

September 14, 2023

Andrew Godek, Project Manager
Starck Architects
1 Richmond Square, Suite 120C
Providence, RI 02906

Re: **Professional Traffic Engineering Services**
Mount Pleasant Highschool
Providence, Rhode Island
Pare Project No.: 23144.00

Dear Mr. Godek:

Pare Corporation (Pare) has completed an existing traffic conditions assessment at Mount Pleasant High School, located at 434 Mt. Pleasant Avenue in the City of Providence. The City is proposing to partially or fully reconstruct the school at its current site and this review will inform potential improvements to on-site circulation and traffic patterns that would be included as part of the school improvements.

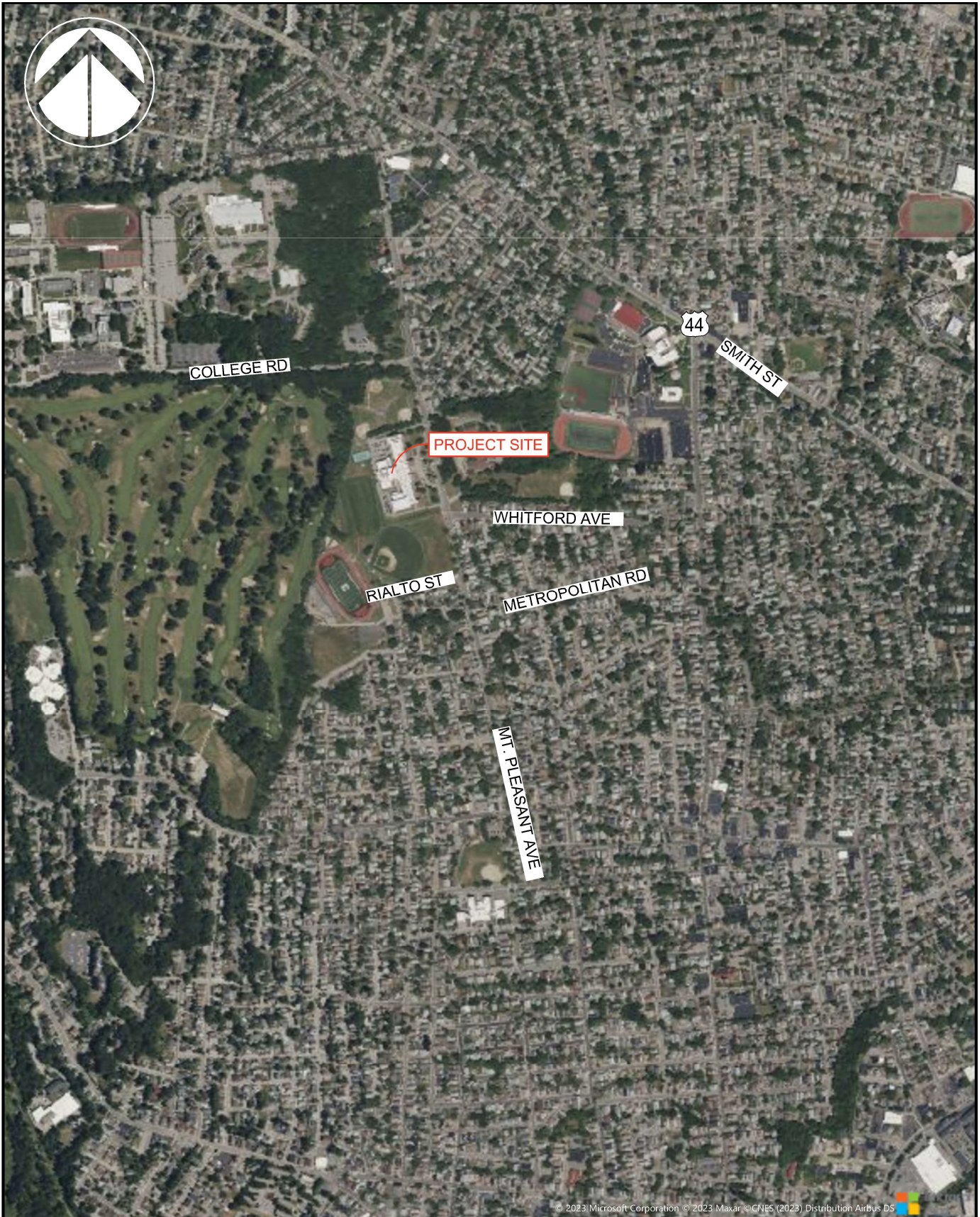
The purpose of this existing conditions traffic assessment is to review existing traffic conditions in the vicinity of the existing high school. The information provided in this assessment outlines the results of field observations conducted during morning arrival and afternoon dismissal peaks and describes the existing conditions within and in the immediate vicinity of the site. A full Traffic Impact Analysis (TIA) will be conducted as part of the Stage III report and will provide a more detailed and specific assessment of the future traffic conditions associated with the new construction and the quantitative impact of the traffic generated by the improved high school.

