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Ruetschle Architects
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ATTN: Mike Ruetschle

RE: Wyoming Primary Schools – Master Planning Support
Vermont Primary and Hilltop Primary - Preliminary Traffic Evaluations

Dear Mike:

The Kleingers Group has completed preliminary traffic evaluations at Vermont Primary School and Hilltop Primary School to estimate the potential traffic impact of possible master planning options that would change the use of Vermont and Hilltop campuses from neighborhood schools to consolidated schools. An option being considered for Vermont Primary is to go from a K-4 school with an enrollment of 204 students to a consolidated K-2 school with a capacity of 450 students. An option being considered for Hilltop Primary is to go from a K-4 school with an enrollment of 277 students to a consolidated school serving grades 3 to 5 with a capacity of 450 students. In this concept, the existing Elm Primary School would no longer be serving students. Both new schools would likely be constructed at or very close to the same locations as the existing schools.

Since the campus modification options currently being considered are still in the early planning stages, this evaluation is not a formal traffic impact study and is based only on observations in the area of each school campus during the arrival and dismissal peaks. No traffic data collection or formal traffic analyses were conducted as part of this evaluation. Once options for each campus are progressed further in the development process, formal traffic impact studies may be required at that time.

Descriptions of each of the school areas along with associated observations are provided below.

## Vermont Primary School

### School Site

This site has only one vehicular driveway, which provides access to ten on-site parking spaces from Vermont Avenue. All spaces were fully utilized during our observations. In addition to using these parking spaces, visitors and school staff members utilize on-street parking. A bus pullout is provided along the school frontage and is used for student drop-off and pick-up. Students enter and exit the school near the east end of the building. Student hours at the school are from 8:30 am to 3:30 pm.

According to information provided by the school district, the travel modes used by students to travel to and from school are as follows:

- Parent vehicle – 58%
- Walk – 30%
- School bus – 9%
- District van – 3%

Since traffic counts at the existing school site were not performed as part of this evaluation, site-generated trips for the existing school were estimated using the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition. The estimated site trips are summarized in Table A.

| | Entering | Exiting | Total |
|---|---|---|---|
| Arrival Peak | 83 | 70 | 153 |
| Dismissal Peak | 42 | 50 | 92 |
| Daily | 231 | 232 | 463 |

**Table A:** Vermont Primary Existing Trip Generation - 204 students (per ITE Trip Generation Manual)

In the Wyoming City School District, there are no defined attendance zones for the three primary schools. However, while there are some exceptions, there is a general understanding within the District that students will attend the primary school located closest to their homes.

**Vermont Avenue**

Vermont Avenue is a two-way street serving the school and adjacent residential area and has a posted speed limit of 25 mph. Sidewalks are provided on both sides of the street. Two marked mid-block crosswalks are provided to cross Vermont Avenue; one near the east end of the school building and one near the west end of the school building. A crossing guard is posted at the eastern crosswalk during school arrival and dismissal times. School zone signing is in place, including a reduced 20 mph school speed limit with no flashing beacons. The street provides for on-street parking on both sides with a width varying from 33 feet to 35 feet between Springfield Pike and a point just west of the existing western school access. Further west, the street width is approximately 26 feet. At the intersection of Springfield Pike and Vermont Avenue, Springfield Pike provides one through travel lane in each direction as well as a two-way left turn lane and the Vermont Avenue approach is controlled by a stop sign.

**General Observations**

Observations at Vermont Primary School were performed on Tuesday, August 29, 2023 from 7:20 am to 8:35 am and from 2:45 pm to 3:40 pm. During both the arrival and dismissal peaks, a significant number of parents were observed walking their children to and from school. Most parent vehicles entered the school area from the eastern end at Springfield Pike. Many parents would park along the curb on either side of Vermont Avenue and escort their children to or from the school building. Some parents would allow their students to enter or exit their vehicle at the curb on either side of the street and allow them to walk to/from the school building on their own. It seemed that most parent vehicles entering from Springfield Pike made a northbound left turn onto Vermont Avenue and the majority of parent vehicles exiting to Springfield Pike made an eastbound right turn from Vermont Avenue, which is consistent with what would be expected considering the Wyoming City School District boundaries.

