess design day visitation.
23	Jeff Robins	8/13/24	Email	ORCA reported in its CS study that AKRF had traffic cameras in CS at various intersections, including Main/Fair and Main/9D, in May, July and September in 2023, but this report states camera reads in October only were used. Please explain the discrepancy.	Email - 08/28/24	The May, July and September counts were used by ORCA to develop visitation projections and understand Main Street pedestrian usage, while the traffic study for the EIS focused on October to analyze traffic operations.
24	Jeff Robins	8/13/24	Email	Please explain why data after 1:00 was not collected/used. On what basis did AKRF discount the possibility of a peak hour after 1:00. What do the traffic patterns look like after 1:00 on a weekend? Anecdotally, observed south bound traffic on 9D is heaviest in the afternoon.	Email - 08/28/24	As presented in the response to BFJ comments, the Automatic Tube Recorder data indicated a general peak in traffic between 11 and 4 with the peak occurring at noon within that time period.
25	Jeff Robins	8/13/24	Email	AKRF collected traffic data in 2016, 2022, and 2023, presumably 9D/Main was studied at all three times. What was the observed positive or negative growth rate over the period? How does it relate to the 1% annual growth rate assumed.	Email - 08/28/24	The peak hour intersection counts at Main St and Roue 9D for a Sunday in 2016, 2021, 2022, and 2023 are 1,146, 1,214, 1,190, and 1,287 respectively. The increase between 2016 and 2023 results in an approximate 2% per year growth, however, as we are estimate a 2033 time frame it is reasonable to assume the 1% per year growth would reflect traffic growth following the increase in growth post COVID
26	Jeff Robins	8/13/24	Email	When specifically the highest intersection volumes observed? What were those volumes?	Email - 08/28/24	The peak hours were identified to be 12-1 PM on Saturdays and 11:45-12:45 PM on Sundays.
27	Jeff Robins	8/13/24	Email	Please explain the basis for the 1% annual growth projection. What inputs were considered?	Email - 08/28/24	The growth rate is based on feedback and direction from the New York State Department of Transportation.
28	Jeff Robins	8/13/24	Email	The effect of Dutchess Manor’s 200 parking spaces is included in the “No Action” condition, which attributes an HHFT project to the baseline. This is incorrect and should be adjusted so that its impact is included in the build. We understand that HHFT intends to build that before 2033 but it is part of the build/DGEIS (so the extent not segmented).	Email - 08/28/24	Based on discussions with HHFT the EIS assumed the Dutchess Manor parking lot and shuttle would be part of the No Build scenario.

29	Jeff Robins	8/13/24	Email	HHFT: please provide a detailed description of current plans to add or alter parking to the 9D corridor, including Washburn/LSP, 9D North/South, Dutchess Manor, Wades Hill, Forest Trail and Notch (and any other cites planned or contemplated).	Email - 08/28/24	Parking lots and spaces counts were provided to the committee prior to the VDC meeting held on 8/20/24.
30	Jeff Robins	8/13/24	Email	Please explain how peak traffic was attributed to lots (page 2) and the significance of that. Please explain the choice to exclude Dutchess Manor and the implications if any.	Email - 08/28/24	The peak hour traffic was assigned proportionally to the new parking lots (Notch, Wades Hill, and expand Washburn lot) based on the parking lot capacities. Traffic associated with the Dutchess Manor Parking Lot was included in the No Build condition.
31	Jeff Robins	8/13/24	Email	Accident Analysis: What is the source database used for these numbers?	Email - 08/28/24	New York State Department of Transportation provides the crash data.
32	Jeff Robins	8/13/24	Email	The data shows the vast majority of accidents reported to be in the 9D corridor and minimal accidents on Main Street and Fair Street. What is the basis for the statement that building a trail from Dockside to LSP without traversing Main and/or Fair is a critical benefit to reduced accidents?	Email - 08/28/24	The trail would provide an alternative route to pedestrians walking along Route 9D
33	Jeff Robins	8/13/24	Email	What was the allocation of accidents on 9D between those north of the BNR tunnel and south of the tunnel?	Email - 08/28/24	The data was based on 9D along the corridor. Additional analysis would need to be conducted to separate north and south of tunnel. If desired this effort can be conducted but will need time to produce.

34	Henry Feldman	8/26/24	Email	<p>AKRF modeled traffic coming into what I like to think of as the “bubble” containing the various parking lots and trailheads. For example, cars going north through cold spring, south through beacon and so on.</p> <p>This morning, I was wondering if there is any modeling of the impact of dockside park as a starting point on traffic within Cold Spring? Cars parking within the village, cars going down Main Street to the train parking lot.</p> <p>ORCA modeled the impact of dockside park on the pedestrian traffic coming off the trains and cruise ship. I don't have a recollection of the impact on car traffic if the trail begins at dockside being discussed in our meetings.</p> <p>If this has been modeled, can you point me to the document? If it hasn't, I would like to understand why not. If it should have been modeled, can we get it modeled? And so on?</p>	Email - 08/28/24	<ul style="list-style-type: none"> • Dockside is a pedestrian entry point, therefore it was assumed new incremental trips would travel to the new lots • The new parking lots are intended to draw trailbound visitors arriving by car away from parking in Cold Spring since the parking system is coupled with a shuttle system, thus visitors driving would no longer need to travel down Main Street • The parking app is going to guide visitors to the new parking lots created along 9D • Dockside entrance is designed to bring visitors who arrive by train (or Seastreak) directly to the trails and serve local Village residents. It provides an alternative to visitors exiting the train and walking through neighborhood streets. • HHFT will not be identifying the MNR lot in Cold Spring as a parking options on any of its materials per the request of the Mayor of Cold Spring. • Visitation management case studies indicate that few people will deviate from the directions (perhaps 5%) and if traffic looks bad on Main Street on a busy day, this is likely to be less of an issue as people wanting to get to their planned activity don't want to sit in traffic unnecessarily.
35	Zack Smith	8/26/24	Email	<p>The group had mentioned we'll be using an app for determining parking levels at different places, in real-time, and that this should be considered as part of our load balancing strategy.</p> <p>Are you able to tell us which application will be used for this? I'd like to do my own research on their product features and reliability. This could inform any modeling by allowing us to get a sense of what our options for diverting parking actually are, and how we might need to think about our responses to any demand surges we see.</p>	Email - 08/28/24	A parking vendor or specific app has not been selected.

