

TRAFFIC STUDY
FRANK D. SPAZIANO ELEMENTARY SCHOOL AND
SPAZIANO MIDDLE SCHOOL
Providence School Improvements

City of Providence, Rhode Island



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APPENDICES

Appendix A Manual Turning Movement Counts

1.0 Project Purpose and Description

This study has been prepared by GM2 Associates, Inc. (GM2) to examine the potential traffic impacts associated with the distribution of students from the newly opened Frank D. Spaziano Elementary School and the proposed Spaziano Middle School in Providence, Rhode Island. The new elementary school is located at the intersection of Merino Street and Laban Street on the southeast corner. The proposed Spaziano Middle School will be constructed directly opposite of the elementary school on the northeast corner of Merino Street and Laban Street.

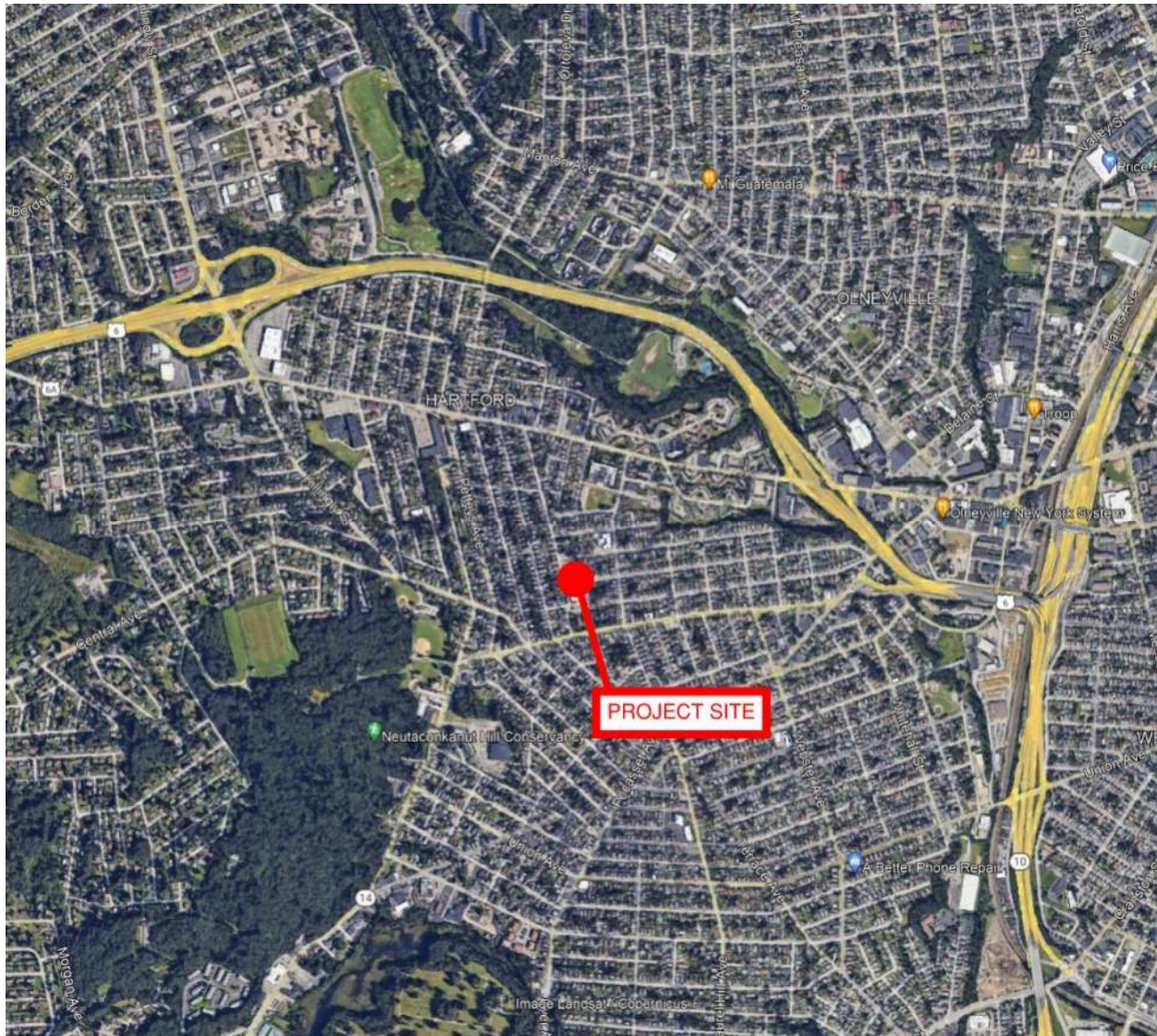


Figure 1: Study Area

2.0 Frank D. Spaziano Elementary School

Frank D. Spaziano Elementary School is located at 36 Merino Street and occupies the southeast corner of the intersection of Merino Street and Laban Street located in the city of Providence, Rhode Island, as shown in Figure 2:

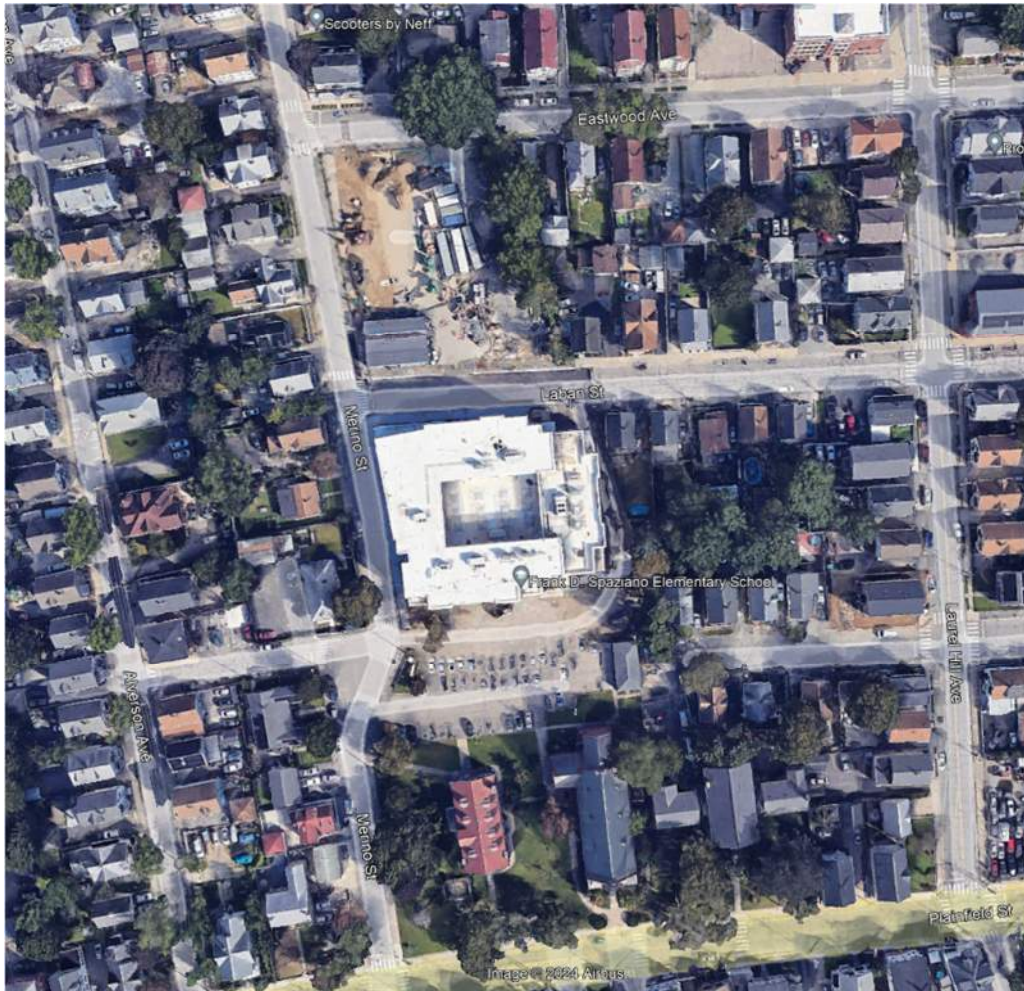


Figure 2: Frank D. Spaziano Elementary School Site Location Map
(Google Earth – Imagery Date 08/22/2023)

