



## Draft Memorandum

SRF No. 02215657

**To:** Josh Nyquist, Executive Director of Building Operations  
PACT CHARTER SCHOOL

**From:** Jeff Bednar, TOPS, Senior Traffic Engineering Specialist  
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**Date:** July 6, 2022

**Subject:** PACT Charter School | Traffic Concerns | City of Ramsey, Minnesota

This memorandum addresses the most recent traffic concerns expressed by the City of Ramsey Residents, Planning Commission and City Staff.

1. It has been suggested that an additional school site access be located on Variolite Street for school bus access. This Variolite Street bus only school site access was suggested to be restricted to a right-in/right-out only access:
  - a. No detailed information related to the location of the suggested additional school site access on Variolite Street is available. However, considering the likely location of this Variolite Street school site access based on the layout and configuration of the proposed school site, it is likely that it would be at a location on Variolite Street that would be impacted by a crest (hill) in the vertical profile on Variolite Street north of 161st Avenue and south of the potential school access. This crest in on Variolite Street is likely to create a sight distance obstruction at the Variolite Street school site access that could result in a traffic safety concern.
  - b. While it may be possible to construct a restricted right-in/right-out only school site access on Variolite Street and install signing prohibiting the restricted left-turn movements, the effectiveness of this condition would rely on traffic law enforcement, therefore the effectiveness of this restriction would be directly proportional to the level of law enforcement activity assigned to it. A more effective right-in/right-out only access would require physical restriction with raised median/channelizing islands on Variolite Street that would involve a costly roadway improvement on the recently improved Variolite Street segment. Additionally, it will be a challenging effort to restrict the use of this access to buses only and prohibit its use by parent and student drivers through educational programs alone.
  - c. The two proposed school site access intersections on 161st Avenue would operate at overall Levels of Service (LOS) A with the school site exiting approaches operating at a LOS B or better during all school related peak hours. From this analysis it is concluded that an additional school site access on Variolite Street would not be needed in order to provide intersection capacity relief.
2. The traffic counts used in the traffic study were only collected for one day:
  - a. Vehicle turning movement and pedestrian/bicyclist counts were collected (based on video camera imaging) by SRF for April 14 through April 17, 2022 for the weekday a.m.

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commuter/school arrival peak period (7-9 a.m.), p.m. school dismissal peak period (2:00-4:00 p.m.), p.m. commuter peak period (4:00-6:00 p.m.) and Sunday a.m. church peak period (9:30-11:30 a.m.) at the seven study intersections.

- b. Due to limited resources in both time and equipment (camera) availability (cameras were committed to other areas before April 13, 2022), cameras were set later Wednesday April 13, 2022 at the study intersections. Therefore, the counts applied in the weekday traffic analysis were the counts collected on Thursday April 14, 2022. We have compared these PACT School TIS related Thursday April 14, 2022 counts to previous counts collected for the Trott Brook Crossing EAW at many of the same intersections and find they compare very favorably. From this comparison we conclude the PACT School TIS Thursday April 14, 2022 traffic counts reasonably represent an existing typical study area weekday.
  - c. It is standard traffic engineering practice to apply traffic data collected for a single day to a traffic impact analysis so long as it reasonably represents an existing typical study area weekday or design day. This is particularly true in neighborhoods where the day-to-day traffic patterns are more consistent. If the study area was a commercial area where the day-to-day traffic patterns may be more dynamic, then looking at more than one day and choosing the best day to apply to the traffic impact analysis may be considered.
3. School Bus, Student Drop-Off/Pick-Up and Student Driver site circulation suggestions:
    - a. Move the parent drop-off/pick-up area to the front (south) side of the building. The proposed location of the parent drop-off/pick-up area on the east side of the building and the proposed circulation provides adequate queuing distance to keep traffic from spilling out onto 161st Avenue. It also separates the school bus drop-off/pick-up from the parent drop-off/pick-up area, always a prime consideration in the configuration of the school site circulation. Moving the parent drop-off/pick-up area to the front (south) side of the building would require moving the school bus drop-off/pick-up to the west side of the building and possibly complicating operations and additional conflict with the student drivers entering/exiting the school site. We believe the school site circulation as proposed is reasonable.
  4. Student Drop-off/Pick up concerns regarding spillback onto 161st Avenue:
    - a. Not all student drop-off/pick-up vehicles are on site at the same time as these vehicles arrive and depart over a period of time. The PM initial queues are more substantial as parents line up to pick-up their children prior to the dismissal time. Based on research conducted by multiple universities of a large sample of schools across the country, the expected onsite PM school pick-up maximum queue length, in vehicles, is approximately five percent of the total enrollment, in students. Assuming the 2028 final phase total enrollment of 790 students, the onsite PM school pick-up maximum queue length is estimated at 40 vehicles. Assuming 25 feet of space per vehicle the length of this onsite maximum queue is estimated at 1,000 feet. Based on the proposed site plan there appears to be well over 1,000 feet of PM school pick-up queuing space available onsite. From this analysis it is concluded that the onsite PM school pick-up maximum queue would be fully contained onsite and not spill out onto 161st Avenue.

5. Please explain if there are any concerns regarding school bus queuing on northbound Variolite Street turning left to westbound 161st Avenue:
  - a. The northbound left-turn from Variolite Street to westbound 161st Avenue would operate at level of service (LOS) A, with only eight seconds of average delay per left-turning vehicle and a 95th percentile queue of one vehicle or less under the 2028 build conditions during all school related peak hours. From this analysis it is concluded that the northbound left-turn lane queue (including school buses) would not spillback into the northbound through lane.
6. What is the overall daily capacity of Variolite Street and 161st Avenue?
  - a. Based on the City of Ramsey's current comprehensive plan transportation element, the planning level daily capacity of Variolite Street, a two-lane major collector street through the study area, is 9,000 vehicles. The existing average daily traffic volume on Variolite Street south of 161st Avenue is 1,364, which is 15 percent of the planning level daily capacity. Adding 40 percent of the school generated daily traffic assigned to Variolite Street south of 161st Avenue of 978 vehicles plus 95 vehicles of background traffic growth, the total 2028 daily traffic volume on Variolite Street south of 161st Avenue is forecast at 2,437 vehicles which is only 27 percent of the planning level daily capacity resulting in a reserve capacity of 73 percent.
  - b. The planning level daily capacity of 161st Avenue, a two-lane local street through the study area, is assumed at 8,000 vehicles, a widely accepted value for two-lane roadways. The existing average daily traffic volume on 161st Avenue west of Variolite Street is 1,000, which is 12.5 percent of the planning level daily capacity. Adding 55 percent of the school generated daily traffic assigned to 161st Avenue west of Variolite Street of 1,345 vehicles plus 70 vehicles of background traffic growth, the total 2028 daily traffic volume on 161st Avenue west of Variolite Street is forecast at 2,415 vehicles which is only 30 percent of the planning level daily capacity resulting in a reserve capacity of 70 percent, an abundance of reserve capacity.
7. It has been suggested that the school site design provide a southbound left and right-turn lane at the west school access to 161st Avenue:
  - a. While this could be done and it may somewhat improve operations, the traffic operations analysis does not show a need to provide this additional capacity/operational improvement since the proposed single lane of approach provides an overall intersection level of service (LOS) A with the southbound approach at LOS B during all school related peak hours.