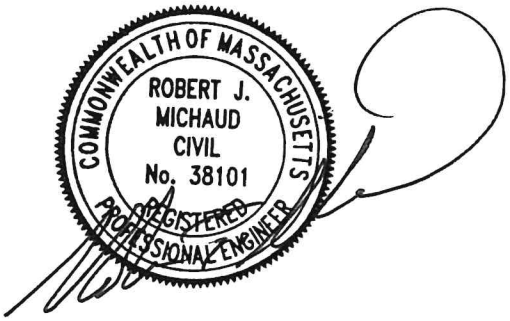
MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

PRINCIPALS
Robert J. Michaud, P.E.
Ronald D. Desrosiers, P.E., PTOE
Daniel J. Mills, P.E., PTOE

MEMORANDUM

DATE: September 14, 2018

TO: Eleanor W. Antonietti
Zoning Administrator/Land Use Specialist
Nantucket Planning Office
2 Fairgrounds Road
Nantucket, MA 02554



FROM: Robert J. Michaud, P.E. – Managing Principal
Daniel A. Dumais, P.E. – Senior Project Manager

RE: **Response to Comments**
Proposed Surfside Crossing Residential Development
Nantucket, Massachusetts

MDM Transportation Consultants, Inc. (MDM) has prepared the following responses to transportation-related comments as issued in a letter by Tetra Tech dated August 17, 2018. To facilitate review, specific comments that require additional responses are paraphrased with corresponding responses.

Project Study Area

Comment 1. *"The TIA evaluated the unsignalized, all-way stop-controlled intersection of Fairgrounds Road, Surfside Road and South Shore Road and the South Shore Road intersections with the proposed site driveways. The Massachusetts Department of Transportation's Transportation Impact Assessment Guidelines indicate that intersections experiencing peak hour traffic volume increases of 5 percent or more on any intersection approach should be analyzed. Tetra Tech recommends that the study area be expanded to include intersections where this threshold is met or exceeded."*

Response: The Surfside Crossing 40B development is not subject to MassDOT permitting requirements or guidelines; however, application of these guidelines would not result in an expanded study area for several reasons as follows:

(a) Project trip increases at more remote intersections (those located beyond Fairgrounds Road/Surfside Road/South Shore Road) represent a net change of between 0.5 and 3.1 percent relative to existing conditions as summarized in **Exhibit R1**; and (b) in all cases involving major intersections beyond the study area, the Town has commissioned prior or ongoing studies and/or mitigation independent of the Project as presented in **Exhibit R2**. Data for these locations has been obtained from the Town and its consultants to determine relative Project trip impacts which is included (with tabulation) in the **Attachments**. On this basis, these additional

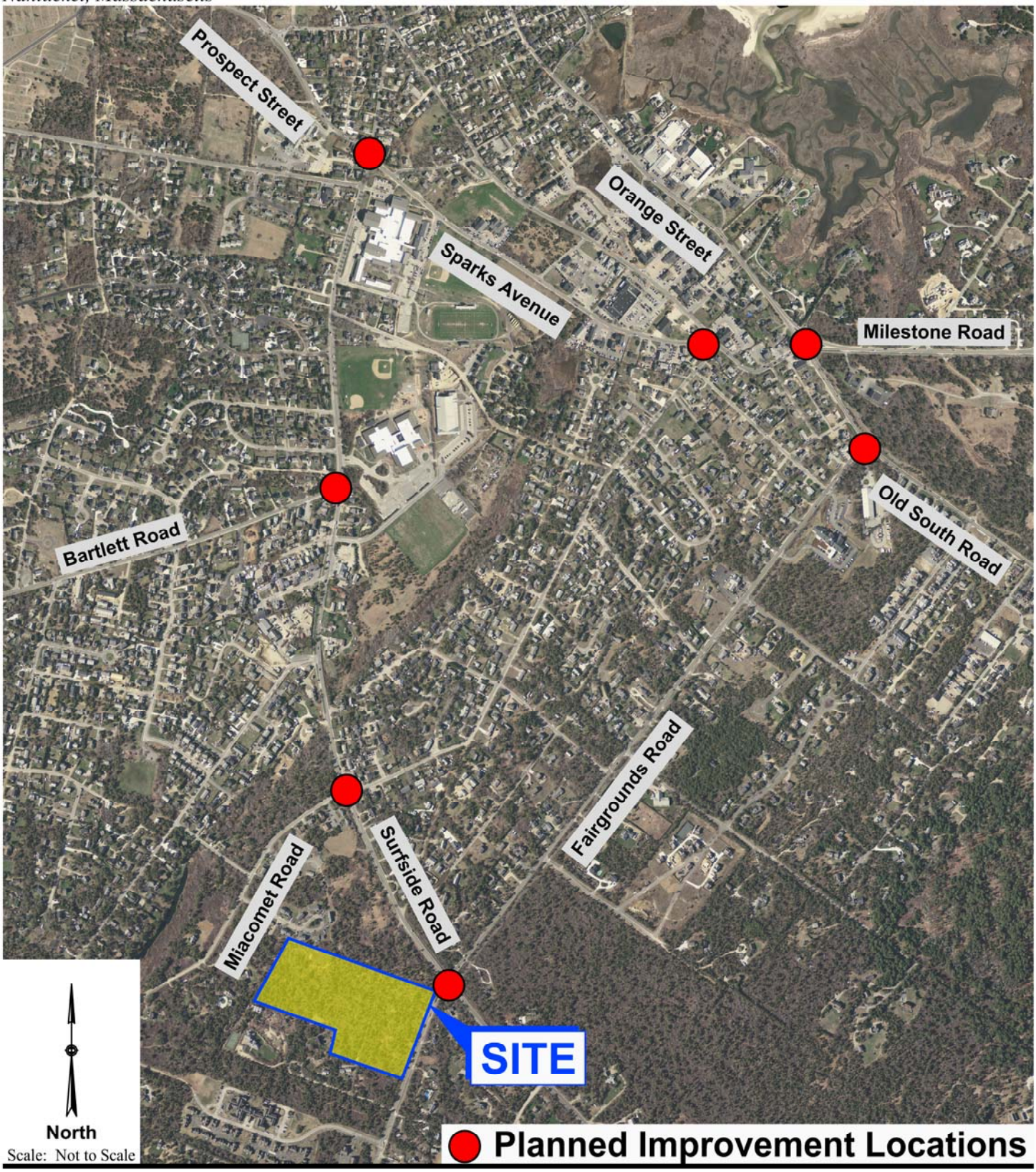


Exhibit R1

MDM TRANSPORTATION CONSULTANTS, INC.
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Planned Area Roadway Improvement Locations

Date: September 2018
Dwg No. 959 Peer Review.dwg

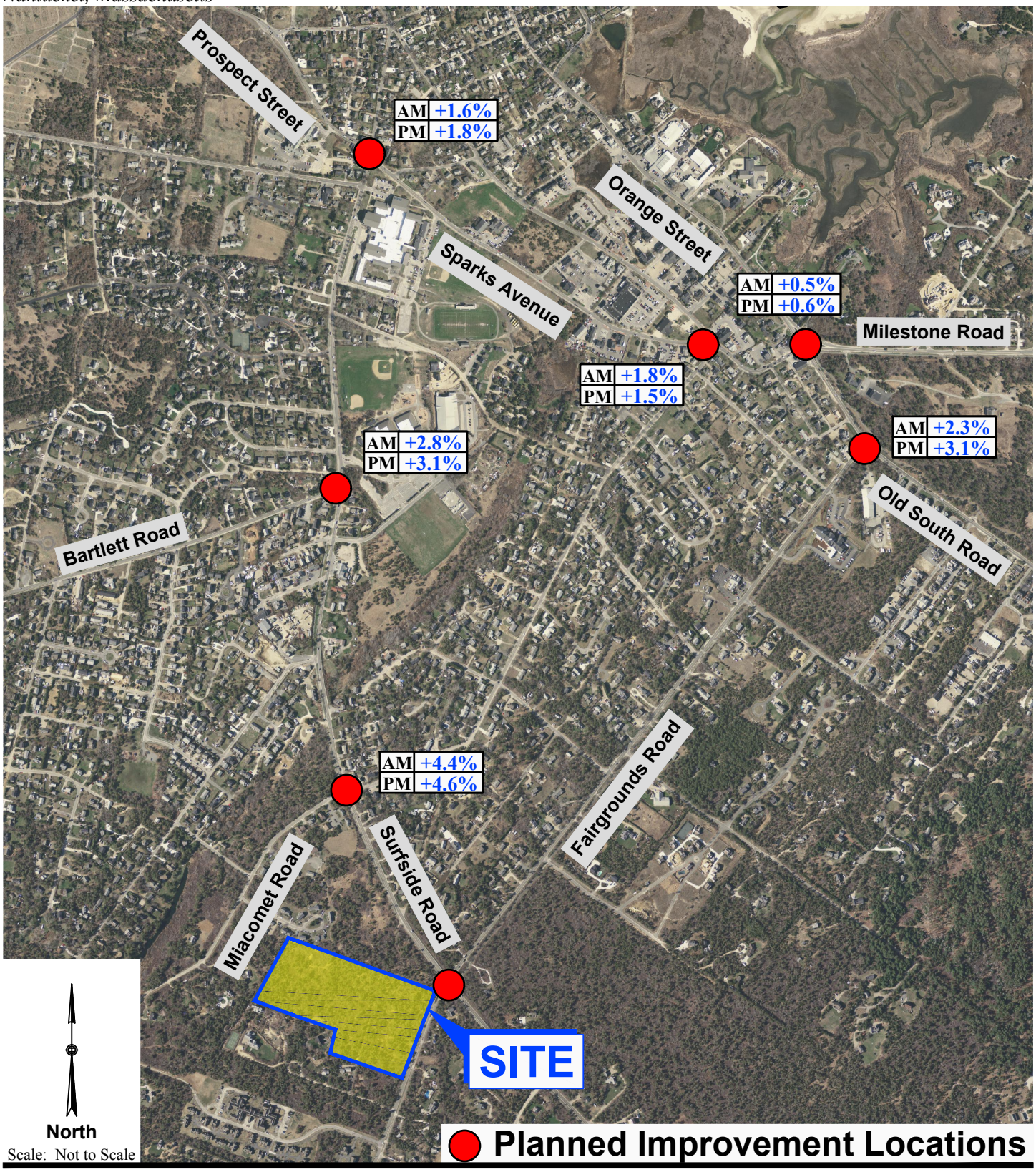

Exhibit R2

MDM TRANSPORTATION CONSULTANTS, INC.
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Total Intersection Volume Increase

Date: September 2018
Dwg No. 959 Peer Review.dwg

intersection locations would not sustain material impact from the Project and have already been the subject of study and mitigation by the Town; expanded analysis of these locations not yield any additional useful information. MDM specifically notes the MassDOT guidelines (which we emphasize do not apply in this case) which cite " Intersections or road segments meeting the five percent threshold may be exempt from study if…mitigation for the intersection or segment has been previously identified and no further analysis is warranted…".

Study Analysis Period

Comment 2: "The study includes an impact analysis of the weekday morning (7am – 9am) and weekday evening (4pm – 6pm) peak periods. The time periods chosen for detailed analysis are appropriate for a residential development."

Response: MDM concurs, no further response required.

Traffic Volumes

Comment 3: *"The turning movement counts (TMCs) were collected at the study intersection on Thursday, June 28, 2018. The as-counted (observed) peak hour traffic volumes were adjusted to represent peak season traffic volumes. Conducting a peak season analysis is reasonable given Nantucket's significant tourism during the Summer months."*

Response: MDM concurs, no further response required.

Comment 4: *"Daily traffic volumes were not collected as part of this traffic study."*

Response: MDM concurs, no further response required.

Comment 5. "*The 2018 Baseline Conditions traffic volumes are presented in Figure 3 of the TIA for the weekday morning and weekday evening peak hours. The traffic volumes are generally consistent with the TMC data sheets provided in the TIA."*

Response: MDM concurs, no further response required.

Comment 6. "*The peak season adjustment was based on monthly data for Cape Cod published by the Cape Cod Commission. Although use of local planning agency data is typically preferable for conducting seasonal adjustment analyses, it may not be representative of the unique seasonal characteristics experienced by Nantucket. Additionally, review of historical traffic volumes, including those included in the Applicant's February 16, 2018 Traffic Impact Assessment, indicates significantly higher volumes during the PM peak hour than the seasonally-adjusted 2018 Baseline volumes presented in the July 2018 TIA for Surfside Crossing. These historical studies indicate potentially poor operating conditions (Level of Service F) at the intersection of Fairgrounds Road and Surfside Road/South Shore Road. Therefore, the*

Applicant should explain the significant difference between the seasonally-adjusted 2018 Baseline volumes and the historical traffic volume data and update the seasonal adjustment factor as appropriate."

Response: The traffic volumes collected in January 2018 required a significant adjustment factor to represent peak season (estimated at 66%) conditions. Associated adjustments for several movements are unrealistically inflated when compared to actual measured peak season traffic conditions derived from actual counts conducted by MDM in June and August, 2018, as well as count data collected by the Town's consultants (BETA) in August 2018 as described below. We further note that originally collected (January 2018) data were likely skewed by a known social media (Facebook) campaign that occurred on the day of the counts; this campaign specifically invited residents to use local roadways more frequently than normal on the day of the counts.

Supplemental peak hour turning movement counts conducted on June 28, 2018 (the Thursday before the 4th of July week) and on August 16, 2018 to reflect actual peak season travel conditions; these counts were not subject to any known media campaign as the counts were not advertised and in the opinion of MDM are representative to normal traffic activity during summer season. These data are augmented by count data collected by BETA on August 2, 2016 which are compared to adjusted counts used in the TIAS as described below.

To further validate the June 2018 data used in the traffic analysis, a comparison of available peak season data as collected by MDM and the Town's consultant BETA Group, Inc. at the primary study intersection is provided below in **Table R1**. The BETA data comprised turning movement counts at the intersection on August 2, 2018; Town Planning staff have confirmed that this date, as well as the June 28, 2018, represent the highest seasonal peak population for the island over the last year based on their records. The total intersection traffic volumes for the supplemental June and August counts are shown in **Table R1**.

TABLE R1
TOTAL INTERSECTION VOLUME COMPARISON
SURFSIDE ROAD AT FAIRGROUNDS ROAD AND SOUTHSHORE ROAD

Used In Report	Supplemental Peak Season Counts		
June 28, 2018[1]	**August 2, 2018[2]**	**August 16, 2018[3]**	**Average[3]**
Weekday Morning Peak Hour			
1,002	1,026	680	853
Weekday Evening Peak Hour			
942	1,252	813	1,032

[1]As included in the July 12, 2018 report; seasonally adjusted by 17% to represent peak season conditions.
[2]Peak season count conducted by BETA Group, Inc.
[3]Peak season count conducted by MDM.
[4]Average of June and two August counts.

As summarized in **Table R1**, adjusted traffic volumes collected on June 28, 2018 and used in the Amended (July 12, 2018) TIAS are consistent with or (in the case of weekday AM conditions) notably higher than the average peak season count data collected in August 2018. The seasonally adjusted counts conducted in June 2018 provide a reasonable and valid representation of average peak season conditions.

In summary, the traffic counts used in the July 12, 2018 TIAS provide a reasonable and valid representation of average peak season conditions. Furthermore, historical peak season counts at Fairgrounds Road/South Shore Road from a recent traffic report for Surfside Commons (August 2015 counts) and grown volumes for the Mid-Island Study also indicate that the June 28th counts represent average peak season conditions at the study location. Detailed traffic count data are included in the **Attachments** for reference.

To provide a further sensitivity analysis, MDM has adjusted the weekday PM peak hour traffic volumes to reflect the average peak season volumes presented in **Table R1.** These marginally higher volume conditions, which represent an additional 10 percent upward adjustment of the PM volumes used in the July 2018 TIAS, are presented in the **Attachments** along with revised capacity analysis. This sensitivity analysis results in LOS D or better operations, consistent with operations and findings of the July 2018 TIAS. The findings and conclusions of the July 2018 TIAS therefore remain valid.

Observed Travel Speeds

Comment 7. "*Speed data was collected using an automatic traffic recorder (ATR) along South Shore Road near the proposed site driveway from 12pm on Wednesday, January 24, 2018 to 8pm on Thursday, January 25, 2018. The observed average and 85th percentile travel speeds for both the northbound and southbound travel directions were 33 miles per hour (mph) and 38 mph, respectively. The speed data collection program is appropriate.*"

Response: MDM notes that the speed and volume data was collected between 12:00 pm on January 24, 2018 and 9:00 am on January 25, 2018; no further response required.

Comment 8. "*The TIA states that the observed travel speeds are highly consistent with the 35 mph speed limit. However, there is a 30 mph posted speed limit sign located along the South Shore Road southbound travel direction adjacent to the northerly edge of the site. The Applicant should confirm the regulatory speed limit in the vicinity of the site and determine if any traffic calming measures are warranted.*"

Response: MDM concurs; the posted speed limit is 30 mph. There is no traffic calming measure warranted due to the project impact.

Intersection Crash History

Comment 9. "*The crash analysis has generally been prepared in accordance with industry standards and includes an evaluation of MassDOT crash data for the study intersection for the three-year period between 2013 and 2015. Tetra Tech generally agrees with this methodology.*"

Response: MDM concurs, no further response required.

Comment 10. "T*wo crashes were reported at the Fairgrounds Road/Surfside Road/South Shore Road intersection resulting in a crash rate of 0.17 crashes per million entering vehicles which is well below the statewide and District-wide averages for unsignalized intersections. The crash rate calculation was based on peak season average daily traffic volumes (ADT). Although the average annual daily traffic volumes (AADT) are typically used, the resulting crash rate using the AADT (0.23) would still be well below the statewide and District-wide averages.*"

Response: MDM concurs, no further response required.

Public Transportation Facilities

Comment 11. "*The TIA identifies two bus routes in the vicinity of the project site operated by the Nantucket Regional Transit Authority (NRTA) – i) the Surfside Beach Route and ii) the Miacomet Loop. The TIA states that these routes operate seasonally. Tetra Tech notes that the NRTA now offers the Miacomet bus route year-round.*"

Response: There was no credit taken for public transportation use; however, the year-round bus service will further enhance public transportation availability in the area for year-round residents. The Applicant also proposes to extend the sidewalk system along South Shore Road to connect the Site to Surfside where existing bike paths are available and bus service is available.

Comment 12. "*The nearest stop for both bus routes is along Fairgrounds Road at its intersection with Surfside Road and South Shore Road. Although the development will be in close proximity to existing local bus service, Tetra Tech agrees with the TIA that no credit was taken for transit services in the trip generation estimates.*"

Response: MDM concurs, no further response required.

Pedestrian and Bicycle Accommodations

Comment 13. "*Tetra Tech generally agrees with the existing pedestrian and bicycle accommodations described in the TIA, specifically that three bike paths are provided near the site: i) South Shore Bike Path, ii) Fairgrounds Bike Path, and iii) Surfside Bike Path.*"

Response: MDM concurs, no further response required. The Applicant also proposes to extend the sidewalk system along South Shore Road to connect the Site to Surfside where existing bike paths are available and bus service is available.

Comment 14. "*The proposed site plan presented in Figure 2 of the traffic study and in the permitting plan set indicate that the Proponent proposes to construct sidewalk along the site frontage from the proposed southerly site driveway to the northerly site driveway. The Applicant should ensure that the sidewalks will be constructed in accordance with Town guidelines.*"

Response: The proposed sidewalk system along the Site frontage will be constructed in accordance with Town guidelines.

Comment 15. "*The permitting plan set and the traffic study are inconsistent in the number of proposed crosswalks proposed across South Shore Road. Some plans show two crosswalks – one each at the southerly and northerly site driveways. However, the AutoTurn graphics provided in the TIA appendix indicate a third proposed crosswalk across South Shore Road at the center site driveway. The Applicant should confirm the number and locations of the proposed crosswalks.*"

Response: There are two proposed crosswalks as shown in the submitted site plan set, one each at the northerly and southerly driveways. The final number of crosswalks and locations will be reviewed in consultation with the Town and constructed in accordance with Town guidelines.

Comment 16. "*Tetra Tech recommends that the number of pedestrian crosswalks across South Shore Road be minimized to prevent impacts to mainline traffic operations. The Applicant should also consider the existing equestrian crossing located just south of the site. All proposed crosswalks should be designed in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) and American Association of State Highway and Transportation Officials (AASHTO) guidelines. The Applicant should also consider the feasibility of constructing sidewalk along the westerly side of South Shore Road connecting the proposed sidewalk along the site frontage to the pedestrian accommodations at the Fairgrounds Road/Surfside Road/South Shore Road intersection to help reduce the number of crossings across South Shore Road.*"

Response: The Applicant will extend the sidewalk along the western side of South Shore Road between the southern driveway and Surfside Road. The sidewalk will be constructed in accordance with MUTCD, AASHTO, and Town guidelines. In an effort to reduce the number of crossings across South Shore Road, the final location and number of crossings will be reviewed with the Town.

Comment 17. "*Tetra Tech recommends that the driveways be constructed so that they are flush with adjacent sidewalks or, when this cannot be achieved, that wheelchair ramps compliant with the American Disabilities Act (ADA) be implemented.*"

Response: MDM concurs that the crosswalks and wheelchair ramps at the driveways and internal to the Site should be ADA compliant, no further response required.

Site Line Evaluation

Comment 18. "*Both stopping sight distances (SSD) and intersection sight distances (ISD) were evaluated for each of the proposed site driveways on South Shore Road. The available SSD was generally compared to recommended sight distances published by AASHTO for the regulatory speed limit of 35 mph and observed average and 85th percentile travel speeds. The southbound SSD at the northerly site driveway was based on a turning speed of 15 mph since the driveway is located near the all-way stop controlled intersection of Fairgrounds Road/South Shore Road/Surfside Road. The recommended SSD calculations were generally prepared in accordance with AASHTO standards.*"

Response: MDM concurs, no further response required.

Comment 19. "*The available ISD at the proposed site driveways were compared to the minimum recommended ISD for the observed 85th percentile travel speeds and to the ideal ISD which was based on the regulatory speed limit. The ideal ISD calculations should be updated to reflect the 85th percentile travel speeds.*"

Response: The ISD summary (**Table R2**) has been updated to include an ideal ISD for the 85th percentile travel speeds. As summarized in **Table R2**, with clearing and grading associated with the construction of the proposed site driveways, the available sight lines looking north and south from the site driveways onto South Shore Road exceed the sight line requirements from AASHTO for the regulatory and 85th percentile travel speeds. MDM recommends that any new plantings (shrubs, bushes) or physical landscape features to be located within the sight lines should also be maintained at a height of 2 feet or less above the adjacent roadway grade to ensure unobstructed lines of sight.

TABLE R2
INTERSECTION SIGHT DISTANCE SUMMARY
SITE DRIVEWAY DEPARTURES TO SOUTH SHORE ROAD

Approach/ Travel Direction	Available ISD	AASHTO Minimum[1]	AASHTO Ideal[1]	
		85th Percentile Travel Speed[4]	Regulatory Speed Limit[2]	85th Percentile Travel Speed[4]
Northern Site Driveway				
Looking North	280± Feet	--	145 Feet[5]	--
Looking South	>500 Feet	280 Feet	335 Feet	--
Central Site Driveway				
Looking North	450± Feet	280 Feet	290 Feet	365 Feet
Looking South	>500 Feet	280 Feet	335 Feet	420 Feet
Southern Site Driveway				
Looking North	>500 Feet	280 Feet	290 Feet	365 Feet
Looking South	>500 Feet	280 Feet	335 Feet	420 Feet

[1]Recommended sight distance based on AASHTO, A Policy on Geometric Design of Highways and Streets. Based on driver height of eye of 3.5 feet to object height of 2.0 feet. Minimum value as noted represents SSD per AASHTO guidance.
[2] Regulatory speed limit: 30 mph
[3]Average Speed: 33 mph NB & SB.
[4]85th Percentile travel speed: 38 mph NB & SB.
[5]Based on 15 mile per hour travel speed for vehicles turning from 4-way STOP at Surfside Road/Fairgrounds Road.

As a point of reference, the ideal ISD criteria are related to a factor of convenience and not safety; accordingly, the originally submitted TIAS only reported the *minimum* ISD criteria as applied for 85th percentile travel speeds to ensure minimum recommended safety criteria are met. The *ideal* ISD (a convenience-based criteria) are also met for the posted/regulatory speed limits. According to AASHTO guidance, the ISD allows vehicles to enter the main street traffic flow without requiring the mainline traffic to slow to less than 70% of their speed. The

proposed driveway will exceed the ideal ISD for the posted (regulatory) speed limit as well as the *minimum* ISD (a safety-based criteria) for the 85th percentile speeds.

Comment 20. "*The TIA recommends that any plantings or physical landscaping features proposed should be limited to 2 feet in height within the sight triangles of the ways serving the site. Tetra Tech generally agrees with this recommendation.*"

Response: MDM concurs, no further response required.

Comment 21. "*Tetra Tech recommends that the Applicant provide sight triangles for all three driveways to ensure that adequate sight distance can be provided and that all proposed vegetation, physical landscape features and signage within the sight triangles be kept to 2 feet in height. If minimum AASHTO SSD and ISD criteria are not satisfied, mitigation should be proposed, where possible, to enhance sight lines. The Applicant may also consider alternative access locations where adequate sight lines can be achieved.*"

Response: The current locations of the proposed driveways will result in sight lines that exceed AASHTO criteria for both SSD and ISD. Bracken Engineering will add the sight line triangles to the next design plan set for the project.

Study Time Horizon

Comment 22. "*The TIA utilized a five-year planning horizon (2023 No-Build and 2023 Build conditions). Although MassDOT Traffic Impact Assessment Guidelines suggest a 7-year study horizon, the five-year planning horizon used in the TIA is consistent with industry-standard guidelines published by the Institute of Transportation Engineers in Transportation Planning Handbook, 4th Edition. Since the study area intersection is under local (Town) jurisdiction, a five-year planning horizon is appropriate.*"

Response: MDM concurs, no further response required.

