



Blue Valley School District 2018 District-Wide Crosswalk Study

Prepared For:



Prepared By:



Lee Baer, PE - Author

Mike McKenna, PE, PTOE, ENV SP - Reviewer



Blue Valley School District 2018 District-Wide Crosswalk Study

Table of Contents

Purpose And Study Objective.....	4-6
High Schools	
Blue Valley.....	8-9
Blue Valley North.....	10-11
Blue Valley Northwest.....	12-13
Blue Valley Southwest.....	14-15
Blue Valley West.....	16-17
Middle Schools	
Aubrey Bend.....	20-21
Blue Valley.....	22-23 ^o
Harmony.....	24-25
Lakewood.....	26-27 [^]
Leawood.....	28-29 [◇]
Overland Trail.....	30-31 [*]
Oxford.....	32-33
Pleasant Ridge.....	34-35 [•]
Prairie Star.....	36-37 [‡]
Elementary Schools	
Blue River.....	40 ^o
Cedar Hills.....	41 [•]
Cottonwood Point.....	42
Harmony.....	43
Heartland.....	44
Indian Valley.....	45
Lakewood.....	46 [^]
Leawood.....	47 [◇]
Liberty View.....	48
Mission Trail.....	49
Morse.....	50
Oak Hill.....	51
Overland Trail.....	52 [*]
Prairie Star.....	53 [‡]
Stanley.....	54
Stilwell.....	55
Sunrise Point.....	56
Sunset Ridge.....	57
Timber Creek.....	58
Valley Park.....	59
Wolf Springs.....	60
Appendix A – Summary of Pedestrian Counts	
Appendix B – Standard Detail	

^o[^][◇]^{*}[•][‡] These schools share a campus, information about both schools can be found in both locations.

Purpose and Study Objective

The purpose of this study is to evaluate the existing locations and types of crosswalks used within the Blue Valley School District (BVSD) campuses. We will determine if the existing facilities are adequate, safe, and look for areas of improvement. Most existing studies and design tools for schools address crossings that are located on the edge of school campuses with the focus on getting students safely from neighborhoods to the campus. The focus for this study will be to safely and effectively move pedestrians within the campuses.

Compared to pedestrian traffic associated with most other types of land use, pedestrian volumes at schools can experience extreme peaking and movement characteristics not considered normal for experienced pedestrians. Crossing aisles without looking and/or running from buildings across parking lots to multiple locations are the types of characteristics that we observed from students (i.e. distracted pedestrians). Similarly, at the high schools, the majority of drivers are students with minimal driving experience.

STUDY PROCESS

Affinis used the following process at each location to determine and evaluate the specific needs for each:

- ▶ Research existing literature exploring vehicle and pedestrian movement design on school campuses.
- ▶ Evaluate all the existing crossings, marked and unmarked, within each school campus.
- ▶ Count specific crossing locations within select parking lots during the AM and PM peak hours. The peak hours are assumed to be before the starting bell and after the last bell of the day.
- ▶ Observe the pedestrian patterns during the AM and PM peak hours.
- ▶ Produce recommendations to increase safety for each school campus based on findings.

RESEARCH

There are many studies looking at pedestrian crosswalks and many ways that people are trying to direct the way pedestrians are walking. When considering a signalized intersection (because there are very few studies looking at crossings within or on the edges of school campuses), marked crosswalks are shown to increase the likelihood of a vehicle-pedestrian conflict by 2-3 times⁽¹⁾. A marked crosswalk seems to give the pedestrian a false sense of security when crossing and the likelihood that they check for oncoming vehicles drops. While many studies suggest that a marked crosswalk is more dangerous than an unmarked crosswalk, a 1999 study⁽²⁾ showed otherwise. It considered not only pedestrian volume, but vehicular volumes, and tried to correlate the relationship between incidents and exposure. This study also found pedestrian refuge island to have positive effects on a crossing location.

“In summary, there are no clear-cut results from the studies reviewed to permit concluding with confidence that either marked or unmarked crosswalks are safer”⁽³⁾.

One significant contributor to pedestrian-vehicle conflicts at crossings, whether it is in a parking lot or at a signal, is the use of cell phones while walking. Distracted walking is one of the largest obstacles to overcome in 2018. Research shows there are various ways municipalities and schools are trying to combat distracted walking:



Figure 1.1: In pavement LED lights.



Figure 1.2: European crossing signs.

- ▶ Addition of signing to warn drivers that pedestrians are looking at their phones. (Europe)
- ▶ In pavement LED lights that get a pedestrian’s attention as they approach a crossing. (Germany)
- ▶ Painting portions of sidewalk prior to the crosswalk to catch the pedestrians attention. (Many locations across the US, similar to the Eyes Up Phone Down messaging shown in Figure 1.3)
- ▶ Fines ranging from \$25 to \$100 for using a cell phone while in the crosswalk. (California, Chicago, Hawaii)
- ▶ The “Look Up” app was created to notify users when they are approaching a crossing using GPS. (New York City)



Figure 1.3: Eyes Up/Phone Down messaging.

These techniques aim to enhance safety at crossings. Distracted walking injuries involving cell phones accounted for 11,100 injuries between 2000 and 2011 nationwide⁽⁴⁾. According to the Governors’ Highway Safety Association report, there were nearly 6,000 pedestrian fatalities in 2017 alone⁽⁴⁾. The issue of cell phone usage while crossing the street is rising sharply. Children, ages 5-19, are especially susceptible since pedestrian-vehicle injuries are the fifth leading cause of death for this age group.

These options for combating distracted walking won’t suit all ages in all places. Using the research available, our engineering judgment, and our knowledge of the BVSD community we will develop “distracted walking standards” for the different student groups – high school, middle school, and elementary school.

RECOMMENDATIONS

After a full evaluation of each campus, we show throughout this document specific and universal remedies that will improve safety and efficiency. Recommendations for each campus should be implemented and the standard detail should evolve through time and be applied to future school district improvements.

Crossings Along the Perimeter of BVSD Campuses

There are many studies that discuss the impacts of marked pedestrian crossings on vehicle and pedestrian safety. Safe Routes to Schools has guidelines and the Manual on Uniform Traffic Control Devices (MUTCD) has additional guidelines. After our research, the default standard for a crossing located along the perimeter of Blue Valley Schools should be to not mark the crossing. In our professional opinion, marked crossings in these locations provide the pedestrian a false sense of security. Drivers are not always expecting pedestrians on the perimeter of a campus, as opposed to when they are driving within a campus, drivers are usually more aware of the possibility of pedestrian interaction.

If requested, signing, as shown to the right, can be added at each campus entrance. Signing will alert the vehicles that pedestrians are possible, but will not lull pedestrians into a false sense of security.

As we have stated, there is not decisive clear literature on this, so the default standard should be to not mark these locations, but if a certain municipality prefers, they can be marked. This is generally not an issue since these crossing are usually within the city right-of-way and are maintained and updated by said municipality.



Figure 1.4: School crossing sign.

ADA Requirements

ADA does apply to schools, both public and private. The emphasis here is to create an ADA compliant route from the ADA parking locations to the school building. We do not believe every ramp or sidewalk across the school district should be improved to current ADA requirements at this time, but a clear and fully compliant route from the ADA parking to the school building should be created or maintained on each campus.

Speed Table Locations

Each speed table location suggested within this document has been reviewed on-site for feasibility. What we don't want to produce with the addition of a speed table is a location that collects and holds storm water. If it is determined that a speed table location is not suitable because of any reason, a speed bump should be used. If the speed table was intended to be used as a crosswalk, the location could be replaced with an ADA compliant marked crossing with a speed bump on one side.

REFERENCES

1. Gibby, A.R., Stites, J.L., Thurgood, G.S., and Ferrara, T.C., "Evaluation of Marked and Unmarked Crosswalks at Intersections in California," Chico State University, Report No. FHWA/CA/TO-94/1, June 1994.
2. Ekman, L. and Hyden, C., Pedestrian Safety in Sweden, Report No. FHWA-RD-99-091, Federal Highway Administration, Washington, DC, December 1999.
3. <https://www.fhwa.dot.gov/publications/research/safety/04100/01.cfm>
4. <http://www.nsc.org/learn/safety-knowledge/Pages/news-and-resources-pedestrian-safety.aspx>

High Schools

The study team visited each High School within the Blue Valley School District. Each was observed during the arrival and dismissal process. Pedestrian counts were taken at strategic crossing locations at each school to determine the flow of pedestrians as well as to assist in determining if locations should be improved. Each high school is generally set up to keep the pickup/drop off line, staff parking, and student parking separated. This seems to work well, especially in the AM, when the arrival times are more spread out. The main concern for high schools is the short, but high peak in the PM, where pedestrians and vehicles are most likely to mix. Each high school is unique in this situation, and discussed further in this section.



Blue Valley High School

Affinis staff collected pedestrian counts and made observations at Blue Valley High School (BVH) on February 13th, 2018. The crosswalk locations evaluated through this process are shown in Figure 2.1. Crosswalk locations 1, 2, 4, and 5 were counted, locations 3 and 6 were not. The AM (6:55am-7:55am) and PM (2:40pm-3:40pm) pedestrian counts are shown in Table 1. Locations 2 and 3 are unmarked. Affinis also met with campus police officers Burgess and Schmidt, who help patrol the campus daily.

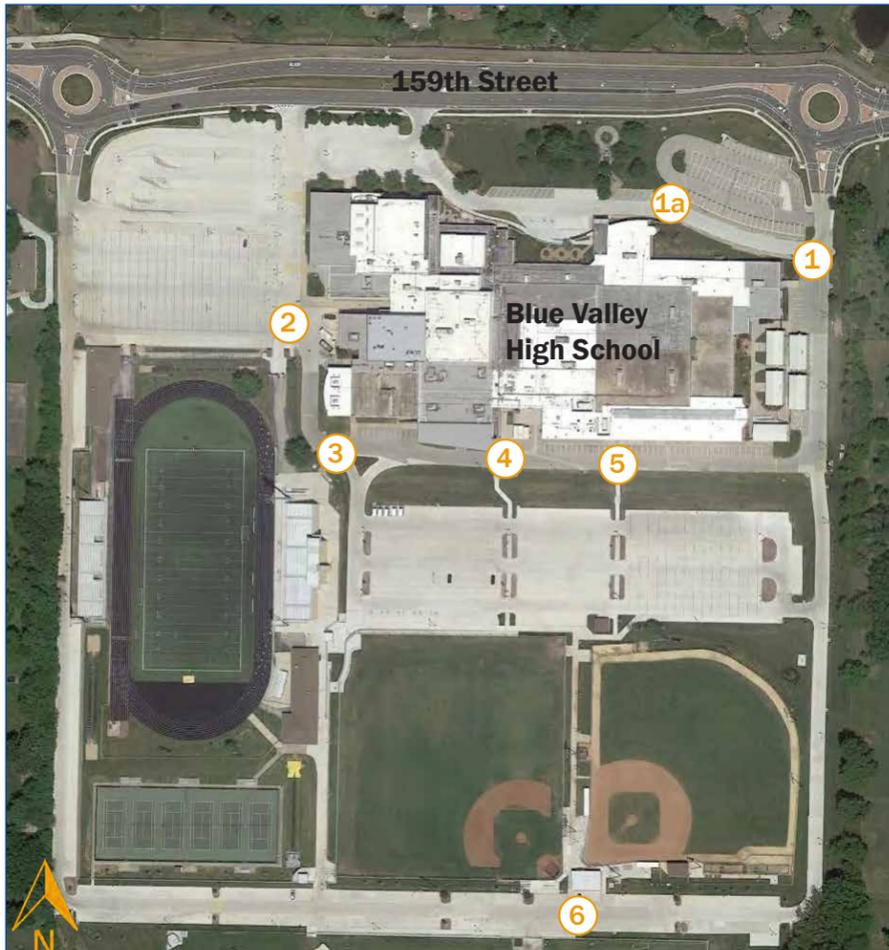


Figure 2.1: Crosswalk locations at Blue Valley High School.

Table 1: Blue Valley High School Pedestrian Count Summary		
Cross Location	AM Count	PM Count
Location 1		
E-W Crosswalk	14	18
N-S Crosswalk	11	42
Outside of Crosswalk	67	15
TOTAL	92	75
Location 2		
In Crosswalk	146	104
Outside of Crosswalk	208	226
TOTAL	354	330
Locations 4 and 5		
Crossing 4	203	162
Crossing 5	207	154
Outside of Crosswalk	77	81
TOTAL	487	397



Figure 2.2: Existing conditions at Location 4.



Figure 2.3: Proposed speed bumps south of Location 1.



Figure 2.4

OBSERVATIONS

Location 1 had the lowest total volumes of the crossings that were counted. The main observation here was during the AM count, 73 percent of pedestrians did not cross in the crosswalk. A majority of the 73 percent crossed at location 1A after parking in the northeast parking lot or were students walking from adjacent neighborhoods.

At Location 2, pedestrians both in the AM and the PM tended to take a direct angle from the building to their parking spots. This is backed up in the crossing data, as 59 percent (AM) and 69 percent (PM) crossed outside of a theoretical crosswalk at location 2. Location 2 is not a marked crosswalk.

Crossing location 3 was not counted, it provides passage for athletes from school locker rooms to the football stadium.

Locations 4 and 5 accounted for the highest volumes. Most pedestrians in these two crossings did use the crosswalks because these locations lead to stairs which are surrounded by steep grassy areas. The 15 percent in the AM and 20 percent in the PM that did not cross within these crosswalks chose to walk up or down the steep grassy area.

The major and most concerning observation at locations 4 and 5 were the vehicles that traveled the wrong direction and sped through these locations. Roughly 15 drivers in the AM traveled in the wrong direction and 5-10 vehicles were observed speeding in the PM.

One general observation that we did not expect (this happened at all 4 counted locations), was the number of students that ran from the building on their way out. Running from the building makes for a very unsafe situation, especially when combining distracted pedestrians and inexperienced drivers.

RECOMMENDATIONS

At Location 1, these crosswalks perform well, when used, in their existing condition. However, with the majority of the pedestrians from the northeast parking lot crossing at location 1A, it is our recommendation that a physical barrier be added (Figure 2.4) and sidewalk be removed along the north side from location 1A to location 1.

In speaking with officers Burgess and Schmidt, they pointed out that a lot of pedestrians complain about vehicles speeding past the classrooms along the east side of campus. The existing speed bump located just south of the east-west crossing at Location 1 is excessively tall and caused most vehicles to come to a complete stop, which makes merging with pick up line traffic difficult. This north speed bump should be removed and relocated 10-15 feet south. An additional speed bump should be installed further south to assist in maintaining low speed traffic flow, as shown in Figure 2.3.

Channelizing pedestrians toward the crosswalk at location 2 will be difficult. Pedestrians will likely continue to take a direct path to and from the school entrance unless a physical barrier funnels them toward the south. Our recommendation for Location 2 would be to keep it as is, but to consider a channelizing barrier if the parking lot is adjusted in the future.

Recommendation is to keep locations 3 and 6 as they are. The pedestrian crossing volumes are not high enough or steady enough to warrant a marked crosswalk. Location 6 is a speed table that doubles as a crosswalk. The two speed tables in the south-most parking lot are successful at minimizing speeding among the inexperienced drivers that use this lot. Both locations should be maintained as they currently exist.

The greatest daily volume of pedestrians moving through the parking lots were at Locations 4 and 5. These two locations also drew the most concern when considering driving behaviors as well. We recommend adding speed tables at both crossings 4 and 5. This will guide pedestrians out of the building and to the stairs. Twenty percent of these pedestrians crossed the parking lot and walked up the grassy areas instead of using the stairs (Figure 2.2). To assist with guiding pedestrians up the stairs to create a more predictable path, we would recommend planting bushes or foliage (similar to Figure 2.4) at the tops and bases of these slopes.

Blue Valley North High School

Affinis staff collected pedestrian counts and made observations at Blue Valley North High School on October 10th, 2018. The crosswalk locations evaluated through this process are shown in Figure 3.1. Crosswalk locations 1, 2, 3, 4, and 5 were counted. The AM (6:50am-7:50am) and PM (2:40pm-3:40pm) pedestrian counts are shown in Table 2. Locations 2 and 3 are speed table crosswalks, Location 1 is marked while the rest are not.

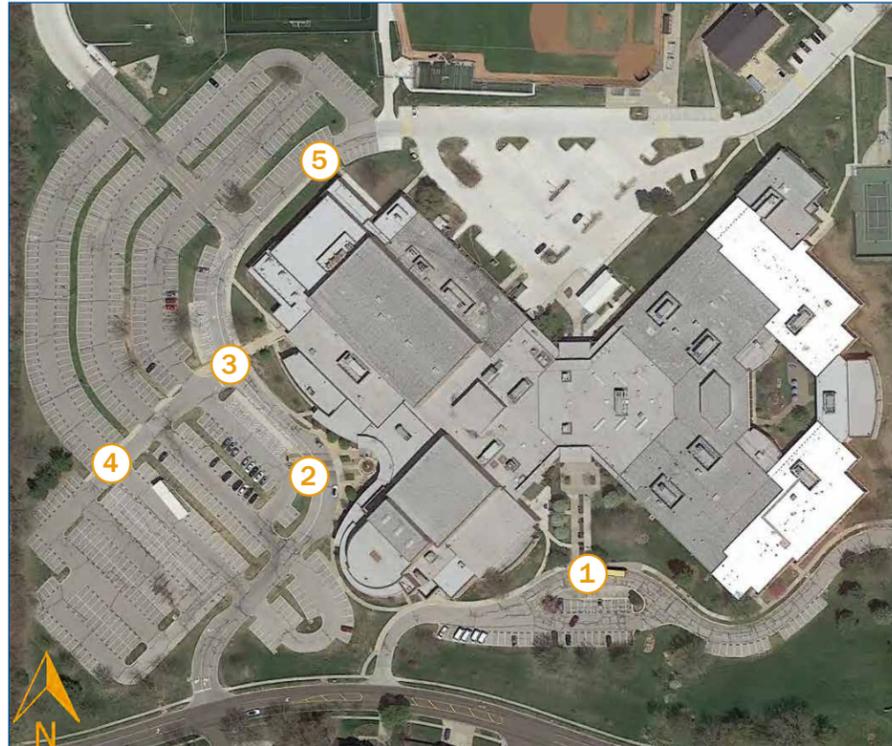


Figure 3.1: Pedestrian count locations.

Table 2: Blue Valley North High School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	215	26
Outside of Crosswalk	19	12
TOTAL	234	38
Locations 2 and 3		
Crossing 2	93	177
Crossing 3	101	119
Outside of Crosswalk	105	62
TOTAL	299	358
Location 4		
In Crosswalk	17	*
Outside of Crosswalk	11	*
TOTAL	28	*
Location 5		
In Crosswalk	17	19
Outside of Crosswalk	85	186
TOTAL	102	205

*Did not count PM due to inactivity

OBSERVATIONS

Location 1 had the largest number of pedestrians crossing of any single location. This location was observed to be more adult (staff) pedestrians than student pedestrians. This crossing is a marked crossing and has an existing ADA compliant ramp. Of the 234 pedestrians in the AM, 215 crossed within the marked crossing. In the PM only 26 pedestrians crossed within the crossing, while 12 left the curb and headed directly toward their destination. The PM count volumes are likely lower because the staff does not leave during our count times.

