



CITY OF EAST GRAND RAPIDS

750 LAKESIDE DRIVE SE-EAST GRAND RAPIDS, MICHIGAN 49506

Traffic Control Order #53

Locations:

Wealthy Elementary School - Lake Drive, Lakeside Elementary School - Hall Street, Lakeside Drive and Burchard Street, Breton Downs Elementary School - Breton Road, and St. Stephens School - Franklin Street.

Background:

The City of East Grand Rapids hired the services of Progressive AE, an engineering consulting firm, to review all of the crossings adjacent to the six schools within the city limits. This review was conducted to ensure that the proper traffic control devices were in place at all school crossing locations. Progressive AE submitted a report to the city with their recommendations to bring the city into full adherence with the accepted standards. These recommendations were based on the current design and layout standards as defined in the current Michigan Manual of Uniform Traffic Control Devices (MMUTCD), the source that defines required parameters for all public street systems. This Traffic Control Order addresses the recommendations made in Progressive AE's report submitted to the city on September 20, 2018.

Order:

Implement and install orders as noted below.

Wealthy Elementary School: (Lake Drive at Locust Avenue)

The East Grand Rapids Department of Public Works to place an AHEAD sign on the lighted beacon post.



W16-9P

Completed by: MD-CR-00 Date: 1-3-18

Wealthy Elementary School: (Lake Drive at Laurel Avenue)

The East Grand Rapids Department of Public Works to place four school crossing signs with posts on Lake Drive. Place two of these school crossing signs with arrow plaques at the crosswalk, one eastbound and one westbound. Place the other two school crossing signs with AHEAD plaques, one for eastbound located 150 feet west of crosswalk and one westbound located 200 feet east of crosswalk.

The Engineering Department will be responsible for making arrangements to have the continental crosswalk pavement markings placed at the crosswalk, east of the intersection crossing Lake Drive.



4 signs - 11.00 - 12/13 - MD

Completed by: MD-CB-DD Date: 1-3-19

Wealthy Elementary School: (Lake Drive 300 feet east of Laurel Avenue)

The East Grand Rapids Department of Public Works removed a section of sidewalk on October 26, 2018, and restored. No further action needed.



Completed by: Travis / Nick Date: 10/26/18

Wealthy Elementary School: (Lake Drive east of Lovett Avenue)

The East Grand Rapids Department of Public Works to replace the existing sign post with a longer post that will facilitate installing a solar powered beacon or add a bracket for the beacon. Install solar powered beacon and trim trees as needed.

Electrical contractor to cut and cap power supply and remove beacon from pole, then deliver to the Department of Public Works; ~~and provide a solar powered beacon.~~ *Strain completed on 3-8-2019 Electric*



Ordered solar powered beacon from a separate source and DPW installed them all.

Distance from the ground to the bottom of the AHEAD sign to be a minimum of 6 feet. (TYPICAL)

Distance from the ground to the bottom of the School crossing sign to be a minimum of 7 feet. (TYPICAL)

~~Just needs bracket and beacon~~

Completed by: MD AB Date: 1-18-19

Lakeside Elementary School: (Hall Street at Pinecrest Avenue)

The East Grand Rapids Department of Public Works to remove the pedestrian crossing sign and arrow from the utility pole on the south side of Hall Street, and place a new post with a school crossing sign with arrow plaque five feet west of the crosswalk. *Also, placed school crossing sign with arrow on the north side of Hall St.*

Electrical contractor to cut and cap power supply and remove beacon from utility pole then deliver to the Department of Public Works. *Strain completed on 3-8-2019 Electric*



S1-1

W16-7P

S1-1 (30 inch x 30 inch) (TYPICAL)
W16-7P (24 inch x 12 inch) (TYPICAL)

Note:

Distance from the ground to the bottom of the arrow sign to be a minimum of 6 feet. (TYPICAL)

Completed by: MD + CB + RD Date: 1-3-19

Lakeside Elementary School: (Hall Street east of Lenox Road)

The East Grand Rapids Department of Public Works to replace the pedestrian crossing sign with a school crossing sign with the AHEAD plaque and replace the existing sign post with a longer post that will facilitate installing a solar powered beacon or add a bracket for the beacon. Reuse the AHEAD sign. Install solar powered beacon, and trim trees as needed.

