KINNEY ENGINEERING, LLC

January 29, 2025

Ethan Graetz, P.E.
Project Manager
Northern Region, DOT&PF

SUBJECT: Fall Demonstration Project Summary - Lessons Learned
FNSB High School Access & Circulation Plans, Second Deliverable
Federal Project No. NFHWY00844/0002(536)

Dear Ethan,

Attached are our findings from the Fall Demonstration Project. This summarizes lessons learned during October 14-18, 2024. A Table of Contents provides supporting tables, figures, and photos.

Findings and performance measurements are based on peak 15-minute congestion during the AM Arrival hour and the PM Dismissal hour. Public outreach and survey responses are included. Site photos of temporary congestion changes are attached. The traffic control plan process and data gathering process are also attached.

At a cost of less than $25,000 for contractor time, we were able to test congestion measures within the existing campus layout without undertaking significant capital costs. This helped confirm user group needs, concerns, and identify better future options. We next take what we learned from these circulation tests and public input to model new construction options. Feasible options will be compared for performance and presented in the Needs Analysis Report.

The main lesson learned is when we move and separate peak traffic within the campus, conflicts in one area can be reduced, but then worsen in other areas. While the campus area is served by a traffic signal, it is located at the westernmost edge, yet most of the turning demand wants to go to and from the east, not the west. Most of the campus congestion occurs towards the east where all access is served by STOP sign control. Even though Hutchison High School is located on another signalized corner, it has no convenient access to a signal.

While peak congestion should be expected, our observations and modeling shows shifting traffic conflicts within the same network is not enough to reduce peak school congestion to acceptable levels of queues and delays in all locations. The two high schools generate high enough combined peak traffic to consider changes in school travel times or travel modes, add new access, or manage access to better dilute and decrease congestion.

With the demonstration, we were able to estimate and observe each user group's connection to school buildings. We have a better idea of how much each user group will and won't divert to meet internal traffic routing changes. We also find optimized traffic control plans will only achieve partial success internally. External changes to campus and arterial access will be tested next, tempered with a better understanding of how much user groups can be adjusted onsite. Before and after performance results from SimTraffic are included in this report reflecting some areas of improvement and some areas of worsening.

- Adding a West Loop Dropoff was shown to be of some benefit. This reduced AM delays at WVHS by one-third or more, however v/c ratios were still above 0.8 at the main entrance. The choice of PM Dismissal hour utilization of the West Loop Pickup was low and not effective as a result.
- Restricting HHS parking from exiting southbound to Geist Road did reduce conflicts with the dropoff and pickup intersections. This reduced v/c ratios below 0.8 in front of the main entrance and the west side parking areas. However, congestion queuing from the north at Sandvik Street still backed into this area from the north, leading to unacceptable delays on the west side of HHS.
- Precluding departures from HHS to Geist Road made queues and delays to the north worse for HHS. More motorists chose to depart via Sandvik Street and University Avenue to exit than going farther west to the Fairbanks and Geist Road signal. Nearly all buses use the signal.
- Switching busing and staff parking at WVHS between the front and back of the school was able to work; however, difficulties were documented with the back of school route. Staff parking was split up using existing spaces available but worked without much conflict due to arrivals before peak demand and departures after peak demand. This is a feasible option which would require significant onsite changes.
- Onsite storage contained queues and prevented backing onto adjacent arterials, however, northbound queues nearly backed onto Geist Road at HHS due to internal delays.
- Eastbound Sandvik Street queueing from HHS and WVHS extended to WVHS student parking for a short period and took nearly 15 minutes longer to dissipate than all the other campus exits in the PM Dismissal hour.
- No significant incidents or crashes were documented during the Fall Demonstration Project.
- The campus is a low speed, low severity conflict area even during poor weather conditions.
- After the first storm event of the year (which occurred during the demonstration project), there was good plowing and storm response on campus by 2nd day
- Additional observations and performance outcomes are listed in the Attachments.