Locations 2 and 3 were counted together as one large crossing. As shown in Table 2, this is the main entrance area for student pedestrians. This is also the main drop off and pick up area for pedestrians. The crossings at locations 2 and 3 are speed table crossings and are ADA compliant. Locations 2 and 3 currently have ADA domes and EUPD messaging. Pedestrians crossing in the area located between locations 2 and 3 are listed as “outside of crosswalks”.

Every crossing between locations 3 and 4 has the EUPD sidewalk messaging. Location 4 was counted in the AM, but it was determined that a PM count would not provide useful pedestrian data that would benefit our final recommendation.

Location 5 is an unmarked crossing which does not have an existing ramp. Because this location does not have a marked crosswalk, the counts were considered “in” (green area) and “out” (red area) as shown on Figure 3.3.

RECOMMENDATIONS

Location 1 has an existing ADA ramp, but could be improved to be fully ADA accessible. The existing marked crosswalk should be narrowed to 60 inches wide. As shown in Figure 3.2, the median is already lowered to the pavement level, but the loading zone between these ADA spots was removed to create additional parking. The loading zone should be restored between the ADA parking spots to a width of at least 60 inches and the length of the parking spot.

Location 2 works well as it is currently configured. The speed table crossing helps to keep speeds down while providing an ADA compliant crossing.

Location 3 is very similar to the crossing at location 2, but the speed table is very mild in this location and is ineffective in slowing traffic. It does have good color contrast to assist in gaining the drivers attention. This location is servicable as it exists but could be improved to the new school district speed table standard.

Location 4 and all of the crossing between locations 3 and 4 do not have ADA ramps in their current condition. These locations do have EUPD. These crossing do not need to include ramps because they do not serve the ADA accessible parking.

Location 5 serves pedestrians as expected. This location acts more like a broad access to and from the parking lot from the northwest side of the building and there are no ADA parking spots located northwest of the building. This location should include the EUPD messaging.



Figure 3.2: Location 1 improvements.

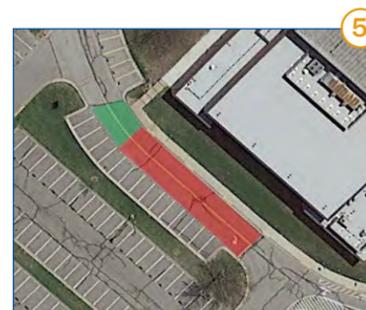


Figure 3.3: Green area was considered “in crosswalk” and red area was considered “out of crosswalk” for count purposes.

Blue Valley Northwest High School

Affinis staff collected pedestrian counts and made observations at Blue Valley Northwest High School on October 17th, 2018. The crosswalk locations evaluated through this process are shown in Figure 4.1. Crosswalk locations 1, 2, 3, and 6 were counted, locations 4 and 5 were not. The AM (6:50am-7:50am) and PM (2:40pm-3:40pm) pedestrian counts are shown in Table 3. Locations 3 and 6 are marked crosswalks, while the rest are not.

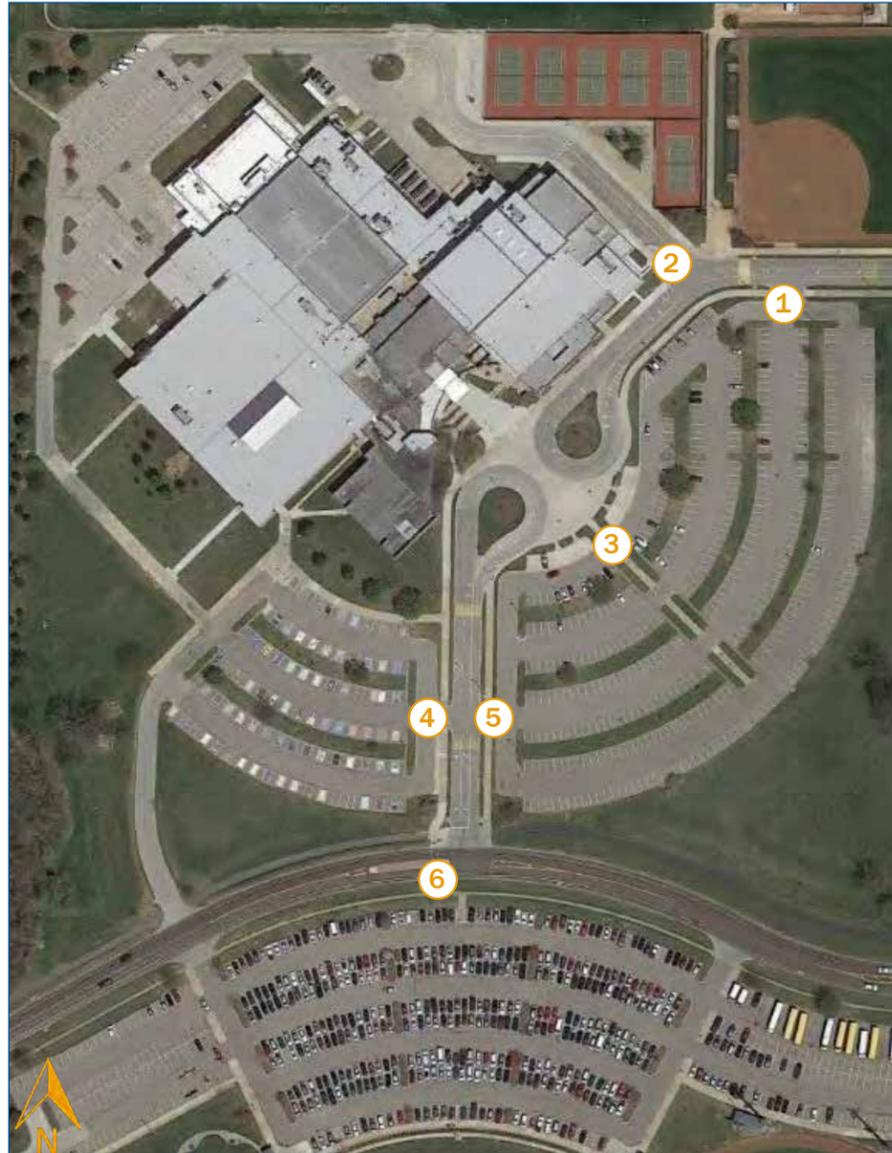


Figure 4.1: Pedestrian count locations.

Table 3: Blue Valley Northwest High School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	1	0
Outside of Crosswalk	0	0
TOTAL	1	0
Location 2		
In Crosswalk	6	44
Outside of Crosswalk	47	20
TOTAL	53	64
Location 3		
In Crosswalk	136	126
Outside of Crosswalk	119	149
TOTAL	255	275
Location 6		
In Crosswalk	183	209
Outside of Crosswalk	11	109
TOTAL	194	318

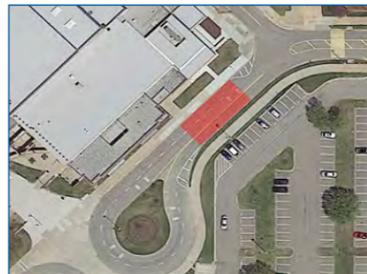


Figure 4.2: New speed table crossing.

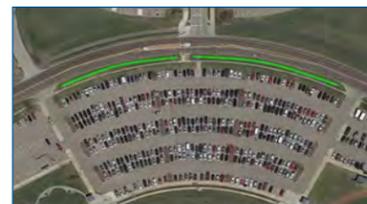


Figure 4.3

OBSERVATIONS

Location 1 collects pedestrians onto the campus from the east. At this location we only observed one pedestrian in the AM and 0 pedestrians in the PM. This crossing has existing ramps but no ADA domes or crosswalk lines.

Location 2 was similar to location 1, in that it is a low volume crossing. In its existing condition it has ramps and EUPD messaging, but does not have ADA domes on the ramps. This is also not a marked crossing.

The main parking lot for staff, visitors, and non-senior students flows through location 3. Location 3 is surrounded by ADA accessible parking spots and multiple ramps. This crossing and all of the crossings through the parking lot to the southeast are marked and have EUPD messaging. None of these ramps have ADA compliant domes.

Locations 4 and 5 were observed, but not counted. Both of these locations have existing ramps and EUPD messaging. These two locations are not marked crossings and do not have ADA compliant domes.

Locations 6 is the location of most concern at this campus. This location is the main crossing from the school campus to the District Activity Complex. As Table 3 shows, roughly two hundred pedestrians in the AM and three hundred in the PM crossed at this location. Five percent of pedestrians were “outside of crosswalk” in the AM, while 34 percent were “outside of crosswalk” in the PM. This crossing is ADA compliant and has a median refuge area.

RECOMMENDATIONS

Location 1 should be updated with ADA compliant domes, but does not need to be a marked crossing. There is not enough pedestrian traffic at this location to warrant marking it. To the east, the school district should work with the city of Overland Park to remove the crosswalk lines on the north side of the intersection, as it is no longer a crossing. While on-site, our team toured the campus with Officer Garcia. During this tour, Officer Garcia mentioned the existing RRFB’s at this location were not working properly. We shared with Officer Garcia that the school could contact the city any time they observed issues with the RRFB’s. The EUPD messaging could be added leading up to these ramps, this addition would need to be coordinated with the city.

Location 2 was observed to work well in its existing condition. This crossing should be updated to current ADA requirements, but otherwise maintained as it exists. Directly south of location 2, our team observed 45 students in the AM and 20 in the PM crossing in the red area on Figure 4.2. These pedestrians crossed between moving vehicles in an unsafe manner. These pedestrians seemed to be high school band members who were collecting instruments for an early AM band practice. There is not a direct access across the roadway near the area in the red in Figure 4.2. As shown, a speed table crossing could be added in this area to facilitate any pedestrians crossings here.

Location 3 and the surrounding ADA ramps should be brought up to current ADA requirements. EUPD messaging should be added to each of the ADA ramps at location 3. All of the crossing to the southeast should continue to be marked and have EUPD messaging but do not need to have ramps as there are not any ADA parking spots to the southwest.

Although locations 4 and 5 were not counted, our observation suggest that these crossings work well as they exist. They should be brought up to current ADA standards and maintained as they are.

Location 6 creates the highest risk for pedestrians from the campus. A RRFB crossing would work well at this location. An additional measure, and a less expensive option, would be to add shrubs or bushes along the green space on the north side of this parking lot as shown by green lines in Figure 4.3. A barrier should not only help facilitate the flow of pedestrians during school peak hours, but should also help with pedestrian flows before and after sporting events. Any improvements for this location will likely have to be coordinated with the City of Overland Park because the crossing is at W 133rd Street.

Blue Valley Southwest High School

Affinis staff collected pedestrian counts and made observations at Blue Valley Southwest High School (BVSU) on September 12th, 2018. The crosswalk locations evaluated through this process are shown in Figure 5.1. Crosswalk locations 1, 2, 3, 4, 5, and 6 were counted. The AM (6:50am-7:50am) and PM (2:40pm-3:40pm) pedestrian counts are shown in Table 4. Location 5 is a marked crosswalk, while the rest are not.



Figure 5.1: Pedestrian count locations.

Table 4: Blue Valley Southwest High School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	100	150
Outside of Crosswalk	8	23
TOTAL	108	173
Location 2		
In Crosswalk	100	55
Outside of Crosswalk	2	8
TOTAL	102	63
Locations 3 and 4		
Location 3	32	50
Location 4	96	72
Outside of Crosswalk	206	272
TOTAL	334	394
Location 5		
In Crosswalk	1	25
Outside of Crosswalk	0	274
TOTAL	1	299
Location 6		
In Crosswalk	1	0
Outside of Crosswalk	0	44
TOTAL	1	44

OBSERVATIONS

Location 1 had a moderate volume of pedestrians as shown in Table 4, but our observations at this location showed that the pedestrians who crossed here were moving back and forth to the designated band practice area that is enclosed by concrete barrier. Location 1 does not have an ADA ramp, nor is it a marked crosswalk.

At Location 2, there is an existing ADA ramp and is currently marked with the EUPD messaging. From our observations, this crossing is primarily used by the school staff. Location 2 is also not a marked crosswalk.

Crossing location 3 has pavement that allows for through traffic. During the AM count period this crossing was gated off to prevent through traffic while still allowing pedestrians to cross. During the PM count, the gate was open. The ramps are ADA compliant, but this crossing is not marked.

Locations 4 is the major crossing on campus, it leads from the building to the main student parking lot. There is not a marked crossing here and most students step off the curb and head directly toward their cars. This location does not have a ramp or ADA access.

Location 5 has a curb ramp on the south side, but does not have ADA domes. The north side of this crosswalk is at parking lot level through the median. This location is not busy in the morning, but is fairly busy in the afternoon, it is the main crossing to the sports fields.

Location 6 is also not busy in the AM, and primarily serves the tennis team and cross country runners in the PM. This location is currently not a marked crossing, but is ADA compliant and has EUPD messaging.

RECOMMENDATIONS

If Location 1 is to be used as the access to the band practice area, an ADA compliant ramp should be added, but there is no need to mark this crosswalk.

Because Location 2 is primarily used by school staff and is already ADA compliant with EUPD, this location is fine as it is. This location does not need to be marked.

Location 3 had 32 to 50 students crossing, to reach their cars parked on the north edge of the student parking lot. This location has a gate, but the gate was open in PM. This location should be marked if the gate is to be open during either arrival or dismissal. This crossing is the mixing point for the student parking and parent pick up line and once pedestrians are introduced at this location it can make for an unsafe environment.

Location 4 should have an ADA ramp installed, but should not be a marked crosswalk. A marked crossing here would not serve the pedestrians well because they walk directly off the curb to their cars. However, three speed bumps along this crossing would ensure slower speeds, as shown in Figure 5.2.

Location 5 should have ADA domes added and should continue to be a marked crossing. This is the main entrance into the sports fields, therefore it sees a lot of PM peak pedestrian traffic. In the AM, only one pedestrian used this crossing. In the PM, roughly 300 pedestrians either crossed at location 5 or at a path shown in Figure 5.3. Additional sidewalk should be added as shown, in Figure 5.3. We believe if shrubs or bushes were planted along the existing sidewalk here the pedestrians would still cut through the bushes, essentially rendering the bushes useless.

Location 6 is already improved and seems to serve the pedestrians well in its current state, no additional improvements are needed here and it should be maintained as it is.



Figure 5.2

Figure 5.3

Blue Valley West High School

Affinis staff collected pedestrian counts and made observations at Blue Valley West High School (BVW) on September 12th, 2018. The crosswalk locations evaluated through this process are shown in Figure 6.1. Crosswalk locations 1, 2, 3, 4, 5, 6 and 7 were counted. The AM (6:50am-7:50am) and PM (2:40pm-3:40pm) pedestrian counts are shown in Table 5. 3. Locations 3 and 4 are marked crossings, while the rest are not marked.

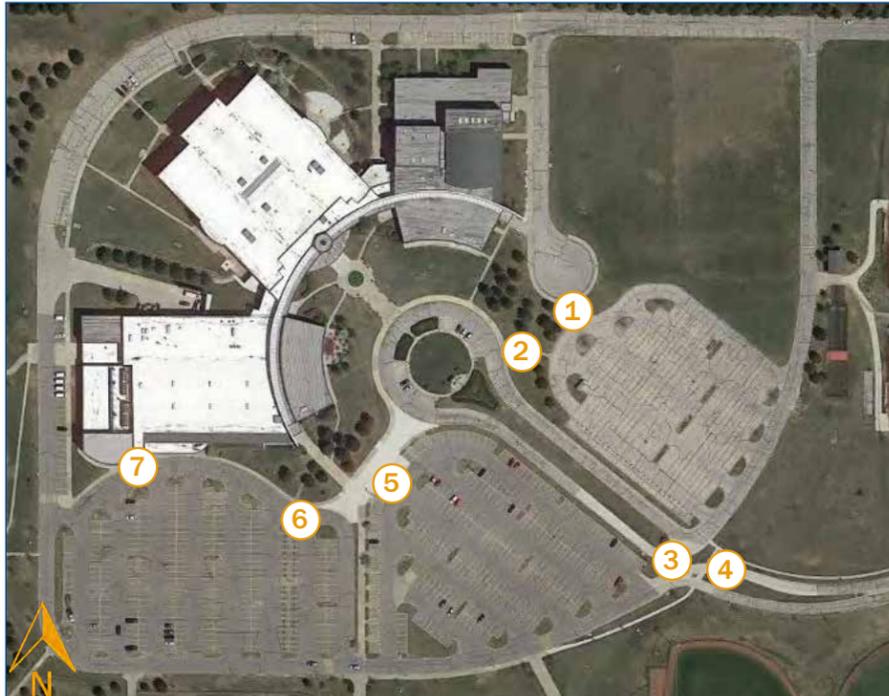


Figure 6.1: Pedestrian count locations.

Table 5: Blue Valley West High School Pedestrian Count Summary		
Cross Location	AM Count	PM Count
Locations 1 and 2		
Location 1	105	168
Location 2	2	16
TOTAL	107	184
Locations 3 and 4		
Location 3	3	2
Location 4	1	1
TOTAL	4	3
Locations 5 and 6		
Location 5	240	192
Location 6	271	356
TOTAL	511	548
Location 7		
Crossing within the area	179	275
TOTAL	179	275

OBSERVATIONS

At locations 1 and 2, location 1 saw the majority of the pedestrians. Ninety-three percent of the pedestrians used location 1, while only seven percent used location 2. Locations 1 and 2 have ramps, but are not up to current ADA standards. These crosswalks are unmarked as well. This parking lot and the parking that wraps around northwest corner are the main locations for staff parking.

Locations 3 and 4 currently have the EUPD messaging and are marked crosswalks. These ramps do not have ADA domes and did not see many pedestrians during our counts. A total of 6 pedestrian used these crosswalks during our counts, all crossing within the crosswalks.

Location 5 is one of two main student parking entrances. Students enter and leave the curb heading straight to or from their cars. This location does not have a ramp on the curb, but has ADA access near the ADA parking between locations 5 and 6. Location 5 is not a marked crossing.

Locations 6 and 7 feed the same parking lot for students and staff parking. Neither of these locations are marked crossings similar to location 5, in which pedestrians walk directly to and from their car to the school. Both locations 6 and 7 have EUPD messaging, but only the west edge of location 7 has an existing ramp. Location 7 is not a marked crossing.

RECOMMENDATIONS

The only improvement needed at locations 1 and 2 is to upgrade the ramps to current ADA standards. The crosswalk does not need to be marked.

Although locations 3 and 4 were observed to have very little pedestrian traffic during our counts, these crosswalks connect across the two main entrances and exits for the campus. These locations should continue to be maintained with the EUPD messaging and marked crosswalks, as well as brought up to current ADA requirements.