Also placed a school crossing sign with AHEAD sign on north side of Hall st.



S1-1

~~* Just need bracket and beacon~~

Completed by: MD AB Date: 1-18-19

Lakeside Elementary School: (Hall Street east of Lakeside Drive)

The East Grand Rapids Department of Public Works to move object marker sign onto the school crossing sign and remove post.



Completed by: AB:MD Date: 12-31-18

Lakeside Elementary School: (Burchard Street east of Lakeside Drive)

The East Grand Rapids Department of Public Works to replace the pedestrian crossing sign with a school crossing sign and the arrow plaque.



S1-1

W16-7P

Completed by: QB + MD Date: 12-31-18

Lakeside Elementary School: (Burchard Street east of Lakeside Drive)

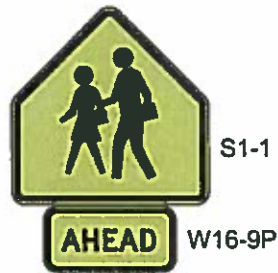
The East Grand Rapids Department of Public Works to remove the pedestrian crossing sign and post. Place a school crossing sign, with the AHEAD plaque, at a new location 202 feet east of the crossing across Burchard Street.



Completed by: MD + CB + DD Date: 1-3-19

Lakeside Elementary School: (Burchard Street west of Lakeside Drive)

The East Grand Rapids Department of Public Works to remove the pedestrian crossing sign and post. Then place a school crossing sign with arrow at a new location at the ramp on Burchard Street. Also, place a new school crossing sign and the AHEAD plaque at a property line 155 feet to the west of the crosswalk.



Completed by: MD + DD + CB Date: 1-3-19

Lakeside Elementary School: (Hall Street east of Anderson Drive) *miss city called for last sign!*

The East Grand Rapids Department of Public Works to place four no stopping/ standing /parking signs at the bump-out locations, as shown above, to increase visibility of pedestrians during winter months when painted curbs can be snow covered. *3 of 4 done*



Needs done - In sidewalk



+16-19 MD

St. Stephens School: (Franklin Street east of Rosewood Avenue)

The East Grand Rapids Department of Public Works to relocate the school crossing sign, with the AHEAD plaque, to a new location that is approximately 120 east of the crosswalk.



Completed by: MA + CB + AD Date: 1-3-19

Note: The three new solar powered flashing beacons were set with the following schedule: weekdays 7:00am to 9:00am and 2:30pm to 4:30pm. The existing non-solar beacons were set to the same schedule.

Completed by Pat 3-7-2019

Submitted by: Doug LaFave
City Commission Approved:
Installations Completed

Date: October 1, 2018
Date: March 8, 2019

Distribution: City Clerk
Public Safety
Department of Public Works Operations

August 9, 2018

Doug LaFave, Assistant City Manager
City of East Grand Rapids
750 Lakeside Drive
East Grand Rapids, MI 49506

Re: School Pedestrian Crossings Review
Six East Grand Rapids Schools

Dear Mr. LaFave:

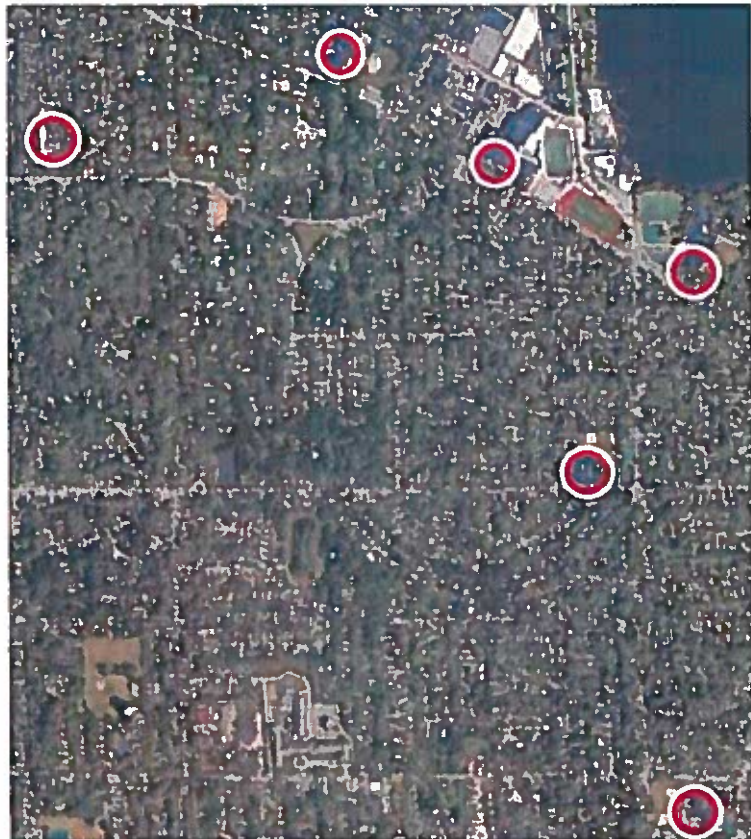
Progressive AE has completed the review of the applicable school crossings adjacent to six schools within East Grand Rapids. The following sections summarize our findings and recommendations regarding potential upgrades or revisions to the current crosswalk controls.

INTRODUCTION

As part of an ongoing pursuit to review pedestrian facilities and ensure compliance with current standards, the city requested a comprehensive review of the unsignalized pedestrian crossings on major streets at six schools within East Grand Rapids. Those schools are:

- East Grand Rapids High School
- East Grand Rapids Middle School
- Wealthy Elementary School
- Lakeside Elementary School
- Breton Downs Elementary School
- St. Stephen Catholic School

The focus of this review is to determine if the current school crossing pavement markings and related signs at these unsignalized locations meet current design and layout standards as defined in the current Michigan Manual of Uniform Traffic Control Devices (MMUTCD), the source that defines required such parameters for all public street systems. With the city's focus on creating safe and effective streets, the Urban Street Design Guide developed by the National Association of City Transportation Officials (NACTO) was also used as an overview source. In addition, the potential need for a type of signal or flashing beacon at any of the major crossings was also reviewed.



East Grand Rapids High School

The focus of the pedestrian crossing concerns, both past and present, are on Lake Drive, particularly at the primary Lake Drive crossing located at its intersection with San Lu Rae Drive/Bagley Avenue. Additional pedestrian crossings are located on Lake Drive at Lakeside Drive, Maxwell Avenue, and Ogden Avenue, but are not currently identified specifically as school crossings.



A review was completed last year of the Bagley Avenue/San Lu Rae Drive crossing with subsequent upgrading of crossing pavement markings and signs, so this primary crossing is already up to date. Its current bump-out narrowing and crosswalk markings closely align with guidelines of both the MMUTCD and NACTO source documents, and in particular, pages 112 and 113 of the NACTO book.

However, pedestrian crossing counts were completed in May 2018, to further define the level of use of this crossing for school activities. That data indicates that approximately 175 pedestrians, assumed to be mostly students, cross Lake Drive at Bagley Avenue/San Lu Rae Drive during the morning peak hour, with 112 of those occurring during the peak 15 minutes. During the afternoon pedestrian peak hour, approximately 180 students crossed at this intersection, with 125 of those crossings occurring during the peak 15 minutes around 3:00 pm.