36	Jeff Robins	9/17/24	Email	Page 1: Just for context I note the reference to the trail beginning at Dockside and the recent letter from Chris Davis indicating at a minimum that there will be a pause for further data collection and further consideration of whether to build this leg of the trail.	Email - 09/25/24	Updates have been made to the memo.
37	Jeff Robins	9/17/24	Email	Page 2: There is a notation that AKRF added traffic caused by Dutchess Manor/new parking there to the baseline. When AKRF addressed this question with us orally, I was under the impression that it had not attributed any added visitation/traffic to that development as part of the baseline. But to the extent that is the case, I continue to believe it is improper as a substantive matter (putting aside what might be technical requirements of the DGEIS) as it is certainly part and parcel of the overall project. At a minimum, this lint should be explicitly noted as a point where at least some members disagreed with the approach.	Email - 09/25/24	The DGEIS assumed a 181 parking space parking with shuttle service would be provided as part of the No Build condition. However, Dutchess Manor as a visitation center, and any associated trips generated by a potential visitation center, were not included in the analysis. Therefore, only vehicle trips associated with a new parking lot with shuttle service were added to the transportation network.
38	Jeff Robins	9/17/24	Email	Page 3: One question about distribution of incremental new visits across cars/MNR for peak hour visitation on design days. I believe those splits are based on current observed ratios. However the trains are currently very full on popular weekend days which raises a capacity question. Was any effort made to address whether the trains can actually accommodate the increment assigned to them?	Email - 09/25/24	Trips made by train were developed and presented in the DEIS however a train capacity analysis is not included. The trip generation estimates will be provided to MetroNorth for assessment to determine if any additional analysis are required.
39	Jeff Robins	9/17/24	Email	Page 3: There is a note about HHFT plans to use app based notifications to try to impact behavior to mitigate traffic on busy days. We have heard very little about that app, how people would become aware of it, historical effectiveness of this approaches. Real-time displays on actual roads, and how that factors into AKRF's analysis of proposed mitigants. Would suggest adding that to the list of concerns raised on pp 4-5.	Email - 09/25/24	HHFT is in the process of selecting a parking/shuttle vendors who would specify the technology to be used.

Table 1
Incremental Daily Vehicles Arriving to Study Area

Incremental Daily Visitors Arriving ¹	1,710 incremental daily visitors arriving
Percent Arriving by Vehicle	75%
Vehicle Occupancy	2.35 people/vehicle
Incremental Daily Vehicles Arriving ²	546 incremental daily vehicles arriving
Notes:	
1. The incremental new number of visitors arriving to the study area due to the Fjord Trail	
2. Incremental Vehicles Daily Vehicles Arriving = Incremental Daily Visitors Arriving * Percent Arriving by Vehicle/ Vehicle Occupancy or 1,710*0.75/2.35	

Table 2
Incremental Arriving Daily Vehicles

Time	Percent Hourly Distribution	Incremental Arriving Vehicles ¹
8 AM - 9AM	3.2%	17
9AM -10AM	7.2%	39
10 AM- 11 AM	13.7%	76
11 AM - 12 PM	12.6%	69
12PM - 1 PM	12.5%	68
1 PM - 2 PM	12.7%	70
2 PM - 3 PM	13.9%	76
3 PM - 4 PM	11.6%	63
4 PM - 5 PM	9.4%	51
5 PM - 6 PM	3.2%	17
TOTAL	100%	546
Notes:		
1. Incremental Arriving Vehicles = 546 Incremental daily vehicles * Percent Hourly Distribution		

Table 3
Hourly Incremental Vehicular Volumes

Time	Incremental Arriving Vehicles ¹	Leaving in 2 Hours		Leaving in 2.5 Hours	
		Incremental Departing Vehicles	Total Incremental Vehicles	Incremental Departing Vehicles	Total Incremental Vehicles
8 AM - 9AM	17	0	17	0	17
9AM -10AM	39	0	39	0	39
10 AM- 11 AM	76	17	93	9	85
11 AM - 12 PM	69	39	108	28	97
12PM - 1 PM	68	76	144	58	126
1 PM - 2 PM	70	69	139	73	143
2 PM - 3 PM	76	68	144	69	145
3 PM - 4 PM	63	70	133	69	132
4 PM - 5 PM	51	76	127	73	124
5 PM - 6 PM	17	63	80	70	87