Background Growth

Comment 23. "*A one percent per year growth rate was applied to the existing traffic volumes for five years to estimate peak hour traffic volumes in the planning year 2023 based on MassDOT continuous count station data and historical traffic count data. The supporting background growth data and calculations were not provided in the Attachments. Tetra Tech recommends that the Applicant provide this information to the Town for review.*"

Response: Based on consultation with the Town of Nantucket a one-percent per year growth rate is adequate and consistent with recent traffic studies. The one-percent growth rate was taken from recent traffic studies in the area and not from calculated rates.

Comment 24. "*Based on a review of Massachusetts Environmental Policy Act (MEPA) files, the TIA states that there are no planned development projects in the area that would impact the study area*

intersections. Since MEPA only reviews projects that meet certain criteria, Tetra Tech recommends that the Applicant confirm with the Nantucket Planning staff that no development projects are planned for the area that would impact traffic conditions in the study area."

Response: Based on consultation with the Town of Nantucket Planning Staff there is one pending or approved project in the immediate area that may increase traffic volumes through the study area. The housing development located at 6 Fairgrounds Road is expected to impact the study area. However, upon review the traffic generated by the 6 Fairgrounds Road development is expected to be nominal at the study intersection and has been successfully accounted for in the general background growth rate of 1% per year used for the project.

Roadway Improvement Projects

Comment 25. "*The TIA does not provide information on planned area roadway improvement projects. The Applicant should confirm with the Town that no roadway improvements in the study area are planned by the Town or others that would impact traffic conditions within the study area."*

Response: Based on consultation with the Town of Nantucket Planning Staff, the major intersections along Surfside Road including Miacomet Road, Bartlett Road, and Sparks Avenue are being evaluated for roundabouts by the Town. Likewise, the intersection of Fairgrounds Road at Old South Road is being re-designed to install a roundabout. The work is currently underway by the Town's traffic consultants VHB and BETA Group, Inc. Refer to **Exhibit R1** for specific locations which are being evaluated by the Town for improvements.

No-Build Traffic Volumes

Comment 26. "*The 2023 No-Build traffic volumes presented in Figures 4 and 5 of the TIA include the 2018 Baseline traffic volumes grown by 1 percent per year. As previously recommended in this peer review letter, traffic associated with any development projects identified through consultation with Town Planning staff should be included in the development of the future year traffic volumes."*

Response: Based on consultation with the Town of Nantucket Planning Staff no adjustment to the growth rate is required; a one-percent per year growth rate is adequate and consistent with recent traffic studies.

Trip Generation

Comment 27. "*Traffic generated by the project was based on average trip rates published in ITE's Trip Generation Manual, 10th Edition for Land Use 210 – Single-Family Detached Housing (applied to 60 homes) and Land Use 220 – Multifamily Housing Low-Rise (applied to 96 units). Tetra Tech agrees with this methodology. Any future changes to the site's build program (land uses or sizes) should be evaluated to*

determine if supplemental traffic review is warranted. The TIA did not take credit in the trip generation estimates for use of the nearby local bus service. Tetra Tech agrees that this represents a conservative analysis."

Response: MDM concurs, no further response required.

Comment 28. "*The site program evaluated in the TIA is expected to generate approximately 1,272 daily trips on a weekday (88 vph during the morning peak hour and 113 vph during the evening peak hour)."*

Response: MDM concurs, no further response required.

Trip Distribution

Comment 29. "*The TIA developed the regional trip distribution patterns for the proposed residential uses on-site based on existing travel patterns at the Fairgrounds Road/Surfside Road/South Shore Road intersection. Tetra Tech generally agrees with this methodology since the majority of land uses along South Shore Road are also residential uses and that there are no major public roadways south of the site that connect to other regional roadways in the area."*

Response: MDM concurs, no further response required.

Comment 30. "*The traffic volumes used to develop the trip distribution patterns were taken from the initial traffic counts collected in January 2018. Tetra Tech recommends that the trip distribution patterns be revised to reflect the updated traffic counts collected in June 2018 which appear to have more traffic generated to/from the west along Surfside Road resulting in a greater project impact to the critical northbound left-turn movement from South Shore Road."*

Response: The trip distribution patterns have been reviewed and revised to reflect the traffic counts collected in June 2018 as part of the July 2018 TIA. The revised distribution calculations are provided in the **Attachments**, which indicate a slight shift of 10% to/from Surfside Road away from Fairgrounds Road. MDM notes that the exiting left turns are occurring at a four-way "STOP" control intersection, therefore, the impact remains relatively unchanged compared to a through movement.

Future Traffic Volumes – Build Condition

Comment 31. "*The 2023 Build traffic volumes presented in Figures 8 and 9 of the TIA include the 2023 No-Build traffic volumes plus the project trips. Tetra Tech agrees with this methodology."*

Response: MDM concurs, no further response required.

Comment 32. "*The South Shore Road southbound movement traffic volumes at the South Shore Road intersections with the proposed middle and southerly site driveways have been incorrectly shown Figure 9. However, the capacity analyses utilized the correct volumes.*"

Response: Revised trip distribution, trip tracings and Build Figures are provided in the **Attachments**.

Operations Analysis

Comment 33. "*The TIA utilized HCM 2010 methodology using Synchro software to conduct the capacity analyses which is consistent with industry standard methodology.*"

Response: MDM concurs, no further response required.

Comment 34. "*As previously mentioned, a review of historical traffic volumes, including those included in the Applicant's February 16, 2018 Traffic Impact Assessment, indicates significantly higher volumes at the Fairgrounds Road/Surfside Road/South Shore Road intersection during the PM peak hour than the seasonally adjusted 2018 Baseline volumes presented in the updated July 2018 TIA for Surfside Crossing. These studies indicate potentially poor operating conditions (LOS F) at this intersection. The Applicant should explain the significant difference in volumes and operations between the seasonally-adjusted 2018 Baseline volumes and the historical traffic volume data and update the capacity analyses, as appropriate. The Proponent should also identify measures to provide acceptable operations (LOS D or better).*"

Response: See response to comment #6 which indicates that the 2018 Baseline volumes presented in the updated July 2018 TIA remain valid. The capacity analyses indicate that the Surfside Road intersection with Fairgrounds Road and South Shore Road will operate with moderate delays at level of service (LOS) D or better during an average day during the peak season. The incremental traffic associated with the proposed development is not expected to materially impact operating conditions at the intersection compared to No-Build conditions. Therefore, there is no mitigation required to improve operations to LOS D or better.

Comment 35. "*The peak hour factors used in the capacity analyses were based on the existing (observed) overall intersection peak hour factor for the Fairgrounds Road/Surfside Road/South Shore Road intersection. MassDOT standards indicate the use of peak hour factors by approach.*"

Response: The use of peak hour factors by intersection is appropriate and has generally been an accepted methodology by MassDOT for planning studies that is in conformance with the

Highway Capacity Manual (HCM) procedures. As outlined in the HCM 2010 Edition,

> "The use of a single peak hour factor for the entire intersection is intended to avoid the likelihood of creating demand scenarios with conflicting volumes that are disproportionate to the actual volumes during the 15-min analysis period. If peak hour factors for each individual approach or movement are used, they are likely to generate demand volumes from one 15-min period that are in apparent conflict with demand volumes from another 15-min period, whereas in reality these peak volumes do not occur at the same time."

No further analysis is required and the conclusions and recommendations of the July 2018 TIA remain valid.

Comment 36. "*The peak hour factor used for the proposed intersections on South Shore Road was 0.95. HCM 2010 guidance indicates using a default value of 0.92 when peak hour factors are unknown. The analyses should be revised to reflect a peak hour factor of 0.92 at these locations."*

Response: The revised capacity analysis utilizing a default peak hour factor of 0.92 at the proposed site driveway intersections with South Shore Road are presented in **Table R3** and are described below, with detailed analysis results presented in the **Attachments**.

TABLE R3
INTERSECTION CAPACITY ANALYSIS RESULTS – 2023 BUILD CONDITION
SOUTH SHORE ROAD AT SITE DRIVEWAYS (PEAK SEASON)

		Weekday Morning Peak Hour			Weekday Evening Peak Hour		
Period	Approach	v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS
South Shore Road at North Site Driveway	Eastbound	0.05	11	B	0.04	11	B
	Northbound	0.00	<5	A	0.00	<5	A
	Southbound	0.00	<5	A	0.00	<5	A
South Shore Road at Middle Site Driveway	Eastbound	0.04	10	A	0.03	11	B
	Northbound	0.00	<5	A	0.00	<5	A
	Southbound	0.00	<5	A	0.00	<5	A
South Shore Road at South Site Driveway	Eastbound	0.01	10	A	0.01	10	A
	Northbound	0.00	<5	A	0.00	<5	A
	Southbound	0.00	<5	A	0.00	<5	A

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4]n/a = not applicable

As summarized in **Table R3**, under future Build conditions, capacity analyses indicate that the

unsignalized Site Driveway approaches to South Shore Road will operate at LOS B or better during the weekday morning and weekday evening peak hours.

Comment 37. "*The heavy vehicle percentages do not appear to be taken from the latest traffic counts. The analyses should be revised to reflect the correct heavy vehicle percentages associated with the traffic counts collected in June 2018.*"

Response: The revised capacity analysis utilizing the heavy vehicles percentages and pedestrian and bicycle activity associated with the count data collected in June 2018 at the Surfside Road intersection with South Shore Road and Fairgrounds Road are presented in **Table R4** and are described below, with detailed analysis results presented in the **Attachments**.

TABLE R4
INTERSECTION CAPACITY ANALYSIS RESULTS
SURFSIDE ROAD AT FAIRGROUNDS ROAD AND SOUTH SHORE ROAD

		2018 Baseline			2023 No-Build			2023 Build		
Period	Approach	v/c[1]	Delay[2]	LOS[3]	v/c	Delay	LOS	v/c	Delay	LOS
Weekday Morning Peak Hour	Eastbound	0.65	19	C	0.72	24	C	0.78	28	D
	Westbound	0.29	12	B	0.33	13	B	0.35	14	B
	Northbound	0.27	12	B	0.35	14	B	0.44	16	C
	Southbound	0.54	15	C	0.60	18	C	0.64	20	C
Weekday Evening Peak Hour	Eastbound	0.55	15	C	0.60	17	C	0.70	23	C
	Westbound	0.27	11	B	0.29	12	B	0.32	13	B
	Northbound	0.19	11	B	0.21	11	B	0.31	13	B
	Southbound	0.57	15	C	0.61	17	C	0.72	23	C

[1]Volume-to-capacity ratio
[2]Average control delay per vehicle (in seconds)
[3]Level of service
[4]n/a = not applicable

As summarized in **Table R4,** under future Build conditions, capacity analyses indicate that the Surfside Road intersection with Fairgrounds Road and South Shore Road will operate with moderate delays at level of service (LOS) D or better during the peak season. The incremental traffic associated with the proposed development is not expected to materially impact operating conditions at the intersection compared to No-Build conditions. Therefore, there is no mitigation required as part of the project to improve operations.

Comment 38. "*The capacity analysis worksheets provided in the TIA appendix do not indicate if pedestrian and bicycle activity at the study intersections was included in the analysis. The Applicant should confirm that pedestrian and bicycle activity have been appropriately considered in the capacity analyses per HCM 2010 guidance.*"

Response: See response to Comment 37.

Comment 39. "*The capacity analysis worksheets provided in the TIA appendix do not indicate the lane assignments assumed for each approach to the study intersections. The Applicant should confirm that the capacity analyses have been conducted assuming a single, general-purpose lane at all approaches to each study intersection.*"

Response: The capacity analysis was conducted assuming a single general-purpose lane at all approaches at the study intersection of Surfside Road at Fairground Road and South Shore Road. Likewise, the capacity analysis was conducted assuming a single general-purpose lane at all approaches at the proposed site driveway intersections with South Shore Road.

Parking

Comment 40. "*A parking analysis was not provided in the TIA. Tetra Tech recommends that the Applicant conduct a parking analysis based on industry-standard parking rates and Town standards to ensure that anticipated parking demand can be accommodated on-site.*"

Response: The preliminary site plans indicate an on-site parking supply of two spaces per single family home and 148 parking spaces for 96 condominium units resulting in a parking rate of 1.54 spaces per condominium unit. The parking supply satisfies the Town's parking standards as well as industry standard parking rates as outline in *ITE's Parking Generation*.

Comment 41. "*Tetra Tech recommends prohibiting on-street parking along the on-site roadways to ensure safe and efficient travel through the site.*"

Response: AASHTO guidance suggests a total roadway width for new construction of very low-volume local roads in rural areas of 18 feet. The proposed Surfside Crossing roadway provides a minimum of 20 feet of paved travel width along all roadway segments, which exceeds the AASHTO guidelines and will allow for occasional parking activity along the roadway without undue impedance to through traffic.

To address the potential conflicts between vehicles and infrequent event of a parked car(s), "no parking" restrictions may be implemented at the curved portions of roadway along the subdivision roadway where vehicle swept paths may restrict maneuvering area.

Comment 42. "*Tetra Tech recommends that Applicant ensure that the parking spaces are designed in accordance with Town guidelines.*"

Response: The parking spaces have been designed in accordance with Town guidelines.

Emergency/Fire Access

Comment 43. *"The TIA and the "Construction Details & Vehicle Turning Analysis" sheet of the permitting plan set included AutoTurn analyses of a 36.5-foot long ladder truck and a single unit (SU) truck. Review of the AutoTurn analyses indicates that the ladder truck and an SU truck can generally maneuver in and around the site adequately with the following exceptions:*

a) Access to the multifamily condominium buildings may require the ladder truck and SU truck to reverse direction when exiting.

b) The areas shown on Exhibits 1 and 2 where the SU and emergency vehicles have to maneuver to/from the parking fields show possible encroachment onto the proposed curbing and/or parking spaces. The AutoTurn analysis presented in the "Construction Details & Vehicle Turning Analysis" sheet of the permitting plan set shows different maneuvering paths for the ladder truck that indicate it can be accommodated in these areas. This indicates that the ladder truck may have to be maneuvered in a very particular manner to adequately enter/exit these portions of the multifamily condominium area of the site. The Applicant should confirm that the design vehicles will be able to adequately maneuver through the parking areas without interference from parked vehicles or curbing or ensure that proposed curbing is mountable.

c) The single-family home portion of the development is proposed to be served by a mix of 20- foot and 24-foot wide on-site roadways (curb-to-curb). The AutoTurn analysis indicates that the Town's ladder truck will be able to maneuver through the single-family home part of the site, although maneuvering through the roadway curves appears to be tight. Additionally, the AutoTurn analysis indicates that two-way traffic flow may be impeded while a ladder truck is traveling through the site which may slow down emergency response times.

d) The Applicant should ensure that adequate emergency access to Lot 23 will be provided."

Response:

a) Circulation aisles near the multi-family condominiums provide "hammerhead" design that are dimensioned to accommodate emergency vehicle maneuvering by means of a 3-point turn that is consistent with industry practices for similar residential projects. Such design types are typically used as alternatives to a full cul-de-sac but are commonly used in subdivision designs throughout the Commonwealth.

b) The AutoTurn swept paths as presented in Exhibits 1 and 2 indicate swept paths that do not impact or encroach upon curbs or parking (inclusive of vehicle overhangs). Applicant will consider mountable curbing for portions of the Site where deemed appropriate in consultation with the Fire Department.

c) The Town's ladder truck has been shown to adequately maneuver through and around the Site. Parking restrictions along curved areas of the subdivision roadways will be provided to ensure proper maneuvering area is available.

d) Emergency access to Lot 23 will be available via a shared driveway that will provide a minimum 20-foot wide paved surface in accordance with NFPA 1 requirements; specific design requirements and access to/from Lot 23 will be reviewed in more detail with the Fire Department. **Exhibit R3** provides an AutoTurn analysis for this shared driveway; specific design modifications for the driveway including ample swept path for the emergency vehicle will be provided on revised Site Plans to be submitted by the Applicant following consultation with the Fire Department.

Comment 44. "*The Applicant should review the site plan with the Fire Department to ensure the Town agrees with the design vehicle used in the AutoTurn analysis and are satisfied with the emergency vehicle accommodations proposed.*"

Response: The Applicant will review AutoTurn analysis and specific design treatments such as mountable curb with the Fire Department; specific design modification of driveways, curbing and other Site features will be incorporated into revised Site Plans following this consultation.

School Bus Pick-Up/Drop-Off

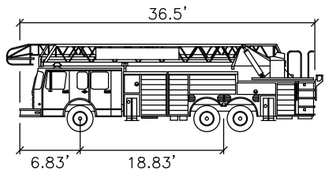
Comment 45. "*Tetra Tech recommends that the Applicant discuss possible bus pick-up/drop-off locations with Town Officials including the School Department. The anticipated location(s) of any bus stops should have adequate sight lines for vehicles driving behind or opposing the school bus to see the bus's flashing lights.*"

Response: The Applicant anticipates that school buses will stop along the property frontage on South Shore Road, consistent with normal School Department practices, and will work with the School Department to locate a designated central bus stop location along South Shore Road if deemed appropriate. The alignment of South Shore Road is such that adequate visibility to the bus will be available without special design treatments or advance signs.

Roadway Configuration & Signage

Comment 46. "*The TIA recommends that Stop-sign control and Stop line pavement markings be implemented at each of the site driveways for vehicles exiting the site onto South Shore Road in accordance with MUTCD standards. Tetra Tech agrees with this recommendation.*"

Site Plan Source: Bracken Engineering, Inc.



Nantucket Ladder 1

Width	: 9.5 FT.
Track	: 9.5 FT.
Lock to Lock Time	: 6.0 SEC.
Steering Angle	: 45.0°

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers
28 Lord Road, Suite 280
Marlborough, MA 01752

Scale: As Noted
DWG No. 959 Autoturn (9-10-2018).dwg

Date: September 2018
Project No. 959

Proposed Development
Nantucket, Massachusetts

SCALE
0 20 40 80 120 FEET

Exhibit R3
Autoturn Analysis
Nantucket Fire Truck

Response: MDM concurs, no further response required.

Comment 47. "*The Applicant should consider installing Stop bars and Stop signs at the on-site internal intersections. In the single-family home portion of the site, the eastbound and westbound approaches to the internal intersection are offset. Therefore, Tetra Tech recommends that all-way stop control be implemented at this location.*"

Response: MDM concurs; the Applicant will incorporate all-way STOP control at internal intersections on updated Site Plans.

Comment 48. "*The Applicant proposes crosswalks across each of the proposed site driveways at their intersections with South Shore Road. The site plans also indicate proposed crosswalks at the internal intersection in the center of the single-family portion of the site. Tetra Tech recommends that any proposed crosswalks be implemented in accordance with MUTCD standards.*"

Response: MDM concurs; any proposed crosswalks will be implemented in accordance with local and MUTCD standards.

Comment 49. "*The TIA recommends that weather-protected bicycle storage racks be implemented near the multifamily condominium buildings. Tetra Tech agrees with this recommendation.*"

Response: MDM concurs, no further response required.

Comment 50. "*The TIA recommends that the final curb radii at the South Shore Road/Site Driveway intersections be designed to accommodate the Town's largest emergency apparatus and SU trucks. Tetra Tech generally agrees with this recommendation.*"

Response: MDM concurs, no further response required.

Comment 51. "*Should a central mailing system be implemented, the Applicant should consider a curb bump out or designated parking space for the mail delivery vehicles and motorists picking up/dropping off mail.*"

Response: The Applicant will consider a designated "pull-off" area adjacent to central mail zone once one is identified.

Comment 52. *"The Applicant should identify locations of any community trash and recycling centers and ensure that trucks can adequately access the facilities without impeding on-site traffic flow."*

Response: At this time no central trash or recycling centers where common dumpsters would be located; all refuse removal will be wheeled to curbside locations for pickup. The multi-unit buildings will have interior trash rooms from which refuse will also be wheeled curbside. AutoTurn analysis per submitted Exhibit 1 and Exhibit 2 show there is ample maneuvering area within the Site to accommodate these vehicles.

Comment 53. *"The Applicant should identify areas of snow storage to ensure unimpeded access to on-site parking and travel ways."*

Response: Snow storage areas will be designated on updated Site Plans; any excessive snow accumulation will be managed and trucked from the Site on an as-needed basis to supplement these snow storage areas to ensure unimpeded access to on-site parking and travel ways.

Transportation Demand Management Program (TDM)

Comment 54. *"The TIA recommends that the Applicant implement a TDM program at the site to encourage alternative modes of transportation. Tetra Tech agrees with this recommendation and recommends that the TDM plan be included in the final permitting of the project."*

Response: As a residential project with no commercial component, there are limited effective TDM measures available to encourage alternative modes of transportation as part of a formal TDM program. However, the Site design incorporates elements that encourage alternative travel modes that include adjacency to the South Shore Road Bike Path and sidewalk connections to this path; extension of a sidewalk connecting the Site to Surfside Road where there is access to the Nantucket Regional Transit Authority WAVE bus service; weather-protected bike storage racks to be located within the Site proximate to or within condominium buildings; and open space/recreational facilities located within the Site. The Applicant will develop marketing materials and associated manual to be distributed at time of sale that identifies these resources including the island's bike path network, transit schedules and stop locations to promote their use.

ATTACHMENTS

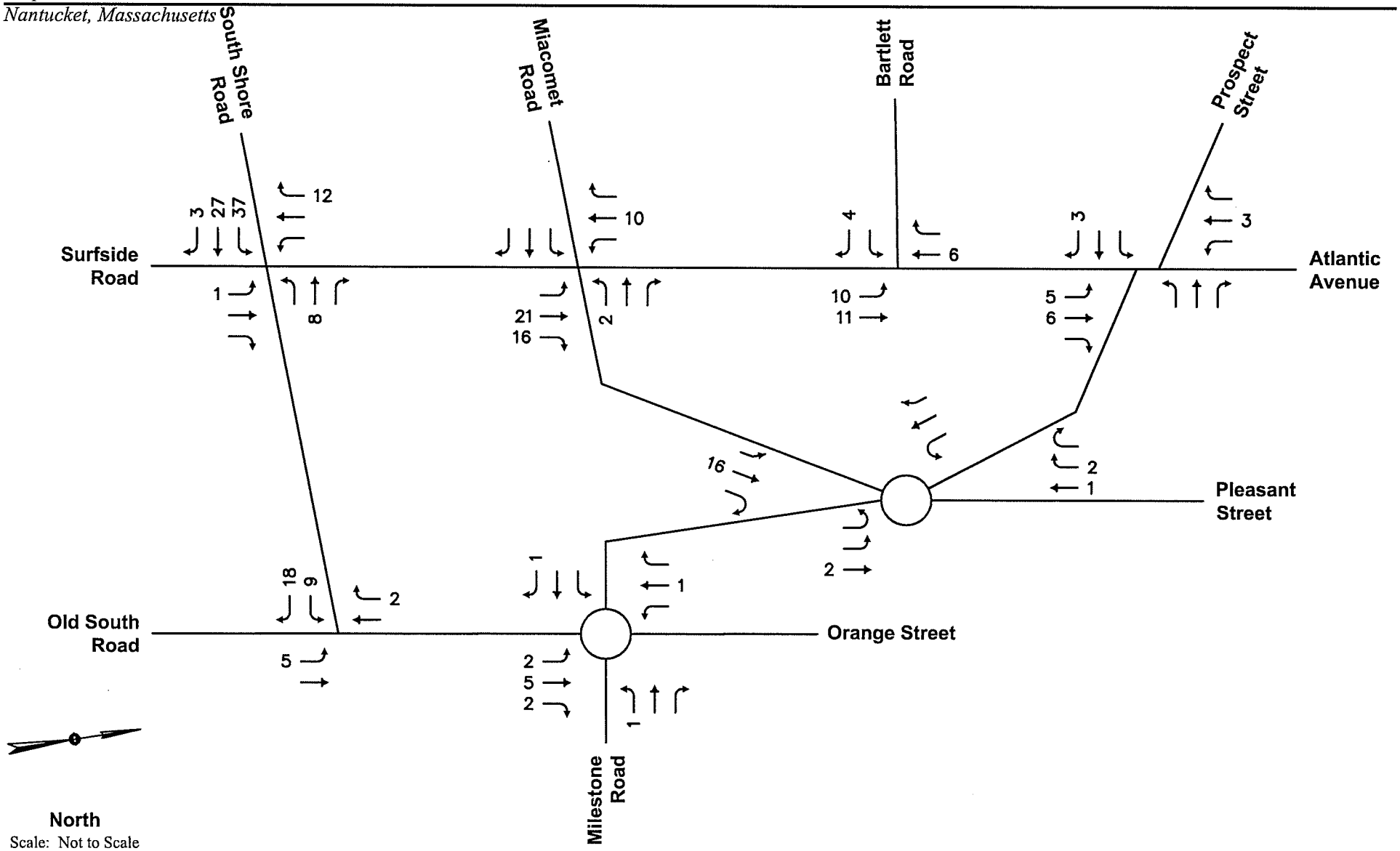
- Area Intersection Trip Increases
- Surfside Road at Fairgrounds Road Counts
- Sight Distance Calculations
- Revised Figures
- Revised Capacity Analysis
- Sensitivity Analysis
- Parking Analysis

□ Area Intersection Trip Increases

ATTACHMENT
INTERSECTION TOTAL ENTERING VOLUME

	Peak Hour	Baseline Entering Volume[1]	Project Impact # of New Trips	Project Impact %Δ
Fairgrounds Road at Old South Road	Weekday AM	1,506	35	2.3%
	Weekday PM	1,490	46	3.1%
Surfside Road at Surfside Drive/ Miacomet Road	Weekday AM	1,103	49	4.4%
	Weekday PM	1,353	62	4.6%
Old South Road at Orange Street and Milestone Road/Sparks Avenue	Weekday AM	2,217	12	0.5%
	Weekday PM	2,476	15	0.6%
Pleasant Street at Sparks Avenue and Hooper Farm Road	Weekday AM	1,138	21	1.8%
	Weekday PM	1,688	25	1.5%
Surfside Road at Bartlett Street	Weekday AM	1,092	31	2.8%
	Weekday PM	1,310	41	3.1%
Surfside Road/ Atlantic Avenue at Sparks Avenue/ Prospect Street	Weekday AM	1,048	17	1.6%
	Weekday PM	1,211	22	1.8%

[1] Volumes based on traffic peak hour turning movement counts conducted in June and August 2018.