2.1 Existing Conditions

Site Driveways

The school has two driveways into the St. Anthony's Church parking lot (south side of school), but both operate as dead-end driveways if cars are parked along the middle of the lot and fill the end. Surrounding streets that school traffic affects during peak periods are Dolores Drive, Alverton Avenue, Eastwood Avenue, Laurel Hill Avenue and Plainfield Street. Laban Street is currently blocked off (gated) from Merino Street northerly to the gate directly after the school and currently remains closed at all times.

Parking

Buses were observed parking on the east side of the school on Merino Street from the school front entrance to the back of the St. Anthony's Church parking lot. Based on field observations, this entire utilized space can fit 5-6 buses yet the space between Laban Street and the first church parking lot driveway can only fit 3 buses and the additional buses block the street area. Merino Street is a bus-only street during the morning and afternoon peak periods, operating northbound only.

Parents were observed parking in several areas during morning and afternoon peak periods. These include Eastwood Avenue and the surrounding streets. Another area is the intersection of Dolores Drive and Merino Street just prior to the bus-only zone adjacent to the school. As the school's campus is located in a heavily residential area, parents/guardians were observed walking from many of the surrounding side streets to drop-off/pick-up students.

Sidewalks

The school area has many sidewalks surrounding or near the building. There are sidewalks located on both sides of Merino Street, Eastwood Avenue, and the side adjacent to school on Laban Street. Some sidewalks in this area are in a poor condition, as the space between Dolores Drive and Laban Street on Merino Street opposite side of the school building was heavily used by pedestrians in the afternoon period but was a dirt sidewalk and not a concrete sidewalk. The sidewalk crossing through the parking lot was also in poor condition as well, but still heavily used. The primarily used sidewalks during peak periods were located Merino Street and Eastwood Avenue.

Crosswalks

Frank D. Spaziano Elementary School currently has 8 crosswalks near the building. There are 3 crosswalks at the intersection of Merino Street and Eastwood Avenue, 3 crosswalks at the intersection of Merino Street and Laban Street, a crosswalk coming from the intersection of Dolores Drive to the school across Merino Street closest to the school, and another crossing Dolores Drive adjacent to Merino Street. Crosswalk #9 was the pedestrians counted using the sidewalk on the east side of Merino Street coming to/from Plainfield Street. The crosswalk locations are identified in Figure 3.

