



March 7, 2019

Tim Bush
Bush Property LLC
520 W Columbia Drive
Kennewick, Washington 99336

Via email: nathan@knutzenengineering.com

Regarding: Trip Generation Letter
 Bush Carwash Spokane
 Parcel Number 25292.9066
 Spokane, Washington
 PBS Project 71385.000

Dear Mr. Bush:

This letter presents trip generation information supporting the proposed Bush Carwash Spokane project within the City of Spokane (City).

PROJECT DESCRIPTION

The Bush Carwash Spokane project proposes to develop a seven-lot commercial subdivision with an automated carwash facility on Lot 1, a drive-through coffee shop with indoor seating on Lot 2, and one commercial building on each of Lots 3 through 7 to be used as either restaurants, offices, or retail facilities. For the purpose of this trip generation letter, land uses were assumed for lots 3 through 7. The development will take place on parcel 25292.9066, a 4.54-acre site located on the north side of W Hilton Avenue and the south side of State Highway 2, between S Flint Road to the west and Technology Boulevard to the east. See Figure 1 for the project vicinity map.

The project will develop a parcel of land which will provide access to all its proposed lots and buildings via W Hilton Avenue to the south from either S Flint Road to the west or Technology Boulevard to the east. There exists an access easement through the driveways on the adjacent Hilton Garden Inn site on the west side of the lot. The easement provides access from the site to State Highway 2 via the hotel's right-in and right-out driveway.

The project is proposed to be implemented in two phases. Phase 1 will consist of development on Lots 1 and 2 beginning in 2019 with completion and full occupancy anticipated in May 2020. Phase 2 will consist of construction and occupancy of the other five buildings on the remaining five lots. It is anticipated the buildings in the remaining five lots will be fully constructed and occupied by 2030. A copy of the preliminary site plan is attached to show both the lot and future building layout.

PROJECT TRIPS

Trip Generation

Trips to be generated by the Bush Carwash Spokane project were estimated using a land use model within the Institute of Transportation Engineers (ITE) *Trip Generation Manual*.¹ *Automated car wash* (ITE land use code 948) was selected for the proposed carwash on Lot 1, *coffee/donut with drive-through window* (ITE land use code 937)

¹ Institute of Transportation Engineers (ITE), *Trip Generation Manual*, 9th Edition (2012).

was selected for the coffee shop on Lot 2, *fast food restaurant without drive-through window* (ITE land use code 933) was selected for Lot 3, *high-turnover (sit-down) restaurant* (ITE land use code 932) was selected for Lot 4, *general office* (ITE land use code 710) was chosen for Lots 5 and 7, and *shopping center* (ITE land use code 820) was chosen for Lot 6. For the land use model, the number of 1,000 gross square feet was selected as the independent variable input to the ITE weighted average rates.² A reduction was made for pass-by trips in lots 4 and 6 based on ITE pass-by rates², but not internal trip capture.

Table 1 presents a summary of the proposed building square footages and uses on each of the proposed seven lots. Tables 2, 3, and 4 present a summary of the trip generation calculations. The detailed trip calculations for each lot are attached for reference as Appendix A.

Table 1. Lot and Land Use Summary for Bush Carwash Spokane

Lot	Phase	Land Use	ITE Code	Pass-By Rate	Building Square Footage
1	1	Automated Car Wash	948	0	6,350
2	1	Coffee/Donut with drive-through window	937	0	1,248
3	2	Fast Food Restaurant w/o drive-through window	933	0	3,843
4	2	High-Turnover (sit-down) Restaurant	932	43%	9,321
5	2	General Office	710	0	3,335
6	2	Shopping Center	820	34%	10,682
7	2	General Office	710	0	5,672

Tables 3 and 4 summarize the net trips generated with the pass-by trips from lots 4 and 6 subtracted from the total trips. For the trip assignments shown in Phase 2 trips, the total number of trips were used.

Table 2. Trip Generation Summary for Bush Carwash Spokane Phase 1

Land Use (ITE Code)	Varies	
Independent Variable	1,000 Gross Square Feet	
Proposed Size	Varies	
Average Weekday Trips (ADT)	1,023	
Peak Hour Trips	Weekday AM Peak Hour (7:00–9:00 AM)	Weekday PM Peak Hour (4:00–6:00 PM)
Entering	64	72
Exiting	62	72
Total Trips	126	144

² Guidance in the ITE *Trip Generation Handbook*, 2nd Edition (2004).

