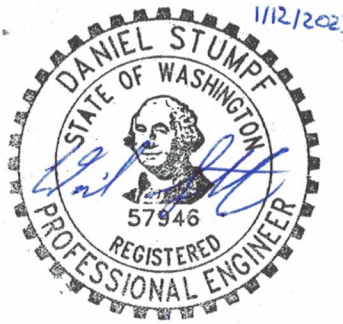




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Memorandum

To: Dan MacKay
From: Daniel Stumpf, PE
Date: January 12, 2023
Subject: Brady Road Comprehensive Plan Amendment
Trip Generation Analysis



Introduction

This memorandum reports and evaluates the potential transportation impacts related to a proposed comprehensive plan amendment/zone change of five properties (assessor parcels 125185000, 125193000, 127367000, 127372000, and 986055381) located at/near 4345 NW 16th Avenue in Camas, Washington. The proposal will rezone the five properties from *Community Commercial* (CC) and *Business Park* (BP) to *Multifamily-18* (MF-18).

The purpose of this memorandum is to examine and address potential transportation-related impacts from the proposed zone change. This study reviews the site's trip generation potential under both the existing and proposed zoning designations.

Location Description

The project site is located north of NW 16th/18th Avenue, south of NW Pacific Rim Boulevard, and west of NW Brady Road in Camas, Washington. The subject site is located in a developing mixed-use area of the City, with undeveloped & commercial/industrial uses to the north, Prune Hill Elementary School & single-family residential uses to the south, single-family residential uses to the east, and Discovery High School to the west.

The site includes five properties which encompass an approximate total of 30.99 acres. Each parcel is currently zoned and developed with the following:

- Assessor Parcel 125185000: BP, Undeveloped (11.15 acres)
- Assessor Parcel 125193000: BP, Undeveloped (8.56 acres)
- Assessor Parcel 127367000: CC, Nursery/Single-Family Residence (4.19 acres)
- Assessor Parcel 127372000: CC, Undeveloped/Outdoor Storage (2.39 acres)
- Assessor Parcel 986055381: BP, Undeveloped (4.7 acres)

Figure 1 presents an aerial image of the nearby vicinity with the project site outlined in yellow.



Figure 1: Aerial Photo of Site Vicinity (Image from Google Earth)

Site Trips

To determine the potential impacts of the proposed change in zoning, reasonable worst-case development scenarios for the existing and proposed zones were determined utilizing data for the most traffic-intensive uses permitted within each zone.

Existing CC and BP Zone

To determine a reasonable worst-case development scenario under the existing zoning, City of Camas Code Section 18.07.030, *Table 1 – Commercial and Industrial Land Uses*, was referenced and compared to a variety of land uses provided in the *Trip Generation Manual*¹. Land uses outright permitted in each zone were compared to land uses provided in the *Trip Generation Manual*. Based on this assessment, data from the following land use codes were used:

- CC Zone: 822, *Shopping Plaza (40-150k)*, based on the square footage of gross building floor area.
- BP Zone: 770, *Business Park*, based on the square footage of gross building floor area.

The existing CC zone area encompasses approximately 6.58 acres (i.e. approximately 286,600 square feet) of developable space while the existing BP zone area encompasses approximately 24.41 acres (i.e. approximately 1,063,300 square feet) of developable space. Per Camas Code Section 18.09.030, *Density and Dimensions – Commercial and Industrial Zones*, the CC zone does not have a maximum lot coverage whereas the BP zone has a maximum building lot coverage of 50%. Although the CC zone does not have a maximum lot coverage

¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 11th Edition, 2021.

standard, it is assumed that any potentially proposed retail/commercial buildings would cover approximately 30% of the developable area while the remaining 70% of space would be dedicated to parking, public space, ROW improvements, etc. Assuming all buildings in each zone will be single story structures, the following may be constructed in each zone:

- CC Zone: Approximately 86,000 square feet of commercial building space.
- BP Zone: Approximately 531,700 square feet of commercial building space.

The reasonable worst-case development under the existing CC zone (i.e. ITE code 821) is expected to attract pass-by trips to the site. Pass-by trips are trips that leave adjacent roadways to patronize a land use and then continue in their original direction of travel. They do not add additional vehicles to the surrounding transportation system; however, they do add additional turning movements at site access intersections. A pass-by trip rate of 40 percent during the evening peak hour was determined using data from ITE code 821 of the *Trip Generation Manual*. For the purposes of this analysis, it is assumed that the morning peak hour and daily pass-by trip rates will approximately match the evening peak hour pass-by trip rate.

Proposed MF-18 Zone

To determine a reasonable worst-case development scenario under the proposed MF-18 zone, Camas Code Section 18.07.040, *Table 2 – Residential and Multifamily Land Uses*, was referenced and compared to a variety of land uses provided in the *Trip Generation Manual*. Based on an assessment of permitted uses that could reasonably be developed within the approximate 30.99-acre site, data from land use code 220, *Multifamily Housing (Low-Rise)*, was referenced to estimate the trip generation potential of the site based on the number of dwelling units.