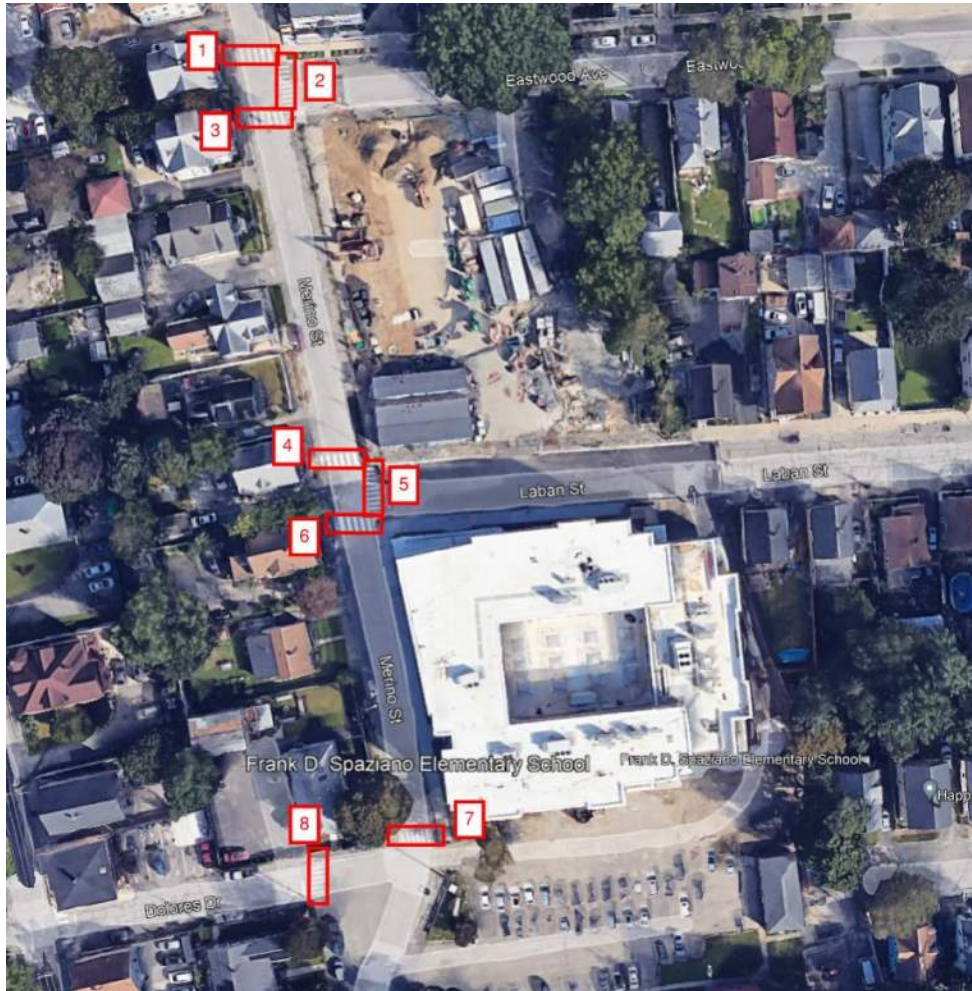


Figure 3: Crosswalk Locations
(Google Earth – Imagery Date 08/22/2023)

Flow of Traffic

Traffic patterns are restricted during school hours from 8:30 a.m. to 9:30 a.m. and from 3:30 p.m. to 4:30 p.m. The following figures show the directions in which vehicles are allowed to operate during these peak periods. The traffic counts conducted on 03/26/24-03/27/24 are shown in **Appendix A**. Laban Street is currently blocked off and is proposed to continue to be blocked off completely from Merino Street to the end of the school limits. The gate locations for Laban Street are shown in Figure 6.



Figure 4: Flow of Traffic – 1 (Merino Street at Dolores Drive)
(Google Earth – Imagery Date 08/22/2023)



Figure 5: Flow of Traffic – 2 (Merino Street at Eastwood Avenue)
(Google Earth – Imagery Date 08/22/2023)



Figure 6: Laban Street
(Google Earth – Imagery Date 08/22/2023)

2.2 Traffic Volumes

Traffic volumes were collected by GM2 staff for both the morning and afternoon periods. Traffic was counted from 8:30 a.m. to 9:15 a.m. and from 3:30 p.m. to 4:15 p.m. in 15-minute intervals. These periods were chosen to establish the highest traffic conditions at the site as well as cover the time periods when the school is expected to enter and release for the day.

Traffic in the morning period is concentrated due to the limited space in the area given how heavily residential the neighborhood is. The majority of student drop-offs by car occur along Eastwood Avenue or in the area of the Dolores Drive and Merino Street intersection. Bus drop-off occurs on Merino Street directly adjacent to the west side of the school building. Vehicles coming from Plainfield Street onto Merino Street that are not buses are directed to turn left onto Dolores Drive by a crossing guard during the peak periods of the morning and afternoon, as only buses are allowed to continue through Merino Street during this time.

Traffic in the morning is at its peak around 8:45 a.m. and lasts until about 9:00 a.m., with all pedestrian and vehicle traffic dissipated by 9:05 a.m. Traffic in the afternoon period is at its peak in the 3:45 p.m. to 4:00 p.m. interval with all vehicle and pedestrian activity gone by 4:05 p.m.