As typical with a location like location 5, adding a marked crossing will not increase safety. This type of location is best served by adding a speed table, as shown in Figure 6.3. A speed table helps keep the inexperienced student drivers at a slower speed.

Location 6 is heavily used in both the AM and PM and the location where the sidewalk dumps into the parking lot does not have a ramp. This location should have an ADA compliant ramp installed and EUPD messaging added on the three approaches to the ramp.

Location 7 is similar to location 5 in that it does not have or need a marked crosswalk. The EUPD messaging should be maintained at the ramp and the ramp should be ADA compliant, as shown in Figure 6.2. Adding speed tables on each side of the main crossing will increase safety at this location.



Figure 6.2: Location 1 improvements.

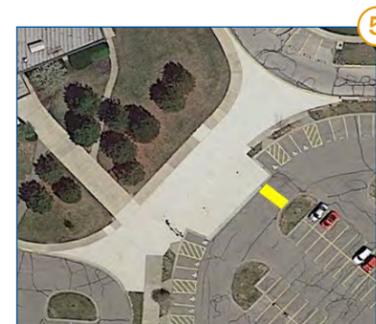


Figure 6.3

Middle Schools

All of the middle schools within the Blue Valley School District were visited and a few of the middle schools were observed through the arrival and dismissal process. The middle schools that were observed were: Aubry Bend Middle School, Blue Valley Middle School, and Leawood Middle School. In our observations of these middle schools, we were impressed by the amount of structure that was shown in the arrival and dismissal process. Although the basis for a safe and secure arrival and dismissal currently exists for these middle schools, we believe there are improvements that can enhance the existing situations.



Aubrey Bend Middle School

Affinis staff collected pedestrian counts and made observations at Aubrey Bend Middle School (ABM) on Thursday May 17th, 2018. The crosswalk locations evaluated through this process are shown in Figure 7.1. Crosswalk locations 1, 2, 3, 4, and 5 were counted in the AM and PM. The AM (6:55am-7:55am) and PM (2:40pm-3:40pm). Count totals are shown in Table 6.



Figure 7.1: Crosswalk locations at Aubrey Bend Middle School

Table 6: Aubrey Bend Middle School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Locations 1, 2, and 3		
Crossing 1	5	0
Crossing 2	15	19
Crossing 3	8	3
Outside of Crosswalk	1	4
TOTAL	29	26
Locations 4 and 5		
Crossing 4	31	23
Crossing 5	2	0
Outside of Crosswalk	22	7
TOTAL	55	30
Location 6		
In Crosswalk	7	13
Outside of Crosswalk	6	28
TOTAL	13	41

OBSERVATIONS

The general observation during the arrival and departure process is that the effort of the staff and processes that they follow work very well. ABM has the added benefit of being a new school (constructed in 2011) with good traffic design. The large loop located on the north side of the campus is very effective during the arrival and dismissal times and provides a very long queue area for waiting vehicles. The parking lot to the south of the building is primarily used by staff.

We also noted in the PM students crossing at Location 6 to head to cars parked along the roadway to the north of the baseball fields.

RECOMMENDATIONS

ABM works very well as it is currently setup. The only addition that would be beneficial is the use of the “Eyes Up, Phone Down” (EUPD) sidewalk messages. Those locations are shown below on Figures 7.2 and 7.3.



Figure 7.2: Proposed locations for addition of Eyes Up-Phone Down (EUPD) sidewalk messaging.

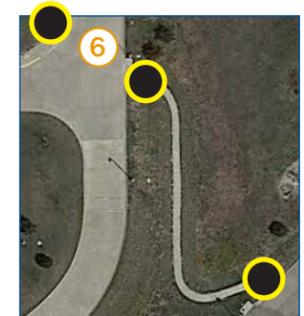


Figure 7.3: Proposed locations for addition of Eyes Up-Phone Down (EUPD) sidewalk messaging.

Blue Valley Middle School

Affinis staff collected pedestrian counts and made observations at Blue Valley Middle School (BVM) on Tuesday May 22nd, 2018. The crosswalk locations evaluated through this process are shown in Figure 8.1. Crosswalk locations 1, 2, 3, and 4 were counted in the AM and PM. The AM (6:55am-7:55am) and PM (2:40pm-3:40pm). Count totals are shown in Table 7.

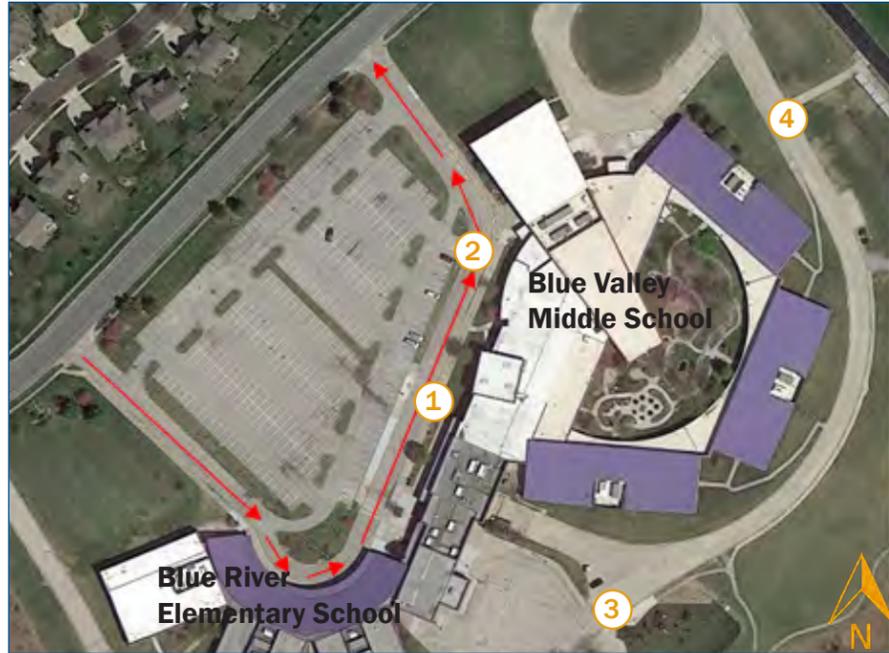


Figure 8.1: Crosswalk locations

Table 7: Blue Valley Middle School Pedestrian Count Summary		
Cross Location	AM Count	PM Count
Locations 1 and 2		
Crossing 1	90	92
Crossing 2	7	41
Outside of Crosswalk	13	27
TOTAL	110	160
Location 3		
In Crosswalk	1	24
Outside of Crosswalk	0	8
TOTAL	1	32
Location 4		
In Crosswalk	0	0
Outside of Crosswalk	0	9
TOTAL	0	9

Please see Page 40 for details about Blue River Elementary.

OBSERVATIONS

Blue Valley Middle School is connected to Blue River Elementary School (BRE) to the southwest. School arrival and dismissal times are offset between the two to benefit both. All four crosswalk locations that were counted are currently marked, but are marked differently. Locations 1 and 2 have crosswalk edge lines and a diagonal crosshatch line, while locations 3 and 4 have only crosswalk edge lines. Locations 1 and 2 also have speed bumps preceding these crosswalks to assist in making sure the traffic flow slows. Like other middle schools and elementary schools observed, Blue Valley Middle School is very structured in its arrival and dismissal process. The current setup has the queue form on the outer loop of the north parking lots.

RECOMMENDATIONS

Blue Valley Middle School should continue the arrival and dismissal process as they currently do it. The two areas we believe will impact the school the most will be:

- ▶ Improve all ramps to be ADA compliant as improvements are made across campus.
- ▶ Add EUPD sidewalk messages at the locations recommended in Figure 8.2.



Figure 8.2

Harmony Middle School

Harmony Middle School (HMS) is located at the corner of Switzer Road and W 141st Street. The Affinis team did not collect pedestrian count data, as this school was visited on June 13th, 2018 and school was out for the summer. We did discuss key issues with the principal.



Figure 9.1: Crosswalk locations

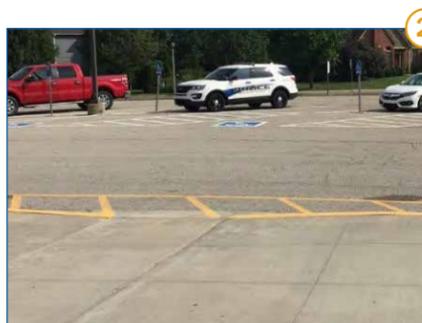


Figure 9.2

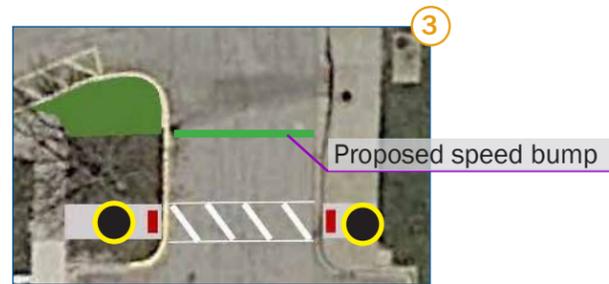


Figure 9.3

OBSERVATIONS

At location 1, the principal is concerned with how many bicycle riders that will cut across W 141st Street in this spot. In theory, students do not want to use the crossing on east side of Switzer Road because it is too busy, so they travel down W 141st Street and cross mid-block.

Location 2 is the main sidewalk entrance along the north side of the school there is a ramp located here, however it is not ADA compliant.

At Location 3, the sidewalk leads pedestrians from the main entrance of the school to the east and abruptly ends at the curb.

Location 4 is an unmarked crosswalk which leads from the east end of the school to the track.

RECOMMENDATIONS

There are two options at Location 1. The recommendation and key at this location is not to add an additional crossing, but to emphasize that the students need to cross at the signal. This will need to be addressed through email and flyers to the parents. As a secondary option, an additional crossing could be added along 141st Street. This option would need to be coordinated with the city since it's a public street.

Location 2 (Figure 9.2) should be upgraded to an ADA compliant ramp the next time the parking lot is re-surfaced or the sidewalk is adjusted. This location should also be a marked crossing. Refer to the standard detail in Appendix B for crossing and ramp examples.

Ideally at Location 3, we would recommend adding a curb-high speed table from one sidewalk to the other, but due to drainage issues a speed table will not work at this location. The recommended option at this location is to add a crosswalk with ADA compliant ramps here. Also a speed bump should be added 5 feet to the north of the crosswalk as shown in Figure 9.3.

Location 4 should remain unmarked, but improved to be ADA compliant at the ramps.

Lakewood Middle School

The team visited Lakewood Middle School (LKM) on Friday June 15th, 2018. School was not in session and staff was on site to discuss pedestrian activity. The entire campus was walked and observations were taken.

Please see Page 46 for details about Lakewood Elementary School.



Figure 10.1: Crosswalk locations

OBSERVATIONS

Lakewood Middle School is a beautiful, large campus which is shared with Lakewood Elementary School (LES) located between Lamar Avenue and Edgewater Drive. This middle school is located within residential communities and has ample room for arrival and dismissal queue's as shown in Figure 10.2. Most of the sidewalk and ramps appear to be relatively new and the parking lots have a good flow pattern.

Location 1 is mainly a staff parking lot and crosses the parent loop.

Location 2 is the main crosswalk which parents use during arrival and dismissal at the middle school to park and walk students to the door.

Location 3 connects parking lots for the middle and elementary schools to the north-most parking lot.

RECOMMENDATIONS

Location 1 would work well with a speed table. The speed table would provide an ADA compliant cross which would lead to the ADA parking spots. One improvement that should be made, even if the speed table is not added, is an ADA compliant ramp to the handicap parking spots as shown on Figure 10.1.

Similar to Location 1, Location 2 would be a great location to add a speed table. After the speed table crosses the north-most through lane, it should end with an ADA compliant ramp into the marked loading area for handicap parking.

Location 3 provides the opportunity for two options:

- ▶ A speed table could be added on the north-south leg at this location, therefore not requiring ADA ramps on the north and south approaches. The east-west ramps should be made ADA compliant and maintained as a marked crossing. (Recommended Option)
- ▶ ADA compliant ramps should be added/built on all four approaches of these two crosswalks. The north bound approach currently does not have a ramp leading to the north-south crosswalk, at a minimum, it should be added. Both crosswalks should be maintained as marked crossings.



Figure 10.2: Arrival and dismissal traffic flow

Leawood Middle School

Affinis staff collected pedestrian counts and made observations at Leawood Middle School (LMS) which shares a campus with Leawood Elementary School (LES) on Wednesday May 23rd, 2018. The crosswalk locations evaluated through this process are shown in Figure 11.2. Crosswalk locations 1, 2, 3, and 4 were counted in the AM and PM. The AM (6:55am-7:55am) and PM (2:40pm-3:40pm). Count totals are shown in Table 8.

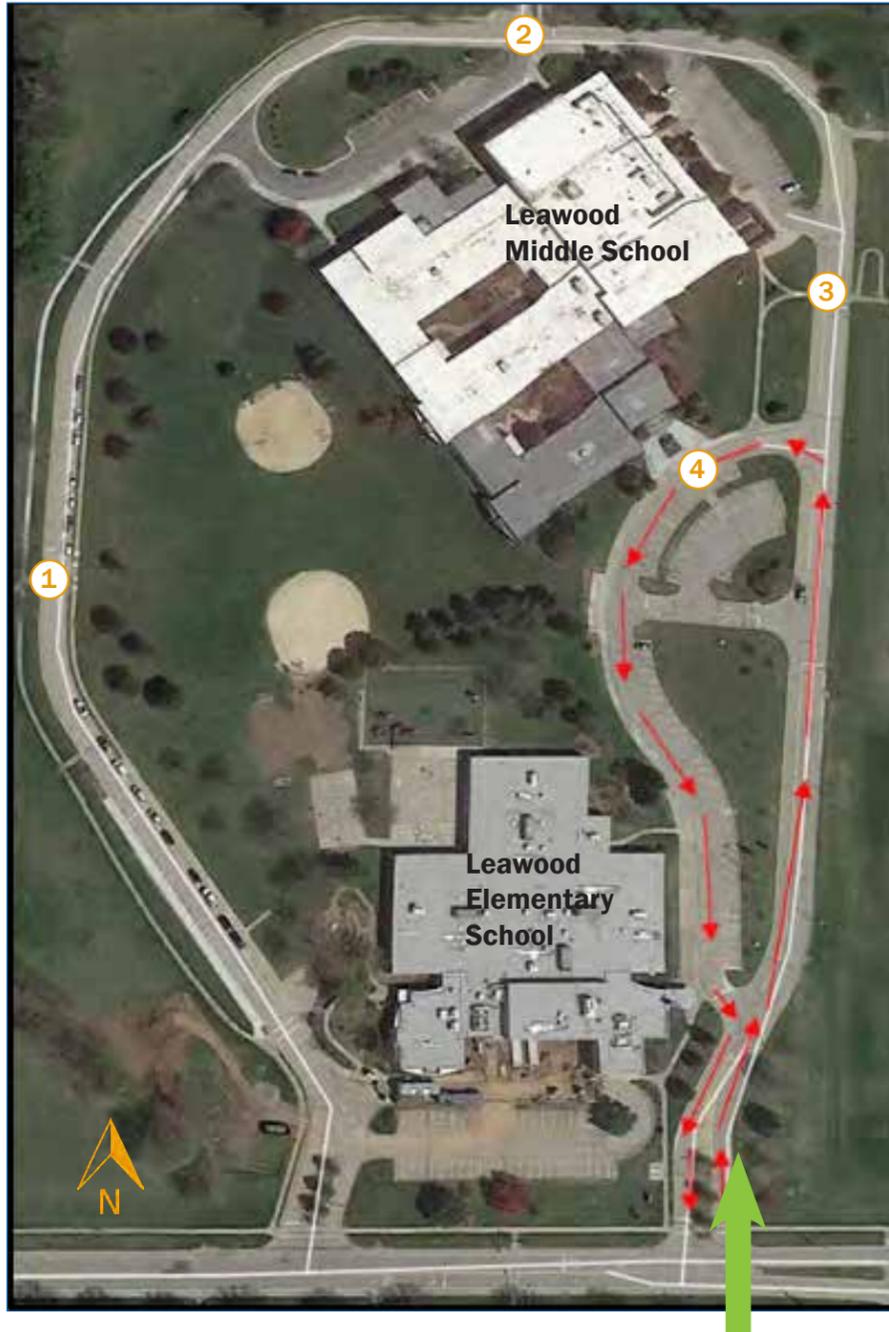


Figure 11.1: Crosswalk locations

Table 8: Leawood Middle School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	7	6
Outside of Crosswalk	0	8
TOTAL	7	14
Location 2		
E-W Crosswalk	4	39
N-S Crosswalk	13	7
Outside of Crosswalk	2	7
TOTAL	19	53
Locations 3 and 4		
Crossing 3	0	18
Crossing 4	51	17
Outside of Crosswalk	3	28
TOTAL	54	63

Please see Page 47 for details about Leawood Elementary School.

OBSERVATIONS

Arrival and departure traffic patterns work well at Leawood Middle School (and Leawood Elementary School). Vehicles enter from the north at Location 2 and from the south (the green arrow on Figure 11.1). The arrival and dismissal times are staggered so that the peak traffic times are slightly different.

Location 4 is the main drop off location in the morning and the crossing to the staff parking lot. This crossing is monitored by staff through the arrival and dismissal process.

RECOMMENDATIONS

Location 1 is currently an ADA compliant, marked crosswalk. Due to the speed and lack of other stops along this route, this is a great location to maintain the existing EUPD sidewalk messaging.

Location 2 works well in its current condition as marked east-west and north-south crosswalks. The only recommendation for Location 2 would be to maintain the existing crosswalks and upgrade the ramps to ADA standards.

Location 3 is primarily used in off peak hours throughout the school day for students to access the athletic fields and track. This crosswalk does not need to be marked, however the ramps do need to be ADA compliant.

At location 4, the concrete walkway which connects the handicap parking to the staff parking lot is not accessible. This curbed landing could be rebuilt during the next parking lot improvements to be the same elevation as the parking lot. This wouldn't be required because there is not additional ADA parking on this side, but it would provide more connectivity and an overflow option for ADA parking if needed.

Overland Trail Middle School

Overland Trail Middle School (OTM) shares a central parking lot and pickup/drop off line with Overland Trail Elementary School (OTE). This campus was visited on June 14, 2018 while neither school was in session, but we were able to speak with an OTE secretary. On a typical day, the arrival/dismissal process for each is offset to ease delays.



Figure 12.1: Crosswalk locations

OBSERVATIONS

There are four areas the team observed within the main parking lot between the two Overland Trail schools and one area of concern at the exit of the parking lot. The parking lots to the east and to the south are primarily staff parking and wouldn't require the EUPD sidewalk message. The small bus loop to the west of Overland Trail Elementary School does not have any additional parking, and should be maintained as it is.