Table 3. Trip Generation Summary for Bush Carwash Spokane Phase 2

Land Use (ITE Code)	Varies	
Independent Variable	1,000 Gross Square Feet	
Proposed Size	Varies	
Average Weekday Trips (ADT)	4,481	
Peak Hour Trips	Weekday AM Peak Hour (7:00–9:00 AM)	Weekday PM Peak Hour (4:00–6:00 PM)
Entering	172	127
Exiting	118	116
Total Trips	290	243

Table 4. Trip Generation Summary for Bush Carwash Spokane Phases 1 and 2

Land Use (ITE Code)	Varies	
Independent Variable	1,000 Gross Square Feet	
Proposed Size	Varies	
Average Weekday Trips (ADT)	5,504	
Peak Hour Trips	Weekday AM Peak Hour (7:00–9:00 AM)	Weekday PM Peak Hour (4:00–6:00 PM)
Entering	236	199
Exiting	180	188
Total Trips	416	387

Trip Distribution

A trip distribution pattern was estimated based on regional land use patterns, access restrictions to State Highway 2 at the site, and engineering judgment. The trip distribution is based on the following assumptions:

- Most trips will be to and from the highest population and density of Spokane, Washington
- Businesses at the site will rely on the traffic passing by the site traveling to and from Airway Heights to Spokane, Washington
- Businesses at the site will be associated with patrons of the Spokane International Airport

Site-generated trips were estimated to distribute as follows:

- 25 percent to and from the Spokane International Airport on S Flint Road
- 15 percent to and from Airway Heights on State Highway 2
- 60 percent to and from Spokane on State Highway 2

The project trips and their distribution within the study area are shown on Figure 3. The project trips were assigned to the following intersections and driveways:

- Hilton Avenue/site driveway
- State Highway 2/Hilton Garden Inn driveway
- State Highway 2/Flint Road
- State Highway 2/Technology Boulevard

See Figure 3 for the PM peak hour trip assignment for Phases 1 and 2.

Please feel free to contact me at 360.695.3488 or john.manix@pbsusa.com with any questions or comments.

Sincerely,



Digitally signed by John
Manix
Date: 2019.03.07 16:15:06
-08'00'

John Manix, PE
Senior Traffic Engineer

Attachments: Figure 1: Vicinity Map
Figure 2: Preliminary Site Plan
Figure 3: Trip Distribution and Assignment
Appendix A: Trip Generation Calculations



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John Manix
Date: 2019.03.07
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AMS:JAM:mo