The traffic volumes are provided in **Appendix A**.

Note: In the afternoon period counts, two buses came through Merino Street that were not for Frank D. Spaziano Elementary School, and two other buses went straight through Merino Street passing Eastwood Avenue, all other buses turned right onto Eastwood Avenue from Merino Street depending what interval they were counted in.

2.3 Field Observations

GM2 staff members were on site on Tuesday, March 26, 2024 for the afternoon period and Wednesday, March 27, 2024 for the morning period. Observations and applicable photos are provided in the following sections.

2.3.1 Morning Period

- The morning drop-off period occurs in two areas near the school grounds. This happens near the Dorlores Drive and Merino Street intersection and the Eastwood Avenue and Merino Street intersection. School buses park on Merino Street directly adjacent to the west side of the school, while parents use the two intersections for drop-offs.
- It was observed that vehicles dropping off in the morning will park in the middle of the intersection or stop for a period of time and wait or bring students to the front door. This practice often makes it difficult for buses to get through since cars will completely block the road at times.



- Buses park in their own restricted area on the west side of the school building between Laban Street and the St. Anthony's parking lot on Merino Street. This space can fit 3 full school buses with a fourth one encroaching into Crosswalk #7.



- The crossing guard stationed at the intersection of Eastwood and Merino uses cones to help block the restricted road in attempt to help further stop cars from passing. The crossing guard will utilize the remaining space available to help more students get dropped off safely and allow traffic to still flow through the intersection. The image below shows the crossing guard letting vehicles with larger groups of students pull over at the intersection adjacent to the curb and let them drop-off there instead of blocking the entire intersection or one of the streets.



- The crossing guard at Eastwood and Merino helps direct buses leaving the school onto Merino or Eastwood Street and clear cars or pedestrians attempting to drop students off at the same time.



2.3.2 Afternoon Period

- Similar to the morning period, there are six buses that arrive and queue at the west side of the school on Merino Street, where 3 full buses are able to fit in the designated space for buses only, the fourth bus in the middle of Crosswalk #7, and buses 5 and 6 are parked in front of the St. Anthony's parking lot.



- Buses parked past the designated area near St. Anthony's parking lot and the intersection of Dolores and Merino. Crosswalks and parking lot driveways are blocked by the buses in this area during peak periods.



- At the intersection of Dolores Drive and Merino Street, cars will pull up to the end of the busy intersection and park their cars and walk students to the front door, often causing traffic blockages. Coming from Plainfield Street, cars are directed in a one-way direction on Merino Street. With cars parked in the middle of the intersection, other vehicles are forced to either drive around them or wait for the cars to move. The only point of exit from this area is to turn left onto Dolores Drive.



- The cars parked in the middle of the intersection during pick-up force traffic on Merino Street coming from Plainfield Street to either drive around the vehicle in the intersection or wait until the vehicle moves. Cones are placed to help keep vehicles separate from the buses.



- The intersection of Eastwood Avenue and Merino Street is the second area where a heavy amount of student pick-up occurs.

2.3.3 Signing and Striping



- The image above shows the intersection of Dolores Drive and Merino Street, with the “Do Not Enter” signage with restricted times, along with the one-way signage along with the restricted times as well for traffic flow procedures during peak periods.



- The image above left shows the “Do Not Enter” signage with restricted times, and “NO Parking” signage with restrictions as well. This sign setup is posted at various spots around the school campus.
- The image above right shows Crosswalk #7 and the stop line/bar posted when cars are allowed to travel in this direction during non-peak times.



- The image above left shows the “NO Parking” signage.
- The image above right shows the Pedestrian crossing warning sign.



- The image above left shows the “Do Not Enter” signage with the intersection street signs of Eastwood and Merino.
- The image above right shows the stop sign at the end of Eastwood Avenue where it intersects with Merino Street.