To determine a dwelling unit count within the site, the maximum unit per net acre density rate from City code was referenced from Section 18.09.050, *Density and Dimensions – Multifamily Residential Zones*. Under an MF-18 zone a maximum 18 dwelling units per net acre of developable space can be constructed. For the purposes of this analysis it is assumed that a reasonable 20 percent reduction in site buildable area will be necessary to accommodate streets/right-of-way improvements, public space, etc. When considering the units per net acre density and the total site acreage, the reasonable worst-case development scenario of the proposed MF-18 zone may include the construction of 446 multifamily dwelling units over 24.79 net acres of developable space.

Trip Generation Comparison

The trip generation calculations show that under the existing CC and BP zones the subject site could reasonably generate up to 900 net new morning peak hour trips, 1,116 net new evening peak hour trips, and 11,490 net new average weekday trips. Under the proposed MF-18 zone the site could reasonably generate up to 178 morning peak hour trips, 227 evening peak hour trips, and 3,006 average weekday trips. Accordingly, the net change in trip generation potential of the site after the proposed rezone is projected to decrease by 722 morning peak hour trips, 889 evening peak hour trips, and 8,484 average weekday trips.

The trip generation estimates are summarized in Table 1. Detailed trip generation calculations are included as an attachment to this memorandum.



Table 1: Zone Change Trip Generation Summary

ITE Code	Size/Rate	AM Peak Hour			PM Peak Hour			Weekday Total	
		Enter	Exit	Total	Enter	Exit	Total		
Existing CC Zone									
Shopping Plaza (40-150k)	821	86,000 SF	188	116	304	373	404	777	8,126
<i>Pass-by Trips</i>	821	40%	61	61	122	155	155	310	3,250
Primary Trip Generation			127	55	182	218	249	467	4,876
Existing BP Zone									
Business Park	770	531,700 SF	610	108	718	169	480	649	6,614
Proposed MF-18 Zone									
Multifamily Housing (Low-Rise)	220	446 units	43	135	178	143	84	227	3,006
Net Change In Site Trip Generation Potential									
Existing Conditions (Primary Trips)			737	163	900	387	729	1,116	11,490
Proposed Conditions (Primary Trips)			43	135	178	143	84	227	3,006
Net Change in Trip Generation Potential			-694	-28	-722	-244	-645	-889	-8,484

Based on the trip generation analysis the proposed zone change is expected to result in a decrease in the trip generation potential of the site for both the morning and evening peak hours as well as for a typical weekday. Since the proposal is expected to nominally impact the surrounding transportation facilities, it's recommended that no transportation impact analysis will be necessary to capture the impacts of the proposal and no specific intersection will require study. Instead the preparation of this trip generation memorandum is sufficient to report the projected impacts of the comprehensive plan amendment/zone change.

If you have any questions or concerns regarding this analysis or need further assistance, please don't hesitate to contact us.





TRIP GENERATION CALCULATIONS
 Source: Trip Generation Manual, 11th Edition
 Existing CC Zone

Land Use: Shopping Plaza (40-150k)
 Land Use Code: 821
 Land Use Subcategory: All Sites
 Setting/Location: General Urban/Suburban
 Variable: 1000 SF GFA
 Trip Type: Vehicle
 Variable Quantity: **86**

AM PEAK HOUR

Trip Rate: 3.53

	Enter	Exit	Total
Directional Split	62%	38%	
Trip Ends	188	116	304

PM PEAK HOUR

Trip Rate: 9.03

	Enter	Exit	Total
Directional Split	48%	52%	
Trip Ends	373	404	777

WEEKDAY

Trip Rate: 94.49

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	4,063	4,063	8,126

SATURDAY

Trip Rate: 116.15

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	4,994	4,994	9,988



TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition
Existing BP Zone

Land Use: Business Park
Land Use Code: 770
Land Use Subcategory: All Sites
Setting/Location: General Urban/Suburban
Variable: 1000 SF GFA
Trip Type: Vehicle
Variable Quantity: **531.7**

AM PEAK HOUR

Trip Rate: 1.35

	Enter	Exit	Total
Directional Split	85%	15%	
Trip Ends	610	108	718

PM PEAK HOUR

Trip Rate: 1.22

	Enter	Exit	Total
Directional Split	26%	74%	
Trip Ends	169	480	649

WEEKDAY

Trip Rate: 12.44

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	3,307	3,307	6,614

SATURDAY

Trip Rate: 2.56

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	681	681	1,362



TRIP GENERATION CALCULATIONS
Source: Trip Generation Manual, 11th Edition
Proposed MF-18 Zone

Land Use: Multifamily Housing (Low-Rise)
Land Use Code: 220
Land Use Subcategory: Not Close to Rail Transit
Setting/Location: General Urban/Suburban
Variable: Dwelling Units
Trip Type: Vehicle
Variable Quantity: **446**

AM PEAK HOUR

Trip Rate: 0.4

	Enter	Exit	Total
Directional Split	24%	76%	
Trip Ends	43	135	178

PM PEAK HOUR

Trip Rate: 0.51

	Enter	Exit	Total
Directional Split	63%	37%	
Trip Ends	143	84	227

WEEKDAY

Trip Rate: 6.74

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	1,503	1,503	3,006

SATURDAY

Trip Rate: 4.55

	Enter	Exit	Total
Directional Split	50%	50%	
Trip Ends	1,015	1,015	2,030

Caution: Small Sample Size