Even though those are significant pedestrian crossing volumes, they are not high enough to meet MMUTCD criteria for installation of a type of pedestrian hybrid signal. The applicable statement in Section 4F.01 of the MMUTCD for such locations notes;

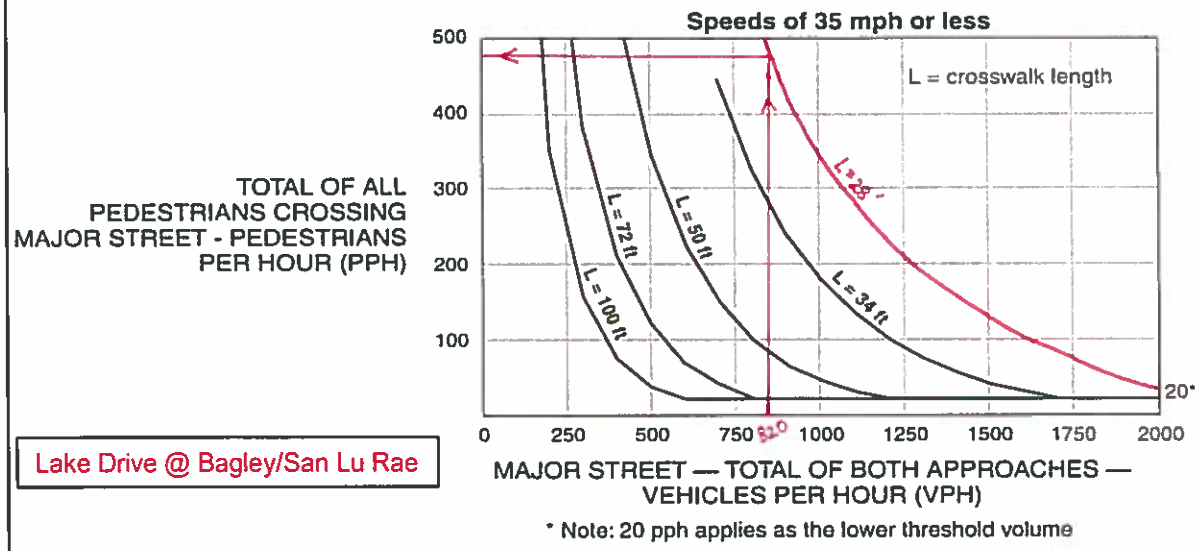
"For a major street where the posted or statutory speed limit or the 85th-percentile speed is 35 mph or less, the need for a pedestrian hybrid beacon should be considered if the engineering study finds that the plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding total of all pedestrians crossing the major street for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4F-1 for the length of the crosswalk."

Since the traffic volume on Lake Drive during the same peak hour is approximately 820 vehicles and the crossing width is 28 feet, a marked-up version of Figure 4F-1 on the next page indicates that the total pedestrian crossing volume across Lake Drive at this intersection would need to be over 400 pedestrians to meet the criteria for installing such a signal. Therefore, the combination of the peak pedestrian volumes, Lake Drive traffic volumes, and the crossing distance are easily below the required threshold for installing a pedestrian related signal.

In addition, flashing beacon type warning signs are typically used at locations that cross a multi-lane street and/or one with higher speeds than this location, and/or at mid-block locations where crossings may not be expected. Based upon the above criteria and the low crash history at this location over the past four years (average of two to three crashes per year with no pedestrian-related crashes), it does not appear that this crossing warrants the addition of a pedestrian actuated flashing beacons.

Improvement Recommendations: none other than ongoing oversight and maintenance.

Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways



Lake Drive @ Bagley/San Lu Rae

East Grand Rapids Middle School

The Lake Drive/Breton Avenue intersection provides signalized controlled crossings, and with its upgrades in 2016 now meets current MMUTCD standards. The signal system's operation provides improved crossing times for pedestrians and the use of countdown pedestrian signal heads. The use of crossing guards during the key morning and afternoon peak periods further enhances the safety of the crossing students at this intersection.

Given those recent improvements, the primary focus at the East Grand Rapids Middle School now is the pedestrian crossing at the intersection of Lake Drive and Kenesaw Drive. This crossing was reviewed in 2017 for potential signal or warning beacon installation; it was found that the combination of pedestrians, traffic volume, and crossing width did not meet criteria for additional controls. Crossing signs were subsequently updated bringing this location in line with current MMUTCD and NACTO guidelines.