It was noted that water main replacement and street reconstruction was occurring along Vermont Avenue near West Avenue during the times of the observations.

**Arrival Peak Observations**

In the arrival peak, a few students were observed being dropped off at the school at about 7:25 am. However, the majority of students did not arrive until about 8:15. Students were allowed to enter the school at about 8:25. The bus arrived from the west to drop off students at 8:30. The school crossing guard was present at the eastern mid-block crosswalk from about 8:15 to 8:35.

Two significant safety concerns were noted during the arrival peak time:

1. Some students were observed exiting parent vehicles within the travel lanes of the street. Some of these students would then cross directly to the school side of the street, without the assistance of a crossing guard and at a location where they were not clearly visible to other approaching drivers.
2. Many vehicles were observed making three-point turns, either within the street or at nearby driveways, to exit the school area back onto Springfield Pike. Some of these three-point turns were made near students that were walking in the area.

**Dismissal Peak Observations**

In the dismissal peak, parents began arriving on foot and in vehicles at about 3:00 to wait for their children to be released. At about 3:15, the bus entered the bus pullout to pick up students. After the bus arrived, parent vehicles pulled in behind the bus in the pullout to wait for their children. The bus departed at about 3:31. Also, most students had left the school site by 3:31. The school crossing guard was at the eastern mid-block crosswalk until about 3:39. In general, the dismissal peak was worse than the arrival peak in terms of the number of parent vehicles parked along the curb to pick up students. It is estimated that during the dismissal peak, there were 30 parent vehicles parked at one time to pick up students from the school. On Springfield Pike, there were times that northbound traffic was stopped or moving very slowly, presumably from the traffic signal at Charlotte Avenue. One significant safety concern observed during the dismissal peak was parents and students crossing Springfield Pike at random locations.



**Figure 1:** Parent vehicles waiting in bus pullout



**Figure 2:** School crossing guard at eastern crosswalk and parent vehicles parked on curb to pick up students



**Figure 3:** Parents and students crossing Springfield Pike

**Estimated Future Conditions**

Site-generated trips for a 450-student school were estimated using the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition. The estimated site trips are summarized in Table B.

| | Entering | Exiting | Total |
|---|---|---|---|
| Arrival Peak | 183 | 155 | 338 |
| Dismissal Peak | 93 | 110 | 203 |
| Daily | 511 | 511 | 1022 |

**Table B:** Vermont Primary Proposed Trip Generation - 450 students (per ITE Trip Generation Manual)

As indicated previously, it is estimated that during the dismissal peak, there were 30 parent vehicles parked at one time to pick up students from the school. Using an estimated length of 22.2 feet per vehicle (including space between vehicles), this translates into a vehicular stacking distance of 666 feet. With the potential increase in student enrollment from 204 K-4 students to 450 K-2 students, the stacking distance needs would be expected to increase as well. Also, since the proposed school option evaluated in this report is a consolidated school, where fewer students are expected to be able to walk to school compared to the existing neighborhood school, it is anticipated that the amount of vehicular stacking space per student will be even greater with the proposed school than with the existing school. Without significant increases in the number of students riding the bus to school, it is estimated that the stacking need for the potential consolidated school could be as high as 1,900 feet.

**Findings**

Particularly during the dismissal time, the curbs on both sides of the street were fully parked near the school. Also, there were times during both the arrival and dismissal peaks that traffic near the school was relatively congested. As a result, if a 450-student school is constructed at this location, it seems unlikely that the arrival and dismissal peak times would function safely and efficiently on Vermont Avenue without significant physical and

operational changes. The following items are recommended to be considered as part of the master planning for the proposed primary schools.