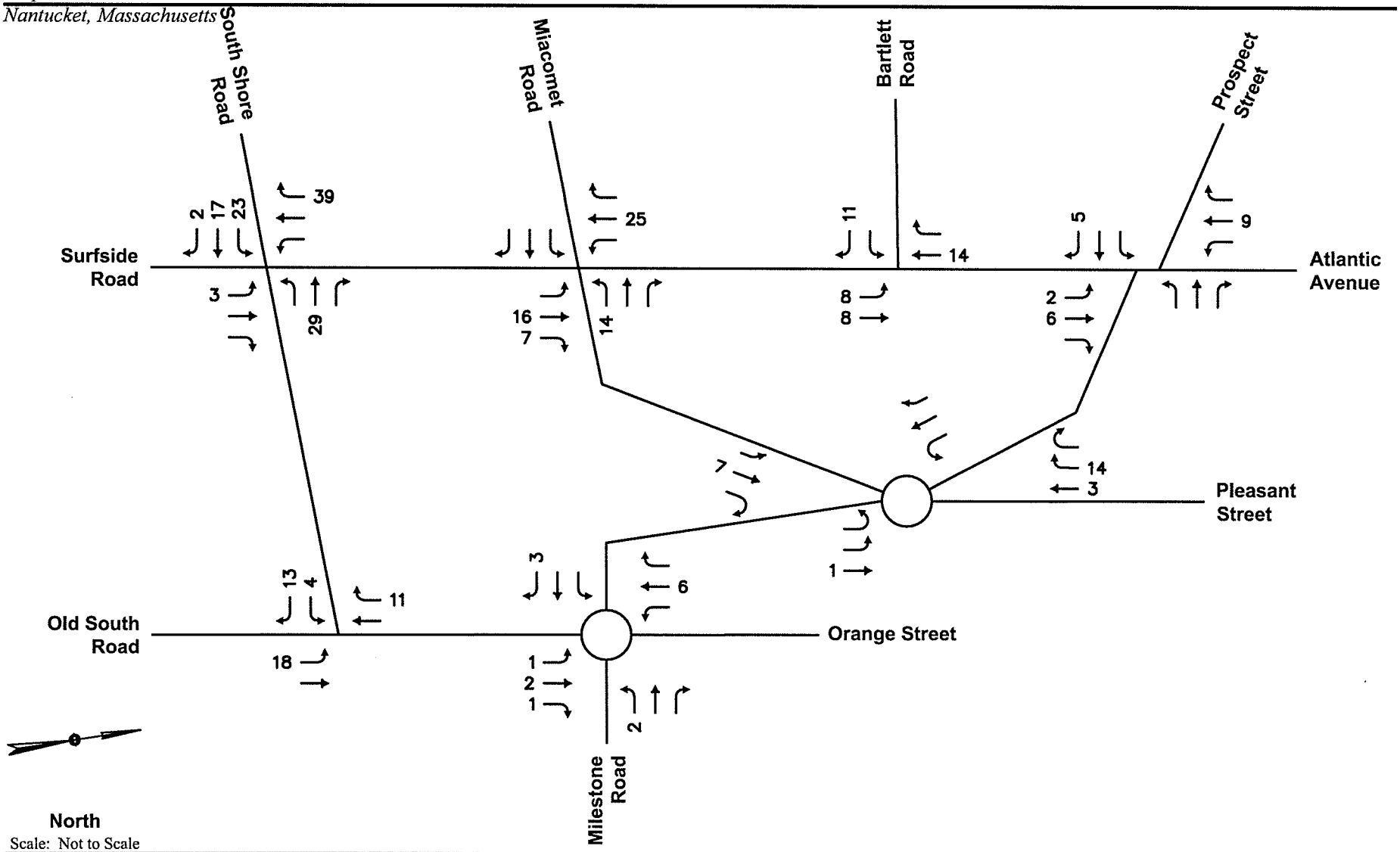


Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Site Generated Trips
Weekday Morning Peak Hour Volumes

Date: September 2018
Dwg No. 959 Peer Review.dwg



Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Site Generated Trips
Weekday Evening Peak Hour Volumes

Date: September 2018
Dwg No. 959 Peer Review.dwg

PDI File #: **186308 CC**
Location: **S: Fairgrounds Road**
Location: **E: Old South Road W: Old South Road**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Thursday, June 14, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class:

Cars and Heavy Vehicles (Combined)

	Old South Road from East				Fairgrounds Road from South				Old South Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	80	29	0	109	54	22	0	76	18	72	0	90	275
7:15 AM	126	50	0	176	66	24	0	90	22	89	0	111	377
7:30 AM	122	52	0	174	63	30	0	93	26	114	0	140	407
7:45 AM	89	37	0	126	91	40	0	131	33	90	0	123	380
Total	417	168	0	585	274	116	0	390	99	365	0	464	1439
8:00 AM	96	43	0	139	56	33	0	89	30	84	0	114	342
8:15 AM	110	40	0	150	44	25	0	69	25	81	0	106	325
8:30 AM	114	30	0	144	45	32	0	77	28	93	0	121	342
8:45 AM	113	38	0	151	55	26	1	82	26	111	0	137	370
Total	433	151	0	584	200	116	1	317	109	369	0	478	1379
Grand Total	850	319	0	1169	474	232	1	707	208	734	0	942	2818
Approach %	72.7	27.3	0.0		67.0	32.8	0.1		22.1	77.9	0.0		
Total %	30.2	11.3	0.0	41.5	16.8	8.2	0.0	25.1	7.4	26.0	0.0	33.4	
Exiting Leg Total				1208				528				1082	2818
Cars	777	294	0	1071	453	207	1	661	185	693	0	878	2610
% Cars	91.4	92.2	0.0	91.6	95.6	89.2	100.0	93.5	88.9	94.4	0.0	93.2	92.6
Exiting Leg Total				1146				480				984	2610
Heavy Vehicles	73	25	0	98	21	25	0	46	23	41	0	64	208
% Heavy Vehicles	8.6	7.8	0.0	8.4	4.4	10.8	0.0	6.5	11.1	5.6	0.0	6.8	7.4
Exiting Leg Total				62				48				98	208

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Old South Road from East				Fairgrounds Road from South				Old South Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	126	50	0	176	66	24	0	90	22	89	0	111	377
7:30 AM	122	52	0	174	63	30	0	93	26	114	0	140	407
7:45 AM	89	37	0	126	91	40	0	131	33	90	0	123	380
8:00 AM	96	43	0	139	56	33	0	89	30	84	0	114	342
Total Volume	433	182	0	615	276	127	0	403	111	377	0	488	1506
% Approach Total	70.4	29.6	0.0		68.5	31.5	0.0		22.7	77.3	0.0		
PHF	0.859	0.875	0.000	0.874	0.758	0.794	0.000	0.769	0.841	0.827	0.000	0.871	0.925
Cars	391	171	0	562	269	112	0	381	103	355	0	458	1401
Cars %	90.3	94.0	0.0	91.4	97.5	88.2	0.0	94.5	92.8	94.2	0.0	93.9	93.0
Heavy Vehicles	42	11	0	53	7	15	0	22	8	22	0	30	105
Heavy Vehicles %	9.7	6.0	0.0	8.6	2.5	11.8	0.0	5.5	7.2	5.8	0.0	6.1	7.0
Cars Enter Leg	391	171	0	562	269	112	0	381	103	355	0	458	1401
Heavy Enter Leg	42	11	0	53	7	15	0	22	8	22	0	30	105
Total Entering Leg	433	182	0	615	276	127	0	403	111	377	0	488	1506
Cars Exiting Leg				624				274				503	1401
Heavy Exiting Leg				29				19				57	105
Total Exiting Leg				653				293				560	1506

PDI File #: **186308 CC**
Location: **S: Fairgrounds Road**
Location: **E: Old South Road W: Old South Road**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Thursday, June 14, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Old South Road from East				Fairgrounds Road from South				Old South Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:00 AM	75	27	0	102	51	21	0	72	15	67	0	82	256
7:15 AM	119	47	0	166	63	24	0	87	20	84	0	104	357
7:30 AM	109	49	0	158	62	28	0	90	25	103	0	128	376
7:45 AM	78	35	0	113	88	32	0	120	31	90	0	121	354
Total	381	158	0	539	264	105	0	369	91	344	0	435	1343
8:00 AM	85	40	0	125	56	28	0	84	27	78	0	105	314
8:15 AM	102	32	0	134	40	24	0	64	20	76	0	96	294
8:30 AM	103	29	0	132	44	28	0	72	24	90	0	114	318
8:45 AM	106	35	0	141	49	22	1	72	23	105	0	128	341
Total	396	136	0	532	189	102	1	292	94	349	0	443	1267
Grand Total	777	294	0	1071	453	207	1	661	185	693	0	878	2610
Approach %	72.5	27.5	0.0		68.5	31.3	0.2		21.1	78.9	0.0		
Total %	29.8	11.3	0.0	41.0	17.4	7.9	0.0	25.3	7.1	26.6	0.0	33.6	
Exiting Leg Total				1146				480				984	2610

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Old South Road from East				Fairgrounds Road from South				Old South Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
7:15 AM	119	47	0	166	63	24	0	87	20	84	0	104	357
7:30 AM	109	49	0	158	62	28	0	90	25	103	0	128	376
7:45 AM	78	35	0	113	88	32	0	120	31	90	0	121	354
8:00 AM	85	40	0	125	56	28	0	84	27	78	0	105	314
Total Volume	391	171	0	562	269	112	0	381	103	355	0	458	1401
% Approach Total	69.6	30.4	0.0		70.6	29.4	0.0		22.5	77.5	0.0		
PHF	0.821	0.872	0.000	0.846	0.764	0.875	0.000	0.794	0.831	0.862	0.000	0.895	0.932
Entering Leg	391	171	0	562	269	112	0	381	103	355	0	458	1401
Exiting Leg				624				274				503	1401
Total				1186				655				961	2802

PDI File #: **186308 C**
Location: **S: Fairgrounds Road**
Location: **E: Old South Road W: Old South Road**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Wednesday, June 13, 2018**
Start Time: **4:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class:

Cars and Heavy Vehicles (Combined)

	Old South Road from East				Fairgrounds Road from South				Old South Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	94	61	0	155	57	22	0	79	32	137	0	169	403
4:15 PM	84	48	0	132	64	17	0	81	42	116	0	158	371
4:30 PM	88	50	0	138	49	11	0	60	35	117	0	152	350
4:45 PM	88	66	0	154	51	13	0	64	38	110	0	148	366
Total	354	225	0	579	221	63	0	284	147	480	0	627	1490
5:00 PM	108	58	0	166	52	19	0	71	22	130	0	152	389
5:15 PM	75	64	0	139	41	20	0	61	37	108	0	145	345
5:30 PM	84	64	0	148	43	12	0	55	24	106	0	130	333
5:45 PM	89	46	0	135	42	13	0	55	31	99	0	130	320
Total	356	232	0	588	178	64	0	242	114	443	0	557	1387
Grand Total	710	457	0	1167	399	127	0	526	261	923	0	1184	2877
Approach %	60.8	39.2	0.0		75.9	24.1	0.0		22.0	78.0	0.0		
Total %	24.7	15.9	0.0	40.6	13.9	4.4	0.0	18.3	9.1	32.1	0.0	41.2	
Exiting Leg Total				1322				718				837	2877
Cars	687	447	0	1134	381	122	0	503	250	866	0	1116	2753
% Cars	96.8	97.8	0.0	97.2	95.5	96.1	0.0	95.6	95.8	93.8	0.0	94.3	95.7
Exiting Leg Total				1247				697				809	2753
Heavy Vehicles	23	10	0	33	18	5	0	23	11	57	0	68	124
% Heavy Vehicles	3.2	2.2	0.0	2.8	4.5	3.9	0.0	4.4	4.2	6.2	0.0	5.7	4.3
Exiting Leg Total				75				21				28	124

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Old South Road from East				Fairgrounds Road from South				Old South Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	94	61	0	155	57	22	0	79	32	137	0	169	403
4:15 PM	84	48	0	132	64	17	0	81	42	116	0	158	371
4:30 PM	88	50	0	138	49	11	0	60	35	117	0	152	350
4:45 PM	88	66	0	154	51	13	0	64	38	110	0	148	366
Total Volume	354	225	0	579	221	63	0	284	147	480	0	627	1490
% Approach Total	61.1	38.9	0.0		77.8	22.2	0.0		23.4	76.6	0.0		
PHF	0.941	0.852	0.000	0.934	0.863	0.716	0.000	0.877	0.875	0.876	0.000	0.928	0.924
Cars	342	219	0	561	211	60	0	271	140	445	0	585	1417
Cars %	96.6	97.3	0.0	96.9	95.5	95.2	0.0	95.4	95.2	92.7	0.0	93.3	95.1
Heavy Vehicles	12	6	0	18	10	3	0	13	7	35	0	42	73
Heavy Vehicles %	3.4	2.7	0.0	3.1	4.5	4.8	0.0	4.6	4.8	7.3	0.0	6.7	4.9
Cars Enter Leg	342	219	0	561	211	60	0	271	140	445	0	585	1417
Heavy Enter Leg	12	6	0	18	10	3	0	13	7	35	0	42	73
Total Entering Leg	354	225	0	579	221	63	0	284	147	480	0	627	1490
Cars Exiting Leg				656				359				402	1417
Heavy Exiting Leg				45				13				15	73
Total Exiting Leg				701				372				417	1490

PDI File #: **186308 C**
Location: **S: Fairgrounds Road**
Location: **E: Old South Road W: Old South Road**
City, State: **Nantucket, MA**
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Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Old South Road from East				Fairgrounds Road from South				Old South Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	92	60	0	152	56	20	0	76	31	128	0	159	387
4:15 PM	81	48	0	129	61	16	0	77	40	108	0	148	354
4:30 PM	83	48	0	131	45	11	0	56	32	106	0	138	325
4:45 PM	86	63	0	149	49	13	0	62	37	103	0	140	351
Total	342	219	0	561	211	60	0	271	140	445	0	585	1417
5:00 PM	102	57	0	159	50	19	0	69	21	120	0	141	369
5:15 PM	73	64	0	137	37	18	0	55	35	102	0	137	329
5:30 PM	84	63	0	147	42	12	0	54	23	103	0	126	327
5:45 PM	86	44	0	130	41	13	0	54	31	96	0	127	311
Total	345	228	0	573	170	62	0	232	110	421	0	531	1336
Grand Total	687	447	0	1134	381	122	0	503	250	866	0	1116	2753
Approach %	60.6	39.4	0.0		75.7	24.3	0.0		22.4	77.6	0.0		
Total %	25.0	16.2	0.0	41.2	13.8	4.4	0.0	18.3	9.1	31.5	0.0	40.5	
Exiting Leg Total				1247				697				809	2753

Peak Hour Analysis from 04:00 PM to 06:00 PM begins at:

4:00 PM	Old South Road from East				Fairgrounds Road from South				Old South Road from West				
	Thru	Left	U-Turn	Total	Right	Left	U-Turn	Total	Right	Thru	U-Turn	Total	Total
4:00 PM	92	60	0	152	56	20	0	76	31	128	0	159	387
4:15 PM	81	48	0	129	61	16	0	77	40	108	0	148	354
4:30 PM	83	48	0	131	45	11	0	56	32	106	0	138	325
4:45 PM	86	63	0	149	49	13	0	62	37	103	0	140	351
Total Volume	342	219	0	561	211	60	0	271	140	445	0	585	1417
% Approach Total	61.0	39.0	0.0		77.9	22.1	0.0		23.9	76.1	0.0		
PHF	0.929	0.869	0.000	0.923	0.865	0.750	0.000	0.880	0.875	0.869	0.000	0.920	0.915
Entering Leg	342	219	0	561	211	60	0	271	140	445	0	585	1417
Exiting Leg				656				359				402	1417
Total				1217				630				987	2834

Accurate Counts

978-664-2565

N/S Street : Surfside Road
E/W Street: Surfside Dr / Miacomet Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390018
Site Code : 56390018
Start Date : 8/2/2018
Page No : 1

Groups Printed- Cars - Trucks - Mopeds

	Surfside Rd From North			Surfside Dr From East			Surfside Rd From South			Miacomet Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:30 AM	32	74	6	5	5	26	6	54	5	4	17	14	248
07:45 AM	37	89	2	6	4	38	6	106	5	8	6	16	323
Total	69	163	8	11	9	64	12	160	10	12	23	30	571
08:00 AM	40	82	3	5	6	32	3	77	11	6	7	10	282
08:15 AM	32	74	4	4	6	24	4	85	5	1	6	5	250
08:30 AM	32	74	3	3	1	18	8	77	3	3	8	4	234
08:45 AM	45	76	2	5	6	27	5	90	4	3	7	14	284
Total	149	306	12	17	19	101	20	329	23	13	28	33	1050
09:00 AM	26	81	6	5	4	22	5	79	5	5	12	7	257
09:15 AM	35	72	3	6	2	29	0	70	7	2	6	8	240
Grand Total	279	622	29	39	34	216	37	638	45	32	69	78	2118
Apprch %	30	66.9	3.1	13.5	11.8	74.7	5.1	88.6	6.2	17.9	38.5	43.6	
Total %	13.2	29.4	1.4	1.8	1.6	10.2	1.7	30.1	2.1	1.5	3.3	3.7	
Cars	277	618	29	39	34	214	37	630	45	32	67	77	2099
% Cars	99.3	99.4	100	100	100	99.1	100	98.7	100	100	97.1	98.7	99.1
Trucks	0	4	0	0	0	1	0	7	0	0	1	0	13
% Trucks	0	0.6	0	0	0	0.5	0	1.1	0	0	1.4	0	0.6
Mopeds	2	0	0	0	0	1	0	1	0	0	1	1	6
% Mopeds	0.7	0	0	0	0	0.5	0	0.2	0	0	1.4	1.3	0.3

Accurate Counts

978-664-2565

N/S Street : Surfside Road
E/W Street: Surfside Dr / Miacomet Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390018
Site Code : 56390018
Start Date : 8/2/2018
Page No : 2

	Surfside Rd From North				Surfside Dr From East				Surfside Rd From South				Miacomet Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:30 AM																	
07:30 AM	32	74	**6**	112	5	5	26	36	**6**	54	5	65	4	**17**	14	**35**	248
07:45 AM	37	**89**	2	**128**	**6**	4	**38**	**48**	6	**106**	5	**117**	**8**	6	**16**	30	**323**
08:00 AM	**40**	82	3	125	5	**6**	32	43	3	77	**11**	91	6	7	10	23	282
08:15 AM	32	74	4	110	4	6	24	34	4	85	5	94	1	6	5	12	250
Total Volume	141	319	15	475	20	21	120	161	19	322	26	367	19	36	45	100	1103
% App. Total	29.7	67.2	3.2		12.4	13	74.5		5.2	87.7	7.1		19	36	45		
PHF	.881	.896	.625	.928	.833	.875	.789	.839	.792	.759	.591	.784	.594	.529	.703	.714	.854
Cars	140	317	15	472	20	21	120	161	19	318	26	363	19	35	45	99	1095
% Cars	99.3	99.4	100	99.4	100	100	100	100	100	98.8	100	98.9	100	97.2	100	99.0	99.3
Trucks	0	2	0	2	0	0	0	0	0	4	0	4	0	1	0	1	7
% Trucks	0	0.6	0	0.4	0	0	0	0	0	1.2	0	1.1	0	2.8	0	1.0	0.6
Mopeds	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
% Mopeds	0.7	0	0	0.2	0	0	0	0	0	0	0	0	0	0	0	0	0.1

Accurate Counts

978-664-2565

N/S Street : Surfside Road
E/W Street: Surfside Dr / Miacomet Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390018
Site Code : 56390018
Start Date : 8/2/2018
Page No : 1

Groups Printed- Cars - Trucks - Mopeds

	Surfside Rd From North			Surfside Dr From East			Surfside Rd From South			Miacomet Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	45	77	6	1	10	32	8	65	7	6	15	18	290
04:15 PM	28	96	12	8	8	38	6	97	7	9	10	11	330
04:30 PM	30	75	11	12	13	50	7	102	9	6	1	12	328
04:45 PM	29	83	13	4	8	38	5	108	7	3	10	8	316
Total	132	331	42	25	39	158	26	372	30	24	36	49	1264
05:00 PM	31	103	9	5	13	42	9	116	5	5	5	8	351
05:15 PM	24	92	6	10	7	50	18	102	5	7	6	17	344
05:30 PM	27	98	9	5	6	39	11	108	6	11	12	10	342
05:45 PM	34	72	7	3	13	35	9	90	6	10	14	11	304
Total	116	365	31	23	39	166	47	416	22	33	37	46	1341
Grand Total	248	696	73	48	78	324	73	788	52	57	73	95	2605
Apprch %	24.4	68.4	7.2	10.7	17.3	72	8	86.3	5.7	25.3	32.4	42.2	
Total %	9.5	26.7	2.8	1.8	3	12.4	2.8	30.2	2	2.2	2.8	3.6	
Cars	246	687	73	48	76	322	72	783	52	55	72	95	2581
% Cars	99.2	98.7	100	100	97.4	99.4	98.6	99.4	100	96.5	98.6	100	99.1
Trucks	1	0	0	0	0	0	0	1	0	1	0	0	3
% Trucks	0.4	0	0	0	0	0	0	0.1	0	1.8	0	0	0.1
Mopeds	1	9	0	0	2	2	1	4	0	1	1	0	21
% Mopeds	0.4	1.3	0	0	2.6	0.6	1.4	0.5	0	1.8	1.4	0	0.8

Accurate Counts

978-664-2565

N/S Street : Surfside Road
E/W Street: Surfside Dr / Miacomet Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390018
Site Code : 56390018
Start Date : 8/2/2018
Page No : 2

	Surfside Rd From North				Surfside Dr From East				Surfside Rd From South				Miacomet Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	29	83	**13**	125	4	8	38	50	5	108	**7**	120	3	10	8	21	316
05:00 PM	**31**	**103**	9	**143**	5	**13**	42	60	9	**116**	5	**130**	5	5	8	18	**351**
05:15 PM	24	92	6	122	**10**	7	**50**	**67**	**18**	102	5	125	7	6	**17**	30	344
05:30 PM	27	98	9	134	5	6	39	50	11	108	6	125	**11**	**12**	10	**33**	342
Total Volume	111	376	37	524	24	34	169	227	43	434	23	500	26	33	43	102	1353
% App. Total	21.2	71.8	7.1		10.6	15	74.4		8.6	86.8	4.6		25.5	32.4	42.2		
PHF	.895	.913	.712	.916	.600	.654	.845	.847	.597	.935	.821	.962	.591	.688	.632	.773	.964
Cars	110	371	37	518	24	34	168	226	43	431	23	497	25	33	43	101	1342
% Cars	99.1	98.7	100	98.9	100	100	99.4	99.6	100	99.3	100	99.4	96.2	100	100	99.0	99.2
Trucks	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0	0	3.8	0	0	1.0	0.1
Mopeds	1	5	0	6	0	0	1	1	0	3	0	3	0	0	0	0	10
% Mopeds	0.9	1.3	0	1.1	0	0	0.6	0.4	0	0.7	0	0.6	0	0	0	0	0.7

Accurate Counts

978-664-2565

N/S Street : Orange St / Old South Rd
E/W Street : Sparks Ave / Milestone Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390001
Site Code : 56390001
Start Date : 8/2/2018
Page No : 1

Groups Printed- Cars - Trucks - Mopeds

	Orange St From North			Milestone Rd From East			Old South Rd From South			Sparks Ave From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:30 AM	55	71	14	13	58	54	42	58	31	9	60	35	500
07:45 AM	49	51	7	23	105	67	39	59	32	6	65	22	525
Total	104	122	21	36	163	121	81	117	63	15	125	57	1025
08:00 AM	73	51	14	23	71	62	33	59	22	5	72	11	496
08:15 AM	56	53	7	19	75	86	29	62	24	8	81	19	519
08:30 AM	61	52	10	15	76	107	30	58	23	4	83	21	540
08:45 AM	64	61	22	24	77	102	32	75	24	6	71	27	585
Total	254	217	53	81	299	357	124	254	93	23	307	78	2140
09:00 AM	90	74	10	19	75	84	23	62	30	12	68	19	566
09:15 AM	49	48	14	25	75	85	39	65	21	5	65	35	526
Grand Total	497	461	98	161	612	647	267	498	207	55	565	189	4257
Apprch %	47.1	43.7	9.3	11.3	43.1	45.6	27.5	51.2	21.3	6.8	69.8	23.4	
Total %	11.7	10.8	2.3	3.8	14.4	15.2	6.3	11.7	4.9	1.3	13.3	4.4	
Cars	473	453	96	160	607	628	265	492	207	55	558	188	4182
% Cars	95.2	98.3	98	99.4	99.2	97.1	99.3	98.8	100	100	98.8	99.5	98.2
Trucks	21	5	2	1	4	16	1	5	0	0	3	0	58
% Trucks	4.2	1.1	2	0.6	0.7	2.5	0.4	1	0	0	0.5	0	1.4
Mopeds	3	3	0	0	1	3	1	1	0	0	4	1	17
% Mopeds	0.6	0.7	0	0	0.2	0.5	0.4	0.2	0	0	0.7	0.5	0.4

Accurate Counts

978-664-2565

N/S Street : Orange St / Old South Rd
E/W Street : Sparks Ave / Milestone Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390001
Site Code : 56390001
Start Date : 8/2/2018

	Orange St From North				Milestone Rd From East				Old South Rd From South				Sparks Ave From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:30 AM																	
08:30 AM	61	52	10	123	15	76	**107**	198	30	58	23	111	4	**83**	21	**108**	540
08:45 AM	64	61	**22**	147	24	**77**	102	**203**	32	**75**	24	**131**	6	71	27	104	**585**
09:00 AM	**90**	**74**	10	**174**	19	75	84	178	23	62	**30**	115	**12**	68	19	99	566
09:15 AM	49	48	14	111	**25**	75	85	185	**39**	65	21	125	5	65	**35**	105	526
Total Volume	264	235	56	555	83	303	378	764	124	260	98	482	27	287	102	416	2217
% App. Total	47.6	42.3	10.1		10.9	39.7	49.5		25.7	53.9	20.3		6.5	69	24.5		
PHF	.733	.794	.636	.797	.830	.984	.883	.941	.795	.867	.817	.920	.563	.864	.729	.963	.947
Cars	260	232	55	547	83	301	369	753	123	260	98	481	27	281	101	409	2190
% Cars	98.5	98.7	98.2	98.6	100	99.3	97.6	98.6	99.2	100	100	99.8	100	97.9	99.0	98.3	98.8
Trucks	3	0	1	4	0	2	6	8	1	0	0	1	0	3	0	3	16
% Trucks	1.1	0	1.8	0.7	0	0.7	1.6	1.0	0.8	0	0	0.2	0	1.0	0	0.7	0.7
Mopeds	1	3	0	4	0	0	3	3	0	0	0	0	0	3	1	4	11
% Mopeds	0.4	1.3	0	0.7	0	0	0.8	0.4	0	0	0	0	0	1.0	1.0	1.0	0.5

