TECHNICAL MEMORANDUM

Project: Puyallup School District's Pope Elementary Portable Classrooms

Subject: Traffic Analysis for SEPA Checklist

Date: July 12, 2022

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This memorandum presents a review of traffic generation associated with the Puyallup School District's proposal to place up to four portable classrooms at the existing Pope Elementary School site. This analysis is intended as an attachment to the District's SEPA Checklist being prepared for the portable placement. Please contact Tod McBryan (206) 527-8410 with any questions regarding this memorandum.

1. Project Background

The Puyallup School District completed a school remodel and expansion project for Pope Elementary School in August 2020. The design capacity for the expanded school was 730 students, which reflects 30 classrooms at 24 students each, plus space for 10 students in special-education (SPED) classrooms. This was the basis for the *Transportation Technical Report*[1] prepared in support of the SEPA Checklist and Pierce County permitting effort for that expansion project. However, the project was designed and completed prior to full funding of all-day kindergarten (ADK) and the State's K-3 Class Size Reduction legislation (House Bill 2776), which reduced-class-sizes for grades K–3 from about 25 to 17 students per teacher. The timeline for school districts to fully implement these changes was delayed from the originally planned 2017-18 school year, but is now fully implemented. As a result, District elementary schools now average 22 students per classroom (K-3 grade classrooms are less than average and 4-6 grade classrooms are on at the upper end of the average).

The smaller class sizes have caused the school to use every classroom during the 2021-22 school year. The addition of Kindergarten Academy is an example of a new program added to the building that accelerated the occupancy more quickly than anticipated. The June 2022 enrollment was 674 students, which is 56 students fewer than the 730-student design capacity evaluated in the transportation analysis and permitting review.

2. Project Description

To address the smaller class sizes, the District plans to relocate three portable classrooms from Ferrucci Junior High School in Puyallup to Pope Elementary School in Pierce County in summer 2022. The District plans to add a fourth portable classroom at Pope Elementary at a future date to be determined. With all four portables added and accounting for the K-3 class-size reduction implementation, Pope Elementary school would have a new capacity of 758 students—30 permanent classrooms and four portable classrooms with an average of 22 students per classroom, plus space for 10 students in SPED classrooms. With the portables, the school would have capacity of 28 more students than previously evaluated for the remodel and expansion project.

[1] *Pope Elementary School Remodel / Expansion – UPDATED Transportation Technical Report*, Heffron Transportation, Inc., February 18, 2019.

3. Change in Trip Generation

The small increase in school enrollment capacity (from 730 to 758 students) could result in increased traffic generation. Peak hour trip generation for the school was determined in two ways—1) using rates derived from counts at and around the existing Pope Elementary School conducted for the remodel and expansion project in October 2017, and 2) using rates published in the current edition of the Institute of Transportation Engineers' [ITE] *Trip Generation Manual*[2] for Elementary Schools (Land Use Code 520). For the prior analysis, video counts were performed on Tuesday, October 24, 2017 from 7:00 to 9:30 A.M. and from 2:30 to 6:00 P.M. In addition, 72-hour machine counts were performed at the access driveways from October 24 through 26, 2017 to document average daily trip generation.

3.1. Trip Generation Rates

Table 1 summarizes the results of the 2017 trip generation study for Pope Elementary. It lists the number of trips generated for an average weekday (24-hours) along with AM peak hour (highest one-hour volume between 7:00 and 9:00 A.M.), afternoon peak hour of the school (highest one-hour volume at the end of the school day), and the PM peak hour of the adjacent street (highest one-hour volume between 4:00 and 6:00 P.M.). The time when each peak hour occurred is also listed. Note that the school day at the time of those was from 8:55 A.M. to 3:16 P.M. on most Tuesdays through Fridays (Mondays are late start). Those times were shifted 20 minutes later for the most recent school year (9:15 A.M. to 3:36 P.M.).

Trip generation rates were calculated based on the existing enrollment at the time of the counts—573 students. The average rates published in the current edition of the *Trip Generation Manual* are also shown. The morning peak hour and afternoon peak hour rates observed at Pope Elementary are all similar to the published ITE rates. The observed daily and PM peak hour rates are less than the published ITE rates. However, all of the observed rates are well within the range of the published ITE rates for each period.

Table 1. Trip Generation Rates – Pope Elementary School

School / Reporting Period	Enrollment[1] & Time Period	Number of Trips			Trip Rate (trips/student)			ITE Rates[2]
		In	Out	Total	In	Out	Total	
Pope Elementary	573 Students							
Average Weekday	24-hour	455	455	910	50%	50%	1.588	2.27 trips/student
Morning Peak Hour	8:00 – 9:00 A.M.	218	189	407	54%	46%	0.710	0.75 trips/student
Afternoon Peak Hour	2:45 – 3:45 P.M.	104	145	249	42%	58%	0.435	0.45 trips/student
Street PM Peak Hour	4:45 – 5:45 P.M.	5	9	14	36%	64%	0.024	0.16 trips/student

Source: Number of trips is based on turning movement counts (TMCs) and machine counts performed at school's driveways. TMCs performed on Tuesday, October 24, 2017 and machine counts performed Tuesday, October 24 through Thursday, October 26, 2017.

1. *Enrollment in fall 2017 provided by Puyallup School District for students in kindergarten through 6th grade.*
2. *ITE, Trip Generation Manual, 11th Edition, September 2021.*

[2] ITE, 11th Edition, September 2021.

3.2. Trip Generation for Added Portable Classrooms

Table 2 presents trip generation estimates for the net increase in school capacity that would occur with the portable classrooms added to Pope Elementary. Estimates are provided using the rates derived for Pope Elementary from the 2017 counts and using published ITE rates from the current edition of the *Trip Generation Manual*.

Table 2. Trip Generation Estimates – Pope Elementary School Added Portables

Rates Applied	Added Capacity (Students)	Daily Trips	Morning Peak Hour (8:00 to 9:00 A.M.)			Afternoon Peak Hr. (2:45 to 3:45 P.M.)			PM Peak Hour (4:45 to 5:45 P.M.)		
			In	Out	Total	In	Out	Total	In	Out	Total
Derived for Pope Elem. [1]	28	44	11	9	20	5	7	12	0	1	1
Published ITE Rates [1]	28	64	11	10	21	6	7	13	2	2	4

Source: Heffron Transportation, Inc., January 2018 using rates developed for Pope Elementary from counts in October 2017.

1. *Trip estimates using rates derived from counts at Pope Elementary in 2017.*
2. *Trip estimates using published ITE rates form the most current edition of the Trip Generation Manual.*

4. Findings and Conclusions

Pierce County requires traffic impact analyses for proposed developments that are projected to generate 25 or more peak hour trips.[3] The added portables are not expected to increase trip generation by more than 25 trips during any of the peak hours. The referenced *Transportation Technical Report* prepared for the remodel and expansion project indicated that the adjacent signalized 152nd Street E / 122nd Avenue E intersection would operate at LOS C or better during all periods with the project. It also concluded that site access driveway modifications made as part of that project would improve operations and reduce delays. Based on these findings, the added capacity from the portable classrooms is not expected to result in new adverse impacts and no additional traffic impact analysis should be required.

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[3] Pierce County Code, Section 17B.20.060.D.