Public participation was significant during the demonstration, at nearly 200 responses. Comment for and against traffic control changes are attached in people's own words and in charts. When looking across each person's total responses to survey questions, encouraging input is revealed as follows:

- More than half want to see changes made (57%)
- Almost half said the Fall Demonstration improved congestion (42%)
- A small group did not notice a change or have any suggestions (13%)

- One-third said the Fall Demonstration made congestion worse (34%)
- And one-tenth want it changed back to the way it was before (14%)

The range of responses appears realistic and would not typically be unanimous. Some areas of campus were improved. Other areas were worsened. Some problems were predicted to get worse in our modeling (increased Sandvik and University eastbound delays). Some unexpected discoveries were not predicted (Fairbanks and Geist eastbound left turn signal timing concerns).

We sincerely recognize the team effort this demonstration required.

- The Fairbanks North Star Borough School District high school officials and transportation officials were critical to helping get project information to each user group ahead of time.
- The School District helped maintain an incident free week by sanding internal roads during the first snowfall this week. Winter closures occurred only a week later under even more snowfall.
- Durham Services distributed bus orders and staged buses onsite.
- Great Northern Inc.'s experience and availability during the last week of the season made this work possible at a time when resources are usually unavailable and in high demand.
- FAST Planning and DOT&PF were instrumental in providing approvals to move this project forward just-in-time before winter precluded further study.

Thank you for building the Fall Demonstration Project into the data gathering process for this project.

Sincerely,
Kinney Engineering, LLC

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Project Manager

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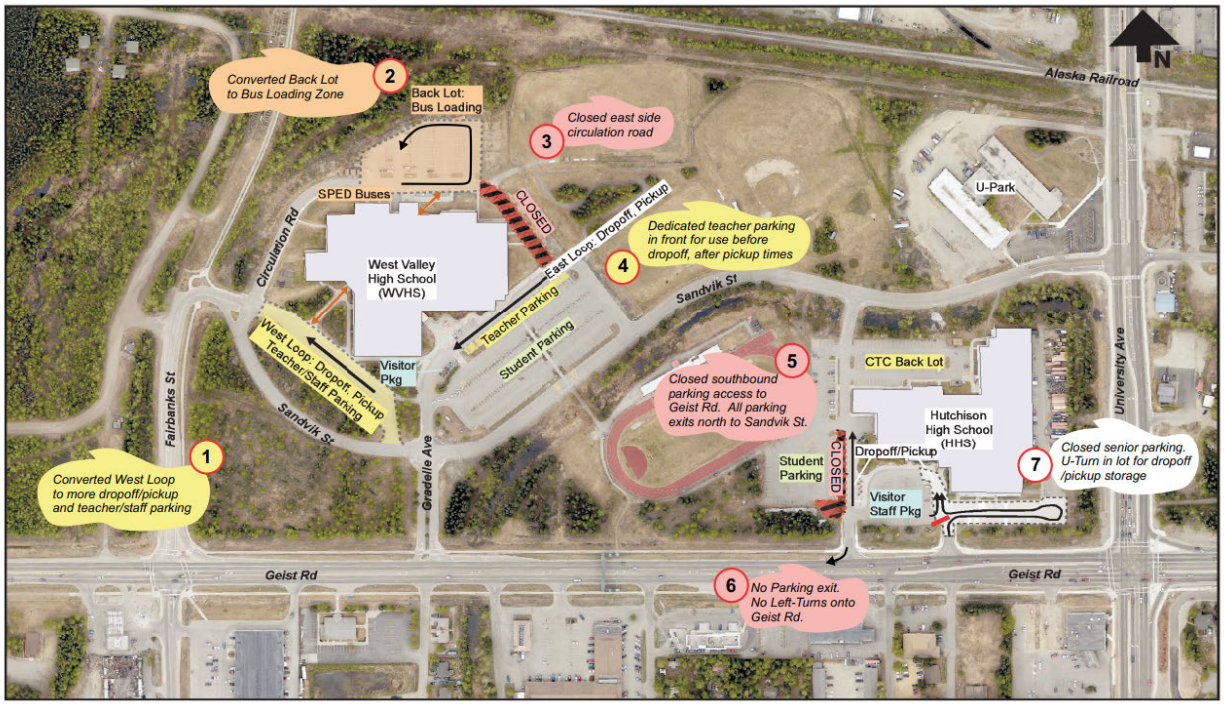
FIGURE 1

High Schools Campus Layout: Existing Conditions

FIGURE 2

High Schools Campus Layout: Traffic Control Plan Changes



ATTACHMENTS **Page**