Location 1 is the main crossing to and from Overland Trail Elementary School. This is a marked crossing and has ramps located on each side, but is not up to current ADA standards. The current markings on this crossing are "ladder" style markings.

Location 2 and 3 are supplemental crossings to and from the center of the parking lots. These are both marked crossings with ramps on the sidewalk side and median breaks on the parking lot sides. The current markings on these crossings are "ladder" style markings.

Location 4 is the main crossing to and from Overland Trail Middle School. This is a marked crossing and has ramps located on each side, but is not up to current ADA standards on both sides. The current markings on this crossing are "ladder" style markings.

RECOMMENDATIONS

Locations 1, 2, and 3 are great locations for new speed tables. In speaking with Overland Trail staff, speed tables would be a great addition, as "parents speed around the parent loop and there have been a few near misses with pedestrians and a few rear end crashes" – Overland Trail Staff.

The green box on Figure 12.2 should have shrubbery added to prevent pedestrians from crossing outside of the two crosswalks on each end. At Location 4, the east end of this crosswalk is ADA compliant, the west ramp and sidewalk should be improved to meet ADA requirements.

Although Location 5 is signed to restrict outgoing left-turns, some parents choose to turn left, usually causing them to sit and wait on a gap and stopping all traffic in the pickup/drop off line. Adding flexible delineators in the pattern shown on Figure 12.2 will prohibit outgoing left-turns and keep traffic flowing.



Figure 12.2: Improvements for Location 5

Oxford Middle School

Oxford Middle School is located just west of Switzer Road and south of 123rd Street. Affinis visited Oxford Middle School on June 14th, 2018 while school was not in session. Staff was not on site to discuss parking lot/crossing issues.



Figure 13.1: Crosswalk locations

OBSERVATIONS

The traffic flow through the parking lot is shown with the red arrows on Figure 13.1. The main staff parking lot is to the south of the building and general day traffic uses the parking between the building and Switzer Road. Location 1 is a marked crosswalk with ramps on both sides. Location 2 has a ramp that leads to the ADA parking spot, but is not marked as crosswalk.

RECOMMENDATIONS

Location 1 should be improved to an ADA compliant marked crosswalk. Its currently has the “ladder” style markings and should be improved to the school district standard crosswalk as shown in Appendix B. The ramps at this crosswalk should also have detectable domes, per ADA requirements. This location is also a great spot to add EUPD sidewalk messaging at both ramps.

Location 2 should be improved to a marked crosswalk to delineate the crossing area from the main entrance to the building. The ramp at this location should also have detectable domes, per ADA requirements.

Pleasant Ridge Middle School

Affinis staff visited Pleasant Ridge Middle School (PRM) on Wednesday June 13th, 2018. School was not in session and no staff were present to discuss pedestrian activity. The parking lot was walked and the crosswalk locations that were evaluated are shown in Figure 14.1. PRM is located just north of W 165th Street.

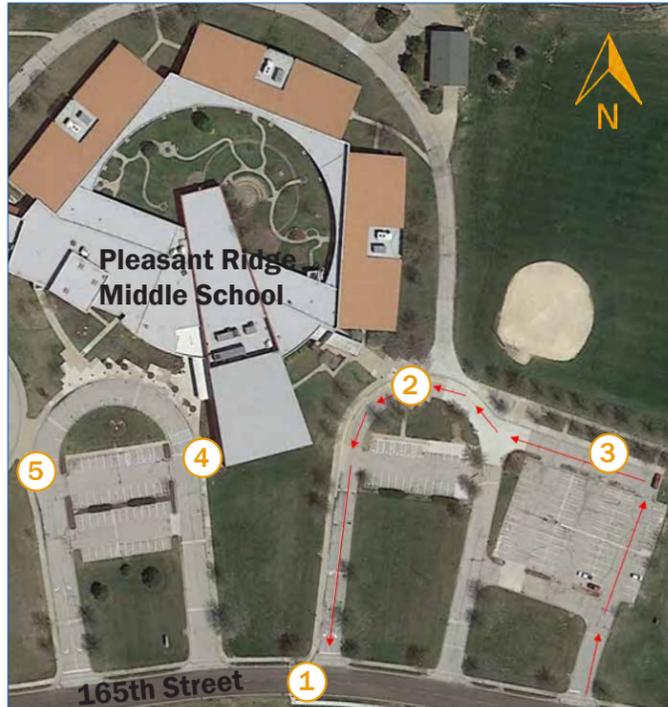


Figure 14.1: Crosswalk locations

Please see Page 41 for details about Cedar Hills Elementary School.

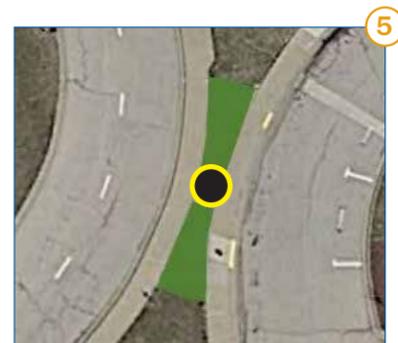


Figure 14.2



Figure 14.3

OBSERVATIONS

Pleasant Ridge Middle School is connected to Cedar Hills Elementary School to the west. School arrival and dismissal times are offset between the two to benefit both.

Location 1 was installed early in the summer of 2018 and is a great central crossing to get pedestrians to and from local neighborhoods.

Location 2 is the main entrance into the school from the pickup/drop off line and has ramps on both ends. Similar to other middle schools observed, Pleasant Ridge Middle School seems to be very structured in its arrival and dismissal process.

Location 4 is the main entrance into the school from the west staff parking lot and does not have sidewalk ramps.

RECOMMENDATIONS

Location 2 should remain a marked crosswalk and should be updated to meet ADA requirements.

Location 3 should be an extension of the pickup and drop off area as shown in Figure 14.3. This would help keep traffic moving, which was observed to back up onto W 165th Street.

Location 4 should be updated to meet ADA standards and remain a marked crossing.

Location 5 is the main exterior connection between the elementary school and the middle school parking lots. This area should be reduced to create one crosswalk-width area for pedestrians to move between the two lots as shown in Figure 14.2. The EUPD message should also be added in this section to get pedestrians' attention.

Prairie Star Middle School

Affinis staff visited Prairie Star Middle School (PSM) on Wednesday Friday 15th, 2018. No school staff were on site. The overview of the campus is shown in Figure 15.1. Prairie Star Middle School is located just north of 1143rd Street along the east side of Mission Road.

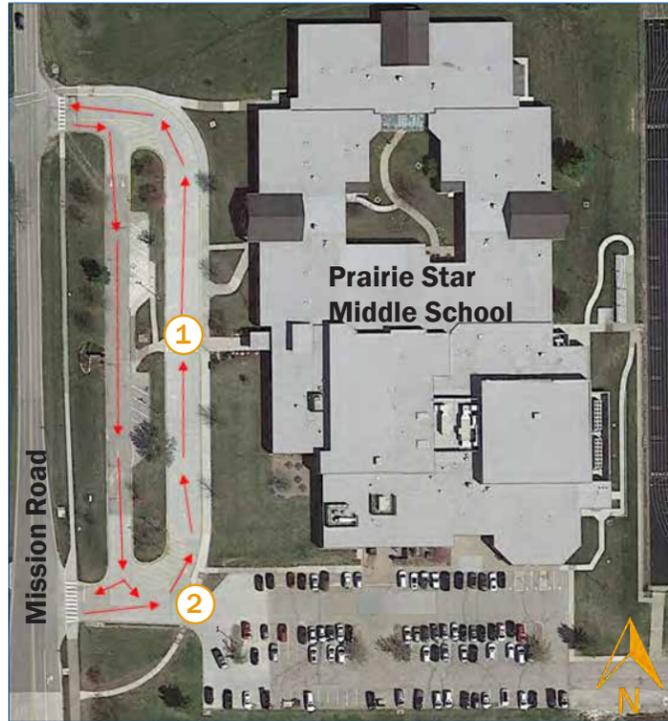


Figure 15.1: Crosswalk locations

Please see Page 53 for details about Prairie Star Elementary School.



Figure 15.2

OBSERVATIONS

Prairie Star Middle School is connected to Prairie Star Elementary School to the east. School arrival and dismissal times are offset between the two to benefit both. The campus is laid out very well and the jog to the south in the southern parking lot is a great way to slow traffic along this would be straight section.

Location 1 is the main crosswalk leading away from the school. This location does not have ADA domes and is currently a marked crossing.

Location 2 is the south connection to the trail that runs along Mission Road and was recently added and includes the EUPD sidewalk messaging.

RECOMMENDATIONS

The crossing at Location 1 is at the high point of this roadway, so there are really two options here:

- ▶ Add ADA compliant ramps and leave the crossing alone.
- ▶ Since drainage won't be an issue, turn this into a speed table crossing. (Preferred Option)

Location 2 is a great addition to this campus, but in our field review we notice that dirt was washing over the message during rains, as shown in Figure 15.2. Grass growing along the sidewalk here should fix this issue, but if it does not a short sidewalk curb would fix it. Because this location goes through the main connection between Prairie Star Elementary and Prairie Star Middle, as well as being adjacent to the pick up/drop off line it should be a marked crossing.

Elementary Schools

All of the elementary schools within the Blue Valley School District were visited, but only Cedar Hills Elementary School was observed through the arrival and dismissal process. We were impressed by the amount of structure that was shown in the arrival and dismissal process. Although the basis for a safe and secure arrival and dismissal currently exists for all the BVSD elementary schools, we believe there are improvements that can enhance the existing situations.

We have put together an improvement table and shown these campuses at a larger scale to better show what improvements are needed. We do specify certain locations for ADA improvements, but every ramp and crosswalk should be improved to ADA standards as new or reconstruction occurs.

Key Features

-  **Add ADA Crosswalk Ramps**

These locations should be updated to ADA standards per the 2010 ADA Standards for Accessible Design.
-  **Add Speed Bump**

The BVSD standard speed bump shall be improved or added at these locations, the location is approximated with a thin green line.
-  **Add Speed Table**

The BVSD standard speed table shall be improved or added at these locations, the location is approximated with a thick yellow line.
-  **Add Crosswalk and ADA Ramps**

These locations either have a crosswalk and no ramps or ramps and no crosswalk. These locations should be improved to include both a crosswalk and ADA ramps at both (or one end, depending on the situation).
-  **Estimated Pickup/Drop Off Flow**

This is the observed or stated (by school staff) traffic flow during the arrival and dismissal process.
-  **Existing Bike Racks**

These are the bike rack locations observed during site visits.
-  **Add EUPD Messaging**

These locations shall include all or parts of the Eyes Up Phone Down messaging as they apply to specific locations.

Blue River Elementary

Key Features on This Campus

- Add ADA Crosswalk Ramps
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

Please see Page 22 for details about Blue Valley Middle School.

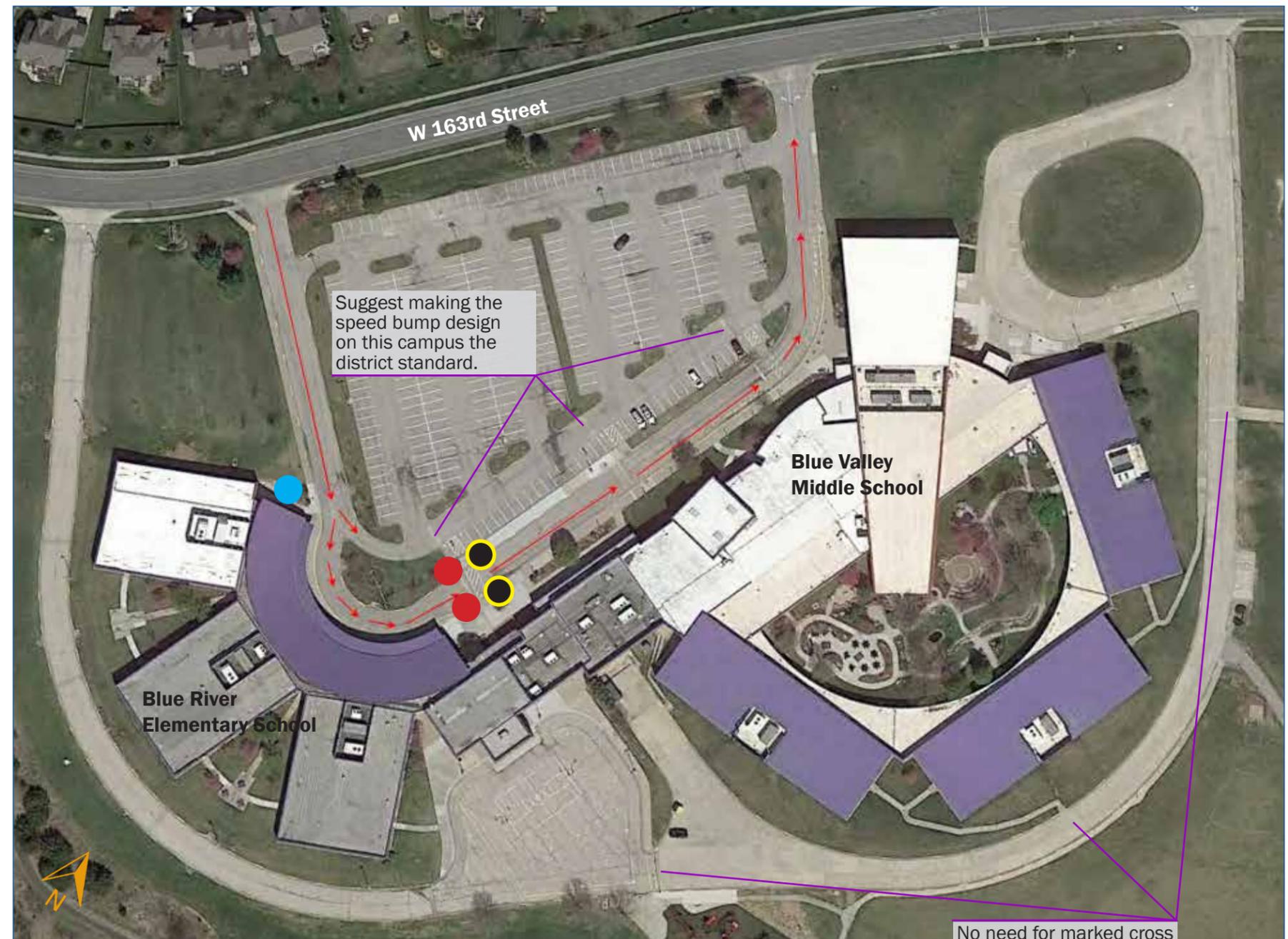


Figure 16.1

No need for marked crosswalk. Low pedestrian volumes and clear sight distance. Do not maintain as a marked crossing.

Cedar Hills Elementary

Key Features on This Campus

- Add ADA Crosswalk Ramps
- ▬ Add Speed Table
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

Please see Page 34 for details about Pleasant Ridge Middle School.

Table 9: Cedar Hills Elementary Pedestrian Count		
Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	0	*
Outside of Crosswalk	1	*
TOTAL	1	0
Location 2		
In Crosswalk	18	48
Outside of Crosswalk	0	0
TOTAL	18	48
Location 3 and 4		
Crossing 3	100	107
Crossing 4	26	63
Outside of Crosswalk	8	22
TOTAL	134	192
Location 5		
In Crosswalk	0	5
Outside of Crosswalk	0	57
TOTAL	0	62

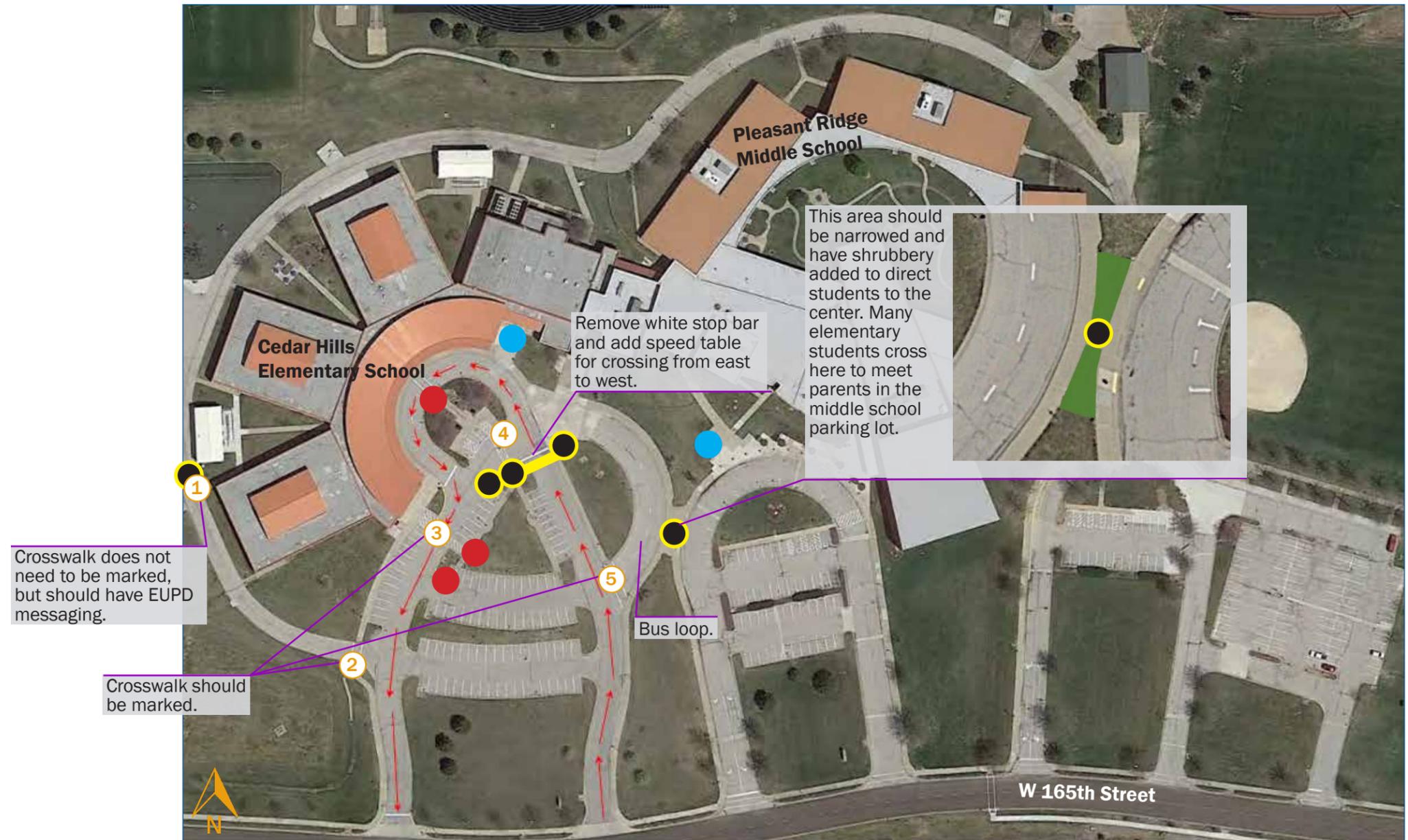


Figure 17.1

Cottonwood Point Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- ▬ Add Speed Table
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