A study area map, showing the location of Mount Pleasant High School and the surrounding area, is shown in **Figure 1**.

EXISTING CONDITIONS

The high school will remain on the site where Mount Pleasant High School currently stands. The existing high school will be either partially or completely demolished and a new three-story building or addition to the remainder of the existing building, depending on the preferred alternative ultimately selected, will be constructed on-site.

The study area is defined as the significant roadways in the vicinity of the site that may be impacted by the new high school. Listed below are the roadways included in the study area.



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PROJECT NO. 23144.00

DATE: SEPTEMBER 2023



FIGURE 1
LOCUS MAP

MOUNT PLEASANT AVENUE HIGH SCHOOL
PROVIDENCE, RHODE ISLAND

Study Area Roadways:*Mt. Pleasant Avenue*

Mt. Pleasant Avenue is a two-way street, classified as a minor arterial under local jurisdiction. This roadway runs in the general north/south direction within the study area. Mt. Pleasant Avenue is approximately 40 feet wide, including a 12-foot-wide southbound travel lane with a ten-foot-wide paved shoulder/on-street parking lane, and an 11-foot-wide northbound travel lane with a seven-foot-wide on-street parking lane. A six-foot-wide and seven-foot-wide concrete sidewalk is present on the west and east sides of the roadway, respectively.

Within the study area, on-street parking is available along the eastern side of Mt. Pleasant Avenue, while parking along the western side is limited at certain times and days of the year with mounted signs of “NO PARKING 8 AM TO 4 PM SCHOOL DAYS” adjacent to the school property. There are four crosswalks across Mt. Pleasant Avenue along the school frontage, including an at-grade crosswalk on the south side of Cathedral Avenue, a raised crosswalk just north of the bus loop entrance, an at-grade crosswalk directly in front of the main entrance to the school, and a raised crosswalk just north of Whitford Avenue. The raised crosswalks are accompanied with post-mounted signages stating “SPEED HUMP” and “PEDESTRIAN X-ING,” along with “SCHOOL X-ING AHEAD” pavement markings. The at-grade crossings are appropriately signed for crossings in a school zone.

A school zone speed limit of 20 miles per hour is posted within the study area, enforced by cameras in both directions. The remainder of the roadway has a posted speed limit of 25 miles per hour.RIPTA Bus Routes 27, 50, and 92 travel along Mt. Pleasant Avenue with stops every approximately 1,500 feet. Land use surrounding this roadway is predominantly residential except for educational uses such as Mt. Pleasant High School and Our Lady of Providence Seminary, Saint Augustine School further north of the roadway, and Mt. Pleasant Academy and George J. West Elementary School further south along Mt. Pleasant Avenue. Just north of the school is College Road, which provides access to the Rhode Island College campus.