New pedestrian crossing counts were taken in May 2018 to re-confirm the applicability of the current controls. Those counts indicated that approximately 85 pedestrians use that crossing during the morning peak hour, and approximately 63 pedestrians cross during the afternoon peak, largely around 3:00 p.m. Combined with the 25 mile-per-hour speed limit, a relatively short crossing distance of about 25 feet, and a traffic volume of about 650 vehicles during that morning pedestrian peak, the data confirms earlier findings that additional signal or flash type controls are not warranted at this crossing.

Improvement Recommendations: none other than ongoing oversight and maintenance.

Wealthy Elementary School

The current key pedestrian crossings for the Wealthy Elementary School are on both Lake Drive and Wealthy Street. The primary/defined school crossing on Lake Drive occurs at its intersection with Lovett Avenue, where recent sign upgrades and location adjustments were completed. NACTO guidelines were followed by narrowing Lake Drive with bump-outs on the north side (reduces pedestrian exposure time) and the use of heavier continental crosswalk markings that better define the crosswalk location. A flashing beacon is in operation during appropriate periods adjacent to the advance warning signs on the westbound Lake Drive approach to Lovett Avenue. Based upon city input, this location is also manned by crossing guards during school peak periods.



The defined crossing on Wealthy Street is located adjacent to the school at a mid-block point between Edgemere Drive and Greenwood Avenue. The signs and markings at this crossing have also been updated within the last year or so and meet current standards. The bump-out on the south side helps reduce pedestrian exposure as noted earlier. These design elements are supplemented with the use of a crossing guard during peak morning and afternoon student crossing activities. Pedestrian counts taken in May of this year show that approximately 55 to 60 students use this crosswalk during both the morning and afternoon pedestrian peak hour. As one might expect, approximately 80% of those occur within a 15-minute period.

Pedestrian counts were also taken at an unmarked/unsigned location on Lake Drive adjacent to the school. Given an existing sidewalk section that extends to the back of curb, the pedestrian use of this location for crossing Lake Drive may have been in question. In any case, the counts indicate that only one to three pedestrians crossed at this location during the school-related peak periods. Based upon this result, and the fact that there is no north/south street or pathway that leads into Lake Drive at/near this location, there is no sound rationale for creating a defined crosswalk at this location.



Consideration should be given though to removing the small sidewalk section in case it is leading to use as a crossing location.

Since a defined school crossing is not in place just to the west at the Lake Drive/Laurel Avenue intersection, we will assume that location has been reviewed by the city and school and does not warrant installation of a defined school crossing. There is, however, an old school sign and beacon assembly in place on the south side of the Lake Drive/Locust Avenue intersection. This assembly should be removed unless there is sound rationale that we are not aware of for retaining its location and operation, or the location should be brought up to full MMUTCD and NACTO standards.

Improvement Recommendations:

- Removal of small sidewalk section at Lake Drive mid-block location (see red X on above picture)
- Remove old advance pedestrian sign and beacon at Lake Drive/Locust Avenue or upgrade to current standards
- Ongoing oversight and maintenance.

Lakeside Elementary School

Lakeside Elementary School currently has an extensive set of defined school pedestrian crossings, primarily focused along Hall Street. The primary crossing at the intersection of Breton Avenue and Hall Street is signal controlled with new countdown pedestrian signals and new crosswalk markings completed as part of the Breton Avenue reconstruction. This set of upgrades now provides an environment that further brings it in line with current MMUTCD and NACTO guidelines. For this location and others, we should note that NACTO strongly supports the use of countdown pedestrian signals as their urban design book notes on page 111:



"Pedestrian countdown signals create a more predictable crossing environment and give adequate warning to pedestrians attempting to cross a roadway. All new crosswalk signals should include pedestrian signals with countdowns."

Crossing guards that assist students during the peak school use periods add to the safety of the students crossing at that intersection.