Accurate Counts

978-664-2565

N/S Street : Orange St / Old South Rd
E/W Street : Sparks Ave / Milestone Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390001
Site Code : 56390001
Start Date : 8/2/2018
Page No : 1

Groups Printed- Cars - Trucks - Mopeds

	Orange St From North			Milestone Rd From East			Old South Rd From South			Sparks Ave From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	77	75	14	26	91	77	37	49	34	5	59	25	569
04:15 PM	86	87	10	24	88	91	29	65	35	5	63	23	606
04:30 PM	76	67	10	22	128	116	36	57	28	4	55	33	632
04:45 PM	53	64	17	18	132	129	42	68	18	12	66	32	651
Total	292	293	51	90	439	413	144	239	115	26	243	113	2458
05:00 PM	55	77	11	30	99	111	23	64	21	7	62	27	587
05:15 PM	81	73	16	7	94	89	35	64	22	12	61	27	581
05:30 PM	60	67	12	8	107	107	37	68	24	3	77	27	597
05:45 PM	62	61	14	19	97	106	28	58	20	0	78	32	575
Total	258	278	53	64	397	413	123	254	87	22	278	113	2340
Grand Total	550	571	104	154	836	826	267	493	202	48	521	226	4798
Apprch %	44.9	46.6	8.5	8.5	46	45.5	27.8	51.2	21	6	65.5	28.4	
Total %	11.5	11.9	2.2	3.2	17.4	17.2	5.6	10.3	4.2	1	10.9	4.7	
Cars	546	562	104	153	833	824	261	487	202	47	518	223	4760
% Cars	99.3	98.4	100	99.4	99.6	99.8	97.8	98.8	100	97.9	99.4	98.7	99.2
Trucks	1	1	0	0	0	1	1	3	0	0	1	1	9
% Trucks	0.2	0.2	0	0	0	0.1	0.4	0.6	0	0	0.2	0.4	0.2
Mopeds	3	8	0	1	3	1	5	3	0	1	2	2	29
% Mopeds	0.5	1.4	0	0.6	0.4	0.1	1.9	0.6	0	2.1	0.4	0.9	0.6

Accurate Counts

978-664-2565

N/S Street : Orange St / Old South Rd
E/W Street : Sparks Ave / Milestone Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390001
Site Code : 56390001
Start Date : 8/2/2018

	Orange St From North				Milestone Rd From East				Old South Rd From South				Sparks Ave From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**86**	**87**	10	**183**	24	88	91	203	29	65	**35**	**129**	5	63	23	91	606
04:30 PM	76	67	10	153	22	128	116	266	36	57	28	121	4	55	**33**	92	632
04:45 PM	53	64	**17**	134	18	**132**	**129**	**279**	**42**	**68**	18	128	**12**	**66**	32	**110**	**651**
05:00 PM	55	77	11	143	**30**	99	111	240	23	64	21	108	7	62	27	96	587
Total Volume	270	295	48	613	94	447	447	988	130	254	102	486	28	246	115	389	2476
% App. Total	44	48.1	7.8		9.5	45.2	45.2		26.7	52.3	21		7.2	63.2	29.6		
PHF	.785	.848	.706	.837	.783	.847	.866	.885	.774	.934	.729	.942	.583	.932	.871	.884	.951
Cars	268	292	48	608	93	445	447	985	126	252	102	480	27	246	114	387	2460
% Cars	99.3	99.0	100	99.2	98.9	99.6	100	99.7	96.9	99.2	100	98.8	96.4	100	99.1	99.5	99.4
Trucks	1	0	0	1	0	0	0	0	1	2	0	3	0	0	0	0	4
% Trucks	0.4	0	0	0.2	0	0	0	0	0.8	0.8	0	0.6	0	0	0	0	0.2
Mopeds	1	3	0	4	1	2	0	3	3	0	0	3	1	0	1	2	12
% Mopeds	0.4	1.0	0	0.7	1.1	0.4	0	0.3	2.3	0	0	0.6	3.6	0	0.9	0.5	0.5

Accurate Counts

978-664-2565

N/S Street : Lower Pleasant/Hooper Farm
E/W Street: Sparks Avenue
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390020
Site Code : 56390020
Start Date : 8/2/2018
Page No : 1

Groups Printed- Cars - Trucks - Mopeds

	Lower Pleasant St From North			Sparks Ave From East			Hooper Farm Rd From South			Sparks Ave From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:30 AM	36	13	6	17	61	49	23	37	30	7	61	18	358
07:45 AM	29	18	6	21	66	53	30	67	32	4	50	29	405
Total	65	31	12	38	127	102	53	104	62	11	111	47	763
08:00 AM	26	21	7	15	66	56	33	76	27	7	78	26	438
08:15 AM	25	19	8	12	55	42	29	55	23	8	85	33	394
08:30 AM	35	20	8	10	36	55	24	51	26	10	81	21	377
08:45 AM	39	20	5	18	53	62	35	53	20	11	68	25	409
Total	125	80	28	55	210	215	121	235	96	36	312	105	1618
09:00 AM	44	24	6	9	45	56	25	42	20	7	86	24	388
09:15 AM	39	23	9	12	53	53	20	53	18	10	81	25	396
Grand Total	273	158	55	114	435	426	219	434	196	64	590	201	3165
Apprch %	56.2	32.5	11.3	11.7	44.6	43.7	25.8	51.1	23.1	7.5	69	23.5	
Total %	8.6	5	1.7	3.6	13.7	13.5	6.9	13.7	6.2	2	18.6	6.4	
Cars	272	158	54	113	425	421	217	432	196	63	582	201	3134
% Cars	99.6	100	98.2	99.1	97.7	98.8	99.1	99.5	100	98.4	98.6	100	99
Trucks	1	0	1	1	9	2	1	0	0	0	6	0	21
% Trucks	0.4	0	1.8	0.9	2.1	0.5	0.5	0	0	0	1	0	0.7
Mopeds	0	0	0	0	1	3	1	2	0	1	2	0	10
% Mopeds	0	0	0	0	0.2	0.7	0.5	0.5	0	1.6	0.3	0	0.3

Accurate Counts

978-664-2565

N/S Street : Lower Pleasant/Hooper Farm
E/W Street: Sparks Avenue
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390020
Site Code : 56390020
Start Date : 8/2/2018
Page No : 2

	Lower Pleasant St From North				Sparks Ave From East				Hooper Farm Rd From South				Sparks Ave From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 08:00 AM																	
08:00 AM	26	**21**	7	54	15	**66**	56	**137**	33	**76**	**27**	**136**	7	78	26	111	**438**
08:15 AM	25	19	**8**	52	12	55	42	109	29	55	23	107	8	**85**	**33**	**126**	394
08:30 AM	35	20	8	63	10	36	55	101	24	51	26	101	10	81	21	112	377
08:45 AM	**39**	20	5	**64**	**18**	53	**62**	133	**35**	53	20	108	**11**	68	25	104	409
Total Volume	125	80	28	233	55	210	215	480	121	235	96	452	36	312	105	453	1618
% App. Total	53.6	34.3	12		11.5	43.8	44.8		26.8	52	21.2		7.9	68.9	23.2		
PHF	.801	.952	.875	.910	.764	.795	.867	.876	.864	.773	.889	.831	.818	.918	.795	.899	.924
Cars	125	80	28	233	55	206	215	476	120	234	96	450	36	308	105	449	1608
% Cars	100	100	100	100	100	98.1	100	99.2	99.2	99.6	100	99.6	100	98.7	100	99.1	99.4
Trucks	0	0	0	0	0	3	0	3	1	0	0	1	0	3	0	3	7
% Trucks	0	0	0	0	0	1.4	0	0.6	0.8	0	0	0.2	0	1.0	0	0.7	0.4
Mopeds	0	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	3
% Mopeds	0	0	0	0	0	0.5	0	0.2	0	0.4	0	0.2	0	0.3	0	0.2	0.2

Accurate Counts

978-664-2565

N/S Street : Lower Pleasant/Hooper Farm
E/W Street: Sparks Avenue
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390020
Site Code : 56390020
Start Date : 8/2/2018

Groups Printed- Cars - Trucks - Mopeds

	Lower Pleasant St From North			Sparks Ave From East			Hooper Farm Rd From South			Sparks Ave From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	41	36	11	26	48	48	9	30	16	4	67	39	375
04:15 PM	44	38	5	26	40	52	13	49	30	3	63	36	399
04:30 PM	42	36	6	48	43	51	15	42	28	3	68	37	419
04:45 PM	38	36	5	28	66	57	22	59	26	4	69	34	444
Total	165	146	27	128	197	208	59	180	100	14	267	146	1637
05:00 PM	42	48	5	35	41	51	13	45	26	2	72	46	426
05:15 PM	38	34	3	24	49	62	10	46	27	6	51	44	394
05:30 PM	48	32	4	28	50	57	17	48	23	2	75	37	421
05:45 PM	34	23	6	27	47	44	18	48	21	3	69	34	374
Total	162	137	18	114	187	214	58	187	97	13	267	161	1615
Grand Total	327	283	45	242	384	422	117	367	197	27	534	307	3252
Apprch %	49.9	43.2	6.9	23.1	36.6	40.3	17.2	53.9	28.9	3.1	61.5	35.4	
Total %	10.1	8.7	1.4	7.4	11.8	13	3.6	11.3	6.1	0.8	16.4	9.4	
Cars	320	280	45	241	377	419	115	364	196	26	529	303	3215
% Cars	97.9	98.9	100	99.6	98.2	99.3	98.3	99.2	99.5	96.3	99.1	98.7	98.9
Trucks	2	0	0	0	1	0	0	0	0	0	3	0	6
% Trucks	0.6	0	0	0	0.3	0	0	0	0	0	0.6	0	0.2
Mopeds	5	3	0	1	6	3	2	3	1	1	2	4	31
% Mopeds	1.5	1.1	0	0.4	1.6	0.7	1.7	0.8	0.5	3.7	0.4	1.3	1

Accurate Counts

978-664-2565

N/S Street : Lower Pleasant/Hooper Farm
E/W Street: Sparks Avenue
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390020
Site Code : 56390020
Start Date : 8/2/2018
Page No : 2

	Lower Pleasant St From North				Sparks Ave From East				Hooper Farm Rd From South				Sparks Ave From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:15 PM																	
04:15 PM	**44**	38	5	87	26	40	52	118	13	49	**30**	92	3	63	36	102	399
04:30 PM	42	36	**6**	84	**48**	43	51	142	15	42	28	85	3	68	37	108	419
04:45 PM	38	36	5	79	28	**66**	**57**	**151**	**22**	**59**	26	**107**	**4**	69	34	107	**444**
05:00 PM	42	**48**	5	**95**	35	41	51	127	13	45	26	84	2	**72**	**46**	**120**	426
Total Volume	166	158	21	345	137	190	211	538	63	195	110	368	12	272	153	437	1688
% App. Total	48.1	45.8	6.1		25.5	35.3	39.2		17.1	53	29.9		2.7	62.2	35		
PHF	.943	.823	.875	.908	.714	.720	.925	.891	.716	.826	.917	.860	.750	.944	.832	.910	.950
Cars	164	155	21	340	136	188	210	534	61	194	109	364	12	270	150	432	1670
% Cars	98.8	98.1	100	98.6	99.3	98.9	99.5	99.3	96.8	99.5	99.1	98.9	100	99.3	98.0	98.9	98.9
Trucks	0	0	0	0	0	1	0	1	0	0	0	0	0	1	0	1	2
% Trucks	0	0	0	0	0	0.5	0	0.2	0	0	0	0	0	0.4	0	0.2	0.1
Mopeds	2	3	0	5	1	1	1	3	2	1	1	4	0	1	3	4	16
% Mopeds	1.2	1.9	0	1.4	0.7	0.5	0.5	0.6	3.2	0.5	0.9	1.1	0	0.4	2.0	0.9	0.9

PDI File #: **186308 AA**
Location: **N: Surfside Road S: Surfside Road**
Location: **E: Driveway W: Bartlett Road**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Thursday, June 14, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Surfside Road from North					Driveway from East					Surfside Road from South					Bartlett Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	21	30	0	0	51	0	0	0	0	0	0	43	27	0	70	44	0	53	0	97	218
7:15 AM	20	37	0	0	57	0	0	0	0	0	0	61	45	0	106	52	0	35	0	87	250
7:30 AM	34	70	0	0	104	0	0	0	0	0	0	76	38	0	114	21	0	27	0	48	266
7:45 AM	35	69	0	0	104	0	0	0	0	0	0	62	55	0	117	44	0	28	0	72	293
Total	110	206	0	0	316	0	0	0	0	0	0	242	165	0	407	161	0	143	0	304	1027
8:00 AM	27	45	0	0	72	0	0	0	0	0	0	53	70	0	123	47	0	41	0	88	283
8:15 AM	28	30	0	0	58	0	0	0	0	0	0	56	35	0	91	61	0	36	0	97	246
8:30 AM	23	44	0	0	67	0	0	0	0	0	0	59	46	0	105	56	0	23	0	79	251
8:45 AM	24	50	0	0	74	0	0	0	0	0	0	71	38	0	109	48	0	45	0	93	276
Total	102	169	0	0	271	0	0	0	0	0	0	239	189	0	428	212	0	145	0	357	1056
Grand Total	212	375	0	0	587	0	0	0	0	0	0	481	354	0	835	373	0	288	0	661	2083
Approach %	36.1	63.9	0.0	0.0		0.0	0.0	0.0	0.0		0.0	57.6	42.4	0.0		56.4	0.0	43.6	0.0		
Total %	10.2	18.0	0.0	0.0	28.2	0.0	0.0	0.0	0.0	0.0	0.0	23.1	17.0	0.0	40.1	17.9	0.0	13.8	0.0	31.7	
Exiting Leg Total					769					0					748					566	2083
Cars	200	356	0	0	556	0	0	0	0	0	0	465	333	0	798	354	0	275	0	629	1983
% Cars	94.3	94.9	0.0	0.0	94.7	0.0	0.0	0.0	0.0	0.0	0.0	96.7	94.1	0.0	95.6	94.9	0.0	95.5	0.0	95.2	95.2
Exiting Leg Total					740					0					710					533	1983
Heavy Vehicles	12	19	0	0	31	0	0	0	0	0	0	16	21	0	37	19	0	13	0	32	100
% Heavy Vehicles	5.7	5.1	0.0	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	3.3	5.9	0.0	4.4	5.1	0.0	4.5	0.0	4.8	4.8
Exiting Leg Total					29					0					38					33	100

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Surfside Road from North					Driveway from East					Surfside Road from South					Bartlett Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	20	37	0	0	57	0	0	0	0	0	0	61	45	0	106	52	0	35	0	87	250
7:30 AM	34	70	0	0	104	0	0	0	0	0	0	76	38	0	114	21	0	27	0	48	266
7:45 AM	35	69	0	0	104	0	0	0	0	0	0	62	55	0	117	44	0	28	0	72	293
8:00 AM	27	45	0	0	72	0	0	0	0	0	0	53	70	0	123	47	0	41	0	88	283
Total Volume	116	221	0	0	337	0	0	0	0	0	0	252	208	0	460	164	0	131	0	295	1092
% Approach Total	34.4	65.6	0.0	0.0		0.0	0.0	0.0	0.0		0.0	54.8	45.2	0.0		55.6	0.0	44.4	0.0		
PHF	0.829	0.789	0.000	0.000	0.810	0.000	0.000	0.000	0.000	0.000	0.000	0.829	0.743	0.000	0.935	0.788	0.000	0.799	0.000	0.838	0.932
Cars	112	212	0	0	324	0	0	0	0	0	0	243	200	0	443	156	0	127	0	283	1050
Cars %	96.6	95.9	0.0	0.0	96.1	0.0	0.0	0.0	0.0	0.0	0.0	96.4	96.2	0.0	96.3	95.1	0.0	96.9	0.0	95.9	96.2
Heavy Vehicles	4	9	0	0	13	0	0	0	0	0	0	9	8	0	17	8	0	4	0	12	42
Heavy Vehicles %	3.4	4.1	0.0	0.0	3.9	0.0	0.0	0.0	0.0	0.0	0.0	3.6	3.8	0.0	3.7	4.9	0.0	3.1	0.0	4.1	3.8
Cars Enter Leg	112	212	0	0	324	0	0	0	0	0	0	243	200	0	443	156	0	127	0	283	1050
Heavy Enter Leg	4	9	0	0	13	0	0	0	0	0	0	9	8	0	17	8	0	4	0	12	42
Total Entering Leg	116	221	0	0	337	0	0	0	0	0	0	252	208	0	460	164	0	131	0	295	1092
Cars Exiting Leg					370					0					368					312	1050
Heavy Exiting Leg					13					0					17					12	42
Total Exiting Leg					383					0					385					324	1092

PDI File #: **186308 AA**
Location: **N: Surfside Road S: Surfside Road**
Location: **E: Driveway W: Bartlett Road**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Thursday, June 14, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Surfside Road from North					Driveway from East					Surfside Road from South					Bartlett Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	18	27	0	0	45	0	0	0	0	0	0	40	25	0	65	39	0	51	0	90	200
7:15 AM	19	35	0	0	54	0	0	0	0	0	0	56	44	0	100	49	0	33	0	82	236
7:30 AM	31	67	0	0	98	0	0	0	0	0	0	74	37	0	111	21	0	27	0	48	257
7:45 AM	35	66	0	0	101	0	0	0	0	0	0	61	52	0	113	42	0	26	0	68	282
Total	103	195	0	0	298	0	0	0	0	0	0	231	158	0	389	151	0	137	0	288	975
8:00 AM	27	44	0	0	71	0	0	0	0	0	0	52	67	0	119	44	0	41	0	85	275
8:15 AM	26	29	0	0	55	0	0	0	0	0	0	54	30	0	84	61	0	36	0	97	236
8:30 AM	21	41	0	0	62	0	0	0	0	0	0	57	43	0	100	54	0	20	0	74	236
8:45 AM	23	47	0	0	70	0	0	0	0	0	0	71	35	0	106	44	0	41	0	85	261
Total	97	161	0	0	258	0	0	0	0	0	0	234	175	0	409	203	0	138	0	341	1008
Grand Total	200	356	0	0	556	0	0	0	0	0	0	465	333	0	798	354	0	275	0	629	1983
Approach %	36.0	64.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	58.3	41.7	0.0		56.3	0.0	43.7	0.0		
Total %	10.1	18.0	0.0	0.0	28.0	0.0	0.0	0.0	0.0	0.0	0.0	23.4	16.8	0.0	40.2	17.9	0.0	13.9	0.0	31.7	
Exiting Leg Total					740					0					710					533	1983

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:15 AM	Surfside Road from North					Driveway from East					Surfside Road from South					Bartlett Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:15 AM	19	35	0	0	54	0	0	0	0	0	0	56	44	0	100	49	0	33	0	82	236
7:30 AM	31	67	0	0	98	0	0	0	0	0	0	74	37	0	111	21	0	27	0	48	257
7:45 AM	35	66	0	0	101	0	0	0	0	0	0	61	52	0	113	42	0	26	0	68	282
8:00 AM	27	44	0	0	71	0	0	0	0	0	0	52	67	0	119	44	0	41	0	85	275
Total Volume	112	212	0	0	324	0	0	0	0	0	0	243	200	0	443	156	0	127	0	283	1050
% Approach Total	34.6	65.4	0.0	0.0		0.0	0.0	0.0	0.0		0.0	54.9	45.1	0.0		55.1	0.0	44.9	0.0		
PHF	0.800	0.791	0.000	0.000	0.802	0.000	0.000	0.000	0.000	0.000	0.000	0.821	0.746	0.000	0.931	0.796	0.000	0.774	0.000	0.832	0.931
Entering Leg	112	212	0	0	324	0	0	0	0	0	0	243	200	0	443	156	0	127	0	283	1050
Exiting Leg					370					0					368					312	1050
Total					694					0					811					595	2100

PDI File #: **186308 A**
Location: **N: Surfside Road S: Surfside Road**
Location: **E: Driveway W: Bartlett Road**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Wednesday, June 13, 2018**
Start Time: **2:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Surfside Road from North					Driveway from East					Surfside Road from South					Bartlett Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
2:00 PM	39	81	0	0	120	0	0	0	0	0	0	45	39	0	84	53	0	30	0	83	287
2:15 PM	34	66	0	0	100	0	0	0	0	0	0	47	49	0	96	38	0	16	0	54	250
2:30 PM	61	83	1	0	145	1	0	0	0	1	0	55	58	0	113	50	0	26	0	76	335
2:45 PM	63	78	0	0	141	0	0	0	0	0	0	73	70	0	143	51	0	29	0	80	364
Total	197	308	1	0	506	1	0	0	0	1	0	220	216	0	436	192	0	101	0	293	1236
3:00 PM	60	46	0	0	106	0	0	0	0	0	0	66	55	0	121	69	0	34	0	103	330
3:15 PM	48	55	0	0	103	0	0	0	0	0	0	50	48	0	98	50	0	32	0	82	283
3:30 PM	46	53	0	0	99	0	0	0	0	0	0	45	49	0	94	55	0	31	0	86	279
3:45 PM	48	58	0	0	106	0	0	0	0	0	0	39	47	0	86	58	0	34	0	92	284
Total	202	212	0	0	414	0	0	0	0	0	0	200	199	0	399	232	0	131	0	363	1176
4:00 PM	49	64	0	0	113	0	0	0	0	0	0	56	53	0	109	46	0	24	0	70	292
4:15 PM	54	77	0	0	131	0	0	0	0	0	0	49	43	0	92	44	0	29	0	73	296
4:30 PM	51	72	0	0	123	0	0	0	0	0	0	38	54	0	92	37	0	34	0	71	286
4:45 PM	58	75	0	0	133	0	0	0	0	0	0	59	39	0	98	40	0	40	0	80	311
Total	212	288	0	0	500	0	0	0	0	0	0	202	189	0	391	167	0	127	0	294	1185
5:00 PM	59	59	0	0	118	0	0	0	0	0	0	49	50	0	99	48	0	36	0	84	301
5:15 PM	54	61	0	0	115	0	0	0	0	0	0	58	61	0	119	48	0	34	0	82	316
5:30 PM	66	75	0	0	141	0	0	0	0	0	0	64	56	0	120	38	0	46	0	84	345
5:45 PM	59	80	0	0	139	0	0	0	0	0	0	61	38	0	99	34	0	48	0	82	320
Total	238	275	0	0	513	0	0	0	0	0	0	232	205	0	437	168	0	164	0	332	1282
Grand Total	849	1083	1	0	1933	1	0	0	0	1	0	854	809	0	1663	759	0	523	0	1282	4879
Approach %	43.9	56.0	0.1	0.0		100.0	0.0	0.0	0.0		0.0	51.4	48.6	0.0		59.2	0.0	40.8	0.0		
Total %	17.4	22.2	0.0	0.0	39.6	0.0	0.0	0.0	0.0	0.0	0.0	17.5	16.6	0.0	34.1	15.6	0.0	10.7	0.0	26.3	
Exiting Leg Total					1378					1					1842					1658	4879
Cars	821	1030	1	0	1852	1	0	0	0	1	0	839	769	0	1608	724	0	512	0	1236	4697
% Cars	96.7	95.1	100.0	0.0	95.8	100.0	0.0	0.0	0.0	100.0	0.0	98.2	95.1	0.0	96.7	95.4	0.0	97.9	0.0	96.4	96.3
Exiting Leg Total					1352					1					1754					1590	4697
Heavy Vehicles	28	53	0	0	81	0	0	0	0	0	0	15	40	0	55	35	0	11	0	46	182
% Heavy Vehicles	3.3	4.9	0.0	0.0	4.2	0.0	0.0	0.0	0.0	0.0	0.0	1.8	4.9	0.0	3.3	4.6	0.0	2.1	0.0	3.6	3.7
Exiting Leg Total					26					0					88					68	182

Peak Hour Analysis from 02:00 PM to 06:00 PM begins at:

2:30 PM	Surfside Road from North					Driveway from East					Surfside Road from South					Bartlett Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
2:30 PM	61	83	1	0	145	1	0	0	0	1	0	55	58	0	113	50	0	26	0	76	335
2:45 PM	63	78	0	0	141	0	0	0	0	0	0	73	70	0	143	51	0	29	0	80	364
3:00 PM	60	46	0	0	106	0	0	0	0	0	0	66	55	0	121	69	0	34	0	103	330
3:15 PM	48	55	0	0	103	0	0	0	0	0	0	50	48	0	98	50	0	32	0	82	283
Total Volume	232	262	1	0	495	1	0	0	0	1	0	244	231	0	475	220	0	121	0	341	1312
% Approach Total	46.9	52.9	0.2	0.0		100.0	0.0	0.0	0.0		0.0	51.4	48.6	0.0		64.5	0.0	35.5	0.0		
PHF	0.921	0.789	0.250	0.000	0.853	0.250	0.000	0.000	0.000	0.250	0.000	0.836	0.825	0.000	0.830	0.797	0.000	0.890	0.000	0.828	0.901
Cars	223	246	1	0	470	1	0	0	0	1	0	235	215	0	450	203	0	118	0	321	1242
Cars %	96.1	93.9	100.0	0.0	94.9	100.0	0.0	0.0	0.0	100.0	0.0	96.3	93.1	0.0	94.7	92.3	0.0	97.5	0.0	94.1	94.7
Heavy Vehicles	9	16	0	0	25	0	0	0	0	0	0	9	16	0	25	17	0	3	0	20	70
Heavy Vehicles %	3.9	6.1	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	3.7	6.9	0.0	5.3	7.7	0.0	2.5	0.0	5.9	5.3
Cars Enter Leg	223	246	1	0	470	1	0	0	0	1	0	235	215	0	450	203	0	118	0	321	1242
Heavy Enter Leg	9	16	0	0	25	0	0	0	0	0	0	9	16	0	25	17	0	3	0	20	70
Total Entering Leg	232	262	1	0	495	1	0	0	0	1	0	244	231	0	475	220	0	121	0	341	1312
Cars Exiting Leg					354					1					449					438	1242
Heavy Exiting Leg					12					0					33					25	70
Total Exiting Leg					366					1					482					463	1312