SCHOOL OBSERVATIONS

Mount Pleasant High School is a public secondary school serving students from grades nine through 12 and is located at 434 Mt. Pleasant Avenue in Providence, Rhode Island. As part of the field review process, traffic observations were conducted during the morning arrival and afternoon dismissal periods associated with Mount Pleasant High School on Monday, September 11, 2023, while the school was operating under typical conditions. A summary of general site observations and narratives of the arrival and departure peaks can be found in the following paragraphs.

Safety Measures

- There are 20-mile-per-hour school zone speed limit signs mounted in advance of the school site along Mt. Pleasant Avenue.
- Speed limits are subject to automated enforcement in the vicinity of the school.
- Some crosswalks across Mt. Pleasant Avenue adjacent to Mount Pleasant High School are raised for additional vehicular speed control.

- Pavement markings stating “SCHOOL X-ING AHEAD” are present in advance of the school in both directions.
- No crossing guards were observed along Mt. Pleasant Avenue during either peak.

Site Layout and Circulation

- There are four site driveways along Mt. Pleasant Avenue, with two designated entrance-only and two exit-only which forms one outer loop and one inner loop.
- A one-way outer loop is available behind the building that can be accessed through the southernmost driveway and out through the northernmost driveway onto Mt. Pleasant Avenue. Yellow buses and short buses utilize this loop to drop-off and pick-up students. Some vehicles were observed entering through the exit-only northernmost driveway. Per a staff member, the outer loop operation was changed to one-way for this school year and not everyone has fully adapted to it yet.
- A one-way inner loop is available in front of the building that can be accessed through the inner driveways. This is mostly utilized by the RIPTA buses and parents. There is a post-mounted sign at the entrance of this loop stating, “DO NOT ENTER BUSES ONLY 3:15 PM – 4:00 PM.”

Parking

- The school’s parking spaces are located at the rear of the building, along with a minimal number of parking spaces in the front for faculty and staff only.
- On-street parking is available for public use along the eastern side of Mt. Pleasant Avenue.
- Of the 148 spaces available for faculty/staff use, 122 were occupied (approximately 83%).
- Roughly 28 students were observed driving to school and parked along Mt. Pleasant Avenue.

Morning Arrival Operations

When Pare arrived on site at 7:15 a.m., some students were observed to be allowed to enter the building with the assistance of up to two members of the faculty. More significant school activity began at 7:25 a.m., with peak activity occurring from 7:35 a.m. to 7:55 a.m., before calming down around 8:10 a.m. Due to the single travel lane available along Mt. Pleasant Avenue for each approach, heavy traffic occurred along the roadway with the longest queue extending approximately 1300 feet south of the building at approximately 7:55 a.m. in the northbound direction. All modes of transportation (buses, parents, bikers, and walkers) contributed to this heavy traffic as buses and parents dropped off students, and walkers and bikers crossed Mt. Pleasant Avenue to get to the school property.

A total of one short bus and seven yellow buses were observed dropping off students in the morning, with a maximum of two buses present at once. All buses accessed the outer loop in the rear and unloaded students one bus at a time at the north entrance of the building. Buses then exit through the northernmost driveway with little to no conflict. Rhode Island Public Transit Authority (RIPTA) bus routes 27 and 92 were also observed dropping students off at approximately 7:40 a.m. from within the northbound lane of Mt. Pleasant Avenue. At these times, northbound drivers along Mt. Pleasant Avenue queued behind it. Due to this, a maximum queue of approximately 1,300 feet occurred in the northbound direction, while the southbound lane was observed to have a maximum queue of 550 feet.