In addition to that signal-controlled intersection, there are two other school-related crossings across Hall Street west of Breton Avenue. Those are at the Hall Street/Anderson Drive and Hall Street/Lakeside Drive intersections. A set of non-school crossing signs are located



at the residential low-speed Lakeside Drive/Burchard Street intersection, just northwest of the school. We should note, there are additional Hall Street crossings further to the west; the location and sign type (along with an eastbound facing flashing beacon) do not appear to be school-related so are not within the purview of this review. Having said that though, it should be noted that the eastbound crossing signs and beacon at the Pincrest intersection should be relocated to a point immediately adjacent to the crosswalk, along with relocation of an adjacent small wood utility pole if it blocks visibility of the relocated beacon.

As with most other locations around the East Grand Rapids schools, signs and markings have been brought up to current standards over the last year. Advance warning signs have been brought into conformity regarding the AHEAD plate and distance from the actual crossings, and the signs at the crosswalks now have the current "arrow" advisory plate. Both Hall Street crossings have short exposure/crossing widths due to the sound decision to provide curb bump out sections per NACTO guidelines (page 112) at these locations and are further enhanced by no parallel parking allowed/ provided near the crossings on the approach side of each. The limits of the painted no parking zones, however, can be obscured during winter months as the comparison photos on the next page show.



Recent speed studies show that the 85th percentile speeds on Hall Street adjacent to the school are in the desired 22–25 mile-per-hour range.

Pavement markings and signs at/near the Lakeside Drive/Burchard Street intersection are currently standard pedestrian crossing signs, not school crossing signs. However, given the proximity to Lakeside Elementary and the apparent crossing pattern (south and east sides of the intersection), the city and school may want to consider replacing, and relocating, the existing signs with school crossing signs.

With or without those sign type revisions, the crosswalk markings should be upgraded to the heavier longitudinal type markings for extra emphasis and recognition by drivers. Parking within 30 feet upstream of the Burchard Street crossing, westbound approach, should be prohibited to provide better pedestrian visibility on that east side. Current crossing signs should also be relocated to points adjacent to the actual cross walk.



Pedestrian counts were completed at the primary unsignalized Hall Street crossing adjacent to the front of the school. Those counts indicate that approximately 38 pedestrians used that crossing during the morning peak hour and approximately 88 pedestrians used the crossing during the afternoon school peak. Again, given the combination of pedestrian volume, vehicular traffic on Hall Street, and the short crossing width, additional controls involving hybrid signals or warning beacons are not warranted.

One additional item of note: there are several object marker signs (OM3-R) used along this section of Hall Street, apparently installed to warn drivers of the intermittent curb bump outs. There is at least one that may hinder visibility of the crosswalk signs, and therefore should be considered for a slight relocation.



Improvement Recommendations:

- Longer term—consider lengthening one or more bump outs to eliminate seasonal pedestrian visibility issues related to hidden painted curbs;
- Review potential for changing the Burchard Street crossing at Lakeside Drive to a school crossing with applicable sign assemblies, or at a minimum, adjust the location of the existing crosswalk signs to a point directly adjacent to the crosswalk, upgrade the crosswalk markings, and paint the westbound approach curb yellow to eliminate potential parallel parking within 30 feet of the near edge of the crosswalk;
- Consider slight relocation of one or more object warning signs on Hall Street.