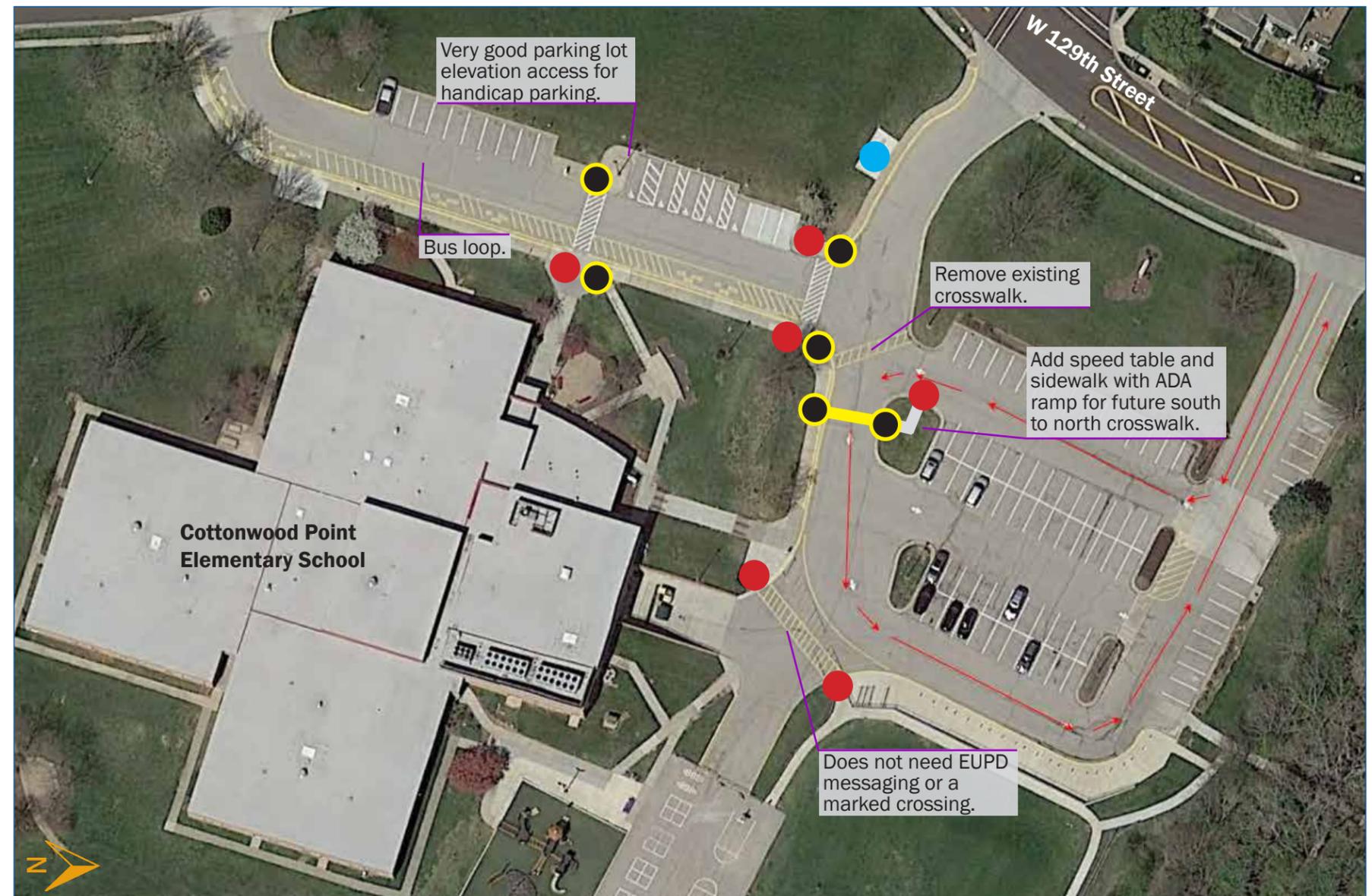


Figure 18.1

Harmony Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Bump
- ← Estimated Pickup/Drop Off Flow

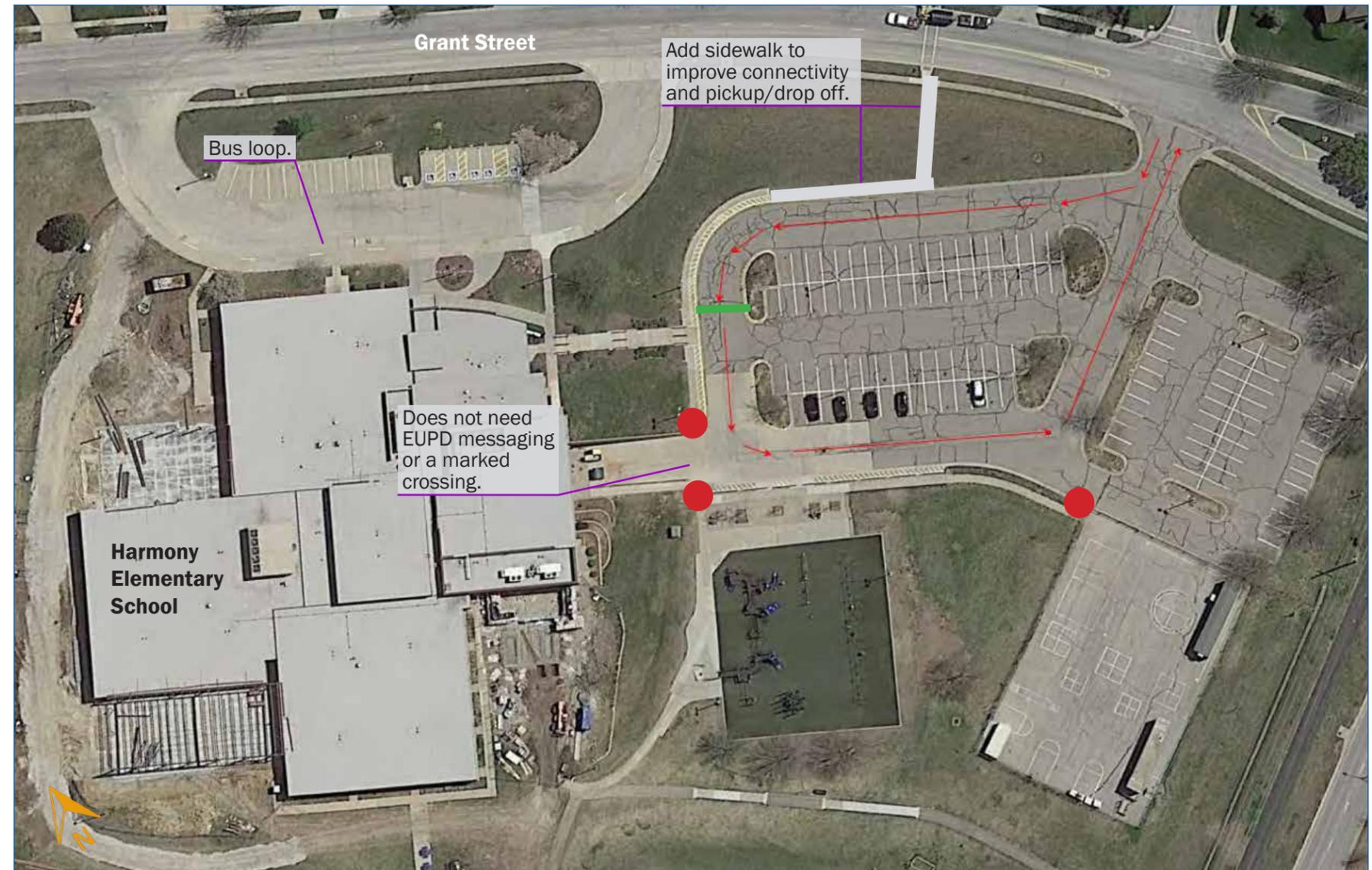


Figure 19.1

Heartland Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Bump
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

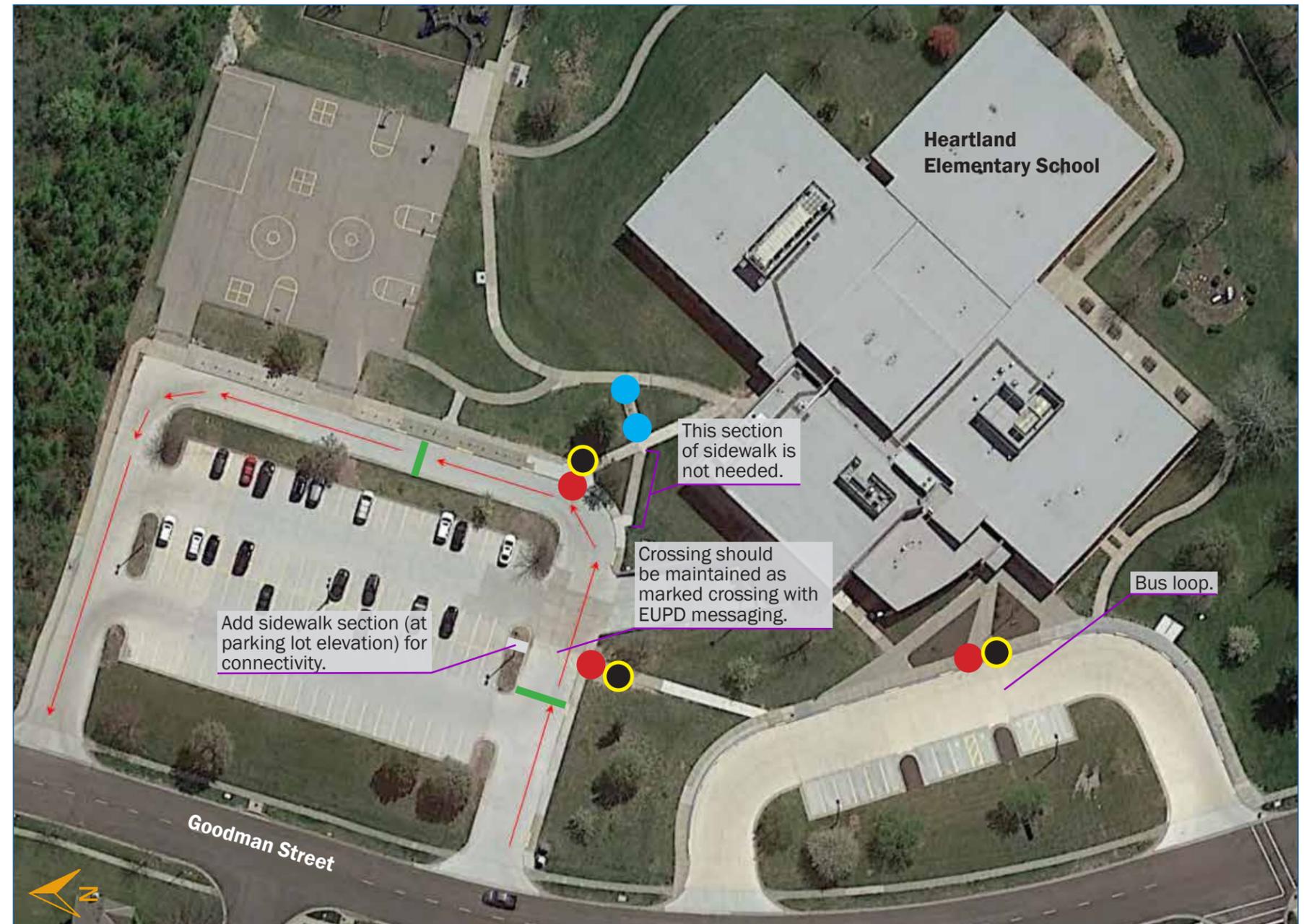


Figure 20.1

Indian Valley Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Table
- ← Estimated Pickup/Drop Off Flow
- Add EUPD Messaging

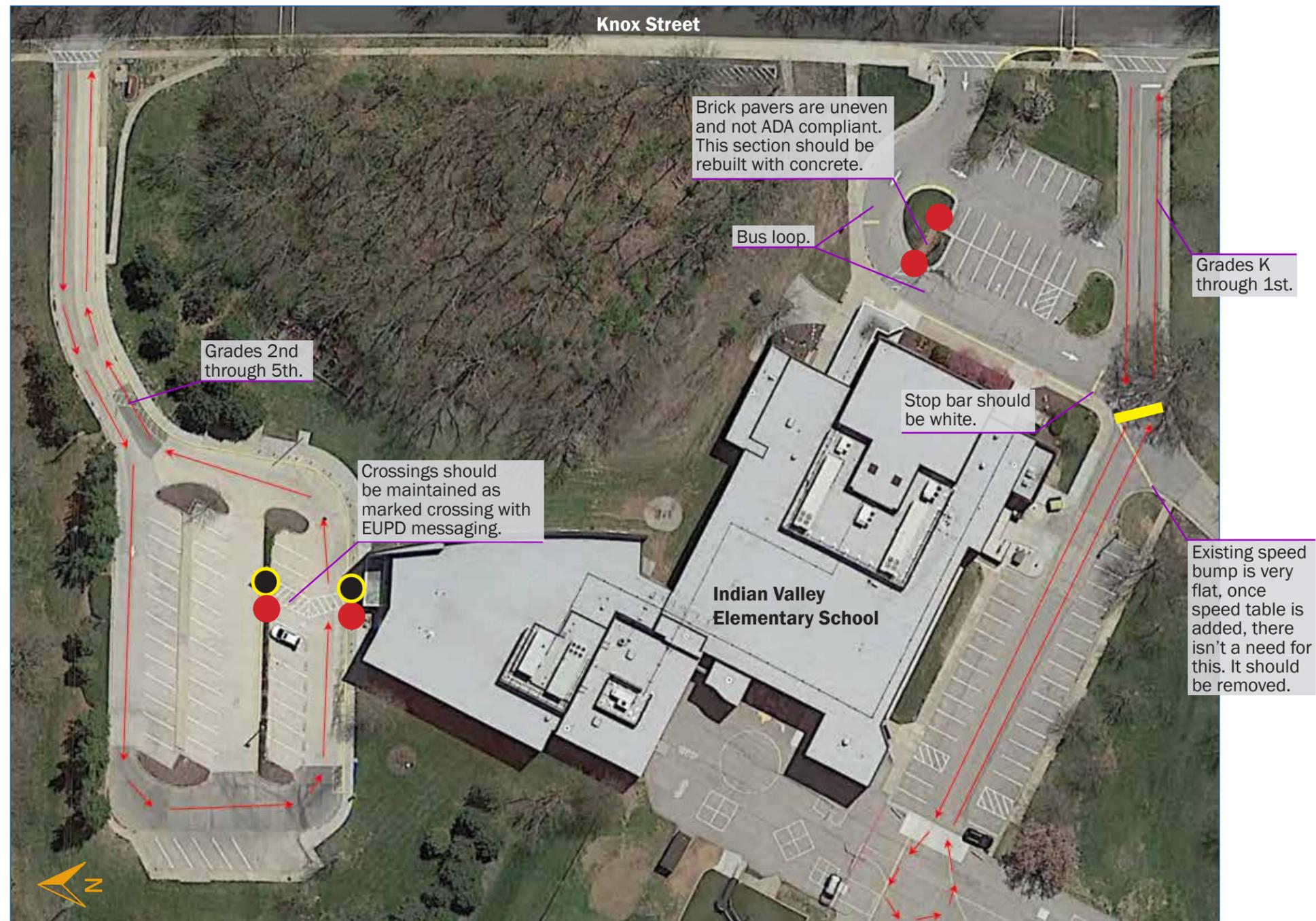


Figure 21.1

Lakewood Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- ▬ Add Speed Table
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

Please see Page 26 for details about Lakewood Middle School.

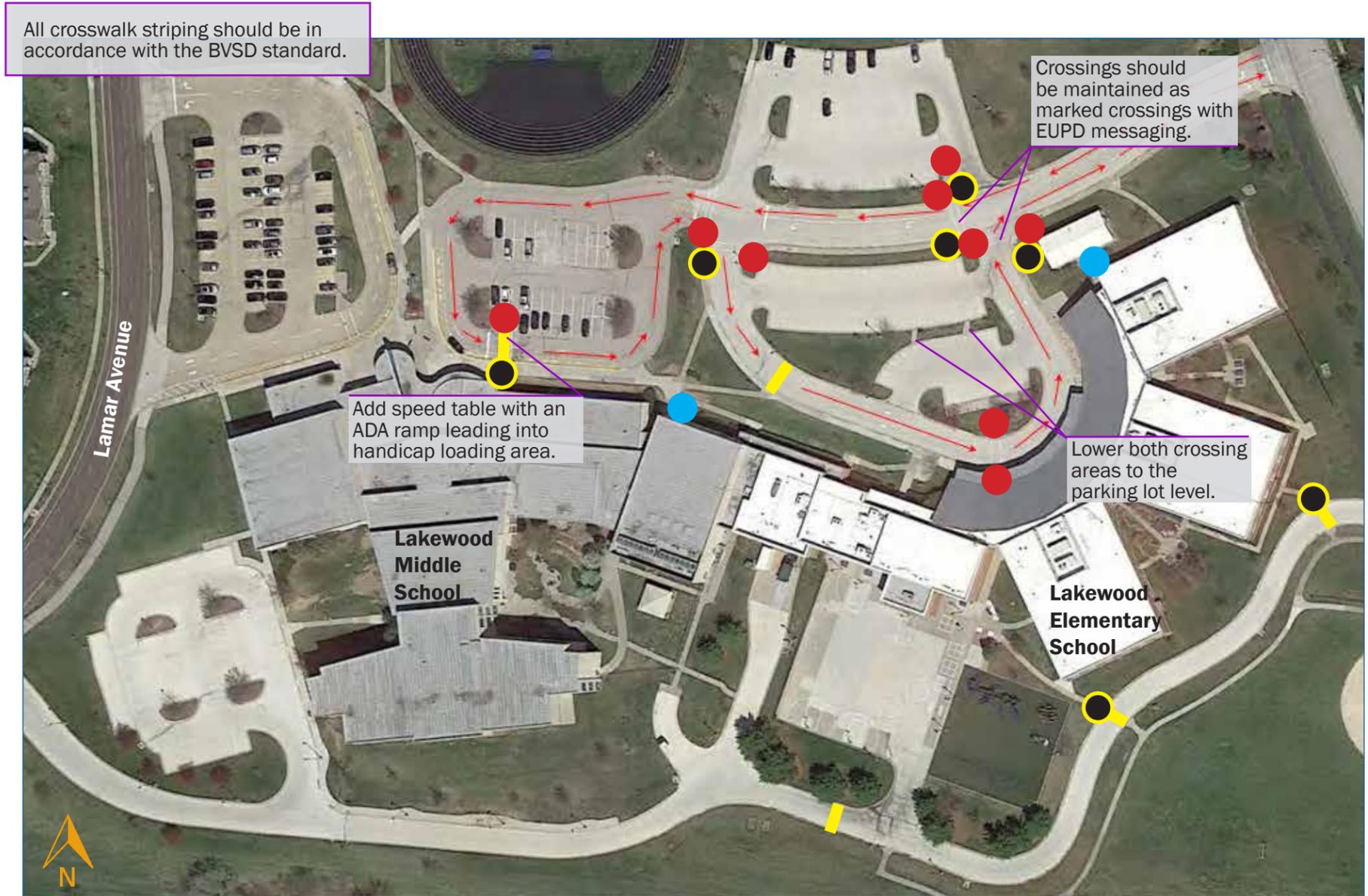


Figure 22.1

Leawood Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Crosswalk and ADA Ramps
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

Please see Page 28 for details about Leawood Middle School.