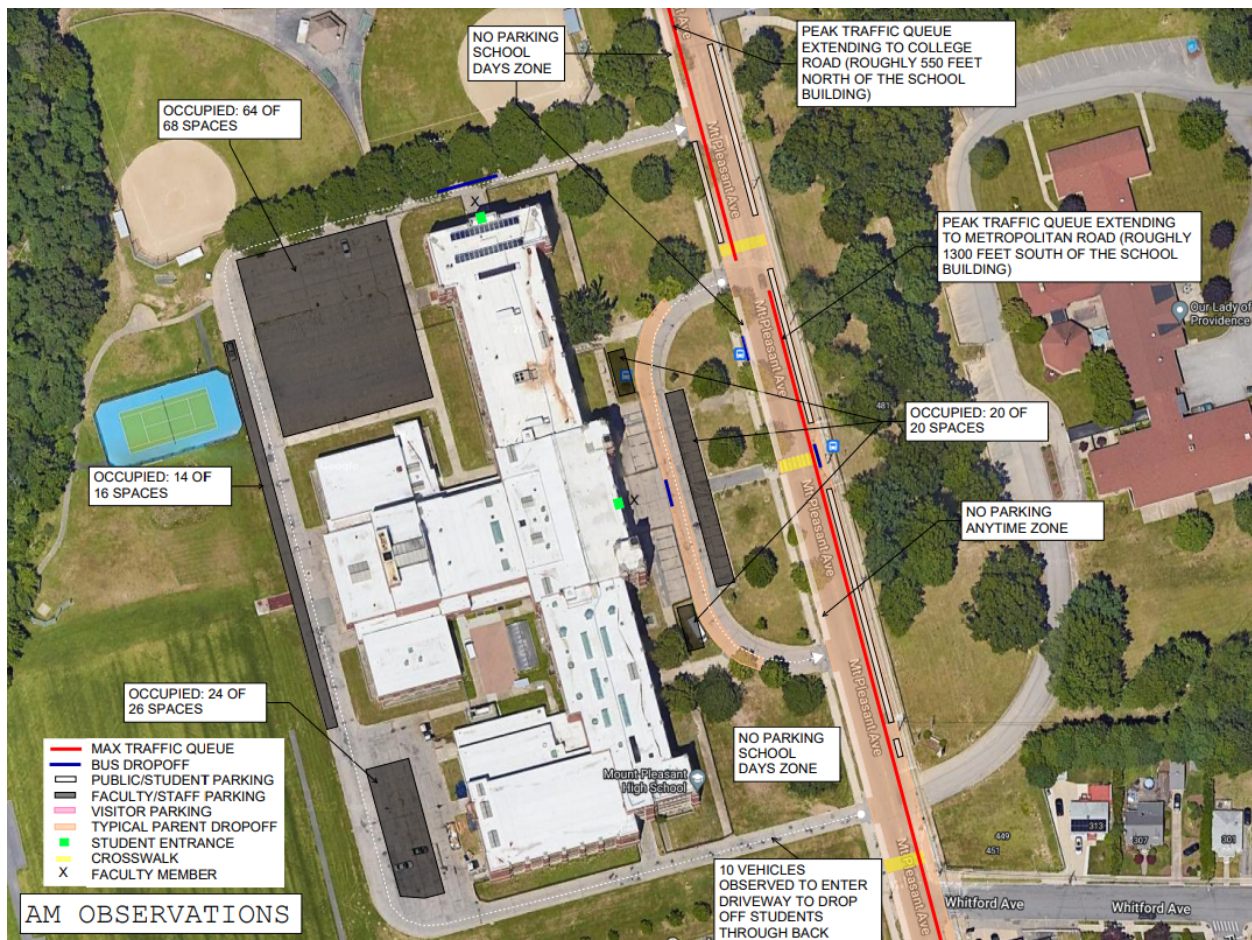
Most parents dropped students off along the inner loop in front of the school building. A maximum queue of 20 vehicles were observed within the loop. To avoid joining the queue, some northbound parent

vehicles were observed to perform a U-turn at the entrance to drop students off and join traffic to travel southbound. This resulted in conflict with southbound vehicles that were forced to stop due to this maneuver. Other parents either parked along Mt. Pleasant Avenue or stopped in the traffic lane to drop off students. In addition, approximately ten vehicles were observed to utilize the outer loop. These were assumed to be parents dropping students off. Five of these vehicles entered through the one-way exit-only northernmost driveway, which caused some conflict with exiting buses.