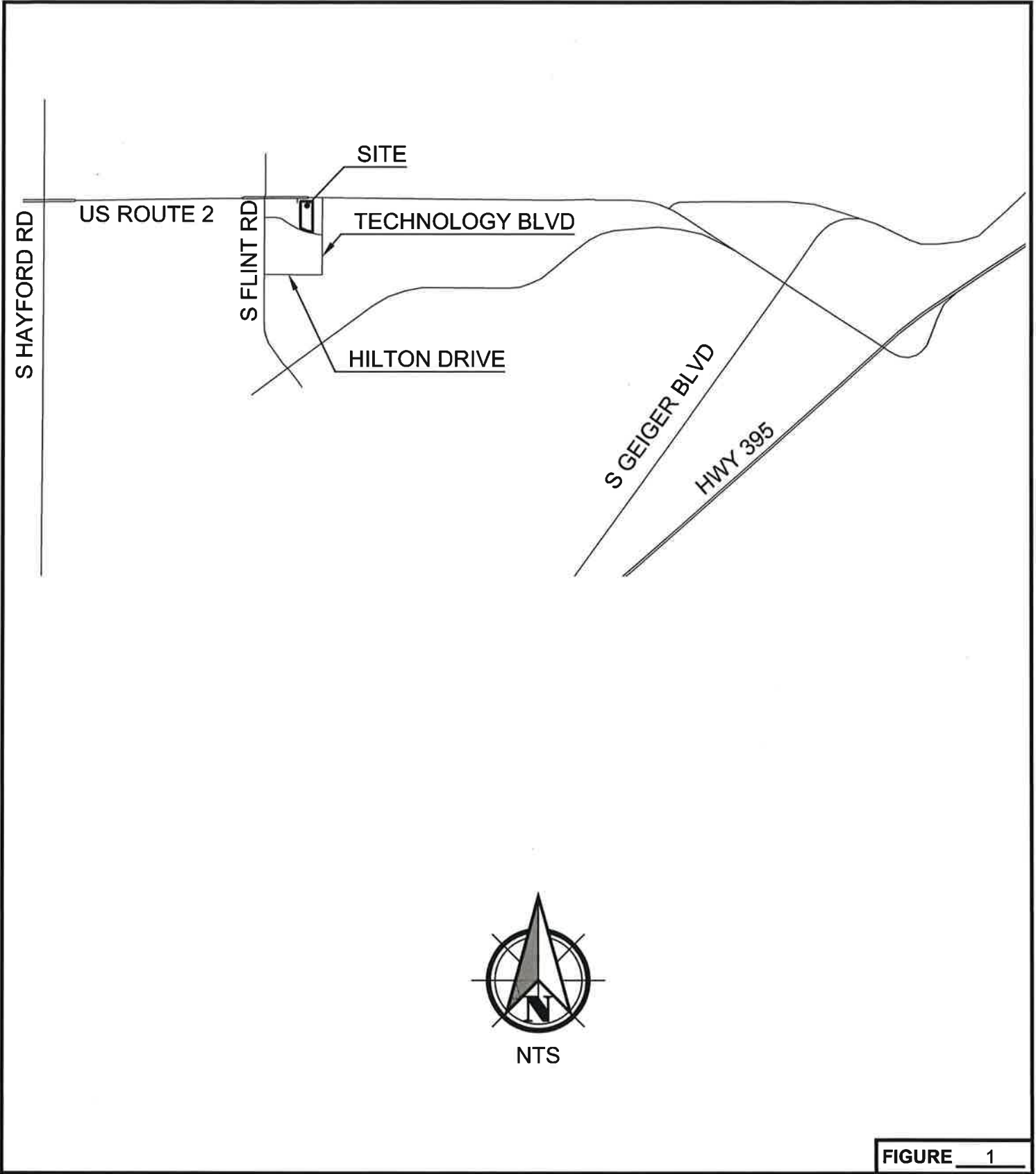


FIGURE 1



Vicinity Map Bush Carwash Spokane

HILTON GARDEN INN DRIVEWAY
(RIGHT-IN & RIGHT-OUT)