- The image above shows Crosswalk #4,5,6 at the intersection of Merino and Laban Street.



- The image above shows Crosswalks #1,2, and 3 at the intersection of Merino Street and Eastwood Avenue.



- The image above left shows a closer look at the one-way signage and restricted times that are placed in multiple locations in the area around the school.
- The image above right shows the speed limit and pedestrian crossing warning signage on Eastwood Avenue.

2.3.4 School Questionnaire

A generic school operations questionnaire was sent to the school to obtain basic information as well as ask for any site-specific operations that GM2 should be aware of prior to the field study. A summary of relevant details is provided as follows:

- The elementary school has approximately 600 students.
- 50-60 staff members
- 6 school buses
- Hours of operation ~ 9:00 a.m. to 3:30 p.m.
- 60% walkers and 40% bus students for the elementary school.
- Two crossing guards on site for both morning and afternoon periods.
- Staff park in the St. Anthony's Church parking lot and utilize street parking.
- Expected parent drop-off/pick-up to occur in the St. Anthony's parking lot and Eastwood Avenue.

Note during the observation period, there were three crossing guards observed to be present during both the morning and afternoon peak periods. The school hours of operation were observed to be from 9:05 a.m. to 3:50 p.m. Another observation is that aside from the Eastwood Avenue drop-off/pick-up, the parking lot was not used as both drop-off and pick-up were observed at the intersection of Dolores Drive and Merino Street.

2.3.5 On-Site Interviews

GM2 staff had an opportunity to discuss our observations with the one of the three crossing guards and a bus driver. Based on their discussions, the following points are noted:

- The area of parent drop-off/pick-up at the intersection of Dolores Drive and Merino Street is not sufficient, cars will drive all around the area and around other cars/buses. Many parents will simply park in the middle of the road, exit, and walk the students to the front door.
- Many cars at the intersection of Eastwood Avenue and Merino Street will speed through, attempting to make restricted turns during peak periods.
- Many residents have had issues with the school traffic and restricted areas during peak periods, and the city has come up with some solutions with the residents for this matter such as residential plaques drivers can signal to indicate they are a nearby resident.
- Bus drivers have an issue getting around the cars at the intersection of Dolores Drive and Merino Street and the parking lot, especially when cars park and parents walk away it can completely stop traffic.
- The crossing guard at Eastwood Avenue and Merino Street will sometimes utilize the space as best they can in order to attempt to accommodate larger group drop-offs that still allow safe travel around the intersection.

2.4 Potential Concerns

At this time of observation, the traffic flow of the drop-off and pick-up procedure, while not efficient, was not an immediate concern. Given the space that is available to the school, there are very limited options to what they can use for arrival and dismissal procedures. Based on GM2's observations the following potential concerns are noted:

- Allowing cars to be parked in the middle of the intersection at both intersections used for peak periods (Dolores Drive at Merino Street and Eastwood Avenue at Merino Street) could lead to traffic disruptions in nearby streets and main roads for non-school traffic in the area.
- Blocked access to crosswalks lead to the majority of pedestrians walking in the road where many vehicles are in the process of dropping off or picking up students.
- Double parked cars on Eastwood Avenue can lead to disrupting nearby traffic.

GM2 notes that while there is a high volume of cars entering the school area during a certain time period, based on observations, there is no immediate concern with this practice.

3.0 Spaziano Middle School

The proposed site of the Spaziano Middle School is to be constructed at 254 Eastwood Avenue at the northeast corner of the intersection of Merino Street and Laban Street, directly opposite of the existing new building for the Frank D. Spaziano Elementary School in Providence, Rhode Island. The location site is shown in Figure 7 below:



Figure 7: Spaziano Middle School Site Location
(Google Earth – Imagery Date 08/22/2023)

In the questionnaire sent to the school, the following notes can be gathered about the proposed middle school:

- Approximately 300 students.
- Tentative to match the current Frank D. Spaziano Elementary School hours of operation.
- The middle school will follow the same breakfast sessions at the elementary school.
- The expected parent drop-off/pick-up will occur on Eastwood Avenue.
- Dedicated handicap parking will be located on Eastwood Avenue.
- All buses for both schools will queue on Merino Street.