There is no dedicated visitor parking and student parking within the school property. Approximately 28 students were observed parking along Mt. Pleasant Avenue. Faculty and staff parked either in the rear parking lot, the front parking lot, or along Mt. Pleasant Avenue. There were approximately 15 students using bikes or scooters to school, with some utilizing the City of Providence’s electronic scooters and bikes. It should be noted that on the day of the observations, there was rain during the arrival time period, so it is possible that additional students arrive on foot, bike, or scooter during better weather.

Figure 2 below graphically displays the arrival operations of the school.

Figure 2: Morning Arrival Operations at Mount Pleasant High School



Afternoon Dismissal Operations

The afternoon dismissal procedure operated in a similar pattern to the morning arrival procedure, however traffic queues during the dismissal period were slightly shorter and occurred within a smaller time frame. Peak activity occurred at approximately 3:05 p.m. until 3:15 p.m. Vehicle queuing extended approximately 900 feet north and 700 feet south of the school building. Modal splits between bus use, parent pick-up, bikers, and walkers were similar to the morning arrivals.

By 2:47 p.m., five yellow buses started queuing along the outer loop from the northern building access. A total of seven buses were present by 3:00 p.m. Two parents had entered the front loop by 2:50 p.m. Two members of the faculty stood in front of the inner loop's entrance to stop parents from entering the driveway at 3:00 p.m. At approximately 3:09 p.m., one short bus and five "Not In Service" RIPTA buses arrived at the school with three of the RIPTA buses parked in the inner loop, and the other two RIPTA buses parked along the western side of Mount Pleasant Avenue at the bus stop area. Before parking, bus drivers had to ask idling parent vehicles to leave the area as it is a no parking zone. As RIPTA buses exited the inner loop at 3:15 p.m., queuing along Mt. Pleasant Avenue increased due to the buses attempting to cross southbound traffic and proceed northbound.