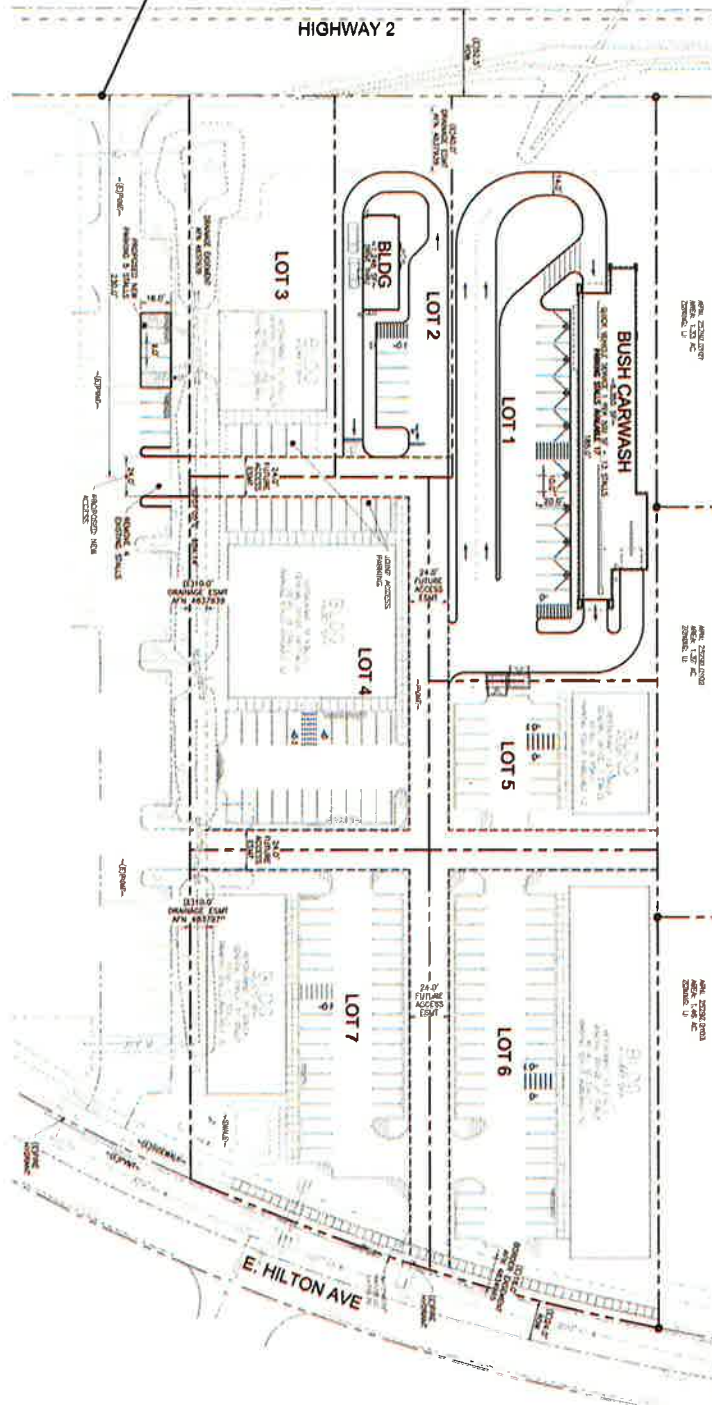
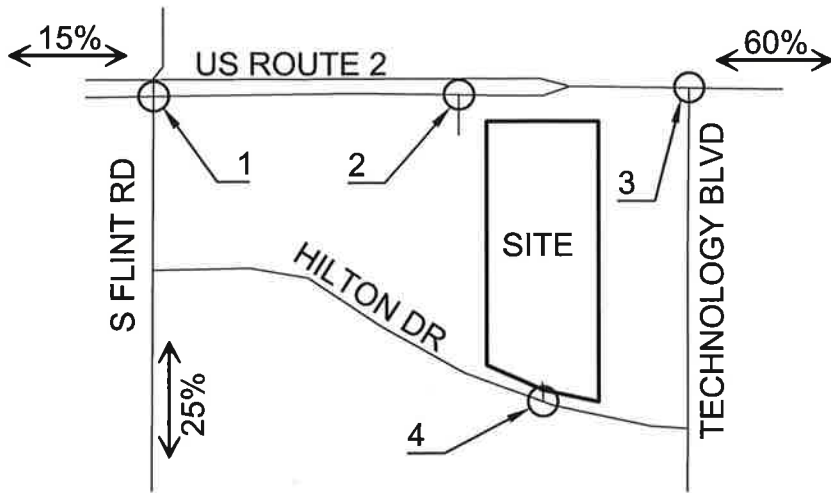


FIGURE 2



Site Plan
Bush Carwash Spokane



NTS

LEGEND

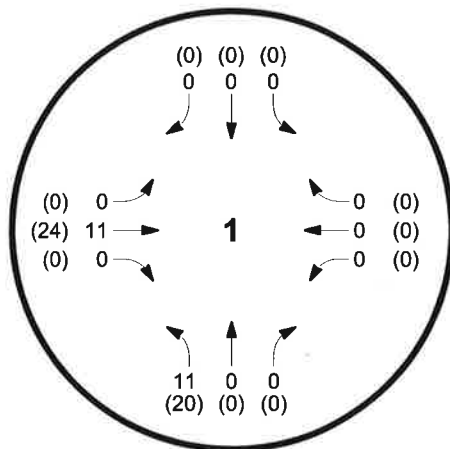
- INTERSECTION / DRIVEWAY
- XXX PHASE 1
- (XXX) PHASE 2