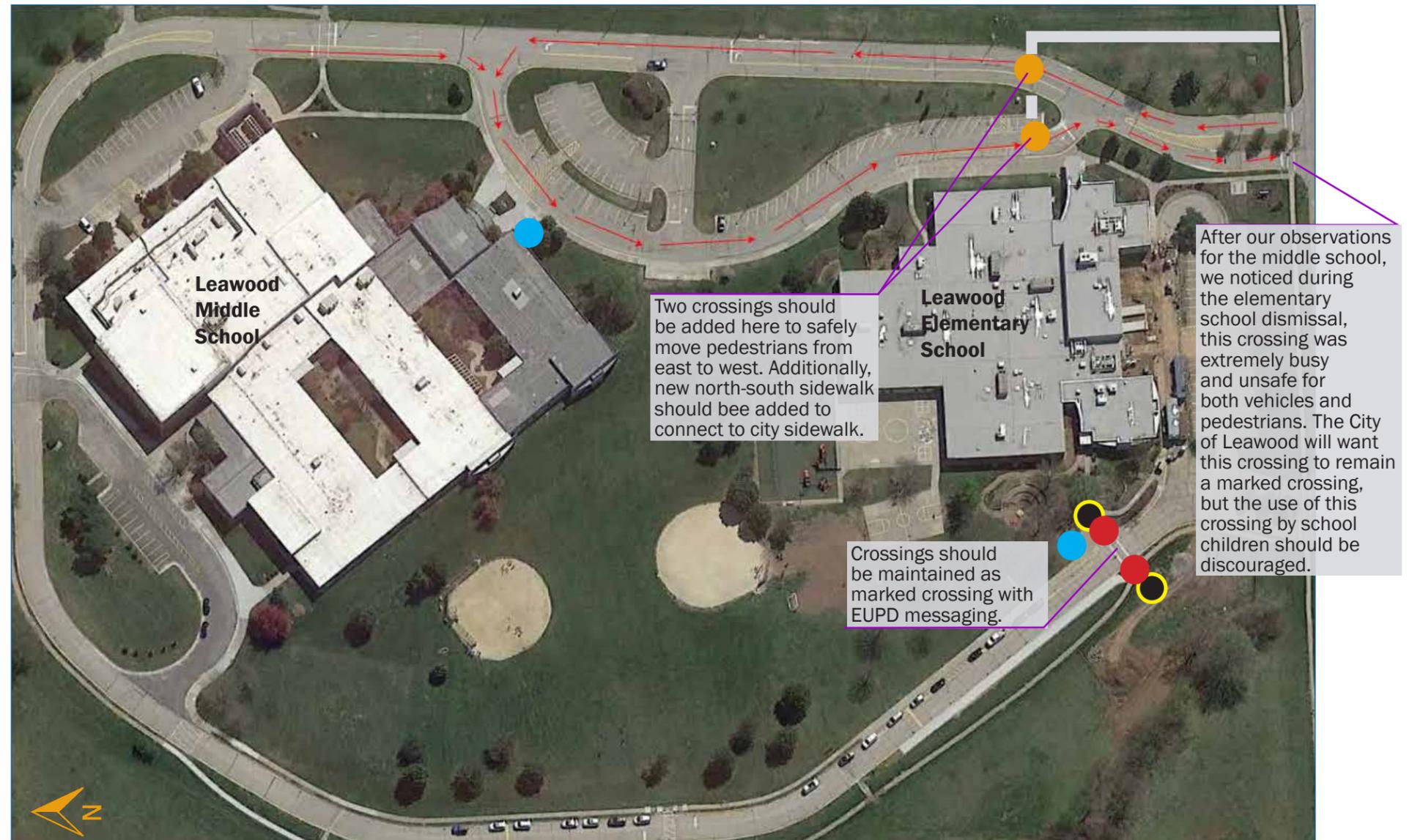


Figure 23.1

Liberty View Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Table
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

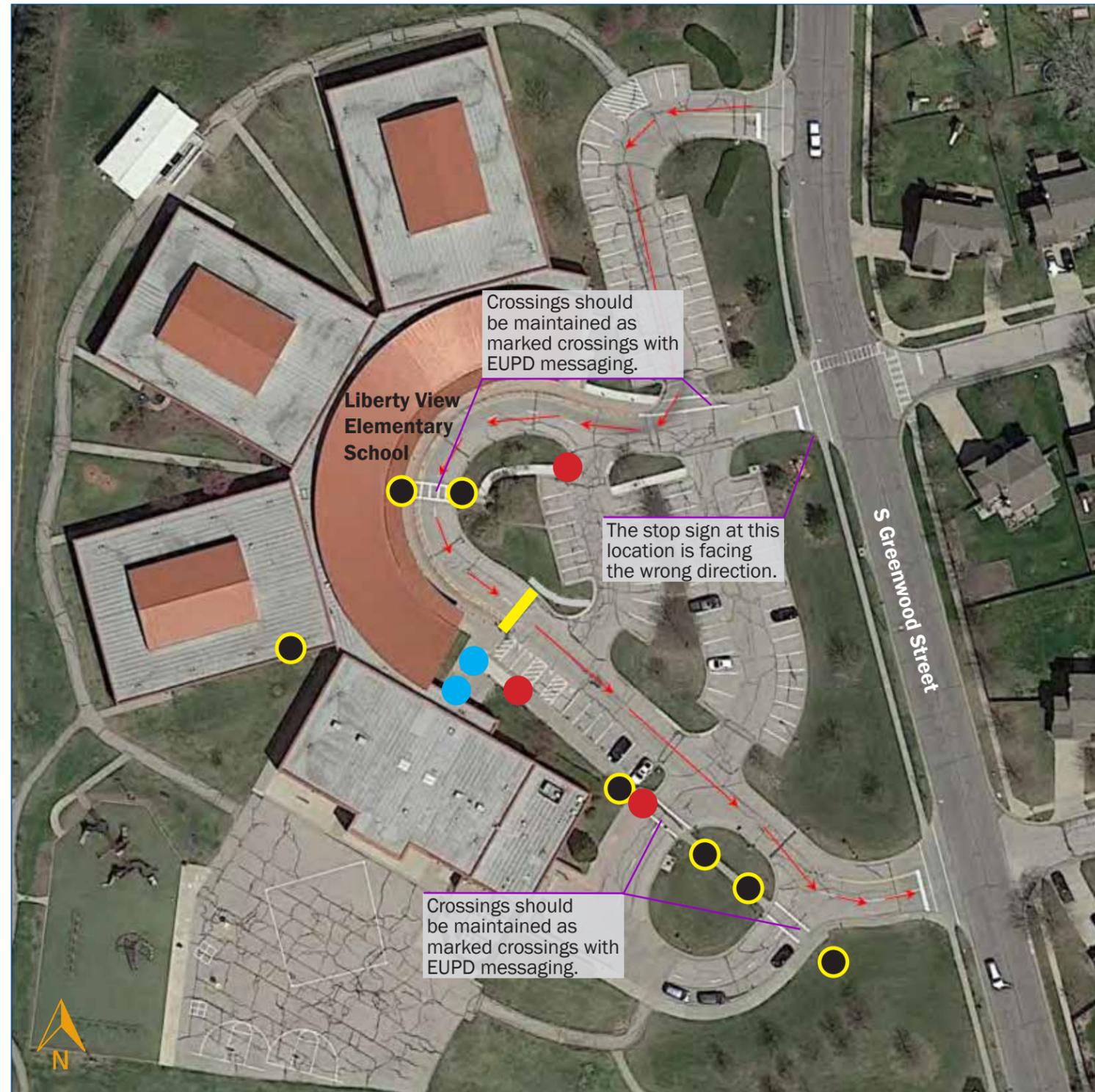


Figure 24.1

Mission Trail Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Bump
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

During the school hours, if the hawk signal is activated, cars will follow the yellow arrows and speed through the school area to avoid stopping at the hawk signal.

Two speed bumps should be added to deter cars from avoiding the Mission Road hawk signal.

Bus loop.

Crossings should be maintained as marked crossings with EUPD messaging.

Add parking lot elevation curb here for ADA access.

Existing left-turn causes major delay, consider right-in/right-out.

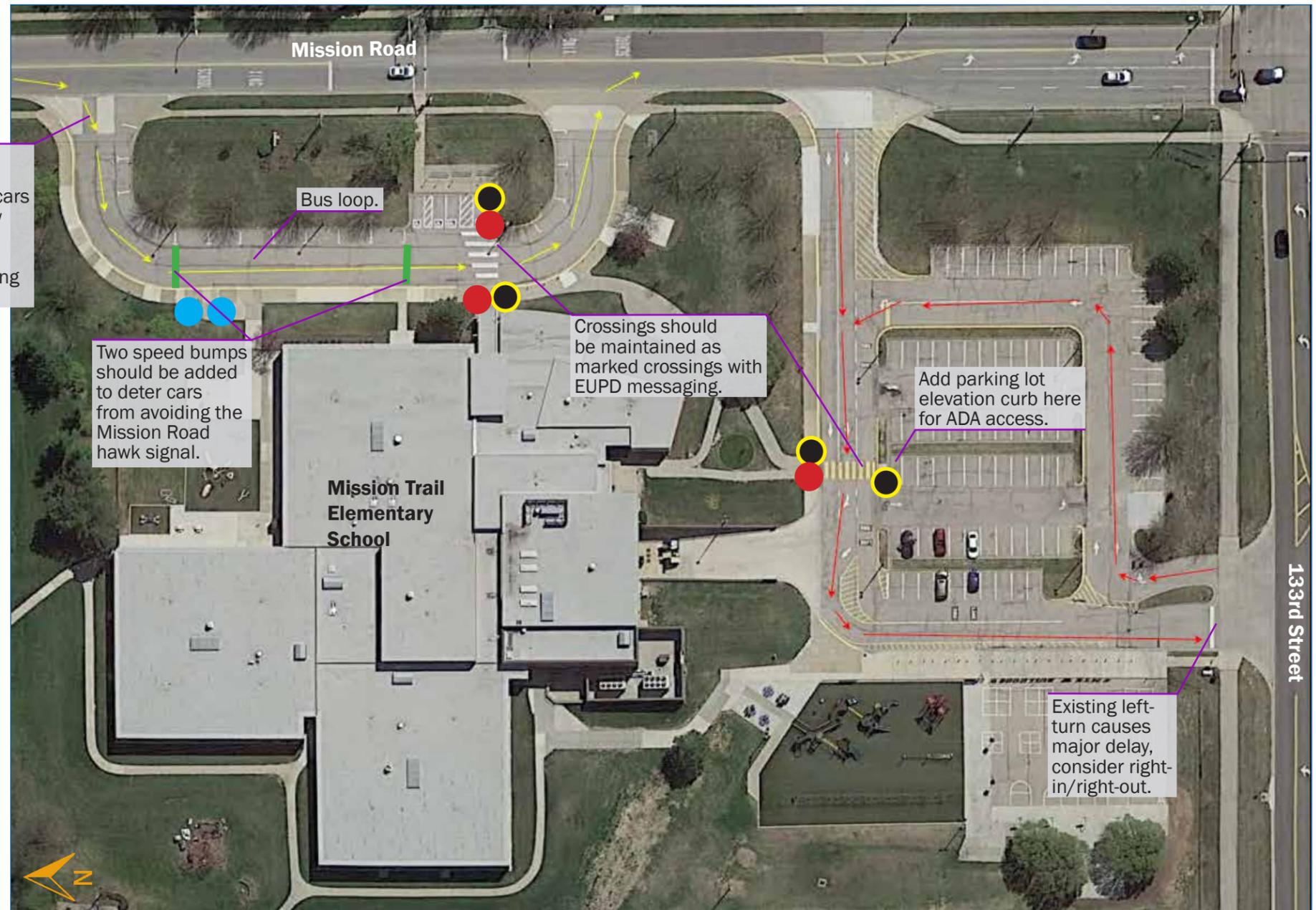


Figure 25.1

Morse Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

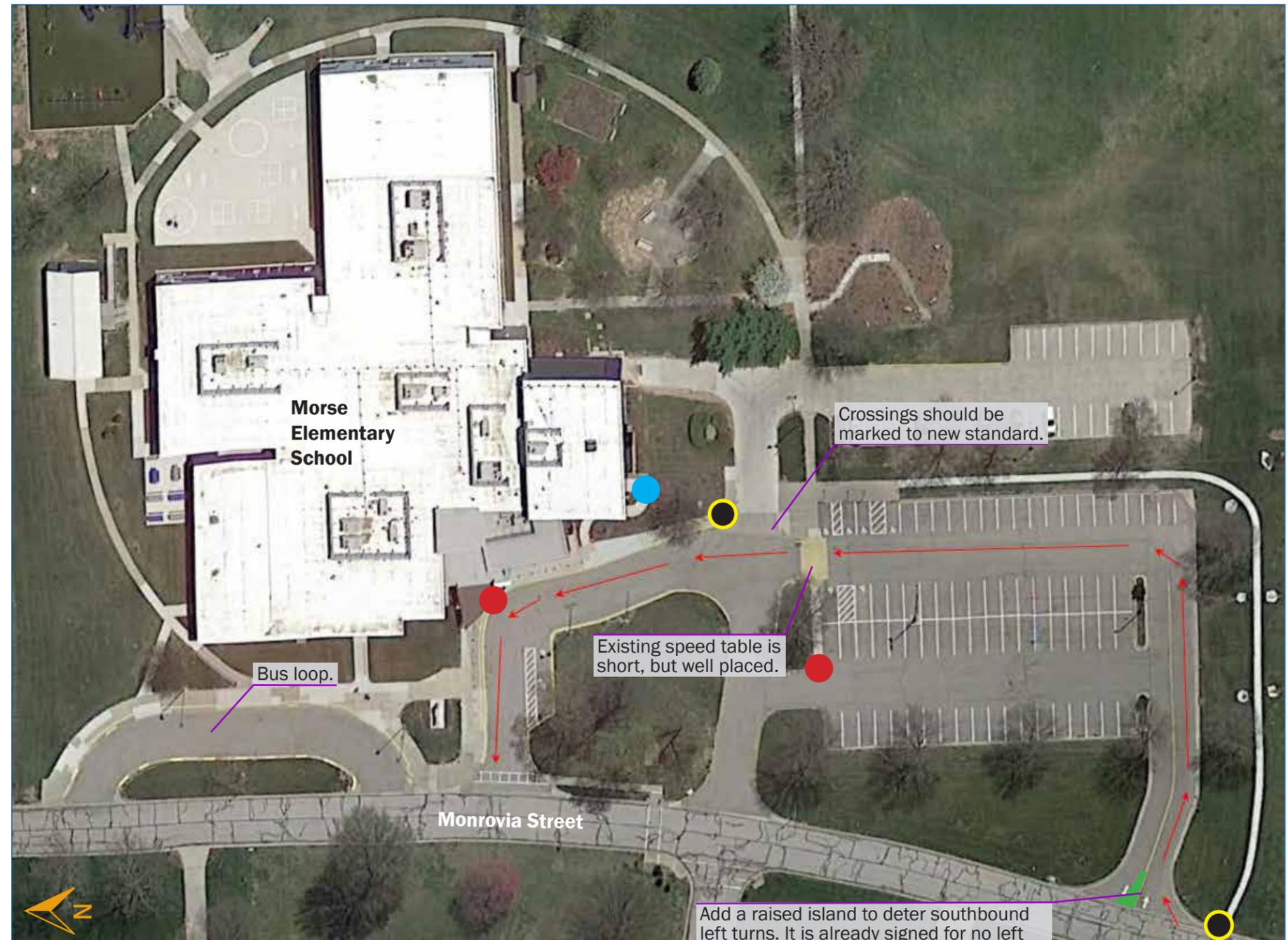


Figure 26.1

Add a raised island to deter southbound left turns. It is already signed for no left turns, but parents still try and it brings Monrovia Street to a halt. (The sticks below are a great short-term solution).



Oak Hill Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Bump
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging



Figure 27.1

Overland Trail Elementary School

Please see Page 30 for details about Overland Trail Elementary and Middle Schools.

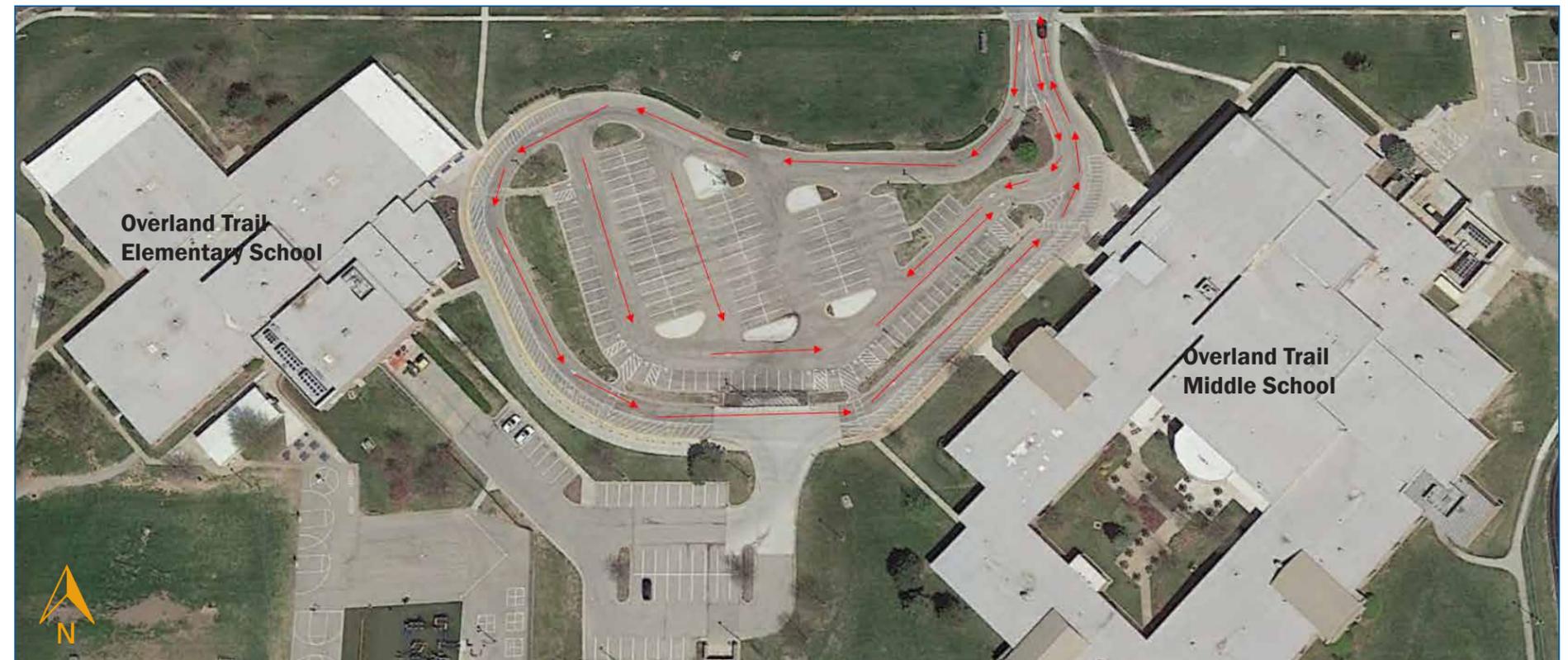


Figure 28.1

Prairie Star Elementary School

Key Features on This Campus

- Add Speed Bump
- Add Speed Table
- ← Estimated Pickup/Drop Off Flow
- Add EUPD Messaging

Please see Page 36 for details about Prairie Star Elementary School.