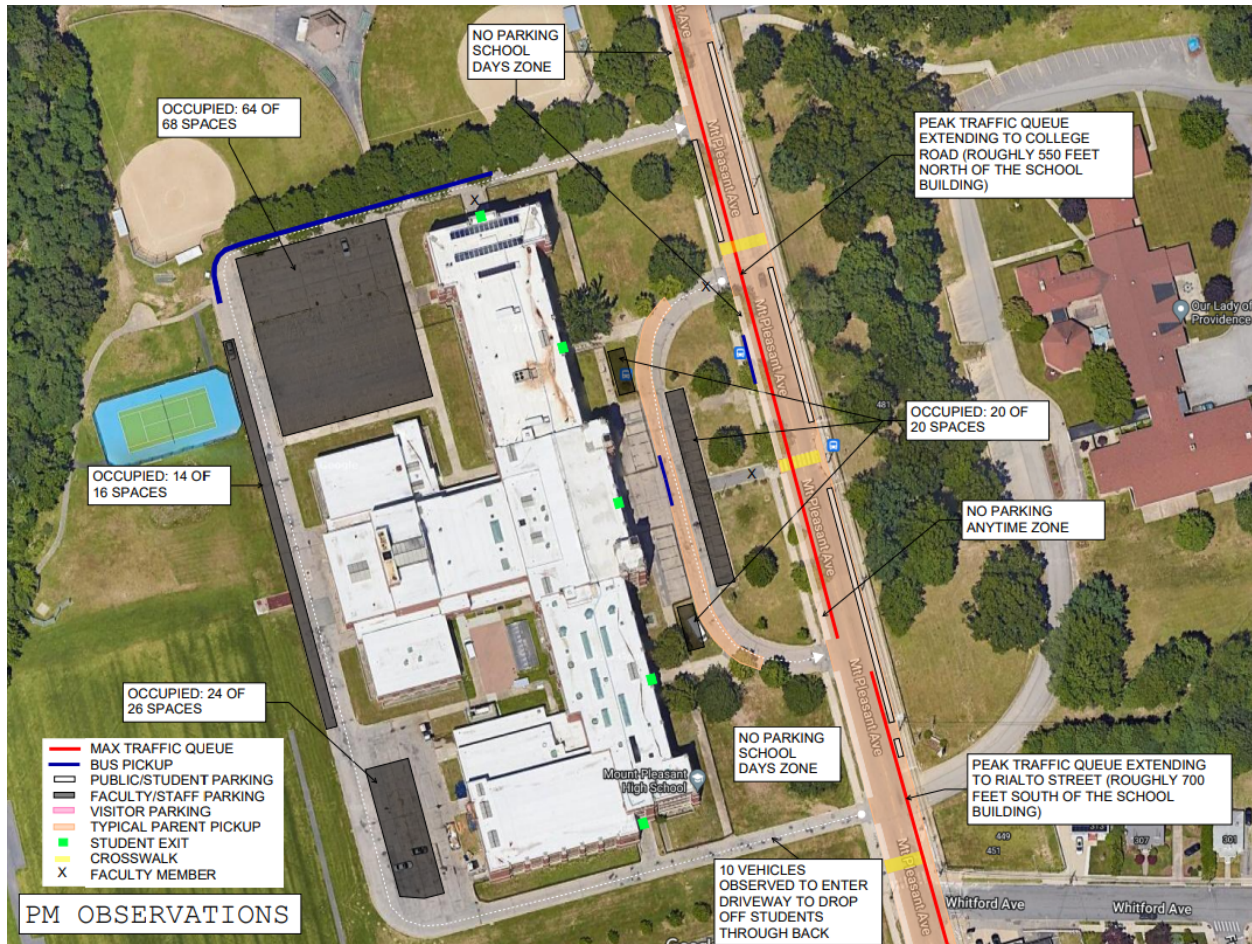
A few parents were observed idling along the western side of Mt. Pleasant Avenue, which is a no-parking zone as well as a bus stop. A few parents were asked to leave the area due to the RIPTA buses arriving. Most parents picked up their students while in traffic resulting in a queue of vehicles behind them, while others pulled over to the side and out of traffic. Once all RIPTA buses had departed at about 3:15p.m., faculty members proceeded back to the main entrance and parents were able to utilize the inner loop.

Once all buses had departed, traffic along Mt. Pleasant Avenue flowed freely except for those stopping to load students. A minimal number of walkers crossed Mt. Pleasant Avenue. Most bikers and walkers stayed along the western sidewalk, while some crossed once road clearance was available further away from the school.

By 3:35 p.m., school activity dissipated completely.

Figure 3 graphically displays the dismissal operations of the school.

Figure 3: Afternoon Dismissal Operations at Mount Pleasant High School



SAFETY ANALYSES

Sight Distance

On September 1, 2023, a spot speed study was conducted on Mt. Pleasant Avenue between the two exit-only driveways to assess driving speeds along the roadway. A speed limit of 25 miles per hour is posted along Mt Pleasant Avenue, but in the area of the site and where the speed study was conducted, a school zone speed limit of 20 miles per hour is posted. A summary of the speed data results is shown in **Table 1** below. The most notable metric presented in the table is the 85th percentile speed, which was utilized for the sight distance analysis. Based on the speeds observed, the sight distance analysis was conducted using a design speed of 30 miles per hour for Mt. Pleasant Avenue.

Table 1: Mt. Pleasant Avenue Speed Study Summary

	Posted Speed	Average Speed	True Median (50 th Percentile)	85 th Percentile	10 MPH Pace	% over Posted
Northbound	20	23	23	26	18-27	79
Southbound	20	22	22	26	18-27	65

In conjunction with the spot speed study conducted, the available sight distance at the existing exit-only driveways were measured. Photos of the sight lines are shown in **Photos 1 through 4** below.