PDI File #: **186308 A**
Location: **N: Surfside Road S: Surfside Road**
Location: **E: Driveway W: Bartlett Road**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Wednesday, June 13, 2018**
Start Time: **2:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Surfside Road from North					Driveway from East					Surfside Road from South					Bartlett Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
2:00 PM	37	77	0	0	114	0	0	0	0	0	0	44	36	0	80	51	0	30	0	81	275
2:15 PM	31	62	0	0	93	0	0	0	0	0	0	46	46	0	92	36	0	16	0	52	237
2:30 PM	59	75	1	0	135	1	0	0	0	1	0	52	54	0	106	46	0	26	0	72	314
2:45 PM	60	76	0	0	136	0	0	0	0	0	0	71	67	0	138	44	0	28	0	72	346
Total	187	290	1	0	478	1	0	0	0	1	0	213	203	0	416	177	0	100	0	277	1172
3:00 PM	58	43	0	0	101	0	0	0	0	0	0	66	49	0	115	65	0	32	0	97	313
3:15 PM	46	52	0	0	98	0	0	0	0	0	0	46	45	0	91	48	0	32	0	80	269
3:30 PM	44	51	0	0	95	0	0	0	0	0	0	45	49	0	94	54	0	28	0	82	271
3:45 PM	47	54	0	0	101	0	0	0	0	0	0	39	43	0	82	53	0	34	0	87	270
Total	195	200	0	0	395	0	0	0	0	0	0	196	186	0	382	220	0	126	0	346	1123
4:00 PM	46	61	0	0	107	0	0	0	0	0	0	55	50	0	105	45	0	24	0	69	281
4:15 PM	52	73	0	0	125	0	0	0	0	0	0	49	42	0	91	43	0	28	0	71	287
4:30 PM	48	66	0	0	114	0	0	0	0	0	0	37	53	0	90	34	0	33	0	67	271
4:45 PM	58	75	0	0	133	0	0	0	0	0	0	58	36	0	94	39	0	39	0	78	305
Total	204	275	0	0	479	0	0	0	0	0	0	199	181	0	380	161	0	124	0	285	1144
5:00 PM	59	57	0	0	116	0	0	0	0	0	0	49	49	0	98	48	0	36	0	84	298
5:15 PM	54	56	0	0	110	0	0	0	0	0	0	58	59	0	117	48	0	33	0	81	308
5:30 PM	65	74	0	0	139	0	0	0	0	0	0	63	54	0	117	37	0	46	0	83	339
5:45 PM	57	78	0	0	135	0	0	0	0	0	0	61	37	0	98	33	0	47	0	80	313
Total	235	265	0	0	500	0	0	0	0	0	0	231	199	0	430	166	0	162	0	328	1258
Grand Total	821	1030	1	0	1852	1	0	0	0	1	0	839	769	0	1608	724	0	512	0	1236	4697
Approach %	44.3	55.6	0.1	0.0		100.0	0.0	0.0	0.0		0.0	52.2	47.8	0.0		58.6	0.0	41.4	0.0		
Total %	17.5	21.9	0.0	0.0	39.4	0.0	0.0	0.0	0.0	0.0	0.0	17.9	16.4	0.0	34.2	15.4	0.0	10.9	0.0	26.3	
Exiting Leg Total					1352					1					1754					1590	4697

Peak Hour Analysis from 02:00 PM to 06:00 PM begins at:

5:00 PM	Surfside Road from North					Driveway from East					Surfside Road from South					Bartlett Road from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	59	57	0	0	116	0	0	0	0	0	0	49	49	0	98	48	0	36	0	84	298
5:15 PM	54	56	0	0	110	0	0	0	0	0	0	58	59	0	117	48	0	33	0	81	308
5:30 PM	65	74	0	0	139	0	0	0	0	0	0	63	54	0	117	37	0	46	0	83	339
5:45 PM	57	78	0	0	135	0	0	0	0	0	0	61	37	0	98	33	0	47	0	80	313
Total Volume	235	265	0	0	500	0	0	0	0	0	0	231	199	0	430	166	0	162	0	328	1258
% Approach Total	47.0	53.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	53.7	46.3	0.0		50.6	0.0	49.4	0.0		
PHF	0.904	0.849	0.000	0.000	0.899	0.000	0.000	0.000	0.000	0.000	0.000	0.917	0.843	0.000	0.919	0.865	0.000	0.862	0.000	0.976	0.928
Entering Leg	235	265	0	0	500	0	0	0	0	0	0	231	199	0	430	166	0	162	0	328	1258
Exiting Leg					393					0					431					434	1258
Total					893					0					861					762	2516

PDI File #: **186308 BB**
Location: **N: Atlantic Avenue S: Surfside Road**
Location: **E: Sparks Avenue W: Prospect Street**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Thursday, June 14, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Atlantic Avenue from North					Sparks Avenue from East					Surfside Road from South					Prospect Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	13	0	0	13	4	17	41	0	62	74	29	13	0	116	10	18	0	0	28	219
7:15 AM	0	19	2	0	21	4	20	47	0	71	44	22	12	0	78	14	28	0	0	42	212
7:30 AM	1	29	6	0	36	5	22	46	0	73	45	18	15	0	78	24	36	0	0	60	247
7:45 AM	0	15	7	0	22	2	37	50	0	89	60	26	17	0	103	22	42	0	0	64	278
Total	1	76	15	0	92	15	96	184	0	295	223	95	57	0	375	70	124	0	0	194	956
8:00 AM	1	21	0	0	22	2	36	42	0	80	56	29	30	0	115	13	37	2	0	52	269
8:15 AM	1	19	0	0	20	4	35	30	0	69	56	28	21	0	105	15	42	0	0	57	251
8:30 AM	0	12	1	0	13	1	26	38	0	65	61	27	29	0	117	17	36	2	0	55	250
8:45 AM	1	14	0	0	15	4	28	52	0	84	60	28	17	0	105	21	46	2	0	69	273
Total	3	66	1	0	70	11	125	162	0	298	233	112	97	0	442	66	161	6	0	233	1043
Grand Total	4	142	16	0	162	26	221	346	0	593	456	207	154	0	817	136	285	6	0	427	1999
Approach %	2.5	87.7	9.9	0.0		4.4	37.3	58.3	0.0		55.8	25.3	18.8	0.0		31.9	66.7	1.4	0.0		
Total %	0.2	7.1	0.8	0.0	8.1	1.3	11.1	17.3	0.0	29.7	22.8	10.4	7.7	0.0	40.9	6.8	14.3	0.3	0.0	21.4	
Exiting Leg Total					239					757					624					379	1999
Cars	3	131	16	0	150	24	198	327	0	549	438	204	145	0	787	129	272	6	0	407	1893
% Cars	75.0	92.3	100.0	0.0	92.6	92.3	89.6	94.5	0.0	92.6	96.1	98.6	94.2	0.0	96.3	94.9	95.4	100.0	0.0	95.3	94.7
Exiting Leg Total					234					726					587					346	1893
Heavy Vehicles	1	11	0	0	12	2	23	19	0	44	18	3	9	0	30	7	13	0	0	20	106
% Heavy Vehicles	25.0	7.7	0.0	0.0	7.4	7.7	10.4	5.5	0.0	7.4	3.9	1.4	5.8	0.0	3.7	5.1	4.6	0.0	0.0	4.7	5.3
Exiting Leg Total					5					31					37					33	106

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:45 AM	Atlantic Avenue from North					Sparks Avenue from East					Surfside Road from South					Prospect Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:45 AM	0	15	7	0	22	2	37	50	0	89	60	26	17	0	103	22	42	0	0	64	278
8:00 AM	1	21	0	0	22	2	36	42	0	80	56	29	30	0	115	13	37	2	0	52	269
8:15 AM	1	19	0	0	20	4	35	30	0	69	56	28	21	0	105	15	42	0	0	57	251
8:30 AM	0	12	1	0	13	1	26	38	0	65	61	27	29	0	117	17	36	2	0	55	250
Total Volume	2	67	8	0	77	9	134	160	0	303	233	110	97	0	440	67	157	4	0	228	1048
% Approach Total	2.6	87.0	10.4	0.0		3.0	44.2	52.8	0.0		53.0	25.0	22.0	0.0		29.4	68.9	1.8	0.0		
PHF	0.500	0.798	0.286	0.000	0.875	0.563	0.905	0.800	0.000	0.851	0.955	0.948	0.808	0.000	0.940	0.761	0.935	0.500	0.000	0.891	0.942
Cars	2	60	8	0	70	9	118	154	0	281	225	108	93	0	426	64	148	4	0	216	993
Cars %	100.0	89.6	100.0	0.0	90.9	100.0	88.1	96.3	0.0	92.7	96.6	98.2	95.9	0.0	96.8	95.5	94.3	100.0	0.0	94.7	94.8
Heavy Vehicles	0	7	0	0	7	0	16	6	0	22	8	2	4	0	14	3	9	0	0	12	55
Heavy Vehicles %	0.0	10.4	0.0	0.0	9.1	0.0	11.9	3.8	0.0	7.3	3.4	1.8	4.1	0.0	3.2	4.5	5.7	0.0	0.0	5.3	5.2
Cars Enter Leg	2	60	8	0	70	9	118	154	0	281	225	108	93	0	426	64	148	4	0	216	993
Heavy Enter Leg	0	7	0	0	7	0	16	6	0	22	8	2	4	0	14	3	9	0	0	12	55
Total Entering Leg	2	67	8	0	77	9	134	160	0	303	233	110	97	0	440	67	157	4	0	228	1048
Cars Exiting Leg					121					381					278					213	993
Heavy Exiting Leg					2					17					16					20	55
Total Exiting Leg					123					398					294					233	1048

PDI File #: **186308 BB**
Location: **N: Atlantic Avenue S: Surfside Road**
Location: **E: Sparks Avenue W: Prospect Street**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Thursday, June 14, 2018**
Start Time: **7:00 AM**
End Time: **9:00 AM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Atlantic Avenue from North					Sparks Avenue from East					Surfside Road from South					Prospect Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:00 AM	0	12	0	0	12	4	16	37	0	57	72	28	13	0	113	7	17	0	0	24	206
7:15 AM	0	18	2	0	20	4	17	40	0	61	42	22	10	0	74	13	28	0	0	41	196
7:30 AM	1	28	6	0	35	5	19	46	0	70	44	18	13	0	75	24	36	0	0	60	240
7:45 AM	0	13	7	0	20	2	34	48	0	84	58	26	15	0	99	21	41	0	0	62	265
Total	1	71	15	0	87	15	86	171	0	272	216	94	51	0	361	65	122	0	0	187	907
8:00 AM	1	19	0	0	20	2	29	40	0	71	54	28	30	0	112	13	34	2	0	49	252
8:15 AM	1	17	0	0	18	4	31	30	0	65	54	28	20	0	102	15	38	0	0	53	238
8:30 AM	0	11	1	0	12	1	24	36	0	61	59	26	28	0	113	15	35	2	0	52	238
8:45 AM	0	13	0	0	13	2	28	50	0	80	55	28	16	0	99	21	43	2	0	66	258
Total	2	60	1	0	63	9	112	156	0	277	222	110	94	0	426	64	150	6	0	220	986
Grand Total	3	131	16	0	150	24	198	327	0	549	438	204	145	0	787	129	272	6	0	407	1893
Approach %	2.0	87.3	10.7	0.0		4.4	36.1	59.6	0.0		55.7	25.9	18.4	0.0		31.7	66.8	1.5	0.0		
Total %	0.2	6.9	0.8	0.0	7.9	1.3	10.5	17.3	0.0	29.0	23.1	10.8	7.7	0.0	41.6	6.8	14.4	0.3	0.0	21.5	
Exiting Leg Total					234					726					587					346	1893

Peak Hour Analysis from 07:00 AM to 09:00 AM begins at:

7:30 AM	Atlantic Avenue from North					Sparks Avenue from East					Surfside Road from South					Prospect Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
7:30 AM	1	28	6	0	35	5	19	46	0	70	44	18	13	0	75	24	36	0	0	60	240
7:45 AM	0	13	7	0	20	2	34	48	0	84	58	26	15	0	99	21	41	0	0	62	265
8:00 AM	1	19	0	0	20	2	29	40	0	71	54	28	30	0	112	13	34	2	0	49	252
8:15 AM	1	17	0	0	18	4	31	30	0	65	54	28	20	0	102	15	38	0	0	53	238
Total Volume	3	77	13	0	93	13	113	164	0	290	210	100	78	0	388	73	149	2	0	224	995
% Approach Total	3.2	82.8	14.0	0.0		4.5	39.0	56.6	0.0		54.1	25.8	20.1	0.0		32.6	66.5	0.9	0.0		
PHF	0.750	0.688	0.464	0.000	0.664	0.650	0.831	0.854	0.000	0.863	0.905	0.893	0.650	0.000	0.866	0.760	0.909	0.250	0.000	0.903	0.939
Entering Leg	3	77	13	0	93	13	113	164	0	290	210	100	78	0	388	73	149	2	0	224	995
Exiting Leg					115					372					314					194	995
Total					208					662					702					418	1990

PDI File #: **186308 B**
Location: **N: Atlantic Avenue S: Surfside Road**
Location: **E: Sparks Avenue W: Prospect Street**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Wednesday, June 13, 2018**
Start Time: **2:00 PM**
End Time: **6:00 PM**
Class:

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Cars and Heavy Vehicles (Combined)

	Atlantic Avenue from North					Sparks Avenue from East					Surfside Road from South					Prospect Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
2:00 PM	1	50	1	0	52	2	20	57	0	79	47	27	14	0	88	22	46	1	0	69	288
2:15 PM	3	49	2	0	54	1	22	55	0	78	61	16	10	0	87	33	49	2	0	84	303
2:30 PM	1	39	7	0	47	4	19	51	0	74	50	25	14	0	89	32	42	1	0	75	285
2:45 PM	2	34	2	0	38	2	26	54	0	82	57	28	10	0	95	30	50	6	0	86	301
Total	7	172	12	0	191	9	87	217	0	313	215	96	48	0	359	117	187	10	0	314	1177
3:00 PM	2	27	0	0	29	1	28	62	0	91	45	28	18	0	91	26	38	5	0	69	280
3:15 PM	1	24	2	0	27	5	19	60	0	84	46	33	12	0	91	18	39	2	0	59	261
3:30 PM	3	27	4	0	34	2	24	58	0	84	62	27	1	0	90	19	47	3	0	69	277
3:45 PM	2	34	3	0	39	0	23	67	0	90	50	24	10	0	84	18	48	2	0	68	281
Total	8	112	9	0	129	8	94	247	0	349	203	112	41	0	356	81	172	12	0	265	1099
4:00 PM	0	30	6	0	36	7	23	63	0	93	64	25	13	0	102	25	45	4	0	74	305
4:15 PM	0	34	0	0	34	2	23	66	0	91	61	24	9	0	94	24	46	1	0	71	290
4:30 PM	0	30	2	0	32	3	12	68	0	83	61	23	15	0	99	25	35	2	0	62	276
4:45 PM	0	35	3	0	38	3	11	55	0	69	53	26	21	0	100	33	42	0	0	75	282
Total	0	129	11	0	140	15	69	252	0	336	239	98	58	0	395	107	168	7	0	282	1153
5:00 PM	0	41	2	0	43	7	20	72	0	99	53	34	13	0	100	12	38	0	0	50	292
5:15 PM	1	50	1	0	52	3	9	68	0	80	50	28	12	0	90	33	49	3	0	85	307
5:30 PM	0	52	2	0	54	1	19	68	0	88	71	28	7	0	106	25	41	0	0	66	314
5:45 PM	3	27	3	0	33	4	11	77	0	92	62	33	12	0	107	32	33	1	0	66	298
Total	4	170	8	0	182	15	59	285	0	359	236	123	44	0	403	102	161	4	0	267	1211
Grand Total	19	583	40	0	642	47	309	1001	0	1357	893	429	191	0	1513	407	688	33	0	1128	4640
Approach %	3.0	90.8	6.2	0.0		3.5	22.8	73.8	0.0		59.0	28.4	12.6	0.0		36.1	61.0	2.9	0.0		
Total %	0.4	12.6	0.9	0.0	13.8	1.0	6.7	21.6	0.0	29.2	19.2	9.2	4.1	0.0	32.6	8.8	14.8	0.7	0.0	24.3	
Exiting Leg Total					509					1621					1991					519	4640
Cars	17	555	40	0	612	47	302	966	0	1315	865	425	182	0	1472	388	635	31	0	1054	4453
% Cars	89.5	95.2	100.0	0.0	95.3	100.0	97.7	96.5	0.0	96.9	96.9	99.1	95.3	0.0	97.3	95.3	92.3	93.9	0.0	93.4	96.0
Exiting Leg Total					503					1540					1909					501	4453
Heavy Vehicles	2	28	0	0	30	0	7	35	0	42	28	4	9	0	41	19	53	2	0	74	187
% Heavy Vehicles	10.5	4.8	0.0	0.0	4.7	0.0	2.3	3.5	0.0	3.1	3.1	0.9	4.7	0.0	2.7	4.7	7.7	6.1	0.0	6.6	4.0
Exiting Leg Total					6					81					82					18	187

Peak Hour Analysis from 02:00 PM to 06:00 PM begins at:

5:00 PM	Atlantic Avenue from North					Sparks Avenue from East					Surfside Road from South					Prospect Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	0	41	2	0	43	7	20	72	0	99	53	34	13	0	100	12	38	0	0	50	292
5:15 PM	1	50	1	0	52	3	9	68	0	80	50	28	12	0	90	33	49	3	0	85	307
5:30 PM	0	52	2	0	54	1	19	68	0	88	71	28	7	0	106	25	41	0	0	66	314
5:45 PM	3	27	3	0	33	4	11	77	0	92	62	33	12	0	107	32	33	1	0	66	298
Total Volume	4	170	8	0	182	15	59	285	0	359	236	123	44	0	403	102	161	4	0	267	1211
% Approach Total	2.2	93.4	4.4	0.0		4.2	16.4	79.4	0.0		58.6	30.5	10.9	0.0		38.2	60.3	1.5	0.0		
PHF	0.333	0.817	0.667	0.000	0.843	0.536	0.738	0.925	0.000	0.907	0.831	0.904	0.846	0.000	0.942	0.773	0.821	0.333	0.000	0.785	0.964
Cars	4	163	8	0	175	15	58	283	0	356	234	122	44	0	400	100	156	4	0	260	1191
Cars %	100.0	95.9	100.0	0.0	96.2	100.0	98.3	99.3	0.0	99.2	99.2	99.2	100.0	0.0	99.3	98.0	96.9	100.0	0.0	97.4	98.3
Heavy Vehicles	0	7	0	0	7	0	1	2	0	3	2	1	0	0	3	2	5	0	0	7	20
Heavy Vehicles %	0.0	4.1	0.0	0.0	3.8	0.0	1.7	0.7	0.0	0.8	0.8	0.8	0.0	0.0	0.7	2.0	3.1	0.0	0.0	2.6	1.7
Cars Enter Leg	4	163	8	0	175	15	58	283	0	356	234	122	44	0	400	100	156	4	0	260	1191
Heavy Enter Leg	0	7	0	0	7	0	1	2	0	3	2	1	0	0	3	2	5	0	0	7	20
Total Entering Leg	4	170	8	0	182	15	59	285	0	359	236	123	44	0	403	102	161	4	0	267	1211
Cars Exiting Leg					141					398					546					106	1191
Heavy Exiting Leg					1					7					11					1	20
Total Exiting Leg					142					405					557					107	1211

PDI File #: **186308 B**
Location: **N: Atlantic Avenue S: Surfside Road**
Location: **E: Sparks Avenue W: Prospect Street**
City, State: **Nantucket, MA**
Client: **VHB/ E. Chan**
Site Code: **141187-141189**
Count Date: **Wednesday, June 13, 2018**
Start Time: **2:00 PM**
End Time: **6:00 PM**

PRECISION DATA INDUSTRIES, LLC
46 Morton Street, Framingham, MA 01702
Office: 508-875-0100 Fax: 508-875-0118
Email: datarequests@pdillc.com

Class: **Cars-Combined (Motorcycles, Cars, Light Goods)**

	Atlantic Avenue from North					Sparks Avenue from East					Surfside Road from South					Prospect Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
2:00 PM	1	45	1	0	47	2	18	54	0	74	42	26	13	0	81	19	41	1	0	61	263
2:15 PM	2	46	2	0	50	1	22	52	0	75	58	16	8	0	82	32	43	2	0	77	284
2:30 PM	1	36	7	0	44	4	19	48	0	71	49	25	12	0	86	29	34	1	0	64	265
2:45 PM	2	33	2	0	37	2	26	53	0	81	56	28	9	0	93	29	46	5	0	80	291
Total	6	160	12	0	178	9	85	207	0	301	205	95	42	0	342	109	164	9	0	282	1103
3:00 PM	1	26	0	0	27	1	28	58	0	87	43	27	18	0	88	24	36	5	0	65	267
3:15 PM	1	23	2	0	26	5	19	57	0	81	44	32	10	0	86	16	32	2	0	50	243
3:30 PM	3	26	4	0	33	2	20	56	0	78	57	27	1	0	85	18	46	3	0	67	263
3:45 PM	2	33	3	0	38	0	23	64	0	87	49	24	10	0	83	18	44	1	0	63	271
Total	7	108	9	0	124	8	90	235	0	333	193	110	39	0	342	76	158	11	0	245	1044
4:00 PM	0	28	6	0	34	7	23	59	0	89	63	25	13	0	101	24	41	4	0	69	293
4:15 PM	0	33	0	0	33	2	23	63	0	88	60	24	9	0	93	23	42	1	0	66	280
4:30 PM	0	29	2	0	31	3	12	65	0	80	58	23	14	0	95	23	35	2	0	60	266
4:45 PM	0	34	3	0	37	3	11	54	0	68	52	26	21	0	99	33	39	0	0	72	276
Total	0	124	11	0	135	15	69	241	0	325	233	98	57	0	388	103	157	7	0	267	1115
5:00 PM	0	39	2	0	41	7	19	72	0	98	53	34	13	0	100	12	37	0	0	49	288
5:15 PM	1	48	1	0	50	3	9	68	0	80	49	27	12	0	88	32	48	3	0	83	301
5:30 PM	0	51	2	0	53	1	19	67	0	87	71	28	7	0	106	25	39	0	0	64	310
5:45 PM	3	25	3	0	31	4	11	76	0	91	61	33	12	0	106	31	32	1	0	64	292
Total	4	163	8	0	175	15	58	283	0	356	234	122	44	0	400	100	156	4	0	260	1191
Grand Total	17	555	40	0	612	47	302	966	0	1315	865	425	182	0	1472	388	635	31	0	1054	4453
Approach %	2.8	90.7	6.5	0.0		3.6	23.0	73.5	0.0		58.8	28.9	12.4	0.0		36.8	60.2	2.9	0.0		
Total %	0.4	12.5	0.9	0.0	13.7	1.1	6.8	21.7	0.0	29.5	19.4	9.5	4.1	0.0	33.1	8.7	14.3	0.7	0.0	23.7	
Exiting Leg Total					503					1540					1909					501	4453

Peak Hour Analysis from 02:00 PM to 06:00 PM begins at:

5:00 PM	Atlantic Avenue from North					Sparks Avenue from East					Surfside Road from South					Prospect Street from West					
	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Right	Thru	Left	U-Turn	Total	Total
5:00 PM	0	39	2	0	41	7	19	72	0	98	53	34	13	0	100	12	37	0	0	49	288
5:15 PM	1	48	1	0	50	3	9	68	0	80	49	27	12	0	88	32	48	3	0	83	301
5:30 PM	0	51	2	0	53	1	19	67	0	87	71	28	7	0	106	25	39	0	0	64	310
5:45 PM	3	25	3	0	31	4	11	76	0	91	61	33	12	0	106	31	32	1	0	64	292
Total Volume	4	163	8	0	175	15	58	283	0	356	234	122	44	0	400	100	156	4	0	260	1191
% Approach Total	2.3	93.1	4.6	0.0		4.2	16.3	79.5	0.0		58.5	30.5	11.0	0.0		38.5	60.0	1.5	0.0		
PHF	0.333	0.799	0.667	0.000	0.825	0.536	0.763	0.931	0.000	0.908	0.824	0.897	0.846	0.000	0.943	0.781	0.813	0.333	0.000	0.783	0.960
Entering Leg	4	163	8	0	175	15	58	283	0	356	234	122	44	0	400	100	156	4	0	260	1191
Exiting Leg					141					398					546					106	1191
Total					316					754					946					366	2382