TOTAL
PHASE 1
PM TRIPS

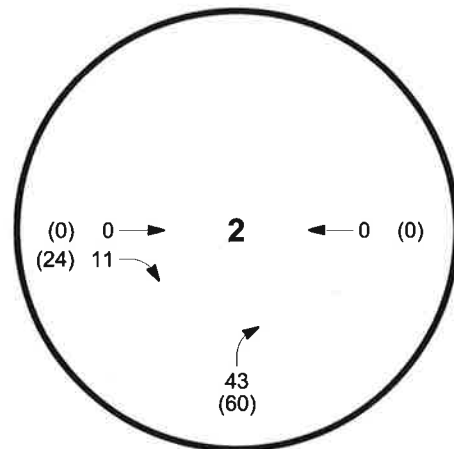
IN 72
OUT 72
TOTAL 144

TOTAL
PHASE 2
PM TRIPS

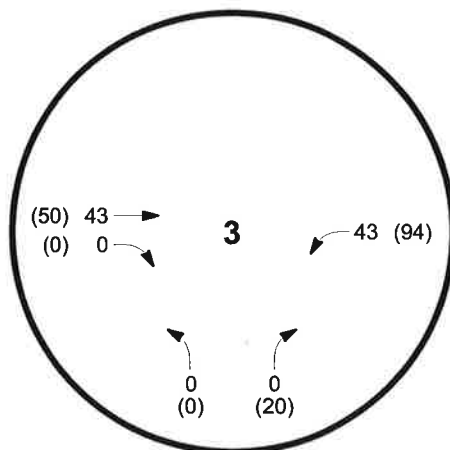
IN 157
OUT 133
TOTAL 290



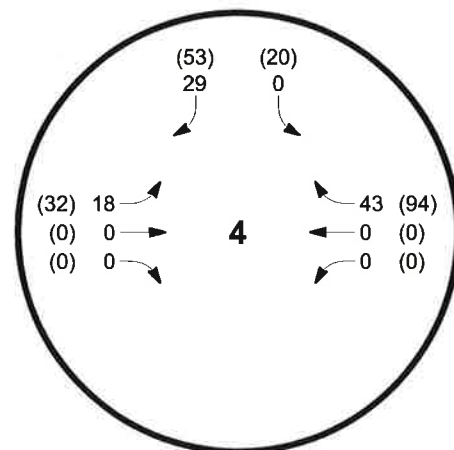
US Route 2 /
S Flint Road



US Route 2 /
Hilton Garden Inn Driveway



US Route 2 /
Technology Boulevard



Site Driveway /
Hilton Drive

FIGURE 3



Trip Distribution and Assignment Bush Carwash Spokane

ITE Trip Generation

Trip Generation Based on Weighted Average Rates
 PBS Engineering and Environmental

General			
Land Use Code	Automated Car Wash		
Independent Variable	1,000 Sq Ft		
Size (X)	6.35	ITE Edition	
ITE Land Use Code	948	9	

Date: 3/6/2019 Analyst: Project: JAM Bush Carwash Spokane
 PBS Project No. 71385.000

	In	Out	Total
Average Weekday	0	0	0
New Trips	0	0	0
AM Peak Hour for adjacent street	0	0	0
New Trips	0	0	0
PM peak hour for adjacent street	45	45	90
New Trips	45	45	90

Lot 1 Bush Carwash, an automated carwash facility

Analysis Period	Weekday		
Average Rate	Rate	Trips	
	0.00	0	
Entering / Exiting			
% entering	0%	0	
% exiting	0%	0	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		0	0
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		0	0

Analysis Period	AM Peak Hour for adjacent street		
Average Rate	Rate	Trips	
	0.00	0	
Entering / Exiting			
% entering	0%	0	
% exiting	0%	0	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		0	0
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		0	0

Analysis Period	PM peak hour for adjacent street		
Average Rate	Rate	Trips	
	14.12	90	
Entering / Exiting			
% entering	50%	45	
% exiting	50%	45	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		45	45
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		45	45

ITE Trip Generation

Trip Generation Based on Weighted Average Rates
 PBS Engineering and Environmental

General			
Land Use Code	Coffee/Donut with drive-through window		
Independent Variable	1,000 Sq Ft		
Size (X)	1.25	ITE Edition	
ITE Land Use Code	937	9	

Date: 3/6/2019 Analyst: Project:
 JAM Bush Carwash Spokane
 PBS Project No. 71385.000

	In	Out	Total
Average Weekday	512	512	1,023
New Trips	512	512	1,024
AM Peak Hour for adjacent street	64	62	126
New Trips	64	62	126
PM peak hour for adjacent street	27	27	54
New Trips	27	27	54