Photo 1. Sight distance looking north (left) from the northernmost exit-only driveway



Photo 2. Sight distance looking south (right) from the northernmost exit-only driveway



Photo 3. Sight distance looking north (left) from the inner loop's southern exit-only driveway



Photo 4. Sight distance looking south (right) from the inner loop's southern exit-only driveway

According to the latest editions of the American Association of State Highway and Transportation Officials (AASHTO) publication *A Policy on the Geometric Design of Highways and Streets*, the minimum safe stopping sight distance for speeds of 30 miles per hour is 200 feet. In addition, AASHTO gives guidance for a more desirable sight distance for this speed, which will not only avoid collisions, but maintain vehicular flow of at least 70 percent of the original operating speed. Meeting the desirable criteria for sight distance is more applicable to heavily traveled, high-velocity roadways, where maintaining steady traffic flow along the major road is important. A summary of the sight distance for both driveways can be found in **Table 2** below.

Table 2: Sight Distance Summary

		Required ISD (ft)	Desirable ISD (ft)	Measured ISD (ft)
Outer Loop’s Exit-Only Driveway	Looking North (Left)	200	290	>500
	Looking South (Right)	200	335	>500
Inner Loop’s Exit-Only Driveway	Looking North (Left)	200	290	445
	Looking South (Right)	200	335	>500

ISD = Intersection Sight Distance

As shown, sight distances from both exit driveways exceed both minimum and desirable sight distances for the observed operating speeds along Mt. Pleasant Avenue.

At the time sight distances were collected, vehicles were parked along the west side of the road, north of the outer loop exit. Field observations do show that there is a designated “NO PARKING 8 AM TO 4 PM SCHOOL DAYS” sign in this area. These vehicles have the potential to reduce sight distance from the outer loop exit. Enforcement of the regulated no parking hours along the southbound approach shoulder is recommended.

All sight distances exceed the minimum required for vehicles to avoid a collision, as well as exceeding the desirable sight distances to allow steady traffic flow.

CONCLUSIONS AND RECOMMENDATIONS

Pare Corporation conducted observations of the existing Mount Pleasant High School located at 434 Mt. Pleasant Avenue in Providence, Rhode Island. As part of the observations, Pare reviewed morning arrival and afternoon dismissal operations. Mount Pleasant High School utilized seven yellow buses, and one short bus for both periods. RIPTA buses were also available for student use along typical routes during the morning peak hour and five specific buses dedicated to student pick-up in the afternoon. Traffic queueing was observed along Mt. Pleasant Avenue due to frequent stops by RIPTA buses and parent vehicles to unload students, as well as parents using driveways to perform a U-turn. Additionally, conflicts between exiting vehicles and through vehicles on Mt. Pleasant Avenue resulted in increased congestion in the vicinity of the school.

Safety analyses performed at the driveway through a sight distance analyses showed sight lines exceeding the minimum requirements. Some vehicles were observed to park along the western side of the roadway which may result in temporary restrictions of sight lines.

Mr. Andrew Godek

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September 14, 2023

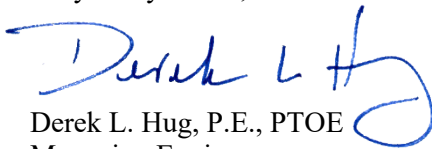
Based on the observations conducted, Pare recommends the following actions be taken as part of the school improvements:

- Enforce no-parking zones along the site frontage to ensure ample sight distances are maintained.
- Designate an area on-site for RIPTA bus drop-off and pick-up on school days to help relieve congestion along Mt. Pleasant Avenue, especially during the morning drop-off peak.
- Create a larger area for parent drop-off and pick-up to reduce stopping in and along Mt. Pleasant Avenue related to student drop-off and pick-up, which will reduce congestion.

A full traffic study will be prepared for Mount Pleasant High School in a future report with the Stage III submittal.

If you have any questions, please feel free to give me a call.

Very Truly Yours,

A handwritten signature in blue ink that reads 'Derek L. Hug'.

Derek L. Hug, P.E., PTOE
Managing Engineer