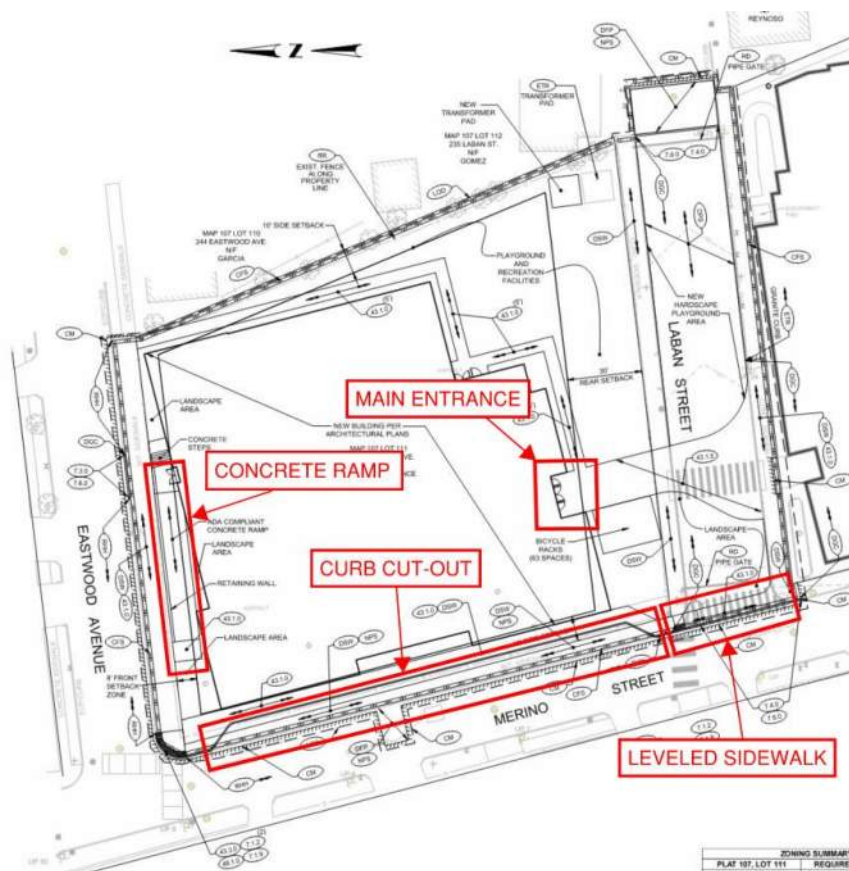


Figure 8: Middle School Layout Features
(2024-03-15 Early Bid Plans)

As mentioned, the middle school is to be located on the northeast corner of the intersection of Merino Street and Laban Street. As shown in the building layout figure above, some key features of the building include the main entrance being directly across Laban Street from the main entrance to the elementary school, a leveled sidewalk that will block off access to Laban Street from vehicles with the current yellow gates existing to remain, but still allowing emergency vehicles to pass through if needed. The concrete ramp on the north side of the building allows access to the kitchen and gym/cafeteria using the north stairwell. The curb cut-out located on Merino Street allows for a section for buses to park on the side during peak hours while still allowing for other buses or emergency vehicles to get by for either the elementary or middle school.

4.0 Recommendations

After completing the field observations and reviewing manual traffic counts completed by GM2 staff, the following recommendations can be made in order to help improve the current flow of traffic during the morning and afternoon peak periods around the school in also an effort to help the preparation of the new middle school to also be built across the street:

- Coordinate with St. Anthony's Church in creating a queue with a loop inside the parking lot to help with some of the bus/pedestrian/car traffic that occurs at the intersection of Dolores Drive and Merino Street for the elementary school shown in Figure 9.
- Replace signage in surrounding areas, as well as enlarging restricted time zone signs so they are more easily seen by motorists.
- Adding partial speed tables on Merino Street to help with speeding in front of the two schools.