Breton Downs Elementary School

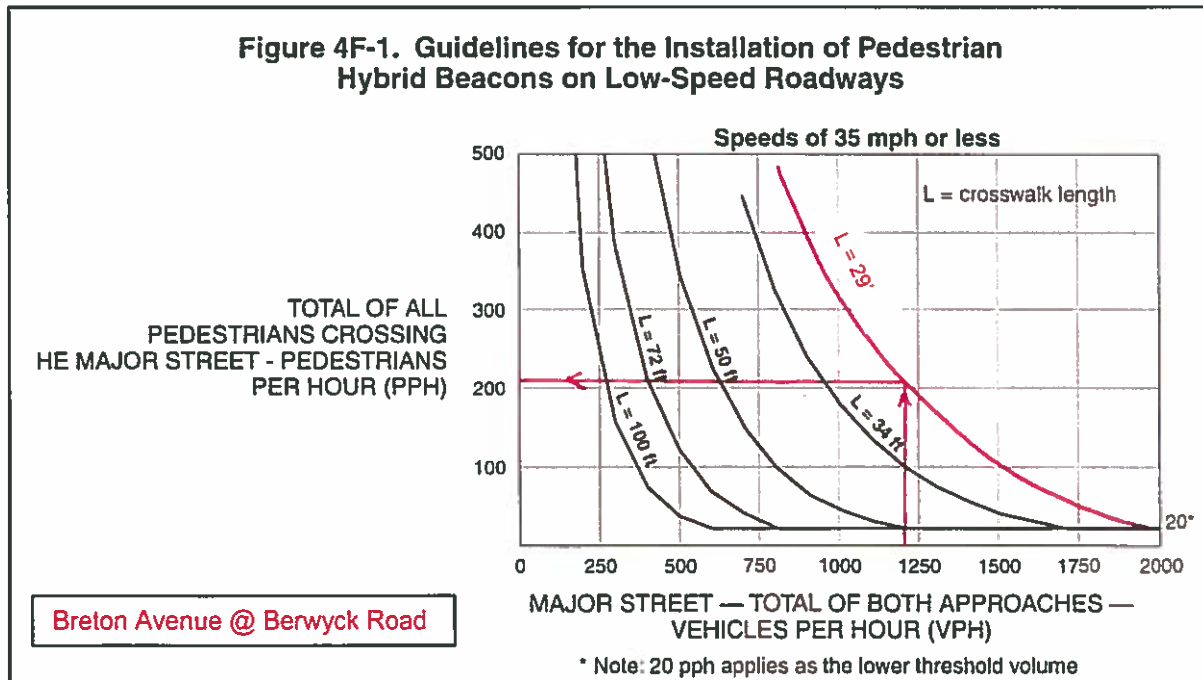
The Breton Downs Elementary School utilizes several adjacent crosswalks, including the signal-controlled crosswalks at the Breton Avenue/Boston Street intersection. Like the Breton Avenue/Hall Street intersection, this intersection has been updated as part of the overall Breton Avenue reconstruction and now has new countdown pedestrian signals and updated crosswalk markings per MMUTCD and NACTO guidelines that enhance pedestrian safety.

Given the traffic volumes on Breton Avenue, of particular focus in past years has been the school crossing across Breton Avenue at Berwyck Road. There are also two other crosswalk locations adjacent to the school on Boston Street, although neither are designated as school crossings. The eastern of those two locations, at the Boston Street/York Drive-Lake Grove Avenue intersection, has all-way stop sign control that inherently provides a relatively safe pedestrian crossing environment. Crossing guards are currently used at both the Breton Avenue/Boston Street and Boston Street/York Drive intersections.



As noted for other school locations, the school crossing on Breton Avenue at Berwyck Road was recently upgraded to include newer advance warning signs and applicable signs and advisory plates at the crosswalk itself. Pedestrian counts at this location taken in May 2018 indicate that approximately four pedestrians use the crossing during the morning peak hour and approximately nine students use the crossing during the afternoon school peak. Even with the 1,200+ peak-hour traffic volume on Breton Avenue in this area during the afternoon school peak, the short crossing distance of approximately 29 feet combined with the very low crossing volume does not meet pedestrian thresholds to warrant a signal or warning beacon as shown on the marked-up version of Figure 4F-1 below.

Figure 4F-1. Guidelines for the Installation of Pedestrian Hybrid Beacons on Low-Speed Roadways



There are two related items of note: currently there is an object warning sign (OM3-R) mounted on the southbound pedestrian crossing sign post as can be seen in the photo on the previous page. Since there is no bump out in this direction and apparently no other adjacent object, it brings in the question the need for the object sign.