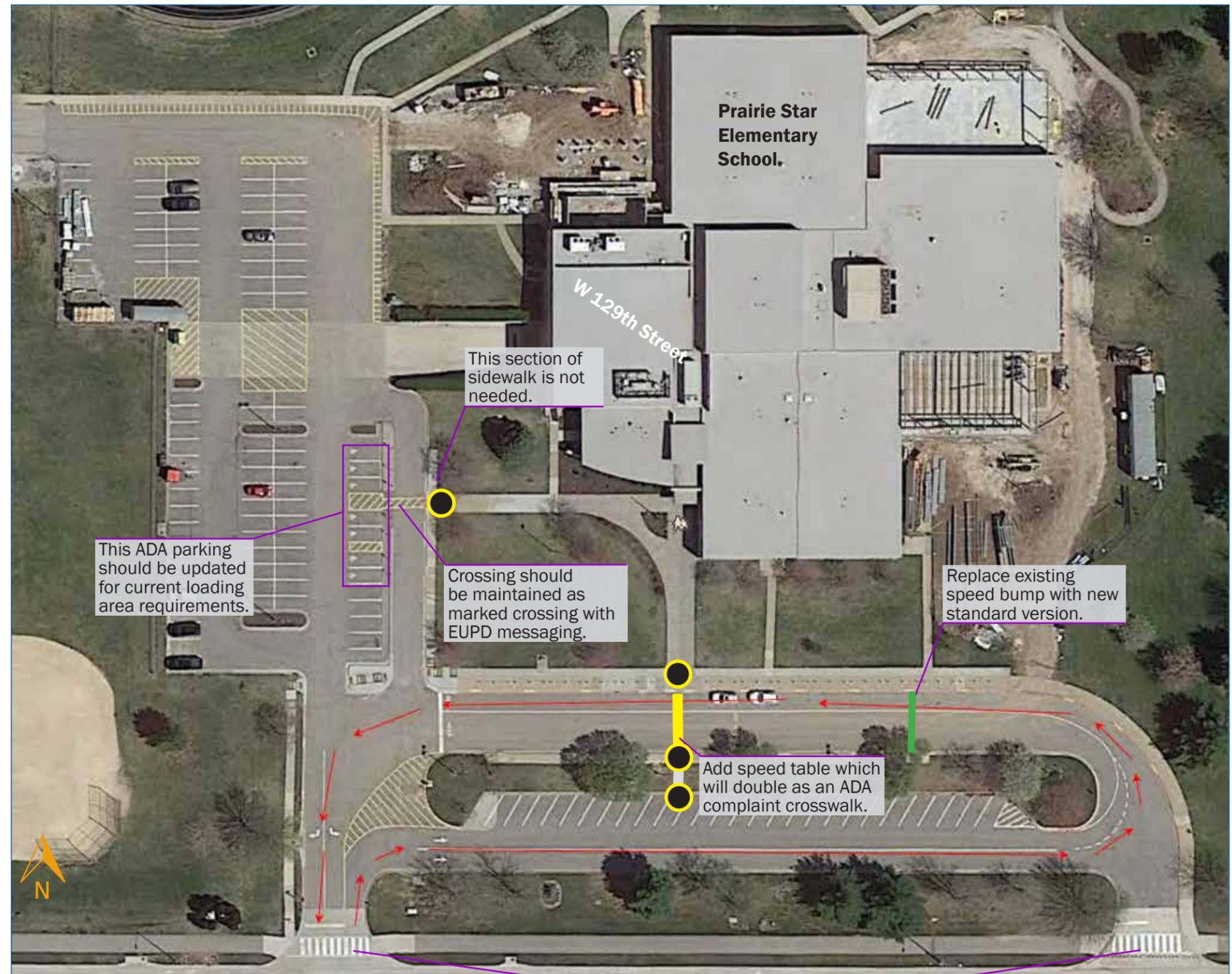


Figure 29.1

Crossings should be marked if required by city. Refer to introduction for explanation.

Stanley Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- ← Estimated Pickup/Drop Off Flow
- Add EUPD Messaging

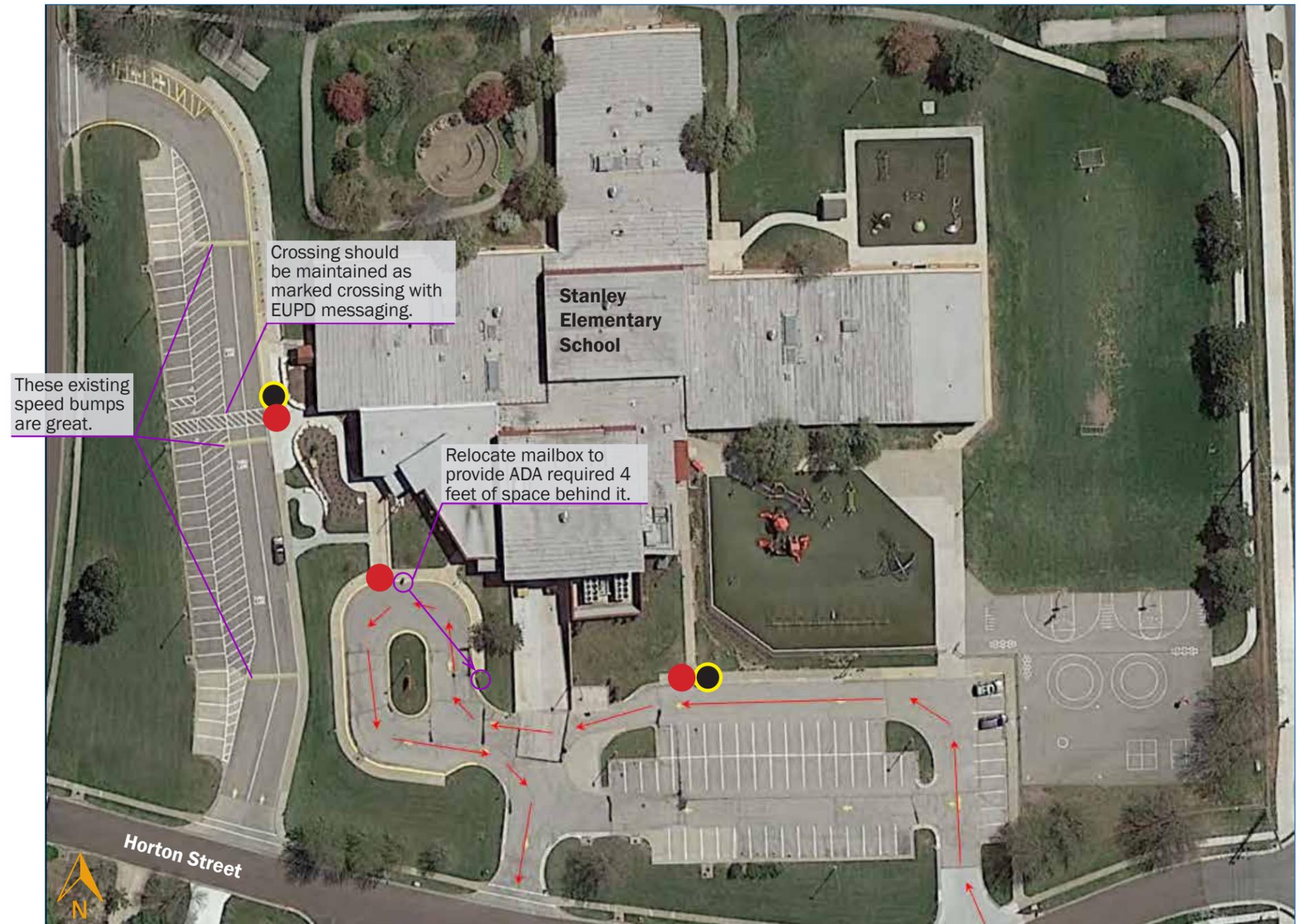


Figure 30.1

Stilwell Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Crosswalk and ADA Ramps
- ← Estimated Pickup/Drop Off Flow
- Add EUPD Messaging

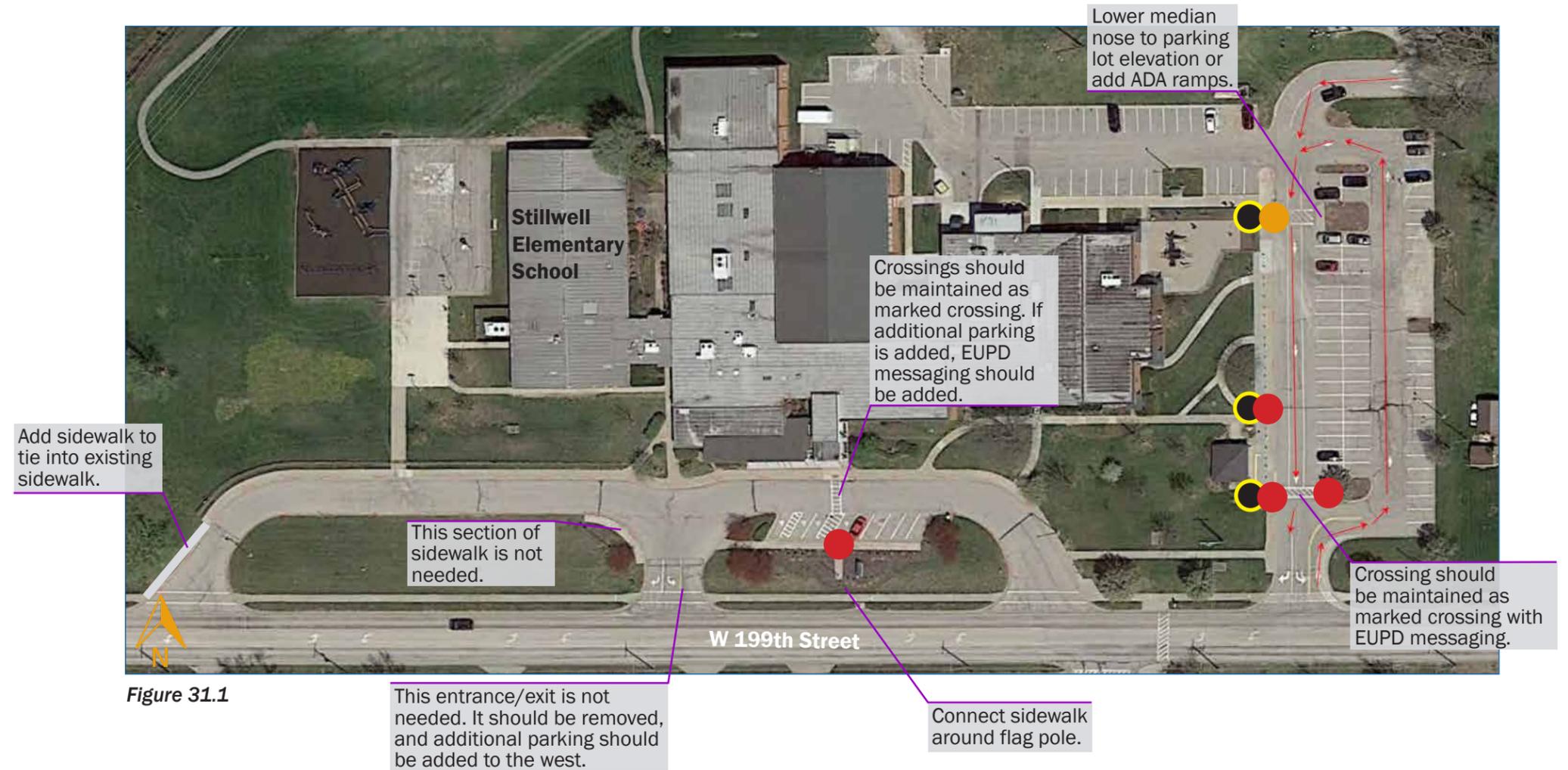


Figure 31.1

Sunrise Point Elementary School

Key Features on This Campus

- Add Speed Bump
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

All sidewalk ramps are ADA compliant, but the ADA domes are brick pavers. The brick pavers can be compliant, but if pavers shift, they can increase/reduce the spacing between the domes causing the ramp to fall out of compliance. We recommend replacing with dome pads.

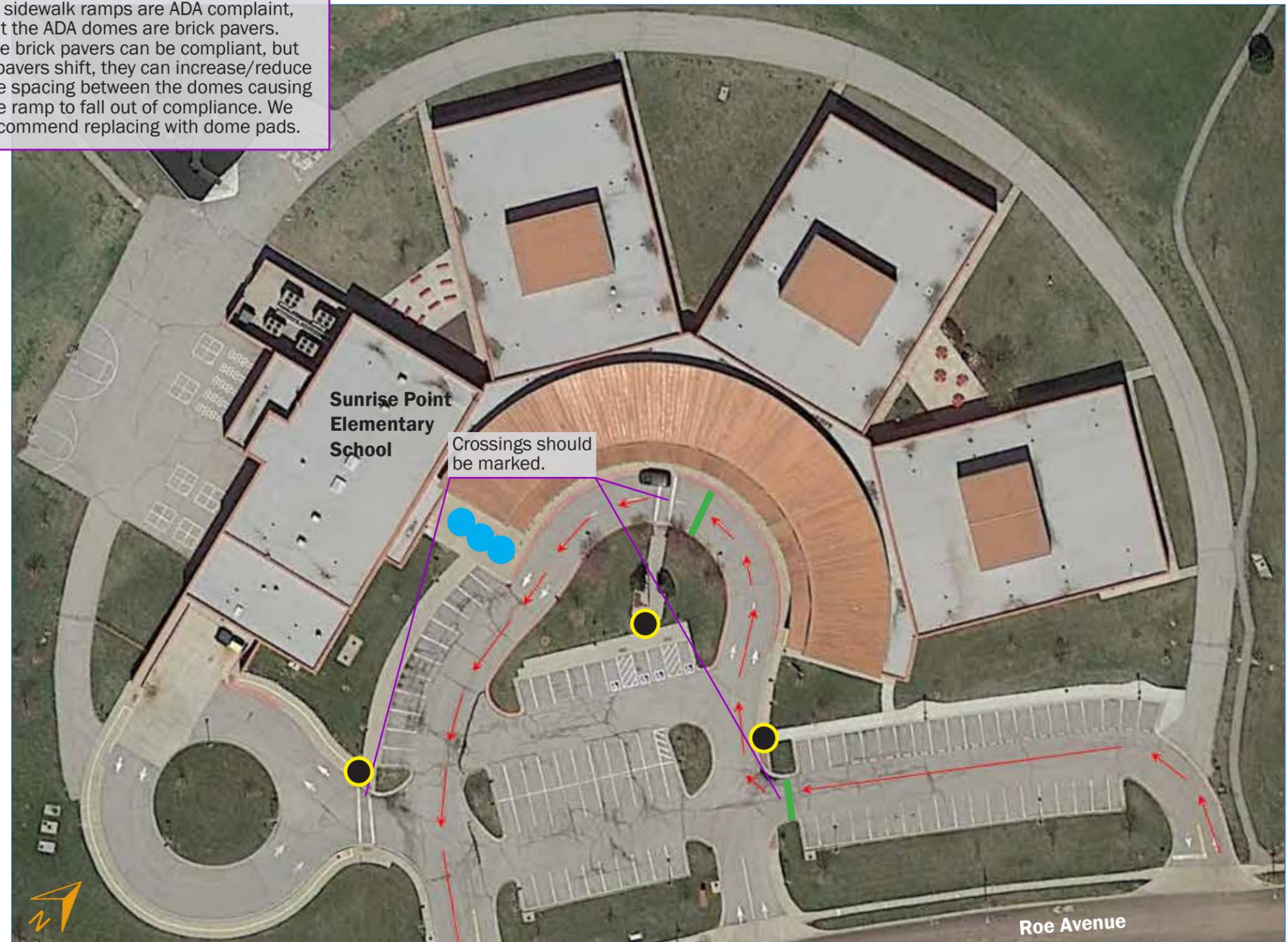


Figure 32.1

Sunset Ridge Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Bump
- Add Speed Table
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