Lot 2 Coffee Shop with a drive-through window, plus indoor seating

Analysis Period	Weekday		
Average Rate	Rate	Trips	
	818.58	1,023	
Entering / Exiting			
% entering	50%	512	
% exiting	50%	512	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		512	512
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		512	512

Analysis Period	AM Peak Hour for adjacent street		
Average Rate	Rate	Trips	
	100.58	126	
Entering / Exiting			
% entering	51%	64	
% exiting	49%	62	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		64	62
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		64	62

Analysis Period	PM peak hour for adjacent street		
Average Rate	Rate	Trips	
	42.80	54	
Entering / Exiting			
% entering	50%	27	
% exiting	50%	27	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		27	27
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		27	27

ITE Trip Generation

Trip Generation Based on Weighted Average Rates
 PBS Engineering and Environmental

General			
Land Use Code	Fast Food Restaurant w/o drive-through		
Independent Variable	1,000 Sq Ft		
Size (X)	3.84	ITE Edition	
ITE Land Use Code	933	9	

Date: 3/6/2019 Analyst: Project:
 JAM Bush Carwash Spokane
 PBS Project No. 71385.000

	In	Out	Total
Average Weekday	1,375	1,375	2,749
New Trips	1,375	1,375	2,750
AM Peak Hour for adjacent street	101	67	168
New Trips	101	67	168
PM peak hour for adjacent street	51	49	100
New Trips	51	49	100

Lot 3 fast food restaurant without a drive-through window

Analysis Period	Weekday		
Average Rate	Rate		Trips
	716.00		2,749
Entering / Exiting			
% entering	50%		1,375
% exiting	50%		1,375
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		1,375	1,375
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		1,375	1,375

Analysis Period	AM Peak Hour for adjacent street		
Average Rate	Rate		Trips
	43.87		168
Entering / Exiting			
% entering	60%		101
% exiting	40%		67
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		101	67
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		101	67

Analysis Period	PM peak hour for adjacent street		
Average Rate	Rate		Trips
	26.15		100
Entering / Exiting			
% entering	51%		51
% exiting	49%		49
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		51	49
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		51	49

ITE Trip Generation

Trip Generation Based on Weighted Average Rates
 PBS Engineering and Environmental

General			
Land Use Code	High-Turnover(Sit-down) Restaurant		
Independent Variable	1,000 Sq Ft		
Size (X)	9.32	ITE Edition	
ITE Land Use Code	932	9	

Date: 3/6/2019 Analyst: Project:
 JAM Bush Carwash Spokane
 PBS Project No. 71385.000

	In	Out	Total
Average Weekday	593	593	1,185
New Trips	338	338	676
AM Peak Hour for adjacent street	56	45	101
New Trips	32	26	58
PM peak hour for adjacent street	55	37	92
New Trips	31	21	52

Lot 4 Sit-down Restaurant

Analysis Period	Weekday		
Average Rate	Rate		Trips
	127.15		1,185
Entering / Exiting			
% entering	50%		593
% exiting	50%		593
New Trips			
% internal			
% pass-by	43%		
		In	Out
Total Trips		593	593
Internal Trips		0	0
Pass-By Trips		255	255
New Trips		338	338

Analysis Period	AM Peak Hour for adjacent street		
Average Rate	Rate		Trips
	10.81		101
Entering / Exiting			
% entering	55%		56
% exiting	45%		45
New Trips			
% internal			
% pass-by	43%		
		In	Out
Total Trips		56	45
Internal Trips		0	0
Pass-By Trips		24	19
New Trips		32	26

Analysis Period	PM peak hour for adjacent street		
Average Rate	Rate		Trips
	9.85		92
Entering / Exiting			
% entering	60%		55
% exiting	40%		37
New Trips			
% internal			
% pass-by	43%		
		In	Out
Total Trips		55	37
Internal Trips		0	0
Pass-By Trips		24	16
New Trips		31	21

ITE Trip Generation

Trip Generation Based on Weighted Average Rates
 PBS Engineering and Environmental

General			
Land Use Code	General Office Building (sf)		
Independent Variable	1,000 Sq Ft		
Size (X)	3.34	ITE Edition	
ITE Land Use Code	710	10	