1. Provide sufficient on-site vehicular stacking such that the majority of the vehicular parent drop-off and pick-up can occur on the school site. As indicated previously, the vehicular stacking need for this school option could be as high as 1,900 feet. Side-by-side stacking could be considered to increase the amount of stacking space provided on site.
2. Consider ways to increase bus utilization within the district.
3. Consider allowing students to enter the building earlier before the starting bell to help spread out the peak traffic volumes over a longer period of time.
4. Once a conceptual layout for this site has been identified, conduct more detailed traffic study at the intersection of Springfield Pike and Vermont Avenue and at the proposed school access points on Vermont Avenue to determine if acceptable traffic operations can be provided.
5. Further evaluate locations and traffic control for pedestrian crosswalks on both Vermont Avenue and on Springfield Pike.

## Hilltop Primary School

### School Site

This site has one primary driveway along Oliver Road. This driveway provides access to the north parking lot with 33 parking spaces. The site also has a secondary access point along Reily Road, which provides access to 5 parking spaces in the south parking lot. During our dismissal peak observations, 25 vehicles were parked in the north parking lot and 5 vehicles were parked in the south parking lot.

Students walking to school and those being transported via parent vehicles access the north side of the school building from Oliver Road. Students riding the bus access the south side of the school building via Reily Road. Student hours at the school are from 8:30 am to 3:30 pm.

According to information provided by the school district, the travel modes used by students to travel to and from school are as follows:

- Parent vehicle – 48%
- Walk – 27%
- School bus – 25%

Since traffic counts at the existing school site were not performed as part of this evaluation, site-generated trips for the existing school were estimated using the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition. The estimated site trips are summarized in Table C.

| | Entering | Exiting | Total |
|---|---|---|---|
| Arrival Peak | 112 | 96 | 208 |
| Dismissal Peak | 58 | 67 | 125 |
| Daily | 315 | 314 | 629 |

**Table C:** Hilltop Primary Existing Trip Generation - 277 students (per ITE Trip Generation Manual)

In the Wyoming City School District, there are no defined attendance zones for the three primary schools. However, while there are some exceptions, there is a general understanding within the District that students will attend the primary school located closest to their homes.

**Oliver Road**

Oliver Road is a two-way street serving the school and adjacent residential area and has a posted speed limit of 25 mph. Sidewalks are provided on both sides of the street. A marked mid-block crosswalk is provided to cross Oliver Road on the east side of the primary school driveway and is attended by a crossing guard during school arrival and dismissal times. The crosswalk signs are equipped with pedestrian activated rectangular rapid flashing beacons. On-street parking is prohibited on both sides of the street near the crosswalk. School zone signing is in place, including a reduced 20 mph school speed limit. The 20 mph school speed limit sign on the east end of the school zone is equipped with flashing beacons while the sign on the west end has no flashing beacons. The street provides for on-street parking on both sides with a width of approximately 30 feet.

**General Observations**

Arrival peak observations at Hilltop Primary School were performed on Thursday, August 31, 2023 from 7:30 am to 8:35 am. Dismissal peak observations were performed on Wednesday, August 30, 2023 from 2:45 pm to 3:40 pm. During both the arrival and dismissal peaks, a significant number of parents were observed walking their children to and from school. Most parents driving their children would park along the curb on either side of Oliver Road and escort their children to or from the school building. Toward the west, parent parking extended along Oliver Road to near Riley Road. Toward the east, parent parking extended beyond Brayton Avenue. Because of the 30-foot street width and the fact that parents are parking on both sides of the street, the available travel width is only adequate for one direction of travel at a time. This resulted in significant congestion and confusion, with some vehicles having to back up or pull over to the side of the road at nearby driveways to allow the opposing vehicles to pass.

One significant safety concern is that pedestrians were observed crossing Oliver Road at locations other than at the marked crosswalk, many times from between parked vehicles, which reduces visibility of approaching traffic. These crossings are particularly dangerous due to the curvature of the roadway, the significant congestion that is occurring, and the periodic backing that occurs to allow opposing vehicles to pass.