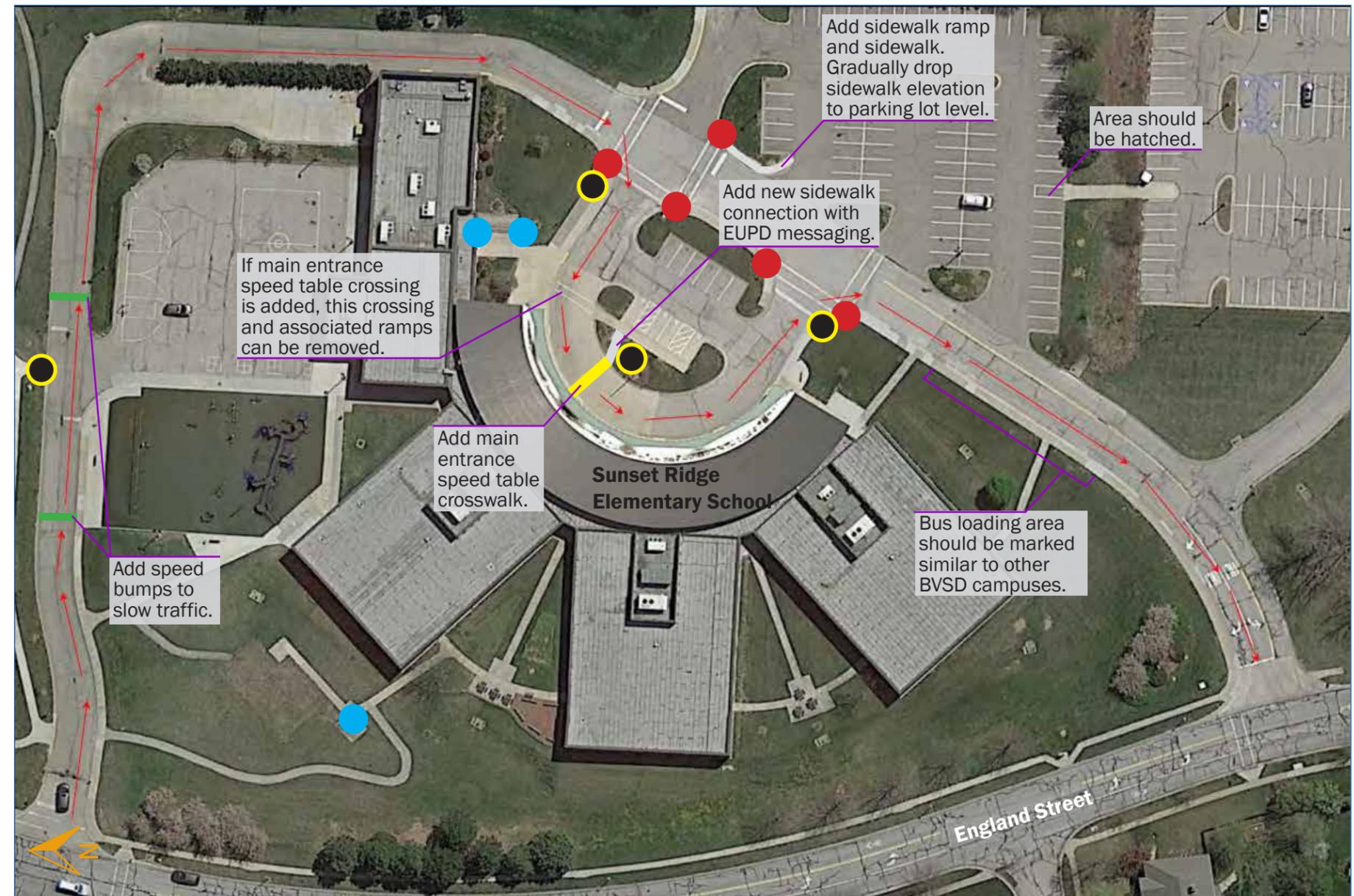


Figure 33.1

Timber Creek Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Bump
- ← Estimated Pickup/Drop Off Flow
- Existing Bike Racks
- Add EUPD Messaging

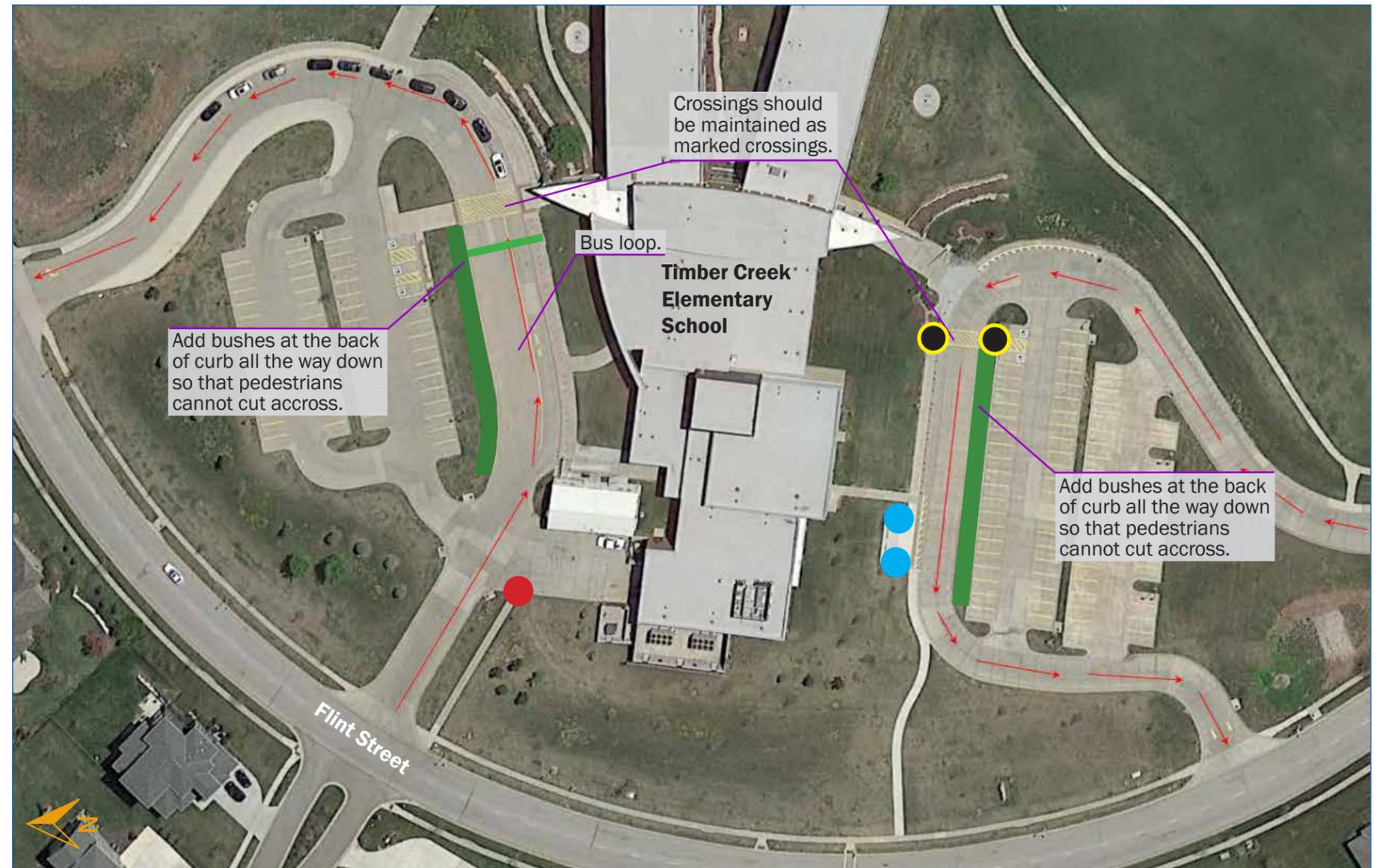


Figure 34.1

Valley Park Elementary School

Key Features on This Campus

- Add ADA Crosswalk Ramps
- Add Speed Bump
- Add Crosswalk and ADA Ramps
- ← Estimated Pickup/Drop Off Flow
- Add EUPD Messaging

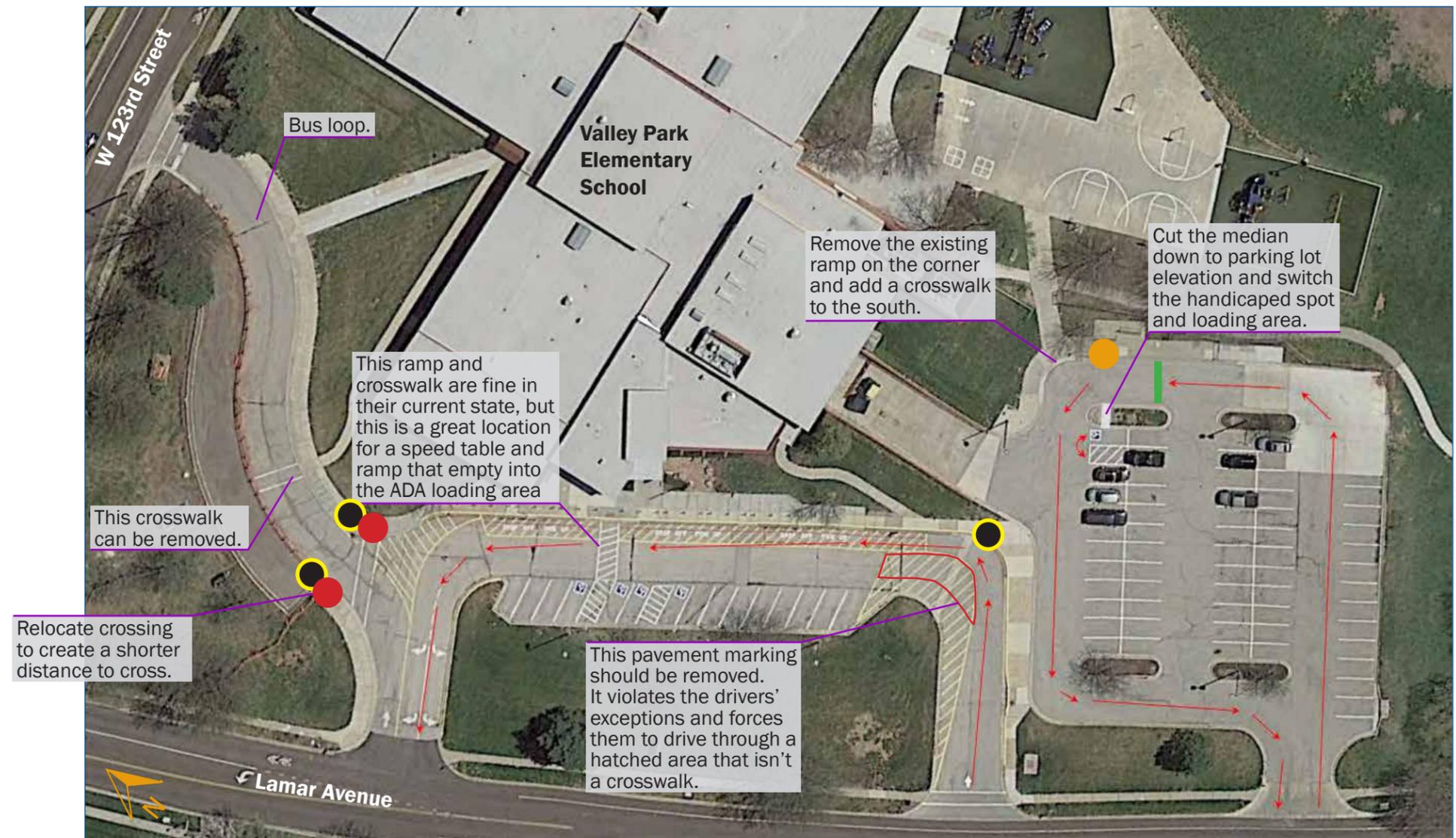


Figure 35.1

Wolf Springs Elementary School

Key Features on This Campus

- Existing Bike Racks
- Add EUPD Messaging

This is a great campus design.

Wolf Springs Elementary is one of the newest additions to the Blue Valley School District and it is a very good campus design.

The use of two separate circulation loops and speed table crosswalks are great. Both loops have ample curbside room for pickup and drop off. The speed table crosswalks are located on the curves, which provides great pedestrian-vehicle visibility.

The speed table crosswalks tie into median noses that taper from curb elevation to parking lot elevation creating a softer slope than most ADA ramps.

The only additions for this campus should be the EUPD sidewalk message on both ends of each speed table.

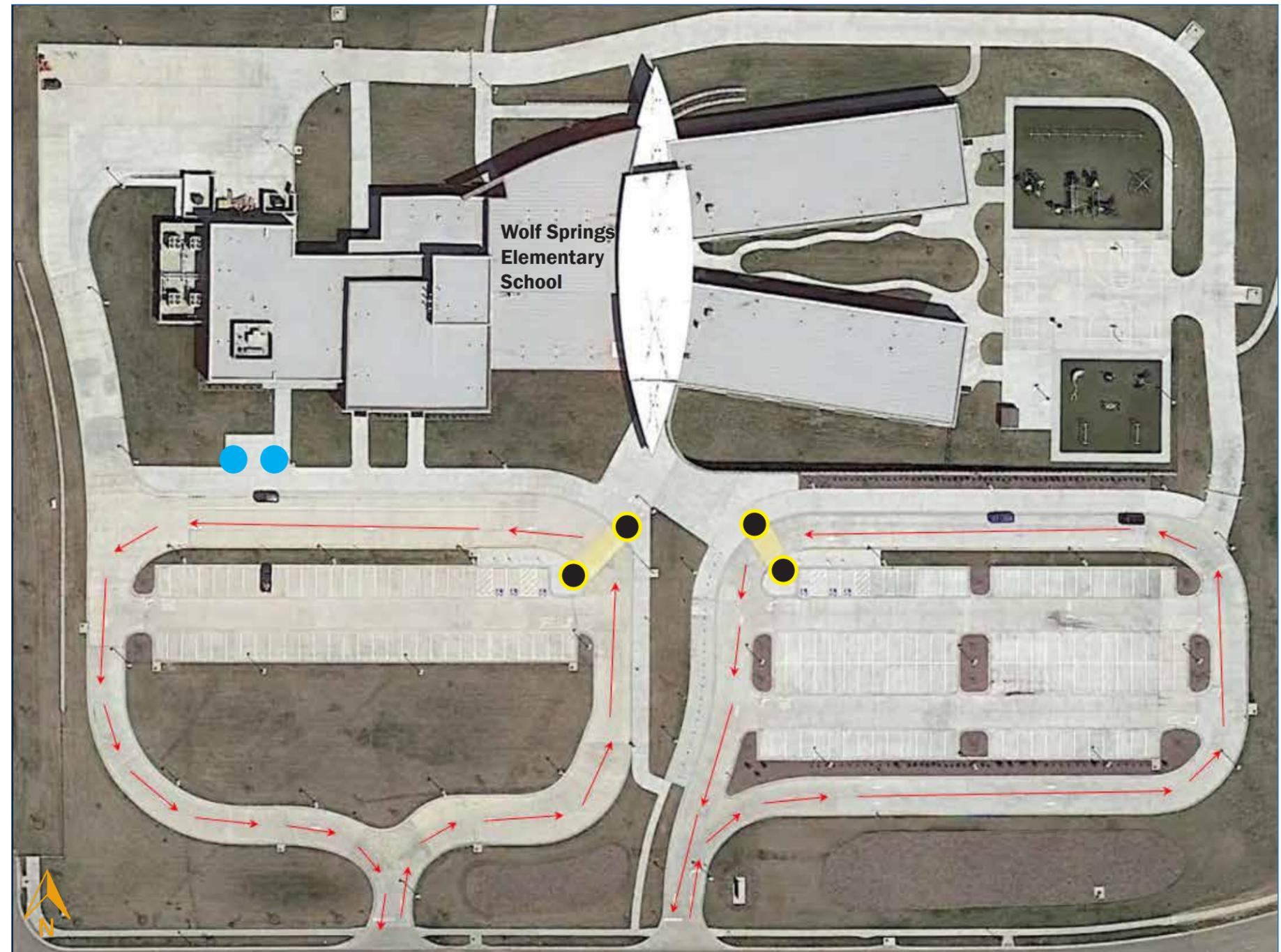


Figure 30.1

Appendix A - Traffic Counts

Table 1: Blue Valley High School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
E-W Crosswalk	14	18
N-S Crosswalk	11	42
Outside of Crosswalk	67	15
TOTAL	92	75
Location 2		
In Crosswalk	146	104
Outside of Crosswalk	208	226
TOTAL	354	330
Locations 4 and 5		
Crossing 4	203	162
Crossing 5	207	154
Outside of Crosswalk	77	81
TOTAL	487	397

Table 2: Blue Valley North High School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	215	26
Outside of Crosswalk	19	12
TOTAL	234	38
Locations 2 and 3		
Crossing 2	93	177
Crossing 3	101	119
Outside of Crosswalk	105	62
TOTAL	299	358
Location 4		
In Crosswalk	17	*
Outside of Crosswalk	11	*
TOTAL	28	*
Location 5		
In Crosswalk	17	19
Outside of Crosswalk	85	186
TOTAL	102	205

*Did not count PM due to inactivity

Table 3: Blue Valley Northwest High School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	1	0
Outside of Crosswalk	0	0
TOTAL	1	0
Location 2		
In Crosswalk	6	44
Outside of Crosswalk	47	20
TOTAL	53	64
Location 3		
In Crosswalk	136	126
Outside of Crosswalk	119	149
TOTAL	255	275
Location 6		
In Crosswalk	183	209
Outside of Crosswalk	11	109
TOTAL	194	318

Table 4: Blue Valley Southwest High School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	100	150
Outside of Crosswalk	8	23
TOTAL	108	173
Location 2		
In Crosswalk	100	55
Outside of Crosswalk	2	8
TOTAL	102	63
Locations 3 and 4		
Location 3	32	50
Location 4	96	72
Outside of Crosswalk	206	272
TOTAL	334	394
Location 5		
In Crosswalk	1	25
Outside of Crosswalk	0	274
TOTAL	1	299
Location 6		
In Crosswalk	1	0
Outside of Crosswalk	0	44
TOTAL	1	44

Table 5: Blue Valley West High School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Locations 1 and 2		
Location 1	105	168
Location 2	2	16
TOTAL	107	184
Locations 3 and 4		
Location 3	3	2
Location 4	1	1
TOTAL	4	3
Locations 5 and 6		
Location 5	240	192
Location 6	271	356
TOTAL	511	548
Location 7		
Crossing within the area	179	275
TOTAL	179	275

Table 6: Aubrey Bend Middle School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Locations 1, 2, and 3		
Crossing 1	5	0
Crossing 2	15	19
Crossing 3	8	3
Outside of Crosswalk	1	4
TOTAL	29	26
Locations 4 and 5		
Crossing 4	31	23
Crossing 5	2	0
Outside of Crosswalk	22	7
TOTAL	55	30
Location 6		
In Crosswalk	7	13
Outside of Crosswalk	6	28
TOTAL	13	41

Table 7: Blue Valley Middle School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Locations 1 and 2		
Crossing 1	90	92
Crossing 2	7	41
Outside of Crosswalk	13	27
TOTAL	110	160
Location 3		
In Crosswalk	1	24
Outside of Crosswalk	0	8
TOTAL	1	32
Location 4		
In Crosswalk	0	0
Outside of Crosswalk	0	9
TOTAL	0	9

Table 8: Leawood Middle School Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	7	6
Outside of Crosswalk	0	8
TOTAL	7	14
Location 2		
E-W Crosswalk	4	39
N-S Crosswalk	13	7
Outside of Crosswalk	2	7
TOTAL	19	53
Locations 3 and 4		
Crossing 3	0	18
Crossing 4	51	17
Outside of Crosswalk	3	28
TOTAL	54	63

Table 9: Cedar Hills Elementary Pedestrian Count Summary

Cross Location	AM Count	PM Count
Location 1		
In Crosswalk	0	*
Outside of Crosswalk	1	*
TOTAL	1	0
Location 2		
In Crosswalk	18	48
Outside of Crosswalk	0	0
TOTAL	18	48
Location 3 and 4		
Crossing 3	100	107
Crossing 4	26	63
Outside of Crosswalk	8	22
TOTAL	134	192
Location 5		
In Crosswalk	0	5
Outside of Crosswalk	0	57
TOTAL	0	62

Appendix B - Standard Detail