There is also an existing advance school crossing sign and a low-mounted beacon on Breton Avenue facing south located just north of Berwyck Road. This doesn't appear to follow current standards either in location or design, although we suspect it was placed there as a general warning to drivers that there are school children in the area.



Improvement Recommendations:

- Consider removing the object warning sign on the southbound side of Breton Avenue at the crosswalk at Berwyck Road since no obstruction is evident at this location.
- Confirm the rationale and need for existing advance school crossing sign and beacon located on Breton Avenue just north of Berwyck Road; if none, remove.

St. Stephen School

The focus of school related crossings at St. Stephen School is primarily on Franklin Street where the single designated school crossing is located on the west side of its intersection with Gladstone Drive. Along with the public-school-system sites, the school crossing signs along Franklin Street at St. Stephen School were updated within the past year or so and now generally appear to meet current design criteria. Crosswalk pavement markings also appear to be in good condition at that school crossing location. Crossing guards are also utilized at this Franklin Street crossing.



Advance warning sign assembly for the westbound approach is longer than is appropriate for a 25 mile-per-hour speed zone. Even if the 85th percentile speed is slightly higher than 25 mph, the advance assembly should be moved closer to the crosswalk location. Also, the current advance crossing sign location encompasses another lesser defined crosswalk on Franklin Street at its intersection with Rosewood Avenue. This could cause some confusion as to which crosswalk the signs are intended for. The eastbound advance crossing sign assembly is in an acceptable location.

Pedestrian crossing counts were not completed at this crossing of Franklin Street at Gladstone Drive. However, even with a crossing width slightly wider than other locations, the peak-hour volume on Franklin Street in this area is below 500 vehicles per the Grand Valley Metro Council (GVMC) traffic database, thereby making it an invalid location for a pedestrian crossing related signal or beacon installation.

Improvement Recommendations:

- Shift the location of the westbound advance warning sign assembly to a point approximately 150 to 200 feet or so upstream of the crossing, keeping in mind that typical driver visibility of those signs is considered to be at least 180 to 200 feet upstream of that spacing.

SUMMARY

The previous sections outline the individual reviews and recommendations regarding school pedestrian crossings for each of the six schools as requested. Based upon the on-site observations, additional data provided by the city, and new pedestrian and vehicle counts taken in May 2018, the recommended school crossing improvements noted herein are relatively minor as follows:

East Grand Rapids High School and Middle School:

- None other than ongoing oversight and maintenance

Wealthy Elementary:

- Removal of small sidewalk section at Lake Drive mid-block location
- Remove old advance pedestrian sign and beacon at Lake Drive/Locust Avenue,

Lakeside Elementary:

- Longer term—consider lengthening one or more bump outs to eliminate seasonal pedestrian visibility issues related to hidden painted curbs;
- Review potential for changing the Burchard Street crossing at Lakeside Drive to a school crossing with applicable sign assemblies, or at a minimum, adjust the location of the existing crosswalk signs to a point directly adjacent to the crosswalk. Upgrade the crosswalk markings and paint the westbound approach curb yellow to eliminate potential parallel parking within 30 feet of the near edge of the crosswalk;
- Consider slight relocation of one or more object warning signs on Hall Street.

Breton Downs Elementary:

- Consider removing the object warning sign on the southbound side of Breton Avenue at the crosswalk at Berwyck Road
- Confirm the rationale and need for existing advance school crossing sign and beacon located on Breton Avenue just north of Berwyck Road—if none, remove.

St. Stephen School:

- Shift the location of the westbound advance warning sign assembly to a point approximately 150 to 200 feet or so upstream of the crossing

As a final note, conditions always change over time, whether its traffic volumes, pedestrian patterns, MMUTCD criteria, etc., so we suggest that the city, through its staff, review each of these locations every couple of years to help retain a safe pedestrian environment at and near these school campuses.

Please let us know if you or others have any questions regarding the above summary and recommendations.

Sincerely,



Peter C. LaMourie, PE, PTOE
Lead Civil Engineer