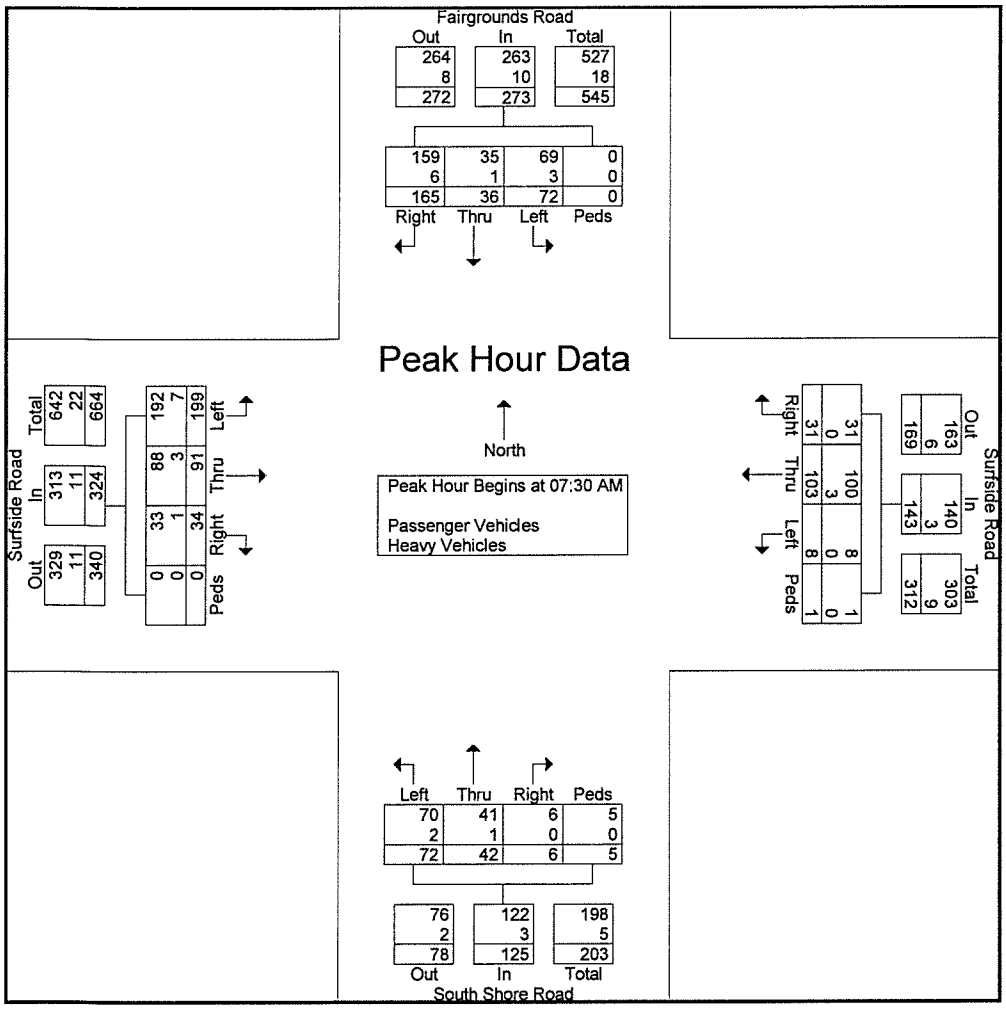
□ Surfside Road at Fairgrounds Road Counts

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

File Name : Surfside at South Shore June AM
Site Code : 959
Start Date : 6/28/2018
Page No : 2

	Fairgrounds Road From North					Surfside Road From East					South Shore Road From South					Surfside Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**45**	**12**	15	0	72	6	18	0	0	24	1	10	17	1	29	8	16	47	0	71	196
07:45 AM	43	8	**23**	0	**74**	**10**	**35**	2	**1**	**48**	**2**	9	19	0	30	8	24	47	0	79	**231**
08:00 AM	42	9	22	0	73	8	26	**5**	0	39	1	11	**20**	**2**	**34**	**9**	23	**53**	0	85	231
08:15 AM	35	7	12	0	54	7	24	1	0	32	2	**12**	16	2	32	9	**28**	52	0	**89**	207
Total Volume	165	36	72	0	273	31	103	8	1	143	6	42	72	5	125	34	91	199	0	324	865
% App. Total	60.4	13.2	26.4	0		21.7	72	5.6	0.7		4.8	33.6	57.6	4		10.5	28.1	61.4	0		
PHF	.917	.750	.783	.000	.922	.775	.736	.400	.250	.745	.750	.875	.900	.625	.919	.944	.813	.939	.000	.910	.936
Passenger Vehicles																					
% Passenger Vehicles	96.4	97.2	95.8	0	96.3	100	97.1	100	100	97.9	100	97.6	97.2	100	97.6	97.1	96.7	96.5	0	96.6	96.9
Heavy Vehicles																					
% Heavy Vehicles	3.6	2.8	4.2	0	3.7	0	2.9	0	0	2.1	0	2.4	2.8	0	2.4	2.9	3.3	3.5	0	3.4	3.1



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Fairgrounds Rd/South Shore Rd
E/W: Surfside Rd
Nantucket, MA

File Name : Surfside at South Shore June AM
Site Code : 959
Start Date : 6/28/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

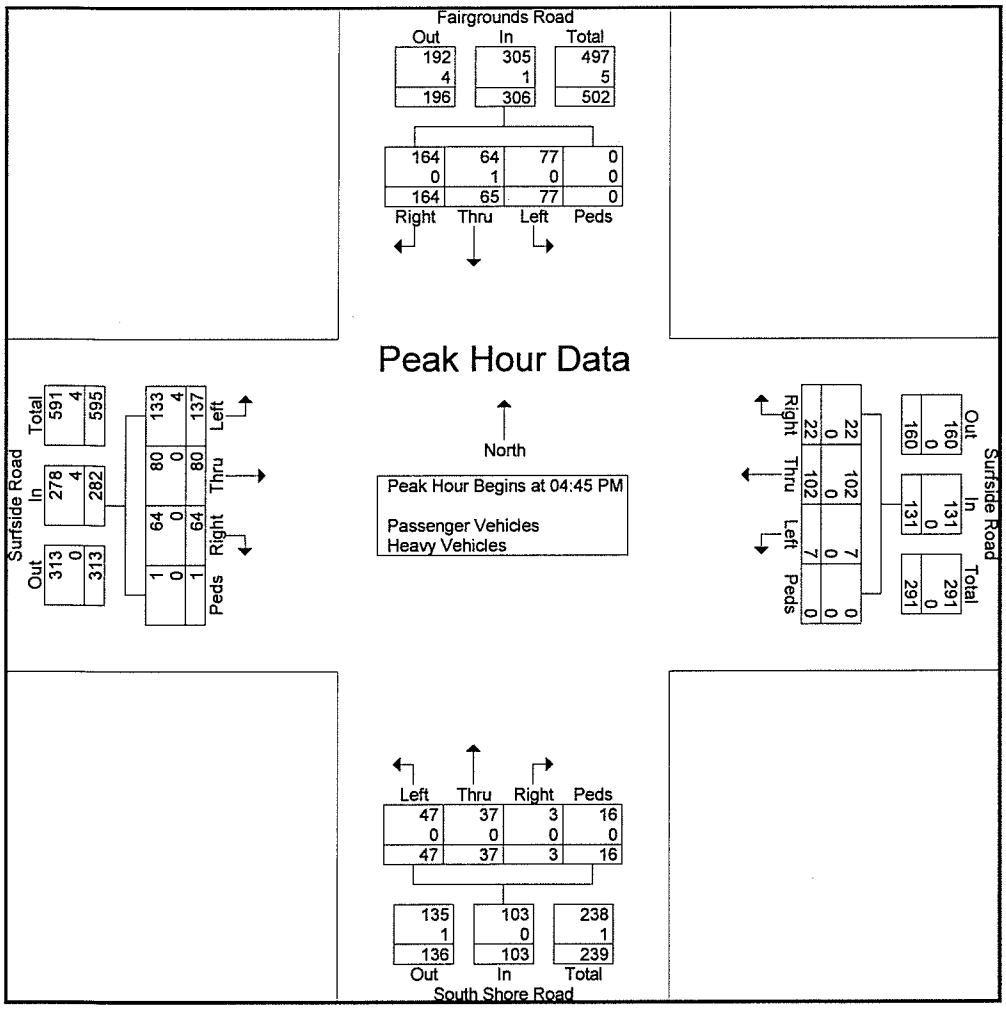
	Fairgrounds Road From North					Surfside Road From East					South Shore Road From South					Surfside Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	16	9	6	0	31	9	17	0	0	26	2	19	7	3	31	6	19	35	0	60	148
07:15 AM	22	1	7	0	30	9	18	3	1	31	1	12	26	1	40	5	15	66	0	86	187
07:30 AM	45	12	15	0	72	6	18	0	0	24	1	10	17	1	29	8	16	47	0	71	196
07:45 AM	43	8	23	0	74	10	35	2	1	48	2	9	19	0	30	8	24	47	0	79	231
Total	126	30	51	0	207	34	88	5	2	129	6	50	69	5	130	27	74	195	0	296	762
08:00 AM	42	9	22	0	73	8	26	5	0	39	1	11	20	2	34	9	23	53	0	85	231
08:15 AM	35	7	12	0	54	7	24	1	0	32	2	12	16	2	32	9	28	52	0	89	207
08:30 AM	39	11	13	0	63	11	17	3	1	32	1	9	15	1	26	6	11	44	0	61	182
08:45 AM	31	9	19	0	59	11	22	0	2	35	3	9	18	2	32	8	25	66	0	99	225
Total	147	36	66	0	249	37	89	9	3	138	7	41	69	7	124	32	87	215	0	334	845
Grand Total	273	66	117	0	456	71	177	14	5	267	13	91	138	12	254	59	161	410	0	630	1607
Apprch %	59.9	14.5	25.7	0		26.6	66.3	5.2	1.9		5.1	35.8	54.3	4.7		9.4	25.6	65.1	0		
Total %	17	4.1	7.3	0	28.4	4.4	11	0.9	0.3	16.6	0.8	5.7	8.6	0.7	15.8	3.7	10	25.5	0	39.2	
Passenger Vehicles																					
% Passenger Vehicles	96.7	97	97.4	0	96.9	100	96.6	100	100	97.8	100	96.7	97.1	100	97.2	96.6	96.9	96.6	0	96.7	97
Heavy Vehicles																					
% Heavy Vehicles	3.3	3	2.6	0	3.1	0	3.4	0	0	2.2	0	3.3	2.9	0	2.8	3.4	3.1	3.4	0	3.3	3

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

File Name : surfside at south shore june pm
Site Code : 959
Start Date : 6/28/2018
Page No : 2

	Fairgrounds Road From North					Surfside Road From East					South Shore Road From South					Surfside Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:45 PM																					
04:45 PM	39	15	**26**	0	80	6	21	**3**	0	30	**1**	**16**	**14**	**6**	**37**	15	**23**	36	0	74	**221**
05:00 PM	**50**	**20**	15	0	**85**	2	17	2	0	21	0	7	12	3	22	**19**	21	34	0	74	202
05:15 PM	28	11	21	0	60	5	**33**	1	0	39	1	7	11	3	22	15	15	27	**1**	58	179
05:30 PM	47	19	15	0	81	**9**	31	1	0	**41**	1	7	10	4	22	15	21	**40**	0	**76**	220
Total Volume	164	65	77	0	306	22	102	7	0	131	3	37	47	16	103	64	80	137	1	282	822
% App. Total	53.6	21.2	25.2	0		16.8	77.9	5.3	0		2.9	35.9	45.6	15.5		22.7	28.4	48.6	0.4		
PHF	.820	.813	.740	.000	.900	.611	.773	.583	.000	.799	.750	.578	.839	.667	.696	.842	.870	.856	.250	.928	.930
Passenger Vehicles																					
% Passenger Vehicles	100	98.5	100	0	99.7	100	100	100	0	100	100	100	100	100	100	100	100	97.1	100	98.6	99.4
Heavy Vehicles																					
% Heavy Vehicles	0	1.5	0	0	0.3	0	0	0	0	0	0	0	0	0	0	0	0	2.9	0	1.4	0.6



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Fairgrounds Rd/South Shore Rd
E/W: Surfside Rd
Nantucket, MA

File Name : surfside at south shore june pm
Site Code : 959
Start Date : 6/28/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

	Fairgrounds Road From North					Surfside Road From East					South Shore Road From South					Surfside Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	45	19	12	0	76	3	21	1	1	26	1	7	4	3	15	11	22	22	0	55	172
04:15 PM	33	19	16	0	68	10	14	1	1	26	1	8	6	2	17	8	19	36	0	63	174
04:30 PM	32	17	16	0	65	8	15	4	0	27	5	14	13	0	32	15	26	40	0	81	205
04:45 PM	39	15	26	0	80	6	21	3	0	30	1	16	14	6	37	15	23	36	0	74	221
Total	149	70	70	0	289	27	71	9	2	109	8	45	37	11	101	49	90	134	0	273	772
05:00 PM	50	20	15	0	85	2	17	2	0	21	0	7	12	3	22	19	21	34	0	74	202
05:15 PM	28	11	21	0	60	5	33	1	0	39	1	7	11	3	22	15	15	27	1	58	179
05:30 PM	47	19	15	0	81	9	31	1	0	41	1	7	10	4	22	15	21	40	0	76	220
05:45 PM	53	14	12	0	79	9	17	1	2	29	2	5	9	3	19	8	27	49	0	84	211
Total	178	64	63	0	305	25	98	5	2	130	4	26	42	13	85	57	84	150	1	292	812
Grand Total	327	134	133	0	594	52	169	14	4	239	12	71	79	24	186	106	174	284	1	565	1584
Apprch %	55.1	22.6	22.4	0		21.8	70.7	5.9	1.7		6.5	38.2	42.5	12.9		18.8	30.8	50.3	0.2		
Total %	20.6	8.5	8.4	0	37.5	3.3	10.7	0.9	0.3	15.1	0.8	4.5	5	1.5	11.7	6.7	11	17.9	0.1	35.7	
Passenger Vehicles																					
% Passenger Vehicles	99.7	98.5	100	0	99.5	100	100	100	100	100	100	100	100	100	100	100	98.3	97.9	100	98.4	99.2
Heavy Vehicles																					
% Heavy Vehicles	0.3	1.5	0	0	0.5	0	0	0	0	0	0	0	0	0	0	0	1.7	2.1	0	1.6	0.8

Accurate Counts

978-664-2565

N/S Street : Surfside Road
E/W Street: Fairgrounds Rd / S. Shore Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390019
Site Code : 56390019
Start Date : 8/2/2018
Page No : 1

Groups Printed- Cars - Trucks - Mopeds

	Surfside Rd From North			Fairgrounds Rd From East			Surfside Rd From South			S. Shore Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
07:30 AM	59	22	10	8	8	25	3	25	7	14	18	3	202
07:45 AM	70	33	10	14	10	55	4	39	20	12	16	3	286
Total	129	55	20	22	18	80	7	64	27	26	34	6	488
08:00 AM	39	37	14	17	7	48	3	25	13	17	23	1	244
08:15 AM	54	31	10	13	10	50	3	29	20	15	14	5	254
08:30 AM	48	30	8	17	10	39	2	33	23	17	13	2	242
08:45 AM	44	37	8	18	6	41	1	33	17	18	16	4	243
Total	185	135	40	65	33	178	9	120	73	67	66	12	983
09:00 AM	49	30	11	10	7	51	1	30	20	9	12	3	233
09:15 AM	43	31	12	22	8	43	1	29	15	11	14	1	230
Grand Total	406	251	83	119	66	352	18	243	135	113	126	22	1934
Apprch %	54.9	33.9	11.2	22.2	12.3	65.5	4.5	61.4	34.1	43.3	48.3	8.4	
Total %	21	13	4.3	6.2	3.4	18.2	0.9	12.6	7	5.8	6.5	1.1	
Cars	401	250	82	118	66	345	18	242	134	113	125	22	1916
% Cars	98.8	99.6	98.8	99.2	100	98	100	99.6	99.3	100	99.2	100	99.1
Trucks	5	1	1	1	0	6	0	1	0	0	1	0	16
% Trucks	1.2	0.4	1.2	0.8	0	1.7	0	0.4	0	0	0.8	0	0.8
Mopeds	0	0	0	0	0	1	0	0	1	0	0	0	2
% Mopeds	0	0	0	0	0	0.3	0	0	0.7	0	0	0	0.1

Accurate Counts

978-664-2565

N/S Street : Surfside Road
E/W Street: Fairgrounds Rd / S. Shore Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390019
Site Code : 56390019
Start Date : 8/2/2018
Page No : 2

	Surfside Rd From North				Fairgrounds Rd From East				Surfside Rd From South				S. Shore Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:30 AM to 09:15 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:45 AM																	
07:45 AM	**70**	33	10	**113**	14	**10**	**55**	**79**	**4**	**39**	20	**63**	12	16	3	31	**286**
08:00 AM	39	**37**	**14**	90	**17**	7	48	72	3	25	13	41	**17**	**23**	1	**41**	244
08:15 AM	54	31	10	95	13	10	50	73	3	29	20	52	15	14	**5**	34	254
08:30 AM	48	30	8	86	17	10	39	66	2	33	**23**	58	17	13	2	32	242
Total Volume	211	131	42	384	61	37	192	290	12	126	76	214	61	66	11	138	1026
% App. Total	54.9	34.1	10.9		21	12.8	66.2		5.6	58.9	35.5		44.2	47.8	8		
PHF	.754	.885	.750	.850	.897	.925	.873	.918	.750	.808	.826	.849	.897	.717	.550	.841	.897
Cars	208	130	42	380	60	37	190	287	12	125	75	212	61	66	11	138	1017
% Cars	98.6	99.2	100	99.0	98.4	100	99.0	99.0	100	99.2	98.7	99.1	100	100	100	100	99.1
Trucks	3	1	0	4	1	0	2	3	0	1	0	1	0	0	0	0	8
% Trucks	1.4	0.8	0	1.0	1.6	0	1.0	1.0	0	0.8	0	0.5	0	0	0	0	0.8
Mopeds	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Mopeds	0	0	0	0	0	0	0	0	0	0	1.3	0.5	0	0	0	0	0.1

Accurate Counts

978-664-2565

N/S Street : Surfside Road
E/W Street: Fairgrounds Rd / S. Shore Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390019
Site Code : 56390019
Start Date : 8/2/2018
Page No : 1

Groups Printed- Cars - Trucks - Mopeds

	Surfside Rd From North			Fairgrounds Rd From East			Surfside Rd From South			S. Shore Rd From West			
Start Time	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Int. Total
04:00 PM	50	34	13	23	15	46	5	30	19	10	13	3	261
04:15 PM	48	40	16	20	9	42	4	56	22	16	12	5	290
04:30 PM	46	40	17	16	12	49	4	59	29	13	11	3	299
04:45 PM	38	42	8	22	21	43	3	61	23	19	13	2	295
Total	182	156	54	81	57	180	16	206	93	58	49	13	1145
05:00 PM	50	49	12	20	20	57	2	60	31	13	10	1	325
05:15 PM	44	46	12	15	21	54	5	62	25	11	8	7	310
05:30 PM	50	37	26	17	14	62	2	59	33	11	7	4	322
05:45 PM	43	33	16	12	8	51	5	46	23	14	14	3	268
Total	187	165	66	64	63	224	14	227	112	49	39	15	1225
Grand Total	369	321	120	145	120	404	30	433	205	107	88	28	2370
Apprch %	45.6	39.6	14.8	21.7	17.9	60.4	4.5	64.8	30.7	48	39.5	12.6	
Total %	15.6	13.5	5.1	6.1	5.1	17	1.3	18.3	8.6	4.5	3.7	1.2	
Cars	366	319	119	144	119	402	30	430	203	107	88	28	2355
% Cars	99.2	99.4	99.2	99.3	99.2	99.5	100	99.3	99	100	100	100	99.4
Trucks	0	0	0	0	0	1	0	0	1	0	0	0	2
% Trucks	0	0	0	0	0	0.2	0	0	0.5	0	0	0	0.1
Mopeds	3	2	1	1	1	1	0	3	1	0	0	0	13
% Mopeds	0.8	0.6	0.8	0.7	0.8	0.2	0	0.7	0.5	0	0	0	0.5

Accurate Counts

978-664-2565

N/S Street : Surfside Road
E/W Street: Fairgrounds Rd / S. Shore Rd
City/State : Nantucket, MA
Weather : Cloudy

File Name : 56390019
Site Code : 56390019
Start Date : 8/2/2018
Page No : 2

	Surfside Rd From North				Fairgrounds Rd From East				Surfside Rd From South				S. Shore Rd From West				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:45 PM																	
04:45 PM	38	42	8	88	**22**	**21**	43	86	3	61	23	87	**19**	**13**	2	**34**	295
05:00 PM	**50**	**49**	12	111	20	20	57	**97**	2	60	31	93	13	10	1	24	**325**
05:15 PM	44	46	12	102	15	21	54	90	**5**	**62**	25	92	11	8	**7**	26	310
05:30 PM	50	37	**26**	**113**	17	14	**62**	93	2	59	**33**	**94**	11	7	4	22	322
Total Volume	182	174	58	414	74	76	216	366	12	242	112	366	54	38	14	106	1252
% App. Total	44	42	14		20.2	20.8	59		3.3	66.1	30.6		50.9	35.8	13.2		
PHF	.910	.888	.558	.916	.841	.905	.871	.943	.600	.976	.848	.973	.711	.731	.500	.779	.963
Cars	179	174	58	411	73	75	216	364	12	239	111	362	54	38	14	106	1243
% Cars	98.4	100	100	99.3	98.6	98.7	100	99.5	100	98.8	99.1	98.9	100	100	100	100	99.3
Trucks	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	0	1
% Trucks	0	0	0	0	0	0	0	0	0	0	0.9	0.3	0	0	0	0	0.1
Mopeds	3	0	0	3	1	1	0	2	0	3	0	3	0	0	0	0	8
% Mopeds	1.6	0	0	0.7	1.4	1.3	0	0.5	0	1.2	0	0.8	0	0	0	0	0.6

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Fairgrounds Rd/South Shore Rd
E/W: Surfside Rd
Nantucket, MA

File Name : Surfside at South Shore August AM
Site Code : 959
Start Date : 8/16/2018
Page No : 1

Groups Printed- Passenger Vehicles - Heavy Vehicles

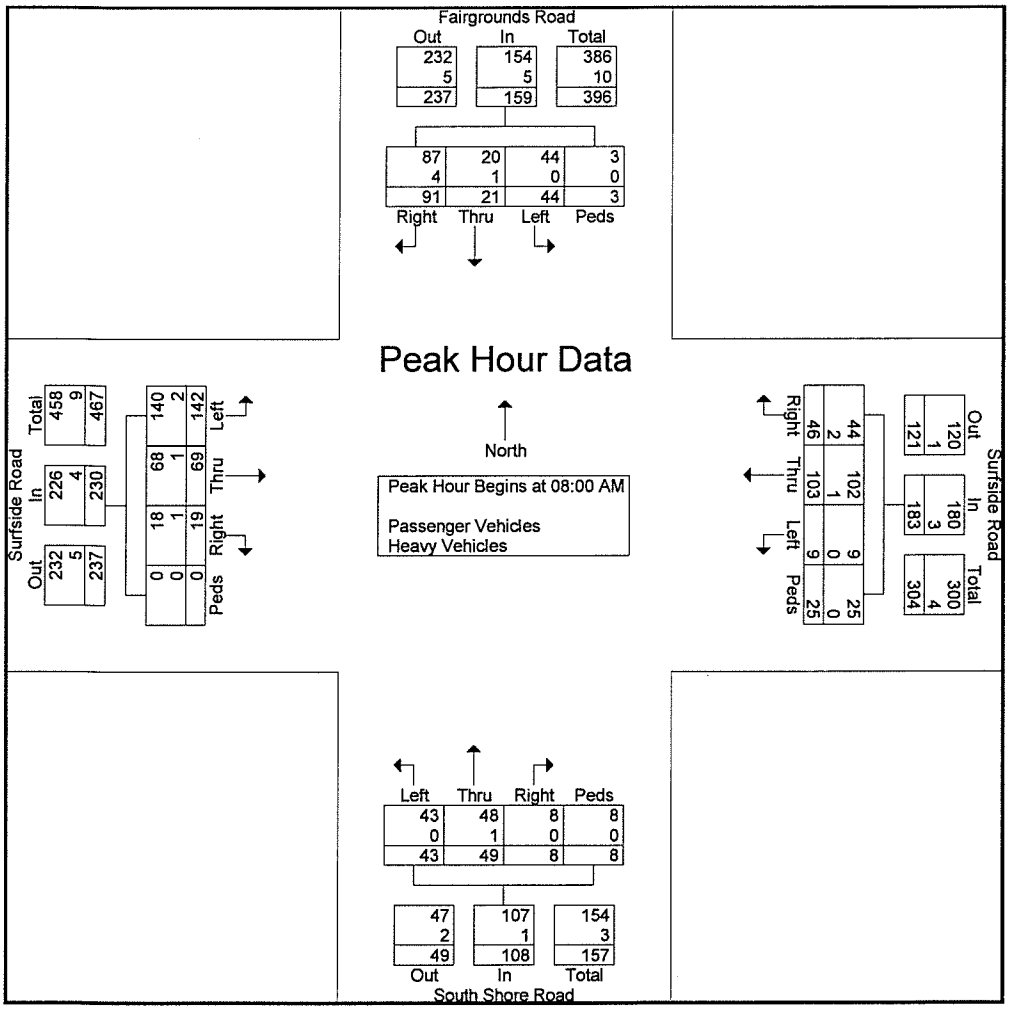
	Fairgrounds Road From North					Surfside Road From East					South Shore Road From South					Surfside Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	7	7	7	3	24	8	14	0	0	22	3	17	15	0	35	5	6	15	0	26	107
07:15 AM	15	3	5	0	23	8	8	1	0	17	7	11	13	1	32	3	9	40	0	52	124
07:30 AM	17	2	8	2	29	11	14	0	1	26	4	20	3	6	33	5	10	42	1	58	146
07:45 AM	30	3	10	0	43	12	15	1	3	31	2	10	8	6	26	2	11	37	0	50	150
Total	69	15	30	5	119	39	51	2	4	96	16	58	39	13	126	15	36	134	1	186	527
08:00 AM	17	6	13	0	36	8	19	3	2	32	2	16	6	2	26	5	15	34	0	54	148
08:15 AM	20	6	12	2	40	6	23	3	6	38	1	14	9	3	27	1	13	36	0	50	155
08:30 AM	20	4	8	1	33	12	24	2	12	50	5	9	11	0	25	5	19	36	0	60	168
08:45 AM	34	5	11	0	50	20	37	1	5	63	0	10	17	3	30	8	22	36	0	66	209
Total	91	21	44	3	159	46	103	9	25	183	8	49	43	8	108	19	69	142	0	230	680
Grand Total	160	36	74	8	278	85	154	11	29	279	24	107	82	21	234	34	105	276	1	416	1207
Apprch %	57.6	12.9	26.6	2.9		30.5	55.2	3.9	10.4		10.3	45.7	35	9		8.2	25.2	66.3	0.2		
Total %	13.3	3	6.1	0.7	23	7	12.8	0.9	2.4	23.1	2	8.9	6.8	1.7	19.4	2.8	8.7	22.9	0.1	34.5	
Passenger Vehicles																					
% Passenger Vehicles	95	97.2	100	100	96.8	97.6	98.7	100	100	98.6	100	96.3	98.8	100	97.9	97.1	98.1	98.6	100	98.3	97.9
Heavy Vehicles																					
% Heavy Vehicles	5	2.8	0	0	3.2	2.4	1.3	0	0	1.4	0	3.7	1.2	0	2.1	2.9	1.9	1.4	0	1.7	2.1