Date: 3/6/2019 Analyst: Project: JAM Bush Carwash Spokane
 PBS Project No. 71385.000

	In	Out	Total
Average Weekday	17	17	33
New Trips	17	17	34
AM Peak Hour for adjacent street	3	1	4
New Trips	3	1	4
PM peak hour for adjacent street	1	3	4
New Trips	1	3	4

Lot 5 Office Building			

Analysis Period	Weekday		
Average Rate	Rate		Trips
	9.74		33
Entering / Exiting			
% entering	50%		17
% exiting	50%		17
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		17	17
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		17	17

Analysis Period	AM Peak Hour for adjacent street		
Average Rate	Rate		Trips
	1.16		4
Entering / Exiting			
% entering	86%		3
% exiting	14%		1
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		3	1
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		3	1

Analysis Period	PM peak hour for adjacent street		
Average Rate	Rate		Trips
	1.15		4
Entering / Exiting			
% entering	16%		1
% exiting	84%		3
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		1	3
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		1	3

ITE Trip Generation

Trip Generation Based on Weighted Average Rates
 PBS Engineering and Environmental

General			
Land Use Code	Shopping Center (sf)		
Independent Variable	1,000 Sq Ft		
Size (X)	10.68	ITE Edition	
ITE Land Use Code	820	9	

Date: 3/6/2019 Analyst: Project:
 JAM Bush Carwash Spokane
 PBS Project No. 71385.000

	In	Out	Total
Average Weekday	230	230	459
New Trips	152	152	304
AM Peak Hour for adjacent street	6	4	10
New Trips	4	3	7
PM peak hour for adjacent street	19	21	40
New Trips	13	14	26

Lot 6 Shopping Center

Analysis Period	Weekday		
Average Rate	Rate		Trips
	42.94		459
Entering / Exiting			
% entering	50%		230
% exiting	50%		230
New Trips			
% internal			
% pass-by	34%		
		In	Out
Total Trips		230	230
Internal Trips		0	0
Pass-By Trips		78	78
New Trips		152	152

Analysis Period	AM Peak Hour for adjacent street		
Average Rate	Rate		Trips
	0.96		10
Entering / Exiting			
% entering	62%		6
% exiting	38%		4
New Trips			
% internal			
% pass-by	34%		
		In	Out
Total Trips		6	4
Internal Trips		0	0
Pass-By Trips		2	1
New Trips		4	3

Analysis Period	PM peak hour for adjacent street		
Average Rate	Rate		Trips
	3.71		40
Entering / Exiting			
% entering	48%		19
% exiting	52%		21
New Trips			
% internal			
% pass-by	34%		
		In	Out
Total Trips		19	21
Internal Trips		0	0
Pass-By Trips		6	7
New Trips		13	14

ITE Trip Generation

Trip Generation Based on Weighted Average Rates

PBS Engineering and Environmental

General			
Land Use Code	General Office Building (sf)		
Independent Variable	1,000 Sq Ft		
Size (X)	5.67	ITE Edition	
ITE Land Use Code	710	10	

Date:
3/6/2019

Analyst: Project:
JAM Bush Carwash Spokane
PBS Project No. 71385.000

	In	Out	Total
Average Weekday	28	28	55
New Trips	28	28	56
AM Peak Hour for adjacent street	6	1	7
New Trips	6	1	7
PM peak hour for adjacent street	1	6	7
New Trips	1	6	7

Lot 7 Office Building

Analysis Period	AM Peak Hour for adjacent street		
Average Rate	Rate	Trips	
	1.16	7	
Entering / Exiting			
% entering	86%	6	
% exiting	14%	1	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		6	1
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		6	1

Analysis Period	Weekday		
Average Rate	Rate	Trips	
	9.74	55	
Entering / Exiting			
% entering	50%	28	
% exiting	50%	28	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		28	28
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		28	28

Analysis Period	PM peak hour for adjacent street		
Average Rate	Rate	Trips	
	1.15	7	
Entering / Exiting			
% entering	16%	1	
% exiting	84%	6	
New Trips			
% internal			
% pass-by	0%		
		In	Out
Total Trips		1	6
Internal Trips		0	0
Pass-By Trips		0	0
New Trips		1	6