Because bus drop-off and pick-up occurs on the south side of the school, observations of bus operations were not made as part of this evaluation.



**Figure 4:** Parent and student crossing amongst parked vehicles and traffic congestion along Oliver Road in the arrival peak



**Figure 5:** Parked vehicles and congestion in the arrival peak



**Figure 6:** Parent vehicles parked on both sides of street limiting street to one direction of travel at a time in dismissal peak



**Figure 7:** Parked vehicles near curve in dismissal peak

### Arrival Peak Observations

In the arrival peak, there was minimal activity at the school aside from arriving school staff until about 8:00, when a few students began to be dropped off. The majority of students did not arrive until about 8:15. Students were allowed to enter the school at about 8:25. The school crossing guard was present at the school crosswalk from about 8:17 to 8:32. The majority of parent traffic was gone by about 8:32.

### Dismissal Peak Observations

In the dismissal peak, parents started parking along the curb on Oliver Road between 3:05 and 3:10. At about 3:20, parents started walking up to the building to wait for their children to be released. The school crossing guard was at the mid-block crosswalk from about 3:25 to 3:35. Most parent vehicles had departed by about 3:38.

During the dismissal peak, it is estimated that there were approximately 50 parent vehicles parked along Oliver Road to pick up students.

**Estimated Future Conditions**

Site-generated trips for a 450-student school were estimated using the Institute of Transportation Engineers' Trip Generation Manual, 11th Edition. The estimated site trips are summarized in Table D.

| | Entering | Exiting | Total |
|---|---|---|---|
| Arrival Peak | 183 | 155 | 338 |
| Dismissal Peak | 93 | 110 | 203 |
| Daily | 511 | 511 | 1022 |

**Table D:** Hilltop Primary Proposed Trip Generation - 450 students (per ITE Trip Generation Manual)

As indicated previously, it is estimated that during the dismissal peak, there were 50 parent vehicles parked at one time to pick up students from the school. Using an estimated length of 22.2 feet per vehicle (including space between vehicles), this translates into a vehicular stacking distance of 1,110 feet. With the potential increase in student enrollment from 277 K-4 students to 450 students in grades 3 to 5, the stacking distance needs are expected to increase as well. Also, since the proposed school option evaluated in this report is a consolidated school, where fewer students are expected to be able to walk to school compared to the existing neighborhood school, it is anticipated that the amount of vehicular stacking space per student will be even greater with the proposed school than with the existing school. Without significant increases in the number of students riding the bus to school, it is estimated that the stacking need for the potential consolidated school could be as high as 2,000 feet.

**Findings**

During both the arrival and dismissal times, traffic conditions along Oliver Road were very congested due to parent vehicles parked on both sides of the street which required vehicles in one direction to either back up or pull over in front of a driveway to allow vehicles in the other direction to pass. If the existing school is replaced by a 450-student school at this location, it seems unlikely that the arrival and dismissal peak times would function safely and efficiently on Oliver Road without significant physical and operational changes. The following items are recommended to be considered as part of the master planning for the proposed primary schools.

1. Provide sufficient on-site vehicular stacking such that the majority of the vehicular parent drop-off and pick-up can occur on the school site. As indicated previously, the vehicular stacking need for this school option could be as high as 2,000 feet. Side-by-side stacking could be considered to increase the amount of stacking space provided on site.
2. Consider ways to increase bus utilization within the district.
3. Consider allowing students to enter the building earlier before the starting bell to help spread out the peak traffic volumes over a longer period of time.
4. Once a conceptual layout for this site has been identified, conduct more detailed traffic study at the proposed school access points to determine if acceptable traffic operations can be provided.

If you have any questions regarding the information contained in this report, please don't hesitate to ask.

Sincerely,
THE KLEINGERS GROUP

Mark W. Nolt, PE, PTOE
Traffic Engineering Lead

cc: FILE