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

File Name : Surfside at South Shore August AM
Site Code : 959
Start Date : 8/16/2018
Page No : 2

	Fairgrounds Road From North					Surfside Road From East					South Shore Road From South					Surfside Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	17	**6**	**13**	0	36	8	19	**3**	2	32	2	**16**	6	2	26	5	15	34	0	54	148
08:15 AM	20	6	12	**2**	40	6	23	3	6	38	1	14	9	**3**	27	1	13	**36**	0	50	155
08:30 AM	20	4	8	1	33	12	24	2	**12**	50	**5**	9	11	0	25	5	19	36	0	60	168
08:45 AM	**34**	5	11	0	**50**	**20**	**37**	1	5	**63**	0	10	**17**	3	**30**	**8**	**22**	36	0	**66**	**209**
Total Volume	91	21	44	3	159	46	103	9	25	183	8	49	43	8	108	19	69	142	0	230	680
% App. Total	57.2	13.2	27.7	1.9		25.1	56.3	4.9	13.7		7.4	45.4	39.8	7.4		8.3	30	61.7	0		
PHF	.669	.875	.846	.375	.795	.575	.696	.750	.521	.726	.400	.766	.632	.667	.900	.594	.784	.986	.000	.871	.813
Passenger Vehicles																					
% Passenger Vehicles	95.6	95.2	100	100	96.9	95.7	99.0	100	100	98.4	100	98.0	100	100	99.1	94.7	98.6	98.6	0	98.3	98.1
Heavy Vehicles																					
% Heavy Vehicles	4.4	4.8	0	0	3.1	4.3	1.0	0	0	1.6	0	2.0	0	0	0.9	5.3	1.4	1.4	0	1.7	1.9



MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

N/S: Fairgrounds Rd/South Shore Rd
E/W: Surfside Rd
Nantucket, MA

File Name : Surfside at South Shore August PM
Site Code : 959
Start Date : 8/16/2018
Page No : 1

Groups Printed- Passenger Vehicles

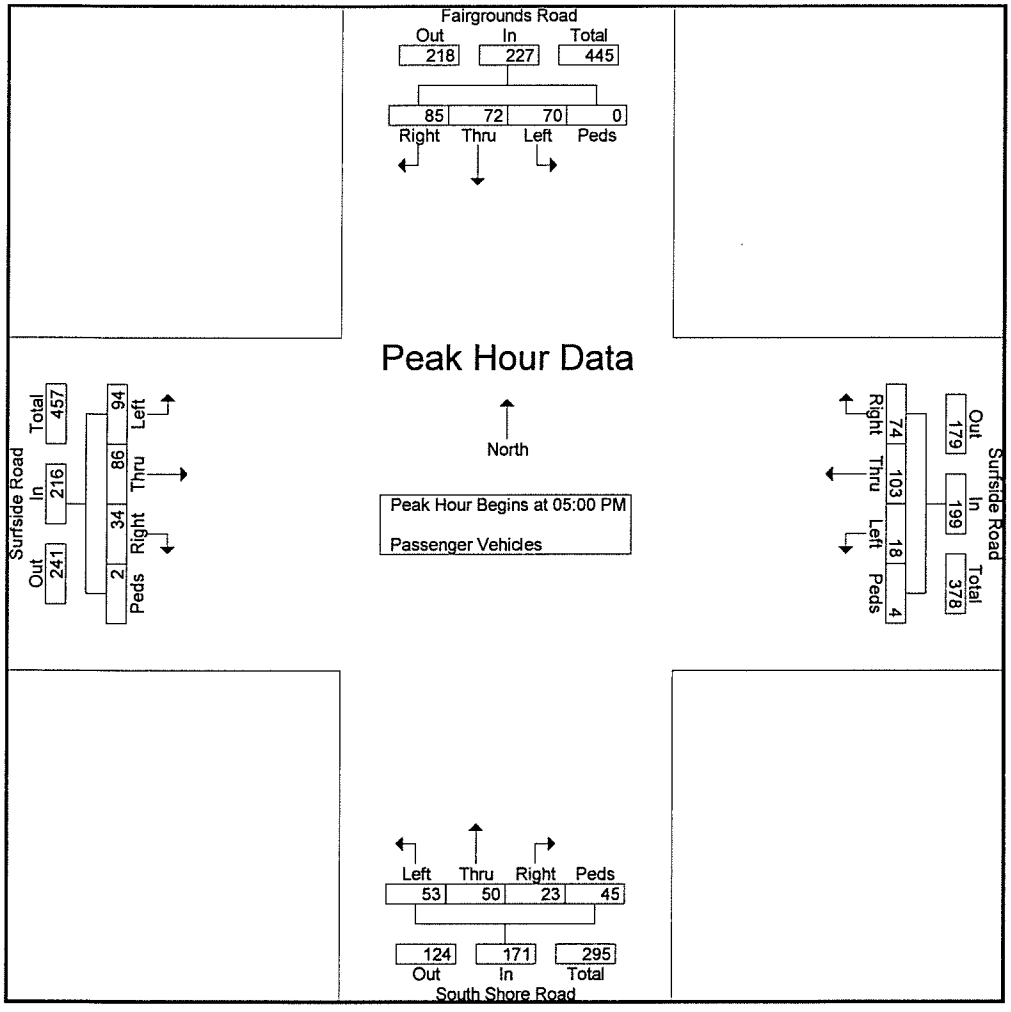
	Fairgrounds Road From North					Surfside Road From East					South Shore Road From South					Surfside Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	12	8	9	5	34	6	12	5	0	23	5	12	6	8	31	12	16	13	0	41	129
04:15 PM	22	9	7	0	38	23	17	5	0	45	6	12	8	3	29	8	17	15	0	40	152
04:30 PM	16	4	10	0	30	8	19	2	0	29	6	11	3	5	25	14	26	18	0	58	142
04:45 PM	30	7	10	0	47	16	14	8	0	38	5	15	6	8	34	5	22	9	0	36	155
Total	80	28	36	5	149	53	62	20	0	135	22	50	23	24	119	39	81	55	0	175	578
05:00 PM	19	13	17	0	49	17	26	4	0	47	6	12	12	11	41	10	18	20	0	48	185
05:15 PM	23	18	18	0	59	15	21	4	0	40	5	13	7	10	35	4	26	20	1	51	185
05:30 PM	17	21	18	0	56	22	29	5	4	60	12	9	11	2	34	8	23	21	1	53	203
05:45 PM	26	20	17	0	63	20	27	5	0	52	0	16	23	22	61	12	19	33	0	64	240
Total	85	72	70	0	227	74	103	18	4	199	23	50	53	45	171	34	86	94	2	216	813
Grand Total	165	100	106	5	376	127	165	38	4	334	45	100	76	69	290	73	167	149	2	391	1391
Apprch %	43.9	26.6	28.2	1.3		38	49.4	11.4	1.2		15.5	34.5	26.2	23.8		18.7	42.7	38.1	0.5		
Total %	11.9	7.2	7.6	0.4	27	9.1	11.9	2.7	0.3	24	3.2	7.2	5.5	5	20.8	5.2	12	10.7	0.1	28.1	

MDM Transportation Consultants, Inc.

28 Lord Road, Suite 280
Marlborough, MA

File Name : Surfside at South Shore August PM
Site Code : 959
Start Date : 8/16/2018
Page No : 2

	Fairgrounds Road From North					Surfside Road From East					South Shore Road From South					Surfside Road From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	19	13	17	0	49	17	26	4	0	47	6	12	12	11	41	10	18	20	0	48	185
05:15 PM	23	18	**18**	0	59	15	21	4	0	40	5	13	7	10	35	4	**26**	20	**1**	51	185
05:30 PM	17	**21**	18	0	56	**22**	**29**	**5**	**4**	**60**	**12**	9	11	2	34	8	23	21	1	53	203
05:45 PM	**26**	20	17	0	**63**	20	27	5	0	52	0	**16**	**23**	**22**	**61**	**12**	19	**33**	0	**64**	**240**
Total Volume	85	72	70	0	227	74	103	18	4	199	23	50	53	45	171	34	86	94	2	216	813
% App. Total	37.4	31.7	30.8	0		37.2	51.8	9	2		13.5	29.2	31	26.3		15.7	39.8	43.5	0.9		
PHF	.817	.857	.972	.000	.901	.841	.888	.900	.250	.829	.479	.781	.576	.511	.701	.708	.827	.712	.500	.844	.847



□ Sight Distance Calculations

Intersection Sight Distance Calculations

Source: *A Policy on Geometric Design of Highways and Street, 6th Edition;* AASHTO; 2011.

ISD = 1.47 * V * t

V = speed
t = time gap

t = 7.5 s for a passenger car for Left Turn from a Stop
t = 6.5 s for a passenger car for Right Turn from a Stop

South Shore Road

ISD = 1.47 * 30 * 7.5 = 331 ft **SAY 335 ft**
(left-turn from a stop)

ISD = 1.47 * 30 * 6.5 = 287 ft **SAY 290 ft**
(right-turn from a stop)

South Shore Road (Northern Driveway

ISD = 1.47 * 15 * 7.5 = 166 ft **SAY 170 ft**
(left-turn from a stop)

ISD = 1.47 * 15 * 6.5 = 142 ft **SAY 145 ft**
(right-turn from a stop)

Intersection Sight Distance Calculations

Source: *A Policy on Geometric Design of Highways and Street, 6th Edition;* AASHTO; 2011.

ISD = 1.47 * V * t

V = speed
t = time gap

t = 7.5 s for a passenger car for Left Turn from a Stop
t = 6.5 s for a passenger car for Right Turn from a Stop

South Shore Road (85th Percentile)

ISD = 1.47 * 38 * 7.5 = 419 ft **SAY 420 ft**
(left-turn from a stop)

ISD = 1.47 * 38 * 6.5 = 364 ft **SAY 365 ft**
(right-turn from a stop)

□ Revised Figures

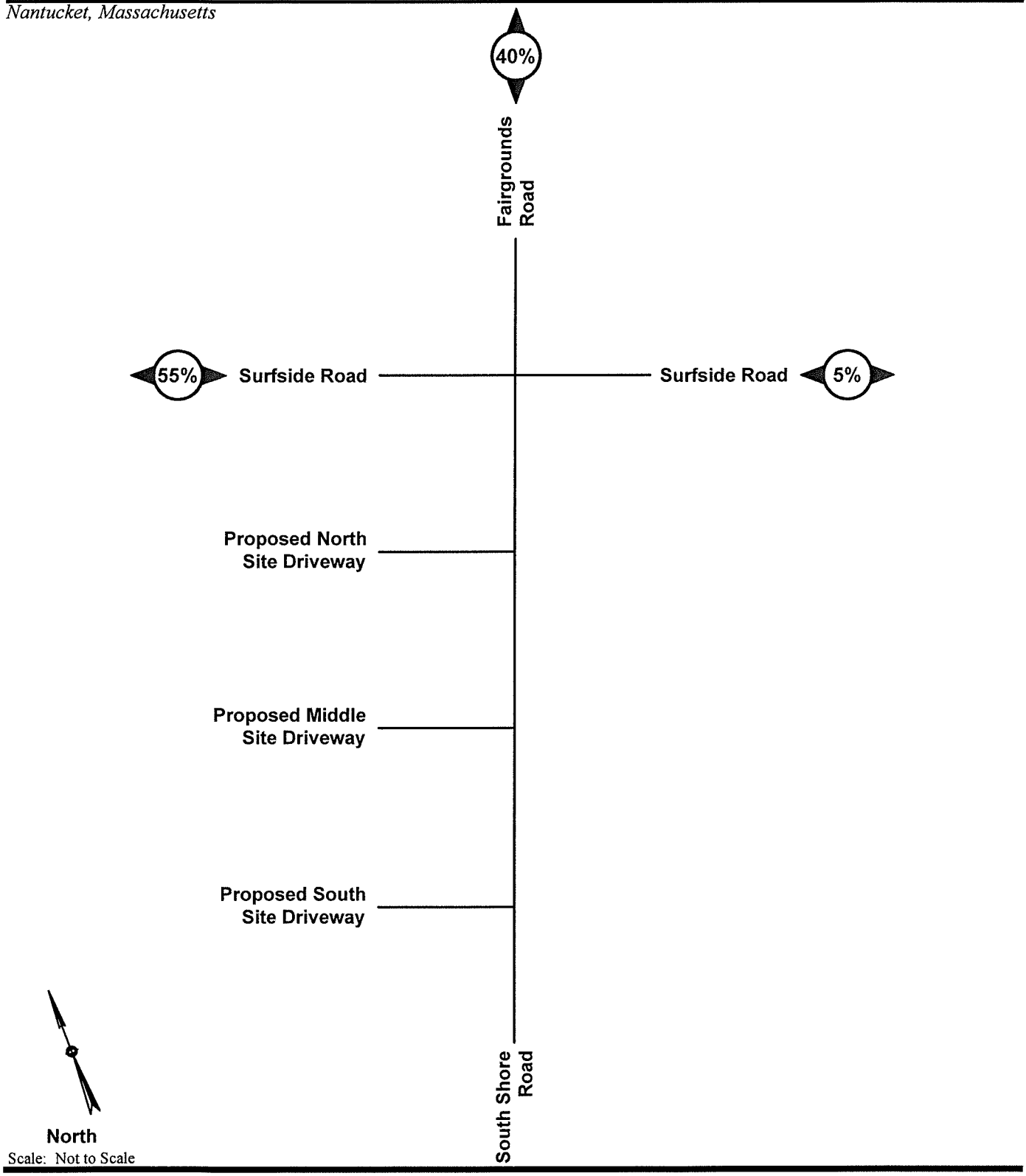


Figure 5

Trip Distribution

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Date: September 2018
Dwg No. 959 Peer Review.dwg

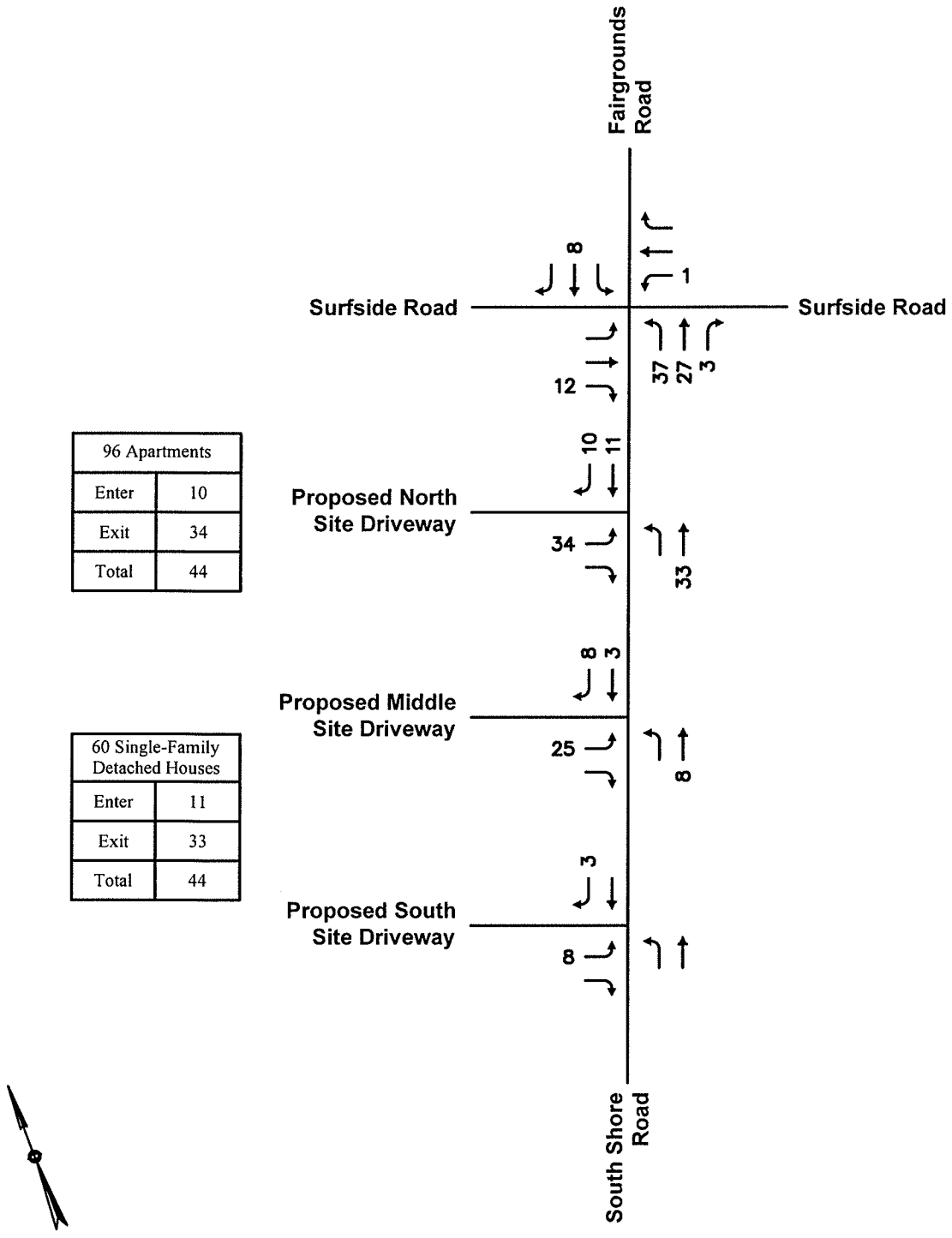


Figure 6

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Site Generated Trips
Weekday Morning Peak Hour Volumes

Date: September 2018
Dwg No. 959 Peer Review.dwg

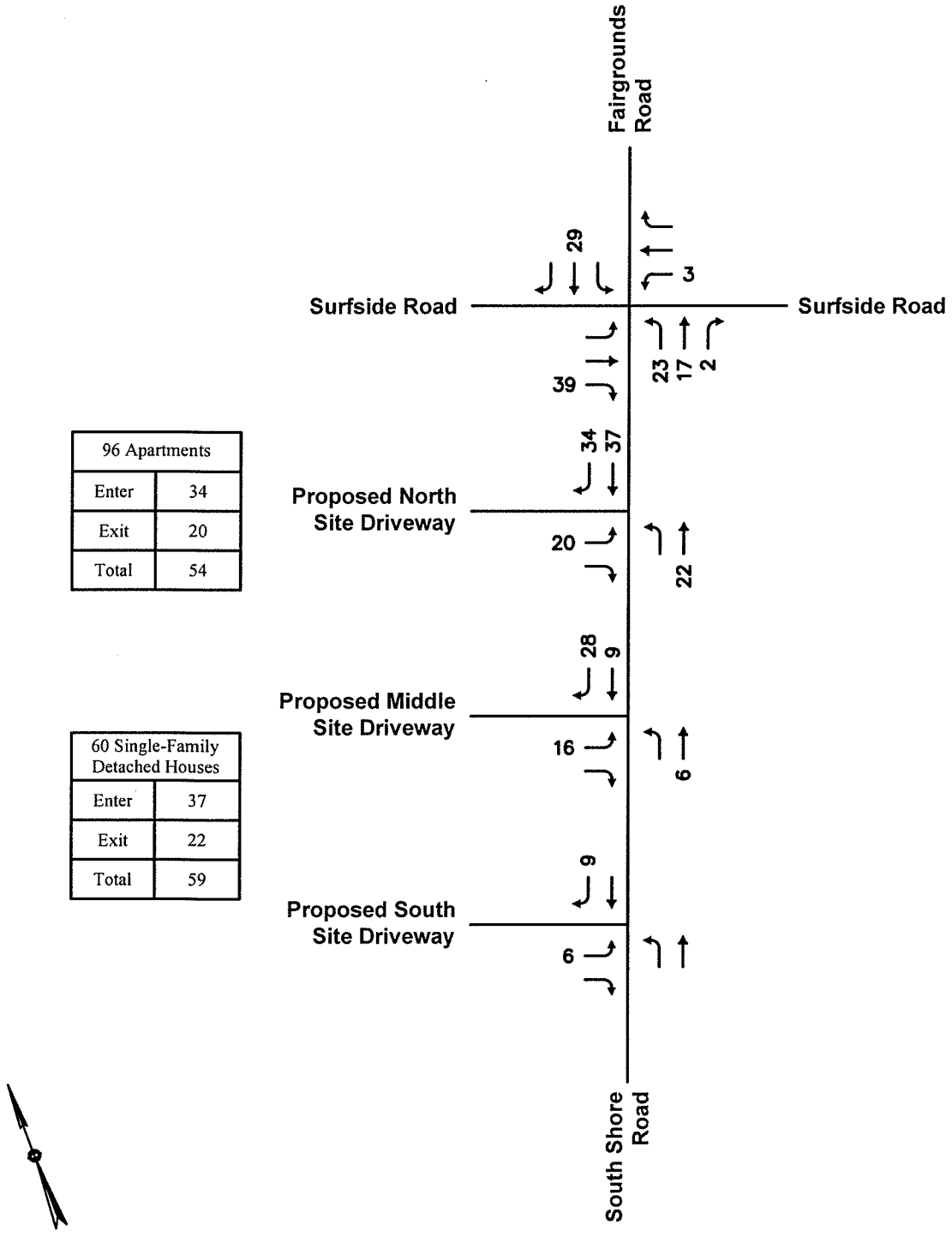
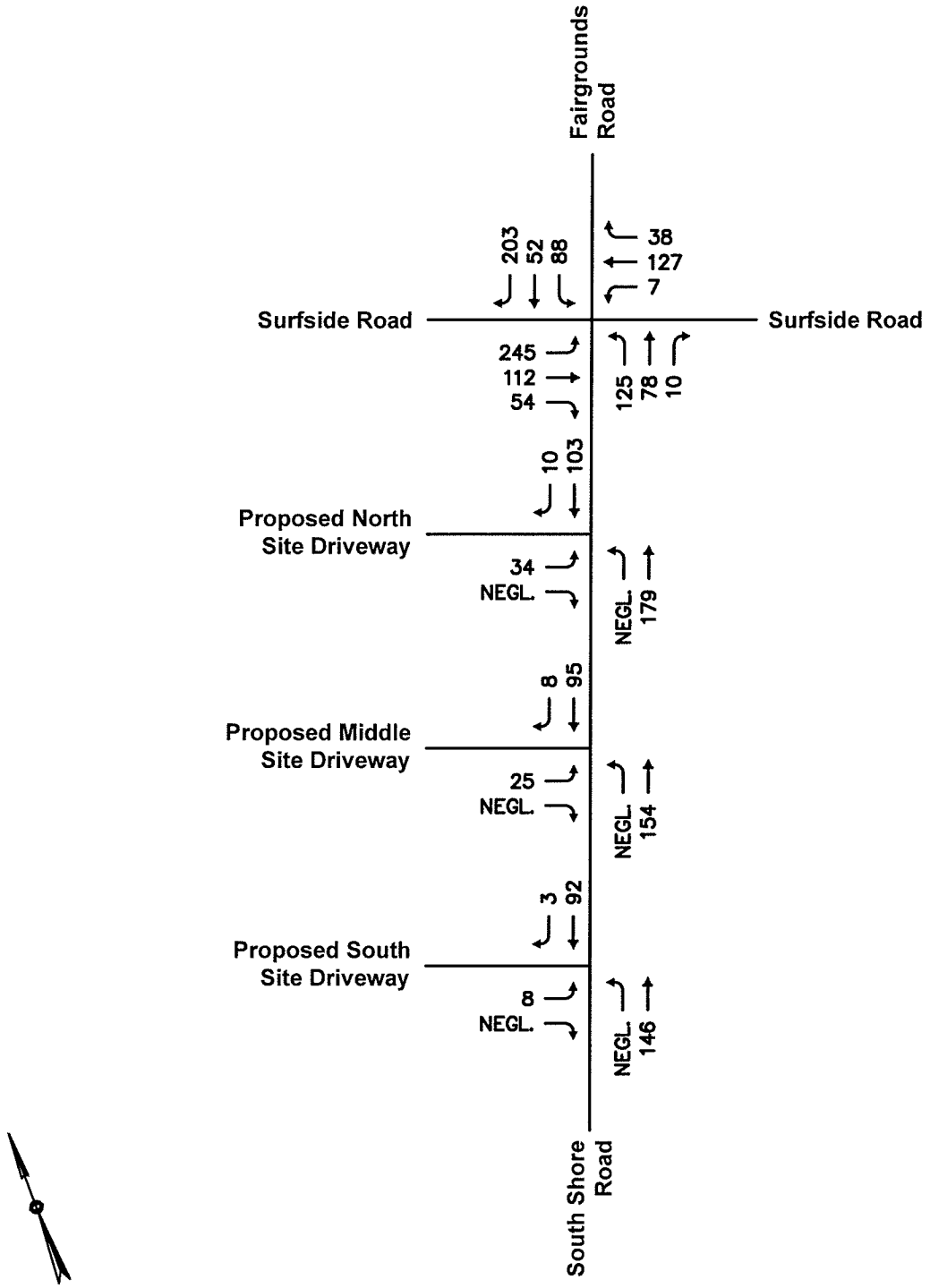