Figure 9: Parking Lot Queue Loop
(Google Earth – Imagery Date 08/22/2023)

5.0 Summary

The addition of the middle school to the neighborhood is expected to add vehicular and pedestrian impacts that will exacerbate existing problems. Parking for staff is already an issue and is expected to become more difficult with new staff for the new school. This will be mitigated to the extent possible by the design team with ongoing coordination with the City of Providence.

The middle school is expected to introduce an influx of additional vehicles destined for the Eastwood Avenue at Merino Street intersection which will likely conflict with the elementary school drop-offs and pick-ups. The extent of the additional traffic is only estimated at this time and will require monitoring as the school opens and is fully operational. Traffic queues in all directions are expected to increase marginally.

The existing school buses should accommodate some of the additional students, but there is the possibility that additional school buses will be implemented. Based on our observations and information provided to us, GM2 is assuming there will be a total of 8 buses between the two schools. The provision of the bus cut-out area on Merino Street should accommodate 4 to 5 of these buses, with the remaining utilizing the existing bus area adjacent to the elementary school. This results in buses from not blocking the church parking lot driveway, which is a benefit.

If the church parking lot can be utilized as a formal drop-off loop, this will provide dedicated stacking area, optimize some of the traffic flow, and provide a designated drop-off point which can reduce the errant pedestrians maneuvering the intersection area at Merino Street and Dolores Drive. The school can determine if it is useful to have all students allowed to be dropped off here or if it should be elementary students only.

GM2 noted the problematic operations at the Merino Street/Dolores Drive intersection and this area should be the primary focus for improvements. If the two above recommendations are implemented, some of these issue should be mitigated.

There does not appear to be any opportunity to improve the efficiency of operations at the Eastwood Avenue/Merino Street intersection, and these should remain as-is until additional observations can be made under the built condition.

The additional pedestrian activity due to the middle school is not expected to have any significant impact as sidewalks exist in the area (some to be repaired/replaced with school construction), and three crossing guards serve the nearby crosswalks.

Consideration was given to opening Laban Street permanently, partially, or keeping closed and gated as-is today. While Laban Street access would aid motorists in the area, there appears to be no benefit to students and may introduce more crossing conflicts at the immediate crosswalk. As such, all considerations for the use of Laban Street for vehicular traffic have been determined to be unfavorable.

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Appendix A

MANUAL TURNING MOVEMENT COUNTS

AM Peak Period
PM Peak Period

	Morning Period			Afternoon Period		
	8:30 a.m. – 8:45 a.m.	8:45 a.m. – 9:00 a.m.	9:00 a.m. – 9:15 a.m.	3:30 p.m. – 3:45 p.m.	3:45 p.m. – 4:00 p.m.	4:00 p.m. – 4:15 p.m.
Eastwood Avenue						
Right Turn IN	0	0	1 + 6 B	0	3 B	1 B
Right Turn OUT	2	8	6	13 + 1B	12 + 1B	2 + 1B
Left Turn IN	0	16	23	10 + 1B	4	3
Left Turn OUT	0	0	1	0	1	1
Parking Lot North Entrance						
Right Turn IN	0	1	0	2	0	0
Straight	0	1	1	0	2	7
Left Turn OUT	0	0	0	0	0	1
Parking Lot South Entrance						
Right Turn IN	0	6	3	1	0	0
Right Turn OUT	0	5	0	0	10	3
Dolores Drive						
Left Turn IN	5	42	27	5	19	9
Crosswalk #1	0	0	3	0	5	0
Crosswalk #2	4	43	30	5	75	3
Crosswalk #3	1	20	12	3	4	0
Crosswalk #4	0	0	0	0	4	0
Crosswalk #5	5	63	42	10	75	0
Crosswalk #6	0	8	4	10	40	10
Crosswalk #7	9	29	18	.3	34	2
Crosswalk #8	0	0	0	0	0	0
Crosswalk #9	8	74	11	3	31	19