Figure 7

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

Site Generated Trips
Weekday Evening Peak Hour Volumes

Date: September 2018
Dwg No. 959 Peer Review.dwg



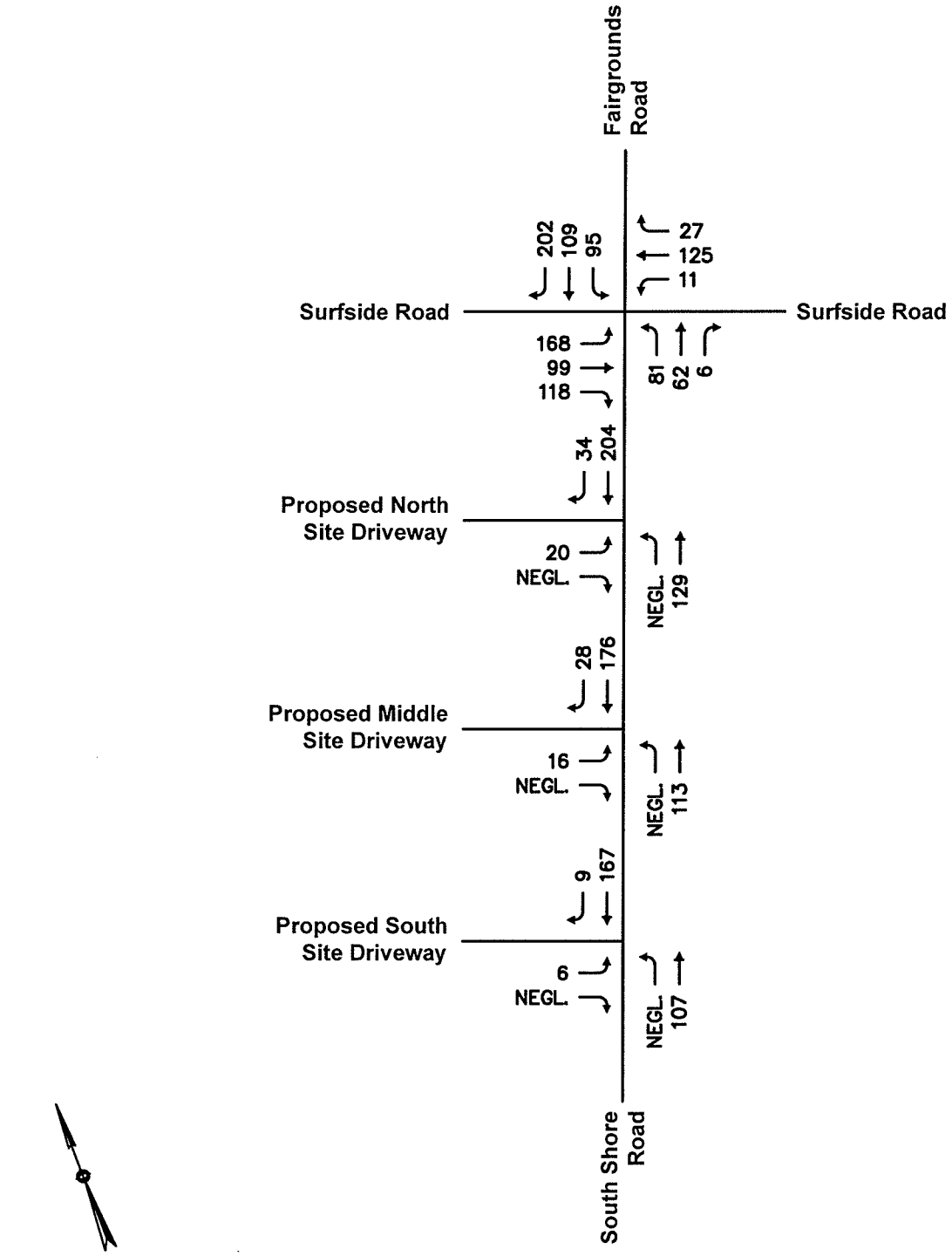
NOTES:
NEGL. = Negligible

Figure 8

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

2023 Build Conditions
Weekday Morning Peak Hour Volumes

Date: September 2018
Dwg No. 959 Peer Review.dwg



NOTES:
NEGL. = Negligible

Figure 9

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

2023 Build Conditions
Weekday Evening Peak Hour Volumes

Date: September 2018
Dwg No. 959 Peer Review.dwg

□ Revised Capacity Analysis

Intersection	
Intersection Delay, s/veh	15.6
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	233	107	40	0	6	121	36	0	84	49	7
Peak Hour Factor	0.92	0.94	0.94	0.94	0.92	0.94	0.94	0.94	0.92	0.94	0.94	0.94
Heavy Vehicles, %	2	4	3	3	2	0	3	0	2	3	2	0
Mvmt Flow	0	248	114	43	0	6	129	38	0	89	52	7
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	19.2	11.6	11.9
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	60%	61%	4%	26%
Vol Thru, %	35%	28%	74%	13%
Vol Right, %	5%	11%	22%	61%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	140	380	163	319
LT Vol	84	233	6	84
Through Vol	49	107	121	42
RT Vol	7	40	36	193
Lane Flow Rate	149	404	173	339
Geometry Grp	1	1	1	1
Degree of Util (X)	0.269	0.651	0.294	0.533
Departure Headway (Hd)	6.513	5.793	6.096	5.757
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	554	619	593	631
Service Time	4.526	3.891	4.104	3.757
HCM Lane V/C Ratio	0.269	0.653	0.292	0.537
HCM Control Delay	11.9	19.2	11.6	15.1
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.1	4.7	1.2	3.2

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	84	42	193
Peak Hour Factor	0.92	0.94	0.94	0.94
Heavy Vehicles, %	2	4	3	4
Mvmt Flow	0	89	45	205
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	15.1
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	160	94	75	0	8	119	26	0	55	43	4
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	3	0	0	2	0	0	0	2	0	0	0
Mvmt Flow	0	172	101	81	0	9	128	28	0	59	46	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	15.3	11	10.7
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	54%	49%	5%	25%
Vol Thru, %	42%	29%	78%	21%
Vol Right, %	4%	23%	17%	54%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	102	329	153	358
LT Vol	55	160	8	90
Through Vol	43	94	119	76
RT Vol	4	75	26	192
Lane Flow Rate	110	354	165	385
Geometry Grp	1	1	1	1
Degree of Util (X)	0.187	0.549	0.266	0.568
Departure Headway (Hd)	6.152	5.591	5.829	5.308
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	579	640	612	678
Service Time	4.237	3.654	3.907	3.369
HCM Lane V/C Ratio	0.19	0.553	0.27	0.568
HCM Control Delay	10.7	15.3	11	15.2
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	0.7	3.3	1.1	3.6

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	90	76	192
Peak Hour Factor	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	0	2	0
Mvmt Flow	0	97	82	206
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	15.2
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	18.6
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	245	112	42	0	6	127	38	0	88	81	7
Peak Hour Factor	0.92	0.94	0.94	0.94	0.92	0.94	0.94	0.94	0.92	0.94	0.94	0.94
Heavy Vehicles, %	2	4	3	3	2	0	3	0	2	3	2	0
Mvmt Flow	0	261	119	45	0	6	135	40	0	94	86	7
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	24	12.7	13.5
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	50%	61%	4%	26%
Vol Thru, %	46%	28%	74%	13%
Vol Right, %	4%	11%	22%	61%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	176	399	171	335
LT Vol	88	245	6	88
Through Vol	81	112	127	44
RT Vol	7	42	38	203
Lane Flow Rate	187	424	182	356
Geometry Grp	1	1	1	1
Degree of Util (X)	0.352	0.727	0.327	0.598
Departure Headway (Hd)	6.776	6.169	6.474	6.036
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	530	586	553	595
Service Time	4.841	4.221	4.541	4.088
HCM Lane V/C Ratio	0.353	0.724	0.329	0.598
HCM Control Delay	13.5	24	12.7	17.7
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.6	6.1	1.4	3.9

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	88	44	203
Peak Hour Factor	0.92	0.94	0.94	0.94
Heavy Vehicles, %	2	4	3	4
Mvmt Flow	0	94	47	216
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	17.7
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	15.3
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	168	99	79	0	8	125	27	0	58	45	4
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	3	0	0	2	0	0	0	2	0	0	0
Mvmt Flow	0	181	106	85	0	9	134	29	0	62	48	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	16.8	11.5	11.1
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	54%	49%	5%	25%
Vol Thru, %	42%	29%	78%	21%
Vol Right, %	4%	23%	17%	54%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	107	346	160	377
LT Vol	58	168	8	95
Through Vol	45	99	125	80
RT Vol	4	79	27	202
Lane Flow Rate	115	372	172	405
Geometry Grp	1	1	1	1
Degree of Util (X)	0.206	0.591	0.286	0.611
Departure Headway (Hd)	6.432	5.717	6.095	5.43
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	561	625	594	661
Service Time	4.432	3.8	4.095	3.51
HCM Lane V/C Ratio	0.205	0.595	0.29	0.613
HCM Control Delay	11.1	16.8	11.5	16.8
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	0.8	3.9	1.2	4.2

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	95	80	202
Peak Hour Factor	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	0	2	0
Mvmt Flow	0	102	86	217
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	16.8
HCM LOS	C

Lane

Intersection	
Intersection Delay, s/veh	21.2
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	245	112	54	0	7	127	38	0	125	78	10
Peak Hour Factor	0.92	0.94	0.94	0.94	0.92	0.94	0.94	0.94	0.92	0.94	0.94	0.94
Heavy Vehicles, %	2	4	3	3	2	0	3	0	2	3	2	0
Mvmt Flow	0	261	119	57	0	7	135	40	0	133	83	11
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	28.4	13.5	15.5
HCM LOS	D	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	59%	60%	4%	26%
Vol Thru, %	37%	27%	74%	15%
Vol Right, %	5%	13%	22%	59%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	213	411	172	343
LT Vol	125	245	7	88
Through Vol	78	112	127	52
RT Vol	10	54	38	203
Lane Flow Rate	227	437	183	365
Geometry Grp	1	1	1	1
Degree of Util (X)	0.439	0.777	0.346	0.638
Departure Headway (Hd)	6.98	6.401	6.815	6.293
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	512	564	523	569
Service Time	5.068	4.472	4.91	4.368
HCM Lane V/C Ratio	0.443	0.775	0.35	0.641
HCM Control Delay	15.5	28.4	13.5	19.9
HCM Lane LOS	C	D	B	C
HCM 95th-tile Q	2.2	7.2	1.5	4.5

Intersection

Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	88	52	203
Peak Hour Factor	0.92	0.94	0.94	0.94
Heavy Vehicles, %	2	4	3	4
Mvmt Flow	0	94	55	216
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	19.9
HCM LOS	C

Lane

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	34	0	0	179	103	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	37	0	0	195	112	11

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	312	117	123	0	-	0
Stage 1	117	-	-	-	-	-
Stage 2	195	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	685	941	1477	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	843	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	685	941	1477	-	-	-
Mov Cap-2 Maneuver	685	-	-	-	-	-
Stage 1	913	-	-	-	-	-
Stage 2	843	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1477	-	685	-	-
HCM Lane V/C Ratio	-	-	0.054	-	-
HCM Control Delay (s)	0	-	10.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	25	0	0	154	95	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	27	0	0	167	103	9

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	275	108	112	0	-	0
Stage 1	108	-	-	-	-	-
Stage 2	167	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	719	951	1490	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	867	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	719	951	1490	-	-	-
Mov Cap-2 Maneuver	719	-	-	-	-	-
Stage 1	921	-	-	-	-	-
Stage 2	867	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1490	-	719	-	-
HCM Lane V/C Ratio	-	-	0.038	-	-
HCM Control Delay (s)	0	-	10.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	8	0	0	146	92	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	9	0	0	159	100	3

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	261	102	103	0	-	0
Stage 1	102	-	-	-	-	-
Stage 2	159	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	732	959	1502	-	-	-
Stage 1	927	-	-	-	-	-
Stage 2	875	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	732	959	1502	-	-	-
Mov Cap-2 Maneuver	732	-	-	-	-	-
Stage 1	927	-	-	-	-	-
Stage 2	875	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1502	-	732	-	-
HCM Lane V/C Ratio	-	-	0.012	-	-
HCM Control Delay (s)	0	-	10	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

Intersection	
Intersection Delay, s/veh	19.8
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	168	99	118	0	11	125	27	0	81	62	6
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	3	0	0	2	0	0	0	2	0	0	0
Mvmt Flow	0	181	106	127	0	12	134	29	0	87	67	6
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	22.6	12.9	12.9
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	54%	44%	7%	23%
Vol Thru, %	42%	26%	77%	27%
Vol Right, %	4%	31%	17%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	149	385	163	406
LT Vol	81	168	11	95
Through Vol	62	99	125	109
RT Vol	6	118	27	202
Lane Flow Rate	160	414	175	437
Geometry Grp	1	1	1	1
Degree of Util (X)	0.305	0.705	0.323	0.716
Departure Headway (Hd)	6.844	6.128	6.637	5.902
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	522	588	540	611
Service Time	4.918	4.184	4.711	3.958
HCM Lane V/C Ratio	0.307	0.704	0.324	0.715
HCM Control Delay	12.9	22.6	12.9	22.5
HCM Lane LOS	B	C	B	C
HCM 95th-tile Q	1.3	5.7	1.4	5.9

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	95	109	202
Peak Hour Factor	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	0	2	0
Mvmt Flow	0	102	117	217
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	22.5
HCM LOS	C

Lane

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	20	0	0	129	204	34
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	22	0	0	140	222	37

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	380	240	259	0	-	0
Stage 1	240	-	-	-	-	-
Stage 2	140	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	626	804	1317	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	892	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	626	804	1317	-	-	-
Mov Cap-2 Maneuver	626	-	-	-	-	-
Stage 1	805	-	-	-	-	-
Stage 2	892	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1317	-	626	-	-
HCM Lane V/C Ratio	-	-	0.035	-	-
HCM Control Delay (s)	0	-	11	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	16	0	0	113	176	28
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	17	0	0	123	191	30

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	330	207	222	0	-	0
Stage 1	207	-	-	-	-	-
Stage 2	123	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	669	839	1359	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	907	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	669	839	1359	-	-	-
Mov Cap-2 Maneuver	669	-	-	-	-	-
Stage 1	832	-	-	-	-	-
Stage 2	907	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1359	-	669	-	-
HCM Lane V/C Ratio	-	-	0.026	-	-
HCM Control Delay (s)	0	-	10.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

Intersection	
Int Delay, s/veh	0.2

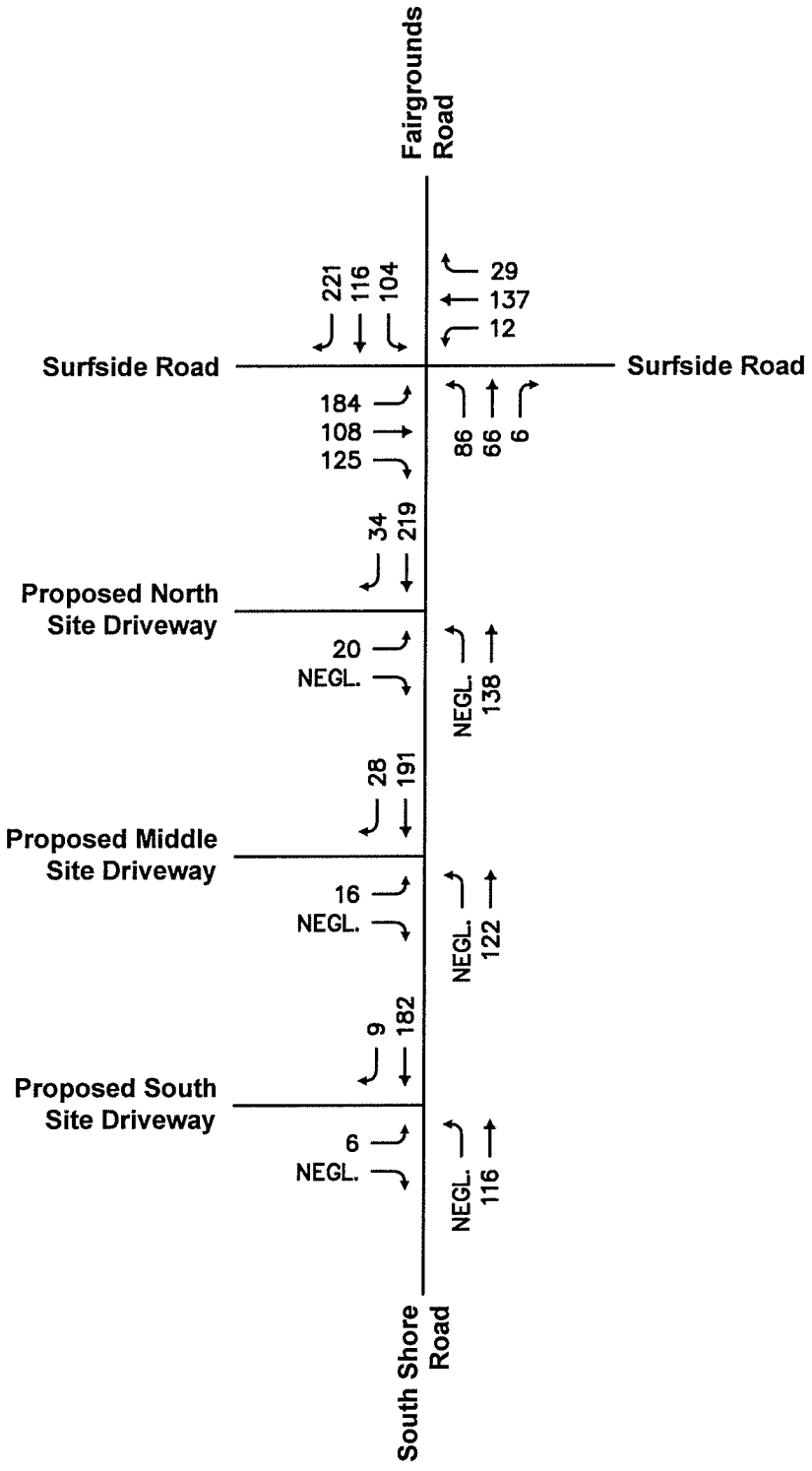
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Vol, veh/h	6	0	0	107	167	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	0	0	0	2	2	0
Mvmt Flow	7	0	0	116	182	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	302	186	191	0	-	0
Stage 1	186	-	-	-	-	-
Stage 2	116	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.1	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.2	-	-	-
Pot Cap-1 Maneuver	694	861	1395	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	914	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	694	861	1395	-	-	-
Mov Cap-2 Maneuver	694	-	-	-	-	-
Stage 1	851	-	-	-	-	-
Stage 2	914	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	10.2	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1395	-	694	-	-
HCM Lane V/C Ratio	-	-	0.009	-	-
HCM Control Delay (s)	0	-	10.2	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

□ Sensitivity Analysis



North
Scale: Not to Scale

NOTES:
NEGL. = Negligible

Attachment

MDM TRANSPORTATION CONSULTANTS, INC.
Planners & Engineers

2023 Build Conditions (Sensitivity)
Weekday Evening Peak Hour Volumes

Date: September 2018
Dwg No. 959 Peer Review.dwg

Intersection	
Intersection Delay, s/veh	26.7
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	184	108	125	0	12	137	29	0	86	66	4
Peak Hour Factor	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	3	0	0	2	0	0	0	2	0	0	0
Mvmt Flow	0	198	116	134	0	13	147	31	0	92	71	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	31.2	14.6	14.4
HCM LOS	D	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	55%	44%	7%	24%
Vol Thru, %	42%	26%	77%	26%
Vol Right, %	3%	30%	16%	50%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	156	417	178	441
LT Vol	86	184	12	104
Through Vol	66	108	137	116
RT Vol	4	125	29	221
Lane Flow Rate	168	448	191	474
Geometry Grp	1	1	1	1
Degree of Util (X)	0.347	0.804	0.382	0.819
Departure Headway (Hd)	7.443	6.564	7.186	6.323
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	485	556	503	579
Service Time	5.457	4.564	5.2	4.323
HCM Lane V/C Ratio	0.346	0.806	0.38	0.819
HCM Control Delay	14.4	31.2	14.6	31.8
HCM Lane LOS	B	D	B	D
HCM 95th-tile Q	1.5	7.8	1.8	8.3

Intersection

Intersection Delay, s/veh
Intersection LOS

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	104	116	221
Peak Hour Factor	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	0	2	0
Mvmt Flow	0	112	125	238
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	31.8
HCM LOS	D

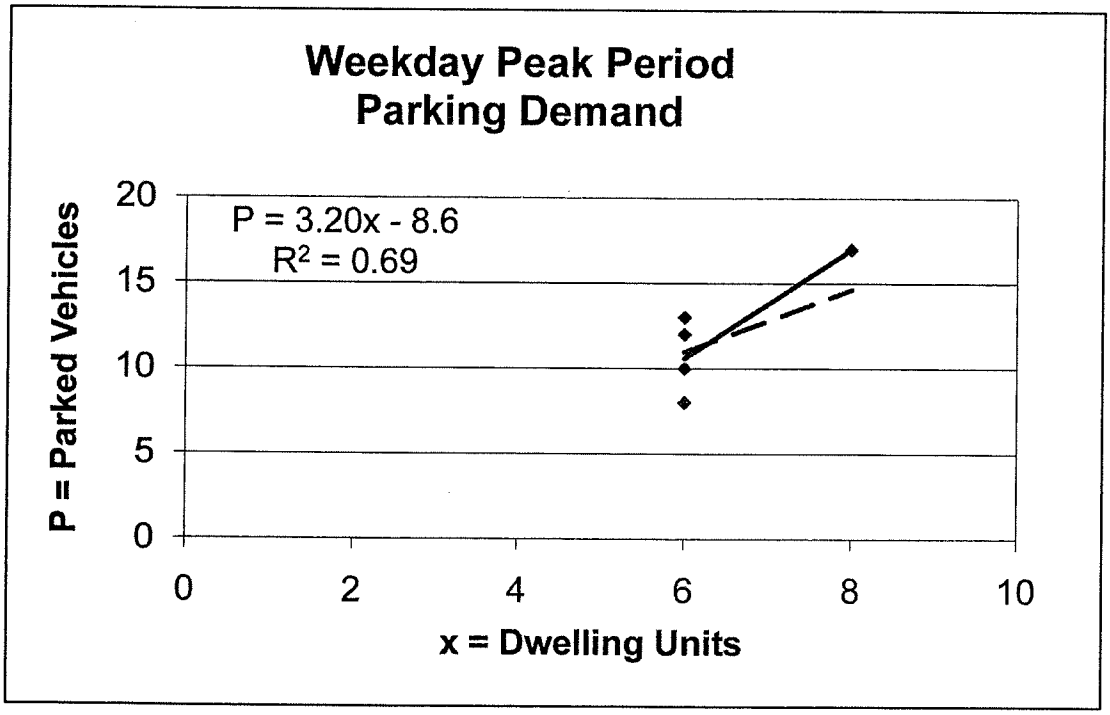
Lane

□ Parking Analysis

Land Use: 210
Single-Family Detached Housing

Average Peak Period Parking Demand vs. Dwelling Units
On a: Weekday

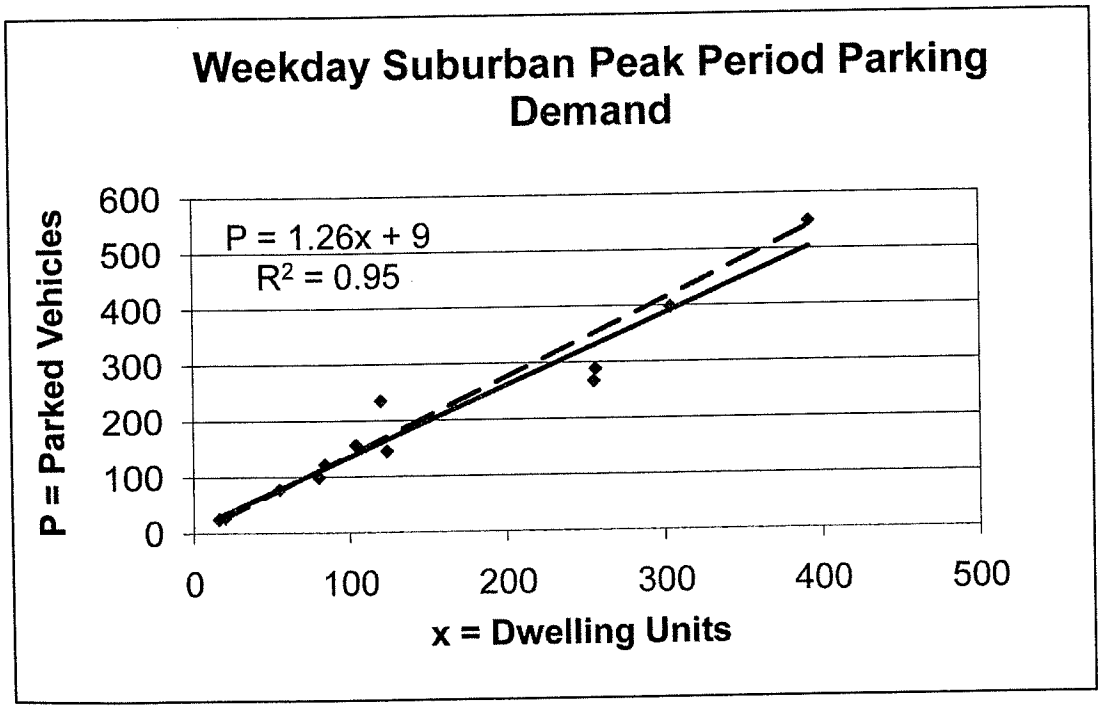
Statistic	Peak Period Demand
Peak Period	10:00–11:00 p.m. (only time period with data)
Number of Study Sites	6
Average Size of Study Sites	6.3 dwelling units
Average Peak Period Parking Demand	1.83 vehicles per dwelling unit
Standard Deviation	0.33
Coefficient of Variation	18%
Range	1.33–2.17 vehicles per dwelling unit
85th Percentile	2.14 vehicles per dwelling unit
33rd Percentile	1.67 vehicles per dwelling unit



Land Use: 230
Residential Condominium/Townhouse

Average Peak Period Parking Demand vs. Dwelling Units
On a: Weekday
Location: Suburban

Statistic	Peak Period Demand
Peak Period	11:00 p.m.–6:00 a.m.
Number of Study Sites	12
Average Size of Study Sites	151 dwelling units
Average Peak Period Parking Demand	1.38 vehicles per dwelling unit
Standard Deviation	0.24
Coefficient of Variation	17%
Range	1.04–1.96 vehicles per dwelling unit
85th Percentile	1.52 vehicles per dwelling unit
33rd Percentile	1.28 vehicles per dwelling unit



◆ Actual Data Points ——— Fitted Curve - - - - Average Rate